

**Developing a comprehensive nutrition workforce planning framework for
the public health sector to respond to the nutrition-related burden in South
Africa**

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A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in
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Keywords

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Role delineation

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Nutrition workforce development and capacity




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Declaration

I declare that “*Developing a comprehensive nutrition workforce framework for the public health sector to respond to the nutrition-related burden in South Africa*” is my work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

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Signed: 



Date: 9 November 2018

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I am grateful for the grace of God, and for the opportunities and blessings in my life.

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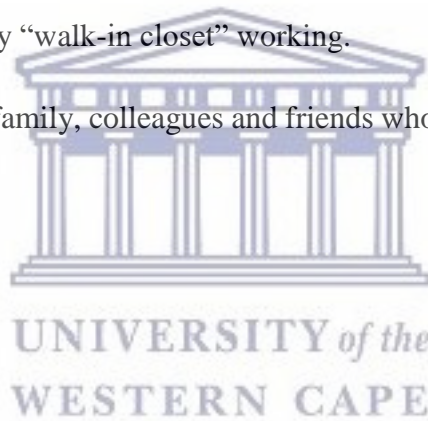
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Dedication

To all students who have to work full time, study part time and are parents.

Those of us who experienced many education challenges in the eighties during periods of unrest – we were not sure if we would ever finish matric, let alone go on to greater things.

Let us keep on persevering, commit to lifelong learning and never let excuses get in the way of our dreams.



Abstract

Developing a comprehensive nutrition workforce planning framework for the public health sector to respond to the nutrition-related burden in South Africa

H.D. Goeiman

Submitted for the Doctor of Philosophy, School of Public Health, Faculty of Community and Health Sciences, University of the Western Cape

South Africa has not responded well to recommendations in national evaluation reports to address human resource challenges associated with the implementation of nutrition programmes and improved service delivery. Twenty-four years have passed since the dawning of democracy and the nutrition situation within the population has actually deteriorated, with persistently high levels of stunting in young children and the growing prevalence of overweight and obesity in all age groups. These conditions not only rob people of their potential, but they carry a high cost for the state and society as a whole. This study aimed to develop a comprehensive and empirically sound nutrition workforce development planning framework for the public health sector so that it is better equipped to address the nutrition-related burden of disease in South Africa.

The study explored the provision of nutrition services in South Africa, focusing on the nutrition-specific work components of health personnel – doctors, nurses, dietitians, nutritionists, health promoters and community health workers working at the primary health care level in the public health sector. Evidence-based workforce information was collected through a mixed methodology comprising: literature reviews, document reviews, analysis of scopes of practice, job descriptions, competencies, workforce surveys, key informant interviews and consensus assessments through the application of the Delphi technique. Permission was obtained to adapt and use questionnaires from an Australian workforce study. Ethical approval, permission to conduct the study and informed consent were obtained prior to the commencement of the interviews. Data was then analysed using descriptive statistics, content and thematic analysis and triangulation of all findings, followed by consensus assessments to describe the nutrition workforce and delineate the roles and functions thereof. The comprehensive planning framework that was developed was applied to the Western Cape province.

The study identified significant shortcomings in workforce development and the capacity of many practitioners to do the work, for lack of know-how, time, physical infrastructure, and emotional and managerial support, among other factors. On the basis of the findings, a number of recommendations were made, including the following: that more, and more reliable, information should be sourced to fill knowledge gaps; that the nutrition workforce should be properly defined and key personnel roles and functions clearly delineated – particularly to eliminate the current confusion between professionals’ scope of responsibility and scope of practice; and that a workforce development planning framework be constructed to inform and guide future nutrition and other health-related workforce planning in South Africa.



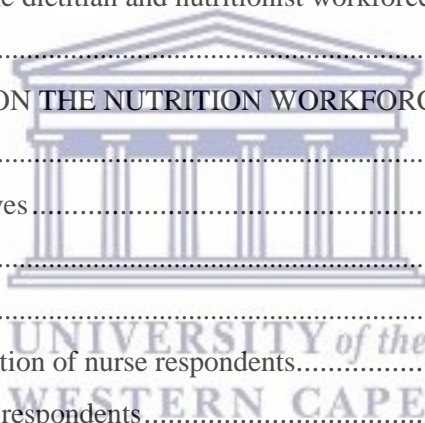
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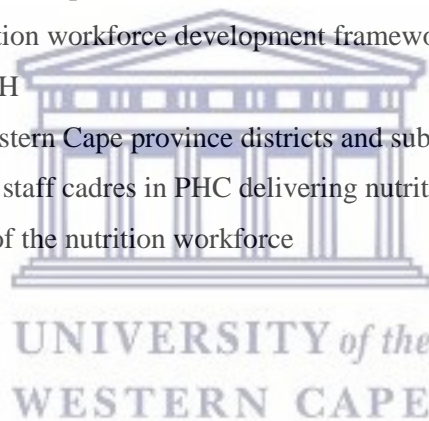


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List of Acronyms and Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
BoD	Burden of Disease
CBS	Community-Based Services
CD	Communicable Disease
CHW	Community Health Worker
CPD	Continuing Professional Development
CDPs	Community Development Practitioners
DHS	District Health System
DoH	Department of Health
DPME	Department of Planning, Monitoring and Evaluation
DR	Doctor
DT	Dietitian
FBS	Facility-Based Services
FNSP	Food and Nutrition Security Plan
HIV	Human Immunodeficiency Virus
HP	Health Promotion
HPCSA	Health Professions Council of South Africa
HR	Human Resources
HRH	Human Resources for Health
HRP	Human Resource Planning
INP	Integrated Nutrition Programme
JD	Job Description
MDGs	Millennium Development Goals
MDT	Multidisciplinary Team
NCD	Non-Communicable Disease
NDOH	National Department of Health
NDP	National Development Plan
NGO	Non-Governmental Organisation
NHI	National Health Insurance
NPO	Non-Profit Organisation
NT	Nutritionist
PHC	Primary Health Care
PHN	Public Health Nutrition
PHNT	Public Health Nutritionist
PN	Professional Nurse
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
SADHS	South Africa Demographic Health Survey
SANC	South African Nursing Council
SANHANES	South African National Health and Nutrition Examination Survey
SAQA	South African Qualifications Authority
SDGs	Sustainable Development Goals
SoP	Scope of Practice
SoR	Scope of Responsibility

SUN	Scaling up Nutrition
TB	Tuberculosis
UHC	Universal Health Coverage
UN	United Nations
WCP	Western Cape Province
WF	Workforce
WFD	Workforce Development
WHO	World Health Organization
WPHNA	World Public Health Nutrition Association



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CHAPTER 1: INTRODUCTION

This introductory chapter offers an overview of the thesis on workforce development focussing on nutrition workforce planning and preparation in the public health sector. The background to the role of workforce development within the health system and the provisions for health and nutrition services in the South African context are provided. In addition, the nutrition-related Burden of Disease and the impact on health outcomes are examined. A public health nutrition (PHN) intelligence framework for workforce development is introduced and opportunities for adaptation and application in the South African context are then explored.

The problem statement, rationale, aim, research questions and objectives, and significance of the research are described to indicate the various workforce development lenses applied in the study. A detailed outline of the thesis chapters is provided (see Figure 1.2) and the chapter concludes with a list of the references used.

1.1 Background

Ensuring better health outcomes is the primary goal of a health system. It is recognised that human resources are the most important inputs into the health system as they influence whether interventions will occur at an individual or population level. The performance of health care systems depends on the knowledge, skills and motivation of the people responsible for delivering services (WHO, 2000; Kabene et al., 2006).

Human resource inputs have been found to be extremely complex when examined in a global context, even more so in developing countries due to limited resources, workplace training challenges, differences between rural and urban areas, and the increasing Burden of Disease (BoD) (Kabene et al., 2006).

Workforce development includes strategies for workforce planning, capacity-building and human resource management (Kugelberg et al., 2012). The objective of health workforce development is to ensure that the service has the right number of personnel (quantity), in the right combinations (skills mix), with the right skills, attitudes (knowledge) and competencies (quality), available in the right place (geography), at the right time (short- and long-term planning), and at the right price (budget and remuneration) to respond to the needs of those they serve (WHO, 2006; Green, 2007; Lehmann, 2007).

Dreesch et al. (2005) report how governments struggle to ensure that they have the right number and the right distribution of health workers with the right skills available (Dreesch et al., 2005). To manage workforce development, all relevant stakeholders and past experiences should be taken into account (NDOH, 2004). To strengthen the health workforce, multifaceted approaches are required to coordinate and monitor the composition, size and structure of the workforce to meet the desired health outcomes (Castillo-Laborde, 2011).

Nutrition services are provided within a health system as part of a package of comprehensive services (NDOH, 2011). South Africa has no standardised approach to planning for the nutrition workforce to ensure that it has the right staff, who are doing the right things, at the right time and place, to address the nutrition-related Burden of Disease and to provide universal health care to the population, as highlighted in the nutrition interventions for children under-5 report (DPME, 2014).

1.2 South African health system planning

The South African health system has undergone reform since the advent of democracy in 1994, guided by the National Health Act 2004, No. 61 of 2003, in order to promote and improve the delivery of health services. The national health system incorporates the public and the private sectors as well as individual elements aimed at improving the quality of health services, which are: structures, governance, financing, human resources, management and delivery of health services (Republic of South Africa, 2004).

The National Department of Health (NDOH) is striving to improve the health profile of all South Africans and has outlined in its strategic plans the priorities that will be tackled in five-year periods. The 2015–2020 plan specifies the vision, goals, strategies and indicators that need to be achieved in this period by the public health sector. The strategic plan is aligned with other plans in the country such as the National Development Plan (NDP) 2030 and international blueprints such as the UN Sustainable Development Goals (SDGs). Notably, the goals are designed to strengthen the health system, improve health outcomes and improve the human resources supporting the health system (NDOH, 2017).

Owing to the growing quadruple Burden of Disease, one of the key priorities is to strengthen the health system through the re-engineering of primary health care (PHC), focussing in particular on TB and maternal and child health outcomes. Operation Phakisa, which was launched in 2014, is a South African government programme aimed at fast-tracking the implementation of critical development initiatives. “Phakisa” means “hurry up” in Sesotho and

is a call for the health sector to take a leap forward to realise its vision of: “A long and healthy life for all South Africans” (NDOH, 2015: 11). Other priorities are to improve and strengthen health services and ensure adequate infrastructure at clinics and hospitals (NDOH, 2017).

Primary health care constitutes the bottom layer in the full range of health services, delivered through the district health system (DHS). The focus of PHC re-engineering is to do the basics better, through primary care facilities that deliver comprehensive services (promotive, preventive and curative) to a defined population (WHO, 2011b). It involves attaching more importance to the population-based outcomes through the provision of community-based services, using community health workers (CHWs) within the teams that provide the services. District management teams are given the responsibility of delivering services to the population closest to where they reside and are accountable for managing a district (UCT, 2011). The intention is that users of the services are more involved and take responsibility for their own health through active participation in preventive and promotive activities. Outreach into communities and homes of families is an integral part of the system and the team approach in municipal wards is valued. Clinical specialist teams at the district level have been assigned to support the system specifically to improve maternal and child health (Pillay & Barron, 2011; UCT, 2011; Fryatt & Hunter, 2015).

The health service has prioritised National Health Insurance (NHI), a financing system to achieve the objective of universal health coverage. It is foreseen that the ideal clinic concept will be implemented as part of NHI. The ideal clinic is understood to be at the centre of community-based PHC services which incorporate school health, ward-based outreach teams and environmental health (Fryatt & Hunter, 2015).

In moving towards implementation of a NHI system, a strong DHS with fully operative PHC will be required which includes the following: community-based services; a stronger emphasis on promotive and preventive services at household level; and other services such as oral, hearing, vision, rehabilitative and school health services. The services are to be aligned with the district hospital package, appropriate emergency medical care and patient transport (UCT, 2011; Pillay & Barron, 2011; NDOH, 2017). Plans are under way to implement NHI in a phased manner, focussing on the vulnerable groups in the population (NDOH, 2018). The NHI Bill was published on 21 June 2018 for public comment.

A sub-programme responsible for medium- to long-term health workforce planning, development and management in the national health system has been instituted. The components of the programme are: facilitating implementation of the national human resources

for health strategy; health workforce capacity development for sustainable service delivery; and development and co-ordination of transversal human resource management policies. Some of the other functions of the programme are: increasing the number of health professionals in the health sector; facilitating the implementation of the HRH (Human Resources for Health) strategy; developing health workforce staffing norms and standards; and facilitating in-service training of the health workforce, including CHWs (NDOH, 2017).

Deesch et al. (2005) highlight the importance of health planners and decision makers identifying what human resources are required to meet Millennium Development Goal (MDG) targets (Dreesch et al., 2005). In a commentary, Freer (2017) draws attention to the fact that lessons must be learned post the MDGs if the targets for universal health coverage by 2030 are to be achieved as part of the SDGs. He reiterates that workforce availability, distribution and performance are pivotal to the health system and that new ways are required to plan for HRH (Freer, 2017).

1.3 Overview of South Africa's health status

Population figures together with the social determinants of health (e.g. education, income, and access to food, water, sanitation and housing) are important aspects to consider when planning for health services.

Population

The mid-year population for South Africa in 2016 was estimated at 55.9 million people. Of the nine provinces, Gauteng had the largest proportion (23.9%) of the country's population followed by Kwazulu-Natal (19.8%); the Northern Cape had the smallest population (2.2%). Despite the fact that the respective populations of the Western Cape and Gauteng differ by 12.7%, both provinces receive the highest number of migrants – mainly from the Eastern Cape, Free State and Limpopo provinces. According to the annual performance plan of the NDOH 2017/2018, only about 18.1% of households in the country have medical aid cover while about 69.6% of households are dependent on public health facilities for health care (NDOH, 2017). The above figures show that the majority of the population are dependent on public health services.



Life expectancy

Life expectancy in South Africa increased between 2011 and 2016, with the Western Cape showing the highest life expectancy for men (64 years) and for women (69 years). Based on the 2016 estimates, KwaZulu-Natal has the lowest life expectancy, which can be attributed to the HIV epidemic in that province (NDOH, 2018).

Burden of Disease (BoD)

South Africa has a quadruple Burden of Disease (BoD) consisting of: HIV/AIDS (Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome) together with Tuberculosis (TB); maternal and child mortality; non-communicable diseases; and violence and injuries (NDOH, 2011).

Inequities exist in South Africa in terms of health service provision. Despite policies being in place to provide free health services and increase access to services, not enough progress has been made. Social determinants or non-medical factors such as upstream factors (e.g. poverty, unemployment, limited access to water and sanitation, poor housing and poor education) have significantly influenced health in South Africa. Upstream factors can be defined as “the macro factors that comprise social structural influences on health and health systems, government policies, and the social, physical, economic and environmental factors that determine health” (Bharmal et al., 2015: 1).

Unemployment in particular has remained fairly constant at about 27%, which has had an increasingly negative impact on health outcomes, the prevailing BoD and the ability of South Africa to address its social ills (NDOH, 2018).

The disease profile continues to reflect the challenges of the country in terms of its economic and geographic differences. Communicable diseases (mainly HIV and TB) remain the main problems, coupled with increases in the number of non-communicable diseases associated with age and lifestyle changes. Challenges with antimicrobial resistance make it even harder to eliminate infections as existing drugs become less effective and more clients present with resistance to disease (NDOH, 2015). Notwithstanding the fact that South Africa has introduced a successful antiretroviral therapy programme, HIV has remained amongst the leading causes of death, with high numbers of people living with HIV co-infected with TB. In 2014, the prevalence of HIV (15–49 year olds) in South Africa was 18.9% nationally, with the national TB incidence rate standing at 834 cases per 100 000. There is a time lag in mortality data of up to three years. For the period 2011–2014, the 10 leading causes of death among adults in South Africa were, in descending order: TB, influenza and pneumonia, cerebrovascular disease,

cardiovascular diseases, diabetes, intestinal infectious diseases, HIV, hypertensive diseases, other viral diseases and chronic lower respiratory diseases (NDOH, 2017).

Maternal and child health

South Africa's maternal and child health indicators have shown improvement, but variances exist in terms of infant and child mortality rates among the different provinces. The national infant mortality rate decreased from 39 deaths per 1000 live births in 2009 to 27 in 2015. Similarly, the under-5 mortality rate decreased from 56 deaths per 1000 live births in 2009 to 37 in 2015 (NDOH, 2018).

The BoD data for 2010 (deaths per 1000 live births) shows that the Western Cape has had the lowest mortality rates for infants (16.5) and children (24.9), respectively, with the highest mortality rates present in the Eastern Cape (40.7 and 60.1), the Free State (44.6 and 65.8), KwaZulu-Natal (44.0 and 66.0) and the North West province (35.4 and 54.5). More recent statistics from the South African Demographic and Health Survey (SADHS) show that in 2016 mortality rates were as follows: under-5 mortality: 42 deaths per 1000 live births; infant mortality: 35 deaths per 1000 live births; neonatal mortality: 21 deaths per 1000 live births. This signals an overall drop in all child mortalities since 2008 (NDOH, Statistics South Africa, South African Medical Research Council, & ICF, 2017).

Violence, injury and sexual behaviour

Road injuries and interpersonal violence remain the main causes of injury-related deaths (NDOH, 2017). The injury death rate in South Africa is double the global average (158/ 100 000) and higher than the average in Africa (139.5/100 000), adding a huge burden to the country's health services (NDOH, 2017). One in five women has experienced physical violence from an intimate partner; 42% of men and 40% of women do not use a condom when having sex with a person who is neither their spouse nor the person with whom they live; the age-specific fertility rate of teenagers (women aged 15–19 years) is 71 births per 1000; early child-bearing among young women is more common in non-urban areas than in urban areas (19% vs. 14%, respectively); 45% of women and 55% of men aged 15–49 report having had sex in the past 12 months with a partner who was neither their spouse nor the person with whom they live (NDOH, 2017).

Communicable diseases (CDs)

Communicable diseases include outbreaks of seasonal influenza, cholera, malaria and haemorrhagic fevers and, since 2017, listeriosis. Surveillance and response systems are in place

and being strengthened to allay outbreaks in the country. As of 15 December 2017, listeriosis is now a notifiable disease (NDOH, 2017, 2018).

Non-communicable diseases (NCDs)

Non-communicable diseases (NCDs) are on the rise in South Africa, as they are globally, with the leading types being cardiovascular diseases, cancers, respiratory diseases, asthma, chronic obstructive pulmonary disease, diabetes and mental health disorders. The impact of NCDs, particularly their potential for disability, has huge implications for health sector resourcing. Adding to this growing NCD burden are mental health disorders, with anxiety, substance abuse and mood disorders being the most prevalent (NDOH, 2018).

Risk factors for NCDs include: tobacco use, physical inactivity, unhealthy diets and excessive use of alcohol, all of which the South African National Health and Nutrition Examination Survey (SANHANES-1) has found to be very prevalent within the South African population. Six percent of women and 30% of men smoke daily. In terms of alcohol use, men (28%) drink more than women (5%) on a single occasion. However, when measured over a 12-month period, women (23/1000) abuse codeine more than men (15/1000) (SADHS, 2016). Alcohol and other substance abuse has led to high rates of foetal alcohol spectrum disorders, and pre-term and low birth-weight infants, adding to the considerable burden on the country's health services. Substance abuse further aggravates the impact that mental health and disability have on the BoD. Thus, the focus of the health system is to improve the primary health care (PHC) platform to ensure early detection and provision of comprehensive services, including eye care, oral health, care of the elderly, rehabilitation, disability management and mental health (NDOH, 2017, 2018).

Nutrition

As revealed in the 2016 SADHS data, the nutrition status of the South African population as a risk factor is cause for concern, with 68% of women being overweight (27%) or obese (41%). Of even greater concern is that one in five women has a BMI ≥ 35 (severely obese). One in three men is overweight (20%) or obese (11%). In addition, stunting is a national problem. It is evident in 27% of children under 5 years of age and in 23% of children aged 6–23 months resulting from a minimally acceptable diet. From 1998 to 2016, the rate of breastfeeding (exclusively) increased from 8% at 6 months to 32% up to 6 months, with 25% of infants under the age of 6 months not being breastfed at all. Of great concern is the early introduction of solids (up to 70% of children receive solids before 6 months of age) impacting infant and young child feeding practices and child health (Peer et al., 2016). Furthermore, micronutrient

deficiencies such as anaemia are prevalent among adults aged 15 and older (31% among women and 17% among men). Of particular concern is the higher proportion of women of reproductive age who are anaemic (33% of women aged 15–49 years vs. 25% of women \geq 55 years) (NDOH, 2018).

Health services

The SADHS 2016 provided some valuable information on the coverage of health services. Improved access for women to antenatal and postnatal care has been observed, with 98% of births assisted by skilled birth attendants in a health facility. Eighteen percent of women have not had their family planning needs met. Despite low immunisation coverage among children, a high proportion of children with diarrhoea have received oral rehydration solutions. Results of HIV testing among men and women indicate that more women (59%) than men (45%) between the ages of 15 and 49 years were tested for HIV and received their results over the previous 12 months (NDOH, Statistics South Africa, South African Medical Research Council and ICF, 2017).

1.4 Overview of South Africa's nutrition status

In South Africa, malnutrition manifests as undernutrition, overweight, obesity and a range of micronutrient deficiencies, all of which have public health implications. The nutrition situation is the result of immediate, underlying and basic causes. Immediate causes include: inadequate food intake, psycho-social stress, trauma and disease. Underlying causes include: household food insecurity, inadequate maternal and child care, insufficient services, unhealthy environments and a lack of education. Basic causes include: lack of resources (human, economic and organisational), political and economic structures (UNICEF, 2013). The nutritional status of children in particular is a critical element in the development and social upliftment of communities as it determines the health outcomes of future generations (Wentzel-Viljoen, 2016).

National surveys conducted in South Africa have shown a high prevalence of undernutrition, specifically stunting and micronutrient deficiencies (vitamin A, iron and zinc), as well as anaemia among women and children, and overweight and obesity, especially among women of reproductive age. Increasing urbanisation, and changing dietary patterns and lifestyles have contributed to the rise in overweight and diet-related chronic diseases in South Africa (Kennedy, Nantel, & Shetty, 2006; Steyn et al., 2006). Based on 2016 data, food insecurity and hunger are seen to be persistent problems affecting one in five households which do not have

access to sufficient food to meet their family's needs. In addition, one in three children is stunted (Hendricks, 2018).

The SANHANES-1 (2012) published nutrition status data for adults and children in its 2014 edition. An important aspect of the SANHANES-1 study was to provide information that would show the interrelationship between diet, nutritional status and health within the South African population. Various anthropometric measures were taken to reveal the health and nutritional status and predict health and survival trends in the future. Relevant indicators were calculated to provide an understanding of the nutritional status among adults and children.

Overall, the results showed that the situation in South Africa is worsening, leaning more towards over-nutrition, which – if not addressed – will add to the disease burden due to the associated risk relationship with NCDs. Vitamin A status has improved, while the prevalence of anaemia is viewed as a mild public health problem among South African men and a moderate public health problem among women (Shisana et al., 2014).

The South African National Youth Risk Behaviour Survey (SAYRBS) conducted in 2008 indicated a rise in overweight among Grade 8 to Grade 11 learners (from 16.9% in 2002 to 19.7% in 2008) and obesity (from 4.0% in 2002 to 5.3% in 2008) (Reddy et al., 2010). Reddy et al. (2012) conducted comparative studies with the SAYRBS and found that with the nutrition transition the risk of chronic diseases is imminent. Overall, increases were observed among both boys and girls, with the prevalence of overweight among adolescent girls increasing from 24.3% to 29% and among boys from 6.3% to 11% in 2008. What was particularly alarming was that obesity doubled (from 1.6% to 3.3%) among boys and increased among girls (from 5.0% to 7.5%). Socioeconomic status, specifically poverty, influenced the overweight and obesity rates observed in both 2002 and 2008, with a greater risk observed as socioeconomic status increased (Reddy et al., 2012).

A large proportion of the South African population is still affected by food insecurity and hunger, even 24 years since the transition to democracy. Improvements were shown in food security between 2008 and 2012 but one in four households is still vulnerable to the risk of or is actually experiencing hunger. Measures to indicate vulnerability at household level are shown in Table 1.1 below.

Table 1.1. Data on food security and risk or experience of hunger, 1999–2012

Measure	NFCS 1999 %	NFCS 2005 %	SASAS 2008 %	SANHANES-1 2012 %
Food security	25.0	19.6	48.0	45.6
At risk of hunger	23.0	27.9	25.0	28.6
Experiencing hunger	53.3	52.0	25.9	26.0

Sources: Labadarios et al. (2011); Shisana et al. (2014)

Note: NFCS = National Food Consumption Survey; SASAS = South African Social Attitudes Survey; SANHANES-1 = SA National Health and Nutrition Examination Survey

The highest levels of food insecurity found in 2012 were in urban informal areas (32.4%) and in rural formal (37.0%) areas. The risk of hunger was highest in the urban and rural informal areas. South Africa's hunger situation is classified as moderate as a large proportion of households are at risk (Shisana et al., 2014). The dietary diversity score (based on FAO guidelines) of the South African population was found to be 4.2.

There was no consensus on cut-off values (Smulders, 2008) but in the SANHANES-1, a cut-off of 4 was used. Nearly 40% of the population had a score of less than 4, indicating nutrient inadequacy. Dietary intake findings revealed high intakes of fat and sugar, with a low consumption of fruit and vegetables. These findings correlate with other factors known and present in South Africa as a developing country, i.e. an increase in urbanisation, the presence of poor environmental factors, a high prevalence of stunting, high unemployment rates, and limited access to proper housing, piped water and electricity (Shisana et al., 2014). Table 1.2 and Table 1.3 provide summaries of the nutritional status of adults and children, respectively (Shisana et al., 2014).

Table 1.2. Summary of adults' nutritional status in South Africa

Age group	Measure	Meaning and indices	Male	Female	Observations from survey
Adults 15 years and older	BMI	Measure of nutritional status weight adjusted for height. Risk of illness increases with an increase in weight.	Mean 23.6 kg/m ²	Mean 28.9 kg/m ²	Trend observed that BMI increased significantly with age. Urban areas more affected by obesity than rural informal areas
		Overweight (BMI greater than or equal to 25)	24.8%	39.2%	
		Obesity (BMI greater than or equal to 30)	10.6%	20.1%	
		Underweight (BMI less than 18.5)	56.4%	12.8%	
		Normal weight (BMI from 18.5 to 24.9)	31.7%	4.2%	
Adults 15 years and older	Waist circumference	Waist circumference measurement made at the level of the umbilicus or navel; indicator of abdominal adiposity. Normal for men: <102 cm and for women: < 88cm.	Mean 81.4 cm 9.8% > 102 cm	Mean 89.0 cm 50.8% > 88 cm	Mean for population exceeds the recommended waist circumference cut-off. Urban areas show highest mean figures. Increased risk for metabolic complications associated with NCDs.
	Waist-hip ratio and waist-height ratio	Waist-hip ratio (the waist circumference divided by the hip circumference); indicator of abdominal adiposity. Normal for men: < 0.90 and for women: < 0.85.	Mean 0.87	Mean 0.85	Urban formal environment has the highest mean waist-hip ratio. Predicting cardiovascular disease (CVD) risk.
Women of reproductive age (16–35 years)	Vitamin A	Deficiencies could have health consequences that are mild to severe, e.g. exophthalmia, vitamin A (retinol) concentrations of < 0.70 µmol/L – deficiency.		13.3%	Moderate public health problem.

Sources: Shisana et al. (2014); WHO (2011a); Smulders (2008)

Age group	Measure	Meaning and indices	Male	Female	Observations from survey
Adults	Anaemia	Risk factor for cardiovascular health and early death. Causes fatigue and negatively impacts cognitive and physical functions as well as quality of life. In women, increased risk of low birth weight. Inadequate iron stores for the new-born, higher risk of maternal morbidity and mortality as well as a decline in mental concentration and physical activity. Reflects poor health and increased vulnerability to adverse outcomes in older persons. Interpretation of values: men based on haemoglobin (Hb) levels (Mild = 12.9–11.0 g/dL; Moderate = 10.9–8.0 g/dL; Severe = < 8.0 g/dL); women (Mild = 11.9–11.0 g/dL; Moderate = 10.9–8.0 g/dL; Severe = < 8.0 g/dL).	Mean Hb 14.7 g/dL Prevalence 12.2%	Mean Hb 12.9 g/dL Prevalence 22.0%	Lower Hb levels than recommended thresholds. Thresholds differ for men and women, with women having a more serious problem than men. Urban informal and rural informal areas have the lowest mean Hb levels.
Women of reproductive age	Anaemia in women 16–35 years	Risk factor for cardiovascular health and early death. Causes fatigue and negatively impacts cognitive and physical functions as well as quality of life. In women, increased risk of low birth weight. Inadequate iron stores for the new-born, higher risk of maternal morbidity and mortality as well as a decline in mental concentration and physical activity. Reflects poor health and increased vulnerability to adverse outcomes in older persons. Interpretation of values: men based on haemoglobin (Hb) levels (Mild = 12.9–11.0 g/dL; Moderate = 10.9–8.0 g/dL; Severe = < 8.0 g/dL); women (Mild = 11.9–11.0 g/dL; Moderate = 10.9–8.0 g/dL; Severe = < 8.0 g/dL).	Prevalence 23.1%	Mean Hb 12.8 g/dL	Women living in urban informal areas have the lowest mean Hb levels and are at greatest risk.
	Iron status	Indication of iron stores. Serum ferritin normal ranges: 12 to 300 (ng/mL) for men and 12 to 150 ng/mL for women.		15.3%	Low serum ferritin (< 15 ng/mL) iron deficiency/depletion

Sources: Shisana et al. (2014); WHO (2011a); Smulders (2008)

Table 1.3. Summary of children’s nutritional status in South Africa

Age group	Measure	Meaning and indices	Male	Female	Observations from survey
Children 0–14 years	BMI 2–14 years	Measure of nutritional status that combines weight with height data. Risk of illness increases with an increase in weight.	Mean 17.0 kg/m ²	Mean 17.7kg/m ²	Mean BMI increases with age in boys and girls. There is a higher prevalence of overweight and obesity among girls. *Underweight/normal children were found more in boys than in girls.
		Overweight: weight for height > +2 standard deviations (SD)	7.1%	16.5%	
		Obesity: weight for height > +3 SD	4.7%	11.5%	
		Underweight: weight for age < –2 SD	83.8%*	76.6%*	
0–3 years	Undernutrition	Stunting: low height for age	26.9%	25.9%	Boys are more stunted than girls.
All children 0–14 years	Undernutrition	Stunting: height for age < –2 SD Wasting: weight for height < –2 SD Underweight: weight for age < –2 SD	Prevalence: Stunting = 15.4%, severe stunting = 3.8% Wasting = 2.9%, severe wasting = 0.8% Underweight = 5.8%, severe underweight = 1.1%		Stunting is the major concern in children. Can lead to premature mortality, poor cognitive development and potential loss of income as adults. Public health significance of underweight is low, stunting is medium for children 0–3 years and wasting is acceptable.
Children < 5	Vitamin A	Deficiency affects the health and survival of infants and young children, decreases resistance to infection, increases risk of mortality. Mild to severe (blinding) and stages of exophthalmia can occur. Deficiency: low serum retinol (< 0.70 µmol/L).	Vitamin A deficiency prevalence = 43.6%		Of severe public health importance as level is 20% and more.
Children < 5	Anaemia	Lower than normal haemoglobin (Hb < 11 g/dL) can lead to increased childhood morbidity, or impaired cognitive development and school performance. Mild = 10.9–10.0 g/dL; Moderate = 9.9–7.0 g/dL; Severe = < 7 g/dL.	Prevalence overall = 10.7%		Lower Hb levels than recommended thresholds.
	Iron depletion	Ferritin < 12ng/mL and Hb ≥ 11g/dL. Serum ferritin levels distinguish between iron deficiency and anaemia.	Iron deficiency/depletion prevalence overall 8.1%		Lower levels than recommended thresholds.

Sources: Shisana et al. (2014); Smulders (2008); WHO (2010)

Improving nutrition is an ethical imperative, a sound economic investment and a key element of health care at all levels (NDOH, 1997). It requires complementary strategies and integrated approaches to ensure optimal nutrition for all South Africans (NDOH, 2013).

South Africa has institutionalised the Integrated Nutrition Programme (INP) in nine provincial nutrition units since 1994 under the leadership of the Department of Health (DoH) in order to integrate earlier programmes, ensure coordinated inter-sectoral action and see to the direct provision of nutrition services (NDOH, 2013). The overarching aim of the programme has been to remove the fragmentation that existed across the various nutrition programmes. The INP was initially based on focus areas and support systems that included direct and indirect nutrition interventions to address malnutrition. Direct nutrition interventions are, for example, nutrition education and promotion, micronutrient supplementation, food fortification and disease-specific nutrition support and counselling. Indirect nutrition interventions include parasite control, steps to improve access to food, provision of health care services and provision of clean, safe water (Steyn & Temple, 2008). A nutrition response plan was developed called the “Roadmap for Nutrition 2013–2017” to address the implementation barriers, to reposition nutrition in the context of an overall health strategy and at the same time clarify the role of the health sector in terms of multi-sectoral nutrition actions. The South African roadmap was based on the global roadmap termed Scaling up Nutrition (SUN), which was informed by the international SUN framework released in April 2010 to assist in attaining the MDGs (NDOH, 2013).

Dietitians and nutritionists are the main custodians of nutrition services in the health sector. Other health professionals (nurses, doctors and allied health practitioners) and community health workers contribute to and/or deliver nutrition services as part of a range of comprehensive care service packages. Within the public health sector, facility and community service platforms are the main implementation sites for programmes and interventions and are provided for various levels of care, including the following (NDOH, 2013):

PHC services (clinics, community health centres, community day centres and district hospitals)

- Vitamin A supplementation for children aged 12 to 59 months, effective growth monitoring and promotion, infant feeding and maternal nutrition counselling, supplementation, nutrition assessment of clients with NCDs and counselling, enteral feeding support, and prevention and treatment of acute malnutrition.

Community-based services

- Nutrition assessment, counselling, vitamin A supplementation, infant feeding, early childhood development and nutrition, following up on children with severe acute malnutrition, food service management, and nutrition advisory services to other sectors, among others.

Hospital-based services (district, secondary, specialised and tertiary)

- Dietetic services (clinical), food service management, prevention and treatment of severe acute malnutrition, outreach services to PHC, among others.

Population-based services

- Nutrition promotion, nutrition education and information-/marketing-based strategies, nutrition advisory services to other sectors, food fortification, among others.

Even though the intention was to integrate programmes and initiatives, nutrition programmes such as household food security, school nutrition, early childhood nutrition and sustainable livelihood nutrition programmes have continued and are managed as part of the mandates of other government departments such as Agriculture, Basic Education and Social Development. Table 1.4 summarises the policy initiatives, programmes and services of selected government departments and/or civil society, which reflect nutrition-specific and nutrition-sensitive interventions in various policy documents (Wentzel-Viljoen, 2016).

Table 1.4. Summary of nutrition-specific and nutrition-sensitive interventions in policy documents

Nutrition-specific interventions	Nutrition-sensitive interventions and responsible departments/entities
<ul style="list-style-type: none">• Pre-conception nutrition• Maternal dietary supplementation• Micronutrient supplementation and/or fortification• Breastfeeding and complementary feeding• Dietary supplementation for children• Dietary diversification• Feeding behaviours and stimulation• Treatment of severe acute malnutrition• Disease prevention and management• Nutrition interventions in emergencies	<ul style="list-style-type: none">• Agriculture and food security (e.g. Agriculture, Rural Development and Land Reform)• Social safety nets (e.g. Social Development)• Early child development (Social Development; Basic Education)• Maternal mental health (Health)• Women's empowerment (various government institutions and civil society)• Child protection (various government institutions and civil society)• Classroom education (Basic Education)• Water and sanitation (Water Affairs; Human Settlements; Health)• Health and family planning services (Health)

Source: Wentzel-Viljoen (2016)

A landscape analysis was conducted in 2009, based on the World Health Organization (WHO) methodology and tools, to assess South Africa's readiness to accelerate its action plan in nutrition, review gaps, and identify opportunities for and bottlenecks in integrating new and existing nutrition interventions. Among the major barriers found in the 2009 landscape analysis were the shortage and inequitable distribution of human resources and the lack of skilled staff to work closely with communities in the district health system (NDOH, 2012).

In 2014, the Department of Planning, Monitoring and Evaluation (DPME), a unit in the Presidency, commissioned a diagnostic evaluation of nutrition interventions for children under the age of 5 across all government departments and sectors. The evaluation found that human resource issues such as staff shortages, and knowledge and skills shortcomings were among the implementation barriers, exacerbated by the lack of coordination across government departments and civil society organisations. Variances were also identified between the staffing, leadership and implementation of programmes, services and other interventions across the different provinces (DPME, 2014).

After 2013 and following the release of the DPME report, a national Food and Nutrition Security Plan (FNSP) for South Africa 2017–2022 was drafted based on the collective evaluations and outlining the vision that would take the development agenda forward. In the light of the report, the Cabinet gave certain directives in relation to the plan. First, there should be alignment and unification across government departments in terms of goals, objectives, indicators and targets for monitoring as well as a common budget for implementation. Secondly, the plan should address South Africa's specific problems. The new plan thus intends to bring together all programmes contributing to food and nutrition security (Government of South Africa, 2017). Progress made to date includes the drafting and costing of a national plan, assorted visits being made to provinces and one province drafting its own strategic plan. However, no new budget has been approved for the plan. Provinces in the meantime have continued to use existing resources to implement programmes and workforce development has essentially remained unchanged (Ntsie, 2018).

1.5 Nutrition workforce paradigms and planning

Schoo et al. (2008) indicate that public health workforce planning methodologies for allied health professionals, such as physiotherapists, occupational therapists and others, are in their early stages of development internationally (Schoo et al., 2008). At the same time studies on nutrition workforce planning and development mainly emanate from the developed countries, such as Australia, the USA and countries in Europe (Edelstein, 2006).

South Africa lacks a comprehensive human resource framework to address all the aspects of human resource planning (HRP) in the public health nutrition context in the country, i.e. determining the right numbers (quantity), right skills and competencies (quality), and doing the right things at the right place and time, considering all the relevant factors within the population (Green, 2007; Edelstein, 2006). However, the Professional Board for Dietetics and Nutrition in South Africa has proposed an adaptation of an international conceptual framework described by Hughes and Somerset (1997) as a categorisation of the spectrum of nutrition services (HPCSA, 2005). This is displayed in Table 1.5.

Table 1.5. Service paradigm for nutrition

Feature	Clinical/ Therapeutic dietetics	Community dietetics	Community nutrition	Public health nutrition
Setting	Hospital	Community		
Reach level of social organisation	Individuals/ Households	Individuals/ Households/ Small groups	Population sub-groups	Population
Key personnel	Dietitians and health workers		Dietitians, nutritionists, health promotion practitioners, epidemiologists, health planners, policy makers, agricultural scientists, environmental health officers, teachers, medical practitioners, multidisciplinary and inter-sectoral practitioners.	
Determinant of activity	Health worker referral		Community development needs assessment and policy directives	
Outcome time frame	Short to medium term		Medium to long term	

Source: Hughes and Somerset (1997)

However, Steyn and Temple acknowledge, in a chapter of a community nutrition textbook, that the framework has not been transformed into a systematic workforce development framework (Steyn & Temple, 2008).

There are currently two registrable nutrition professionals that deliver nutrition services, i.e. dietitians and nutritionists. Registration as dietitians with the Health Professions Council of South Africa (HPCSA) has been compulsory since 1984. The need for nutritionists became evident in the wake of changing socioeconomic, political and nutrition circumstances in South Africa post-1995. Prior to 1995, dietitians tended to focus more on (and were trained in) clinical and individual interventions and not enough on public health approaches, which led to proposals to register nutritionists to cover public health nutrition in the country. After a long period of consultation, South Africa opened the nutritionist register in 2008 (HPCSA, 2009).

The name of the regulatory board functioning under the HPCSA was also changed in 2011 to the Professional Board for Dietetics and Nutrition to align with the new professional categories registered (HPCSA, 2011). The roles of dietitians and nutritionists have been outlined in their respective scopes of practice. Only the dietitians' scope was promulgated in a government gazette (Government Notice R 891, 1991). For the nutritionists, only the notice of registration was published under Government Notice 726/2008 while the scope of practice and competencies are outlined in the Professional Board for Dietetics and Nutrition documents (HPCSA, 2005).

Dietitians have traditionally focussed on interventions at the individual level, while a study by Parker et al. (2013) showed that community service dietitians, acting as entry-level dietitians, require more training in public health nutrition (Parker et al., 2013). The DoH as the main employer has been unable to create and implement community service posts for dietitians and nutritionists uniformly throughout the country, and most provinces have reached saturation of posts filled. The role ambiguity induced by the implementation of two nutrition professionals in South Africa has caused tremendous confusion, which is complicated by the significant overlap in competencies, roles and responsibilities. In fact, the competition to fill posts in a resource-constrained environment is causing much tension between the professions (Wentzel-Viljoen, 2016).

The Professional Board for Dietetics and Nutrition has followed a series of steps since 2012 to review the circumstances of the two professionals, the overlap in their scope of work, their placement for community service and the needs of the country. After a lengthy consultation process and submission of reports, a proposal was put forward in 2016 to train one nutrition professional in South Africa in future. The name proposed for the new professional is dietitian-nutritionist. Processes have been designed to effect change in South Africa at university level, at professional board level, at Department of Higher Education and Training level and also within the Department of Health. A definite timeline is still to be set by the Professional Board for Dietetics and Nutrition (Wentzel-Viljoen, 2017) for the implementation.

Hughes (2003a, 2003b) developed a public health nutrition intelligence-based conceptual framework which emphasised the need for information referred to as intelligence when planning for the nutrition workforce. The framework or model is of a cyclical nature and creates opportunities for strategic interventions at any starting point.

Based on a literature review, the framework was adapted to reflect on the following questions as they relate to the South Africa context:

1. Who is the nutrition workforce?
2. What workforce development is needed for them to do the right things?
3. What capacity does the workforce need in order to work?
4. How many workers are needed and how are their roles and responsibilities delineated?
5. Which problems and priorities does the workforce need to focus on?
6. Which interventions are known to work in addressing nutrition problems in South Africa?
7. What are the factors in the internal and external environments that influence the operations of the workforce?

Added to the questions was the context in which nutrition services are delivered. Figure 1.1 is an adaptation of the Hughes intelligence-based workforce development framework for public health nutrition (Hughes, 2003a, 2003b).

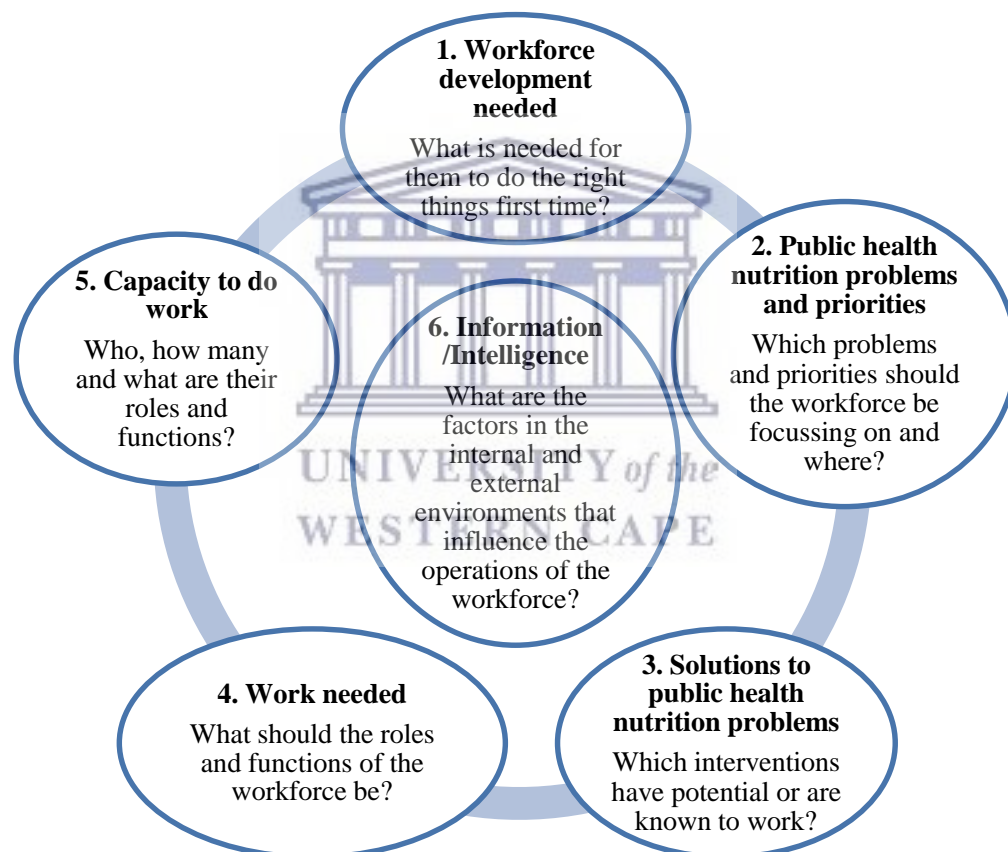


Figure 1.1. Adapted intelligence framework for problem-based workforce development in public health nutrition in Australia

Source: Hughes (2003a, 2003b)

The six areas were interrogated and aspects relating to these areas in no specific order were included:

1. Workforce development – training environments, career path, continuous development, competency development;
2. Public health nutrition problems and priorities – Burden of Disease, economic estimates of diet-related disease;
3. Solutions to public health nutrition problems – effective public health interventions, identification of effective strategies in a specific context;
4. Work needed – core functions and essential services to be delivered;
5. Capacity to work – workforce composition, enumeration and profile, current practices and competencies, systems, organisational environment, infrastructure, management support, training and education;
6. Information – external and internal factors, including governance and linkages with other sectors and programmes.

Conceptually the knowledge base for all these aspects need to be determined for the South African context, within the existing scopes of practice, registration of professional groups and overall functioning within a health system. The research study was designed to respond to questions within the context of workforce development in South Africa by developing a comprehensive HRH framework for the nutrition workforce in the public health sector.

1.6 Problem statement and rationale

A global HRH review completed in 68 middle- and low-income countries highlighted the need to monitor, support and identify knowledge gaps in HRH to enable countries to engage in evidence-based, informed decision-making (Gupta et al., 2011).

Hughes et al. (2012) recognise that in developing countries there is a need to prioritise issues of workforce capacity through the development of a workforce competency framework; this is a critical component of workforce development. To scale up nutrition effectively and achieve improved health outcomes in both the developed and developing world, workforce development at a global level is essential (Davies, Hughes, & Margetts, 2012; Hughes et. al., 2012).

Managing the BoD and improving health outcomes in South Africa are influenced by the level of implementation of appropriate evidence-based nutrition interventions, particularly for nutrition-related disorders that affect all age groups in the population. Evidence has shown that there are not enough dietitians to deliver the basics in nutritional care and that it is important

to improve the capacity of other personnel to address the nutrition-related burden, e.g. training in public health nutrition (Steyn & Mbhenyane, 2008).

The long-term effects of inadequate staff numbers and training influence the achievement of programme goals, as was shown by Van Rensburg et al. (2008) in the context of South Africa's Antiretroviral Treatment (ART) programme (Van Rensburg et al., 2008).

Nutrition workforce studies conducted in the Western Cape province highlighted the need for human resource (HR) planning (Kama, 2003). For example, a profile of nutrition workers in the Western Cape showed that the number of nutrition workers placed at preventive, promotive and curative service levels in the DoH seemed inadequate given the magnitude of the service need. Dietitians were placed either in hospitals or districts using a ratio of 1:66 000 (one dietitian for a population of 66 000). With the addition of a limited number of auxiliary nutrition workers, the ratio changed to 1:45 785 (one nutrition worker for a population of 45 785 people). Evidently this situation is not realistic if a quality nutrition service is to be delivered (Goeman, 2008).

In the absence of nutrition personnel, nurses are in most instances the only personnel to implement nutrition-related protocols. The lack of information (size, distribution, quality, structure and composition) of nutrition workers in South Africa has led to inadequate forward planning (NDOH, 2004, 2009). Experience has shown that, when planning for the nursing workforce in transformational settings, there is a need for integrated, comprehensive and inter-professional health workforce plans that build on existing strengths within governments (Fraher & Jones, 2011).

The "Roadmap for Nutrition 2013–2017" identified the need to develop and implement a human resources plan for nutrition. This HR plan was meant to be informed by evidence and integrated with the HRH strategy of the NDOH.

Three main priorities were identified for addressing the existing HR gaps:

- (i) determining staffing norms for human resources at all levels to deliver nutrition services;
- (ii) defining nutrition-relevant roles and functions for the different cadres of health worker, including doctors, dietitians and nutritionists, registered nurses, enrolled nurses, enrolled nursing assistants and relevant mid-level workers and CHWs; and
- (iii) updating health professionals' training curricula to cover the key nutrition interventions in pre-service and in-service training (NDOH, 2013).

The diagnostic review of government departments (Health, Social Development and Agriculture) in 2012/2013 focused on adequacy of national and provincial policy, leadership and resource allocation; district management and oversight; and local-level services delivery. The evaluation also set out to determine the enabling and inhibiting factors in the implementation of nutrition interventions. Human resource-related findings revealed a shortage of professionally trained nutritionists and dietitians, which has resulted in an over-dependence on nurses to implement the DoH nutrition interventions as part of normal PHC services. Different cadres of staff in government departments lacked both nutrition-relevant training and the appropriate skills and knowledge to implement key nutrition interventions. Frequent staff attrition or rotation was an additional barrier to the retention of skills and knowledge in the field of nutrition. One of the key recommendations emanating from the evaluation was to improve the knowledge, skills and attitudes of employees (Departments of Health, Agriculture and Social Development) through pre-service and in-service training in nutrition (DPME, 2014).

The application of public health workforce models in South Africa has been explored primarily among other health cadres (nurses, doctors and pharmacists). Posts for the two professions (dietitians and nutritionists) were included in the draft national HRH strategy 2012/2013–2016/2017 for South Africa, but no distinction was made between the two cadres. Projections in terms of supply and requirements in each province were not completed in line with the diverse provincial demographic and disease profiles (NDOH, 2012).

The absence of evidence-based workforce development together with the inability to address nutrition workforce challenges are contributing to the poor implementation of nutrition interventions and progress in nutritional outcomes. A nutrition workforce framework is required to address the gaps and enable informed decision-making for nutrition services in the existing public health system in South Africa.

1.7 Aim of the study

The aim of this research study was to develop a comprehensive workforce development planning framework to enable the nutrition workforce in the public health sector to respond to the nutrition-related disease burden in South Africa.

1.8 Research questions

1. Who in the health workforce provide nutrition services?

2. What are the perceived nutrition-specific roles and responsibilities of dietitians, nutritionists and professional nurses (PNs) in PHC services?
3. What training do they have?
4. What are the acquired (through training) nutrition-specific competencies of dietitians, nutritionists and PNs in PHC services?
5. What are the required (i.e. need-to-perform) nutrition-specific competencies of dietitians, nutritionists and PNs?
6. What are the differences between the acquired and required competencies of dietitians, nutritionists and PNs, as perceived by these cadres?
7. What strategies are required to build the nutrition workforce capacity in South Africa?

1.9 Study objectives

- Objective 1: To conduct a literature and document review on workforce capacity and development, nutrition workforce development frameworks, scope of practice, job outputs, workforce establishments, and acquired competency and training of different cadres of health care workers.
- Objective 2: To determine the perceived nutrition-related roles, responsibilities and competencies of dietitians, nutritionists and professional nurses in PHC services.
- Objective 3: To develop a consolidated framework for the nutrition workforce.
- Objective 4: To apply the framework to the Western Cape province.

1.10 Ethical considerations

Permission to conduct the study was obtained from the Faculty Higher Degrees Committee at the University of the Western Cape (Addendum 2). Tools from an Australian workforce study were adapted with the permission of the author (Addendum 3). The participants' information sheet and consent form were incorporated into questionnaires (Addendum 4 and Addendum 5). Permission (Addendum 6) to interview managers using a semi-structured questionnaire (Addendum 7) was obtained from the Western Cape Department of Health. The researcher was also available to answer questions and address any concerns about the study. All participants were assured that participation was voluntary, that they could withdraw from the study at any time and that information would be handled with the utmost confidentiality. No-one, other than the researcher and study leaders for the research project, had access to the information.

1.11 Thesis structure

The thesis is broken down into 10 chapters, each looking at HRH workforce development through a different lens. The individual chapters are structured in such a way as to introduce their particular theme(s), supporting references and arguments, and key findings or impressions.

Chapter 1 presents an introduction to the initial observations and assumptions based on the researcher's work experience, and grey and published literature. The chapter provides background on South Africa's public health situation in terms of health and nutrition status and services. An introduction to nutrition workforce paradigms and planning are presented. The problem statement, rationale, aim, research questions and objectives, and significance of the study are described.

Chapter 2 provides an overview of the workforce development literature published in the last 17 years and describes the various approaches to workforce development, highlighting possible enablers and barriers to workforce development.

Chapter 3 discusses and describes workforce development frameworks and/or models internationally and in the South African context in relation to health but with the focus on nutrition. These conceptual frameworks are reflected on and interpreted in the light of circumstances in South Africa.

Chapter 4 provides an analysis of the scope of practice and competencies acquired through training.

Chapter 5 sets out to provide a better understanding of the roles and functions of the respective key personnel in the public health system through a job description analysis of the nutrition workforce. In addition, it aims to offer guidance to planners on the workforce capacity that is needed.

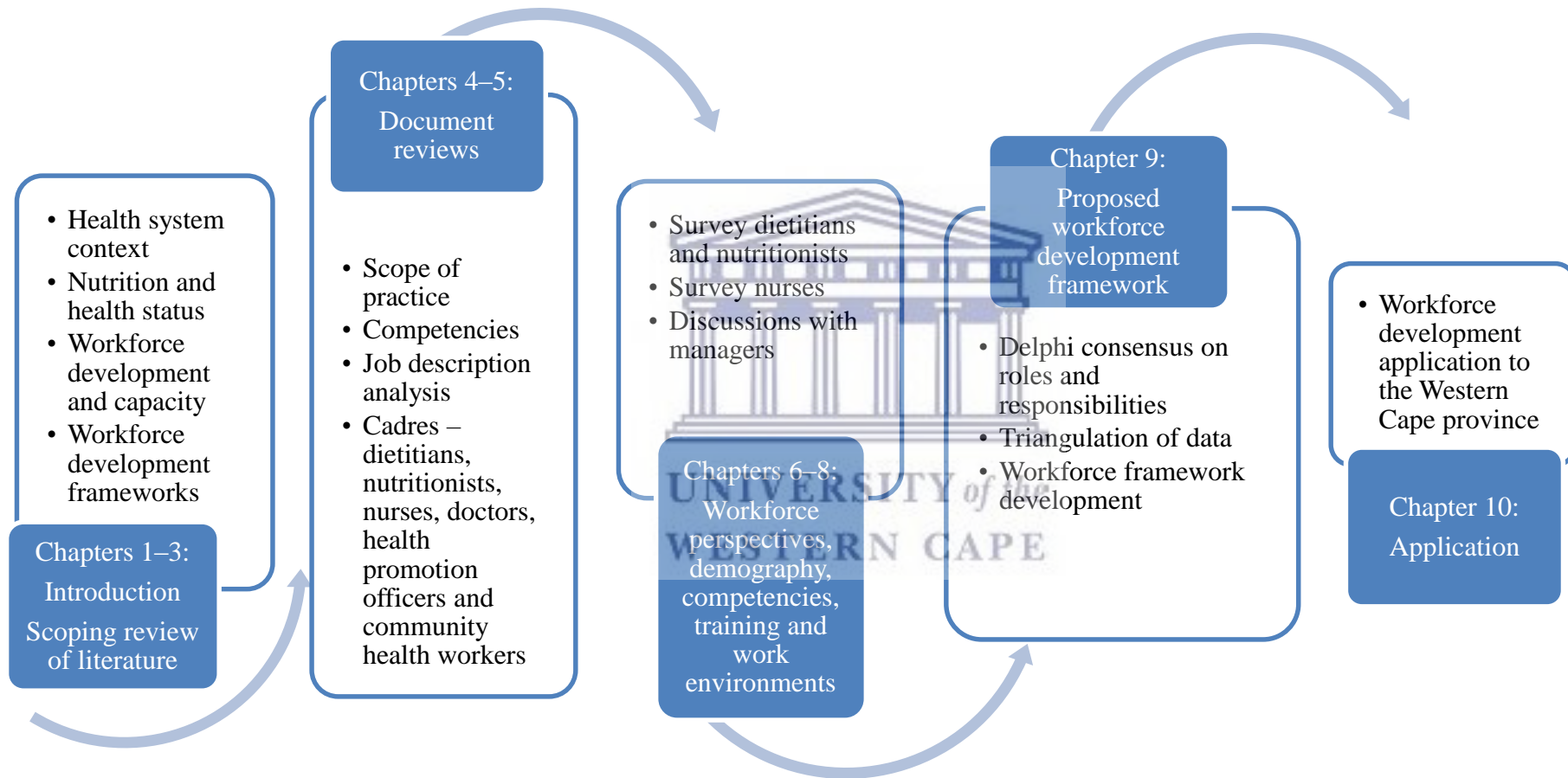
Chapters 6, 7 and 8 provide insights from the workforce themselves, including dietitians, nutritionists, nurses and managers, on their roles, responsibilities, training and competencies.

Chapter 9 presents the results of a Delphi study describing the nutrition workforce and delineating their roles and functions, followed by a triangulation of the findings. In addition a proposed nutrition workforce planning framework is provided which is designed to address the identified nutrition-related challenges.

Chapter 10 explains the implementation process of the comprehensive planning framework by applying it to the Western Cape province. The chapter concludes with an overarching summary and set of recommendations.



Figure 1.2. Thesis structure and composition



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CHAPTER 2: WORKFORCE CAPACITY AND DEVELOPMENT

Chapter 2 provides a scoping review of nutrition workforce capacity and development within the context of the health system. The chapter starts off with a literature review search strategy inclusive of human resources for health, the health system, and strategies for workforce capacity and development. It concludes with the identification of barriers, enablers, key messages on workforce development and references used in the chapter.

2.1 Scoping review search strategy

A scoping review of published literature was conducted, focussing on human resources for health, the health system, and nutrition workforce capacity and development. The purpose of the scoping review was to map the key concepts, clarify working definitions and summarise the literature in the field of nutrition workforce capacity and development, including qualitative evidence (Joanna Briggs Institute, 2015).

Traditionally, systematic reviews bring together quantitative literature to answer questions about effectiveness. This review aimed for a broader approach to answer the range of questions posed. Existing evidence of diverse forms were included to provide an overview, regardless of the quality or type of the studies (Peters et al., 2015).

- **Title:** The title of the review was based on the overarching definitions of nutrition workforce capacity and development.
- **Review question:** The review was based on the questions indicated in the conceptual framework illustrated in Figure 1.1. The specific questions for this section are aimed at understanding the concept of nutrition workforce development and capacity, how workforce development is linked to the health system and what the barriers and enablers of workforce development are.
- **Scope:** The scope was based on keywords, i.e. nutrition workforce and capacity and development. Contextual factors were added in the form of other key words, i.e. health system and human resources for health, including the South African context.
- **Search strategy:** The search strategy was developed by working closely with the Faculty of Community Health Sciences, University of the Western Cape librarian to select published material in the public health discipline, using databases in EBSCOhost as the search engine. All full-text articles and abstracts published between January 2000 and September 2017 were included. The following databases were included in EBSCOhost: academic search complete, AHFS consumer medication information, CINAHL plus with full text, eBook collection (EBSCOhost), e-journals, health source:

nursing/academic edition, library and information science source, SPORTDiscus and Medline.

- **Extraction and results:** The Boolean phrase workforce and capacity and development was included. A total of 3924 articles were found, of which 2324 were in academic journals, 125 in magazines, 50 in trade publications and 316 were reports. The word nutrition was added to workforce to filter to nutrition workforce, resulting in 51 publications. The databases included 11 in Medline, 10 in e-journals, 10 in Academic search complete, 10 in CINAHL plus with full text, 5 in health source nursing and 5 in SPORTSDiscus. The system automatically filtered some of the duplicates leaving a total of 22 articles which were screened for eligibility. A descriptive summary in organised fields is presented in Annexure Table A2.1 (at the end of this chapter after the references).
- **Context:** The context and the fact that the nutrition workforce operates within a health system were included by adding the words health system for the same period. These articles were screened for eligibility and were all already included in the first EBSCO host summary in Annexure Table A2.1. Google Scholar was used to include 29 manually searched scholarly articles in order to include the WHO, South African national and provincial health departments, aspects of the health system, human resources for health and relevant policy directives.
- **Inclusion and exclusion criteria:** Full-text English articles and abstracts were included. Articles that focussed on aspects relating to interventions and randomised control trials and were unrelated to nutrition workforce development were excluded. Fifty-one articles were screened for eligibility. Forty-six articles were included in the review after the exclusion of four articles from the EBSCOhost list (refer to Annexure Table A2.1). The PRISMA diagram represented in Figure 2.1 displays the process followed.
- **Presentation:** The review of literature is summarised to provide a baseline understanding of the workforce capacity and development concepts within a South African context.

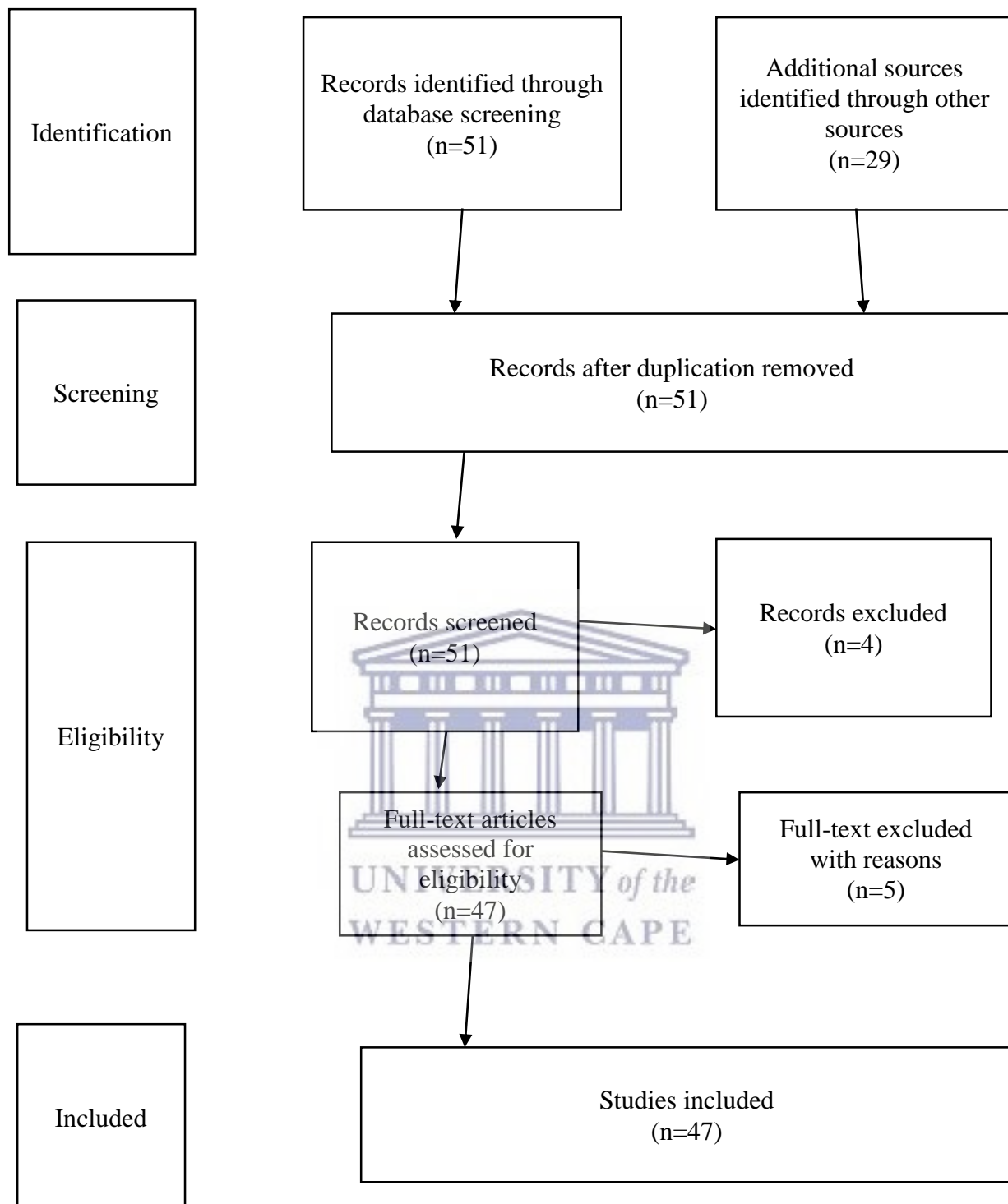


Figure 2.1. PRISMA flow diagram – Workforce capacity and development

Source: Joanna Briggs Institute (2015)

2.2 Human resources for health

The World Health Report 2006 states that “at the heart of each and every health system, the workforce is central to advancing health” (WHO, 2006: xv). Human resources for health (HRH) refers to “all people engaged in actions whose primary intent is to enhance health”

(WHO, 2006: 1). The population's health outcomes are influenced by the workforce fulfilling their roles and functioning in the health system. Underestimating their value can lead to the achievement and/or non-achievement of targets. This has been demonstrated in the management of malnutrition where the situation has worsened when staff numbers were decreased during periods of health sector reform (Dussault & Dubois, 2003; WHO, 2006).

Human resources for health operates within a system whose main purpose is to produce, develop and support a workforce that executes its role to achieve specific goals. The HRH system fulfils different functions, such as strategic, operational and support functions, and does not operate in isolation from the wider internal and external environment (Necochea, Badlani, & Bossemeyer, 2013).

2.3 The health system

The World Health Report 2000 defines the health system as “all the activities whose primary purpose is to promote, restore or maintain health” (WHO, 2000: 5). The health care system focusses on the provision and investment in health services, including preventive, promotive, curative and palliative interventions, directed at individuals or the populations in public and private spaces. The activities include direct and indirect activities to address the determinants of health (WHO, 2000; WHO, 2006; Zakus & Bhattacharyya, 2007; WHO, 2010).

Margaret Chan, former Director-General of the WHO, has said: “The best measure of a health system's performance is its impact on health outcomes” (WHO, 2007: iii). She said these words to set the scene for an organisational framework of action to strengthen health systems with a view to improving public health and personal care outcomes. Key characteristics of a well-functioning health system are: procurement and distribution systems that deliver interventions to those in need, financing systems that are sustainable, and sufficient health workers having the right skills and motivation to be responsive, while treating clients with respect. To strengthen health systems it is vital to address constraints observed in all these areas (WHO, 2007, 2010).

The health system, like any system, comprises various interconnected parts which can be viewed as roles and functions to improve people's health. Health systems are known to be open systems influenced by the environment (e.g. poverty, education, infrastructure, and the broader social and political environments) (World Bank, 2007). The system is not static but instead complex and adaptive in nature. It can be influenced by differences in operational size,

undergoing continuous reorganisation in formal and informal ways (World Bank, 2007; Zakus & Bhattacharyya, 2007).

A single health systems framework was developed and proposed by the WHO, with six building blocks making up the system. These are: (i) service delivery; (ii) health workforce; (iii) information systems and research; (iv) medical products and technologies; (v) health care financing; (vi) and leadership/governance (WHO, 2007). Other frameworks exist which can cause confusion, yet they all have similar themes and outlines. Strategic frameworks alone are not enough to strengthen health systems. Monitoring and communication strategies and systems are critical to ensure that performance can be tracked and the impact evaluated (WHO, 2010; Lazarus & France, 2014). Lazarus and France (2014) propose changes to frameworks in the light of client engagement and communication strategies that have evolved (Lazarus & France, 2014). The World Health Organization building block framework has not changed, but it is acknowledged that the configuration of services may vary from country to country. The noted gaps in the framework are the lack of evident linkages with other sectors and the factors influencing people's behaviour when seeking health care (WHO, 2010).

Health systems operate at different levels, with the district health system facilitating the decentralised provision of health services in a defined geographic area which covers a specific population. The district is the unit of governance and includes all institutions and individuals providing care in the particular space. South Africa's health system is mandated by the National Health Act (61 of 2003) (Republic of South Africa, 2004). The country has one national and nine provincial health departments and 52 districts distributed over the nine provinces (NDOH, 2014). The district health system and delivery of PHC approach has been adopted by South Africa as part of the transformation of its health system, which includes decentralised governance and management (Pillay, McCoy, & Asia, 2001).

Health systems are complex but at the same time adaptive in nature; thus, it is important for organisations and leaders to understand the contexts in which they operate, provide strong leadership, set boundaries, anticipate and plan for contingencies, and use data effectively to minimise potential risks to the health system (Sava, 2018). Table 2.1 below describes the main features of the health system, showing the key functions, practical implications, responsibility levels and characteristics.

Table 2.1. Health system features

Functions	Practical implications	Responsibility	Characteristics
Stewardship e.g. oversight and regulation	<ul style="list-style-type: none"> • Setting the context and policy framework • Determining health priorities • Setting targets • Allocating resources • Determining institutional operational frameworks • Engaging in strategic planning • Ensuring efficient data management for decision-making 	Governmental in most cases at a central/national level	<ul style="list-style-type: none"> • Highly context-specific • Complex, adaptive to change and must be continuously monitored • Exists within other systems • Totality of required resources, including human, mechanical, material and financial • Inherent order, whether formal or informal • Changes not always predictable • Forecasts not always reliable • Organised around people, institutions and resources which are mandated to improve, maintain and/or restore the health of people in order to meet the broader health needs of a given population.
Public and private health service provision, e.g. clinical services, health promotion	Delivering health services	At different levels – primary, secondary, tertiary care	
Health service inputs Managing resources	Managing inputs/resources, including human resources, medication and medical equipment	Management at implementation level/service delivery points Training of staff – outside health system but mostly in collaboration with training institutions	
Health system financing <ul style="list-style-type: none"> • Risk pooling and purchasing • Strategic purchasing 	Collecting and allocating money Determining service delivery funding mechanisms	Management at central and implementation level/service delivery points	

Sources: World Bank (2007); WHO (2000); WHO (2007); Kiemy et al. (2017); Zakus & Bhattacharyya (2007); WHO (2010)

2.4 Workforce strategy and the health system

Human resources are one of the three key health system inputs required for delivering health services at individual and population level. In most instances, personnel costs make up two-thirds or more of the total health budget. This is perhaps not surprising, since clinical and non-clinical staff with the appropriate knowledge, skills and motivation are needed to deliver services responsibly (WHO, 2000).

The WHO 2000 report on health systems notes some of the input problems relating to human resources. There are a number of imbalances mentioned, i.e. either a shortage of qualified staff or an over-supply in different disciplines; a training and skills mix whereby staff are not properly equipped for the work that they are required to do; an inequitable distribution of staff between urban and rural areas; and an inappropriate human resource policy (WHO, 2000).

The WHO 2006 report elaborates further by identifying what drives the workforce and what challenges are experienced. Figure 2.2 below shows the relationship between the driving forces behind the workforce and the challenges they face (WHO, 2006).

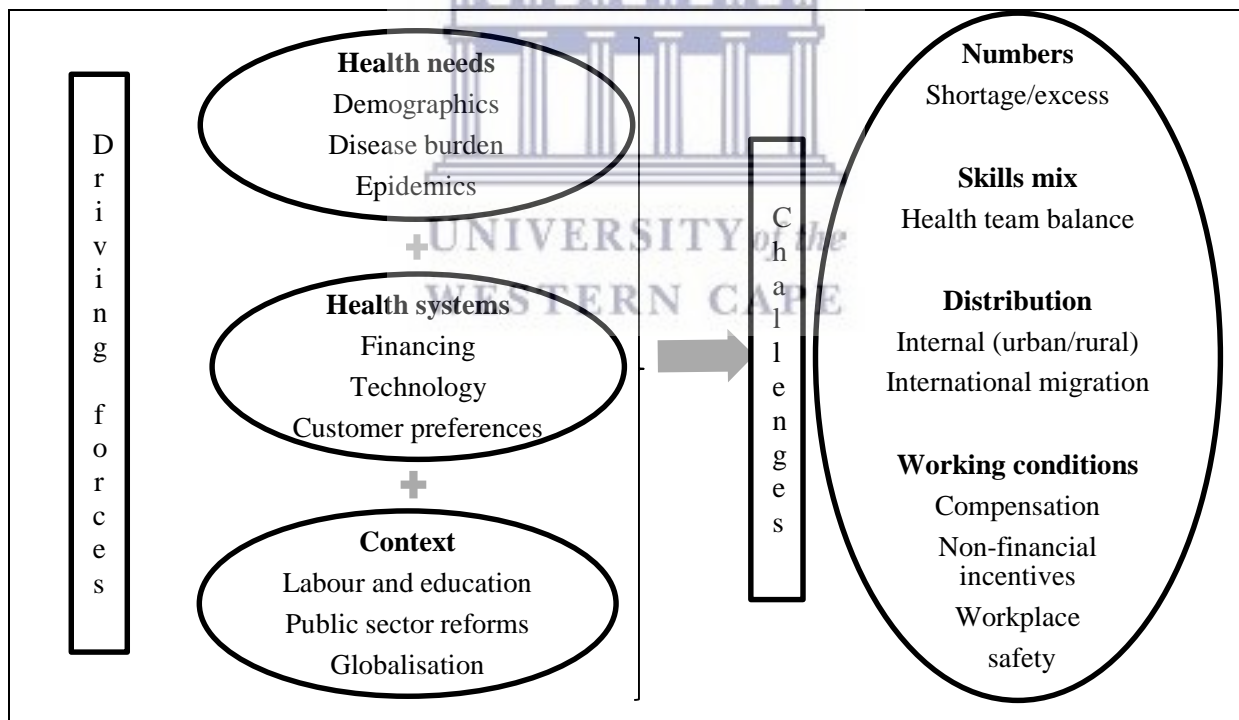


Figure 2.2. Workforce driving forces and challenges

Source: WHO (2006)

To address some of the challenges listed above, countries have been adapting their human resource strategies, making more efficient use of available personnel through better geographical distribution and, where appropriate, making greater use of multi-skilled personnel

and ensuring a closer match between skills and functions in the workplace. At the same time, countries are balancing resources in other areas of the health system, such as infrastructure and consumables. Creating enabling work environments and ensuring supportive supervision and appropriate compensation packages for staff are important parts of workforce development and performance. The enabling levers are: clear job descriptions, well-established norms, clear codes of conduct, a strong skills–task alignment, accessible information and open communication, a lifelong learning culture, a team management approach, and clear responsibility and accountability areas (WHO, 2006).

Examples of indicators that can be used to assess workforce performance in four domains are (WHO, 2006):

- Staff availability – staff ratios, absenteeism rates, patient waiting times;
- Competence – prescription practices, patient readmission rates;
- Responsiveness – patient satisfaction;
- Productivity – bed occupancy rates, outpatient visits.

In adopting the SDGs, many countries aspire to provide universal health coverage. The importance of HRH in achieving universal health coverage has been confirmed in the World Health Assembly (WHA) 63.16 resolution, which includes adhering to the global code of practice on international recruitment of health personnel, transforming health workforce education, and increasing access for workers in rural remote areas. At the World Health Assembly in 2016, strong commitment was shown towards the development of a global strategy for HRH which is aligned to frameworks on integrated, people-centred health services (WHO, 2016).

The Global Strategy on Human Resources for Health: Workforce 2030 was launched in 2016 to help in meeting the 17 SDGs, ensuring equitable access of communities to the health workforce and strengthening the health systems (WHO, 2016). Kieny et al. (2017) highlight the importance of strengthening the health system¹ for universal health care and achieving the SDGs and also that the emphasis should be on improving the wellbeing of individuals and communities (Kieny et al., 2017).

The delivery of quality health care is dependent on factors such as: availability and equitable distribution of workers to communities; competent and motivated workers who meet the sociocultural expectations of the population; and a workforce that is adequately supported by

¹ Health system strengthening means making a significant and purposeful effort to improve the health system's performance.

a health system that is both resilient in the face of challenges and responsive to the needs of communities (WHO, 2016).

In South Africa, an HRH strategy for the health sector was developed and launched in 2011 focussing on three key themes: the supply of health professionals; education, training and research; and the working environment of the health workforce (NDOH, 2011a). Commitments have been shown through the institutionalisation of a workforce development and planning sub-programme at the national level. Three strategic objectives have been included in the annual performance plan (APP) for 2017/2018 covering the implementation of the national HRH strategy, staffing norms and standards, and expansion of medical student training and strengthening of nurse education training and practice (NDOH, 2017). In reviewing the strategic priorities for an HRH strategy in South Africa, it is clear that there is an alignment between the strengthening of the health system and the health system's performance (NDOH, 2017). It is evident that HRH aspects have been included by the South African government, not only in the health sector documents but also as one of the nine priorities in the National Development Plan (NDP) 2030, i.e. "Improve human resources in the health sector" (NPC, 2012: 345).

2.5 Nutrition workforce and the health system

Providing nutrition services is an integral part of the delivery of comprehensive health services within a health system. Hughes (2003c) describes the public health nutrition workforce as multidisciplinary, employed across sectors in different functions and with varying degrees of competence. The nutrition workforce in most countries is made up of dietitians and nutritionists who are employed to provide nutrition services inclusive of preventative, clinical and population-based interventions (Hughes, 2003c).

Many countries are burdened with malnutrition, manifesting as undernutrition, micronutrient deficiencies, overweight and obesity. Countries have not been able to show enough progress in addressing the nutrition-related Burden of Disease due to limited workforce numbers, skills and geographic coverage (Fanzo et al., 2015; Sodjinou et al., 2014; Aboul-Enein & Bowser, 2015; Palermo, Hughes, & McCall, 2010; Shrimpton et al., 2016).

Haughton and Stang (2012) highlight how the dietetic profession needs to adapt to changes in the environment, population, economy and service delivery platform. Given these changes, dietetic practitioners will increasingly have to adapt their service sites to include places of work, community health centres and home care. Programmes and services will need to include aspects of health promotion and disease prevention. Furthermore, the workforce will need to

be skilled to work according to a social–ecological model for primary, secondary and tertiary prevention of disease (Haughton & Stang, 2012; Baillie, 2010).

South Africa is no different, with two professional cadres, i.e. dietitians and nutritionists, trained to deliver public health nutrition services. As is the case in other countries, other members of the health workforce participate in or manage nutrition activities, including nurses, doctors, allied health professionals and community health workers. They receive training in nutrition as part of their pre-service and in-service training (Fanzo et al., 2015; Hughes, 2004c).

Both dietitians and nutritionists are included in South Africa's HRH strategy but are often equated with each other, which could be interpreted as their having the same scope of work. Data presented by the DoH shows the national distribution in 2011 as 0.16 dietitians/nutritionists per 10 000 people. The data also reveals information such as costs in terms of Occupation Specific Dispensation (OSD) and gaps up to 2025. Despite staff numbers having grown between 2002 and 2010, the group is still among the lowest when compared to other categories, i.e. 18.97 professional nurses/10 000 people, 1.53 radiographers/10 000 people, 3.70 medical practitioners/10 000 people and 1.19 physiotherapists/10 000 people (NDOH 2011b).

According to Steyn & Mbhenyane (2008), nurses make up the bulk of the staff delivering PHC; however, they are overworked because of staff shortages and often struggle due to a lack of nutrition training (Steyn & Mbhenyane, 2008). Shrimpton et al. (2014) report in a capacity development article how the implementation of a nutrition strategy was negatively affected in Indonesia because of the shortage of nutrition staff with the capacity to act at the implementation level (Shrimpton et al., 2014).

The DPME report (2014) confirmed the shortage of professionally trained nutrition staff in the health system in South Africa and consequently the dependence on nurses to implement the DoH's nutrition interventions. Such a situation leads to poor implementation and lacklustre nutritional support at the PHC level. As a result, practising nurses end up shouldering the disease burden while multiple pressures prevent them from prioritising nutrition (Steyn & Mbhenyane, 2008; DPME, 2014).

The 2016 newsletter of the Professional Board for Dietetics and Nutrition included information on the process embarked upon to assess the current scopes of practice of dietitians and nutritionists, taking the South African context into account. Fourteen contributing factors were identified prompting the need for change. Among these were: changes in South Africa's developmental agenda, reform to the health system, overlap in the professional scopes of

dietitians and nutritionists, non-availability of posts for nutritionists, and unclear roles and functions resulting in confusion and inappropriate appointment of staff. A health system-related factor was that nutritional problems at community and household level were not being addressed in the country (HPCSA, 2016). Rhea and Bettles (2012) followed a similar process to that of South Africa's Professional Board, documenting key drivers of change for the profession in the United States of America. They highlighted the importance of acquiring insights, based on different scenarios and assumptions, about workforce supply and demand and not only expecting challenges but also appreciating opportunities that accompany change (Rhea & Bettles, 2012).

2.6 Nutrition workforce development

Nutrition workforce development as a strategic process is essential for achieving public health nutrition goals and objectives and improving nutritional outcomes (Palermo, Hughes, & McCall, 2010; Shrimpton et al., 2014). Numerous authors have provided definitions of workforce development. Some of these definitions can be viewed as not being sufficiently inclusive of all the strategic components needed for the workforce to be able to implement policies and programmes that lead to improved nutritional outcomes. In their nutrition workforce development studies, Hughes (2003a, 2003b) and Kugelberg (2012) propose a definition that can be viewed as holistic, inclusive and less limiting (Hughes, 2003a, 2003b; Kugelberg, 2012).

Workforce development refers to the strategic investment of resources by organisations and communities in activities that reach and maintain a critical mass of human resources, develop organizational environments that enable and promote effective practices, and enhance the competency of the workforce for more effective public health nutrition effort that achieves public health outcomes (Kugelberg, 2012: 48).

The aim of workforce development is to improve the functionality of the workforce through legislation, recruitment policies, resource allocation and competence development, on-the-job training, mentoring, workforce profiles and composition, career path planning and role clarification. Capacity-building, particularly in enhancing the capacity of the workforce to implement strategies, is an integral part of workforce development (Baillie, 2010; Kugelberg, 2012).

Baillie (2010) conceptualised capacity-building in a PHN practice context and defined it as follows:

Capacity building is a purposive and strategic approach that works across different levels to increase the skills, knowledge and ability needed to address health issues and achieve stated goals and objectives (Baillie, 2010: 19).

Figure 2.3 below is a representation of the capacity-building conceptual framework proposed, inclusive of the interrelated attributes/determinants that are necessary to drive a public health nutrition strategy.

The three foundation levels (leadership, intelligence and human resources) represent the fundamental determinants in all communities. Building on these foundation layers are four key determinants: partnerships, project management quality, workforce development and community development. Workforce development, as one of the pillars of capacity, is essential and needs to be actively pursued in order to achieve PHN goals.

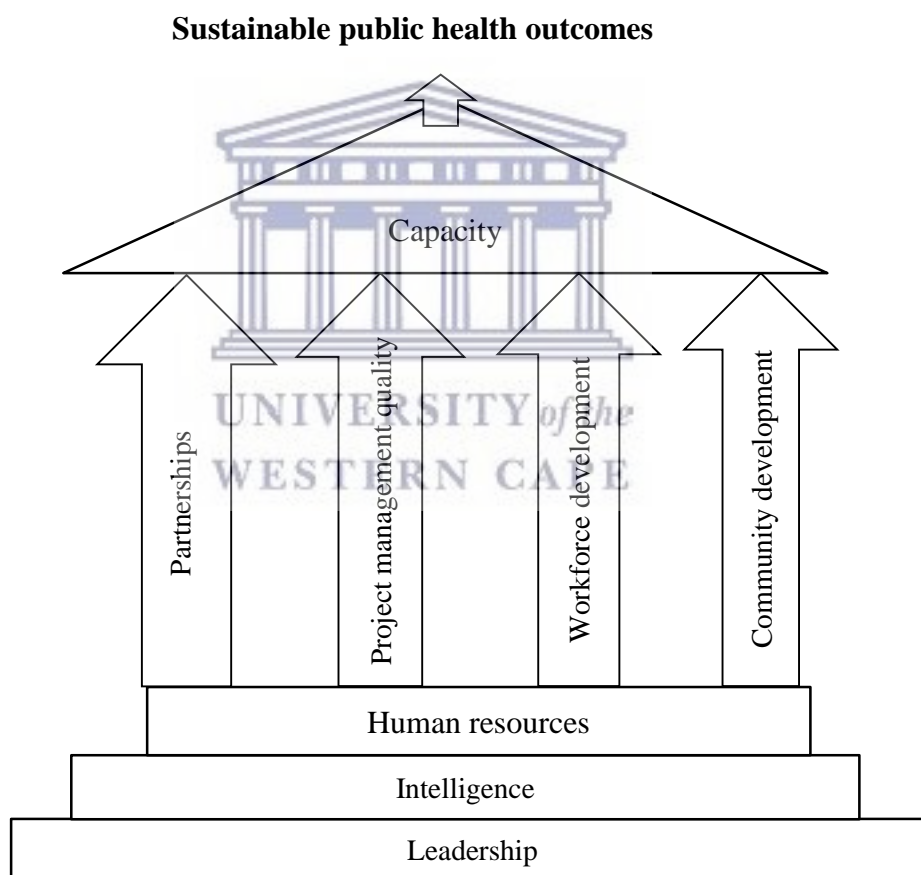


Figure 2.3. Conceptual framework for capacity-building in public health nutrition

Source: Baillie (2010)

Kugelberg (2012) defines capacity-building as:

Activities directed at upgrading technical and professional skills and establishing and/or strengthening infrastructure in the health, education and social sectors, usually with financial as well as technical and professional development (Kugelberg, 2012: 46).

These definitions imply that the health sector contributes to public health outcomes but also indicate that there is a societal/community responsibility to address nutrition-related issues. There are opportunities for the nutrition workforce to activate the societal role through strategic partnerships, leadership, resource allocation and organisational development (Hughes, 2003a, 2003b; Baillie, 2010; Geissler, 2015).

Mucha and Tharaney (2013) note that it is important to understand what is required to strengthen human capacity and provide nutrition services that deliver the desired impact and outcomes. They suggest that the following factors need to be understood: the components of a functional nutrition workforce system and/or the role of the nutrition workforce within the wider health system; which cadres of workers and service providers deliver and coordinate services; what level of training and support the workforce has; and what is needed from the workforce (Mucha & Tharaney, 2013).

2.7 Enablers of and barriers to workforce development

As a backdrop to the commitments that have been made towards nutrition workforce development, a number of barriers and enabling factors have been reported by authors. Table 2.2 below provides a summary of enablers and associated barriers which should be taken into account during the course of workforce development.

Table 2.2. Summary of enablers of and barriers to PHN workforce development

Enablers	Barriers
<ul style="list-style-type: none"> • Effective process of service delivery 	<ul style="list-style-type: none"> • Lack of systems approach and preparedness for workforce development • Fragmented organisational structures
<ul style="list-style-type: none"> • Institutional/technical capacities 	<ul style="list-style-type: none"> • Ad hoc attitude towards human resource problems
<ul style="list-style-type: none"> • Human resource management (HRM) systems 	<ul style="list-style-type: none"> • Limited understanding of personnel administration which fails to encompass all aspects of HRM • Short-term perspective of HRM • Dispersal of accountability within HRM
<ul style="list-style-type: none"> • Quality practice • Skilled, dedicated staff who assume a leadership role and act as change agents 	<ul style="list-style-type: none"> • Lack of lifelong learning and evaluation approach • Lack of data on workforce profiling and strategies for sustaining preparedness to deliver services

Enablers	Barriers
	<ul style="list-style-type: none"> • Inequality and inadequately trained staff
<ul style="list-style-type: none"> • Infrastructure and organisational capacity 	<ul style="list-style-type: none"> • Lack of integration in the health system • Inadequate resource allocation
<ul style="list-style-type: none"> • Delivery strategies matched with the needs and demands of the workforce • Social acceptability 	<ul style="list-style-type: none"> • Limited research and translation of research findings into interventions • Lack of workforce cohesion to implement PHN strategies
<ul style="list-style-type: none"> • Adequate resources and affordability 	<ul style="list-style-type: none"> • Inadequate incentives, financing for training and continuous education
<ul style="list-style-type: none"> • Nationally agreed frameworks on competencies, with knowledge and skills definitions • Political feasibility 	<ul style="list-style-type: none"> • Lack of consensus on frameworks for competencies, curricula, certification and credentialing • Lack of policy support

Sources: Adapted from Hughes (2003a, 2003b); Dussault and Dubois (2003); Kugelberg et al. (2012); Radford and Hall (2011); Ellahi et al. (2015)

Within the health system context it is important to enable workforce development and to be aware of and have contingency plans for potential barriers. Incorporating workforce development into health systems planning is key. Workforce development should, however, be all-encompassing and include aspects such as workforce profiling, understanding of roles and competencies, capacity-building, monitoring and evaluation, and leadership (Hughes, 2003a, 2003b; Hughes, 2004a; Kugelberg et al., 2012; Jonsdottir et al., 2012; Hughes, Begley, & Yeatman, 2015; Geissler, 2015; Hughes, Begley & Yeatman, 2016).

2.8 Key messages on workforce capacity development

- Human resources for health are central to the health system and cannot be underestimated.
- Health system approaches are needed for workforce development, which take into consideration the context, i.e. ecological model, environment (HR driving forces and challenges), resources available, organisational goals and dynamics, political influence, leadership and governance factors.
- Workforce development is affected by functional health systems; there is a need to ensure human resource connectedness between the various parts of the system.
- Performance of the workforce should be measured through rigorous monitoring and evaluation, using appropriate indicators and communication tools.
- Nutrition workforce development is an integral part of the health system requiring a clear delineation of roles and functions.
- Workforce development is a component of workforce capacity.

- Capacity-building of the workforce is essential for the implementation of strategies, interventions and programmes.
- People need to be cognisant of the enablers of and barriers to workforce development.

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Table A2.1. EBSCOhost search summary, scoping review workforce capacity and development

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y) /Excluded (N)
1. Fanzo et al., 2015	To develop the capacity of a global cadre of nutrition professionals for the post-2015 development era.	Workshops experts	Despite the nutrition burden, outcomes are hampered by shortages in numbers, skills and geography of nutrition staff. Participants identified WFD requirements and explored how agencies can work together. WF needs: work as part of a multi-sectoral team; communication, advocacy and leadership skills to engage decision-makers; and a set of technical skills to address future nutrition-related challenges. Workshop contributed to the delivery of successful nutrition-relevant actions in terms of SDGs.	Multi country	Y
2. Hughes, 2004c	To review position descriptions of the community and public health nutrition workforce in order to assess employers' expectations of workforce functions and competency requirements.	Job descriptions from public health and community nutritionists. 46 included in analysis	Descriptive qualitative data about employers' expectations of the core functions, competencies and credentials of community and public health nutritionists (PHNTs). Job descriptions (JDs) inform WFD. Indications provided of what entry and more senior positions do and what their competency requirements are. Developing JDs as an organisational response can lead to reorientation and positively add value to WFD.	Australia	Y
3. Palermo, Hughes and McCall, 2010	To evaluate the effectiveness of on-the-job learning and mentoring as a strategy for practice improvement in PHN.	32 PHN entry level nutritionists in 1–3 mentoring cycles	WFD is an element of capacity. Promotion of reflective practice attributes of a mentor. Increase in self-reported competency and reorientation of PHN preventative practice. Mentoring effective strategy for WFD.	Australia	Y Duplication
4. Sodjinou et al., 2014	To assess the current capacity to act in nutrition in the West African region	Interviews, universities and government	Lack of capacity leads to the lack of SUN. Gaps in information. Conceptual framework used for assessment at individual, organisational and systemic level. Many policies and forums but poor co-ordination, poor financial resourcing,	13 countries West Africa,	Y Duplication, slight title difference

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y) /Excluded (N)
	and explore cross-country similarities and differences.	officials and other stakeholders	stock-outs of supplies, shortage of staff, limited supervision at lower levels, no uniform nutrition information system. Nutritionists not employed in nutrition sector. Need to address the capacity issues.		
5. Hughes, Begley and Yeatman, 2016	To assess consensus PHN workforce core functions and required competency to perform functions in different practice jurisdictions.	33 PHN stakeholders, Delphi study	Consensus of functions and competencies at district, provincial and national levels. Agreement of a set of core functions and competencies to define the work. Evidence observed forms the basis for prioritising and designing future WFD at different levels of functioning.	Australia	Y
6. Hughes, 2003c	To investigate the attitudes, experiences and beliefs of advanced-level PHNTs. PHN workforce composition, core functions, competency requirements and existing workforce capacity.	Structured interviews 41 PHNTs	PHN diversity and cross-cutting competencies broad, but identified the need for a more PHN advanced level that can provide leadership. Nutrition science competencies to solve problems of delineated PHN workforce from the broader public health workforce. PHN was identified as a specialisation within public health and dietetics. Workforce capacity assessments by this group indicate a need for WFD strategies.	Australia	Y Duplication
7. Hughes, Begley and Yeatman, 2015	To assess consensus on the competencies required for effective PHN practice.	33 PHN stakeholders, Delphi study	Consensus on competencies – 33 elements rated essential with highest ratings for nutrition assessment, monitoring and surveillance, capacity-building and intervention management. The results provide a practical basis for future nutrition curriculum renewal and workforce development innovations and challenge the assumption that existing dietetic workforce preparation based on meeting entry-level competencies is adequate for community and PHN practice.	Australia	Y

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y) /Excluded (N)
8. Hughes, 2003a	To describe a conceptual framework and associated intelligence requirements for problem-based WFD for PHN.		Proposes a framework for WFD and planning. Framework highlights gaps and needs for further research to inform WFD strategic planning. Illustrates applications in WFD research and planning but does not provide a systematic approach for WFD research and planning directly related to PHN problem resolution.	Australia	Y Duplication
9. Aboul-Enein and Bowser, 2015	To list and identify current PHN education and training programmes offered in Egyptian colleges and universities.	63 Egyptian institutions	Gaps in trained allied professionals in nutrition that are specifically trained and/or recognised nutrition professionals. Cooperation between stakeholders needed to develop a PHN programme in Egyptian higher education to address the obesity prevalence and develop sustainable, congruent allied health workforce capacity, including dietitians/nutritionists.	Egypt	Y
10. Ellahi et al., 2015	To explore the capacity needs within standardised professional pre-service training.	Stakeholder workshops	Aspirations but limited HR capacity in nutrition subjects that involve skills-based training that is fit for purpose in Africa. No structured plans between professional groups to address current gaps and future needs.	Africa	Y Duplication
11. Shrimpton et al., 2016	To describe why and how capacity-building systems for SUN programmes should be constructed in low- and middle-income countries.	Task force review position paper	Call for action to prioritise and increase funding towards capacity-building in nutrition to improve the nutrition situation in low- and middle-income countries. A mixture of distance learning and in-service training is required for PHN workforce managers in low- and middle-income countries.	Global	
12. Geissler, 2015	To review capacity-building in PHN.	Conference proceedings	PHN capacity-building has to go beyond basic nutrition and beyond the immediate health workforce to policy makers in other sectors. Examples of capacity-building activities presented with opportunities, especially in context of technology.	International with focus on Africa	Y

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y) /Excluded (N)
13. Hughes, 2004b	To assess the size, demographic, educational and organisational characteristics of PHN WF.	240 PHN practitioners	Descriptive data profiling the demographic, educational and employment characteristics of the WF. WF capacity dependent on size, levels of experience and employment status. Provides opportunity for workforce monitoring that is needed to evaluate workforce effectiveness.	Australia	Y
14. Hughes, 2004a	To assess the roles, practice and work-related attributes of the community and PHN workforce.	240 PHN practitioners	Expression of the work functions and collaborators of the WF provides understanding for planning. Dietitians – mainly clinical and group education, professional advisory services and implementing community-wide nutrition education and food supply programmes. PHN functions multidisciplinary and inter-sectoral collaboration. Collaborators – health promoters, community health nurses and general practitioners – most common professional groups and community organisations and other state government departments – most common inter-sectoral organisations.	Australia	Y
15. Radford and Hall, 2011	To acquire insights into the development of a unique quality assurance framework in nutrition.	Narrative	Creation of a framework for nutrition capacity to address the challenges of nutritional inequality in terms of health status and health determinants.	UK	Y
16. Jonsdottir et al., 2012	To assess and develop a consensus regarding core functions required in PHN practice.	53 PHN stakeholders (academics and employers)	Core functions in Europe can be used to promote a consistent understanding of the role and value of PHNTs as a sub-speciality of the PH workforce. A set of core functions that can be used as a benchmark to guide PHN WFD.	18 European countries	Y
17. Kugelberg et al., 2012	To understand constraining and enabling factors.	60 key informants	Constraining and enabling factors identified. Identified the need for co-ordination between policy and programme implementation. Leaders and change agents needed for inter-	7 European countries	Y

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y) /Excluded (N)
			sectoral activities, advocacy, promotion of professional competencies and training.		
18. Aboul-Enein and Bowser, 2015	To identify and list current PHN education and training programmes offered in Egyptian colleges and universities.	63 web links of colleges and universities	Obesity is escalating in Egypt. Education and training are necessary for the PHN workforce. Review of websites of colleges and universities to identify available training and education in PHN and nutrition-affiliated academic programmes. Scarcity of programmes and professional affiliations. Greater cooperation needed between stakeholders in Egypt and internationally on PHN to improve allied health workforce capacity.	Egypt	Y
19. DPME, 2014	To diagnose/ implement the evaluation of nutrition interventions for children from conception to age 5 years.	4 provinces , including 32 health facilities and 16 NGOs	Evaluation of key evidence-based interventions provided with a focus on the sufficiency of national and provincial policy, leadership and resource allocation; on district management and oversight; and local level services delivery. Findings in terms of fit of policy and strategies, resource allocation, implementation models, organisational arrangements, capacity and training. Recommendations for improvements proposed.	South Africa	Y
20. Dussault and Dubois, 2003	To discuss the importance of health policies.	n/a	The authors argue for the need for more rational health workforce policies. Discusses why policies are required for HRH. Proposals are put forward to modernise the way HRH policy is developed.	International	Y
21. Haughton and Stang, 2012	To provide an overview of the most important population risk factors and trends in health care and public policy that are	n/a	Overview of the state of the current workforce in the USA, highlighting the opportunities and challenges it will face in the future. Factors highlighted in terms of demography, population, economic, health care and dietetic services,	USA	Y

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y) /Excluded (N)
	anticipated to affect the current dietetics workforce and future of dietetics training and practice.		health promotion and disease prevention. Suggestions given on how to address challenges.		
22. HPCSA, 2016	To produce a newsletter of the Professional Board for Dietetics and Nutrition.	n/a	Update to professionals on current scopes of practice of dietitians and nutritionists. Context and motivations provided on why it is necessary to implement changes in terms of the profession.	South Africa	Y
23. Hughes, 2003b	To write a doctoral thesis.	Mixed methods and a number of research sub-components.	Details of research on workforce development inclusive of survey tools, Delphi study and proposed framework.	Australia	Y
24. Kieny et al., 2017	To strengthen health systems and the prospects of achieving the SDGs.	n/a	Discuss health systems strengthening and how to progress towards UHC and the achievement of the SDGs.	International	Y
25. Kugelberg, 2012	To contribute to the workforce development of knowledge in Europe.	7 European countries	Explore and identify current workforce development needs and the policy process to lead to public health nutrition policy changes. Study had three separate components and implications of study findings showed relationships need to be established between key stakeholders to improve PHN. The studies confirmed that there are gaps in knowledge about PHN workforce development.	Europe	Y
26. Lazarus and France, 2014	To provide commentary on the WHO health systems framework	n/a	Proposed additions and discussion of the implications. Invite feedback from readers.	International	Y
27. Mucha and Tharaney, 2013	To provide insight into workforce development in	n/a	Detailed publication on scaling up nutrition interventions with a focus on human resource capacity and development.	International	Y

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y) /Excluded (N)
	order to improve nutrition outcomes.				
28. NDOH, 2011a	To outline the HRH strategy for South Africa.	n/a	Provides insight into the HRH vision for South Africa 2012/13–2016/2017.	South Africa	Y
29. NDOH, 2011b	To outline the HRH strategy for South Africa.	n/a	Update in terms of the HRH strategy for South Africa up to 2030. Provides insight in terms of what is planned for the workforce.	South Africa	Y
30. NDOH, 2014	To outline the strategic focus of the NDOH for the period 2014/15–2017/2018.	n/a	The strategies to achieve goals set for the 5-year period are outlined.	South Africa	Y
31. NDOH, 2017	To outline the plan for the year.	n/a	Priorities, targets and plans for the financial year 2017/2018–2018/2019 are outlined	South Africa	Y
32. National Planning Commission, 2012	To implement a development plan for South Africa.	n/a	Objectives of the plan are to eliminate poverty and reduce inequality through economic growth, economic transformation and job creation. It aims to unite South Africans.	South Africa	Y
33. Necochea et al., 2013	To compile a manual for health managers.	n/a	The manual is a tool for managers. Provide understanding of what a HRH system is and key elements for management. Explain how HRH can be managed in a systematic and strategic way.	International	Y
34. Baillie, 2010	To build a conceptual model for capacity-building for PHNs.	Included experts from 7 countries.	Mixed methods inclusive of literature, conceptualisation and obtaining consensus through the Delphi method. Experts from Australia, the United Kingdom, United States of America and Canada.	Developed countries	Y
35. Pillay et al., 2001	To provide an overview of the District Health System (DHS).	n/a	Background, history and progress of the DHS in South Africa.	South Africa	Y

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y) /Excluded (N)
36. Republic of SA, 2004	To implement the National Health Act.	n/a	Legislation in South Africa providing a framework for a structured and quality uniform health system in South Africa.	South Africa	Y
37. Rhea and Bettles, 2012	To compile a report that provides change drivers for the dietetic workforce.	n/a	Future scan report provides an overview of change drivers. There is acknowledgement that the profession faces many changes and needs to prepare for it.	Developed country	Y
38. Sava, 2018	To arrive at a framework for a health systems review.	n/a	Provides context to the health system.	Romania	Y
39. Shrimpton et al., 2014	To formulate a framework and a process for assessing the need to develop capacity to meet nutrition objectives, particularly those targeting mother and child undernutrition.	n/a	Clarity and an understanding provided of nutrition capacity. A framework for nutrition capacity development is proposed inclusive of an assessment and planning process to strengthen nutrition capacity.	Developed and developing countries	Y
40. Steyn and Mbenyane, 2008	To review and report on the future of the PHN workforce in South Africa.	n/a	Review current PHN practices and examine how the DoH is striving to deal with the increasing nutrition-related BoD.	South Africa	Y
41. World Bank, 2007	Implement a strategy to improve the health conditions of the people in different countries, particularly the poor and the vulnerable.	n/a	The World Bank Strategy for Health, Nutrition, and Population Results. Annexure L provides a description of the health system, health system functioning and systems thinking.	International	Y
42. WHO, 2000	Produce the World Health Report.	n/a	Report focusses on health systems. Provides insights into health systems performance, and offers practical advice on how to assess performance and realise improvements.	International	Y

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y) /Excluded (N)
43. WHO, 2006	Produce the World Health Report	n/a	Report focusses on the global health workforce and provides proposals to tackle challenges over the next 10 years.	International	Y
44. WHO, 2007	Produce a report on strengthening health systems to improve health outcomes.	n/a	WHO's framework for action. Clarify and strengthen WHO's role in health systems. The building blocks that make up a health system are defined.	International	Y
45. WHO, 2010	Write a handbook of indicators and the measurement of health systems building blocks.	n/a	Describes a set of indicators and related measurement strategies, structured around the WHO framework that describes health systems in terms of six “building blocks”.	International	Y
46. WHO, 2016	Implement a global strategy for the HRH workforce by 2030.	n/a	Document is aimed at planners, policy makers and relevant stakeholders. Vision, goals and objectives set towards UHC and SDGs with a focus on HRH. Milestones set for countries for 2020 and 2030.	International	Y
47. Zaluski and Bhattacharyya, 2007	Carry out health systems management and organisation in low- and middle-income countries.	n/a	Provide detailed information on the application of health services management in low- and middle-income countries. Provide insights and understanding in terms of the structure of health systems and health systems performance, and explore national, organisational, provider and patient interventions to improve the performance of health systems.	International	Y

CHAPTER 3: WORKFORCE DEVELOPMENT FRAMEWORKS

This chapter follows on from Chapter 2 by reviewing the literature on workforce development planning frameworks in respect of health and nutrition. The search strategy is discussed after which conceptual elements and components of frameworks are discussed and interpreted. Concluding remarks, key messages and references consulted are then shared.

3.1 Scoping review search strategy

A scoping review and synthesis of published literature were conducted, focussing on human resources for health, nutrition workforce development frameworks and planning.

- **Title:** The title of the review was based on human resource workforce development frameworks for health and nutrition.
- **Review question:** The review was based on the questions indicated in the conceptual framework illustrated in Figure 1.1. The specific questions for this section are aimed at understanding nutrition workforce development frameworks which are used to plan for addressing the needs of the workforce.
- **Scope:** The scope was based on keywords, i.e. nutrition workforce development frameworks in the health context. Contextual factors were added in the form of other key words, i.e. HRH frameworks, nutrition and the South African context.
- **Search strategy:** The search strategy was developed by working closely with the Faculty of Community Health Sciences librarian to select published material in the public health discipline, using databases in EBSCOhost as the search engine. All full-text articles published between January 2000 and September 2017 were included. The following databases were included in EBSCOhost: academic search complete, CINAHL plus with full text, eBook collection (EBSCOhost), e-Journals, Health source: nursing/academic edition, library and information science source and Medline.
- **Extraction and results:** The Boolean phrase workforce development and frameworks and health and nutrition were used as keywords. Seventeen articles were found. The words nutrition workforce were added resulting in only four articles, which were included in the initial search. The 17 articles were all included for analysis.
- **Context:** Google Scholar was also used to manually search for articles using keywords HRH frameworks and nutrition to incorporate the WHO and national provincial health departments' human resource policy frameworks.

- **Inclusion and exclusion criteria:** Full-text English articles and abstracts were included. Articles that focussed on aspects relating to interventions, randomised control trials and were unrelated to nutrition workforce development frameworks were excluded. Twenty-six articles were screened for eligibility. Sixteen articles were included in the review after exclusion of 10 articles from the EBSCOhost list (refer to Annexure Table A3.1). The PRISMA diagram represented in Figure 3.1 displays the process followed.
- **Presentation:** A decision was taken to present the review of literature based on the keywords to provide a baseline understanding of workforce development frameworks for nutrition and health.

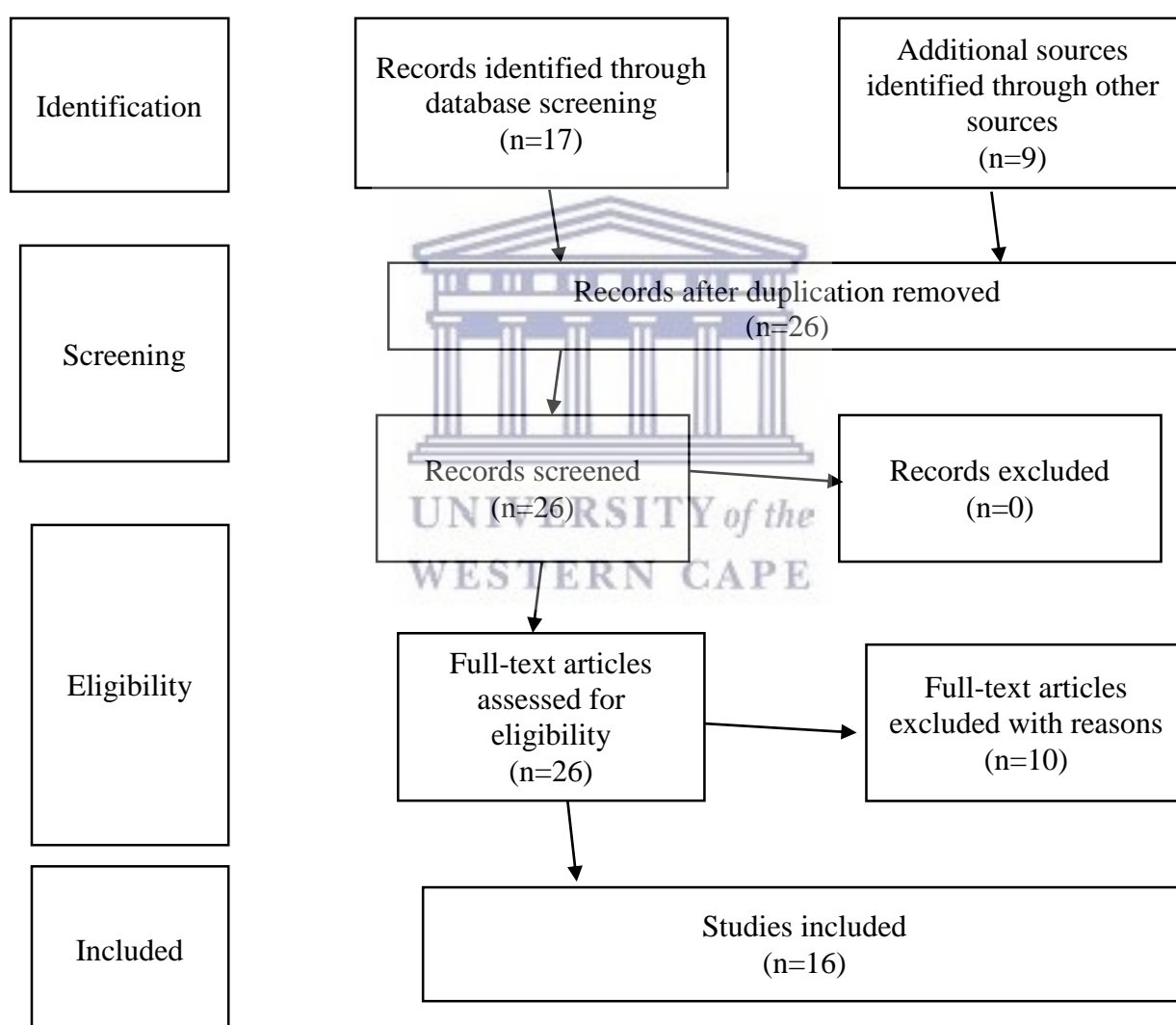


Figure 3.1. PRISMA flow diagram – Workforce development frameworks

Source: Joanna Briggs Institute (2015)

3.2 Conceptual workforce development frameworks for health

The Global Health Workforce Alliance (2009) developed a comprehensive HRH action framework for countries to plan for their PHC service delivery. Figure 3.2 below is a graphical representation of the HRH action framework which forms part of a global collaborative project aimed at assisting with workforce development and implementation strategies, while taking into account individual countries' varying contexts and complexities. The framework incorporates six action fields (human resource management systems, leadership, partnership, finance, education and policy) which need to be actioned in phases, i.e. situation analysis, planning, implementation, and monitoring and evaluation (Global Health Workforce Alliance, 2009).

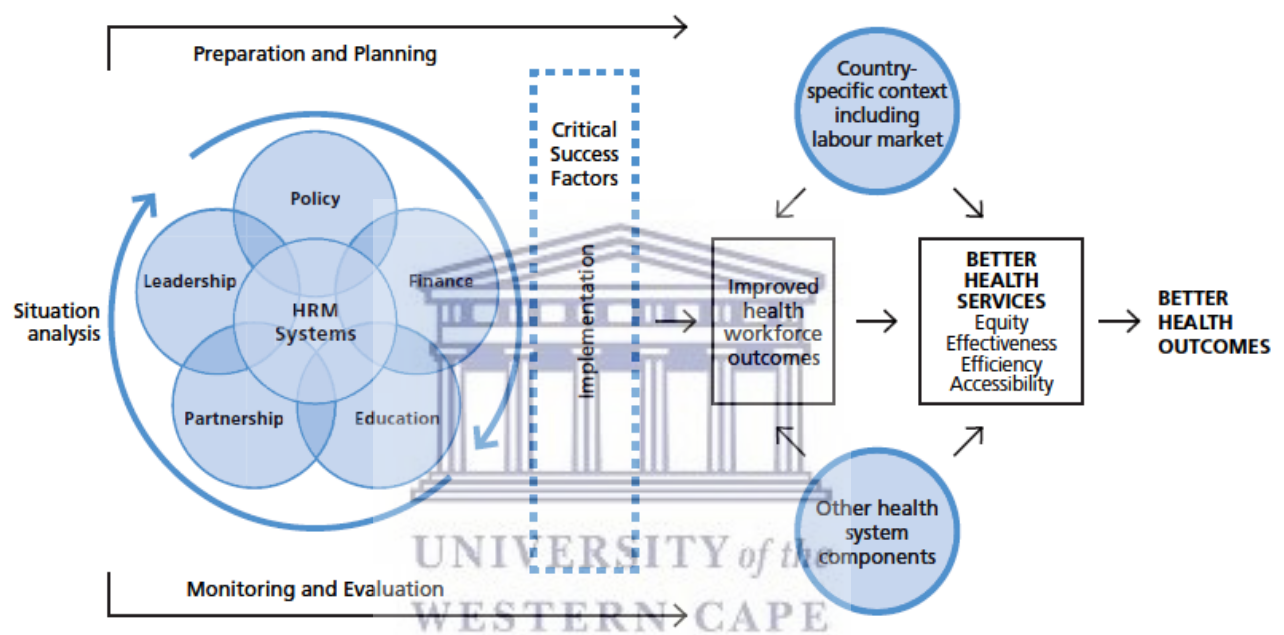


Figure 3.2. HRH action framework

Source: Global Health Workforce Alliance (2009)

The Global Health Workforce Alliance reviewed the literature and found six different projection approaches for HRH. The main purpose of the different approaches was to project the number of health care providers, estimating the human resource requirements using data management systems. These reflected the political and economic choices and social values of the health system (McQuide, Stevens, & Settle, 2008).

The ultimate goal of the project was to ensure that within given contexts, health outcomes were improved for the population (Global Health Workforce Alliance, 2009). A set of critical success factors (content and process) was proposed as important for implementation. These factors are summarised in Table 3.1.

Table 3.1. HRH action framework – critical success factors for implementation

Content-related factors	Process-related factors
HRH strategies and actions aim to achieve measurable improvements.	HRH improvements are carried forward by the country rather than external partners.
HRH strategies are harmonised with relevant components of the health system (e.g. monitoring and evaluation, supply chain, finance).	A commitment is shown by the government to support actions that contribute to a sustainable health workforce.
Decision-making reflects the best available documented HRH experiences.	There is engagement by all sectors involved in building the health workforce (e.g. finance, education, public-private providers, etc.).
Monitoring and evaluation are used to identify lessons learned and best practices to share in the country and globally.	There is inclusion of interest groups linked to particular actions (e.g. NGOs, patient groups, professional associations, donor coordinating committees, etc.).
Exploring new solutions will help to overcome chronic HRH issues.	Donor support is co-ordinated and aligned with country HRH plans.
HRH strategies and activities are informed by following a holistic approach. Interaction is needed with and across the health sector as a whole.	Gender differences are accounted for in the analysis and development of HRH strategies.

Source: Global Health Workforce Alliance (2009)

Bourgeault, Demers, and Donovan (2009) conducted a literature scan review and found 10 models of workforce development in the international literature. The research group synthesised key elements to combine in an expanded conceptual model of best practices in public health workforce development. These best practices were: workforce planning, human resource management and capability development. Inputs into these processes were: pre-service university preparation for public health professionals and health system support for workforce development. Enablers of the entire system were the development of organisational competencies and the implementation of a learning culture in the organisation (Bourgeault, Demers, & Donovan, 2009).

Birch et al. (2009) developed an analytical framework for needs-based human resource planning for the health sector, incorporating population health needs, levels of service to respond to health needs and provider productivity as additional variables in determining the future requirements for the levels and mix of health care providers. The framework enables

policy makers to evaluate increases in the numbers of providers and increases in education and training programmes as a way of increasing supply. The analytical framework provides a link between theoretical models' principles and human resource policy development. One of the first steps in applying the analytical framework is to clearly define the services planned and identify the population characteristics that reflect the relative need for these services among populations (Birch et al., 2009).

Lopes, Almeida, & Almada-Lobo (2015) reiterate the complexities when planning for the health care workforce and providing services that will produce the desired outcomes within the context of available funds. They describe the problem as “assessing the right number of people with the right skills in the right place at the right time, to provide the right services to the right people” (Lopes, Almeida, & Almada-Lobo, 2015: 38). In their review of documented research spanning more than 60 years, they found that there is still no definite approach to addressing health care human resource planning. The most recent literature suggests more integrated approaches combining supply (training, productivity, skills mix, worker-to-population ratios) and demand elements (demographic and socioeconomic factors, service/epidemiological needs and service targets) (Lopes, Almeida, & Almada-Lobo, 2015).

The WHO has developed a Workload Indicators of Staffing Need (WISN) human resource planning and management tool which provides managers with a systematic means of making staffing decisions and better managing human resources. The method determines the number of health workers required based on the workload and actual expert opinion, with activity (time) standards applied for each workload component of health workers in a given context. Managers can use the system to assess the workload pressure of the health workers in that facility and determine how many health workers are required in the given setting (WHO, 2010).

WISN results can also assist in planning and managing the workforce in terms of the distribution of current staff, aligning task allocation among cadres, reducing workload pressure and increasing the quality of current health services. Critical factors needed to successfully implement WISN are: competence in the use of the tool, local commitment including making resources available, skilled local technical teams, setting context-specific activity standards and mainstreaming the tool into HRM processes for health workforce planning and implementation (WHO, 2016).

3.3 Components of workforce development frameworks for nutrition

Black et al. (2008), in the Lancet Series (2008) on maternal and child undernutrition, highlight the need to invest in human and institutional capacity to improve nutrition outcomes. The

specific components that require urgent attention are the knowledge, skills, leadership and human resources, together with the capacity (numbers and quality), to deliver nutrition outcomes in countries (Black et al., 2008).

Hughes (2003a, 2003b) has presented a problem-based workforce development framework for public health nutrition in Australia which requires information for decision-making purposes.

Five components are identified in the framework:

- **problems and priorities** indicated in the nutrition strategy;
- **solutions- and/or evidence-based strategies** that deliver the best outcomes when implemented;
- **the work needed**, which includes the roles and functions that the workforce needs to focus on;
- **the capacity to work and workforce development**, including the composition of the workforce (who), enumeration and workforce profile (how many), existing practices, workforce preparedness and competencies, organisational commitment and support, and access to information (including research, physical infrastructure and equipment); and
- **the workforce development needed**, which includes strategies such as training and planning that will enable the workforce to address the identified problems.

The model follows a systems- and problem-based approach and requires information on all the above areas in order to be implemented. Applications in workforce development research and planning are illustrated but the model does not provide a systematic approach to PHN problem resolution (Hughes, 2003a, 2003b).

The Peel public health unit in Canada developed an expanded model incorporating three models by numerous authors, i.e. the Kennedy and Moore (2001) conceptual model of public health workforce development, the Cioffi et al. logic model (2004) and the Staron workforce development model (2008). The revised Peel workforce development model includes the following components:

- **Structures/Inputs** – Workforce education and training and workforce management;
- **Processes/Outputs** – Workforce planning, workforce development plans, human resource management and workforce capability development; and
- **Cross-cutting influences** – Organisational competencies and adaptive culture (Bourgeault, Demers, & Donovan, 2009).

Recommended action items in the Peel public health context proposed addressing the operationalisation of public health workforce development in three areas: planning, human resource management and workforce capability development. These are summarised in Table 3.2 below.

Table 3.2. Operationalisation of public health workforce development

Workforce planning	Human resource management	Workforce capability development
Assess HR supply and demand through targeted needs assessments.	Assess public health core competencies.	Engage in continuous professional development to enhance skills and competencies.
Profile workforce in terms of skills, competencies and demography.	Identify core competencies that could enable task shifting.	Conduct a training needs analysis and develop an implementation plan.
Set recruitment priorities based on workforce profile.	Identify competency gaps that can feed into training programmes.	Foster a culture of knowledge sharing and networking.
Review student placements and plan strategically for the future.	Revise job descriptions.	Develop innovative practices.
Evaluate and provide input into local training programmes to ensure the development of the right skills mix.	Have a recruitment plan that can address gaps identified.	
	Develop a performance management system, including rewards, career and succession planning.	
	Develop a supportive learning-oriented organisational culture, including leadership initiatives.	

Source: Adapted from Bourgeault, Demers, & Donovan (2009)

Numerous authors have cited that workforce development is an element of workforce capacity (Baillie et al., 2009; Palermo, Hughes, & McCall, 2010; Swanepoel, Fox, & Hughes, 2015; Shrimpton et al., 2014). Hughes and Margetts (2012) suggest an approach that integrates capacity-building practices to assist workforce development in the dynamic PHN sphere. The conceptual model is designed to guide the practitioner in following a sequential process that integrates capacity-building with intervention management to improve public health outcomes.

The model comprises three phases, i.e. intelligence, action and evaluation. The practitioner needs to gather information to understand the context that they work in, especially upstream determinants of health. The action phase focuses on planning and managing intervention

implementation while the evaluation phase focuses on the different levels and types of evaluation, including sharing best practices. The phases are connected and are not silos, but they force practitioners to go back and forth to adapt and change practices. This bi-cyclic framework is proposed to inform workforce development to improve PHN practice and planning for the workforce (Hughes & Margetts, 2012).

3.4 Interpretations of workforce frameworks for nutrition in South Africa

South Africa, like many other countries, has a critical shortage of human resources to deliver basic health, nutrition and community services. Despite the fact that interventions to reduce malnutrition in the first 1000 days (from conception/pregnancy to age 2) are relatively simple, the shortages and the lack of skills among staff constrain the implementation of direct nutrition services and long-term solutions to malnutrition. The implementation of nutrition-sensitive interventions in other sectors is also poor, falling well short of specifically addressing the underlying causes of malnutrition (NDOH, 2013; DPME, 2014).

There is limited information on the nutrition workforce in South Africa in the context of workforce development and the components needed for effective public health nutrition workforce planning. There are, however, overlaps with workforce planning and development frameworks and the components discussed in sections 3.2 and 3.3 above. Thus, there are opportunities to work together with other sectors and disciplines to address gaps in information and to develop more comprehensive approaches to nutrition workforce development and planning.

3.5 Conclusion

Black et al. (2013), in the Lancet Series (2013), identify strengthening human resources in nutrition as key to making progress in scaling up nutrition interventions and reducing undernutrition (Gillespie et al., 2013). Investing to address malnutrition was rated as a “best buy” by the Copenhagen Consensus project in 2008 and 2012 (Mucha & Tharaney, 2013: 2). At the other side of the scale, the WHO’s Global Status Report (2014) on non-communicable diseases highlights the need for HR capacity in particular to deal with the complexity of food and agricultural systems. There is a call to invest in additional human resources to reach targets to reduce obesity as it cannot be overlooked in terms of a multi-sectoral NCD action plan (WHO, 2014).

Mucha and Tharaney (2013) make the recommendation that national nutrition strategies should include the need to increase and strengthen human resource capacity for nutrition. Strategies need to be context-specific, inclusive and well-defined, informed by the following:

- the cadres of workers who need nutrition competencies, knowledge and skills;
- detailed job descriptions indicating roles and responsibilities and accountability structures;
- priorities in terms of nutrition-specific and nutrition-sensitive interventions;
- nutrition competency standards;
- the required knowledge, skills and workplace functions of each cadre;
- the roles, functions and capacity of multi-sectoral frontline workers (including frontline health workers, community health workers and agriculture extension officers, and public health allied positions);
- the capacity of mid-level nutrition workers who have the capacity to manage, coordinate and oversee decentralised nutrition activities;
- the national nutrition training strategy and curricula for pre-service, in-service and lifelong learning for the entire workforce, as well as size, composition and educational attributes of the nutrition workforce.

The above, however, need to be based on baseline assessment data on the skills, competencies and abilities of all levels of staff which should inform the workforce development plans (Mucha & Tharaney, 2013).

Ten Hoope-Bender et al. (2017) concur, saying that the range of workers needed depends on the context and that human resources should be allocated according to their competencies, especially in countries that are working towards meeting their SDG targets (Ten Hoope-Bender et al., 2017).

3.6 Key messages on workforce development frameworks

- Different approaches can be used when planning for the workforce but it is critical to incorporate the context acknowledging content- and process-related HRH factors.
- Information is needed as a baseline, irrespective of the workforce model used.
- The workforce needs to have the knowledge, skills and behaviours specific to the problem in order to respond to the nutrition-related burdens of undernutrition, overweight and obesity.

- Nutrition workforce development is critical as part of the strengthening of health systems, integrated either into HR or nutrition strategies at the national level.
- Workforce development is not a static process; it is dynamic.

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Table A3.1. EBSCOhost search summary, scoping review workforce development frameworks

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y)/Excluded (N)
1. Hughes, 2003a	To describe a conceptual framework and associated intelligence requirements for problem-based WFD for PHN.	n/a	Proposes a framework for workforce development and planning. Framework highlights gaps and needs for further research to inform WFD strategic planning. Illustrates applications in WFD research and planning but does not provide a systematic approach for WFD research and planning directly related to PHN problem resolution.	Australia	Y Duplication
2. Palermo, Hughes and McCall, 2010	To evaluate effectiveness of on-the-job learning and mentoring as a strategy for practice improvement in PHN.	32 PHN entry-level nutritionists in 1–3 mentoring cycles	Workforce development is an element of capacity. Promotion of reflective practice attributes of a mentor, increase in self-reported competency and reorientation of PH preventative practice. Mentoring is an effective strategy for WFD.	Australia	Y
3. Rosetti et al., 2008	To formulate a family and Consumer Sciences curriculum.	n/a	Benefits of Family and Consumer Sciences, standards and skills in different areas.	Mississippi	N
4. Baillie et al., 2009	To describe a conceptual framework to assist in the application of capacity-building principles to PHN practice.	Lit review	Framework proposed that identifies PHN capacity determinants. Key foundations are leadership, resourcing and intelligence. Five key strategic partnerships, organisational development, project management quality, workforce development and community development, are proposed. Can be used for systematic assessment, development and evaluation of capacity-building activity.	Australia	Y
5. Sodjinou et al., 2014	To assess the current status of nutrition training in medical,	Semi-structured interview and content review	All programmes had little focus on PHN. Mostly didactic training and integrated learning in 12% of medical schools. Nutrition instruction in their	13 countries West Africa	N

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y)/Excluded (N)
	nursing and midwifery schools in West Africa.	of training programmes	institutions is insufficient. Gaps in current approaches to nutrition training. To have a skilled nutrition workforce, nutrition curricula must be adapted to include basic nutrition principles and application.		
6. Swanepoel, Fox and Hughes, 2015	To assess and develop consensus regarding conceptualisation of capacity-building in practice, and to test the content validity of a previously published conceptual framework for capacity-building in PHN practice.	PHN practitioners	Consensus re determinants of capacity-building in practice, including partnerships, resourcing, community development, leadership, workforce development, intelligence and quality of project management. Validates work by Baillie.	Australia, UK, Canada, USA	Y
7. Hughes & Margetts, 2012	To describe a model for PHN practice.	n/a	Modified bi-cycle model designed to facilitate practice improvement and provide a step-wise approach to assist with workforce development. Integrates capacity-building practices.	Developed countries	Y
8. Davies, Hughes and Margetts, 2012	To test the feasibility of a pan-European professional recognition system for PHN.	Doc reviews enquiry 145 experts	Support for a certification system of professional peer review of professional practice portfolios.	29 EU	N
9. Pérez-Escamilla et al., 2012	To conduct a peer review of literature re barriers and facilitators of breastfeeding in low- and middle-income countries.	Doc review	22 enabling factors and 15 barriers were mapped. Evidence-based advocacy is needed to generate the necessary political will to enact legislation and implement policies. Political-policy axis in turn	28 African countries, Latin America,	N

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y)/Excluded (N)
			drives the resources needed to support WFD, programme delivery and promotion.	Caribbean, and Asia	
10. Fox and Beyers, 2011	To describe the planning of a more accessible graduate programme for experienced nutrition professionals	n/a	The Health Communication Unit – planning model provided a useful framework for stakeholder collaboration and for planning and implementing the new graduate PHN programme.	Canada	N
11. De Groot et al., 2010	To promote obesity intervention in children	Doc, interviews	Learning points from this mixed-methods evaluation that should inform current and future community-based PH and health promoter (HP) initiatives.	Geelong, Australia	N
12. Shrimpton et al., 2014	To devise a framework and a process for assessing the needs for capacity development	Commentary and framework	Nutrition capacity development proposed recognises capacity to be determined by a range of factors across at least four levels: system, organisational, workforce and community levels. Capacity development critical to achieve nutrition objectives.	Low- and middle-income countries	Y
13. Dennis et al., 2012	To determine the effectiveness of PHC providers in developing health literacy of patients to make smoking, nutrition, alcohol, physical activity and weight lifestyle changes.	Narrative synthesis	Capacity to provide interventions of sufficient intensity is an important condition for effective health literacy support for lifestyle change.	EU	N
14. Schuchter et al., 2015	To study longer-term training outcomes for improving capacity-building activities and Health Impact Assessment practice.	48 in-depth interviews with Health Impact	Opportunities exist to refine and co-ordinate training resources, apply a competency framework and leverage complementary workforce	USA	N

Author/Year	Objectives	Participant characteristics & Tot #	Concept/Outcomes	Context/ Geography	Included (Y)/Excluded (N)
		Assessment trainees	development efforts, and sensitise and build the capacity of communities.		
15. Hector et al., 2008	To understand the research policy interface.	Explorative research	Explores the development of this policy, highlighting the factors that facilitated the incorporation of research evidence into policy.	Australia	N
16. Pena-Rosas et al., 2008	To implement a review	n/a	Practical guidance for designing a monitoring and evaluation system for a flour fortification programme.	USA	N



CHAPTER 4: SCOPE OF PRACTICE AND COMPETENCY REVIEW

This chapter examines the competencies acquired (through training) and required (to do the work) of the nutrition workforce through a scope of practice and competency review. The chapter builds on previous chapters using another lens to understand workforce development and the capacity required to do the work. The rationale, methodology, analytical findings and limitations are presented. The findings are discussed and final conclusions and key messages are shared. Applicable references are listed at the end of the chapter.

4.1 Scope of practice and competency document review

A document review was conducted of acquired competencies based on pre-service training of registrable and non-registrable professionals who worked in the public health sector and provided nutrition services. The professionals included: dietitians (DTs), nutritionists (NTs), doctors (DRs) and professional nurses (PNs), all of whom are registrable with health councils. The non-registrable health professionals included were community health workers (CHWs) and health promoters (HPs). Initially it was planned to include only dietitians, nutritionists and nurses but after the review of literature and with a better understanding of the other cadres working in PHC in the health system, it was decided to include doctors, community health workers and health promoters.

4.2 Literature review

The capacity of the public health workforce is a key factor in the response to public health nutrition issues. Capacity refers to the ability of an individual, organisation or workforce to achieve stated objectives. This ability is influenced by the quality of workforce preparation, continuing professional development, workforce size, and organisation of and support for the workforce to respond to and address public health nutrition issues (Shrimpton et al., 2014; Shrimpton et al., 2016).

An expert advisory group on nutrition monitoring – established jointly by the WHO and United Nations Children’s Fund (UNICEF) in 2015, with support and contributions from the capacity-building working group of the World Public Health Nutrition Association (WPHNA) – has defined public health nutrition capacity and at the same time made recommendations on what will be needed to scale up implementation of nutrition actions. The landscape analysis done between 2008 and 2011 in various countries found the capacity of human resources particularly lacking. Since then much work has been done to address the PHN human resource capacity

aspects through the development of competency and nutrition capacity assessment frameworks (Shrimpton et al., 2017).

To determine the professionalism of public health and its related disciplinary groups, competency-based approaches have primarily been used. The Consortium of Universities for Global Health (CUGH) has tried to advise and develop core competencies, applicable across disciplines, to address global health competency gaps (Jogerst et al., 2015).

Competency standards provide the architecture for workforce development by organising the knowledge, skills and attitudes needed for public health nutrition. Using competency-based approaches highlights the need for individuals to be taught knowledge, skills and attitudes that are recognisable and quantifiable. Competency-based standards recognise that the individual has demonstrated the competence to practise within specific work roles. These standards provide the structure for curriculum design and evaluation and provide a benchmark for registration, performance review, recruitment and career planning (Hughes et al., 2011).

There are arguments against using competency-based approaches in the health sector. Factors put forward as arguments include: reductionism/competency assessment ignores the complexity of work; efficiency vs. effectiveness; the lack of innovation and creativity; and the lack of a specific context when using checklists with the result that more blended (combining practice with theory) approaches are advised (Hughes et al., 2012).

In the global context, core public health competencies are described in three main areas: research, capacity-building and intervention management. It is accepted that different levels of functioning may require different levels of competencies, which are primarily based on the roles and responsibilities of the workforce. The WPHNA has made efforts to reach consensus in respect of the PHN workforce in different countries, including Australia, the United States and the United Kingdom (Hughes et al., 2012).

Participants from varying contexts agreed at WPHNA capacity-building workshops in 2010 held in Porto, Portugal and a follow up workshop in Rio, Brazil in 2012 that competencies are similar across developed and developing countries. PHN practice is dynamic and influenced by the location, the level of workers in the system, different problems and the general passage of time (Shrimpton et al., 2016).

A static/rigid competency framework therefore has less value as a guide to workforce development. Frameworks need to adjust and take into account changes in needs, workforce practices and contexts (Hughes, et al., 2011). Many of the competencies for PHN were found

to be similar to those of general public health practice, but additional competency units in nutritional sciences were required.

4.3 Competency framework for public health nutrition

Figure 4.1 below represents the global framework for PHN competencies. The framework clarifies the different competency modules/building blocks that collectively describe the mix of attributes (knowledge, skills, values and attitudes) required to perform core PHN as described by Hughes et al. (2011).

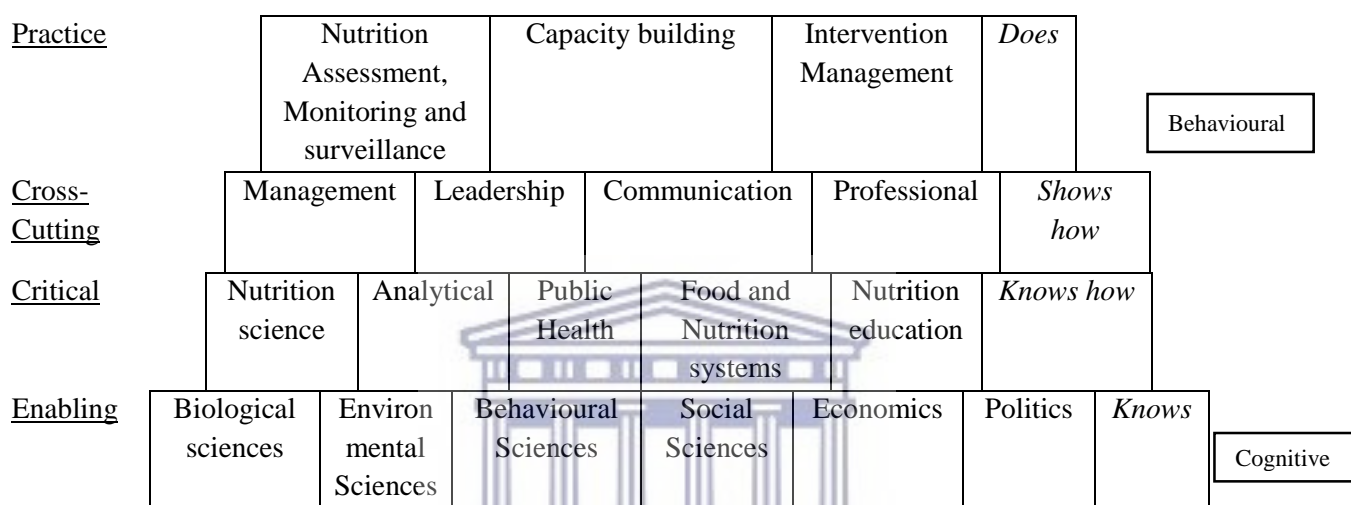


Figure 4.1. Competency building blocks for effective public health nutrition practice

Source: Hughes et al. (2011)

The building block framework delineates competency units over four levels (enabling, critical, cross-cutting and practice). Eighteen competency units are defined which can be grouped according to behavioural and cognitive levels of performance. Cognitive performance (knowing and knowing how) is having the knowledge and skills at a lower level to practise up to the higher level, which includes behavioural performance (showing how and doing) or the knowledge, skills, values and attitudes to perform functions.

Table 4.1 below provides a summary of the four competency categories, 18 competency units/building blocks and levels of performance.

Table 4.1. Summary of competency categories, competency units and levels of performance

Competency categories (4)	Competency units/Building blocks (18)	Levels of performance (behavioural/cognitive)
Practice Application of an often complex combination of knowledge, skills and attitudes in the performance of core public health nutrition functions	Nutrition assessment, monitoring and surveillance	Does/Behavioural
	Capacity-building	
	Intervention management	
Cross-cutting Competencies that are consistently required across professional public health and nutrition practice	Management	Shows how/Behavioural
	Leadership	
	Communication	
	Professionalism	
Critical Knowledge and skills that are critical to effective practice as a public health nutritionist and that delineate specialisation in this field.	Nutrition science	Knows how/Behavioural
	Analytical	
	Public health systems	
	Food and nutrition systems	
	Nutrition education	
Enabling Enabling knowledge that underpins public health nutrition competency applied in practice.	Biological sciences	Knows/Cognitive
	Environmental sciences	
	Behavioural sciences	
	Social sciences	
	Economics	
	Politics	

Source: Hughes et al. (2011)

4.4 Rationale

South Africa's health system has undergone transformation since 1994 with an increase in delivery of services at primary health care level. With the quadruple Burden of Disease, interventions are directed at the population level. There is a great need for staff to have the necessary capacity to respond to the nutrition transition and the BoD. Undernutrition and stunting have remained problems, overweight and obesity have increased, and the contribution of nutrition-related factors to the rise in non-communicable diseases can no longer be disputed.

Registrable and non-registrable health professionals who work in the public health sector are meant to have the acquired competencies (applied knowledge and skills) and ability to perform duties in a work setting through training. Competencies are mostly acquired through pre-service training and can be enhanced through formal in-service training. Staff entering the workforce and taking up positions are expected to have acquired competencies and capabilities relevant to their job responsibilities, roles and functions.

Hughes et al. (2011) recognise the need for global workforce development to create broader capacity to achieve population health goals. In scaling up nutrition, high-income countries have acknowledged the importance of workforce capacity. In the developing world, diverse (and often underdeveloped) workforce capacity exists, which increases the need to address PHN nutrition issues (Hughes et al., 2011).

In South Africa, two cadres are trained and registered as nutrition professionals but they are not the only cadres responsible for delivering nutrition services. Currently the roles and scope of work of the two nutrition professionals overlap and not enough positions are available in the public health sector to accommodate both. The situation has been exacerbated by the inequities in the financing of services and the need to deal with competing priorities in the health system. Nutritionists have been affected the most, being inappropriately placed in health care services and community service posts having not been created by the DoH due to their scope of practice not being promulgated. In light of the challenges, the Professional Board for Dietetics and Nutrition has reviewed the circumstances of the two registrable nutrition professionals and has recommended that in future only one professional be trained (Wentzel-Viljoen, 2016).

Doctors and nurses are registrable health professionals responsible for delivering comprehensive health services (including nutrition) at the PHC level. The services at the PHC level are mainly driven by nurses while some PHC facilities have health promotion officers who provide health education (including nutrition). At the community/population level, community-based workers are the primary providers of comprehensive preventive and promotive health services working under the supervision of nurse coordinators. Outreach services are provided to the community service platform by dietitians and nutritionists.

The practical complexities in the current health system, which have been outlined, have led to a resolve to better understand the workforce capacity in terms of nutrition service delivery in South Africa.

4.5 Research question

Do key registrable health workers (doctors, nurses, dietitians and nutritionists) and non-registrable health workers (health promoters and community health workers) have the acquired competencies (acquired through their basic training) to respond to the nutritional needs of the country?

4.6 Aims and objectives

- To acquire knowledge about the scope of practice of registrable health cadres: dietitians, nutritionists, doctors and professional nurses;
- To review scope documents in terms of nutrition outputs;
- To review the competency frameworks and South African Qualifications Authority (SAQA) registration of qualifications for the respective cadres to ascertain the acquired competencies in terms of nutrition;
- To review the acquired competencies against global public health nutrition competency framework areas;
- To identify gaps and opportunities in terms of current acquired competencies for the respective cadres.

After consideration of how services implemented in the health system are changing, three additional cadres were included, i.e. doctors (registrable), and community health workers and health promotion officers (non-registrable).

4.7 Methods

Acquisition of documents

A credible sourcing strategy was formulated to obtain relevant documents for the registrable and non-registrable professions. The decision was taken to work primarily with available published, legislated documents on registration, scope of practice and professional training qualifications. Unpublished documents that could be verified were considered if they came from reputable sources, i.e. board or committee members of the respective professional councils.

Doctors', dietitians' and nutritionists' practices are regulated under the Health Professions Council of South Africa (HPCSA). Twelve professional boards function under the Council to coordinate profession-specific matters, including registration and professional training. Doctors fall under the Medical and Dental (and medical science) board. Dietitians and nutritionists fall under the Dietetics and Nutrition Board, while nursing practice is regulated by

the South African Nursing Council (SANC). The scope of practice documents for dietitians (HPCSA, 1991), doctors (Government Gazette, 2009) and nurses (Government Notice, 2013) are referenced in the References list at the end of this chapter.

Professional qualifications are regulated by the South African Qualifications Authority (SAQA) which requires that courses offered by institutions towards a specific qualification be registered. The details of each course, inclusive of learning outcomes and competency areas, are outlined in the qualification documents.

For this study, the specific documents relating to registration, scope of practice and qualifications were obtained from the websites of the professional regulatory bodies and the qualifications authority for all cadres was included. Registration documents for SAQA qualifications were accessed through the SAQA website. Keywords identifying the respective qualifications for the professions were used to obtain the specific reference documents from multiple universities that are registered to offer qualifications. Documents for non-registrable cadres (community health workers and health promoters) were obtained from the SAQA website and the provincial training unit in the Western Cape province.

Data extraction and revision

The documents obtained were grouped per cadre and then catalogued. A data extraction table was developed for the scope of practice documents per cadre, including the following subheadings: regulation number, date, definition of professional, relevant act and scope of practice areas. The data was then extracted and mapped per cadre from the documents and summarised.

A similar summary table, mapped per cadre, was developed and populated from the SAQA documents for the acquired competencies through training. In this instance, the subheadings were mapped against the 13 global competency framework areas for public health nutrition per cadre.

The populated tables, constituting a recorded summary of the published documents, were used for the review, description and analytical process.

4.8 Data analysis

The landscape representation of summarised data, outlining the respective aspects of the scope of practice and competencies against the global PHN framework for the groups, was analysed and described in terms of the subheading selected, the qualitative content and the thematic

analysis. The data was further synthesised to identify overlapping areas, commonalities and gaps between the different cadres.

The data extracted from competency and SAQA documentation was evaluated in a quantitative manner against the global competencies for PHN. This was done by using a '+' to indicate when it was covered (when more than one word could be linked), using a '-' to indicate limited coverage (when one word could be directly or indirectly linked) and using a '*' when there was no coverage (no words could be linked). The totals were calculated per competency area and sub-elements. The percentage coverage was calculated per competency area for each cadre and summarised per competency category/block, as reflected in Figure 4.1 and Table A4.1.

4.9 Anticipated benefits

The study will help to create a better understanding of the acquired competencies that are needed after the completion of basic training and will identify gaps at a practical level.

4.10 Ethical considerations

The study involved only reviews, with no interaction with human subjects. Therefore, no ethics clearance was obtained.

4.11 Findings

From the landscape representation of the scope of practice of the registrable health cadres, the following could be deduced:

a) Regulations

- The scope of practice was promulgated for dietitians, doctors and nurses but regulations for nutritionists have not been finalised. For nutritionists, a regulation relating to their registration was published under Government Notice 726, Government Gazette 31231, July 2008.
- Regulations were linked to an act for all registrable cadres, i.e. dietitians and doctors (Medical, Dental and Supplementary Health Service Professions Act, 1974) and nurses (Nursing Act No. 33 of 2005).
- Definitions were available for all registrable cadres.
- Scopes of practice were aligned to the respective cadres' definition descriptions, knowledge, skills and practice areas outlined.
- Changes and amendments to regulations for respective registrable cadres were observed, with doctors having the most recent update (2009) followed by nurses (2005) and nutritionists (Form 288, 2005) and dietitians (1991).



- For dietitians and nutritionists, nutrition specifics were clear, but they were unclear for doctors and nurses. As the scopes were not very nutrition-specific for doctors and nurses, it could be theorised that nutrition-specific functions are not core elements of their training and respective practices.
- Therapeutic interventions were included and allowed for all cadres except nutritionists (based on Form 288 since the scope and competencies are not regulated).

b) Content and thematic analysis of the registrable cadres

Table 4.2 summarises the key content and thematic areas of the four registrable professionals.

Table 4.2. Content and thematic analysis of registrable cadres

Content and thematic areas	Dietitians	Nutritionists	Doctors	Nurses
Interventions	Normal and therapeutic nutrition, research, nutrition education and behavioural change	Normal nutrition, research, nutrition education, promotion and communication leading to behavioural change	Holistic care, i.e. prevention, promotion, treatment and rehabilitation	Normal and therapeutic nursing care, research, monitoring and evaluation of services, and delegation of services
Target groups	Individuals, groups, population	Individual, groups, population	Clients/patients	All settings, i.e. emergency facilities and community
Evidence-based practices	Nutrition counselling and support, food service management	Nutrition interventions and programmes	Diagnose, prescribe and treat patients with medical conditions	Nursing care
Outcomes	Nutrition-specific	Nutrition-specific	Not nutrition-specific	Not nutrition-specific

Sources: HPCSA (1991); HPCSA (2005); Government Gazette (2009); Government notice (2013)

- Nutritionists practising in an evidence-based manner, focussing on nutrition interventions, programmes, monitoring and measuring of the impact of interventions and programmes, were uniquely stated in the nutritionists' documents.
- Food service management was not explicitly indicated for nutritionists. The focus was on nutrition policy, nutrition programmes, nutrition interventions, and monitoring and evaluation.
- Doctors' and nurses' documents did not reflect nutrition-specific outcomes but rather general health and patient outcomes in terms of medical and nursing care.

c) Key cross-cutting themes for the four above-mentioned professions:

- Providing health care to clients through interventions and programmes at an individual and group level. An added statement for nutritionists: "Nutritionists will not be involved in illness management, i.e. therapeutic interventions in individual clients/patients/communities" (HPCSA, 2005: 8).
- Advising clients and promoting health which could lead to behavioural change.
- Providing health education.
- Practising under evidence-based principles.
- Conducting research and reviewing performance by monitoring and evaluating outcomes.
- Working in a team.

d) Areas of overlap in dietitians' and nutritionists' practices:

- Applying guidelines and maintaining normal nutrition at the individual, population and group level.
- Participating in research.
- Monitoring and evaluating performance.
- Practising using evidence-based principles.
- Encouraging behavioural change/modification.
- Engaging in nutrition-linked education and communication.

Table 4.3 below outlines the findings per competency category. Coverage '+' indicates when it was covered (when more than one word could be linked), using a '-' indicates limited coverage (when one word could be directly or indirectly linked) and using a '*' indicates when there was no coverage (no words could be linked). Detailed findings per category and a description of the competency units can be found in Annexure Table A4.1.

Table 4.3. Summary of competency per staff cadre against global PHN (WPHNA) competency framework

Competency category	Competency unit	Competency element	Dietitian (DT)	Nutritionist (NT)	Professional Nurse (PN)	Doctor (DR)	Health Promoter (HP)	Community Health Worker (CHW)
Enabling TOTAL ENABLING KNOWLEDGE	6 units	Competency elements Coverage (+)	10/17 (59%)	16/17 (94%)	6/17 (35%)	6/17 (35%)	7/17 (42%)	8/17 (47%)
		Competency element Limited coverage (-)	7/17 (41%)	1/17 (6%)	11/17 (65%)	11/17 (65%)	12/17 (58%)	8/17 (47%)
		Competency element not covered (*)	0	0	0	0	0	1/17 (6%)
Critical TOTAL NUTRITIONAL SCIENCE	1 unit	Competency elements Coverage (+)	6/6 (100%)	5/6 (80%)	0	0	0	0
		Competency element Limited coverage (-)	0	1/6 (20%)	6/6 (100%)	6/6 (100%)	3/6 (50%)	3/6 (50%)
		Competency element not covered (*)	0	0	0	0	3/6 (50%)	3/6 (50%)
TOTAL ANALYTICAL	6 units	Competency elements Coverage (+)	18/36 (50%)	18/36 (50%)	18/36 (50%)	18/36 (50%)	0	0
		Competency element Limited coverage (-)	18/36 (50%)	18/36 (50%)	18/36 (50%)	18/36 (50%)	18/36 (50%)	2/36 (6%)
		Competency element not covered (*)	0	0	0	0	18/36 (50%)	34/36 (94%)
TOTAL PUBLIC HEALTH SYSTEMS KNOWLEDGE AND SKILLS	1 unit	Competency elements Coverage (+)	4/7 (57%)	4/7 (57%)	4/7 (57%)	4/7 (57%)	0	0
		Competency element Limited coverage (-)	3/7 (43%)	3/7 (43%)	3/7 (43%)	3/7 (43%)	4/7 (57%)	2/7 (29%)
		Competency element not covered (*)	0	0	0	0	3/7 (43%)	5/7 (71%)
TOTAL FOOD AND NUTRITION SYSTEMS KNOWLEDGE	1 unit	Competency elements Coverage (+)	4/6 (67%)	5/6 (83%)	0	0	0	0
		Competency element Limited coverage (-)	2/6 (3%)	1/6 (17%)	6/6 (100%)	6/6 (100%)	3/3 (50%)	3/3 (50%)
		Competency element not covered (*)	0	0	0	0	3/3 (50%)	3/3 (50%)

Sources: Adapted from Hughes et al. (2011); Data from analysis

Competency category	Competency unit	Competency element	Dietitian (DT)	Nutritionist (NT)	Professional Nurse (PN)	Doctor (DR)	Health Promoter (HP)	Community Health Worker (CHW)
TOTAL NUTRITION EDUCATION	1 unit	Competency elements coverage (+)	5/5 (100%)	5/5 (100%)	2/5 (40%)	1/5 (20%)	0	0
		Competency element Limited coverage (-)	0	0	4/5 (60%)	4/5 (80%)	5/5 (100%)	4/5 (80%)
		Competency element not covered (*)	0	0	0	0	0	1/5 (20%)
Cross-cutting TOTAL MANAGEMENT KNOWLEDGE AND SKILLS	1 unit	Competency elements Coverage (+)	6/6 (100%)	6/6 (100%)	5/6 (83%)	5/6 (83%)	0	0
		Competency element Limited coverage (-)	0	0	1/6 (17%)	1/6 (17%)	2/6 (33%)	5/6 (83%)
		Competency element not covered (*)	0	0	0	0	4/6 (67%)	1/6 (17%)
TOTAL LEADERSHIP KNOWLEDGE AND SKILLS	1 unit	Competency elements Coverage (+)	4/4 (100%)	4/4 (100%)	4/4 (100%)	4/4 (100%)	1/4 (25%)	1/4 (25%)
		Competency element Limited coverage (-)	0	0	0	0	3/4 (75%)	3/4 (75%)
		Competency element not covered (*)	0	0	0	0	0	0
TOTAL PROFESSIONAL	1 unit	Competency elements Coverage (+)	6/8 (75%)	6/8 (75%)	5/8 (62.5%)	5/8 (62.5%)	0	0
		Competency element Limited coverage (-)	2/8 (25%)	2/8 (25%)	2/8 (25%)	2/8 (25%)	6/8 (75%)	6/8 (75%)
		Competency element not covered (*)	0	0	1/8 (12.5%)	1/8 (12.5%)	2/8 (25%)	2/8 (25%)
TOTAL COMMUNICATION	1 unit	Competency elements Coverage (+)	9/10 (90%)	9/10 (90%)	9/10 (90%)	9/10 (90%)	4/10 (40%)	4/10 (40%)
		Competency element Limited coverage (-)	0	0	0	0	5/10 (50%)	5/10 (50%)
		Competency element not covered (*)	1/10 (10%)	1/10 (10%)	1/10 (10%)	1/10 (10%)	1/10 (10%)	1/10 (10%)
Practice TOTAL NUTRITION ASSESSMENT, MONITORING AND SURVEILLANCE	2 units	Competency elements Good coverage (+)	8/8 (100%)	8/8 (100%)	3/8 (37.5%)	3/8 (37.5%)	0	0
		Competency element Limited coverage (-)	0	0	3/8 (37.5%)	3/8 (37.5%)	3/8 (37.5%)	2/8 (25%)
		Competency element not covered (*)	0	0	2/8 (25%)	2/8 (25%)	5/8 (62.5)	6/8 (75%)

Sources: Adapted from Hughes et al. (2011); Data from analysis

Competency category	Competency unit	Competency element	Dietitian (DT)	Nutritionist (NT)	Professional Nurse (PN)	Doctor (DR)	Health Promoter (HP)	Community Health Worker (CHW)
TOTAL CAPACITY-BUILDING	1 unit	Competency elements Coverage (+)	5/10 (50%)	8/10 (80%)	1/10 (10%)	1/10 (10%)	0	0
		Competency element Limited coverage (-)	5/10 (50%)	2/10 (20%)	9/10 (90%)	9/10 (90%)	8/10 (80%)	4/10 (40%)
TOTAL INTERVENTION MANAGEMENT	2 units	Competency elements Coverage (+)	10/13 (80%)	13/13 (100%)	4/13 (30%)	4/13 (30%)	1/13 (1%)	0
		Competency element Limited coverage (-)	3/13 (20%)	0	9/13 (70%)	9/13 (70%)	6/13 (46%)	2/13 (15%)
		Competency element not covered (*)	0	0	0	0	6/13 (46%)	11/13 (85%)

Sources: Adapted from Hughes et al. (2011); Data from analysis



Enabling knowledge (including biological, environmental, behavioural and social sciences, economic concepts and principles, and the political and institutional context of PHN) and **competency elements** among nutritionists (at 94%) were greater than those of dietitians (at 53%). DRs and PNs had fewer enabling knowledge competency elements covered than health promoters and community health workers. Nutritionists received more knowledge inputs in these areas during their pre-service training than any other cadre.

Regarding **nutritional science** as a critical area, dietitians had all competency elements covered. Nutritionists had less nutritional physiology and biochemistry covered (5/6 elements, 80%). DRs and PNs had limited coverage in all six areas with HPs and CHWs having no coverage in three of the six areas.

The **analytical competency category** as a critical area showed that the four registrable professionals had coverage for half of the competency elements while HPs and CHWs had limited to no coverage. Dietitians had the best coverage among the cadres.

Public health systems knowledge and skills (critical area) were found to be limited among all cadres with specific reference to healthcare financing, development and public health history.

With regard to **food and nutrition systems knowledge elements** (critical area), only dietitians and nutritionists had most elements covered while DRs and PNs had limited coverage and HPs and CHWs had limited to no coverage.

With regard to **nutrition education** (critical competency category), dietitians and nutritionists had all areas covered with all other cadres having limited coverage and CHWs having no coverage in educational theory.

The cross-cutting knowledge and skills areas (management, leadership, professional and communication) are practice areas. These areas are indicative not only of having knowledge but also the ability to practise or implement it in work settings. A similar pattern of coverage was observed for dietitians, nutritionists, DRs and PNs, with most elements being covered but with gaps observed in professional and communication areas. The situation for HPs and CHWs was different, with most of these areas being covered to a limited extent or not at all.

In the three competency practice areas (nutrition assessment, monitoring and surveillance; capacity-building; and intervention management), nutritionists were mostly covered followed

by dietitians for all elements. The two areas in which dietitians had less coverage were capacity-building and intervention management. DRs and PNs had limited coverage in all the practice competency areas, i.e. nutrition assessment, monitoring and surveillance; capacity-building; and intervention management. CHWs and HPs had limited to no coverage in all areas with the exception of leadership skills and communication. What practice coverage means is that cadres that have good coverage have the knowledge, skills, values and attitudes to perform core functions. Based on the analysis, nutritionists had the best coverage in the practice areas, followed by dietitians. The other four cadres were found not to have competencies in these areas.

4.12 Limitations

The analysis was limited to dietitians, nutritionists, doctors, nurses, health promoters and community health workers. Other professions such as allied health workers were excluded. The reviewer made the assumption that nutrition is inherently part of *health care* and could have led to overestimation in the coverage results for all cadres in certain areas. Source documents were limited to what was published and submitted after formal requests were submitted to training organisations. This could have led to underestimation in some instances as no verification was done through interviews. The review against global competency units was completed by the main investigator who was knowledgeable about and had experience in the field of PHN. As there might have been scope for individual interpretations, the findings' validity could be enhanced in future if a second reviewer followed the methodology and rated the coverage.

4.13 Discussion

Entry-level cadres would exit with competencies based on the training in order to complete a specific qualification. Competency could be affected by in-service training, work experience and exposure in practice. The fact that content in some areas was covered in training courses does not translate into actual competence as practical exposure may enable people to become proficient in areas in which they might have had limited coverage in their training. Koo and Miner (2010) highlight the fact that entry-level professionals operate on the basis of rules and regulations limited by their scope and their decisions are mostly routine in nature. Entry-level officials also tend to have limited core competencies in public health as their competence lies mainly in their specific disciplines (Koo & Miner, 2010).

The findings confirm one of the conclusions reached in the HPCSA Professional Board for Dietetics and Nutrition task team situation analysis report (2014) that community nutrition competencies have been expanded through training and that there is a great deal of overlap in the scope of work and competencies between the professionals (HPCSA, 2014).

Fanzo et al. (2015) identified that in order to address the nutrition challenges post-2015, multi-sectoral team approaches, communication, advocacy, leadership skills to engage decision makers, and a set of technical skills will be needed from the workforce (Fanzo et al., 2015). Their review found that all the cadres included had limited coverage of these cross-cutting areas in their training. These competencies can be acquired through work exposure, experience and in-service training; yet having knowledge does not automatically translate into skills and having the attitudinal attributes necessary to be competent as a leader and the ability to advocate for a cause. Dietitians specifically had limited coverage in surveillance, capacity-building and intervention management which are needed for PHN. Dietitians were best trained among all professions on nutritional science, which is indicative of their ability to also work in therapeutic nutrition areas. Doctors and nurses received more generalised training in patient care than training specific to nutrition. Notably all professions had limited coverage in public health systems and analytical disciplines such as policy analysis.

The competency gaps of community health workers and health promoters in terms of nutrition interventions were concerning in light of the re-engineering of PHC and the shift to a more proactive, integrated population-based approach to service rendering and prevention (Western Cape Government: Health, 2016).

In March 2014 a roundtable discussion was held at the University of the Western Cape (UWC) at which training programmes and core competencies relating to health promotion professionals were discussed. The health promoters' core competencies framework for health promotion was agreed to in general. Some overlap was found with the global competency framework for PHN in terms of the three health promotion strategies (i.e. enable, mediate and advocate), project cycle management skills (i.e. needs assessment, planning, implementation, research and evaluation), leadership and communication skills (Dolobelle, 2014).

The national policy on community health worker outreach services was approved by the South African Cabinet in 2017, providing a framework and a clearer understanding of the vision for CHWs. Key skills required for particular roles have been identified and training content and

methods for ensuring that CHWs are capacitated to deliver as required are under review (NDOH, 2018)

It is encouraging that the professional boards of, for example, dietetics and nutrition and the medical and dental undergraduate education and training subcommittees have taken steps to review the roles and competencies of the professional groups that they coordinate and regulate. The reviewed roles of medical doctors, proposed in collaboration with training institutions of the South African Committee of Medical and Dental Deans (2014), are as follows: healthcare practitioner, health advocate, communicator, collaborator, leader and manager, scholar and professional (HPCSA, 2014). Similarly, the vision for the new professional termed ‘dietitian–nutritionist’ was defined in the HPCSA (2017) report prepared by Wentzel-Viljoen (2017) as:

A dietitian-nutritionist is a professional who applies the science of food and nutrition to promote health, prevent and treat disease to optimise the health of individuals, groups, communities and populations (Wentzel-Viljoen, 2017: 4).

The proposed specific focus of the new professional is primary health care, with allowance made for more advanced qualifications and registration in specialised fields. Areas that will be covered include therapeutic nutrition, community nutrition, public health nutrition, food systems, nutrition education and nutritional anthropology. The new professional will also be able to work in sectors other than public health, including social services and agriculture (Wentzel-Viljoen, 2017). The weakness in the systems, however, is the lack of clear timelines for change, as well as resource constraints and the bureaucratic environment of the HPCSA, which have elongated the process (since 2012) of reviewing the dietitian–nutritionist profession (Wentzel-Viljoen, 2016).

4.14 Conclusion

Scaling up nutrition requires a more robust effort to define who the nutrition workforce is and address their capacity to act in the face of a changing environment. Stunting rates remain high and undernutrition can no longer be the main focus. Overweight and obesity are becoming a growing concern and are exacerbating the NCD Burden of Disease. Promotional, preventative and population-based interventions are required to address the nutrition situation, with the focus on designated professionals with the required knowledge, skills, competencies and attitudes to perform the work.

Public health nutrition workforce models, as opposed to only clinical-oriented dietetic workforce models, are needed to address the current nutrition burden (Hughes et al., 2011; Shrimpton et al., 2017; Delisle et al., 2017). Globally there is a need to continuously develop competencies through further research in order to identify the best ways of incorporating competencies into educational programmes. In 2015, the Consortium of Universities for Global Health advised that the focus should be on implementation and evaluation of competencies across educational programmes (Jogerst et al., 2015).

From the competency assessment of the six cadres in the South African workforce context, it is apparent that there are major gaps in the training of the frontline workforce in terms of PHN. The analysis has shown that PHN functions are not core to the functions of cadres other than nutrition professionals. Equally, the need to train not only dietitians and nutritionists but also other health workers (such as doctors and nurses, health promoters and community health) in nutrition cannot be emphasised enough. Delisle et al. (2017) stress the need for comprehensive capacity-building approaches, directed at all relevant members of the workforce, so as to deliver on comprehensive goals in low-resource countries (Delisle et al., 2017).

Following a health systems approach, where all the services provided affect the whole system, induces the need for change. The frequent assumption that nutrition is integrated into general *health care* is misplaced as nutrition then loses its distinction, becoming too generalised. The expectation, however, is not that all cadres be trained on the core competencies for public health nutrition but that all cadres receive training in line with their respective roles and responsibilities in relation to nutrition, as part of the multidisciplinary team.

4.15 Key messages on workforce acquired competencies

- The analysis provided insight into the acquired competencies of six cadres in terms of PHN in the public health sector in South Africa.
- Competencies cannot only be at the level of knowledge; they also need to be evident at higher, practical levels, i.e. performing core functions through a combination of knowledge, skills, values and attitudes.
- All cadres in the workforce require nutrition training – not only knowledge-based training but also training that involves practical application and the development of cross-cutting competencies as part of pre-service professional development.

4.16 References

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Competency category	Competency unit (6)	Competency element (17)	DT	NT	PN	DR	HP	CHW	
1. ENABLING KNOWLEDGE Enabling	The contribution of the biological sciences to understanding the health and nutrition of populations	Biological determinants of health	+	+	+	+	+	+	
		Models of disease causation	+	+	+	+	+	-	
	The contribution of the environmental sciences to the health and nutrition of populations	Environmental determinants of health	+	+	+	+	+	+	
		The risk framework	+	+	+	+	-	-	
		Paradigms of environmental health	-	+	-	-	-	-	
	The contribution of the behavioural sciences to understanding the health nutrition of individuals and populations	Behavioural determinants of health	+	+	+	+	+	+	
		The individual in a social environment	+	+	+	+	+	+	
		Behavioural theories	+	+	+	+	+	+	
	The contribution of the social science disciplines to understanding the health and nutrition of populations	Social determinants of health	+	+	+	+	+	+	
		Theoretical foundations	+	+	+	+	+	+	
		Social context	+	+	+	+	+	+	
	The contribution of economic concepts and principles to public health and nutrition	Economic determinants of health	-	+	-	-	-	-	
		Key economic concepts	-	+	-	-	-	-	
		Financial incentives	-	-	-	-	*	*	
	The political and institutional context of public health and nutrition	Systems and institutions	-	+	-	-	-	-	
		Government and legislation	-	+	+	+	-	-	
		Global factors	-	+	-	-	-	-	
	TOTAL ENABLING	6 units	Competency elements coverage (+)	10/17 (59%)	16/17 (94%)	6/17 (35%)	6/17 (35%)	7/17 (42%)	8/17 (47%)
			Competency elements limited coverage (-)	7/17 (41%)	1/17 (6%)	11/17 (65%)	11/17 (65%)	12/17 (58%)	8/17 (47%)
			Competency elements not covered (*)						1/17 (6%)

Source: Hughes et al. (2011)

Competency category	Competency unit (1)	Competency element (6)	DT	NT	PN	DR	HP	CHW
2. NUTRITION SCIENCE Critical	Specialist knowledge and skills in nutrition science and their application to public health practice	Food composition	+	+	-	-	-	-
		Food guidance	+	+	- Indirectly not explicit	- Indirectly not explicit	-	-
		Nutritional requirements	+	+	- Indirectly not explicit	- Indirectly not explicit	-	-
		Nutritional intervention strategy options	+	+	- Indirectly not explicit	- Indirectly not explicit	*	*
		Food science	+	+	- Indirectly not explicit	- Indirectly not explicit	*	*
		Nutritional physiology and biochemistry	+	-	- Indirectly not explicit	- Indirectly not explicit	*	*
TOTAL NUTRITION SCIENCE	1 unit	Competency elements coverage (+)	6/6 (100%)	5/6 (80%)				
		Competency elements limited coverage (-)		1/6 (20%)	6/6 (100%)	6/6 (100%)	3/6 (50%)	3/6 (50%)
		Competency elements not covered (*)					3/6 (50%)	3/6 (50%)

Source: Hughes et al. (2011)

Competency category	Competency unit (6)	Competency element (36)	DT	NT	PN	DR	HP	CHW
3. ANALYTICAL Critical	Generic analytical knowledge and skills for public health	Research paradigms	+	+	+	+	-	*
		Information on determinants of health	+	+	+	+	-	*
		Information on theory, assessment and intervention	+	+	+	+	-	*
		The role of data	+	+	+	+	-	*
		Reading critically	+	+	+	+	-	*
		Community research partnerships	+	+	+	+	-	*
		Problem analysis and needs identification	+	+	+	+	-	*
		Critical appraisal	+	+	+	+	-	*
		Presentation of data	+	+	+	+	-	*

ANALYTICAL	Competency unit (6)	Competency element (36)	DT	NT	PN	DR	HP	CHW
	Foundation bio-statistical methods applied to food and nutrition analyses	Statistical concepts	-	-	-	-	*	*
Comparison of two groups		-	-	-	-	*	*	
Relationship between two variables		-	-	-	-	*	*	
Sample size and power estimates		-	-	-	-	*	*	
Statistical software		-	-	-	-	*	*	
Epidemiological methods and their application to food and nutrition problems	Routine data collection	+	+	+	+	-	*	
	Morbidity and mortality	+	+	+	+	-	*	
	Study design (health status)	+	+	+	+	-	*	
	Study design (causality)	+	+	+	+	-	*	
	Measures of frequency and association	+	+	+	+	*	*	
	Study bias	-	-	-	-	*	*	
	Chance and significance	-	-	-	-	*	*	
	Confounding and effect modification	-	-	-	-	*	*	
	Calculation of mortality and morbidity rates	-	-	-	-	*	*	
	Diagnostic test evaluation	-	-	-	-	*	*	
Evaluation in public health nutrition	Qualitative data collection	-	-	-	-	-	*	
	Qualitative data analysis	-	-	-	-	-	*	
	Interpretation	-	-	-	-	-	*	
	Software for qualitative research	-	-	-	-	*	*	
Methods and evidence for nutrition policy, programme planning, evaluation and management	Using information	+	+	+	+	-	-	
	Applied quantitative and qualitative methods	+	+	+	+	*	*	
	Evidence	+	+	+	+	*	*	
	Performance monitoring and programme valuation	+	+	+	+	-	-	
	Economic evaluation	-	+	-	-	*	*	
Health, welfare, food and nutrition policy analysis	Policy analysis	-	+	-	-	*	*	
	Determinants and theories	-	+	-	-	*	*	
	Presents policy options	-	+	-	-	*	*	
TOTAL ANALYTICAL	6 units	Competency elements coverage (+)	18/36(50%)	18/36(50%)	18/36(50%)	18/36(50%)		
		Competency elements limited coverage (-)	18/36(50%)	18/36(50%)	18/36(50%)	18/36(50%)	18/36 (50%)	2/36 (6%)
		Competency elements not covered (*)					18/36 (50%)	34/36 (94%)

Competency category	Competency unit (1)	Competency element (7)	DT	NT	PN	DR	HP	CHW
4. PUBLIC HEALTH SYSTEMS KNOWLEDGE AND SKILLS Critical	Health systems knowledge	Sets priorities	+	+	+	+	-	-
		Understands health system structures and the drivers of health system change	+	+	+	+	-	-
		Health system development	-	-	-	-	-	*
		Health care financing	-	-	-	-	*	*
		Public health functions	+	+	+	+	-	*
		Public health history	-	-	+	+	*	*
		Public health in a system	+	+	+	+	*	*
TOTAL PUBLIC HEALTH SYSTEMS KNOWLEDGE AND SKILLS	1 unit	Competency elements coverage (+)	4/7(57%)	4/7(57%)	4/7(57%)	4/7(57%)		
		Competency elements limited coverage (-)	3/7(43%)	3/7(43%)	3/7(43%)	3/7(43%)	4/7(57%)	2/7(29%)
		Competency elements not covered (*)					3/7(43%)	5/7 (71%)

Source: Hughes et al. (2011)

Competency category	Competency unit (1)	Competency element(6)	DT	NT	PN	DR	HP	CHW
5. FOOD AND NUTRITION SYSTEMS KNOWLEDGE Critical	Food and nutrition systems knowledge	Key players	+	+	- Indirectly not explicit	- Indirectly not explicit	-	-
		Understands food and nutrition system structures and the drivers of systems change	+	+	- Indirectly not explicit	- Indirectly not explicit	-	-
		Food security	-	+	- Indirectly not explicit	- Indirectly not explicit	-	-
		Food and nutrition system development	-	+	- Indirectly not explicit	- Indirectly not explicit	*	*
		Food service	+	*	- Indirectly not explicit	- Indirectly not explicit	*	*
		Food and nutrition as a business	+	+	- Indirectly not explicit	- Indirectly not explicit	*	*
TOTAL FOOD AND NUTRITION SYSTEMS KNOWLEDGE	1 unit	Competency elements coverage (+)	4/6(67%)	5/6(83%)				
		Competency elements limited coverage (-)	2/6(3%)	1/6(17%)	6/6(100%)	6/6(100%)	3/3 (50%)	3/3 (50%)
		Competency elements not covered (*)					3/3 (50%)	3/3 (50%)

Source: Hughes et al. (2011)

Competency category	Competency unit (1)	Competency element (5)	DT	NT	PN	DR	HP	CHW
6. NUTRITION EDUCATION Critical	Education competencies	Translates technical information	+	+	-	-	-	-
		Identifies and develops educational resource material	+	+	-	-	-	-
		Nutrition education	+	+	+	+	-	-
		Education programmes	+	+	-	-	-	-
		Educational theory	+	+	+	-	-	*
TOTAL NUTRITION EDUCATION	1 unit	Competency elements coverage (+)	5/5 (100%)	5/5 (100%)	2/5 (40%)	1/5 (20%)		
		Competency elements limited coverage (-)			4/5 (60%)	4/5 (80%)	5/5 (100%)	4/5 (80%)
		Competency elements not covered (*)						1/5 (20%)

Source: Hughes et al. (2011)

Competency category	Competency unit (1)	Competency element (6)	DT	NT	PN	DR	HP	CHW
7. MANAGEMENT KNOWLEDGE AND SKILLS Cross-cutting	Management	Policy implementation	+	+	+	+	-	-
		Human resource management	+	+	+	+	*	*
		Financial management	+	+	+	+	*	*
		Change management	+	+	+	+	*	*
		Risk management	+	+	+	+	*	*
		Project resource management	+	+	-	-	-	*
TOTAL MANAGEMENT KNOWLEDGE AND SKILLS	1 unit	Competency elements coverage (+)	6/6(100%)	6/6(100%)	5/6(83%)	5/6(83%)		
		Competency elements limited coverage (-)			1/6(17%)	1/6(17%)	2/6(33%)	5/6(83%)
		Competency elements not covered (*)					4/6(67%)	1/6(17%)

Source: Hughes et al. (2011)

Competency category	Competency unit (1)	Competency element (4)	DT	NT	PN	DR	HP	CHW
8. LEADERSHIP KNOWLEDGE AND SKILLS Cross-cutting	Leadership	Advocacy and lobbying	+	+	+	+	-	-
		Decision-making	+	+	+	+	-	-
		Teamwork	+	+	+	+	+	+
		Leadership in practice	+	+	+	+	-	-
TOTAL LEADERSHIP KNOWLEDGE AND SKILLS	1 unit	Competency elements coverage (+)	4/4(100%)	4/4(100%)	4/4(100%)	4/4(100%)	1/4(25%)	1/4(25%)
		Competency elements limited coverage (-)					3/4(75%)	3/4(75%)
		Competency elements not covered (*)						

Competency category	Competency unit (1)	Competency element (8)	DT	NT	PN	DR	HP	CHW
9. PROFESSIONAL Cross-cutting	Professional attitudes and values	Values	+	+	-	-	-	-
		Capacity-building	+	+	*	*	-	-
	Competency element Performance criteria	Ethics	+	+	- Indirectly not explicit	- Indirectly not explicit	-	-
		Commitment to better practice	+	+	+	+	-	-
		Commitment to practice improvement	+	+	+	+	-	-
		Cultural competency	+	+	+	+	-	-
		Financial probity	-	-	+	+	*	*
		Human resource management	-	-	+	-	*	*
TOTAL PROFESSIONAL	1 unit	Competency elements coverage (+)	6/8(75%)	6/8(75%)	5/8(62.5%)	5/8(62.5%)		
		Competency elements limited coverage (-)	2/8(25%)	2/8(25%)	2/8(25%)	2/8(25%)	6/8(75%)	6/8(75%)
		Competency elements not covered (*)			1/8(12.5%)	1/8(12.5%)	2/8(25%)	2/8(25%)

Source: Hughes et al. (2011)

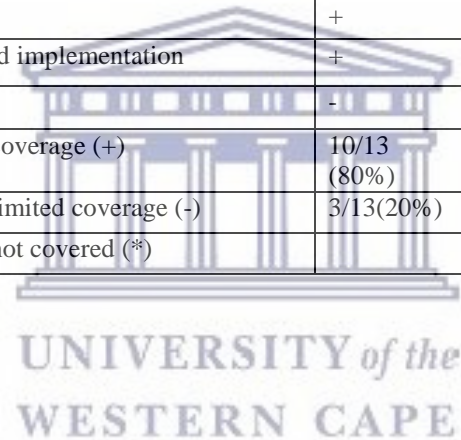
Competency category	Competency unit (1)	Competency element (10)	DT	NT	PN	DR	HP	CHW
10. COMMUNICATION Cross-cutting	Communication	Communication	+	+	+	+	+	+
		Listening	+	+	+	+	+	+
		Cultural competency	+	+	+	+	+	+
		Information literacy	+	+	+	+	-	-
		Information technology	+	+	+	+	-	-
		Interpersonal skills	+	+	+	+	+	+
		Granstmanship	*	*	*	*	*	*
		Media utilisation	+	+	+	+	-	-
		Consultation	+	+	+	+	-	-
		Cultural competency	+	+	+	+	-	-
TOTAL COMMUNICATION	1 unit	Competency elements coverage (+)	9/10(90%)	9/10(90%)	9/10(90%)	9/10(90%)	4/10(40%)	4/10(40%)
		Competency elements limited coverage (-)					5/10(50%)	5/10(50%)
		Competency elements not covered (*)	1/10(10%)	1/10(10%)	1/10(10%)	1/10(10%)	1/10(10%)	1/10(10%)

Source: Hughes et al. (2011)

Competency category	Competency unit (1)	Competency element (8)	DT	NT	PN	DR	HP	CHW
11. NUTRITION ASSESSMENT, MONITORING AND SURVEILLANCE Practice	Nutrition assessment	Assessment of dietary intakes	+	+	-	-	*	*
		Collects food intake and food systems data	+	+	*	*	*	*
		Assesses food intake data	+	+	*	*	*	*
		Assesses nutritional status	+	+	-	-	*	*
	Food and nutrition monitoring and surveillance	Diet-related disease surveillance and monitoring	+	+	-	-	*	*
		Disease and exposure monitoring and surveillance	+	+	+	+	-	-
		Levels of prevention	+	+	+	+	-	-
Risk factor surveillance, including food and nutrition data	+	+	+	+	-	*		
TOTAL NUTRITION ASSESSMENT, MONITORING AND SURVEILLANCE	2 units	Competency elements coverage (+)	8/8 (100%)	8/8 (100%)	3/8 (37.5%)	3/8 (37.5%)	*	*
		Competency elements limited coverage (-)			3/8(37.5%)	3/8(37.5%)	3/8(37.5%)	2/8(25%)
		Competency elements not covered (*)			2/8(25%)	2/8(25%)	5/8(62.5)	6/8(75%)
12. BUILDING CAPACITY Practice	Building capacity for public health nutrition action	Capacity-building principles	+	+	+	+	-	*
		Stakeholder analysis	+	+	- Indirectly not explicit	- Indirectly not explicit	-	-
		Determinants of capacity	+	+	- Indirectly not explicit	- Indirectly not explicit	-	*
		Capacity assessment and evaluation	+	+	- Indirectly not explicit	- Indirectly not explicit	-	*
		Inter-sectoral action	+	+	- Indirectly not explicit	- Indirectly not explicit	-	-
		Organisational development	-	-	- Indirectly not explicit	- Indirectly not explicit	-	*
		Workforce development	-	-	- Indirectly not explicit	- Indirectly not explicit	*	*
		Partnership development	-	+	- Indirectly not explicit	- Indirectly not explicit	-	-
		Community development	-	+	- Indirectly not explicit	- Indirectly not explicit	-	-
Resource mobilisation	-	+	- Indirectly not explicit	- Indirectly not explicit	*	*		
TOTAL BUILDING CAPACITY	1 unit	Competency elements coverage (+)	5/10(50%)	8/10 (80%)	1/10(10%)	1/10(10%)	*	*
		Competency elements limited coverage (-)	5/10(50%)	2/10(20%)	9/10(90%)	9/10(90%)	8/10(80%)	4/10(40%)
		Competency element not covered (*)					2/10(20%)	6/10(60%)

Competency category	Competency unit (2)	Competency element (13)	DT	NT	PN	DR	HP	CHW
13. INTERVENTION MANAGEMENT Practice	Programme planning, organisation and management	Problem analysis and needs identification	+	+	+	+	-	-
		Intervention planning	+	+	-	-	-	*
		Intervention research	+	+	-	-	-	*
		Intervention design	+	+	-	-	-	*
		Logic modelling	-	+	-	-	-	*
		Health promotion strategies	+	+	+	+	+	-
		Theoretical applications	-	+	+	+	*	*
		Implementation planning	+	+	+	+	*	*
		Evaluation planning	+	+	-	-	*	*
		Valorisation	+	+	-	-	*	*
	Policy planning, implementation and evaluation	Policy advocacy	+	+	-	-	*	*
		Policy interpretation and implementation	+	+	-	-	-	*
		Policy development	-	+	-	-	*	*
TOTAL INTERVENTION MANAGEMENT	2 units	Competency elements coverage (+)	10/13 (80%)	13/13 (100%)	4/13(30%)	4/13(30%)	1/13(1%)	
		Competency elements limited coverage (-)	3/13(20%)		9/13(70%)	9/13(70%)	6/13(46%)	2/13(15%)
		Competency elements not covered (*)					6/13(46%)	11/13(85%)

Source: Hughes et al. (2011)



CHAPTER 5: JOB DESCRIPTION ANALYSIS

This chapter builds on Chapter 4, adding another dimension to workforce development. The job description analysis of frontline staff explores the specified employer expectations of roles (functions), selection criteria (qualifications and competencies) and personal development needs as a proxy for core function and competency expectations of designated positions. The chapter also seeks to create a better understanding of how acquired competencies through pre-service training in Chapter 4 relates to the job that needs to be done. The rationale, methodology, findings, analysis and limitations are presented. The findings are then discussed and final conclusions and key messages offered. Finally, the references applicable to the chapter are listed.

5.1 Literature review

A job description is an explanatory document that describes the scope, general tasks or functions, salary range and responsibilities of a position. It may also provide details on the skills and qualifications that are required for a post and specify the person to whom the position reports. Job descriptions are usually written in a narrative style and can include a simple list of competencies which in many instances are used to screen candidates when they are shortlisted and/or interviewed for posts (Bodnarchuk, 2012; Study Learn Share, 2017).

A job description has benefits for the organisation and the employee as it helps organisations with their recruitment and selection; helps employees to understand their roles, duties, goals and objectives, and provides an indication of the environment in which they will operate. It also affords opportunities for the supervisor (on behalf of the employer) and employee to collectively identify areas for personal development for greater efficiency and effectiveness in the job.

Limitations of job descriptions are that they are time bound and can change with an organisation's structure, industry policies and corporate requirements. Furthermore, a job description can only highlight the macro aspects of a job; it cannot fully explain the potential obstacles and emotional requirements related to the job. Poor-quality job descriptions that are incomplete can confuse both the HR manager and the employee, and can affect outcomes and performance (Bodnarchuk, 2012; Study Learn Share, 2017).

Nutrition is linked to broader systems of health, food and the environment. It requires systems-thinking approaches by the nutrition workforce in order to reach the nutrition-related SDGs.

Applying holistic approaches with an awareness of how nutrition services and programmes influence each other and the whole health system is important for the implementation of interventions.

The implementation of nutrition interventions is often hindered by staff shortages, skills deficiencies, poor workforce structures and inadequate geographical coverage of nutrition workers, especially in low- and middle-income countries. Doctors, nurses, midwives and community health workers are the frontline staff who implement and/or deliver most nutrition interventions because of general staffing shortages. They are sometimes the cadres providing support to other, non-health staff, e.g. teachers and agricultural extension workers. Filling posts for doctors, nurses and community health workers is prioritised in human resource planning despite the fact that they are not the properly prepared, skilled workforce that should be delivering nutrition services and supporting extension workers. The general lack of understanding of the contribution of public health nutrition professionals often leads to poor implementation of interventions and scope of practice (Delisle et al., 2017; Shrimpton et al., 2017).

Work done by the WPHNA capacity-building task force has described the nutrition workforce as a pyramid, with the various levels revealing different numbers, levels of training and occupational groupings. The levels are described according to their groups, training needs and key roles to be performed. With nutrition being “everybody’s business”, the task force has proposed that a public health nutrition manager be based at a district level to provide the relevant training and support to frontline workers (Shrimpton et al., 2017: 65). Implementation of nutrition programmes and interventions at community level are seen as critical for addressing nutrition challenges, especially through prevention. The proposed structure requires the health sector to provide the lead supervision, training, information and support to community-based health and nutrition workers. These workers in turn provide dietary, infant and young child feeding and counselling services, and engage in growth monitoring and micronutrient supplementation. They also refer people to the health care centre for treatment of illness and disease (Shrimpton et al., 2017).

In South Africa, evidence-based nutrition interventions are implemented as part of comprehensive service packages in the health sector through the following service delivery platforms: population, community and (mainly) nutrition-specific. Inter-sectoral activities (mainly nutrition-sensitive interventions) are implemented mainly by other sectors and the

DoH together with other government and non-governmental entities (NDOH, 2013). The different levels of implementation described by Shrimpton et al. (2017) are also present in the South African health system. Table 5.1 shows the level of work portrayed by Delisle et al. (2017) and Shrimpton et al. (2017), adapted to represent the South African reality.

Table 5.1. Nutrition workforce levels, roles and training in South Africa

Level of work	Cadres	Roles	Training
Micro level population and community level	Community health, nutrition and extension workers	Delivery of specific nutrition services to the community, e.g. nutrition screening and referral, nutrition promotion and education	Vocational or on-the-job training
Facilities	Dietitians/nutritionists Doctors Nurses	Implementation of programmes and nutrition-specific interventions, e.g. nutrition counselling at individual and community level	University training Bachelor's degree in dietetics/nutrition
Meso level of the health system	Extension workers in agriculture, education and social development	Integration of nutrition interventions into their activities Implementation of nutrition-sensitive interventions	Basic nutrition and on-the- job/in-service training
District Sub-districts	Dietitians/nutritionists	Operational translation and implementation of programmes and interventions through programming and co-ordination	University training from Bachelor's degree to Master's degree in nutrition
National level and provincial level	Advanced-level dietitians and nutritionists, academia	Advocacy, policy making, planning and research Implementation support Monitoring and evaluation	University postgraduate training in nutrition and dietetics

Sources: Adapted from Delisle et al. (2017); Shrimpton et al. (2017)

For the nutrition workforce to function optimally, strategies need to be translated into implementation plans, including monitoring and evaluation frameworks. What the workforce cadres need to do and what capacity they need to do the work, should be clear. This should be evident in terms of required competencies, knowledge and skills. In addition, how the workforce functions within accountability structures must be well defined in job descriptions. Mucha and Tharaney (2013) highlight the need to develop nutrition workforce strategies and arrive at key recommendations, including detailed roles, responsibilities and accountability structures for cadres in job descriptions. This latter is a critical component in strengthening human resource capacity (Mucha & Tharaney, 2013).

5.2 Rationale

In South Africa, the dominant, professionally trained group that delivers nutrition services are dietitians. Similarly, dietetic training programmes provide the entry-level qualification to occupy posts in the health sector at district, sub-district, facility and community levels of care. Nutritionists are also employed in South Africa as part of the workforce but these posts are not available in all nine provinces, with some provinces having no nutritionist posts at all.

Competency standards have been under review over the last three years by the Professional Board for Dietetics and Nutrition and proposals have been put forward to train just one nutrition professional in the future. As part of the process, agreement has been reached between key stakeholders, including the main employer (DoH), dietitians and nutritionists through professional organisations and the HPCSA (Hughes, 2004; Wentzel-Viljoen, 2016, 2017).

The purpose of the job, as well as required knowledge, skills, competencies and other attributes, and key outputs are detailed in job descriptions. Job descriptions serve as a proxy for what the employer expects from the position and also provide direction for practical performance. Job descriptions are not static. In fact, workforce effectiveness can be adversely affected if job descriptions are not kept up to date in line with the needs of the organisation and the field in question.

An employer's vision is to deliver integrated, comprehensive health services, including nutrition, with other cadres in the health workforce stepping in to deliver nutrition services through various delivery platforms. In South Africa, there has been no insight into what these cadres' nutrition-specific responsibilities are, which has prompted the decision to systematically review job descriptions.

5.3 Objectives

- To review the job descriptions of dietitians and nutritionists in order to assess the employers' expectations of the workforce functions and competency requirements;
- To describe the nutrition-related roles and responsibilities of dietitians, nutritionists and PHC nurses based on insights gathered from the job descriptions;
- To assess the job descriptions of doctors, PHC nurses, health promoters and community health workers at the PHC level.

5.4 Methods

The methodology was informed by the specific objectives set and job description analysis conducted in other studies in the field of PHN. A decision was taken not to focus on nutrition professionals, as in other studies, but rather to adopt a broader perspective of the nutrition workforce in terms of service delivery, including other frontline workers with a focus on PHC, i.e. nurses, doctors, health promoters and community health workers.

Acquisition of credible documents

Managers from the nine provinces were contacted to provide copies of existing job descriptions for dietitians and nutritionists. The human resource management department in the Western Cape was approached for job descriptions for dietitians, nutritionists, doctors, nurses in PHC and health promoters. The request included the supply of locally and nationally approved documents. Documents from these sources were considered to be credible as managers have to sign off job descriptions in consultation with staff on an annual basis. HR departments have to keep job descriptions of posts advertised on record.

A request was sent to non-governmental/non-profit organisations (NGOs/NPOs) focussing specifically on maternal, child health and nutrition matters for job descriptions of their community health workers, dietitians and nutritionists. The home and community-based care service design framework of the Western Cape DoH was also reviewed as it captures the roles and competencies of nurses and community health workers working in that setting (Western Cape Government: Health, 2016).

Reminders requesting job descriptions were sent out to provinces that did not respond. The job descriptions received were filed electronically and recorded.

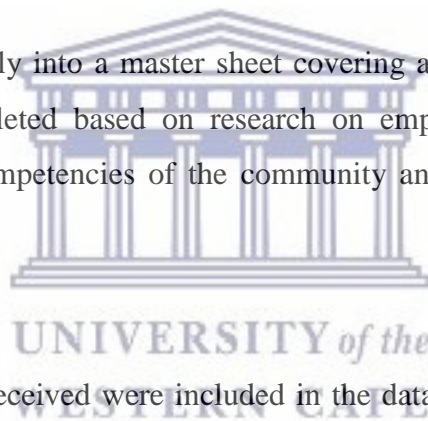
Data extraction and revision

The job descriptions received were reviewed for content after which an Excel template was prepared based on common areas identified in the job descriptions. Thirteen fields were created to capture the data from the individual job descriptions in a summary format. The following categories were included:

- source of job description;
- job title;
- job level (entry or senior/advanced);
- job responsible/reporting to;

- employer (government or NPO);
- job purpose, competencies (inherent requirements, knowledge and skills);
- activities/outputs – which were captured against WPHNA roles and functions and sub-components, including research and analytical, intervention management, capacity-building, policy processes, management, clinical services, nutrition communication, and food and nutrition systems knowledge; additions were made to sub-components, i.e. PHC outreach to clinical services, nutrition education to communication, and food service management to food and nutrition systems;
- working conditions;
- code of practice;
- performance assessment measures;
- generic assessment measures; and
- stakeholder relationships.

Data was entered electronically into a master sheet covering all the areas listed above. The mapping exercise was completed based on research on employers' expectations of core functions, credentials and competencies of the community and public health workforce in Australia (Hughes, 2004).



5.5 Data analysis

Initially all job descriptions received were included in the data capturing sheet to check for similarities and/or differences across sources. Duplications of same-level posts were removed so that the post was included only once in the final analysis. Job descriptions for hospital dietetic services were grouped together and included in the analysis for community nutrition/PHN as many of the hospital sites were responsible for outreach to PHC.

Qualitative content analysis of the job descriptions was performed focussing on job titles, post levels, reporting lines, main purpose of posts and inherent requirements (knowledge, skills and attitudes). Entry-level positions in the respective provinces were reviewed for possible differences between them in terms of key result areas, roles and functions. Observations were recorded in terms of job description content, e.g. working conditions and percentage of time spent on specific key performance areas.

Roles and functions were mapped against key public health nutrition areas, as described by Hughes (2004) and Jonsdottir et al. (2012). Key words that appeared against the functional

areas and sub-areas were scored and counted across the number of job descriptions, and proportions were calculated in terms of the coverage of PHN functions in job descriptions. Further synthesis and identification of commonalities, differences and overlap between the different cadres were recorded.

5.6 Anticipated benefits

The job description analysis will serve as a proxy for employers' expectations of the workforce in terms of their roles, responsibilities and competencies.

5.7 Ethical considerations

The study involved only reviews, with no human subjects or interaction. Therefore, no ethics clearance was obtained. It was decided in the presentation of data not to identify provinces by name.

5.8 Findings

A total of 62 job descriptions (JDs) were received of which 47 were included in the analysis (see Table 5.2). Seven out of the nine provinces in South Africa responded and provided job descriptions of dietitians and/or nutritionists. Some provinces shared both entry- and advanced-level documents. A total of 32 (entry- and advanced-level) job descriptions were included for dietitians and three duplicates were excluded. Three job descriptions for nutritionists were included from three different provinces. One nutrition adviser job description was forthcoming from a province.

The HR management unit shared both entry- and advanced-level documents for all cadres. JDs for cadres other than dietitians and nutritionists were included based on their relevance to PHC.

Five different medical officer JDs were received of which two were included. For nurses, 17 JDs were received of which seven were included. Documents for health promotion and nursing cadres received from HR were representative of national JDs.

The summary Table 5.2 below provides details of the JDs' characteristics for the respective cadres.

The meanings of the abbreviations in the table below are as follows:

- P = province. Provinces were assigned numbers so as not to reveal their names.
- NPO DT = Dietitian at a non-profit organisation

- DR = Doctor
- PN = Professional nurse
- HP & NA = Health promotion officer and nutrition adviser
- CHW = Community health worker
- CCMT dietitian = A dietitian named on the basis of the system's comprehensive care management and treatment plan for HIV/AIDS



Table 5.2. Summary of job descriptions and characteristics

	P 1	P 2	P 3	P 4	P 5	P 6	P 7	NPO DT	DR	PN	HP & NA	CHW	Total
Number of JDs	1	1	4	4	1	4	21	1	5	17	2	1	62
Number of JDs analysed	1	1	4	4	1	4	19	1	2	7	2	1	47
Job titles													
Dietitian: Community Service				1		1	1						3
Dietitian	1		1	1		1	8	1					13
Senior Dietitian					1	1*	2						4
Chief Dietitian			1	1			3						5
Assistant Director: Dietetics			1			1	3						5
Nutritionist		1	1	1									3
Therapeutic Medical Support Programme Coordinator							1						1
Deputy Director: Therapeutic Medical Support							1						1
Level													
Junior	1	1	2	3	1	3	11	1	2	3	2	2	33
Senior			2	1		1	8			3			15
Report to													
Chief Dietitian	1		1	2	2	3	3						12
Assistant Director: Dietetics/Nutrition		1	1	2	2	2	2						8
Medical Manager/CEO			1			1	3	1	1				7
Deputy Director: Comprehensive Health							3		1				4
Deputy Director: Therapeutic Medical Support Services							1						1
Director							1						1
Facility Manager/Operations										3	2		5
Assistant Manager PHC							5			3			8
Nurse Coordinator												1	1

Source: Job descriptions received; Adapted from Hughes (2004)

Job titles

Six different job titles are mainly used for dietitians, indicative of the placement of posts. For example, a hospital placement can range from a district hospital to tertiary level care. The titles included Community Service Dietitian, Dietitian, Senior Dietitian, Chief Dietitian and Assistant Director: Dietetics.

The entry-level post is for community service as it is compulsory for all dietitians to do one year of community service post-qualification, after which their registration is changed to independent practice. In the South African system the name 'senior' is not indicative of seniority level as such posts are still regarded as production-level or implementation-level posts, and not supervisory.

Junior-level posts included dietitians placed in communities/sub-districts and hospitals, classified as Dietitian: Community Service and Senior Dietitian. Dietitians' posts that are at the top level of seniority were given as Chief and Assistant Director: Dietetics.

There were two other categories included: Therapeutic Medical Support Programme Coordinator and Deputy Director: Therapeutic Medical Support Services. These were the integrated nutrition programme managers placed at district and provincial level. The titles of posts for nutritionists were at one level only, namely Nutritionist.

The variation in job titles seemed reasonably aligned between provinces and specific to the professional cadre, but the title of Therapeutic Medical Support is more generic. This title is used for a number of allied health professions, e.g. occupational therapy, pharmacy and physiotherapy, and is not specific to dietetics. The identification of the professional cadres in these posts can thus be confusing in big HR databases as it is not specific to a professional discipline. These posts are also more likely to denote content experts, technical support, and strategic and policy developers than line managers responsible for day-to-day operations.

Supervision/reporting lines

Dietitians and nutritionists report to senior-level dietitians but in a few instances they report to nurses and or/medical managers. A wide range of managers perform the function of supervisors which is dependent on the placement (facility, sub-district, district, provincial office), functioning (production or supervisory level) and organogram of the institution/organisation. The following list represents the wide range of managers to whom dietitians and nutritionists report:

- Chief Dietitian
- Assistant Director: Dietetics/Nutrition
- Medical Manager/Chief Executive Officer
- Deputy Director: Comprehensive Health
- Deputy Director: Therapeutic Medical Support Services
- Director
- Assistant Manager: PHC

Community health workers report to Nurse Coordinators. Health promoters report to Facility Managers. Doctors and nurses report mainly to Facility and Medical Managers.

Job purpose

For doctors and nurses, the purpose of the job is to provide holistic, comprehensive medical and nursing care in different settings, i.e. not specifically related to nutrition.

Health promoters' job purpose is to plan and execute activities for the prevention of ill health and the promotion of well-being. Nutrition advisers, in turn, need to promote optimal nutritional health care by providing nutrition services in PHC clinics according to the needs of communities.

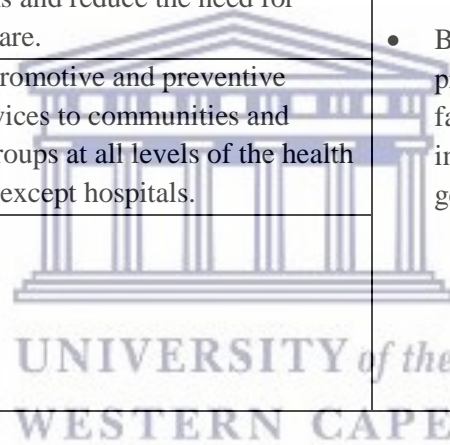
Community health workers provide community-based services and care. The only cadre in this group that has a specific reference to nutrition in its job purpose is nutrition adviser, implying that for all the other cadres nutrition is seen as part of their comprehensive service but not spelled out.

The purpose of the respective posts is also clearly defined in all the job descriptions for dietitians and nutritionists. Table 5.3 below provides a summary of these purposes and indicates both differences and areas of overlap. From the table it can be seen that there is more overlap than difference between the two nutrition professionals in terms of their job purpose. Dietitians can deal with all aspects of prevention, promotion, treatment, curative care and nutrition programming, whereas nutritionists' purpose does not include providing therapeutic care and intervention.

Table 5.3. Main job purpose of the workforce – overlap and differences

Dietitians	Nutritionists	Overlap	Differences
To deliver a comprehensive dietetic service to patients at a hospital on a continuous basis; to promote and provide optimal nutrition for growth, disease-related illness and disease prevention.	To promote nutritional health and prevention of nutrition-related disorders and ill health among groups, communities or populations; to facilitate improvements in the food system.	<ul style="list-style-type: none"> • Both focussed on the prevention of nutrition-related disorders and the promotion of good nutrition and supportive nutrition-related conditions. • Both involved in nutrition programmes in health facilities at the PHC level, in communities and the general population. 	<ul style="list-style-type: none"> • Dietitians focus on curative and treatment aspects relating to nutritional disease.
To provide optimal promotive, preventive and curative nutritional care for in- and out-patients, while pursuing the goals of the Integrated Nutrition Programme (INP).	To provide community-based nutrition services to prevent nutrition-related complications and reduce the need for therapeutic care.		
To perform dietetic functions in the sub-district (facility and community-based); to ensure integration of nutrition services in the sub-district	To provide promotive and preventive nutrition services to communities and vulnerable groups at all levels of the health care system, except hospitals.		
To provide an effective nutritional service to in- and out-patients as well as supervisory aspects in the department; support nutritional services in PHC and secondary level of health care.			

Source: Job descriptions received



Coverage of public health nutrition functions in job descriptions

Annexure Table A5.1 provides a summary of the core functions mapped against the public health nutrition domains for all the respective cadres analysed. The numbers in the columns represent the count per number of job descriptions analysed. The performance of each cadre was calculated as a proportion of the PHN functions included in the analysis and is shown in brackets in the table. From Table A5.1 it can be deduced that doctors, nurses and community health workers offer support to dietitians and nutritionists in terms of meeting their PHN roles, but that it is not their core role as it is not indicated directly. Doctors and nurses provide services that could be inclusive of nutrition in their assessment and care plans, as well as many other functions. Dietitians and nutritionists have the highest coverage of PHN functions in their JDs, as depicted in Figure 5.1 below. Senior dietitians have the most PHN functions covered (49%), followed by nutritionists (38%), dieticians (37%) and junior dietitians (30%). All percentages for dietitians were combined and averaged for the 44 functions. If percentages are combined for dietitians, then nutritionists have the highest coverage of PHN functions. The small difference of 1% between nutritionists and dietitians shows the overlap in their functions.

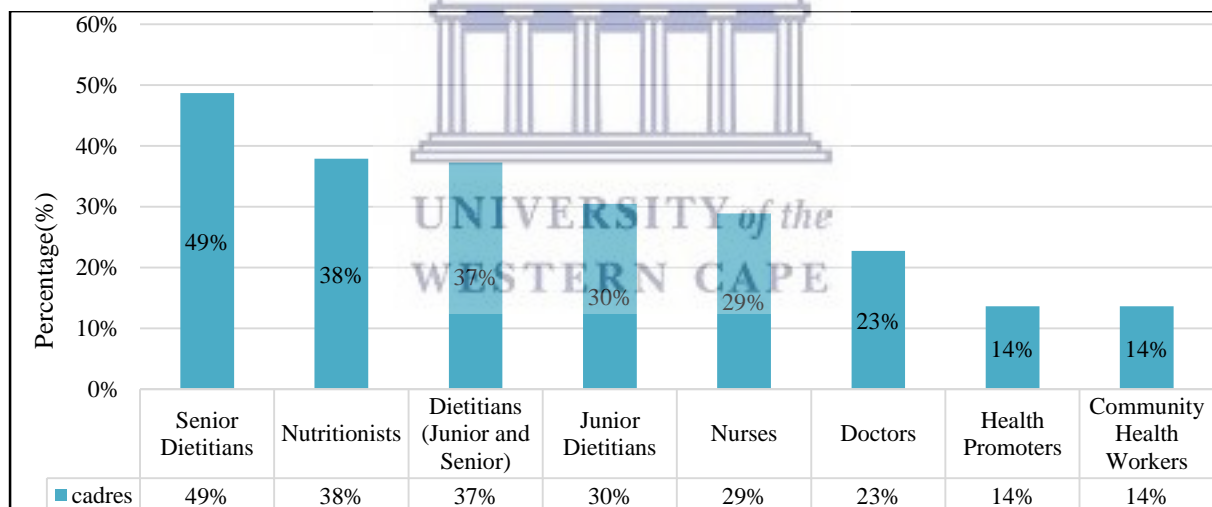


Figure 5.1: Coverage of public health nutrition functions in job descriptions per cadre

Source: Job descriptions received

The coverage by junior dietitians is quite close to that of nurses (29%). The assumption cannot be made that nutrition functions automatically form part of the clinical services provided by doctors and nurses as they were not indicated in their JDs directly. The notion that nutrition is a part of comprehensive health care services could lead to an overestimation of the coverage of PHN functions among doctors and nurses. However, the question can be asked: could these

cadres be held accountable for implementation of essential nutrition actions even though they are not spelled out specifically in their JDs?

Performance assessment

The performance assessment areas in the job descriptions indicated the time spent on specific focus areas reflected as percentages. The time spent by nurses and doctors was predominantly on clinical care whereas the time spent by dietitians and nutritionists was largely on nutrition-specific interventions. Health promoters and community health workers spent most of their time on disease prevention of which nutrition is one of many contributing factors.

Qualifications

All dietitians' and nutritionists' positions require professional qualifications and registration with the HPCSA. Similarly, medical doctors and nurses require formal professional qualifications and registration in their respective fields. No formal qualification is required for health promoters, nutrition advisers and community health workers other than grade 10–12 and in-service training. Evidence of course attendance in their respective areas of health promotion is a matter of recommendation rather than a requirement. Seniority and advanced levels are mainly determined by years of experience.

Competencies/Inherent requirements of the job

The inherent requirements for the respective positions are also indicated in job descriptions and cover knowledge, skills and attitudes/personal attributes (refer to Annexure Table A5.2). These are, in essence, competencies of the workforce that are specific to the professional cadre in terms of subject matter knowledge, general knowledge of the health system, organisational values and policies. Skills and attributes are very generic for all cadres. The differences between entry level and senior levels are mainly the inclusion of management competencies, such as financial management and administration.

Comparable cross-cutting knowledge, skills and attitudes/attributes consistently observed for all cadres were:

- **Knowledge** – content on the specific area, e.g. dietetics and nutrition, nursing and medicine, health promotion, and understanding and knowledge of the health system with emphasis on PHC;
- **Skills** – communication (written and verbal), networking and administration;

- **Attributes** – integrity, working in a team, responsiveness, initiative and general good interpersonal relations.

Job description formats

Job description formats provide an outline of all relevant areas to be included to portray the purpose, needs and expectations of the job. The JD formats analysed differed between and within provinces. When reviewing the larger number of JDs from one province, it was observed that there is no standardisation for similar positions. The employer might ask: why do these differences exist if positions in the same context are meant to work towards the same outcomes?

The key positive learning points from the JDs were the inclusion of priority areas for training linked to the level and placement of a particular position, clear performance standards measuring performance, stakeholder roles and responsibilities, and the integration of departmental values as part of the performance monitoring.

5.9 Limitations

The analysis was limited to those cadres that were found to have a role in the nutrition workforce that focussed on PHC. In addition, source documents were limited to what was available as a result of formal requests. Furthermore, the content mapping was interpreted by the main investigator and not verified by a group of investigators. Validity could be enhanced in future if a second reviewer is asked to do the same.

5.10 Discussion

The job descriptions included were all official documents and could be deemed credible and reliable. Including documents used by managers and human resource units for recruitment and selection reduced possible bias. Variations in the use of JD templates were observed, especially for same-level posts. This, however, could lead to labour disputes while inconsistencies could affect equality in the provision of services. The adjustment of HR templates leaves them open to interpretation, which could be positive for local geographical service needs but could also lead to poor achievement of uniform goals and targets due to non-alignment with provincial processes, targets and goals. Human resources departments need to consult with nutrition experts and allow for some flexibility to accommodate service delivery contexts, but they need to ensure that minimum standards are adhered to for same-level positions.

Placement and location influenced the implementation of core functions and the job description served as a guide to develop the specific performance plans of individuals based on service needs. This could be observed with senior positions that were mainly responsible for strategic functions, such as strategy design, policy development and review.

Outputs were delivered on the assumption that personnel appointed into the posts had the acquired competencies and inherent requirements for the job. However, there were no clear measures for these included in job descriptions. Supervisors were able, through interaction and feedback, to make evaluations but these types of performance measures appeared to be very subjective. Specific performance standards per output area to measure the capacity to work should be developed in order to address competency gaps.

Obvious gaps were therefore evident in the job descriptions analysed. Assumptions cannot be made that certain functions are performed by cadres when they were not included in the JDs. Even though they may be expected, e.g. that health education is directly or indirectly expected of all cadres, it could not be assumed that they are expected to perform the tasks if not reflected in their JDs.

There is a need to provide therapeutic nutrition services as part of the PHN functions. This is because the workforce operates within the health system where outreach services are part of the vision to re-engineer PHC and clients are referred down from tertiary and secondary health services to PHC.

Focussing on nutrition professionals alone does not reflect the reality of in-service rendering as these professionals operate within a multidisciplinary team. All cadres – not only nutrition professionals – were measured against the same 44 PHN functions and so the question could be asked: was there an expectation that all would provide the same PHN functions? There were also a number of advanced functions not normally expected of frontline staff but rather expected of management levels, such as monitoring and evaluation, policy development, policy evaluation and writing of applications for grants. Including all cadres provided valuable insights and confirmed that the PHN functions are covered primarily by dietitians, and nutritionists and dietitians.

Opportunities, though, exist to strengthen the outputs of the workforce across cadres, e.g. employers' expectation that cadres conduct training, engage in health promotion and provide nutrition-related education. Standardising key nutrition messages across the life course and

providing basic nutrition training materials could reduce confusion within the population if the workforce uses similar tools. Coverage of nutrition and related aspects could be increased through delineation of roles in terms of nutrition communication.

Standard operating procedures that are practical can add value by ensuring quality service provision. Developing these for nutrition-specific interventions would increase and improve the coverage of nutritional outcomes. Frontline workers need to be adequately trained to develop the capacity to integrate nutrition, manage decentralised roles and engage with other sectors as part of mainstreaming nutrition into public health sector workforce functions (Mucha & Tharaney, 2013).

As a guiding document, the job description identifies the competencies needed and creates opportunities to assess the competencies of individual staff members. Gaps found against the measures used in the job description can be addressed through individual development plans. Furthermore, the identification of priority training needs based on position and practice will allow the employer to ensure that certain key competencies are developed for a specific post.

The analysis showed that in the current system, there is room for misinterpretation of the scope of work between dietitians and nutritionists (refer to Table 5.3), particularly in light of the overlap in their job purpose. Confusion may exist among the multidisciplinary team members if there are two professionals in the health system, with one area of difference being the focus on therapeutic curative care.

The differences between entry level and senior levels mainly relate to the inclusion of management competencies, such as financial management and administration, which are important for PHN functions. One would have expected senior positions to have more advanced knowledge of complex scientific evidence.

The National Health Promotion Policy and Strategy 2015–2019 describes lay workers' primary function as follows: “to promote basic health and health services within the home or primary care facility” (NDOH, 2014: iii). Ample opportunities exist in the current system to integrate key nutrition messages into routine work. Health promoters can help people to take control of their nutritional health through behavioural change but they need to be appropriately skilled. Norms and standards for practical outputs and staffing are also required (NDOH, 2014).

5.11 Conclusion

Hughes (2004) addresses issues of authenticity and credibility as well as the value of conducting JD analysis qualitatively in order to assess the functions and competencies required for PHN. This study confirms the expected functions and competencies of the nutrition workforce in South Africa, as reflected in job descriptions. Measuring the PHN functions against the global PHN functions provides a baseline and insight into the developmental process of workforce development for South Africa. Value can be added through the development of a JD with development areas that can be used to recruit dietitians and nutritionists in PHN positions, in collaboration with HR departments. In the meantime, processes are under way to have one nutrition professional in future.

In the South African context, other cadres, especially nurses, contribute to the nutrition workforce because of the limited positions available for nutrition professionals in the frontline. Including these cadres in the analysis provides a more holistic view of the nutrition service provided in the health system than looking at things from a vertical nutrition service angle.

5.12 Key messages on job descriptions

- Job descriptions outline the expectations of the employer and should be focussed on the vision, goals and targets set for an organisation.
- Human resources departments should ensure the quality of job descriptions in terms of design templates, performance and individual staff development in consultation with nutrition experts.
- The nutrition workforce needs to be defined in the context of service in order to determine the roles and responsibilities to be captured in job descriptions.
- Job descriptions for dietitians and nutritionists can be drafted for the ideal PHN practice in South Africa in collaboration with human resource management units.
- Nutrition functions not explicitly specified in job descriptions could lead to inequitable service provision and weak implementation of programmes and outcomes.
- The capacity of staff can be enhanced through nutrition-related standard messages and tools.
- Norms and standards are needed for efficient nutrition practices and post allocations.
- Understanding the role of JDs is fundamental in nutrition workforce development.

5.13 References

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Table A5.1. Comparison of public health nutrition functions against cadre job descriptions

Function domain	Functions	Jnr DT n=20	Snr DT n=12	DR n=2	PN n=7	HP & NA n=2	CHW n=1	NT n=3
Research and analytical functions	Needs assessment	15(75%)	9(75%)	1(50%)	5(71%)	1(50%)	0(0%)	3(100%)
	Local research	5(25%)	8(67%)	2(100)	5(71%)	1(50%)	0(0%)	3(100%)
	Service evaluation	18(90%)	10(83%)	0(0%)	2(29%)	0(0%)	0(0%)	2(67%)
	Monitoring and surveillance	14(70%)	11(92%)	0(0%)	5(71%)	0(0%)	0(0%)	2(67%)
	Evaluation of policy	1(5%)	5(42%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Intervention management	Programme planning	10(50%)	4(33%)	0(0%)	4(57%)	1(50%)	0(0%)	2(67%)
	Programme evaluation	8(40%)	3(25%)	0(0%)	1(14%)	1(50%)	1(100%)	2(67%)
	Programme implementation	14(70%)	3(25%)	1(50%)	2(29%)	2(100%)	0(0%)	2(67%)
	Strategy design	0(0%)	3(25%)	0(0%)	0(0%)	0(0%)	0(0%)	2(67%)
	Nutrition programme coordination	1(5%)	6(50%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Capacity-building	Team meetings/team building	20(100%)	12(100%)	1(50%)	7(100%)	2(100%)	1(100%)	3(100%)
	Intelligence advice	0(0%)	2(17%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	Training of other professionals	19(95%)	12(100%)	2(100%)	5(71%)	1(50%)	0(0%)	3(100%)
	CPD	20(100%)	12(100%)	2(100%)	7(100%)	2(100%)	0(0%)	3(100%)
	Community development	1(5%)	0(0%)	0(0%)	4(57%)	2(100%)	1(100%)	1(33%)
	Grants, applications and submission writing	0(0%)	1(8%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	Consulting of communities	0(0%)	0(0%)	0(0%)	4(57%)	2(100%)	0(0%)	2(67%)
	Supervising of students	5(25%)	8(67%)	1(50%)	4(57%)	0(0%)	0(0%)	0(0%)
	Training of health professionals	13(65%)	11(92%)	2(100%)	5(71%)	0(0%)	0(0%)	1(33%)
	Training of community members	7(35)	0(0%)	1(50%)	1(14%)	2(100%)	1(100%)	2(67%)
Policy process	Advocacy	0(0%)	2(17%)	0(0%)	2(29%)	2(100%)	1(100%)	1(33%)
	Developing of policy	5(25%)	11(92%)	0(0%)	0(0%)	1(50%)	0(0%)	0(0%)
	Advising on policy	2(10%)	7(58%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)

Source: Job descriptions received

Jnr DT = community service (entry level) and junior dietitian combined and is production level; Snr DT = senior dietitian, supervisory and management level; DR = doctor; PN = professional nurse at PHC; HP & NA = health promoter and nutrition adviser; CHW = Community health worker and NT = Nutritionist; n = number of JDs per cadre included in the analysis

Table A5.1. (continued) Comparison of public health nutrition functions against cadre job descriptions

Function domain	Functions	Jnr DT n = 20	Snr DT n= 12	DR n=2	PN n =7	HP n=2	CHW n=1	NT n=3
Management	Human resource management	10(50%)	12(100%)	0(0%)	5(71%)	0(0%)	0(0%)	1(33%)
	Quality management	19(95%)	12(100%)	2(100%)	7(100%)	1(50%)	1(100%)	3(100%)
	Meetings	20(100%)	12(100%)	2(100%)	7(100%)	2(100%)	1(100%)	3(100%)
	Report writing	20(100%)	12(100%)	2(100%)	7(100%)	2(100%)	1(100%)	3(100%)
	Administration	20(100%)	12(100%)	2(100%)	7(100%)	2(100%)	1(100%)	3(100%)
	Strategic planning	5(25%)	9(75%)	0(0%)	0(0%)	0(0%)	0(0%)	1(33%)
	Financial management	11(55%)	12(100%)	0(0%)	4(57%)	1(50%)	0(0%)	0(0%)
Clinical services	Dietary education	18(90%)	7(58%)	0(0%)*	0(0%)*	0(0%)	0(0%)	0(0%)
	Clinical assessment	18(90%)	7(58%)	0(0%)*	0(0%)*	0(0%)	0(0%)	0(0%)
	Clinical dietetic services management	18(90%)	7(58%)	0(0%)*	0(0%)*	0(0%)	0(0%)	0(0%)
	Treatment planning	18(90%)	7(58%)	0(0%)*	0(0%)*	0(0%)	0(0%)	0(0%)
	Reviewing of patients	18(90%)	7(58%)	0(0%)*	0(0%)*	0(0%)	0(0%)	0(0%)
	PHC outreach	11(55%)	3(25%)	2(100%)	1(14%)	0(0%)	0(0%)	1(33%)
Nutrition communication, including education	Communication strategy	18(90%)	9(75%)	0(0%)	5(71%)	2(100%)	1(100%)	3(100%)
	Group nutrition education	18(90%)	7(58%)	0(0%)	5(71%)	2(100%)	1(100%)	3(100%)
	Media use for nutrition education	3(15%)	2(17%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Food and nutrition environment/Inter-sectoral functions	Food security	3(15%)	3(25%)	0(0%)	0(0%)	0(0%)	0(0%)	2(67%)
	Identification of role players in food and nutrition system	3(15%)	3(25%)	0(0%)	0(0%)	0(0%)	0(0%)	2(67%)
	Food and nutrition security structures and drivers of change	3(15%)	3(25%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	Food and nutrition as business	0(0%)	2(17%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	Food service management	14(70%)	12(100%)	0(0%)	0(0%)	0(0%)	0(0%)	1(33%)
44 functions		(268/20)/44 30%	(257/12)/44 49%	(20/2)/44 23%	(89/7)/44 29%	(12/2)/44 14%	(6/1)/44 14%	(50/3)/44 38%
Combined	All domains	37%		23%	29%	14%	14%	38%

Note: Clinical nursing and health services provided which could or could not include nutrition. Jnr DT = community service (entry level) and junior dietitian combined and is production level; Snr DT = senior dietitian, supervisory and management level; DR = doctor; PN = professional nurse at PHC; HP & NA = health promoter and nutrition adviser; CHW = Community health worker and NT = nutritionist; n = number of JDs per cadre included in the analysis

Source: Job descriptions received

Table A5.2 Summary of competencies per cadre

Cadre	Knowledge	Skills	Attributes
Dietitians	Content – clinical dietetics theory; integrated nutrition programme; health and public service legislation; national patient rights charter; Batho-Pele principles; ethics in dietetic services.	Communication, writing, organising, listening, administrative planning, interpersonal, presentation, analytical, calculation, basic computer.	Initiative, patience, dedication, sense of responsibility, team player, general human relations, CPD, honesty, integrity, ability to work independently.
Nutritionists	Content knowledge; integrated nutrition programme; community nutrition; Batho-Pele principles; national patient rights charter; nutritional screening.	Communication, writing, organising, planning, interpersonal, problem-solving; liaison.	Honesty and integrity, ability to work independently, team work.
Doctors	Medical content; clinical, practical, holistic health care; national patient rights charter.	Communication, computer skills, presentation, liaison.	Honesty and integrity, ability to work independently, CPD, team work.
Nurses	Content – nursing care processes and procedures; nursing statutes and other relevant legal frameworks; Batho-Pele principles; national patient rights charter; Nursing Act.	Communication, report writing, facilitation, liaison, networking, problem-solving, planning, organising, computer literacy.	Responsiveness, pro-activeness, professionalism, accuracy, flexibility, initiative, cooperation, team player, supportiveness, assertiveness.
Community health workers	Content – household screening, health promotion; supportive counselling; maternal child’s and women’s and men’s health; health system; referral system; community development.	Communication, basic writing, listening, numeracy, literacy, interpersonal, group facilitation.	Responsiveness, empathy, trustworthiness, respectfulness, initiative, team player, reliability, patience, confidentiality.
Health promoters/ nutrition advisers	Content – principles of health promotion; knowledge of PHC and district health services; prevention of ill health and wellbeing; behavioural change; media and messaging development.	Communication, report writing, decision-making, networking, presentation, administrative.	Integrity, confidentiality, team player, supportiveness, relationship-gearred.

Source: Job descriptions received

CHAPTER 6: DIETITIAN AND NUTRITIONIST WORKFORCE SURVEY

Chapter 6 presents the profile of dietitians and nutritionists in South Africa as the workforce, including demography, professional positions, work experience, practical roles and functions, professional development, qualifications, capacity and work environment – with a focus on the public health sector. Nutritionists and dietitians provided responses in relation to their own role as well as that of nurses. The survey added another layer to the workforce development profile of nutrition professionals. Key messages and references in the chapter are followed by detailed data tables presented as annexures at the end.

6.1 Literature review

The importance of nutrition and its impact on public health have been well established. Governments and individual leaders globally have shown their commitment thereto by signing proclamations and resolutions, calling for action and developing plans to scale up nutrition. The most recent call was at the United Nations General Assembly on 1 April 2016, at which a Decade of Action on Nutrition from 2016–2025 was announced. At this gathering all countries were called upon to develop coherent, coordinated action plans and initiatives to end hunger and eradicate malnutrition worldwide (International Food Policy Research Institute, 2016).

Investing to prevent malnutrition can generate returns as malnutrition accounts for losses of up to 11% of gross domestic product in Africa and Asia. Margaret Chan, former Director-General of the WHO, mentioned in her speech in July 2016 that triple wins can be made if countries improve their population's diets, i.e. reductions in maternal and child mortality rates and premature deaths due to NCDs. Improving nutrition further reduces poverty, improves early child development and learning outcomes, and can also improve employment (International Food Policy Research Institute, 2016).

This view was supported by Ban ki Moon (former Secretary-General, United Nations) in his address at the launch of the SUN strategy 2016–2020:

Nutrition is both a maker and a marker of development. Improved nutrition is the platform for progress in health, education, employment, empowerment of women and the reduction of poverty and inequality, and can lay the foundation for peaceful, secure and stable societies (Moon, 2016: 5).

The health sector faces serious challenges, particularly staff shortages. There is also a lack of information on the South African public health nutrition workforce on which to base decisions (Steyn & Mbhenyane, 2008). Some improvements have been observed in nutritional status but they are not sufficient as stunting rates have remained high and the burden of overweight and obesity is increasing (Shisana et al., 2014).

In an editorial written for a journal on PHN some 15 years ago, Margetts already highlighted the need to have enough people with the right skills to contribute to PHN and to find solutions to its intricate complexities (Margetts, 2002). The Australian, Canadian and American experiences have shown the value of attaching priority to and identifying the role of the PHN workforce as an integral part of health service provision. They have been able to enumerate the workforce and provide evidence-based information on which to base decisions when responding to nutrition challenges in the country (Hughes, 2004).

Inadequate human resources have impacted the implementation of nutrition programmes and strategies in South Africa, which has been further complicated by the overlap in and separate training of the two groups of nutrition professionals. The HPCSA task team report on the roles and competencies highlighted the fact that the gaps in service delivery to address nutrition problems at community and household level have not been closed and the division of the workforce has been swayed in a negative way for the nutrition professions in South Africa (HPCSA, 2014).

Davis and Affenito (2014) emphasise the need for professional preparation through training and a focus on the registered dietitian nutritionist (RDN) to tackle new public health priorities. There are parallels with the situation in South Africa where plans are in place for the future training and registration of one nutritional professional who will have a strong PHC focus and will be prepared to address the tertiary needs of the population (HPCSA, 2017). South Africa's health system, as with other countries throughout the world, is undergoing a period of reform evidenced in a move away from fragmented, reactive health care to an open and coordinated access system focusing on prevention. Naturally this change is proving challenging in a resource-constrained environment.

6.2 Rationale and objectives

There is limited data to describe the nutrition workforce in South Africa. Nutrition workforce work done by Kama (2003) identified the importance of human resource planning. Goeiman (2008) developed a profile of the nutrition workforce in the Western Cape, while Parker et al.

(2012, 2013) evaluated the competencies of community service dietitians, their experiences and the challenges they faced during their first year (Kama, 2003; Goeiman, 2008; Parker et al., 2012, 2013).

The Professional Board for Dietetics and Nutrition has appointed task teams over the last five years to review professional training in nutrition and consulted with an array of key stakeholders. A number of challenges and changes have led to a review of the training by the HPCSA, e.g. changes in the Burden of Disease in South Africa, nutrition service delivery transformation within the health system and new agenda setting both globally and in South Africa, the need to interact with other disciplines/sectors/organisations/stakeholders, a lack of community service positions for nutritionists, and the unclear delineation of the roles of dietitians and nutritionists. Regarding the latter, the attempt to create differences between the two professions by ensuring that dietitians and nutritionists operate at the facility and community level, respectively, has caused uncertainty and antagonism regarding implementation. Furthermore, the unclear role delineation is confusing for employers, often leading to inappropriate appointments of nutrition professionals. At some levels there is a perception that the work of the nutritionist duplicates that of the dietitian, which widens the gap in service delivery which should be aimed at addressing nutritional problems at community and household level. This separation of the nutrition workforce in the South African context does not serve either of the two professional groups or the future of nutrition in South Africa, especially as the changing teaching–learning environment emphasises innovation and inter-professional training and collaboration (HPCSA, 2016).

The situation with the nutrition–dietitian assistant also remains unresolved, adding another layer of complexity. Given the shortage of dietitian and nutritionist posts in the public sector, nurses often have to expand their scope of responsibility to include the implementation of nutrition interventions even though they may not have the capacity (DPME, 2014).

Considering all the challenges and the absence of a workforce development framework for nutrition in the country, it was vital to conduct a survey that would provide baseline information on the nutrition professionals in the workforce.

The key objectives of the national nutrition workforce survey were as follows:

- To develop a profile of the nutrition professionals in South Africa;
- To determine how dietitians and nutritionists perceive their own roles, responsibilities and competencies in terms of nutrition;

- To determine how dietitians and nutritionists perceive each other's roles, responsibilities and competencies;
- To determine how dietitians and nutritionists perceive the roles and competencies of PHC nurses in PHC in terms of nutrition.

6.3 Methods

A cross-sectional survey using a structured questionnaire was developed to obtain workforce nutrition data from dietitians and nutritionists in South Africa.

Instrument development and piloting

1. Permission was obtained (refer to Addendum 3) to adapt and use questionnaires from the Australian workforce study (Hughes, 2003). The questions extracted from the Australian national survey were successfully used in their national workforce survey, thus ensuring the reliability of the content of this survey.
2. The competency-related questions and sample answers were based on evidence (South African Qualifications Authority and HPCSA) published for the respective categories of the workforce. The principal investigator in the Australian survey also reviewed the sample questionnaire for this survey and gave his inputs.
3. The questionnaire was designed to allow for postal reply and web-based self-completion. Babbie and Mouton (2009) indicate that a self-administered questionnaire is appropriate if the study population is sufficiently literate (Babbie & Mouton, 2009). The questions were formatted into the system according to the type of questions (open/closed) used, and response fields were added.
4. Available web-based public health nutrition surveys informed the formatting and layout of the questionnaire (Haughton & George, 2007). The survey questionnaire was created in Microsoft Word while in the web-based version Survey Monkey was used and saved into a PDF format. The Survey Monkey software allowed for multiple choice questions, comment boxes, rating scales, descriptive text, demographic information, and a matrix of choices with and without drop boxes. Other features included required answers, navigation-progress bars and skip logic.
5. In order to ensure validity in terms of quantitative data elements, the questionnaire was piloted to see if the questions were well understood and if the answers provided addressed the objectives set.
6. Participants in the pilot included lecturers (including study leaders) at the three Western Cape universities involved in dietetic training, i.e. community nutrition and therapeutic

dietetics. Participants were selected on the basis that they would be able to enhance content validity due to their expertise. Specialisations were equally spread among the 12 participants.

7. The invitation to participate was sent through the Survey Monkey collector function. Custom numbers were given to each respondent and an email was created, including the link to the survey that was sent to all respondents. Progress towards completion was tracked on Days 1 and 7. A reminder email was sent to those who had not responded by Day 7. Participants were reminded that they could log onto the link to complete the survey at any time.
8. Returns were monitored and follow-up mailings were administered to increase the response rates as such an approach has been shown to be effective (Babbie & Mouton, 2009).
9. The responses were further analysed in terms of completeness, responses per question, comments and participants' recommendations for improvements to the questionnaire. Participants who completed the questionnaire were requested to evaluate the questionnaire by answering the following four questions:
 - (i) Was it relatively easy/self-explanatory to complete the questionnaire?
 - (ii) How long did it take you to complete the questionnaire?
 - (iii) In your opinion, was there a good flow in the questions?
 - (iv) Would you like to suggest any improvements to the questionnaire?
10. Based on the responses, the following recommendations for revisions to the questionnaire (Addendum 4) were made and implemented:
 - (i) Shorten the questionnaire.
 - (ii) Delete questions that are not directly linked to the objectives.
 - (iii) Reorganise the questions so that essential questions are listed first.
 - (iv) Address comments provided by the respondents.
 - (v) Change the wording of questions to eliminate ambiguity.
11. Ethical components of the survey were loaded as part of the questionnaire (information page with contact details of supervisor) and provision was made for consent to be provided online.

Sampling

The official database of all registered dietitians and nutritionists was obtained for 2013–2014 from the Health Professions Council of South Africa. The database included postal addresses

of all registered dietitians (2517) and nutritionists (175) to date. The total 2694 participants were targeted as potential participants in the survey.

Data management

The official database from the HPCSA did not include electronic addresses. Postal costs, strikes and non-delivery of post constituted huge barriers at the time of data collection. As a result, alternative modes of data collection were relied upon, i.e. through electronic means, as the survey was set up for either web-based completion or a postal reply. All possible avenues were explored to distribute the questionnaires. The survey was distributed electronically through the professional organisations for dietitians and nutritionists, i.e. the Association for Dietetics in South Africa and the Nutrition Society of South Africa, using provincial health department nutrition contact lists, as well as hard copies provided at national meetings and conferences.

Notifications of the web-based survey were distributed at least twice through the respective professional organisations to increase the response rate, and reminders were sent. The information from the hard copies received was manually entered onto Survey Monkey by the researcher. Data was then checked for errors. Potential errors were reduced with the help of specific settings on Survey Monkey. For example, the system disallowed double entries from the same computer. IP addresses were recorded, thus making the tracking of potential double entries possible. Allowance was made for individuals to complete the questionnaire online in different sessions. Respondents were afforded the opportunity to add comments if they felt strongly about a particular issue. The researcher was able to review individual responses on the system.

Analysis

Descriptive statistical measures were applied using Microsoft Excel, with the system allowing the export of data into SPSS. Open-ended questions and comments were categorised into themes and then counted by hand to identify the common response themes.

6.4 Findings

The findings are presented below as per the following categories in the questionnaire:

1. Demographic information and current position of practice;
2. Practice roles and functions;
3. Training and continuing professional development;
4. Section completed by government public health nutrition employees.

A total of 244 responses were received out of the estimated 2694 registered participants (equating to a response rate of 11%, with 119 respondents requesting more information on the survey and 125 indicating that they did not need further detailed information). A total of 223 respondents answered the consent question, with 21 skipping the question. One hundred and thirty-two respondents provided the optional contact information. The findings presented in the sections below are a reflection of the respondents who completed the specific question.

6.4.1 Demographic information on the nutrition workforce respondents

Provincial distribution of the nutrition workforce respondents

Figure 6.1 below indicates the distribution of respondents per province where they practise (n=244), with 187 respondents answering the question and 57 respondents skipping it.

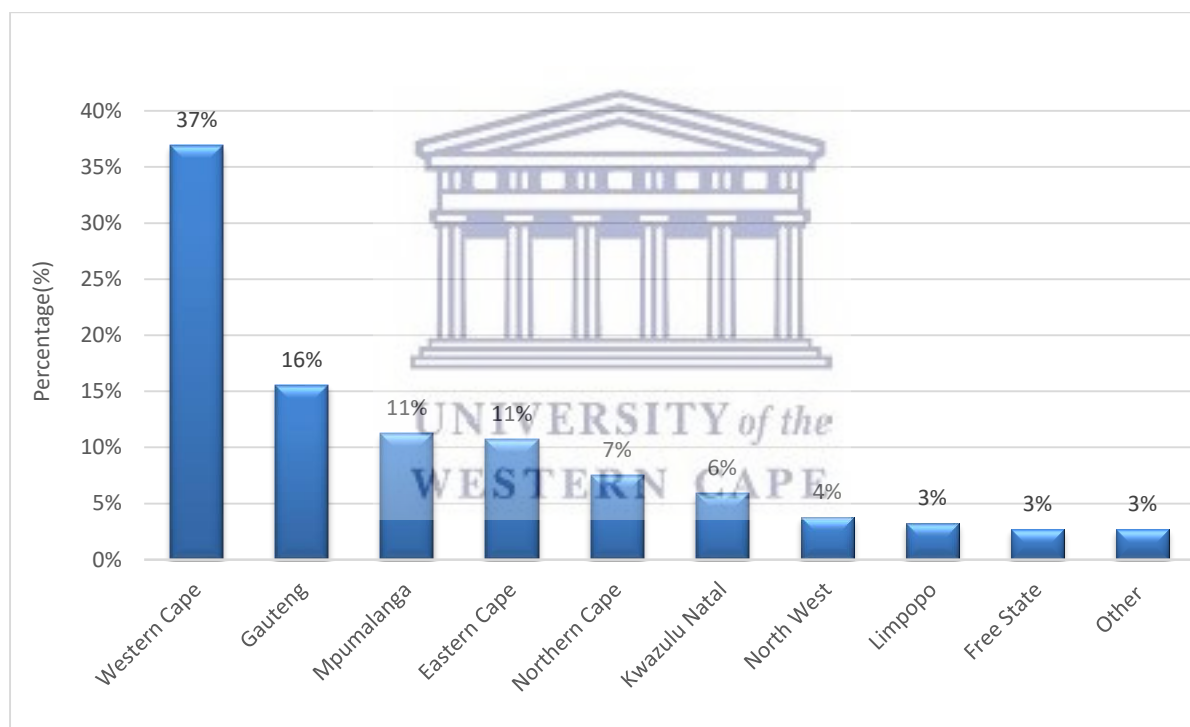


Figure 6.1. Respondents' distribution per province in South Africa

Responses were received from all nine provinces, with most respondents from the Western Cape (n=187) followed by Gauteng (n=29). Limpopo and Free State had the lowest numbers of respondents. The five (3%) responses marked as 'other' were individuals practising nationally and internationally. Fifty-seven respondents skipped the question.

The database from the HPCSA included the provincial distributions per province based on residential addresses and not on where the registered professionals practised, as reflected in Figure 6.1.

Age distribution of the nutrition workforce respondents

Most of the respondents (84%, n=157) were under 46 years of age, with 49% (n=91) between 26 and 35 years of age (see Figure 6.2).

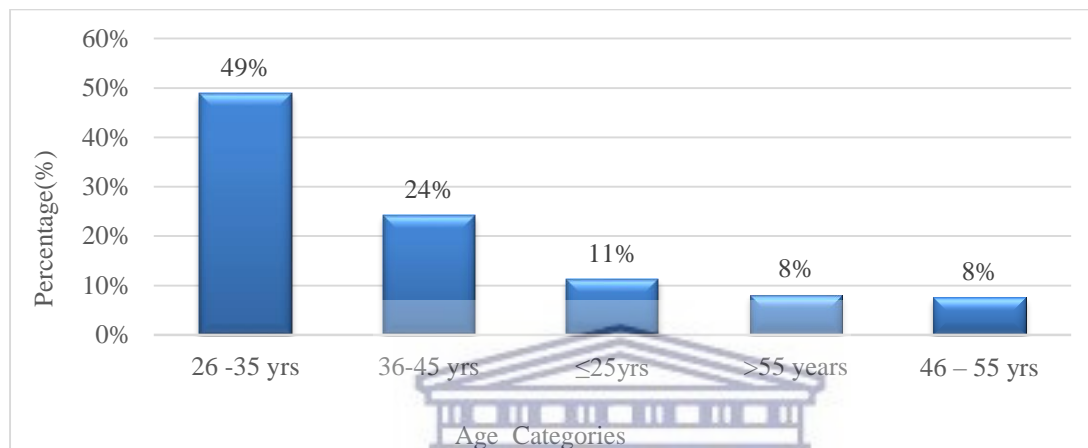


Figure 6.2. Age distribution of the nutrition workforce respondents

Gender of the nutrition workforce respondents

Ninety percent of the workforce respondents were female (n=169).

Ethnicity of the nutrition workforce respondents

The ethnicity of the respondents (n=187) was predominantly white (59%, n=108) followed by African (22%, n=40), coloured (17%, n=31) and Indian (4%, n=8), with one respondent questioning why this data was needed.

Language of the nutrition workforce respondents

Figure 6.3 below indicates the primary home language of the workforce respondents. English (45%) and Afrikaans (34%) were the two main languages, followed by isiXhosa, Setswana and Tshivenda (4% each).

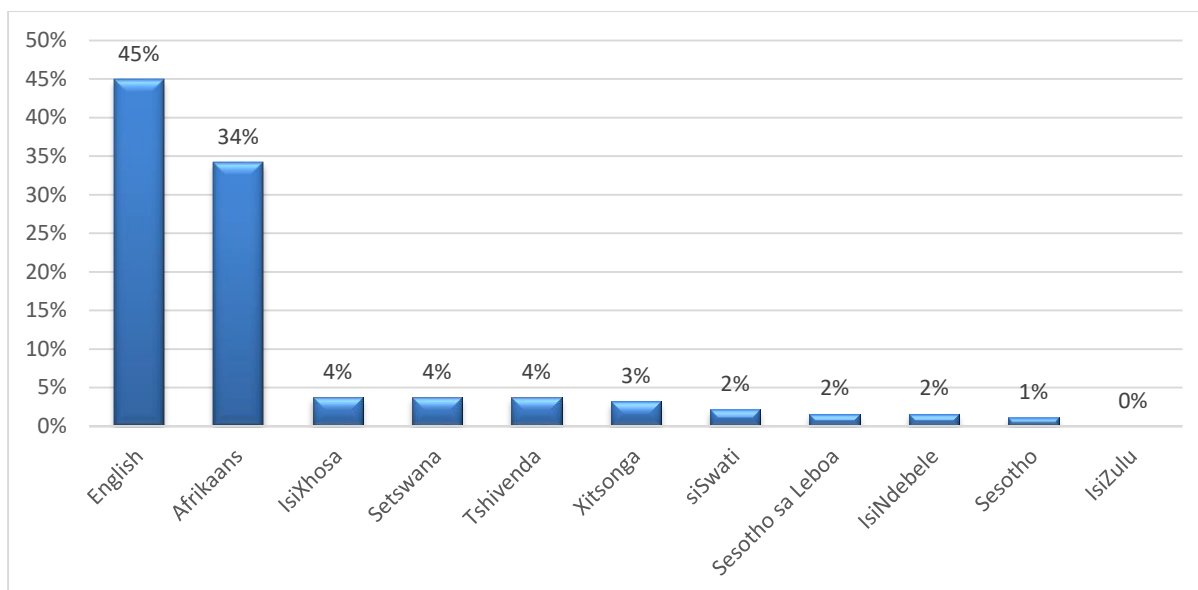


Figure 6.3. Primary home language of the nutrition workforce respondents

Registration with the Health Professions Council of South Africa and years in the profession

Ninety-eight percent (n=186) of respondents were registered with the HPCSA. Two respondents indicated that they were not registered. Eighty-five percent of respondents were registered as dietitians, 11% as nutritionists and 4% as both dietitians and nutritionists. The distribution of respondents (n=85) to the number of years in the profession was: 7% < 1 year (n=16), 6% < 2 years (n=12), 17% > 2–5 years (n=32), 28% >5–10 years (n=51) and 40% > 10 years (n=74).



6.4.2 Nutrition workforce respondents employment

Job titles of the nutrition workforce respondents

Respondents reported 74 different job titles for dietitians and nutritionists, while 32 categories of job titles were reported, which indicated the diversity of the positions and how they were described by the nutrition workforce. Of the 183 respondents, 117 were employed by government health departments, including hospitals, districts and sub-districts. Twenty-three were employed by universities across the country; 32 worked for private companies, consultancies and/or were in private practice; nine worked for NGOs and/or development agencies; and two worked at a research council and foundation, respectively. One participant indicated that she was unemployed.

Current positions of the nutrition workforce respondents

The response rate to the current positions held was 80% (n=207). Sixteen respondents indicated 'other'; 11 were placed at provincial and national offices; and five worked in private health insurance, in the food industry, co-ordinating community health worker training-related activities, the education department, and writing and moderating health-related course material for ancillary and community health. Excluding the 'other' category (8%, n=16), 75% (n=156) were in dietetic positions in different capacities with only 17% (n=35) working as nutritionists in the respective categories.

Employment status of the nutrition workforce respondents

The nutrition workforce who participated were primarily permanently employed (80%, n=43), with 1% unemployed.

Nutrition workforce respondents' years of service in current positions

The professionals had stayed in their positions for relatively long periods, with 60% of the respondents in their positions for up to five years (n=111) and 40% (n=75) for up to 10 years. Seventy percent of the respondents indicated that they planned to stay in their positions for between two and five years, or five years and more.

Reporting positions of the nutrition workforce respondents

The reporting positions of the workforce respondents were diverse, with 28% of dietitians and nutritionists reporting to dietetic managers but the majority (58%) reporting to medical and/or administration managers. Six percent indicated that they reported to other professionals and 9% indicated that they did not have a supervisor.

Financial aspects of the nutrition workforce respondents

Sixty-four percent (n=124) of the respondents indicated that their posts were funded by the government followed by 10% (n=9) of posts that were funded through self-generated funds. Other sources of funding included donors, grants and financial support from universities and industry. When the workforce respondents were asked if they were responsible for the management of budgets in their positions, they indicated almost equally yes (43%, n=79) and no (40%, n=73), with 17% (n=32) indicating that they were responsible sometimes.

Figure 6.4 shows the estimated budget that the workforce respondents were responsible for in the last year, with a large proportion (39%) of dietitians and nutritionists marking 'not

applicable' and 'zero'. Twenty-nine percent of the respondents were managing budgets of up to half a million rand in the last year.

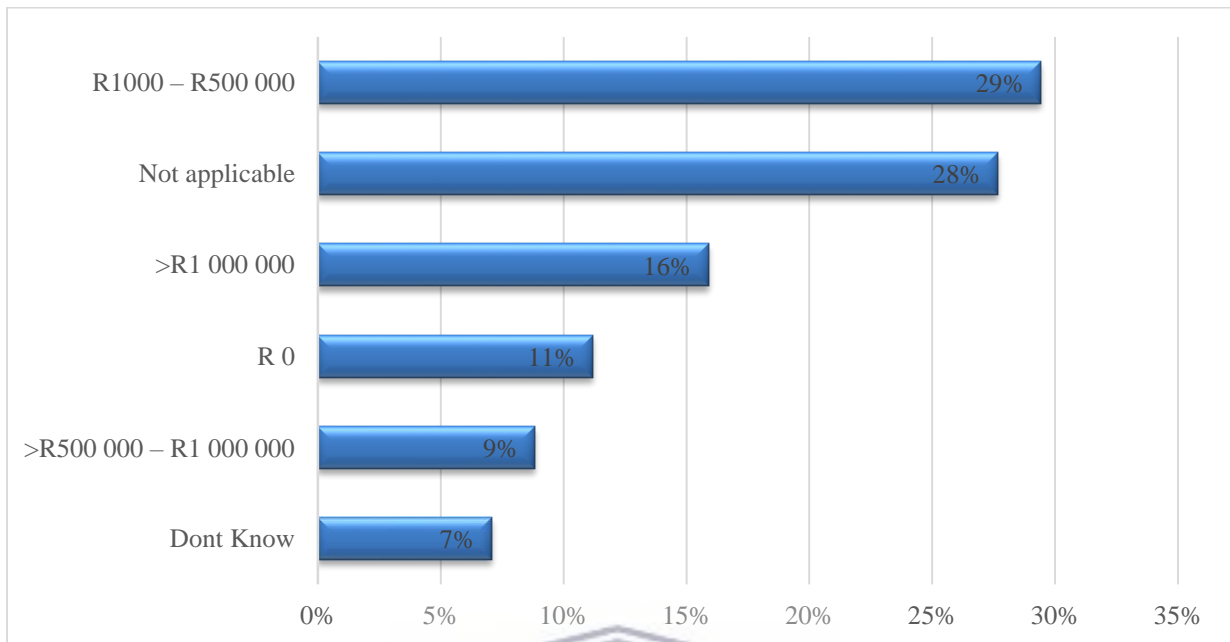


Figure 6.4. Estimated budgets for which respondents were responsible in the last year

6.4.3 Professional fulfilment of the nutrition workforce respondents

The nutrition workforce respondents were not very satisfied in all areas, except for autonomy to make decisions. Respondents' ratings were predominantly average or mediocre (Figure 6.5). In particular, they were not very happy with the career opportunities available to them (55% rated this as low to very low). This response could be understood in the light of the fact that only 56% (n=104) of the 186 respondents had access to mentors to support them, while 82 (44%) were either unsure about or had no mentors to provide them with professional support. Those respondents who had access to mentors mainly connected with them when it was necessary. This finding posed a serious threat to the general job satisfaction of the nutrition workforce, especially when dietitians and nutritionists were not satisfied with the career opportunities open to them.

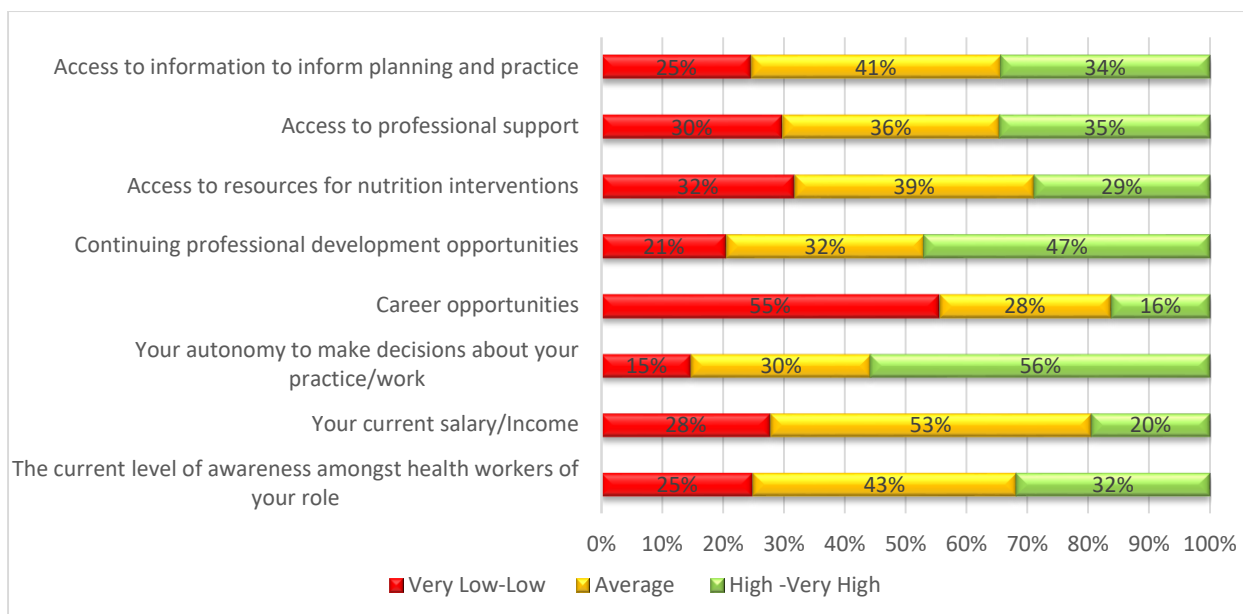


Figure 6.5. Satisfaction levels of the nutrition workforce respondents in their profession

6.4.4 Practice roles and functions of the nutrition workforce respondents

Professional development of the nutrition workforce respondents

Following the expression of professional fulfilment, the respondents rated the importance of selected factors for their professional development. This is reflected in Figure 6.6.

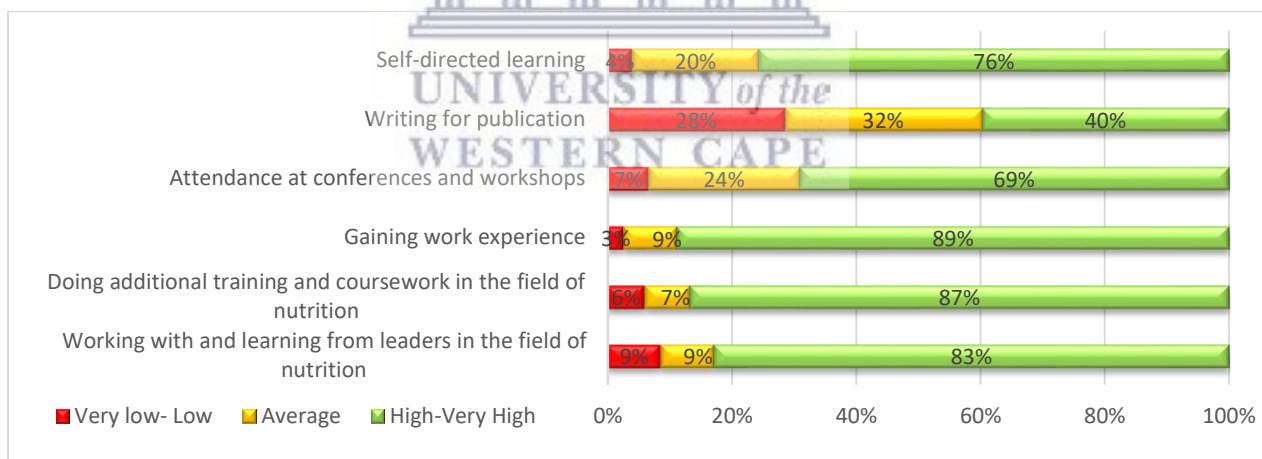


Figure 6.6. Nutrition workforce respondents views on importance of factors affecting their professional development

Evident from the responses was that dietitians and nutritionists wanted to gain experience (89%), learn from leaders in the nutrition field (83%), attend conferences (69%) and become involved in self-directed learning (76%). Writing publications was the least important to them. Two of the key areas highlighted in the comments were the work environment and having a supportive mentor. In the words of two respondents:

“I am having a challenge of not having an office and enough budget to order feeds for clients.”

“Finding a mentor has been hard – would like to find one as I think it would have improved my experience as a nutrition professional (who is not a dietitian!).”

Other responses highlighted the need for leadership, training and peer support, including private practising dietitians.

Nutrition workforce respondents service population, networking and collaboration

The nutrition workforce respondents were primarily regionally/district based (46%, n=75). The five respondents (3%) that indicated ‘other’ worked internationally and for NGOs, as reflected in Figure 6.7.

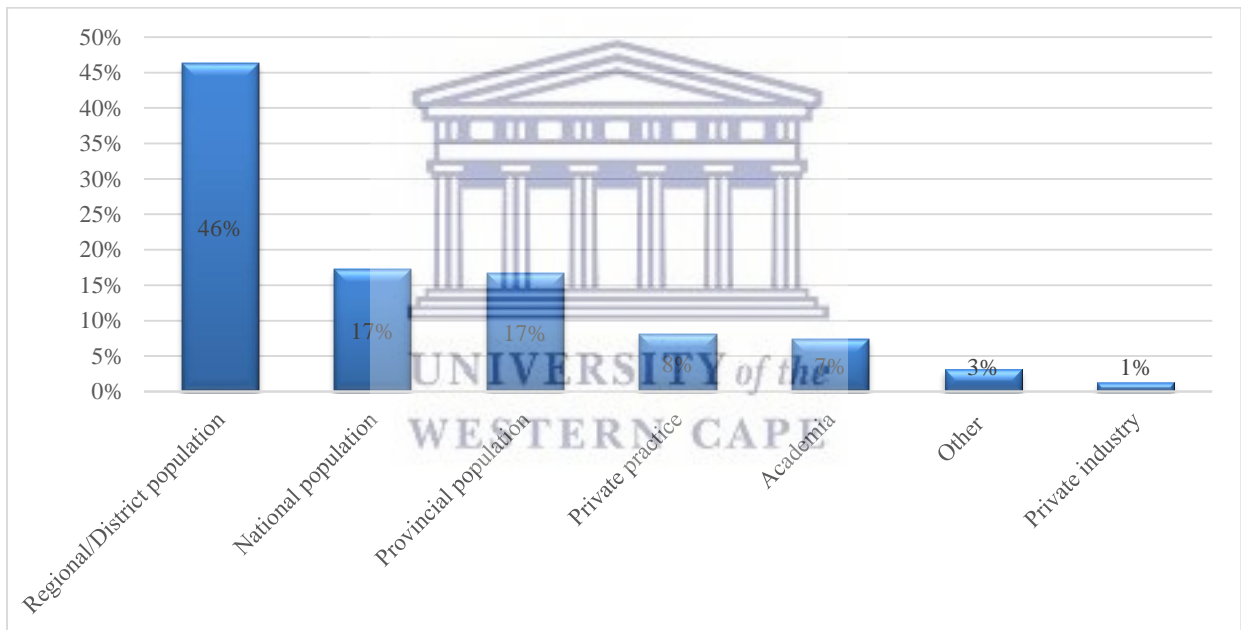


Figure 6.7. Nutrition workforce respondents service areas

Figure 6.8 below reflects the frequency with which dietitians and nutritionists collaborated and networked with other professionals.

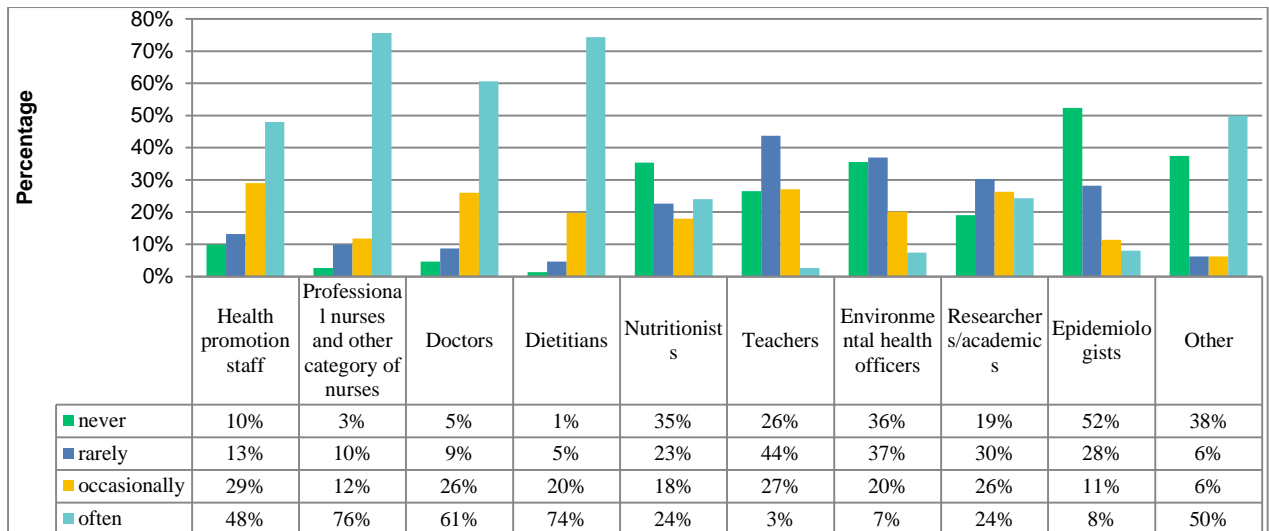


Figure 6.8. Nutrition workforce respondents' collaboration with health and other professionals

The results indicate that dietitians and nutritionists collaborated most often with professional nurses followed by (in descending order) dietitians, doctors, health promotion staff, nutritionists and academics.

Other groups and/or organisations with which they collaborated were: SASSA, dietetic students, policy makers (national nutrition managers), CHWs, food service managers, company representatives, ECD practitioners, water and sanitation entities, the pharma industry, allied health professionals (occupational therapists, physiotherapists, speech therapists), physicians and surgeons, and agricultural and social development entities.

Annexure Table A6.1 indicates the nutrition workforce respondents' involvement and level of achievement in four public health nutrition domains, i.e. analytical functions, capacity-building functions, intervention management and professional functions/activities.

From the table, averages were calculated in the respective PHN domains and presented in Figure 6.9 below. The figure provides a broad overview of the four key public health functional areas as per the detail in Table A6.1. It can be noted that the nutrition workforce respondents mostly engaged, on a daily and weekly basis, in the intervention management domain, as opposed to the other three domains. Capacity-building, analytical and professional functions were less frequent pursuits, from less than monthly to never for most respondents. All domains were, however, covered on a monthly basis.

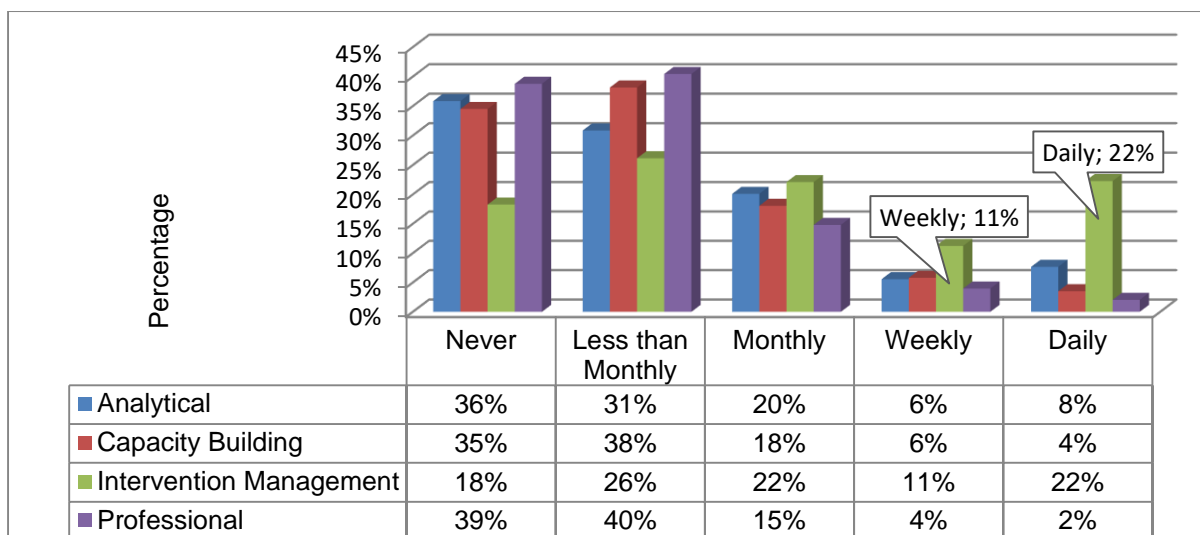


Figure 6.9. Nutrition workforce respondents' involvement in public health functional domains

6.4.5 Nutrition workforce respondents' capacity

Government-employed dietitians, nutritionists and nurses were rated as being able to achieve the nutrition objectives. Dietitians were viewed by 87 respondents (58%, n=87) as having good capacity, with lower ratings given to nutritionists (34%) and nurses (21%). Professional nurses, on the other hand, were viewed as having mainly limited (43%, n=63) to average (36%, n=54) capacity, as reflected in Figure 6.10. Detailed individual category ratings appear in Annexure Table A6.2. Cognisance should be taken of the fact that most respondents were dietitians. The closeness of the average ratings given to nurses (36%) and nutritionists (32%) is a compelling finding.

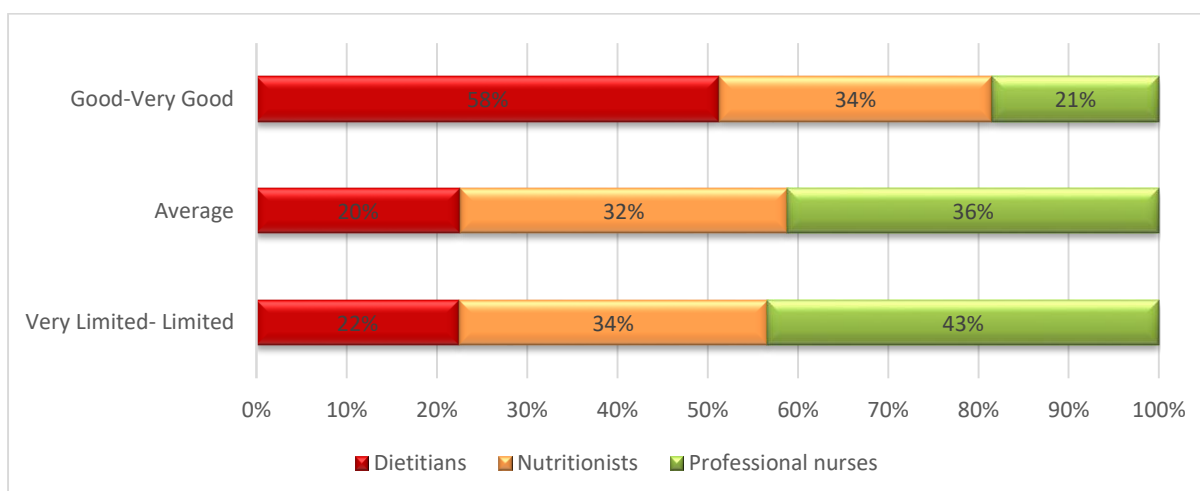


Figure 6.10. Ratings indicating capacity of the nutrition workforce respondents to address nutrition challenges in South Africa

The strengths and weaknesses of dietitians and nutritionists in addressing food and nutrition services are shown in Figure 6.11, with more detail provided in Annexure Table A6.3.

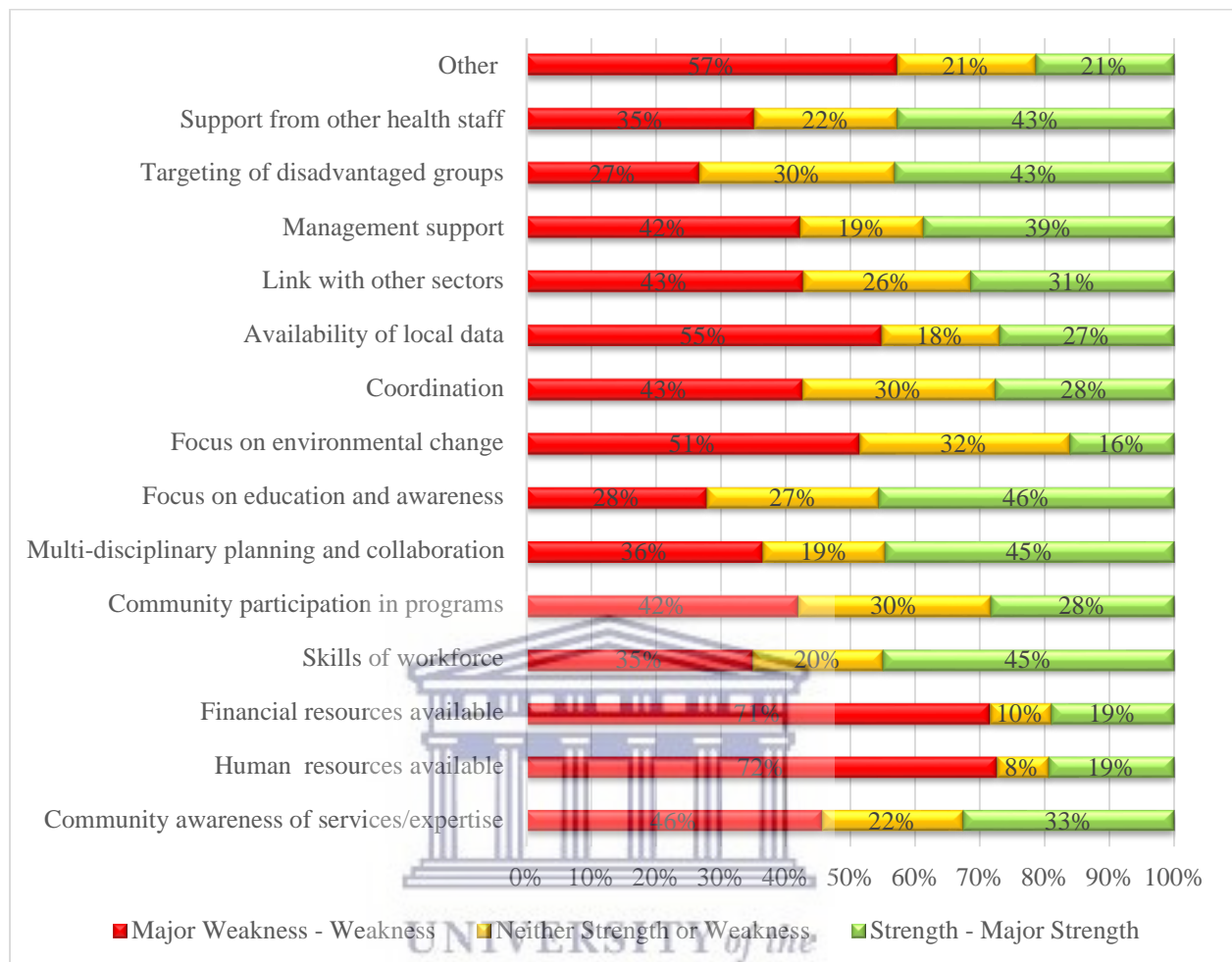


Figure 6.11. Ratings of nutrition workforce respondents' capability levels to address food and nutrition services

Ten of the 14 areas were identified as weaknesses and four as strengths. Resources (financial and human) and data availability were found to be the main areas of weakness. Support from other health staff, targeting disadvantaged groups, multidisciplinary planning and collaboration, and workforce skills were generally seen as strengths rather than weaknesses. The areas of weakness were mostly related to health system issues, e.g. human resource management, leadership, advocacy and information management/support services, i.e. management support, links with other sectors, availability of local data, co-ordination, focus on environmental change and community participation in programmes.

Other areas that were judged mainly to be weaknesses were: integrated approach to service delivery (collaboration among departments to improve food security), referrals of patients, competing priorities, transport required to attend clinic visits, administration and general work.

Respondents also left comments about services, reinforcing the weaknesses and strengths:

Major weaknesses

“.... incompetent persons appointed in key positions.”

“People targeted to institute health education programmes are often untrained and unmotivated – job seen as low paid and low status, i.e. only those not capable of teaching anything else teach health education or lifestyle management.”

“Use of evidence, recent research and local research to inform policy development is not always done. This is a challenge, because for government workers, there is no motivation to complete postgraduate studies (e.g. a Master’s degree) – your salary does not go up and you don’t often get further opportunities to be promoted. Therefore, many people in government who obtain research experience then move on and many current government employees do not have a strong ‘evidence’-based approach.”

Major strengths

“The opportunity to engage and leverage opportunities and other staff to execute what is needed is a major strength that is often not recognised and utilised enough. In South Africa the greatest nutrition workforce are the nurses. Nutrition programmers need to be able to influence and use this major workforce.”

Annexure Table A6.4, Table A6.5 and Figure 6.12 reveal the nutrition workforce respondents’ capability levels in terms of the three public health nutrition functions.

The respondents indicated that they were mostly proficient in the intervention management functions but mainly at entry level. Capable to competent levels were found for analytical and capacity-building functions. For capacity-building and analytical functions, there was a more significant shift from entry level to capable than there was from proficient to expert.

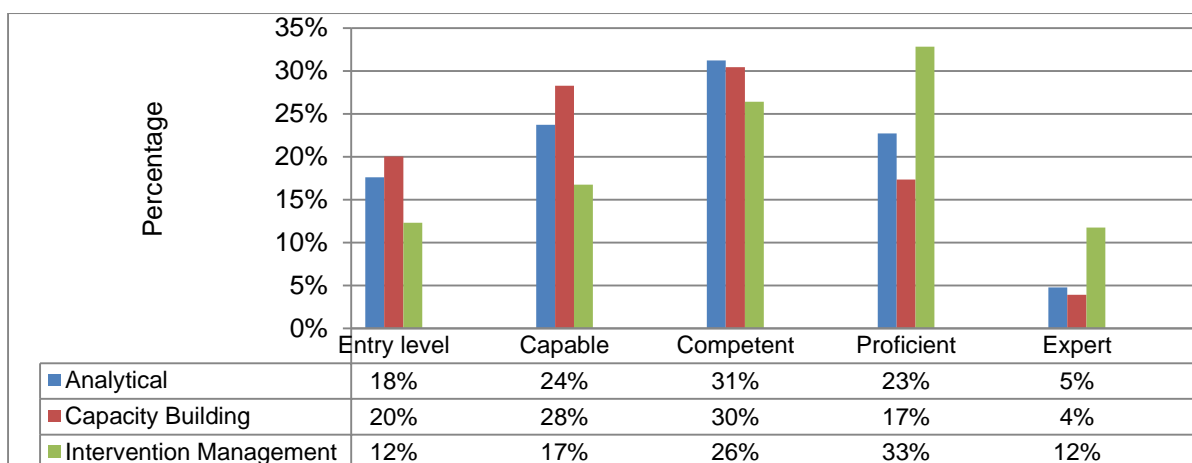


Figure 6.12. Capability levels of the nutrition workforce respondents in public health nutrition

6.4.6 Training and continuing professional development of the nutrition workforce respondents

Qualifications and training

Table 6.1 below provides a summary of the qualifications of the nutrition workforce respondents. The workforce mainly has qualifications in dietetics (107 of the 112 respondents) rather than in public health. Among the other qualifications were those in the social sciences, such as psychology, sports nutrition, and MSc and postgraduate diplomas in public health and management.

Table 6.1. Qualifications of the nutrition workforce respondents

Qualification	Earned	n	Working towards	n	Total
High school diploma	100%	74	0%	0	74
Bachelor's degree in Dietetics	100%	79	0%	0	79
Bachelor's degree in Nutrition	100%	14	0%	0	14
Bachelor's degree in Public Health	100%	1	0%	0	1
Bachelor's degree in Home Economics/Consumer Science/Human Ecology	83%	5	17%	1	6
BSc Med Honours degree in Nutrition and Dietetics	100%	14	0%	0	14
Master's degree in Dietetics	55%	12	45%	10	22
Master's degree in Nutrition	71%	15	29%	6	21
Master's degree in Public Health	29%	4	71%	10	14

Qualification	Earned	n	Working towards	n	Total
Master's degree in Home Economics/Consumer Science/Human Ecology	100%	1	0%	0	1
Doctorate in Dietetics	33%	2	67%	4	6
Doctorate in Nutrition	17%	1	83%	5	6
Doctorate in Public Health	13%	1	88%	7	8
Doctorate in Home Economics/Consumer Science/Human Ecology	67%	2	33%	1	3
Other (please specify)					25

A number of respondents were busy with postgraduate studies – which was encouraging and in line with respondents indicating their need for professional development. Respondents were busy with courses such as management development programmes, a Master's in Public Health and Dietetics, UNISA–accelerated supervisory development programmes, the UNICEF/Bloomberg School of Public Health Dynamic Leadership Certificate, a lactation consultant course, business management and DPhil in Health Psychology.

Sixty-three percent of respondents (n=70) indicated their intention to undergo further professional training, while 17% (n=19) were unsure about further training.

Only 97 respondents (40%) rated the adequacy of training to prepare for public health nutrition, with 147 respondents opting not to answer. Thirty-eight percent (n=37) of these respondents rated their training as very inadequate to inadequate, with 12% (n=2) being un-decided/neutral, as shown in Figure 6.13.

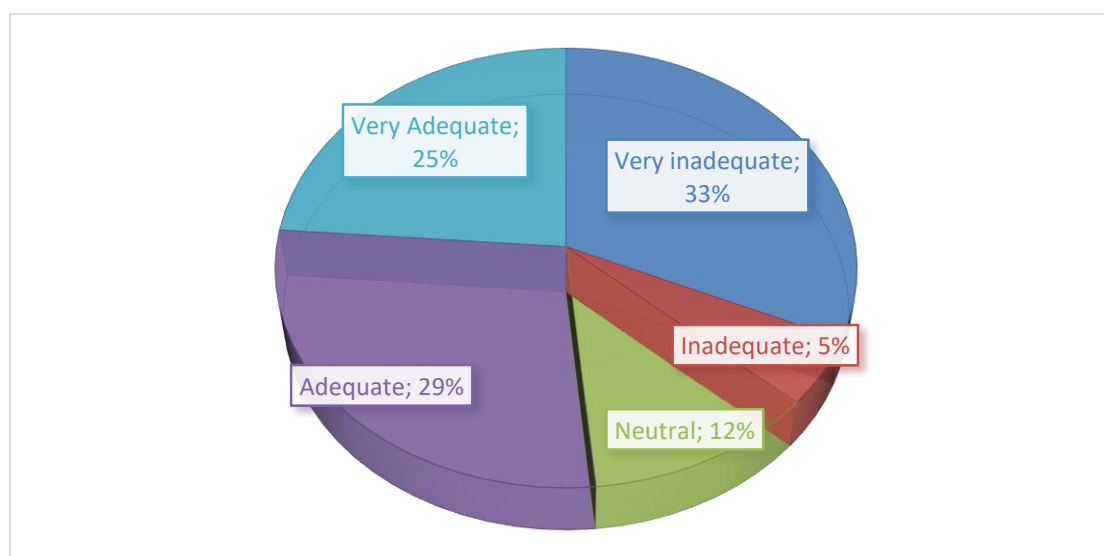


Figure 6.13. Adequacy of basic training in public health nutrition

Figure 6.14 shows what training the respondents indicated would be more feasible for them. Most wanted professionally recognised, off-campus courses and only 4% wanted full-time, on-campus courses.

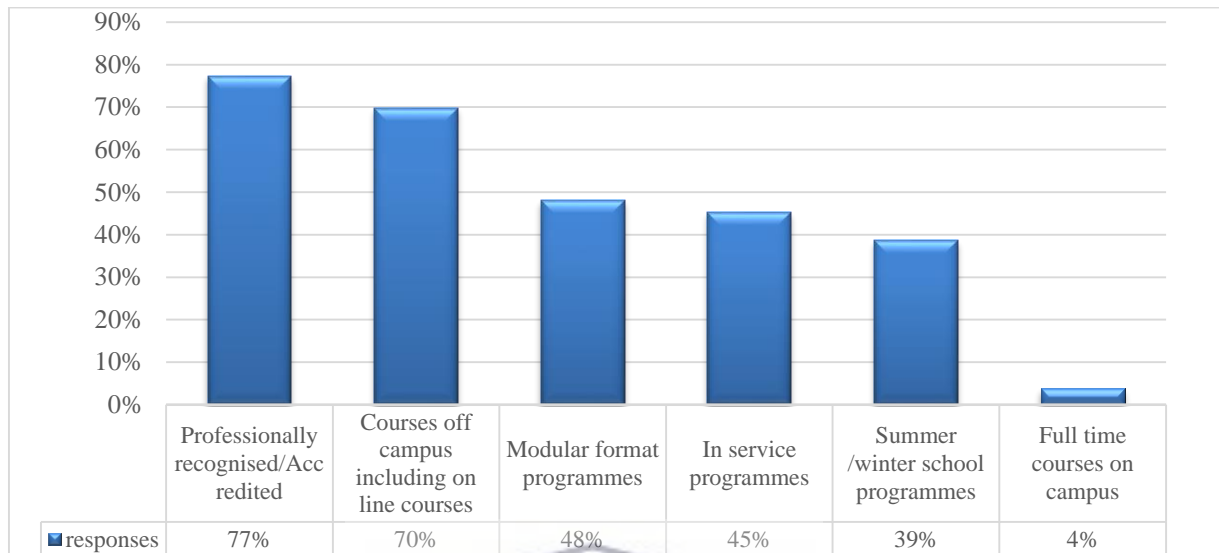


Figure 6.14. Training preferences of the nutrition workforce respondents

Two respondents expressed concerns in their comments and a third offered advice:

“Dietitians highly trained – the problem is we need more of them.”

“Online courses are exceptionally important; especially in the where majority of the time it is logistically impossible to travel.”

“There also needs to be more emphasis on short learning programmes via correspondence from universities (certificate courses) rather than just Master’s and Doctorates.”

6.4.7 Nutrition workforce respondents’ competencies

Annexure Table A6.6 outlines the ratings in terms of importance of the PHN competency building blocks/modules for the nutrition workforce respondents. Averages were calculated from the detailed individual competency elements per competency module. The averages correlated well with Table A6.6. The respondents indicated that all 14 areas were mostly important to very important. The average of mid-range ratings varied from 3% to 18%, which is low.

It is important to reflect on what the respondents noted (Annexure Table A6.7) as others included some qualitative statements in respect of the 14 competency modules. The main themes were:

- Knowledge is needed to understand and deal with the social determinants of health and working at the population level.
- There should be incorporation of more practical methods so as to translate nutrition science into something digestible for the population.
- It is important to include all relevant role players in health system planning.
- Materials developed should be appropriate for the target audience.
- The lists of competency elements are too extensive to be covered by a single professional.

Table 6.2 indicates barriers and incentives to skills development and the ratings of the respondents. Respondents also provided some qualitative comments under ‘other’. Funding and time available were seen as the major barriers to training. Self-motivation, access to information, personal reward of further training, and interest in public health nutrition were found to be an incentive rather than a barrier. Interest in public health nutrition was found to be particularly positive, with 77% of the respondents indicating that this was an incentive or a major incentive. Employers can use this information to plan how to keep their workforce motivated. On the other hand, the level of support experienced by staff was found to be a barrier, which could negatively influence the workforce.

Comments from respondents provided under ‘other’ were:

“It would be a major incentive for our country to recognise and prioritise nutrition programmes and should be strictly practised by nutrition trained and registered personnel.”

“Courses often given at too short notice to book leave and mainly have to be self-funded.”

Table 6.2. Barriers and incentives to skills development

Areas	No barrier	Barrier		Neither/ Neutral		Incentive		Major incentive		Total	
	%	n	%	n	%	n	%	n	%	n(%)	
Own assessment of need to develop skills in a specific area	18%	19	6%	6	27%	28	36%	37	13%	13	103(100%)
Funding availability	7%	7	70%	74	4%	4	10%	10	10%	10	105(100%)
Self-motivation	10%	10	12%	13	21%	22	40%	42	17%	18	105(100%)
Time available	2%	2	71%	75	7%	7	9%	10	11%	12	106(100%)
Access to information	10%	10	29%	30	18%	19	34%	36	10%	10	105(100%)
Availability of courses	7%	7	45%	48	14%	15	27%	29	7%	7	106(100%)

Areas	No barrier	Barrier		Neither/ Neutral		Incentive		Major incentive		Total	
	%	n	%	n	%	n	%	n	%	n	n(%)
Level of support	7%	7	45%	46	18%	19	24%	25	6%	6	103(100%)
Personal reward of further training	5%	5	24%	25	15%	16	40%	42	16%	17	105(100%)
Professional recognition	7%	7	17%	18	19%	20	38%	40	19%	20	105(100%)
Interest in public health nutrition	3%	3	10%	10	11%	11	47%	47	30%	30	101(100%)
Other (list and rate)	33%	1	0%	0	0%	0	0%	0	67%	2	3

6.4.8 Nutrition workforce respondents – government employees

Of the 112 respondents, 66% (n=74) were government employees and completed the survey from question 57 onwards. One hundred and thirteen respondents skipped the question and exited/concluded the survey.

Work environment and HR processes

Ninety-two percent of the respondents indicated that they did have job descriptions in place. One of the respondents who answered ‘no’ provided comments that indicated that human resource processes were not always in place and quality assurance was not carried out in all instances:

“There seem to be many.”

“Yes, but it is outdated.”

“The challenge is that at managerial level, the job description of the dietitian is always questioned and undermined as demands are often made of us which fall outside our job description.”

The situation seemed even worse when it came to performance plans of the government employees, with only 66% of the respondents having individual development plans in place and more than one-third having no plan. This finding correlated with the notion that the workforce felt unsupported.

The comments by respondents showed that *supportive supervision was absent* in their work environments, which can be seen from three comments below:

“Even though we fill in developmental needs at work, they are never considered as they need full-time attendance, which is never allocated to other professions except for nurses.”

“I have specific personal goals but no formal ‘individual development plan’ from the department.”

“Personally I have drafted this, but in the employment field, this is not discussed.”

The situation became even bleaker when 84% of the respondents indicated that they felt they had inadequate staff to deliver nutrition and dietetic services.

Respondents’ comments have been summarised below in terms of five key themes:

1. Inadequate staff to achieve goals and targets

“..... 5 hospitals with only 2 full-time dietitians, 1 5/8 post and 1 Com Serv DT. There are 13 CHCs and 27 clinics with only 4 dietitians to cover them (there is also an imbalance in coverage of facilities between dietitians) ...do not have a Nutrition Co-ordinator and responsibilities are not evenly distributed.”

“.....currently there is only 1 nutritionist in the district (there are 44 clinics).”

“Need much more dietitians to do an effective job. We are like one teaspoon of jam for a loaf of bread. On one slice of bread, it would have had a huge ‘sweet’ effect, but on a loaf you cannot taste it. We must do too much all over the place.”

2. Posts not filled

“Our hospital had post for CSD to AD Dietician from 2007 staff establishment and these posts are currently reduced to Grade 1–3. If I can vacate my current post. There will be no chief post.I am rendering dietetics services by myself.”

3. Lack of support

“We make it work but it feels like we are not making a big enough difference because most of the time we are spread too thin and there are always more responsibilities being added with no incentives to motivate us.”

4. Other staff categories needed at community level

“My concern is rather with categories of staff than numbers – e.g. we have a sufficient number of dietitians and a relatively sufficient number of nutritionists, but do not have a cadre of workers at community level.”

5. Suggestions to resolve inadequate staff

“At least have 1 nutritionist or dietitian per cluster, not for the whole sub-district. Have 1 sub-district coordinator.”

“Not just additional numbers but more experienced/skilled staff. Lack of chief or specialist posts reduces ability to attract and RETAIN good dietitians.”

The government-employed nutrition workforce estimates of staff adequacy appear in Figure 6.15 below, with 76% of the respondents estimating the workforce to be less than 40% adequate and 23% rating the adequacy level at between 0% and 39%.

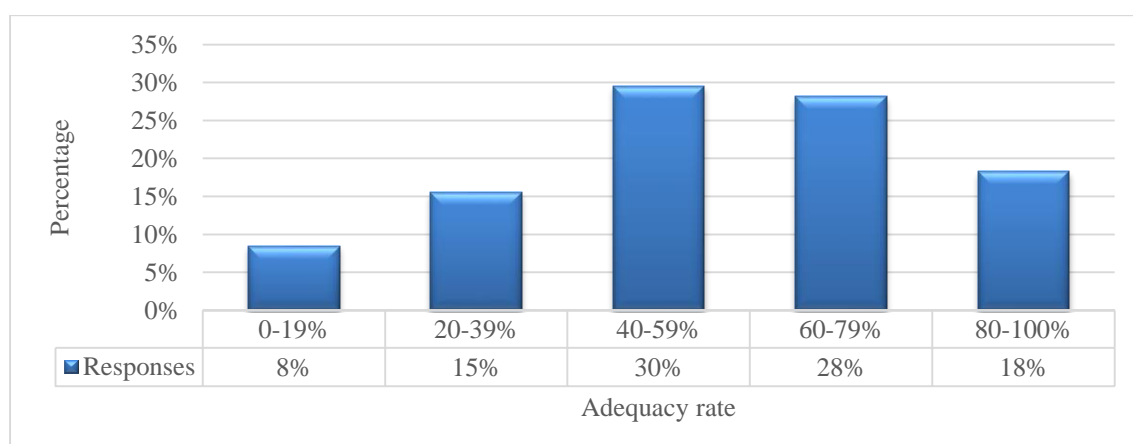


Figure 6.15. Nutrition workforce respondents' estimates of staff adequacy

The employees/respondents were requested to provide information on their work environment resources, as reflected in Figure 6.16, with more than 60% of employees having offices to work

from. It is, however, concerning that one in three staff members did not have their own office. Staff reflected on this in comments they provided. They indicated that even when new centres were built, office space for dietitians/nutritionists was not necessarily included. The situation was made additionally stressful with no telecommunications, work email access or transport provided for them. The lack of storage space in the workplace for their supplies added to the burden.

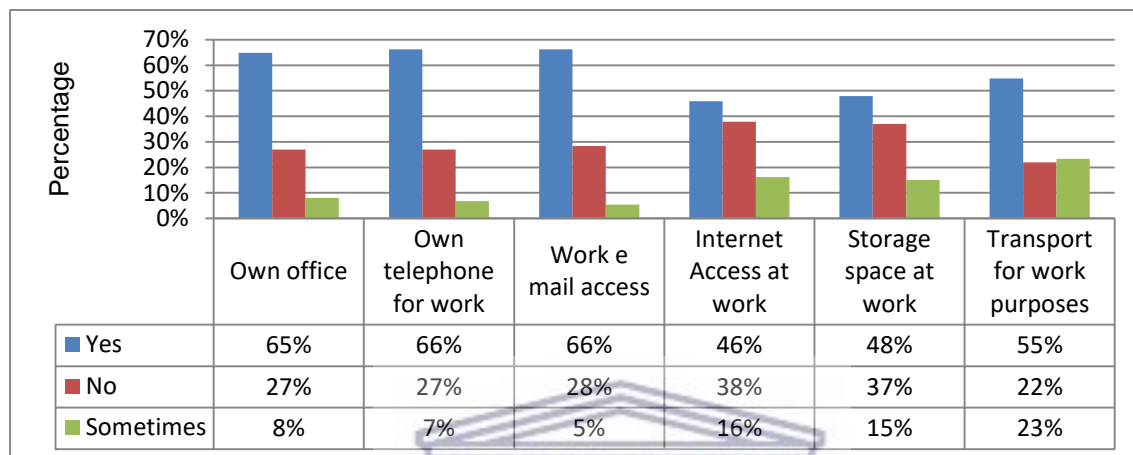


Figure 6.16. Nutrition workforce respondents' working environment resources

The following statements from employees highlight the poor supporting environments they worked in:

“There are not enough office space and we share of medical wards as offices. We were affected by the new demarcation of having to vacate our old offices.There are no work telephones, internet access except for the privileged few, not unless you request form managers who are not always available to assist or are busy with their own duties. There is no storage for nutrition supplements as well.”

Staff are forced into situations in which they have to use their own resources to do their work, obtain CPD points and deliver services off-site. These can be noted from the following individual statements:

“I use my personal internet access.”

“I use my own transport and internet for work purposes. I’m spending a lot of money from my own pocket for work things.”

They felt that management was not providing them with support:

“Management is not taking this profession as a priority.”

Sharing of offices was a problem as each office was in most cases very small and left them with no privacy at times to counsel their patients:

“We share an office with other – this hampers effectiveness, because if one speaks, everyone must listen.”

The above shows that there were serious concerns about the work environment of these employees.

6.5 Limitations

The ongoing postal strikes and unreliability (mislaying of post, non-delivery, high cost) of the postal service was a limiting factor and alternative distribution channels for the survey had to be found.

The response rate was low, which could potentially have led to non-response bias. Low rates were not unique to this survey. The HPCSA in its 2014 situation analysis found similar response rates among the same target population and could achieve only a 10% response rate among registered professionals (HPCSA, 2014). Nutrition workforce studies in South Africa range from limited to non-existent, which makes concluding comparisons unviable. The survey was entirely voluntary and no incentives were offered for participation. The comprehensiveness of the questionnaire made the survey quite lengthy which might have affected the completion and response rates.

6.6 Discussion

Human resources are known to be critical in delivering health services to the population. Collecting enough evidence to plan and implement a complex human resources process is vital for health planners as it ensures that the right number of people, with the right skills, at the right place and at the right time are available to service the needs of the population (Dreesch et al., 2005). There are no standard models in South Africa to ensure that the nutrition workforce is able to respond to what is needed for nutrition HRH. Nutrition as part of the comprehensive package of services and workforce is not always prioritised among medical teams and services that are nurse and doctor driven.

The data presented in this chapter will allow policy makers and planners to understand and address issues of access, supply and barriers to nutritional care as seen through the eyes of

professional providers. The information provided on job descriptions and individual personnel development plans and reflections on the work environment revealed a lack of support for the workforce. Factors identified in the study can influence the nutrition workforce performance, morale and staff retention rate, especially among those currently placed in the public health (government) sector.

Response rate

The response rate was low (11% with representation from all nine provinces), which is comparable to other studies conducted by the HPCSA among dietitians (HPCSA, 2014). Because of challenges with the country's postal services, the survey was primarily web-based. With web-based and postal reply surveys targeting an entire population group, a response rate of 5–10% can be expected. Morton et al. (2012) comment on the definition of response rates and indicate that the emphasis should be on ascertaining external validity (Morton et al., 2012). Fryrear (2015) points out that for internal surveys (employees), a response rate of 30–40% (or more) will on average be obtained, compared to an average 10–15% response rate for external surveys (customers). The survey among dietitians and nutritionists can be regarded as an external audience. Some of the factors identified by Morton et al. (2012) as contributing to falling response rates were revealed in the survey, i.e. a rising number of requests from researchers for people to participate in surveys, the time taken to complete the survey, the inability of the researcher to contact respondents directly due to the risk of response bias, ethical considerations and the fact that respondents may feel that they are compelled to complete the survey (Fryrear, 2015; Morton et al., 2012; Cook, Heath, & Thompson, 2000; Kaplowitz, 2004).

Morton et al. (2012) report several other studies that have demonstrated that there is no direct correlation between response rate and validity. Validity cannot be dependent on the response rate on its own as a proxy indicator. There are no straightforward answers to the question of how to achieve an acceptable response rate, other than to disclose more details about and non-participants and thereby attempt to improve participation (Morton et al., 2012). The methods were disclosed by the researcher to increase the response rate and no tactics were used to coerce any participant to respond.

Demographics

Similar responses were received from most of the bigger provinces, e.g. KwaZulu-Natal, Gauteng and Eastern Cape, but with the exception of Limpopo in view of the population

distribution. The largest proportion of responses were from the Western Cape, which could be due to the researcher being part of the nutrition workforce in that province. Respondents possibly saw value in participating in future workforce planning in the Western Cape. Two of the provinces (Free State and North West) had an equal distribution of respondents, while the two smaller provinces (Northern Cape and Mpumalanga) had a proportionately higher percentage of respondents (NDOH, 2017).

The nutrition workforce respondents from the survey were relatively young in age, with 84% of respondents having at least 5–10 years in the profession. The nutrition and dietetics professions were shown to be, as expected, still female dominated and white, and the predominant languages were English and Afrikaans. This is a reflection of the inequalities that continue to exist due to South Africa's historical legacy (Steyn & Mbhenyane, 2008). The demographics of the nutrition workforce have implications for the provision of services to the entire population, especially in terms of their ability to communicate and identify with the population they serve.

Current positions of practice of the nutrition workforce

Thirty-two different categories of position statements/job titles were listed, indicating the diversity of positions held by dietitians and nutritionists. The large number of similar positions in the same category could also be indicative of the lack of standardisation in position statements at junior and senior levels. This wide range of job titles might influence how the population and co-workers perceive the roles of dietitians and nutritionists. The findings of the South African situation were similar to other enumerating/profile studies, with the majority (64%) of positions filled and funded by government departments, 17% (n=32) by the private sector, 8% by universities and 5% by NGOs (Hughes, 2004).

The nutrition workforce respondents in South Africa were mainly permanently employed, with 25% being in temporary/contract positions. As in the Australian workforce study, less than 20% of the positions in South Africa were public health nutritionists or dietitians placed to play community nutritionist roles. The range of positions (16) to whom the workforce respondents reported was indicative of the structures of organisations and corresponding placements. As most posts were hospital based (31%), it is understandable that the main reporting position was a medical head.

Despite the fact that the nutrition workforce respondents were not satisfied with the profile of/awareness about their profession, their salaries, career opportunities, access to resources and

access to mentors, they remained in their positions for at least two years or longer (refer to Figure 6.5). The turnover seemed to be slow as most respondents (60%) had been in their positions for up to five years. Twenty percent indicated that they were unsure about changing their current job and 70% indicated that they planned to stay in their positions for two to five years or five years and more. The situation could be indicative of the limited availability of positions for the nutrition workforce.

Practice roles and functions

The workforce respondents were interested in fulfilling their functions and wanted to grow, develop, network and work with other professionals in their careers. Yet from their comments and ratings, they appeared to feel unsupported. They expressed the need for leadership, peer support and less division between public and private dietitians. As most of the workforce respondents worked at the regional and district levels, the dietitians and nutritionists acknowledged that they did have the capacity to fulfil their functions. However, they expressed the need for surrounding support systems as they most often collaborated with fellow dietetic colleagues (see section 6.4.4).

The sentiments surrounding and the need for support as revealed in the results reflect what has been identified in previous studies by Parker et al. (2013) on community service dietitians and by Goeiman et al. (2011).

Professional nurses were the category of staff with whom the nutrition workforce respondents mainly networked and collaborated, yet the perception of the nutrition workforce was that nurses seemed to have very limited to limited capacity to address nutrition challenges. Such views have also been supported by Steyn and Mbhenyane (Steyn & Mbhenyane, 2008).

The nutrition workforce respondents identified their skills as a strength when it came to the delivery of services. Weaknesses included the need for communities to be made more aware of their expertise in delivering nutrition services, coupled with the need for co-ordination, local data to work with and linkages with other sectors. Staff shortages were rated as a major weakness and stated continuously throughout the survey by the respondents. Staff shortages have also been highlighted in the diagnostic evaluation of nutrition intervention for children from conception to age 5 (DPME, 2014).

The respondents indicated that they were most frequently involved in intervention management (and less engaged in analytical, capacity-building and professional activities, i.e. less than

monthly to never). When rating the capacities against the public health nutrition domains, the respondents rated themselves mainly proficient in intervention management. The levels of capacity shown in all three areas showed that operations were mainly run within existing rules and regulations, and not necessarily with analytical skills or insight, as expressed by Koo and Miner (2010) who discuss entry capacity levels.

Training and continuing professional development

The majority of the respondents had qualifications in dietetics and were registered with the HPCSA, with about 10 individuals working towards a Master's in Public Health and 63% of respondents having intentions to do further training. When rating the adequacy of training in public health, about 30% of the respondents were undecided and provided no answer. The 'no' and 'unsure' responses prompted the question as to whether perhaps respondents were not comfortable/confident about rating their training, which could indirectly reflect on their level of attainment. Of those who responded, 38% indicated that their training in public health nutrition was very inadequate to inadequate. Access to training was highlighted as a concern by respondents through their qualitative comments. For example, a preference was shown for off-campus and online courses, professionally recognised/accredited training and short learning programmes, over and above Master's and Doctorates.

The respondents marked all 14 competency elements for public health nutrition as very important to important, with one individual stating that the country should ensure that those professionals delivering the services are appropriately trained and registered. The need to address training in public health competencies has been recognised through the identification of the new professional nutrition process currently under way by the HPCSA (HPCSA, 2016).

Government public health nutrition employees

One-third of the respondents in the nutrition workforce survey were government employees, who completed the survey section. They had job descriptions which reflected the expectations of the employer in terms of service. Of concern, though, is that one-third of employees did not have job descriptions and were unclear of what their employer expected of them. Many employees also faced the challenge of not having professional development plans in place; nor did they have basic resources to allow them to perform their day-to-day tasks. Staff shortages were of particularly great concern. It also appeared that they had to function in an unsupportive environment where their work was not valued or considered important enough to be prioritised. These challenges have been noted in previous work by Goeman et al. (2011) and in the national

landscape analysis, but no action seems to have been taken despite these concerns being well known and communicated to those in leadership positions (Goeiman et al., 2011; DPME, 2014).

6.7 Conclusion

Bridging the gap in public health competencies among the current nutrition workforce needs to be addressed as these professionals are in the employ of the population to deliver services to them. In addressing these gaps, South Africa should learn from countries such as the United States which invites professional associations in the fields of public health and education to assist with the training of registered dietitians–nutritionists aimed at preparing them to be responsive to the needs of the population and ongoing changes in the health system (Davis & Affenito, 2014).

As the workforce is at the heart of any organisation, the support structures and working environment for employees should be seriously addressed to enhance their capacity to be responsive and to deliver needed services to the population. A comprehensive health systems approach and investment are needed in the development of the nutrition workforce capable of addressing the gaps and challenges. This should go beyond noting recommendations; it should involve committed action that has an impact on the nutrition situation in the country.

6.8 Key messages from the dietitian and nutritionist workforce survey

- The nutrition workforce respondents in South Africa feel undervalued and not supported in their work environments.
- Inequities continue to prevail in the profile and coverage of the nutrition workforce.
- Government is the largest employer of the South African nutrition workforce.
- The potential growth in positions is limited in the current health system due to competing priorities, leadership challenges and the wide range of job titles which may interfere with people’s understanding of the roles and functions of dietitians and nutritionists.
- The nutrition workforce is open to collaboration but needs to be capacitated; in particular, it recognises its limitations in PHN competency areas such as analytical and capacity-building activities.
- Transformation in training and professional development should be done collectively with relevant stakeholders.
- Staff are generally interested in undergoing further professional training.

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Table A6.1 Involvement in public health nutrition domains (analytical, capacity-building, intervention management and professional activities)

Public health nutrition domains	Never		Less than monthly		Monthly		Weekly		Daily		n(%)
	%	n	%	n	%	n	%	n	%	n	
Analytical functions/activities											
Assessing population needs to determine nutrition programme and service priorities	40%	60	37%	56	15%	22	1%	2	7%	10	150(100%)
Evaluating nutrition interventions	26%	40	33%	50	23%	34	9%	13	9%	14	151(100%)
Monitoring nutrition service and programme delivery	25%	38	25%	37	31%	46	9%	14	10%	15	150(100%)
Assessing and monitoring the determinants of nutrition and health	28%	41	33%	49	26%	38	8%	12	6%	9	149(100%)
Assessing the impact of public policy on nutrition and health	46%	69	28%	42	19%	29	3%	4	5%	7	151(100%)
Monitoring and addressing food advertising and marketing practices	50%	75	29%	44	8%	12	3%	5	9%	14	150(100%)
Analytical	36%		31%		20%		6%		8%		100%
Capacity-building functions/activities	%	n	%	n	%	n	%	n	%	n	n%
Developing inter-sectoral partnerships to promote nutrition	31%	46	40%	60	21%	31	5%	8	3%	4	149(100%)
Providing leadership in communities to promote and support effective action on nutrition issues	38%	56	38%	57	17%	25	5%	8	2%	3	149(100%)
Accessing resources to support public health nutrition action	35%	52	37%	55	16%	24	7%	11	5%	7	149(100%)
Developing organisational capacity to participate in and address nutrition issues	31%	46	34%	51	23%	34	7%	10	5%	7	148(100%)
Developing community capacity to participate in and address nutrition issues	38%	56	41%	60	14%	20	4%	6	3%	5	147(100%)
Capacity-building	35%		38%		18%		6%		4%		100%

Public health nutrition domains	Never		Less than monthly		Monthly		Weekly		Daily		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Intervention management functions/activities											
Translating research into public health nutrition practice	27%	39	30%	44	25%	37	7%	10	11%	16	146(100%)
Developing strategies to address nutrition issues	19%	28	36%	53	22%	32	11%	16	12%	18	147(100%)
Planning community/population-based nutrition interventions	28%	41	42%	61	21%	31	4%	6	5%	7	146(100%)
Promoting optimal nutrition throughout the lifespan	4%	6	11%	16	27%	39	18%	26	41%	60	147(100%)
Implementing nutrition interventions	11%	16	14%	20	18%	26	14%	20	44%	64	146(100%)
Promoting equal access to healthy food	25%	36	29%	43	24%	35	8%	12	14%	20	146(100%)
Addressing misinformation about nutrition	5%	7	14%	20	23%	34	21%	30	37%	54	145(100%)
Advocating for food and nutrition-related legislation to protect and promote health	28%	40	33%	48	17%	24	8%	11	15%	21	144(100%)
Intervention management	18%		26%		22%		11%		22%		100%
Professional activities	%	n	%	n	%	n	%	n	%	n	n(%)
Speaking in areas of expertise at seminars, conferences, radio, community-based meetings	9%	14	63%	94	22%	33	5%	7	1%	2	150(100%)
Attending meetings of professional organisations	8%	12	62%	93	26%	39	3%	5	1%	1	150(100%)
Representing an organisation or the dietetic profession at community events	31%	46	56%	83	11%	16	3%	4	0%	0	149(100%)
Providing services to dietetic and other health professional groups	19%	28	44%	65	20%	29	11%	16	7%	10	148(100%)
Organising community groups around nutrition issues	43%	63	38%	55	13%	19	5%	7	1%	2	146(100%)
Serving as a resource to legislators or policy makers	58%	87	24%	36	13%	20	3%	4	1%	2	149(100%)
Sending letters on nutrition-related issues to legislators or policy makers	70%	103	23%	34	5%	8	1%	2	1%	1	148(100%)
Holding office in professional organisations	72%	105	14%	21	8%	12	1%	2	4%	6	146(100%)
Professional activities	39%		40%		15%		4%		2%		100%

Table A6.2. Nutrition workforce respondents capacity to address nutrition challenges in South Africa

Cadres	Very limited		Limited		Average		Good		Very good		Total
	%	n	%	n	%	n	%	n	%	n	n
Dietitians	4%	6	18%	27	20%	30	26%	39	32%	48	150(100%)
Nutritionists	10%	14	24%	35	32%	47	26%	38	8%	12	146(100%)
Professional nurses	11%	17	31%	46	36%	54	18%	27	3%	4	148(100%)

Table A6.3 Strengths and weaknesses of services to address food and nutrition challenges in South Africa

Key areas	Major weakness		Weakness		Neither strength nor weakness		Strength		Major strength		Total
	%	n	%	n	%	n	%	n	%	n	n
Community awareness of services/expertise	10%	15	35%	52	22%	32	26%	38	7%	10	147(100%)
Human resources available	30%	45	42%	63	8%	12	15%	23	4%	6	149(100%)
Financial resources available	33%	48	39%	57	10%	14	13%	19	6%	9	147(100%)
Skills of workforce	11%	16	24%	36	20%	30	38%	56	7%	11	149(100%)
Community participation in programmes	9%	14	32%	48	30%	44	22%	33	6%	9	148(100%)
Multidisciplinary planning and collaboration	9%	13	28%	41	19%	28	38%	56	7%	10	148(100%)
Focus on education and awareness	5%	7	23%	34	27%	39	37%	54	9%	13	147(100%)
Focus on environmental change	13%	19	39%	57	32%	48	13%	19	3%	5	148(100%)
Co-ordination	9%	14	33%	49	30%	44	22%	33	5%	8	148(100%)
Availability of local data	16%	23	39%	58	18%	27	21%	31	6%	9	148(100%)
Links with other sectors	8%	11	35%	50	26%	37	27%	38	5%	7	143(100%)
Management support	15%	22	27%	40	19%	28	29%	43	10%	14	147(100%)
Targeting of disadvantaged groups	7%	10	20%	29	30%	44	36%	53	7%	10	146(100%)
Support from other health staff	9%	13	26%	38	22%	32	36%	52	7%	10	145(100%)

Table A6.4. Nutrition workforce respondents' capacity levels for the public health nutrition functions

Analytical functions/activities	Entry level		Capable		Competent		Proficient		Expert		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Assessing population needs to determine nutrition programme and service priorities	17%	25	31%	45	29%	43	18%	27	5%	7	147(100%)
Evaluating nutrition interventions	16%	24	16%	23	35%	52	26%	38	7%	10	147(100%)
Monitoring nutrition service and programme delivery	14%	20	14%	21	41%	60	27%	40	4%	6	147(100%)
Assessing and monitoring the determinants of nutrition and health	11%	16	27%	40	31%	45	26%	38	5%	8	147(100%)
Assessing the impact of public policy on nutrition and health	24%	35	25%	37	28%	41	21%	30	2%	3	146(100%)
Monitoring and addressing food advertising and marketing practices	24%	35	29%	43	23%	34	18%	27	5%	8	147(100%)
Average	18%		24%		31%		23%		5%		100%
Capacity-building functions/activities	%	n	%	n	%	n	%	n	%	n	n(%)
Developing inter-sectoral partnerships to promote nutrition	21%	31	24%	36	36%	54	14%	20	5%	7	148(100%)
Providing leadership in communities to promote and support effective action on nutrition issues	18%	27	32%	47	30%	44	16%	24	3%	5	147(100%)
Accessing resources to support public health nutrition action	20%	30	26%	39	31%	46	18%	27	4%	6	148(100%)
Developing organisational capacity to participate in and address nutrition issues	18%	27	28%	41	26%	39	24%	35	4%	6	148(100%)
Developing community capacity to participate in and address nutrition issues	22%	33	31%	46	28%	42	15%	22	3%	5	148(100%)
Average	20%		28%		30%		17%		4%		100%
Intervention management	%	n	%	n	%	n	%	n	%	n	n(%)
Translating research into public health nutrition practice	20%	29	14%	21	23%	34	33%	48	9%	13	145(100%)
Developing strategies to address nutrition issues	12%	17	23%	33	29%	42	28%	41	8%	12	145(100%)
Planning community/population-based nutrition interventions	13%	18	22%	32	32%	46	29%	42	4%	5	143(100%)
Promoting optimal nutrition throughout the lifespan	4%	6	11%	16	24%	35	45%	65	15%	22	144(100%)
Implementing nutrition interventions	6%	9	13%	18	23%	33	40%	57	18%	26	143(100%)
Promoting equal access to healthy food	18%	26	23%	33	24%	34	28%	40	8%	11	144(100%)
Addressing misinformation about nutrition	5%	7	8%	12	28%	40	38%	55	21%	30	144(100%)

Advocating for food and nutrition-related legislation to protect and promote health	21%	30	19%	28	28%	40	21%	30	11%	16	144(100%)
Average	12%		17%		26%		33%		12%		100%

Table A6.5. Individual competency modules and competency element ratings by the nutrition workforce respondents

Competency elements	Not important at all		Low importance		Mid-range importance		Important		Very important		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
1. ENABLING KNOWLEDGE											
1. Identify environmental determinants of nutritional status, health and disease and describe how these factors might be addressed to improve nutrition and disease prevention in populations.	0%	0	1%	1	7%	8	38%	42	54%	59	110(100%)
2. Identify and interpret socio-cultural and psychological factors that influence individual health behaviour.	0%	0	1%	1	6%	6	37%	40	56%	61	108(100%)
3. Identify and interpret the biological factors that determine the nutrition and health status of individuals and populations.	0%	0	2%	2	6%	7	38%	42	54%	59	110(100%)
4. Critique the role of cultural and social factors affecting nutrition and health in communities, organisations and policy arenas.	0%	0	0%	0	7%	8	40%	44	53%	58	110(100%)
5. Apply theories of individual behaviour and behavioural change to public health practice.	0%	0	4%	4	12%	13	43%	47	42%	46	110(100%)
6. Compare basic models of disease causation for communicable and non-communicable diseases, including the role of nutrition and diet.	0%	0	0%	0	6%	6	39%	43	55%	60	109(100%)
7. Compare the sociological, anthropological and political science underpinnings of health leading to identification and interpretation of these determinants.	0%	0	4%	4	16%	17	46%	50	35%	38	109(100%)

8. Analyse the economic factors that influence individual dietary behaviour, health status and utilisation of health services.	0%	0	1%	1	7%	8	35%	39	56%	62	110(100%)
Other (list)	0%	0	0%	0	0%	0	33%	3	67%	6	9(100%)
Average	0%		1%		8%		40%		51%		100%
2. NUTRITION SCIENCE	%	n	%	n	%	n	%	n	%	n	n(%)
1. Apply knowledge of dietary requirements across age groups, gender and health states to inform and evaluate public health nutrition practice.	0%	0	1%	1	7%	8	33%	36	59%	65	110(100%)
2. Prioritise strategies for public health nutrition intervention based on assessment of nutrition status, determinants, existing capacity and assessment of strategy effectiveness relevant to practice context.	0%	0	0%	0	6%	7	36%	40	57%	63	110(100%)
3. Collect and critically examine intelligence about public health nutrition intervention options to develop effective and contextually relevant public health nutrition interventions.	0%	0	0%	0	8%	9	45%	50	46%	51	110(100%)
4. Apply knowledge of food composition to inform relevant areas of practice (including nutritional assessment, food guidance, monitoring and surveillance, nutrition intervention).	0%	0	2%	2	16%	18	36%	40	45%	50	110(100%)
5. Use contemporary and evidence-based food guidance devices to promote optimal population dietary behaviour.	0%	0	2%	2	11%	12	32%	35	55%	61	110(100%)
6. Demonstrate knowledge of foods and food preparation methods used in the community, relevant to practice context.	0%	0	2%	2	9%	10	38%	42	51%	56	110(100%)
7. Apply knowledge of food science to inform relevant areas of practice (including nutritional assessment, food guidance, monitoring and surveillance, nutrition intervention).	0%	0	2%	2	15%	16	35%	39	48%	53	110(100%)
8. Critique nutritional requirement standards and identify uses and limitations in practice.	0%	0	4%	4	16%	17	38%	41	42%	45	107(100%)
9. Apply basic theories of education as it applies to food guidance.	0%	0	0%	0	17%	18	54%	58	30%	32	108(100%)
Other (list)	0%	0	0%	0	0%	0	63%	5	38%	3	8(100%)

Average	0%		1%		12%		39%		48%		100%
3. ANALYTICAL	%	n	%	n	%	n	%	n	%	n	n(%)
1. Locate, evaluate and interpret information about the key determinants of nutritional status and health.	0%	0	1%	1	4%	4	44%	48	51%	55	108(100%)
2. Apply information and intelligence from various sources to analyse public health nutrition issues and identify specific intervention needs.	0%	0	1%	1	10%	11	43%	46	46%	49	107(100%)
3. Identify and describe the role of evidence in developing health policies and programmes and appropriately apply evidence to these tasks.	0%	0	0%	0	10%	11	39%	42	50%	54	107(100%)
4. Use health and nutrition-related data collection appropriately to describe the food and nutrition-related health situation and trends in populations, identify possible determinants, and monitor progress towards population goals.	0%	0	0%	0	7%	8	44%	47	49%	52	107(100%)
5. Critically appraise the quality of primary and secondary nutrition and health research data in the context of hierarchies of evidence.	0%	0	0%	0	7%	7	48%	51	45%	48	106(100%)
6. Identify appropriate uses of qualitative information for research, planning and evaluation in public health nutrition practice.	0%	0	2%	2	10%	11	48%	51	40%	43	107(100%)
7. Describe the strengths and weaknesses of qualitative methods in the context of public health nutrition practice.	0%	0	2%	2	20%	21	41%	44	37%	40	107(100%)
8. Identify and describe the strengths and weaknesses of quantitative and qualitative methodologies to describe the public health needs of populations.	0%	0	2%	2	20%	21	41%	44	37%	40	107(100%)
Other	0%	0	0%	0	0%	0	50%	2	50%	2	4(100%)
Average	0%		1%		11%		44%		45%		100%
4. PUBLIC HEALTH SYSTEMS	%	n	%	n	%	n	%	n	%	n	n(%)
1. Contrast and use various approaches for setting priorities regarding problems and population groups to target, health and	0%	0	0%	0	14%	15	44%	47	42%	45	107(100%)

nutrition service development and investment, and nutrition-related research.											
2. Identify and define the core functions of public health and identify the individual and organisational responsibilities within health and other sectors that fulfil these functions in a nutrition context.	0%	0	0%	0	12%	13	41%	44	47%	50	107(100%)
Other (list)	0%	0	0%	0	17%	1	67%	4	17%	1	6(100%)
Average	0%		0%		13%		43%		44%		100%
5. FOOD AND NUTRITION SYSTEMS	%	n	%	n	%	n	%	n	%	n	n(%)
1. Identify and categorise key stakeholders in the food and nutrition system.	0%	0	0%	0	8%	9	43%	46	49%	52	107(100%)
2. Describe the major trends in food and nutrition systems development and identify their implications for society.	0%	0	0%	0	11%	12	46%	49	43%	46	107(100%)
3. Describe the structure and dynamics of the food and nutrition system and the key dimensions of systems performance.	0%	0	1%	1	19%	20	44%	47	36%	39	107(100%)
4. Develop a comprehensive understanding of policies and legislation relevant to the food and nutrition system.	0%	0	0%	0	7%	7	39%	42	54%	58	107(100%)
Other (list)	0%	0	0%	0	0%	0	100%	4	0%	0	4(100%)
Average	0%		0%		11%		43%		46%		100%
6. NUTRITION COMMUNICATION	%	n	%	n	%	n	%	n	%	n	n(%)
1. Translate technical nutrition information into practical advice and guidance on food and eating.	1%	1	1%	1	2%	2	26%	28	70%	74	106(100%)
2. Communicate with individuals, groups, organisations and communities from various cultural socio-economic, organisational and professional backgrounds to enable them to take actions to improve nutrition and health outcomes.	1%	1	0%	0	2%	2	30%	32	67%	71	106(100%)
3. Develop nutrition education/guidance material that is evidence-based, culturally sensitive, and pitched at the appropriate literacy level, to meet the needs of the target group.	0%	0	1%	1	4%	4	28%	30	67%	71	106(100%)

4. Develop, implement and evaluate education programmes to enable people to change their knowledge, attitudes and behaviour concerning health choices, taking account of the context in which target behaviours are performed.	0%	0	0%	0	7%	7	25%	27	68%	72	106(100%)
5. Apply the basic principles of age-appropriate education and learning theories as they apply to public health nutrition practice.	0%	0	0%	0	8%	8	33%	35	59%	62	105(100%)
Other (list)	0%	0	0%	0	14%	1	43%	3	43%	3	7(100%)
Average	0%		0%		4%		29%		66%		100%
6. MANAGEMENT, LEADERSHIP, PROFESSIONAL AND COMMUNICATION	%	n	%	n	%	n	%	n	%	n	n(%)
1. Identify and estimate potential implications and manage risk as it applies to public health nutrition practice.	0%	0	2%	2	16%	17	46%	49	36%	39	107(100%)
2. Manage project resources, achieving and reporting progress against budget and time-line contexts.	0%	0	2%	2	8%	9	35%	37	55%	59	107(100%)
3. Facilitate group/teamwork and operate effectively as a member of a group or team.	0%	0	1%	1	9%	10	41%	44	49%	52	107(100%)
4. Use analytical, critical thinking and problem-solving skills to make effective decisions.	0%	0	1%	1	5%	5	36%	38	59%	63	107(100%)
5. Act as an advocate for the public's health and articulation of the needs of vulnerable groups.	0%	0	1%	1	7%	8	30%	32	62%	66	107(100%)
6. Manage the complex relationships and competing interests of the various stakeholders in the food and nutrition system.	0%	0	2%	2	12%	13	45%	48	41%	44	107(100%)
7. Apply the principles of advocacy and lobbying appropriately to garner support for action on nutrition problems of public health significance.	0%	0	2%	2	15%	16	44%	47	39%	41	106(100%)
8. Contribute to developing key values and a shared vision in planning and implementing public health programmes and policies in the community.	0%	0	3%	3	14%	15	45%	48	38%	41	107(100%)
9. Describe the mission and priorities of the public health organisation where one works, and apply them in practice.	0%	0	3%	3	17%	18	43%	46	37%	40	107(100%)

	%	n	%	n	%	n	%	n	%	n	n(%)
10. Accept leadership roles in organisations and committees to promote nutrition and health.	0%	0	1%	1	15%	16	39%	41	45%	48	106(100%)
11. Apply ethical principles to the collection, maintenance, use and dissemination of data and information.	0%	0	0%	0	10%	11	32%	34	58%	62	107(100%)
12. Give prominence to promoting equity in approaches to improving nutrition in populations.	0%	0	2%	2	15%	16	42%	45	41%	44	107(100%)
13. Apply culturally relevant and appropriate approaches with people from diverse cultural, socioeconomic and educational backgrounds, of all ages, genders, health statuses, sexual orientations and abilities.	0%	0	1%	1	12%	13	40%	42	47%	50	106(100%)
14. Demonstrate consistent reflective practice.	0%	0	1%	1	14%	15	45%	48	40%	42	106(100%)
15. Demonstrate a commitment to life-long learning.	0%	0	1%	1	8%	9	39%	41	52%	55	106(100%)
16. Identify and disclose potential, perceived and real conflicts of interest in practice.	0%	0	2%	2	19%	20	42%	44	38%	40	106(100%)
17. Apply principles of ethical decision-making in the context of intervention and cost effectiveness.	0%	0	1%	1	13%	14	36%	38	50%	54	107(100%)
18. Demonstrate values and principles that underpin public health nutrition policy debates, organisational practices, and programme planning and evaluation.	1%	1	2%	2	11%	12	45%	48	41%	44	107(100%)
19. Contribute to the evidence base relating to effective public health nutrition practice and actively communicate this information.	0%	0	1%	1	13%	14	45%	48	41%	43	106(100%)
20. Demonstrate effective written and oral communication in a range of contexts.	0%	0	1%	1	9%	10	44%	47	45%	48	106(100%)
21. Utilise appropriate methods for interacting and communicating sensitively, effectively and professionally with persons from diverse backgrounds, ages and preferences.	0%	0	0%	0	7%	8	48%	51	45%	48	107(100%)

	%	n	%	n	%	n	%	n	%	n	n(%)
22. Interpret information for professional, non-professional and community audiences.	0%	0	0%	0	8%	8	48%	51	44%	47	106(100%)
23. Use information technology to effectively communicate, locate information and analyse data.	0%	0	2%	2	13%	14	41%	43	44%	47	106(100%)
24. Apply interpersonal skills (including negotiation, teamwork, motivation, conflict resolution and problem-solving skills).	0%	0	1%	1	8%	9	41%	44	50%	53	107(100%)
25 Listen to others in a non-biased manner, respect varying points of view and promote the expression of diverse opinions and perspectives.	0%	0	0%	0	10%	11	42%	44	48%	50	105(100%)
26. Communicate effectively with individuals, families, groups, communities and colleagues.	0%	0	0%	0	8%	8	42%	44	51%	54	106(100%)
27. Describe and apply methods of listening to and involving the public and communities in improving health and reducing inequalities.	0%	0	0%	0	10%	11	46%	49	43%	46	106(100%)
28. Collect, evaluate and interpret information from a variety of traditional and new technology sources.	0%	0	5%	5	10%	11	50%	53	36%	38	107(100%)
29. Solicit input from individuals, organisations and community groups.	0%	0	1%	1	12%	13	52%	55	34%	36	105(100%)
30. Use the media, advanced technologies and community networks to communicate information.	0%	0	2%	2	10%	11	47%	50	41%	44	107(100%)
31. Mobilise individuals and communities by using appropriate media, community resources and social marketing techniques.	0%	0	1%	1	8%	8	47%	49	45%	47	105(100%)
Other (list)	13%	1	0%	0	0%	0	75%	6	13%	1	8(100%)
Average	0%		1%		11%		42%		45%		100%
8. NUTRITION ASSESSMENT	%	n	%	n	%	n	%	n	%	n	n(%)
1. Accurately interpret nutrition assessment data against relevant standards.	0%	0	0%	0	5%	5	35%	37	61%	65	107(100%)
2. Integrate nutrition assessment data in order to prioritise nutrition interventions.	0%	0	0%	0	3%	3	36%	38	61%	64	105(100%)

3. Define and communicate population-level nutrition problems and priorities based on nutrition assessments.	0%	0	0%	0	7%	7	37%	39	57%	60	106(100%)
4. Identify and use an appropriate dietary methodology to collect retrospective, current and prospective food and nutrient intakes for individuals who identify nutrient and food intake patterns.	0%	0	2%	2	8%	9	36%	39	53%	57	107(100%)
5. Identify and utilise available medical, social, cultural, psychological and environmental data to perform nutritional assessment, appropriate to practice context.	0%	0	1%	1	6%	6	47%	50	47%	50	107(100%)
6. Accurately interpret growth assessment data against relevant standards.	0%	0	1%	1	3%	3	33%	35	63%	67	106(100%)
Other (list)	14%	1	0%	0	0%	0	43%	3	43%	3	7(100%)
Average	0%		1%		5%		37%		57%		100%
9. NUTRITION MONITORING AND SURVEILLANCE	%	n	%	n	%	n	%	n	%	n	n(%)
1. Utilise data from monitoring and surveillance to describe trends in risk factors for diet-related disease, among key population groups.	0%	0	0%	0	10%	10	40%	42	50%	53	105(100%)
2. Describe common measures of indicators for population health.	0%	0	1%	1	12%	13	40%	42	47%	49	105(100%)
3. Analyse a health problem and identify the appropriate level/s at which to target the disease, condition or determinant, and population groups to be targeted.	0%	0	1%	1	5%	5	40%	42	54%	56	104(100%)
4. Interpret mixed-method research findings relevant to a population's nutrition and health status, including those generated by qualitative methods.	0%	0	1%	1	10%	11	50%	53	38%	40	105(100%)
5. Identify the contribution of disease surveillance and monitoring to policy and programme planning and evaluation.	0%	0	1%	1	12%	13	40%	42	47%	49	105(100%)
6. Identify and understand the role of risk factor surveillance to inform analysis of diet-related problems.	0%	0	1%	1	10%	11	49%	51	40%	42	105(100%)
Other (list)	14%	1	0%	0	0%	0	57%	4	29%	2	7(100%)
Average	0%		1%		10%		43%		46%		100%

10. BUILDING CAPACITY	%	n	%	n	%	n	%	n	%	n	n(%)
1. Establish linkages with key stakeholders.	0%	0	0%	0	10%	10	38%	40	52%	55	105(100%)
2. Recognise that organised effort at a population level is required to achieve improved health outcomes.	0%	0	1%	1	8%	8	43%	45	49%	51	105(100%)
3. Identify and collaborate with partners in addressing public health issues.	0%	0	0%	0	8%	8	39%	41	53%	56	105(100%)
4. Identify individual and organisational responsibilities for promoting public health.	0%	0	0%	0	8%	8	44%	46	49%	51	105(100%)
5. Involve communities as active partners in all aspects of public health nutrition efforts.	0%	0	0%	0	8%	8	36%	38	56%	59	105(100%)
6. Use skills such as team building, negotiation, conflict management and group facilitation to build partnerships.	0%	0	1%	1	13%	13	41%	42	46%	47	103(100%)
7. Identify community assets and available resources.	0%	0	0%	0	10%	10	36%	37	55%	57	104(100%)
8. Demonstrate an ability to build community capacity by sharing knowledge, tools, expertise and experience.	0%	0	2%	2	6%	6	40%	42	52%	55	105(100%)
9. Contribute to team and organisational learning in order to advance public health goals.	0%	0	1%	1	8%	8	45%	46	47%	48	103(100%)
10. Apply community development processes and principles in public health nutrition practice.	0%	0	2%	2	10%	10	46%	48	42%	44	104(100%)
11. Advocate for resource allocation that promotes and protects the health and well-being of individuals and communities.	0%	0	0%	0	10%	11	39%	41	50%	53	105(100%)
12. Identify and develop key workforce components (individuals, groups, units) with an interest in public health nutrition efforts.	0%	0	1%	1	12%	13	44%	46	43%	45	105(100%)
13. Conduct a stakeholder analysis (including analysis of power and control) and identify prospective partners with reference to the health needs of a specific population/community.	0%	0	1%	1	16%	17	38%	40	45%	47	105(100%)
14. Describe methods of evaluating community, organisational and system-level capacity to address public health nutrition issues.	0%	0	1%	1	17%	18	41%	43	40%	42	104(100%)

15. Apply the principles of effective inter-sectoral action and apply to population health activity.	0%	0	2%	2	12%	12	48%	49	38%	39	102(100%)
16. Apply the principles of capacity-building to enhance public health efforts and outcomes.	0%	0	1%	1	16%	17	46%	48	37%	39	105(100%)
17. Describe the key determinants of effective partnership development and apply strategies to support sustainable and effective collaboration.	0%	0	3%	3	13%	13	51%	52	33%	34	102(100%)
18. Describe the determinants of community and organisational capacity as they relate to public health action.	0%	0	2%	2	20%	20	44%	45	34%	35	102(100%)
Other (list)	17%	1	0%	0	0%	0	67%	4	17%	1	6(100%)
Average	0%		1%		11%		42%		46%		100%
11. INTERVENTION MANAGEMENT	%	n	%	n	%	n	%	n	%	n	n(%)
1. Apply information and intelligence from various sources to analyse public health issues and identify specific intervention needs.	0%	0	0%	0	9%	9	50%	52	42%	44	105(100%)
2. Apply the principles of public health intervention planning and develop a plan for a specified population, including the evaluation of objectives.	0%	0	1%	1	10%	11	50%	53	39%	41	106(100%)
3. Assess the evidence of effectiveness of interventions, programmes and services designed to enhance nutrition and public health.	0%	0	0%	0	8%	8	46%	47	47%	48	103(100%)
4. Identify and describe the programme logic of a population health programme project (i.e. the relationship between the rationale and objectives of a programme, programme planning, implementation and evaluation).	0%	0	0%	0	15%	16	46%	48	39%	41	105(100%)
5. Design a process, impact and/or outcome evaluation plan for a public health nutrition programme/project that reflects the needs of key stakeholders.	0%	0	0%	0	12%	13	45%	47	43%	45	105(100%)

	%	n	%	n	%	n	%	n	%	n	n(%)
6. Describe the range of health promoting strategies and methods, and for each strategy and method, identify groups for whom the strategy or method is appropriate.	0%	0	1%	1	13%	14	49%	51	37%	38	104(100%)
7. Apply knowledge of project management principles (including scope, time, cost, procurement, quality, risk, human resource, and communication management) as they apply to population health interventions.	0%	0	0%	0	9%	10	46%	49	44%	47	106(100%)
8. Actively communicate and promote intelligence gains from programme planning, implementation and evaluation activities, to maximise diffusion of innovation, share intervention research findings and practise wisdom.	0%		0%	0	15%	16	41%	43	44%	46	105(100%)
9. Design a health promoting intervention for an individual, community or organisation using theory and evidence to guide the selection of strategies and the identification of outcomes.	0%	0	0%	0	10%	10	42%	44	49%	51	105(100%)
10. Identify capacity-building, timeframes, governance structures, resource needs (budgeting), and organisational and agency needs that would allow an intervention to be effectively implemented.	0%	0	0%	0	10%	10	45%	47	46%	48	105(100%)
11. Assess the relative merits (e.g. considering suitability to target group, resource requirements, etc.) of alternative disease prevention measures (e.g. education, incentives, legislation, policies, standards, screening).	0%	0	0%	0	8%	8	51%	53	41%	43	104(100%)
12. Apply relevant behavioural and social science theories to a selected health promotion intervention, and review and evaluate the adequacy of the approaches selected for practice.	0%	0	1%	1	13%	14	47%	49	39%	41	105(100%)
Other (list)	14%	1	0%	0	0%	0	43%	3	43%	3	7(100%)
Average	0%		0%		11%		46%		42%		100%

Table A6.6. Public health nutrition competency modules importance ratings

Public health nutrition competency elements	Not important at all	Low importance	Mid-range importance	Important	Very important	n(%)
1. Enabling knowledge (biological, environmental, social, economic, political)	0%	0%	10%	39%	51%	105(100%)
2. Nutrition science	0%	0%	10%	38%	52%	106(100%)
3. Analytical/research and application of science	0%	0%	18%	36%	46%	107(100%)
4. Public health systems	0%	1%	8%	35%	56%	106(100%)
5. Food and nutrition systems	0%	0%	8%	37%	54%	107(100%)
6. Nutrition communication	0%	0%	2%	34%	64%	107(100%)
7. Management	0%	1%	7%	36%	56%	107(100%)
8. Leadership	0%	0%	7%	25%	67%	107(100%)
9. Professional development	0%	0%	6%	34%	61%	107(100%)
10. Effective communication	0%	0%	4%	31%	65%	107(100%)
11. Nutrition assessment	0%	1%	7%	34%	59%	107(100%)
12. Nutrition monitoring and surveillance	0%	0%	4%	33%	64%	107(100%)
13. Capacity-building	0%	0%	9%	36%	55%	107(100%)
14. Intervention management	0%	0%	3%	41%	56%	106(100%)

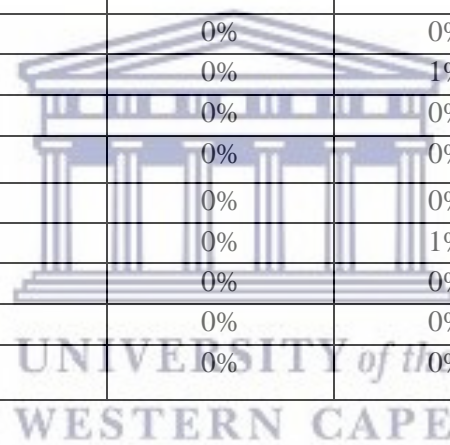


Table A6.7. Nutrition workforce respondents' comments on competency modules

Competency module	Comments
Enabling knowledge	<p>“My interpretation of a Public Health Nutritionist is that they should be equipped to work with population groups: communities (interventions) and be educators of disease prevention. Their skill set should include the ability to run/co-ordinate projects (whether these are in research, community interventions/implementation of projects). They should have an understanding of nutritional epidemiology; know how to implement/coordinate projects in the field. They should have strong research methods competent to the skill set to give them the diversity to move away from treating groups of people to moving into research.”</p> <p>“I feel that number 8 is quite important, but most nutrition professionals probably don't have the expertise to do this!”</p>
Nutrition science	“Identify the changing socio-economic factors that influence food intake behaviour.”
Analytical	“Involve nutrition professionals in the relevant research studies. Critically evaluate interrelated sciences as role players in public health.”
Public health systems	“Look at the role the private sector can play in public health systems.”
Food and nutrition systems	“Effective food service systems, delivering nutritious foods and supplements to patients. Implementation of nutrition policies by hospital dietitians and community dietitians.”
Nutrition communications	“Co-operate with people that have expertise to target information. The testing of messages can be outsourced to those with expertise. Materials must be in their language, including AFRIKAANS.”
Management leadership, professional and communication	“The above list is very extensive and if one looks at it at a single time point are you expecting that one individual to show all 31 skills at one time? If so, it's too much to expect I think.”
Nutrition assessment	None
Nutrition monitoring and surveillance	None
Capacity-building	None
Intervention management	None

CHAPTER 7: NURSES' PERSPECTIVES ON THE NUTRITION WORKFORCE

Chapter 7 presents the profile of professional nurses working closest to the population at the community level delivering PHC in South Africa. The study on nurses included demography, employment positions, work experience, practice roles and functions, professional development, qualifications, capacity and work environment – similar to the aspects explored with dietitians and nutritionists in Chapter 6. Nurses shared their perceptions of their nutrition-related roles and the roles of dietitians and nutritionists, and how they functioned in their work environments. Key messages and applicable references are followed by detailed data tables at the end of the chapter.

7.1 Literature review

South Africa has a nurse-based health care system, with 80% of the public health workforce comprising nurses (NDOH, 2011b, 2013). The DoH called a national nursing summit in 2011 to “reconstruct and revitalise the nursing profession for a long and healthy life for all South Africans” with a view to addressing known challenges (NDOH, 2013: 9) The summit identified seven challenges facing the profession, of which HRH was one.

PHC re-engineering is a key strategy and thus nurses play a role not only in the facility but also in community-based services (CBS) and outreach. As part of multidisciplinary teams, nurses are seen as essential (NDOH, 2011a). However, nursing staff shortages, declining interest in the profession, the lack of caring attitudes and the disconnection between community needs and expectations of nurses make service provision challenging (Rispel, 2015).

Schoeman and Hattingh (2005) assessed nurses' knowledge of the implementation of the INP in primary care in the Western Cape and found limited knowledge among nurses of the INP guidelines. In the 2014 published report of the DPME in the Presidency, the situation appeared not to have changed. PHC services depend heavily on nurses to implement nutrition interventions which are mostly nutrition-specific. It was, however, found that nurses' knowledge of nutrition and their institutional capacity improved when they received in-service training, which can be made possible through strong partnerships. Expanding the nutrition workforce with additional support staff such as nutrition advisers or community care givers has taken the load off nurses provided these groups are trained in nutrition. To implement nutrition

interventions effectively, there is a need for nurses to have manageable workloads – a view expressed in the DPME report (DPME, 2014).

South Africa is investing in the health system to strengthen it, so that the vision to implement the NHI and re-engineer PHC can be fully realised. The new PHC package includes community-based and school health services that follow a team approach in which nurses are the main drivers with support from the team, specifically CHWs. The professional nurse (PN) is seen as the leader in the PHC outreach team and has certain roles in respect of the services delivered by the team. It should, however, be noted that nurses in the newly re-engineered PHC process can function either in facility-based services (FBS) or in community-based services (CBS).

Their roles in these respective platforms may differ from those described in proposals that were presented to the HWSETA in 2011, i.e.:

- **Facility-based services PNs:** Support/supervision of CBS, clinical support to Early Learning Centre (ELC), crèches, old-age homes, schools, comprehensive clinic-based services, IMCI (integrated management of childhood illness), basic, antenatal and post-natal care (normal pregnancies), immunisation, stable chronic treatment of minor ailments, communicable diseases and some common illnesses using protocols, including prescribing and treatment.
- **Community-based services PNs:** Support supervision of CHW services in the community, school health services, community-based programmes (e.g. antenatal and post-natal care, immunisation campaigns), screening and support services to schools, ELC, crèches and old age homes. The CBS are primarily provided by NPOs and their implementation may vary between provinces; provincial service packages are confirmed through service-level agreements. The only difference between the two positions is that a nurse can work either in community or in facility. It is envisaged that over time CBS services and staff will be fully integrated and will become part of provincial staff, as indicated in the national policy on the ward-based outreach teams approved in 2017 (NDOH, 2018).

The roles of the professional nurse (PN) in respect of the outreach team are summarised in Table 7.1 below.

Table 7.1. Professional nurses' roles in PHC outreach teams

TEAM	COMMUNITY	SERVICES
<ol style="list-style-type: none"> 1. Assume responsibility as team leader. 2. Allocate and assign tasks and supervise and manage team members. 3. Develop capacity of CHWs to deliver PHC outreach services. 4. Promote teamwork among PHC outreach team members. 5. Train, mentor and coach PHC team members. 6. Manage performance of team members (set performance requirements, assess, evaluate, correct and improve performance). 7. Monitor and evaluate team performance. 	<ol style="list-style-type: none"> 1. Facilitate the PHC outreach team's entry into the community. 2. Conduct a community assessment, compile a profile and diagnose the health needs of the community. 3. Initiate a community-based PHC outreach service to households, their inhabitants and to schools, crèches and day-care centres in a designated geographic area. 4. Institute and maintain collaboration and liaison with the local community and local service providers. 5. Assess health needs and priorities for the catchment population. 6. Map households, schools and crèches/day care centres in the geographic area serviced by the PHC outreach team. 7. Keep the local community informed of health-related matters and potential health threats. 	<ol style="list-style-type: none"> 1. Plan, implement and evaluate health and wellness services among the catchment population. 2. Ensure promotion, prevention and early detection, while offering curative, rehabilitative and palliative services. 3. Develop a targeted plan to address the health needs of those who are vulnerable (children, women, elderly, disabled persons affected by TB, HIV, chronic diseases). 4. Act as an advocate for improving health services. 5. Deliver the community component of the PHC package of services.

Sources: UCT AFFIRM project (2011); NDOH (2018)

The Western Cape province has developed a CBS design framework which was approved by the Head of the Health Department. The document was developed with consideration being given to technical work that was done by a consortium led by the University of the Western Cape as well as the NHI pilot district. In the Western Cape package, the role of the PN and/or enrolled nurse is to: facilitate household screening; assist with PHC outreach and campaigns, collation and verification of CHW data, team leadership and supervision of CHW; and liaise between PHC facility and CBS platforms, including referrals, monitoring and evaluation, and in-service training of CHWs (Western Cape Government: Health, 2016).

7.2 Rationale and objectives

Nurses are integral to the provision of services in the health sector. Contributing to nutrition is seen as part of their function, but not explicitly stated. Nurses working in facilities function in a structured environment with clear policies and guidelines. In most instances, due to HRH shortages and the absence of dedicated nutrition staff, nurses are the ones to implement nutrition interventions. A landscape analysis commissioned by the DPME as part of the national evaluation plan 2012/2013 conducted a diagnostic evaluation that focussed on the implementation of nutrition interventions for children from conception to the age of 5. This included nurses in the frontline in facilities. The report released in 2014 provided a great deal of information on the performance, knowledge and roles of nurses in PHC facilities in four provinces, which provides food for thought. The report confirmed that nurses assume the responsibility for interventions (DPME, 2014).

The CBS platform as part of PHC services is still under development and is transforming with the services provided mainly by NPOs contracted by the government health department. Knowledge of the roles of nurses in this platform is still limited as the service is still evolving. With the above in mind, the key objectives of soliciting information from PNs in this survey were as follows:

- To determine how PHC nurses and nurse coordinators working in the CBS platform perceive their own roles, responsibilities and competencies in the area of nutrition.
- To determine how PHC nurses and their coordinators working in the CBS platform perceive the roles, responsibilities and competencies of dietitians and nutritionists.

7.3 Methods

A cross-sectional survey was conducted to record workforce information on nurses.

Instrument and piloting

1. A structured questionnaire was developed incorporating basic demographic information, practice roles and functions, and training and continuing professional development aspects as well as general aspects relating to the work environment.
2. The questionnaire was based on the questions developed for dietitians and nutritionists in the national survey discussed in Chapter 6.
3. Adaptations were made to certain sections to reflect the work of nurses. The competency framework of the South African Nursing Council (SANC) was reviewed to identify specific competency areas for nurses, which were then included in the survey.

4. Before the pilot, the researcher and study leaders did a further content review against the objectives of the survey, the overall flow and collection of questions.
5. In order to ensure validity, the questionnaire was piloted among five nurses working in public health using the following questions:
 - (i) Was it relatively easy or self-explanatory to complete the questionnaire?
 - (ii) How long did it take you to complete the questionnaire?
 - (iii) In your opinion, was there a good flow of questions?
 - (iv) Would you like to suggest any improvements to the questionnaire?
 - (v) Additional comments?

Table 7.2 summarises the feedback/comments provided in the questionnaire:

Table 7.2. Comments on nurse questionnaire

Questions	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 5
(i)	Yes	Yes	Very lengthy and intense to re-read	Yes, some questions needed thought	Yes
(ii)	37 minutes	20 minutes	Stopped at 20 minutes	45 minutes	20 minutes
(iii)	Yes	Most of the time	Feel there is repetition	Shift questions to improve the flow	Yes
(iv)	None	Questions might be unclear if not familiar with the terms	Shorten	Shorten sub-sections below questions	Yes
(v)	None		Advise the respondent how much time will be spent with them	Ensure that the sample group understands the difference between dietitians and nutritionists	None

6. The comments were considered and the questionnaire was adjusted by removing nine questions, altering the flow, and grouping all job-related questions and training aspects together. Changes were made to the question on dietitians and nutritionists by asking if respondents knew the difference between dietitians and nutritionists and combining questions if respondents did not know the difference.
7. The survey questionnaire was created in Microsoft Word as well as in the web-based program, Survey Monkey. The questions were formatted into the system according to the type of questions (open/closed) and response fields were added. The Survey Monkey

software allowed for multiple choice questions, comment boxes, rating scales, descriptive text, demographic information, and a matrix of choices with and without drop boxes. Other features included: required answers, navigation–progress bars and skip logic, after which the questionnaire was saved into a PDF format from the system.

8. The survey was set up to be completed on a self-administered basis, through face-to-face and telephonic interviews, and through the web.

Sampling

Nurses working in community-based services at 70 NPOs contracted to the DoH together with six nurse coordinators and nurse trainers in the districts of the Western Cape were invited to participate in the survey. The contact list did not indicate the number of nurses or individual contact details of nurses who were employed by the NPOs at the time. The NPOs are, however, responsible for reporting numbers to the DoH in their reports which are recorded in the provincial database. The database of the DoH indicated that in the month that the survey was conducted, 177 nurse coordinators and 146 supervisors were employed. The total sample of nurse coordinators, trainers and supervisors' trainers was estimated at 329.

Data collection and management

The survey link was sent to project managers in the respective NPOs and permission was requested for nurses to complete the survey. A research assistant was trained to assist with the collection of the data, i.e. contact all the NPOs per the list, make appointments to do face-to-face interviews, and send out the first notice, the second notice and then reminders. The assistant was well versed in both English and Afrikaans. Two email reminders were sent over a three-week period to managers and followed up with telephone calls to the NPOs for contact details of the nurses. Not all NPOs were responsive in this regard.

Data analysis

Data that was captured electronically in Survey Monkey was exported into a Microsoft Excel database with a question per sheet and descriptive statistical measures were applied to calculate frequencies for the quantitative data. Open-ended questions were downloaded in text, summarised, categorised into themes and counted to identify the common response themes.

7.4 Findings

The findings were presented as per the respective categories of the questionnaire:

1. Demographic information and current position of practice;

2. Practice roles and functions;
3. Training and continuing professional development;
4. Resources in the respondents' work environment.

Fifty responded (response rate of 15%) of which 34 requested more information on the survey and 16 did not need additional information. Thirty-six gave consent by marking 'yes' while 14 respondents skipped the question and did not indicate consent. Twenty-seven respondents continued with the survey. The response rate based on actual responses was 8%. It can be noted that most of those who skipped the question reviewed what the survey was about and did not complete it, based on the time they spent on the system.

7.4.1 Demographic information of nurse respondents

Ninety-three percent of the respondents were female and the home languages were primarily Afrikaans (67%, n=18), followed by English (26%, n=6), with two respondents having IsiXhosa (7%) as their home language.

7.4.2 Employment of nurse respondents

Eighty-eight percent of respondents (n=23) reported that they had nutrition work in their job descriptions with three respondents indicating that they were unsure (12%). Sixty-five percent of respondents (n=17) indicated that they had clear, individual development plans and 35% (n=9) indicated that they did not have such plans. Two individuals indicated that they neither had a job descriptions nor an individual plan.

The 26 respondents mainly reported to a nurse manager (58%, n=15), chief executive officer (8%, n=2), area manager (4%, n=1) and 'other' (31%, n=8) which included the head of the training department and project managers. Thirteen respondents indicated that the main source of funding for posts was government (39%, n=9), NPOs (57%, n=13) and project grants (4%, n=1). About one-third of respondents (n=9) had been in their current positions for between two and five years, 48% (n=13) for up to two years and 11% for more than 10 years.

It was noted that most of the CBS nurse respondents had worked for many years in government, either in PHC facilities or hospital services as nurses.

Figure 7.1 below reflects the respondents' ratings for the level of satisfaction in their current positions in terms of different factors.

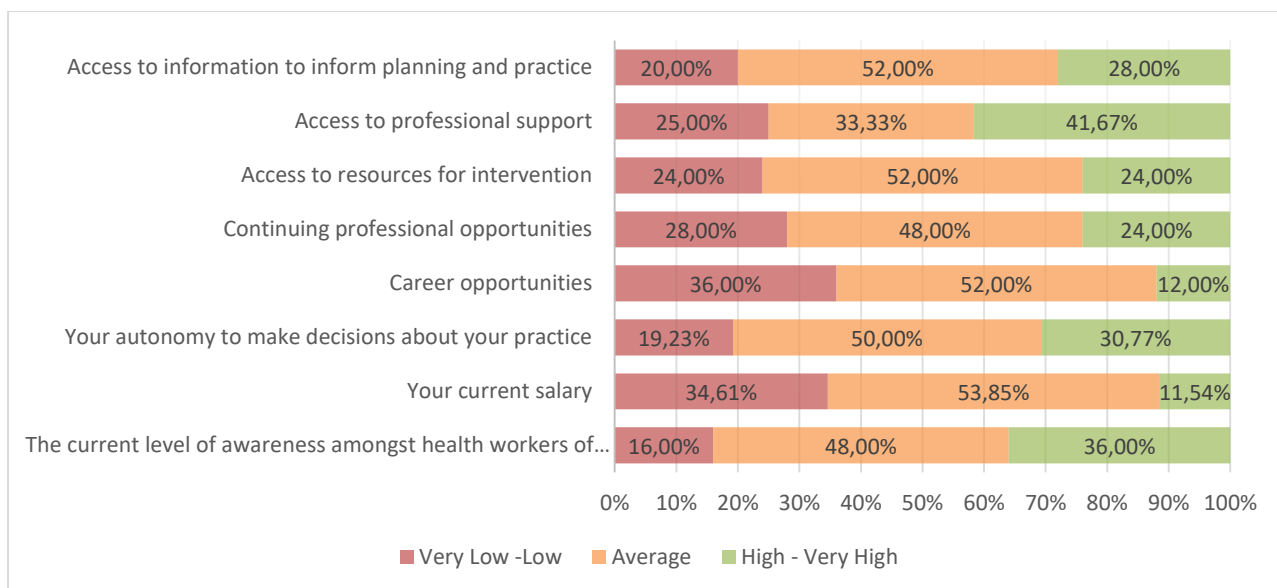


Figure 7.1. Nurse respondents' levels of satisfaction in current position

More than one-third of the respondents indicated that their level of satisfaction with career opportunities and salary was low to very low. More than one-third of the respondents indicated high to very high satisfaction with the fact that they had access to professional support, they could make practice decisions on their own and other health workers were aware of their roles.

Eighty-four percent of the respondents (n=22) indicated that they had access to a nutrition mentor/specialist (mainly dietitians) on a weekly and monthly basis (29%, n=7) and 25% (n=6) when needed and 17% daily (n=4).

7.4.3 Practice roles and functions of nurse respondents

Respondents (n=25) rated the importance of selected factors for their professional development. These are reflected in Figure 7.2 below.

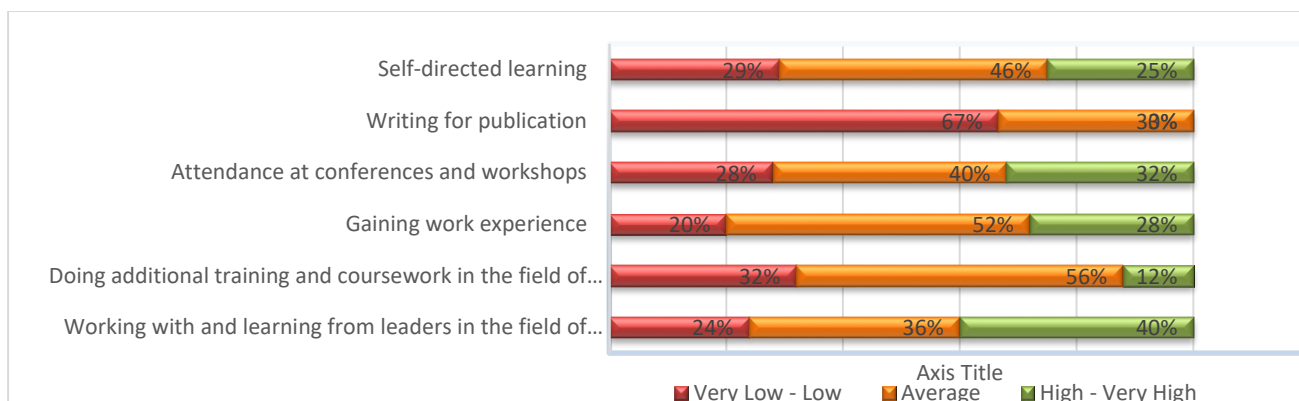


Figure 7.2. Nurse respondents' views on the importance of factors affecting their professional development

Nurse respondents mostly rated professional development as average. Interestingly, not many (only 12%) rated undergoing additional training and coursework as very important (rating it as high–very high), but 40% regarded working with leaders in the field of nutrition as particularly important. Writing publications (67%, n=16) was the least important to them (rating it as very low–low).

In describing the community they serviced, 84% of the respondents worked at the frontline population level (urban town, rural area, facility and district population), with 16% of the respondents indicating that they serviced a wider territory than a specific geographic area.

The major roles/activities identified by the respondents were:

- Following up with patients in the community on special tube feeds;
- Training community health workers;
- Providing community-based nursing care;
- Implementing feeding schemes;
- Engaging in policy development and training;
- Following up on referrals on Foetal Alcohol Spectrum Disorder (FASD) and malnourished cases in nutrition rehabilitation programmes;
- Implementing and using the Road to Health Booklet (RTHB), including in the screening of cases;
- Engaging in health promotion and nutrition screening;
- Engaging in group nutrition education;
- Engaging in preventative activities and outreach to various groupings;
- Supervising carers.

Nurse respondents indicated the extent to which they collaborated with other sectors and other workers (see Figures 7.3 and 7.4).

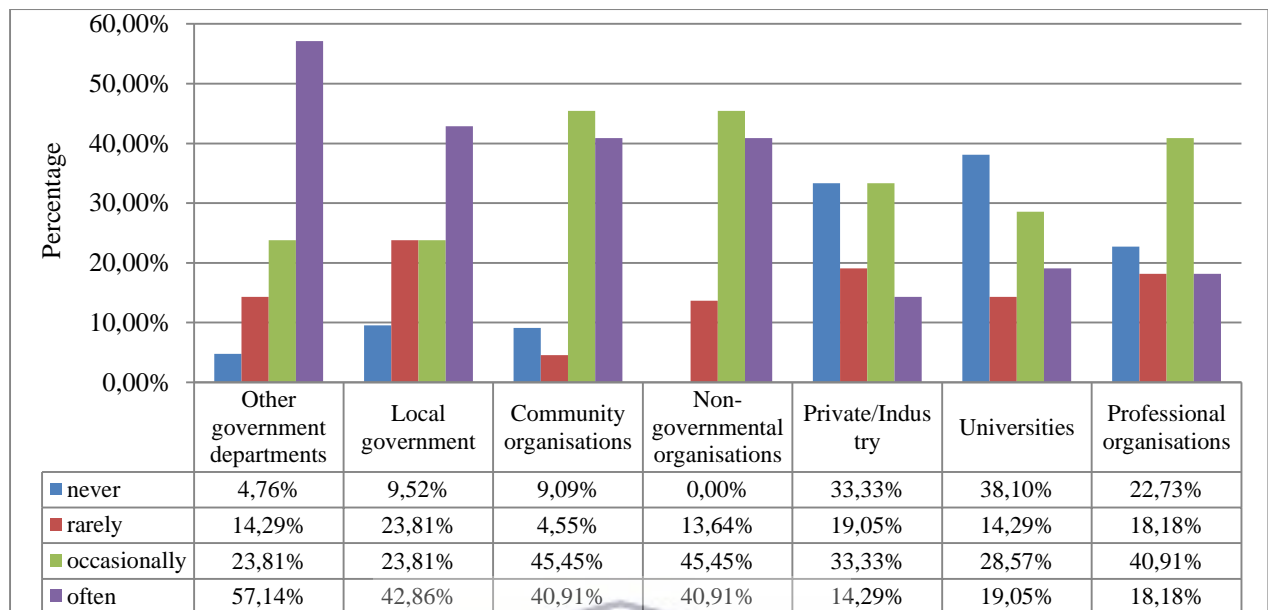


Figure 7.3. Collaboration between nurse respondents and other sectors and organisations

Respondents indicated that they often collaborated with government departments, local government, community organisations and NPOs; they collaborated the least with professional organisations and private industry.

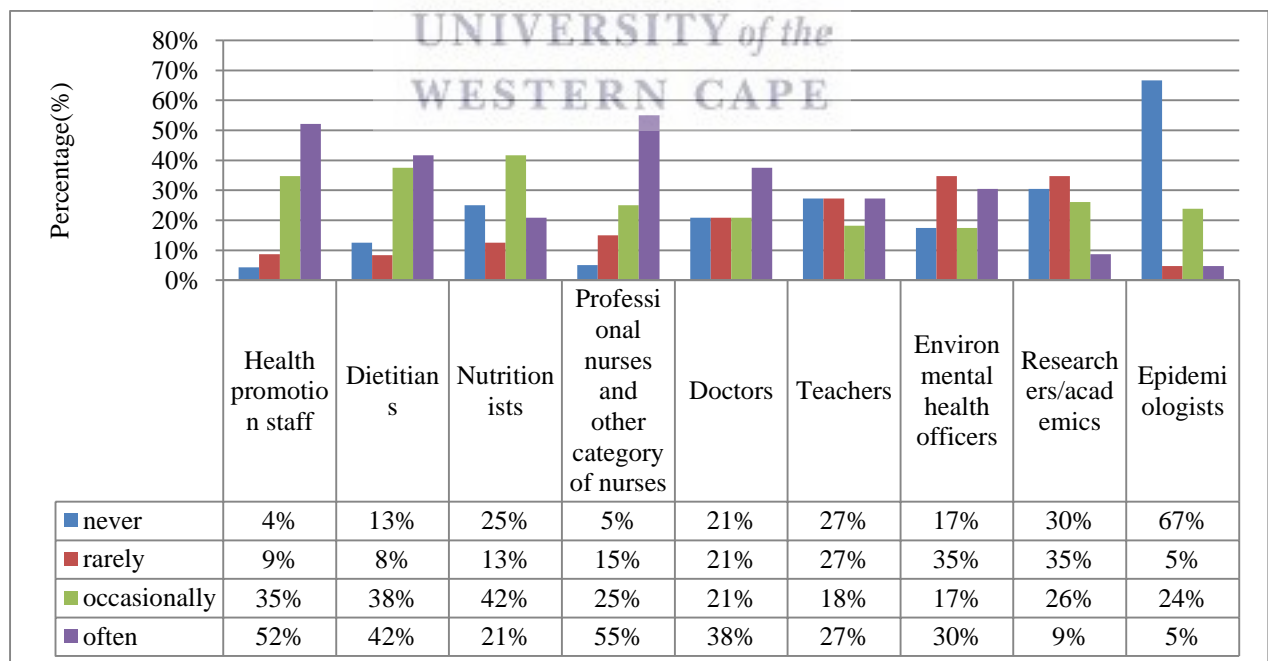


Figure 7.4. Collaboration between nurse respondents and other health workers

According to the results, health care workforce nurse respondents primarily collaborated with other nurses, followed by (in descending order) health promoters, dietitians, doctors and nutritionists. Other health and professional staff with whom nurse respondents collaborated were teachers and environmental health officers. Nurse respondents collaborated the least with researchers and epidemiologists.

7.4.4 Nurse respondents' capacity

Nurse respondents assessed the nutrition capacity of the workforce (Figure 7.5) and rated professional nurses and nutritionists as average and dietitians mainly as good to very good.

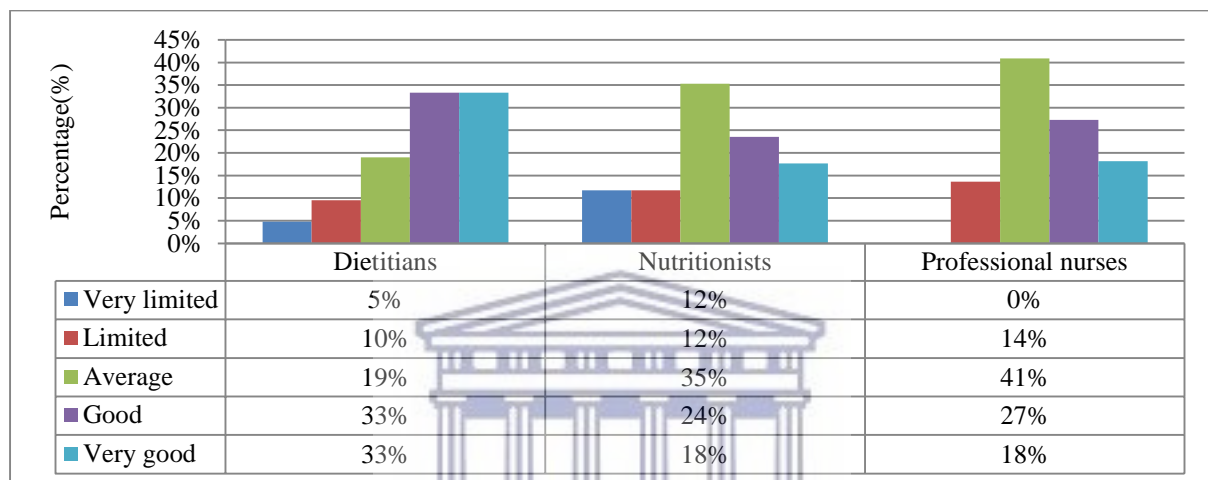


Figure 7.5. Nurse respondents' assessment of the nutrition workforce capacity

Nurse respondents rated the major strengths and weaknesses in terms of food and nutrition services, as reflected in Figure 7.6. Further details are provided in Annexure Table A7.1.

Nurse respondents indicated that availability of local data, targeting of interventions, budgets available, staff available and community awareness of their services were weaknesses, with knowledge and skills and the focus on education and awareness as strengths. The support from managers was seen to be more a strength, yet the other management-related aspects, i.e. staff available, budgets available and data available, leaned towards being a weakness. Multidisciplinary planning and collaboration were judged to be neither a strength nor a weakness.



Figure 7.6. Nurse respondents' ratings of food and nutrition services

Annexure Table A7.2 provides an indication of activities related to nutrition in which nurse respondents are involved. Out of the 24 activities listed, nurse respondents spent most of their time on client care, capacitating others, working with group activities in the community and referring clients to dietitians/nutritionists for counselling. The areas that they were not involved in were supporting national media campaigns, presenting nutrition research to forums, food service and developing nutrition materials.

When asked in which activities they had participated in the last year, 90% of the nurse respondents indicated that they had participated in speaking on nutrition in their respective work areas, with 30% indicating that they had organised groups dealing with nutrition issues. The nurse respondents also indicated that they worked closely with dietitians and brought them into sessions as needed:

“I get the specialist in; the dietitian will assist in the above.”

7.4.5 Training and continuing professional development

Twenty-four of the nurses (91%) who responded to the qualifications question had a diploma in nursing, 9% had degrees in nursing and two nurses were working on their Master's degree. Figure 7.7 below indicates the barriers and incentives for nurse respondents in the development of further skills in public health nutrition. Nurse respondents were self-motivated and saw their

own assessment of the need to develop their skills as an incentive, despite time availability acting as a barrier.

The availability of funding seemed to be a barrier. Respondents were unsure whether they would receive a personal reward for undergoing further training but they saw continuing professional development through the availability of courses more as an incentive than a barrier. Gaining professional recognition for the development of their skills would be rewarding as an incentive. Respondents indicated that they had access to information but it could be a barrier for some. Time available was a significant barrier for them.

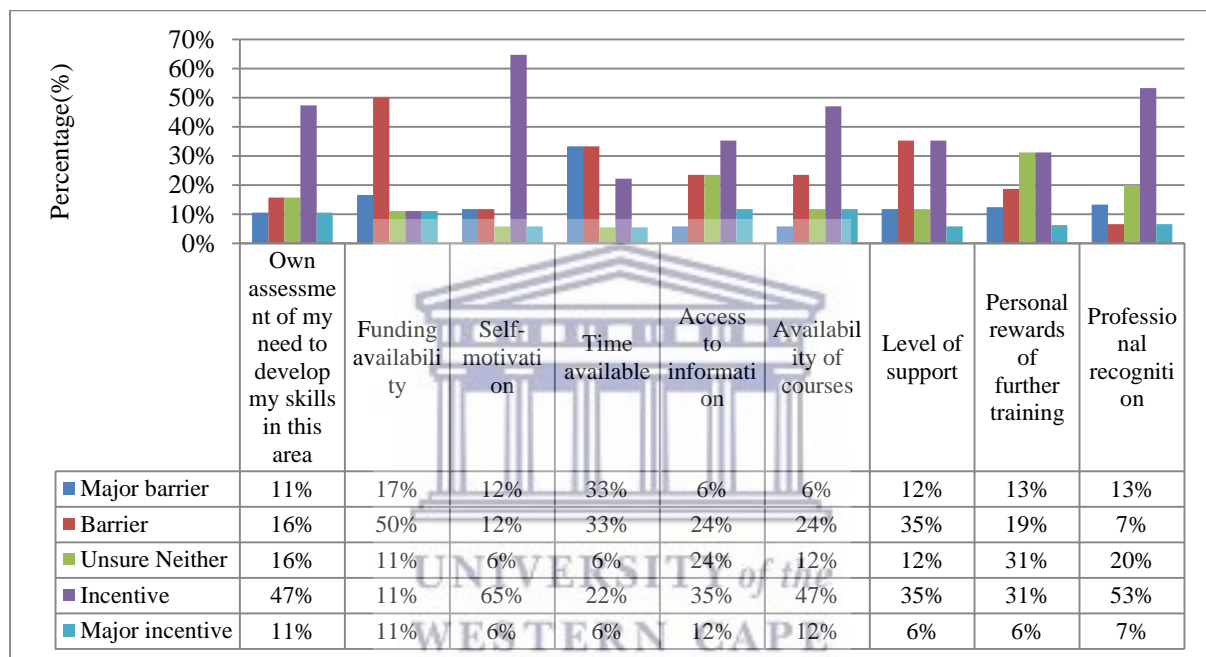


Figure 7.7. Barriers and incentives in the development of nurse respondents' public health nutrition skills

Courses that respondents had attended in the last year included: TB training, a diabetic foot care workshop, HIV adherence (to medication) training, wound care, nurse-initiated management of anti-retroviral treatment, practice approach to care kit, project management, monitoring and evaluation, an assessors course, family planning, breastfeeding and nutrition awareness, hypertension and HIV-ARV resistance.

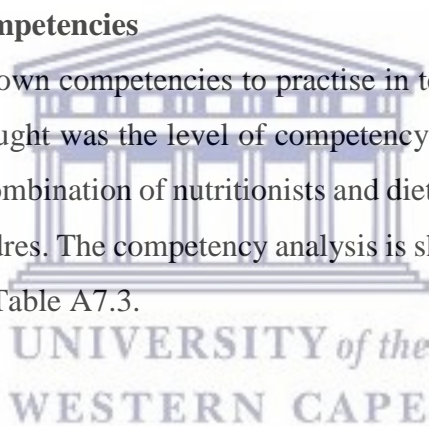
The advantages and disadvantages of nursing training in public health nutrition are set out in Table 7.3 below. Two general comments were also included under disadvantages.

Table 7.3. Advantages and disadvantages of nursing training in PHN

Advantages	Disadvantages
<ul style="list-style-type: none"> • It prepares nurses to implement basic aspects of nutrition in the course of their work. • Nurses develop a basic knowledge of nutrition. • Nurses acquire clinical and multidisciplinary skills. • Nurses can support mothers with babies and the broader community through health promotion. • Nurses can give communities a sense of support. • Including nutrition in the training curriculum assists nurses to provide communities with information on nutrition. 	<ul style="list-style-type: none"> • Not all nutrition aspects are covered. • There is inflexibility in the approach. • The knowledge acquired is basic. • Not enough detail is provided and the interrelated aspects are not covered sufficiently. <p>“Not enough dietitians to assist nurses; need more.”</p> <p>“Community does not adhere to information given to them.”</p>

7.4.6 Nurse respondents’ competencies

Nurse respondents rated their own competencies to practise in terms of importance and level. They also rated what they thought was the level of competency and importance for dietitians and nutritionists as well as a combination of nutritionists and dietitians if they did not know the difference between the two cadres. The competency analysis is shown in Figure 7.8, with more details provided in Annexure Table A7.3.



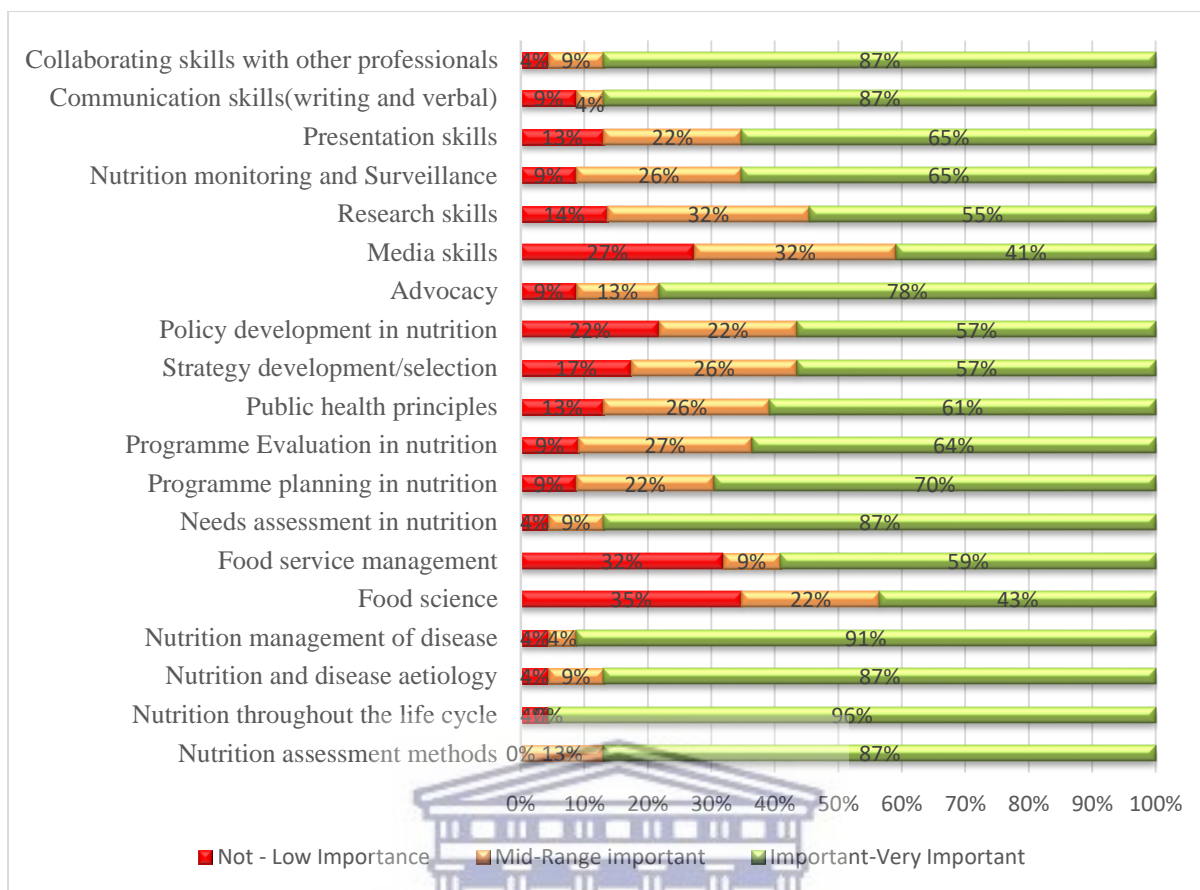


Figure 7.8. Nurse respondents' own competency to practise importance ratings

Nurse respondents rated most of the competency areas as important to very important, with nutrition throughout the life cycle, nutrition assessment methods, nutrition and disease aetiology, needs assessment and nutrition management of disease rated as particularly important to very important. The areas that nurse respondents rated as being of low importance to not important were nutrition policy development and media skills. Areas that were primarily of low importance to them were food science and food service management. Nurse respondents rated their own level of attainment against the respective competencies in Annexure Table A7.4. The areas that they regarded as entry to capable were nutrition and disease aetiology, food science, food service management, strategy development/selection, policy development and advocacy. Nurse respondents mainly rated themselves as competent in most areas.

Figure 7.9 below shows the options for further training for nurse respondents. Nurse respondents would prefer off-campus, professionally recognised and in-service programmes.

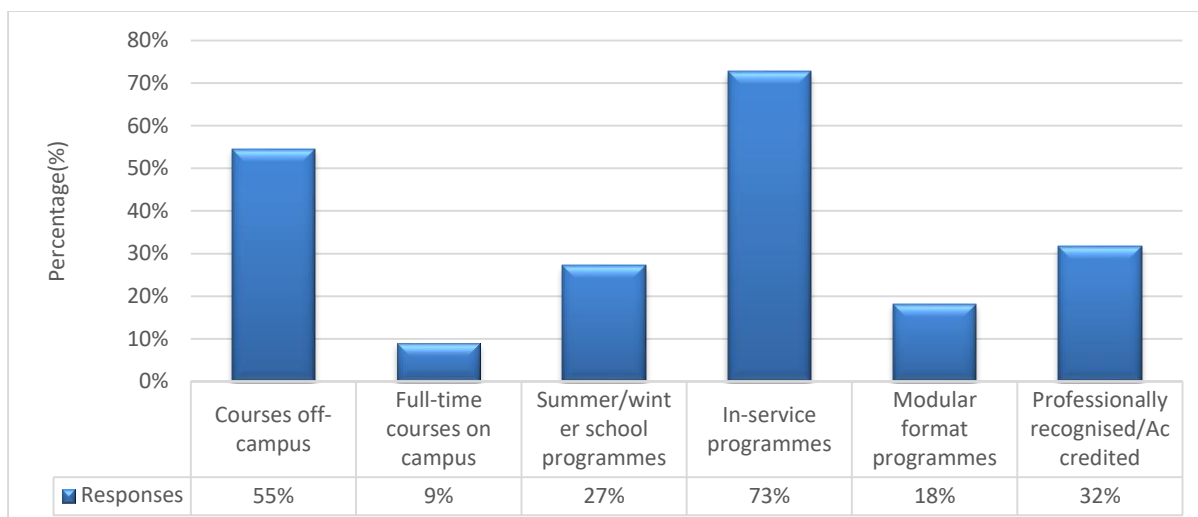


Figure 7.9. Nurse respondents' options for further training

Nurse respondents were asked to indicate if they knew the difference between dietitians and nutritionists. Eighty-two percent of the respondents indicated that they did not know the difference. Some of the comments were as follows:

“Dietitians will advise where a nutritionist will focus on implementation.”

“Nutritionists give advice and dietitians work out plans.”

“Dietitians design programmes for better and healthy lifestyles and nutritionists study nutrition and focus on developing nutrition awareness programmes.”

“Dietitians write out programmes to be followed whereas nutritionists monitor food and nutrition intake.”

Despite the instruction that respondents should answer only the combined dietitian–nutritionist question if they did not know the difference between the two, some respondents proceeded to complete the individual ratings of competencies for dietitians and nutritionists as well.

Nurse respondents rated dietitians' competencies, shown in Annexure Table A7.5, as important to very important (in bold), with mainly only media skills being rated as not important to being of low importance. Policy development, and human resource and financial management were viewed as being of mid-range importance to low importance.

Nurse respondents rated the level of attainment of dietitians (Table A7.6) as mainly proficient to expert. Areas that were marked higher in competence were: assessing nutrition training needs, collaboration with relevant stakeholders, and community programme planning and

implementation, monitoring, evaluation and documentation of appropriate nutrition care, and education for individual patients/clients.

Notwithstanding the fact that nurse respondents did not know the difference between dietitians and nutritionists, they rated nutritionists according to their own understanding. Nurses rated nutritionists' competencies (Annexure Tables A7.7 and A7.8) more in the mid-range to important to very important with media skills marked by a number of nurses as being of low importance. Nurse respondents rated nutritionists' level of attainment mainly as competent with some areas as proficient, i.e. assess patient/client/group food preferences, determine needs for nutrition services, plan, implement, monitor, evaluate and document appropriate nutrition care, and education for individual patients/clients, promote and monitor patient/client compliance with the nutrition care plan, compile and adapt normal and therapeutic menus to comply with patient/client and/or group needs, and communicate effectively with individuals and groups.

When rating the dietitians and nutritionists (Annexure Tables A7.9 and A7.10) together as one group, nurse respondents rated the competencies mainly as important to very important for all competencies. They rated dietitians'/nutritionists' level of attainment mainly as competent to proficient to expert.

7.4.7 Nurse respondents' resources in the work environment

Nurses (69%) indicated that the current staffing was inadequate and provided some comments to support their views in this regard:

“Need a dietician for every area.”

“The population served is too big.”

“Too few.”

“Shortage of staff at services and lack of capacity as well.”

“Not many dietitians/nutritionists employed.”

“Facilities have heavy workloads.”

Half the nurse respondents who participated in the survey had their own offices and telephone (Figure 7.10) but more than half did not have their own internet access. Nurse respondents

working in this service platform had their own transport and claimed their transport expenses from the organisation.

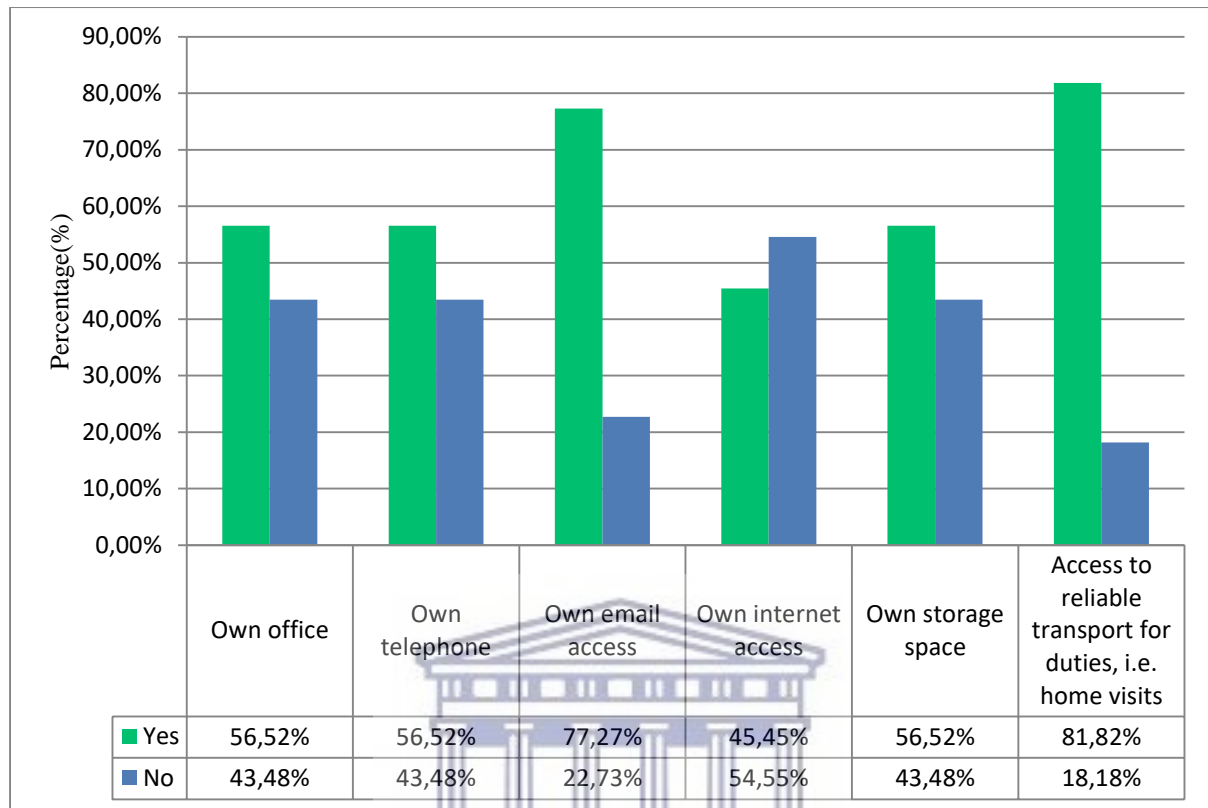


Figure 7.10. Resources available to nurse respondents in their work environment

Nurse respondents noted some concerns in their comments:

“We do not have our own internet access, it is shared among staff.”

“Share office space with colleagues.”

“We work in a container with no telephone lines.”

Some of the challenges and solutions indicated by nurse respondents are listed in Table 7.4 below. Their working only four-and-a-half hours a day was identified as one of the main challenges in view of the disease burden and demand for services.

Table 7.4. Nurse respondents’ general challenges and solutions

CHALLENGES	SOLUTIONS
<ul style="list-style-type: none"> • Contact with and work space for dietitians. “Not sure where the office of the dietitian is. There is no space for the dietitian to see patients.” • Nurses not confident about their skills and staff are resistant to change. “The staff does not have enough skills.” “Staff are reluctant to change.” • Policies not always implementable. “Criteria of programmes too strict, products not always available.” “Health workers do not react immediately if the child is not growing well.” • Health system challenges including resources. “Provincial level cannot support districts always due to autonomy.” “Shortage of staff, finances and time.” “Access to services – most PHC facilities functional 8hrs/day.” • Communities are practising health-seeking behaviours. “People don’t stick to proper diets, disregard advice.” “Non-compliance of clients and family do not assist properly.” • Social determinants of health. “Poverty, access and availability of food” 	<ul style="list-style-type: none"> • Dietitians should be allocated per area. “Need a dietitian for the area alone and office needed for a dietitian to do her work.” • Staff training and change management. • Increasing access to services and extending hours of service. • Behavioural change and modification. “Advise people on the health risks involved when proper diets are not followed.”

7.5 Limitations

Nurses had busy schedules and were not always available to complete the survey. Nurses working only four-and-a-half hours a day did not prioritise requests to participate due to other commitments during the data collection period. Even though copies of questionnaires were left and promises were made to complete them during several telephonic follow-ups, the response rate was still poor. The contact details obtained were not of specific nurses in all instances but of the respective service provider manager or organisation. Even after piloting, the questionnaire was still too long, especially the lists of competencies. Nurses could not always recognise the need to rate the competencies of dietitians and nutritionists as many of them were more interested in the hands-on, day-to-day operational aspects and not the strategic aspects.

7.6 Discussion

Finding nurses willing to respond to the invitation to participate in the survey was challenging as nurses were mostly busy in the field engaged in patient care during the day. Nurses in the CBS platform working for NPOs worked on average four-and-a-half hours per day, limiting the time they had available. The nurse coordinators in the sub-district worked eight hours supporting the NPO services. Every day they were occupied in administrative processes, e.g. channelling referrals to PHC, following up enquiries, conducting outreach support visits, training CBS implementers and getting involved in community health campaigns.

The gender of the nurse respondents was mostly female, which was expected as the nursing profession historically has had more women than men within its ranks. Similar findings were noted in the nurse study by Khuzwayo (2015).

The study was conducted in the Western Cape province where the three main languages spoken, and which were also in evidence among the respondents, are Afrikaans, English and IsiXhosa. In line with the requirement to practise, all the nurse respondents were registered with the SANC and had obtained their basic nursing qualification. They also reported mainly to nursing managers and medical managers. The nurse respondents working in the CBS had not, on average, been working for the NPOs for very long, but it was noted in the face-to-face interviews that these nurses had all been previously employed by the government in PHC and in hospitals, generally with 20–30 years' experience in nursing.

The nurse respondents were on average satisfied with their current positions but indicated that they did not have access to dietitians all the time, which was a challenge because they depended on dietitians for nutrition support activities. They wanted to gain more experience in their field of work and to attend more workshops and conferences on nutrition.

In terms of their main role, nursing care was still the primary focus, ensuring that the CHWs that they supervised were well trained and provided holistic care, including nutrition screening and identification of vulnerable groups. Health promotion was also indicated as an activity. In doing what was required of them, the nurse respondents indicated that they collaborated mainly with government departments and worked with the multidisciplinary teams, i.e. health promotion staff, dietitians/nutritionists, nursing colleagues and doctors.

In the assessment of capacity, nurse respondents rated dietitians as the profession with the most capacity and nutritionists' and their own capacity as average. This could be related to the need for nurses to gain more experience and their expressed desire for more training on nutrition, specifically on the nutrition management of disease.

PHC community participation, awareness and empowerment are key PHC principles, yet nurse respondents working in PHC saw these aspects as a major weakness to a weakness in PHC service delivery. The outcry about staff shortages was very dominant. These observations, made in nurses' strategic documents, have also been noted by stakeholders such as the DoH, researchers and SANC. Planning and coordination as a multidisciplinary team was marked in the middle as neither a strength nor a weakness, which is understandable as the availability of local data and targeting interventions were mainly seen as weaknesses. There appears to be a need for more collective planning and a focus on implementing targeted interventions. Karim, Billah, & El Arifeen (2017), in a guidance note on transforming nutrition, noted that frontline workers needed to work in unison and with a shared purpose in order to implement programmes successfully (Karim, Billah, & El Arifeen, 2017).

Nurse respondents were prepared to invest in developing their capacity in nutrition but faced barriers such as patient load, time available, funding and at times a lack information. The three factors highlighted that motivated frontline workers were morale, social aspects and finance. Financial incentives appeared to motivate staff but consideration should also be given to their workloads. Billah et al. (2017) found similar results and specifically highlighted heavy workloads as a barrier to PHC service delivery (Billah et al., 2017).

Nurse respondents felt that their nutrition training was too basic and as a result they had limited knowledge. They needed more information to expand their nutrition knowledge which was reflected in the fact that they rated their own competencies as mainly entry level. This means that they primarily worked with rules and regulations and did not design interventions but rather depended on dietitians whom they saw as the experts to guide them. Nurse respondents would prefer to have more in-service programmes which could be provided off-site and were accredited.

Nurse respondents did not know the difference between dietitians and nutritionists, as seen from their explanations. Those who indicated that they knew the difference somehow saw the dietitian as a more competent, better-trained professional, as evidenced in their ratings. The confusion over the roles of dietitians and nutritionists has been documented as an issue since

the 1940s, as reported by Marcason. In the United States this has led to the proposed introduction of the registered dietitian–nutritionist (Marcason, 2015). South Africa is similarly moving in the direction of having one nutrition professional (Wentzel-Viljoen, 2017).

Nurse respondents strongly expressed the need for more staff to deliver nutrition services and felt that the current situation was totally unacceptable in view of the geographic range of the population that needed to be covered. The inadequacies contributed to inefficient programme rollout and service delivery, in their view. In terms of infrastructure, attention needed to be given to improving the physical work environments of nurses working closest to the communities.

7.7 Conclusion

PHC provides the first level of contact between individuals, family and community members and health care providers, bringing the health care service as close as possible to people’s homes, while also promoting health and disease prevention through various approaches, such as self-management, community participation and empowerment.

The CBS part of PHC is taking the PHC vision forward, with nurses as the key implementers. Nurses serve as change agents as “they are the backbone of the health care system” rather than just delivering care (Khuzwayo, 2015: 10). Nurses act as enablers in helping communities to self-manage and seek healthy behaviours. In order to transform nutrition service delivery in PHC, critical elements that are missing need to be addressed. Scaling up effective nutrition interventions will be impossible unless frontline staff are well trained and incentivised and interventions are better targeted at those who need it most. It will also not help if interventions and responses are not timeous. Decision makers need to provide leadership and prioritise investment in the capacity of frontline staff such as nurses who are not only key drivers and part of the nutrition workforce but also integral to the entire health workforce. Dietitians and nutritionists similarly need to be equipped to deliver services to the population.

7.8 Key messages from the community-based services nurses survey

- Nurses are the main implementers of nursing care.
- Engagement with nurses is necessary to understand their perceptions and to include them in the planning of services in the health system.
- Working hours of nurses in CBS is a challenge, leading to an increase in the demand for nursing services and the BoD.

- Nurse respondents openly admit their gaps in nutrition knowledge and want to engage with dietitians in practice to support them in multidisciplinary team structures.
- Service provision by nurses is hampered by ongoing staff shortages, leading to poor implementation of interventions.
- Nurse respondents do not know the difference between dietitians and nutritionists, leading to confusion in roles and poor implementation of scope of practice for these professionals.

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Table A7.1. Nurse respondents' rating of strengths and weaknesses of the service

Service aspects	Major weakness		Weakness		Neither strength nor weakness		Strength		Major strength		Total n(%)
	%	n	%	n	%	n	%	n	%	n	
Community awareness of services /expertise	9%	2	30%	7	35%	8	22%	5	4%	1	23(100%)
Staff available	17%	4	22%	5	30%	7	26%	6	4%	1	23(100%)
Budgets available	14%	3	48%	10	14%	3	19%	4	5%	1	21(100%)
Knowledge and skills of workforce	5%	1	5%	1	43%	9	43%	9	5%	1	21(100%)
Community participation in programmes	14%	3	14%	3	50%	11	18%	4	5%	1	22(100%)
Multidisciplinary and planning collaboration	9%	2	5%	1	64%	14	14%	3	9%	2	22(100%)
Focus on education and awareness	9%	2	14%	3	36%	8	32%	7	9%	2	22(100%)
Focus on the environment	9%	2	27%	6	45%	10	14%	3	5%	1	22(100%)
Availability of local data	9%	2	41%	9	27%	6	18%	4	5%	1	22(100%)
Linkages with other sectors	0%	0	32%	7	32%	7	32%	7	5%	1	22(100%)
Management support	5%	1	23%	5	41%	9	23%	5	9%	2	22(100%)
Targeting of interventions	9%	2	27%	6	45%	10	14%	3	5%	1	22(100%)
Support from health staff	0%	0	24%	5	38%	8	29%	6	10%	2	21(100%)

Table A7.2. Nurse respondents' activities

Functions /activities	Never		Less than monthly		Monthly		Weekly		Daily		Total n(%)	Sum of all minus Never
	%	n	%	n	%	n	%	n	%	n		
Advising on clinical nutrition one on one	39%	9	26%	6	13%	3	17%	4	4%	1	23(100%)	61%
Participating in small group activities with clients with nutrition-related health problems	43%	10	26%	6	13%	3	13%	3	4%	1	23(100%)	57%
Participating in small group activities with general community	36%	8	32%	7	18%	4	14%	3	0%	0	22(100%)	64%

Functions /activities	Never		Less than monthly		Monthly		Weekly		Daily		Total	Sum of all minus Never
	%	n	%	n	%	n	%	n	%	n	n(%)	
Training other health professionals in addressing clients' nutrition needs	27%	6	50%	11	18%	4	5%	1	0%	0	22(100%)	73%
Training non-health staff (e.g. day care staff)	59%	13	18%	4	9%	2	9%	2	5%	1	22(100%)	41%
Implementing/co-ordinating community-wide nutrition education programmes	57%	13	30%	7	13%	3	0%	0	0%	0	23(100%)	43%
Implementing/co-ordinating community programmes re food supply/access	61%	14	26%	6	13%	3	0%	0	0%	0	23(100%)	39%
Providing nutrition technical support to other departments and agencies	65%	15	22%	5	9%	2	0%	0	4%	1	23(100%)	35%
Engaging in nutrition monitoring and surveillance	61%	14	13%	3	13%	3	4%	1	9%	2	23(100%)	39%
Responding to individual requests for information and advice on nutrition	48%	11	22%	5	13%	3	4%	1	13%	3	23(100%)	52%
Engaging in media liaison/advocacy	78%	18	13%	3	4%	1	4%	1	0%	0	23(100%)	22%
Supporting national media campaigns on nutrition	86%	19	9%	2	5%	1	0%	0	0%	0	22(100%)	14%
Seeking funding for nutrition projects	78%	18	13%	3	4%	1	0%	0	4%	1	23(100%)	22%
Participating in development/review of food and nutrition legislation/policy	70%	16	17%	4	4%	1	4%	1	4%	1	23(100%)	30%
Engaging in nutrition-related research	78%	18	9%	2	4%	1	0%	0	9%	2	23(100%)	22%
Presenting nutrition research findings to forums	91%	21	4%	1	0%	0	0%	0	4%	1	23(100%)	9%
Engaging in student training/supervision on nutrition	61%	14	22%	5	13%	3	0%	0	4%	1	23(100%)	39%
Implementing/co-ordinating nutrition policies and programmes in health facilities	57%	13	35%	8	4%	1	4%	1	0%	0	23(100%)	43%
Engaging in food service management for groups/institutions	74%	17	9%	2	9%	2	0%	0	9%	2	23(100%)	26%
Compiling food specifications	78%	18	0%	0	9%	2	9%	2	4%	1	23(100%)	22%

Functions /activities	Never		Less than monthly		Monthly		Weekly		Daily		Total	Sum of all minus Never
	%	n	%	n	%	n	%	n	%	n	n(%)	
Developing nutrition information, education and communication materials	83%	19	9%	2	4%	1	0%	0	4%	1	23(100%)	17%
Engaging in internal and parental nutrition	57%	13	22%	5	13%	3	4%	1	4%	1	23(100%)	43%
Performing anthropometric measurements of clients	62%	13	29%	6	10%	2	0%	0	0%	0	21(100%)	38%
Referring clients to dietitians/nutritionists for counselling	22%	5	26%	6	17%	4	17%	4	17%	4	23(100%)	78%

Table A7.3. Nurse respondents' ratings of their competencies in terms of importance

Competencies of nurses	Not important at all		Low importance		Mid-range importance		Important		Very important		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Nutrition assessment methods	0%	0	0%	0	13%	3	65%	15	22%	5	23(100%)
Nutrition throughout the life cycle	0%	0	4%	1	0%	0	70%	16	26%	6	23(100%)
Nutrition and disease aetiology	0%	0	4%	1	9%	2	48%	11	39%	9	23(100%)
Nutrition management of disease	0%	0	4%	1	4%	1	61%	14	30%	7	23(100%)
Food science	0%	0	35%	8	22%	5	39%	9	4%	1	23(100%)
Food service management	5%	1	27%	6	9%	2	50%	11	9%	2	22(100%)
Needs assessment in nutrition	4%	1	0%	0	9%	2	52%	12	35%	8	23(100%)
Programme planning in nutrition	4%	1	4%	1	22%	5	52%	12	17%	4	23(100%)
Programme evaluation in nutrition	5%	1	5%	1	27%	6	59%	13	5%	1	22(100%)
Public health principles	0%	0	13%	3	26%	6	43%	10	17%	4	23(100%)
Strategy development/selection	4%	1	13%	3	26%	6	43%	10	13%	3	23(100%)
Policy development in nutrition	0%	0	22%	5	22%	5	48%	11	9%	2	23(100%)
Advocacy	0%	0	9%	2	13%	3	61%	14	17%	4	23(100%)

Competencies of nurses	Not important at all		Low importance		Mid-range importance		Important		Very important		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Media skills	5%	1	23%	5	32%	7	36%	8	5%	1	22(100%)
Research skills	9%	2	5%	1	32%	7	50%	11	5%	1	22(100%)
Nutrition monitoring and surveillance	4%	1	4%	1	26%	6	57%	13	9%	2	23(100%)
Presentation skills	0%	0	13%	3	22%	5	39%	9	26%	6	23(100%)
Communication skills (writing and verbal)	0%	0	9%	2	4%	1	57%	13	30%	7	23(100%)
Collaborating skills with other professionals	0%	0	4%	1	9%	2	57%	13	30%	7	23(100%)

Table A7.4. Nurse respondents' ratings of their attained competency levels

Competencies of nurses	Entry level		Capable		Competent		Proficient		Expert		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Nutrition assessment methods	11%	2	32%	6	42%	8	11%	2	5%	1	19(100%)
Nutrition throughout the life cycle	11%	2	33%	6	39%	7	11%	2	6%	1	18(100%)
Nutrition and disease aetiology	21%	4	26%	5	37%	7	5%	1	11%	2	19(100%)
Nutrition management of disease	26%	5	26%	5	26%	5	16%	3	5%	1	19(100%)
Food science	44%	8	33%	6	11%	2	11%	2	0%	0	18(100%)
Food service management	59%	10	18%	3	12%	2	12%	2	0%	0	17(100%)
Needs assessment	21%	4	26%	5	26%	5	16%	3	11%	2	19(100%)
Programme planning	21%	4	16%	3	32%	6	21%	4	11%	2	19(100%)
Programme evaluation	16%	3	21%	4	32%	6	26%	5	5%	1	19(100%)
Public health principles	26%	5	26%	5	26%	5	16%	3	5%	1	19(100%)
Strategy development/selection	26%	5	42%	8	21%	4	11%	2	0%	0	19(100%)
Policy development	32%	6	26%	5	16%	3	21%	4	5%	1	19(100%)
Advocacy	28%	5	22%	4	22%	4	22%	4	6%	1	18(100%)
Media skills	39%	7	22%	4	33%	6	6%	1	0%	0	18(100%)

Competencies of nurses	Entry level		Capable		Competent		Proficient		Expert		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Research skills	24%	4	35%	6	24%	4	18%	3	0%	0	17(100%)
Nutrition monitoring and surveillance	17%	3	33%	6	33%	6	11%	2	6%	1	18(100%)
Presentation skills	11%	2	32%	6	21%	4	32%	6	5%	1	19(100%)
Communication skills (writing and verbal)	5%	1	26%	5	16%	3	26%	5	26%	5	19(100%)
Collaborating skills with other professionals	6%	1	22%	4	28%	5	22%	4	22%	4	19(100%)



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Table A7. 5 Nurse respondents' ratings of dietitians' competencies in terms of importance

Competencies of dietitians	Not important at all		Low importance		Mid-range importance		Important		Very Important		Total n(%)
	%	n	%	n	%	n	%	n	%	n	
Conduct screening and needs assessment/situation analysis	0%	0	0%	0	0%	0	38%	3	63%	5	8(100%)
Assess nutritional status assessment methods of clients and groups	0%	0	0%	0	0%	0	38%	3	63%	5	8(100%)
Integrate, analyse and interpret nutritional assessment data	0%	0	13%	1	0%	0	25%	2	63%	5	8(100%)
Utilise appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutrition-related health issues	0%	0	0%	0	13%	1	25%	2	63%	5	8(100%)
Assess patient/client/group food preferences	0%	0	13%	1	0%	0	63%	5	25%	2	8(100%)
Determine nutrition service needs	0%	0	13%	1	0%	0	50%	4	38%	3	8(100%)
Assess nutrition training needs	0%	0	13%	1	13%	1	50%	4	25%	2	8(100%)
Plan, implement, monitor and evaluate appropriate nutrition interventions	0%	0	0%	0	13%	1	38%	3	50%	4	8(100%)
Collaborate with relevant stakeholders and community	0%	0	0%	0	25%	2	38%	3	38%	3	8(100%)
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	0%	0	0%	0	0%	0	63%	5	38%	3	8(100%)
Collaborate with the different members of the health care team	0%	0	13%	1	0%	0	50%	4	38%	3	8(100%)
Promote and monitor patient/client compliance with the nutrition care plan	0%	0	0%	0	0%	0	57%	4	43%	3	7(100%)
Compile and adapt normal and therapeutic menus to comply with patient/client and/or group needs	0%	0	0%	0	13%	1	50%	4	38%	3	8(100%)
Communicate effectively with individuals and groups	0%	0	25%	2	0%	0	38%	3	38%	3	8(100%)
Advocate for nutrition-related issues	0%	0	0%	0	25%	2	50%	4	25%	2	8(100%)
Engage in human resource management	0%	0	25%	2	25%	2	13%	1	38%	3	8(100%)
Engage in financial management	0%	0	13%	1	25%	2	25%	2	38%	3	8(100%)
Engage in programme planning and implementation	0%	0	13%	1	0%	0	50%	4	38%	3	8(100%)

Competencies of dietitians	Not important at all		Low importance		Mid-range importance		Important		Very Important		Total n(%)
	%	n	%	n	%	n	%	n	%	n	
Perform programme evaluation	0%	0	0%	0	29%	2	43%	3	29%	2	7(100%)
Contribute to policy development	0%	0	14%	1	43%	3	14%	1	29%	2	7(100%)
Conduct research	0%	0	14%	1	14%	1	43%	3	29%	2	7(100%)
Carry out nutrition monitoring and surveillance	0%	0	0%	0	0%	0	63%	5	38%	3	8(100%)
Collaborate with other professionals	0%	0	13%	1	13%	1	38%	3	38%	3	8(100%)
Engage in strategy development/selection	0%	0	0%	0	25%	2	38%	3	38%	3	8(100%)
Advocate nutrition throughout the life cycle	0%	0	0%	0	0%	0	63%	5	38%	3	8(100%)
Advocate nutrition and disease aetiology	0%	0	0%	0	13%	1	50%	4	38%	3	8(100%)
Engage in dietetic management of disease	0%	0	14%	1	0%	0	43%	3	43%	3	7(100%)
Promote nutrition science	0%	0	13%	1	13%	1	38%	3	38%	3	8(100%)
Employ media skills	13%	1	25%	2	13%	1	38%	3	13%	1	8(100%)
Display ethical practice	0%	0	0%	0	0%	0	38%	3	63%	5	8(100%)
Engage in management and personal development	0%	0	0%	0	25%	2	50%	4	25%	2	8(100%)
Understand food legislation	0%	0	0%	0	13%	1	50%	4	38%	3	8(100%)

Table A7.6: Nurse respondents' ratings of dietitians' competencies in terms of attainment

Competencies of dietitians	Entry level		Capable		Competent		Proficient		Expert		Total n(%)
	%	n	%	n	%	n	%	n	%	n	
Conduct screening and needs assessment/situation analysis	0%	0	14%	1	14%	1	43%	3	29%	2	7(100%)
Assess nutritional status assessment methods of clients and groups	0%	0	14%	1	14%	1	43%	3	29%	2	7(100%)
Integrate, analyse and interpret nutritional assessment data	0%	0	14%	1	14%	1	43%	3	29%	2	7(100%)
Utilise appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutrition-related health issues	0%	0	14%	1	14%	1	43%	3	29%	2	7(100%)
Assess patient/client/group food preferences	0%	0	14%	1	14%	1	57%	4	14%	1	7(100%)

Competencies of dietitians	Entry level		Capable		Competent		Proficient		Expert		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Determine nutrition service needs	0%	0	14%	1	14%	1	57%	4	14%	1	7(100%)
Assess nutrition training needs	0%	0	14%	1	43%	3	43%	3	0%	0	7(100%)
Plan, implement, monitor and evaluate appropriate nutrition interventions	0%	0	14%	1	29%	2	29%	2	29%	2	7(100%)
Collaborate with relevant stakeholders and community	0%	0	14%	1	57%	4	29%	2	0%	0	7(100%)
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	0%	0	0%	0	43%	3	29%	2	29%	2	7(100%)
Collaborate with the different members of the health care team	0%	0	14%	1	57%	4	29%	2	0%	0	7(100%)
Promote and monitor patient/client compliance with the nutrition care plan	0%	0	0%	0	57%	4	43%	3	0%	0	7(100%)
Compile and adapt normal and therapeutic menus to comply with patient/client and/or group needs	0%	0	0%	0	57%	4	43%	3	0%	0	7(100%)
Communicate effectively with individuals and groups	14%	1	0%	0	29%	2	57%	4	0%	0	7(100%)
Advocate for nutrition-related issues	0%	0	14%	1	29%	2	29%	2	29%	2	7(100%)
Engage in human resource management	0%	0	43%	3	57%	4	0%	0	0%	0	7(100%)
Engage in financial management	0%	0	29%	2	71%	5	0%	0	0%	0	7(100%)
Engage in programme planning and implementation	0%	0	0%	0	43%	3	43%	3	14%	1	7(100%)
Perform programme evaluation	0%	0	0%	0	43%	3	43%	3	14%	1	7(100%)
Engage in policy development	0%	0	14%	1	57%	4	29%	2	0%	0	7(100%)
Conduct research	0%	0	14%	1	57%	4	29%	2	0%	0	7(100%)
Perform nutrition monitoring and surveillance	0%	0	14%	1	57%	4	14%	1	14%	1	7(100%)
Collaborate with other professionals	0%	0	29%	2	29%	2	43%	3	0%	0	7(100%)
Engage in strategy development/selection	0%	0	14%	1	57%	4	29%	2	0%	0	7(100%)
Advocate nutrition throughout the life cycle	0%	0	0%	0	14%	1	71%	5	14%	1	7(100%)
Advocate nutrition and disease aetiology	0%	0	0%	0	29%	2	71%	5	0%	0	7(100%)
Engage in dietetic management of disease	0%	0	14%	1	29%	2	57%	4	0%	0	7(100%)
Promote nutritional science	0%	0	14%	1	29%	2	57%	4	0%	0	7(100%)

Competencies of dietitians	Entry level		Capable		Competent		Proficient		Expert		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Employ media skills	14%	1	29%	2	43%	3	14%	1	0%	0	7(100%)
Display ethical practice	0%	0	0%	0	29%	2	29%	2	43%	3	7(100%)
Engage in management and personal development	14%	1	0%	0	43%	3	29%	2	14%	1	7(100%)
Understand food legislation	0%	0	0%	0	29%	2	57%	4	14%	1	7(100%)
Average	1%		12%		38%		38%		11%		100%

Table A7.7. Nurse respondents' ratings of nutritionists' competencies in terms of importance

Competencies of nutritionists	Not important at all		Low importance		Mid-range importance		Important		Very important		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Conduct screening and needs assessment/situation analysis	0%	0	13%	1	13%	1	38%	3	38%	3	8(100%)
Assess nutritional status assessment methods of clients and groups	0%	0	13%	1	13%	1	38%	3	38%	3	8(100%)
Integrate, analyse and interpret nutritional assessment data	0%	0	13%	1	13%	1	50%	4	25%	2	8(100%)
Utilise appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutrition-related health issues	0%	0	0%	0	0%	0	63%	5	38%	3	8(100%)
Assess patient/client/group food preferences	0%	0	0%	0	13%	1	63%	5	25%	2	8(100%)
Determine nutrition service needs	0%	0	0%	0	0%	0	75%	6	25%	2	8(100%)
Assess nutrition training needs	0%	0	0%	0	25%	2	63%	5	13%	1	8(100%)
Plan, implement, monitor and evaluate appropriate nutrition interventions	0%	0	0%	0	25%	2	63%	5	13%	1	8(100%)
Collaborate with relevant stakeholders and community	0%	0	13%	1	25%	2	50%	4	13%	1	8(100%)
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	0%	0	13%	1	0%	0	75%	6	13%	1	8(100%)

Competencies of nutritionists	Not important at all		Low importance		Mid-range importance		Important		Very important		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Collaborate with the different members of the health care team	0%	0	13%	1	13%	1	50%	4	25%	2	8(100%)
Promote and monitor patient/client compliance with the nutrition care plan	0%	0	0%	0	25%	2	38%	3	38%	3	8(100%)
Compile and adapt normal and therapeutic menus to comply with patient/client and/or group needs	0%	0	0%	0	25%	2	25%	2	50%	4	8(100%)
Plan, execute and control food procurement, storage, production, distribution and consumption of the final product	0%	0	14%	1	29%	2	57%	4	0%	0	7(100%)
Standardise recipes	0%	0	0%	0	33%	2	67%	4	0%	0	6(100%)
Apply food quality standards	0%	0	0%	0	17%	1	83%	5	0%	0	6(100%)
Compile and interpret food specifications	0%	0	0%	0	0%	0	83%	5	17%	1	6(100%)
Integrate the food service system into nutrition service delivery	0%	0	17%	1	17%	1	67%	4	0%	0	6(100%)
Communicate effectively with individuals and groups	0%	0	13%	1	13%	1	50%	4	25%	2	8(100%)
Advocate for nutrition-related issues	0%	0	0%	0	25%	2	50%	4	25%	2	8(100%)
Engage in human resource management	0%	0	0%	0	50%	4	38%	3	13%	1	8(100%)
Engage in financial management	0%	0	13%	1	25%	2	50%	4	13%	1	8(100%)
Engage in programme planning and implementation	0%	0	14%	1	14%	1	57%	4	14%	1	7(100%)
Engage in programme evaluation	0%	0	13%	1	38%	3	25%	2	25%	2	8(100%)
Contribute to policy development	0%	0	13%	1	38%	3	38%	3	13%	1	8(100%)
Conduct research	0%	0	13%	1	13%	1	63%	5	13%	1	8(100%)
Perform nutrition monitoring and surveillance	0%	0	13%	1	25%	2	50%	4	13%	1	8(100%)
Collaborate with other professionals	0%	0	13%	1	25%	2	50%	4	13%	1	8(100%)
Engage in strategy development/selection	0%	0	13%	1	13%	1	63%	5	13%	1	8(100%)
Advocate nutrition throughout the life cycle	0%	0	0%	0	25%	2	63%	5	13%	1	8(100%)
Advocate nutrition and disease aetiology	0%	0	0%	0	25%	2	50%	4	25%	2	8(100%)
Engage in dietetic management of disease	0%	0	0%	0	25%	2	50%	4	25%	2	8(100%)

Competencies of nutritionists	Not important at all		Low importance		Mid-range importance		Important		Very important		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Promote nutritional science	0%	0	0%	0	13%	1	63%	5	25%	2	8(100%)
Use media skills	0%	0	38%	3	25%	2	25%	2	13%	1	8(100%)
Display ethical practice	0%	0	0%	0	13%	1	50%	4	38%	3	8(100%)
Engage in management and personal development	0%	0	0%	0	50%	4	50%	4	0%	0	8(100%)
Understand food legislation	0%	0	0%	0	25%	2	50%	4	25%	2	8(100%)
Average	0%		8%		24%		62%		22%		100%

Table A7.8. Nurse respondents' ratings' of nutritionists' competencies in terms of attainment

Competencies of nutritionists	Entry level		Capable		Competent		Proficient		Expert		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Conduct screening and needs assessment/situation analysis	0%	0	13%	1	50%	4	13%	1	25%	2	8(100%)
Assess nutritional status assessment methods of clients and groups	0%	0	25%	2	25%	2	25%	2	25%	2	8(100%)
Integrate, analyse and interpret nutritional assessment data	0%	0	25%	2	38%	3	13%	1	25%	2	8(100%)
Utilise appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutrition-related health issues	0%	0	25%	2	38%	3	13%	1	25%	2	8(100%)
Assess patient/client/group food preferences	0%	0	13%	1	25%	2	25%	2	38%	3	8(100%)
Determine nutrition service needs	0%	0	13%	1	25%	2	38%	3	25%	2	8(100%)
Assess nutrition training needs	0%	0	13%	1	63%	5	25%	2	0%	0	8(100%)
Plan, implement, monitor and evaluate appropriate nutrition interventions	0%	0	13%	1	50%	4	25%	2	13%	1	8(100%)
Collaborate with relevant stakeholders and community	0%	0	13%	1	75%	6	13%	1	0%	0	8(100%)

Competencies of nutritionists	Entry level		Capable		Competent		Proficient		Expert		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	0%	0	13%	1	50%	4	38%	3	0%	0	8(100%)
Collaborate with the different members of the health care team	0%	0	25%	2	63%	5	13%	1	0%	0	8(100%)
Promote and monitor patient/client compliance with the nutrition care plan	13%	1	0%	0	63%	5	25%	2	0%	0	8(100%)
Compile and adapt normal and therapeutic menus to comply with patient/client and/or group needs	13%	1	0%	0	50%	4	38%	3	0%	0	8(100%)
Communicate effectively with individuals and groups	13%	1	0%	0	50%	4	38%	3	0%	0	8(100%)
Advocate for nutrition-related issues	13%	1	13%	1	63%	5	0%	0	13%	1	8(100%)
Engage in human resource management	13%	1	25%	2	38%	3	13%	1	13%	1	8(100%)
Engage in financial management	0%	0	38%	3	38%	3	13%	1	13%	1	8(100%)
Engage in programme planning and implementation	0%	0	13%	1	75%	6	0%	0	13%	1	8(100%)
Engage in programme evaluation	0%	0	13%	1	75%	6	0%	0	13%	1	8(100%)
Contribute to policy development	0%	0	25%	2	63%	5	0%	0	13%	1	8(100%)
Conduct research	0%	0	13%	1	63%	5	13%	1	13%	1	8(100%)
Perform nutrition monitoring and surveillance	0%	0	14%	1	71%	5	0%	0	14%	1	7(100%)
Collaborate with other professionals	13%	1	13%	1	63%	5	0%	0	13%	1	8(100%)
Engage in strategy development/selection	0%	0	25%	2	50%	4	13%	1	13%	1	8(100%)
Advocate nutrition throughout the life cycle	0%	0	0%	0	75%	6	13%	1	13%	1	8(100%)
Advocate nutrition and disease aetiology	0%	0	38%	3	38%	3	13%	1	13%	1	8(100%)
Engage in dietetic management of disease	0%	0	38%	3	38%	3	13%	1	13%	1	8(100%)
Promote nutritional science	0%	0	25%	2	38%	3	25%	2	13%	1	8(100%)
Use media skills	25%	2	38%	3	13%	1	0%	0	25%	2	8(100%)
Display ethical practice	0%	0	13%	1	63%	5	13%	1	13%	1	8(100%)
Engage in management and personal development	0%	0	38%	3	50%	4	0%	0	13%	1	8(100%)
Understand food legislation	0%	0	13%	1	50%	4	13%	1	25%	2	8(100%)
Average	3%		18%		51%		15%		13%		100%

Table A7.9. Nurse respondents' ratings of competencies of dietitians/nutritionists in terms of importance

Competencies of dietitians/nutritionists	Not important at all		Low importance		Mid-range importance		Important		Very important		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Conduct screening and needs assessment/situation analysis	0%	0	0%	0	5%	1	37%	7	58%	11	19(100%)
Assess nutritional status assessment methods of clients and groups	0%	0	0%	0	16%	3	32%	6	53%	10	19(100%)
Integrate, analyse and interpret nutritional assessment data	0%	0	5%	1	11%	2	32%	6	53%	10	19(100%)
Utilise appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutrition-related health issues	0%	0	5%	1	11%	2	47%	9	37%	7	19(100%)
Assess patient/client/group food preferences	5%	1	0%	0	0%	0	63%	12	32%	6	19(100%)
Determine nutrition service needs	0%	0	0%	0	11%	2	58%	11	32%	6	19(100%)
Assess nutrition training needs	0%	0	5%	1	5%	1	53%	10	37%	7	19(100%)
Plan, implement, monitor and evaluate appropriate nutrition interventions	5%	1	5%	1	0%	0	58%	11	32%	6	19(100%)
Collaborate with relevant stakeholders and community	5%	1	0%	0	11%	2	42%	8	42%	8	19(100%)
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	0%	0	0%	0	16%	3	42%	8	42%	8	19(100%)
Collaborate with the different members of the health care team	0%	0	5%	1	5%	1	47%	9	42%	8	19(100%)
Promote and monitor patient/client compliance with the nutrition care plan	0%	0	0%	0	11%	2	50%	9	39%	7	18(100%)
Compile and adapt normal and therapeutic menus to comply with patient/client and/or group needs	0%	0	0%	0	16%	3	53%	10	32%	6	19(100%)
Plan, execute and control food procurement, storage, production, distribution and consumption of the final product	0%	0	11%	2	11%	2	42%	8	37%	7	19(100%)
Standardise recipes	0%	0	5%	1	11%	2	58%	11	26%	5	19(100%)
Apply food quality standards	0%	0	11%	2	5%	1	53%	10	32%	6	19(100%)

Competencies of dietitians/nutritionists	Not important at all		Low importance		Mid-range importance		Important		Very important		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Compile and interpret food specifications	0%	0	5%	1	11%	2	58%	11	26%	5	19(100%)
Integrate the food service system in nutrition service delivery	0%	0	11%	2	11%	2	61%	11	17%	3	18(100%)
Communicate effectively with individuals and groups	0%	0	0%	0	11%	2	50%	9	39%	7	18(100%)
Advocate for nutrition-related issues	0%	0	0%	0	11%	2	50%	9	39%	7	18(100%)
Engage in human resource management	6%	1	6%	1	17%	3	61%	11	11%	2	18(100%)
Engage in financial management	0%	0	6%	1	22%	4	50%	9	22%	4	18(100%)
Engage in programme planning and implementation	0%	0	0%	0	22%	4	44%	8	33%	6	18(100%)
Engage in programme evaluation	0%	0	0%	0	11%	2	67%	12	22%	4	18(100%)
Contribute to policy development	0%	0	11%	2	6%	1	61%	11	22%	4	18(100%)
Conduct research	0%	0	6%	1	11%	2	56%	10	28%	5	18(100%)
Perform nutrition monitoring and surveillance	0%	0	0%	0	11%	2	67%	12	22%	4	18(100%)
Collaborate with other professionals	0%	0	0%	0	6%	1	78%	14	17%	3	18(100%)
Engage in strategy development/selection	0%	0	0%	0	22%	4	61%	11	17%	3	18(100%)
Advocate nutrition throughout the life cycle	0%	0	0%	0	6%	1	67%	12	28%	5	18(100%)
Advocate nutrition and disease aetiology	0%	0	0%	0	22%	4	44%	8	33%	6	18(100%)
Engage in dietetic management of disease	0%	0	0%	0	6%	1	56%	10	39%	7	18(100%)
Promote nutritional science	0%	0	0%	0	12%	2	47%	8	41%	7	17(100%)
Use media skills	0%	0	6%	1	22%	4	61%	11	11%	2	18(100%)
Display ethical practice	0%	0	0%	0	17%	3	44%	8	39%	7	18(100%)
Engage in management and personal development	0%	0	0%	0	12%	2	65%	11	24%	4	17(100%)
Understand food legislation	0%	0	0%	0	18%	3	35%	6	47%	8	17(100%)
Average	1%		3%		12%		53%		32%		

Table A7.10. Nurse respondents' ratings of competencies of dietitians/nutritionists in terms of attainment

Competencies of dietitians/nutritionists	Entry level		Capable		Competent		Proficient		Expert		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Conduct screening and needs assessment/situation analysis	0%	0	9%	1	27%	3	36%	4	27%	3	11(100%)
Assess nutritional status assessment methods of clients and groups	0%	0	0%	0	27%	3	45%	5	27%	3	11(100%)
Integrate, analyse and interpret nutritional assessment data	0%	0	9%	1	36%	4	27%	3	27%	3	11(100%)
Utilise appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutrition-related health issues	0%	0	0%	0	45%	5	27%	3	27%	3	11(100%)
Assess patient/client/group food preferences	0%	0	0%	0	45%	5	27%	3	27%	3	11(100%)
Determine nutrition service needs	0%	0	0%	0	36%	4	36%	4	27%	3	11(100%)
Assess nutrition training needs	0%	0	9%	1	36%	4	27%	3	27%	3	11(100%)
Plan, implement, monitor and evaluate appropriate nutrition interventions	0%	0	9%	1	36%	4	27%	3	27%	3	11(100%)
Collaborate with relevant stakeholders and community	0%	0	0%	0	45%	5	36%	4	18%	2	11(100%)
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	0%	0	0%	0	45%	5	36%	4	18%	2	11(100%)
Collaborate with the different members of the health care team	0%	0	0%	0	36%	4	36%	4	27%	3	11(100%)
Promote and monitor patient/client compliance with the nutrition care plan	0%	0	0%	0	45%	5	36%	4	18%	2	11(100%)
Compile and adapt normal and therapeutic menus to comply with patient/client and/or group needs	0%	0	0%	0	45%	5	36%	4	18%	2	11(100%)
Communicate effectively with individuals and groups	0%	0	0%	0	45%	5	36%	4	18%	2	11(100%)
Advocate for nutrition-related issues	0%	0	0%	0	45%	5	36%	4	18%	2	11(100%)
Engage in human resource management	0%	0	0%	0	55%	6	27%	3	18%	2	11(100%)
Engage in financial management	0%	0	0%	0	55%	6	27%	3	18%	2	11(100%)
Engage in programme planning and implementation	0%	0	0%	0	36%	4	45%	5	18%	2	11(100%)
Engage in programme evaluation	0%	0	0%	0	45%	5	36%	4	18%	2	11(100%)

Competencies of dietitians/nutritionists	Entry level		Capable		Competent		Proficient		Expert		Total
	%	n	%	n	%	n	%	n	%	n	n(%)
Contribute to policy development	0%	0	0%	0	64%	7	18%	2	18%	2	11(100%)
Conduct research	0%	0	0%	0	64%	7	18%	2	18%	2	11(100%)
Conduct nutrition monitoring and surveillance	0%	0	0%	0	50%	5	30%	3	20%	2	10(100%)
Collaborate with other professionals	0%	0	0%	0	45%	5	36%	4	18%	2	11(100%)
Engage in strategy development/selection	0%	0	0%	0	55%	6	18%	2	27%	3	11(100%)
Advocate nutrition throughout the life cycle	0%	0	0%	0	55%	6	27%	3	18%	2	11(100%)
Advocate nutrition and disease aetiology	0%	0	0%	0	45%	5	27%	3	27%	3	11(100%)
Engage in dietetic management of disease	0%	0	9%	1	36%	4	27%	3	27%	3	11(100%)
Promote nutritional science	0%	0	0%	0	45%	5	27%	3	27%	3	11(100%)
Use media skills	0%	0	0%	0	55%	6	27%	3	18%	2	11(100%)
Display ethical practice	0%	0	0%	0	55%	6	27%	3	18%	2	11(100%)
Engage in management and personal development	0%	0	0%	0	45%	5	36%	4	18%	2	11(100%)
Understand food legislation	0%	0	0%	0	36%	4	36%	4	27%	3	11(100%)
Average	0%		1%		45%		31%		22%		100%



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CHAPTER 8: MANAGERS' PERSPECTIVES ON THE NUTRITION WORKFORCE

Chapter 8 covers the perspectives of managers working in the district health system as another layer in workforce development. A profile of the respondents is provided, including a description of their roles and the context in which they function. Managers reflected on the nutrition workforce roles, competency expectations, and performance of dietitians, nutritionists and nurses. They also highlighted training and implementation inefficiencies of PHN interventions. Key messages and references are presented at the end of the chapter.

8.1 Literature review

A prerequisite for achieving the health goals for the population is that the workforce is of adequate size and has the necessary skills. Globally, but more specifically in the South-East Asian and African regions, there are severe workforce shortages. The WHO estimates that if the status quo is retained, the gaps between the supply of and demand for services will worsen and countries will not be able to achieve their desired outcomes. They will also definitely not be able to provide universal health care to all (WHO, 2016).

Efficiency gains can, however, be made through the adoption of a more diverse and sustainable skills mix within the workforce, together with an emphasis on the PHC approach in service design. Strengthening PHC involves the decentralisation of management systems, including finances and infrastructure, which impacts the health workforce in terms of their roles and responsibilities. Health managers, health workers and national leaders have shared their perspectives in a paper by Kolehmainen-Aitken (2004). Local health managers want their employees to perform their functions efficiently and provide appropriate services that are well accepted by all whom they serve. The services provided should be targeted to meet prevailing health needs and delivered within available budgets, and local managers must assume responsibility for human resource management. Taking on this task can be quite challenging and may require that managers need to acquire additional skills in order to measure staff performance, supervise employees, ensure resources are available and capacity development takes place, and also ensure that staff are motivated and that disciplinary measures are within labour prescripts.

Managerial roles at national and provincial levels have changed as a result of the decentralisation of functions. Managers at the national level focus more on: strategic and long-term planning, resource management of the workforce, management of the entry into and

conduct of professional training and practice, maintenance of staff equity between decentralised units, and legal protection of staff. Managers at national and provincial level need the capacity to fulfil these functions (Kolehmainen-Aitken, 2004).

The decentralisation of services to strengthen PHC in South Africa has taken place through the district health system with preferably one authority delivering services in a particular area. Among the problems with the decentralised system in the South African context is the lack of accurate and timely HR information and functioning HR management systems at district and provincial levels. This includes proper job descriptions and performance evaluation systems, the inability of managers to relocate staff or create new posts, discrepancies in the application of human resource standards, inequity in terms of salary levels, a lack of employment and training opportunities, and an inability to integrate the local authority and provincial health services due to budgetary constraints (Kolehmainen-Aitken, 2004).

The two health authorities in the City of Cape Town provide one such case study where the integration of services has been so slow as to be practically impossible for more than 10 years; whereas in the rural parts of the Western Cape province, the integration of services has been possible.

Fritzen (2007) cited, in a review, the significance of planning strategically for the workforce as the absence of planning affects the overall performance of health care systems. In the context of the projected shortage of health workers by 2030, the Frontline Health Workers Coalition has posted on its website an article (dated 26 September 2017) on “Strengthening the health workforce to achieve the SDGs”. In the article, emphasis is given to how essential it is for policy makers to prioritise strengthening the health workforce. It is further stated that “a health system is only as strong as its frontline health workforce” and that advocacy and investment are needed by countries, organisations and institutions. The call is made for “action” and to move beyond discussion (Winner, 2017).

Frontline workers provide services directly to communities where they are needed and play an essential role in the prevention of malnutrition; thus they need to be supported by the health system. Nutrition (especially in the first 1000 days of a child’s life and beyond) is vital during the critical period to prevent stunting. Frontline workers can contribute tremendously, with preventative activities including screening, counselling, education and treatment (Frontline Health Workers Coalition, 2014).

8.2 Rationale and objectives

There is limited literature available on nutrition workforce development. To plan effectively and to make informed decisions, research is needed. In South Africa, there are no frameworks for planning the nutrition workforce which can inform the decisions of policy makers. The Professional Board for Dietetics and Nutrition regulates the scope of practice of the registrable nutrition professionals (dietitians and nutritionists). Nurses are among the key frontline workers who implement nutrition interventions in the health system and their scope of practice and roles are regulated by the SANC.

However, at implementation level decisions are influenced by managers who make the final staff appointment decisions. Managers also influence how services will be delivered and are thus a key stakeholder in the process. How activities are to be implemented by the workforce is normally signed off through job description agreements where employers agree with employees what they expect as outputs. In the absence of evidence-based knowledge it was important to obtain inputs from managers working in the public health system with a focus on PHC.

The objective was to obtain inputs from public health services managers in their capacity as key informants by exploring their perceptions of the roles, responsibilities and competencies of dietitians, nutritionists and nurses working at the PHC level as part of the delivery of district health services.

8.3 Methods

A qualitative, descriptive study was used to obtain the perspectives of managers in the public health system with a view to understanding the nature of their interactions with the nutrition workforce. In the study, participants were asked to describe the activities of the nutrition workforce in their own words and suggest ways of improving the situation. Grounded theory was also applied whereby the thoughts of the participants were derived from the data to offer insight, enhance understanding and provide a meaningful guide to action (Isaacs, 2014; Khan, 2014).

Sampling

Purposeful sampling measures were applied, including individuals who could relate to the nutrition workforce. Managers targeted were those responsible for the governance of the district health services. A list was drawn up of all the potential participants in the Western Cape with the exclusion of managers in other provinces due to limited resources available. The

following service managers were targeted: district managers and managers responsible for all the relevant sub-components of district health services, i.e. comprehensive health, primary health care, facility-based, community-based and nutrition services. Managers were drawn from all six districts in the Western Cape. The reason for including a range of managers was to obtain as many different views as possible. No set formula was used to calculate the sampling size but data saturation was considered based on the information that came forward.

Participant recruitment

Permission was obtained from the Western Cape Provincial Research Committee after registering the study on the National Research Database to interview staff through face-to-face and telephonic interviews (refer to Addendum 6). Pre-existing relationships existed between the researcher as the provincial manager for the nutrition programme and the participants. It was specified from the start that participants should not feel obliged or coerced to participate and that participation was entirely voluntary.

Instrument

A list of questions in English used by advanced-level practitioners in Australia (Hughes, 2003a, 2003b) was adapted for use with the managers. The questionnaire was reviewed by the researcher and supervisors. Initially, 25 questions were drafted which were amended after a thorough review of the objective of the study and taking into account managers' time constraints. The semi-structured questionnaire was finalised, including 10 key questions for managers (see Addendum 7) to reflect on and inform future planning and to provide context to the factors that influence their decisions. Informed consent was obtained in all instances.

Data collection and management

An initial email was sent to managers to request an appointment for telephonic interviews and/or for them to provide written responses. The semi-structured questionnaire and basic information on the research study was shared with the managers. They could decide to complete the semi-structured questionnaire and offer their reflections in writing, and then return this to the researcher. Alternatively, a trained research assistant set up appointments and conducted interviews over a two-week period with those managers who had chosen to be interviewed. Informed consent was obtained before the interviews were conducted. The interviewer kept to the semi-structured question outline and did not prompt participants so as not to influence their perceptions or answers in any way. This particular approach was followed to acquire an understanding of the interviewees' perceptions and to encourage the candid

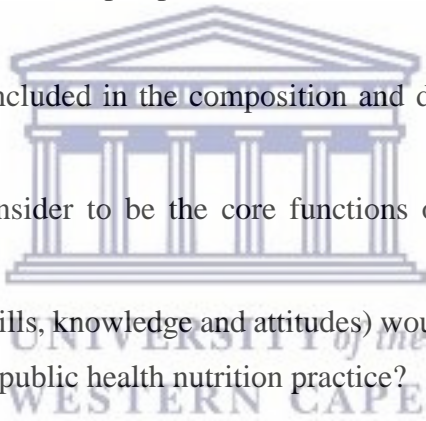
sharing of information. The role of the researcher was to interpret and analyse what was shared (DiCicco–Bloom & Crabtree, 2006).

Analysis

Data was recorded, transcribed and captured verbatim on a master sheet and read, re-read and studied by the researcher to make sense of what was said, as well as to reflect on what stood out in relation to the questions and study aims.

Coding was done by assigning key words to the sections, and the codes were then grouped into themes and/or categories. Evidence of connections between codes was sought as well as whether there were associations between codes. Thematic analysis was performed and narrative quotes from respondents were included in the findings to exemplify their thoughts.

The themes were reviewed in the context of adapting the inquiry logic questions used in the Australian research in relation to the perspectives of advanced-level practitioners (Hughes, 2003a, 2003b):

- 
- Which managers are included in the composition and definition of the public health nutrition workforce?
 - What do managers consider to be the core functions of the public health nutrition workforce?
 - What competencies (skills, knowledge and attitudes) would managers identify as being necessary for effective public health nutrition practice?
 - What do managers consider to be the defining competencies of the public health nutrition workforce?
 - How do managers feel about the implementation of current nutrition interventions? and
 - What are the opinions of managers about the existing workforce capacity, focussing on dietitians, nutritionists and nurses?

To enhance the rigour of the research, triangulation of data was done, with other sources of the workforce study described in Chapter 9.

8.4 Findings

The findings on respective roles and competencies are presented according to the following groups: senior managers, middle managers and nutrition managers.

8.4.1 Participant description

A total of 17 managers were interviewed working across the six districts in the province. The diverse manager group represented all categories of managers who were involved in the delivery of services in the district health system, with a focus on PHC. The managers who agreed to be interviewed and/or who opted to send their written reflections on the open-ended questions were as follows: nutrition managers (7), assistant managers, facility-based services (FBS) (2), community-based services (CBS) (2), district directors (2), comprehensive health programme manager (1), primary health programme manager (1) and programme managers for child health services (2). Managers could be grouped into three main groups as per their level of management: senior managers - directors, middle managers – comprehensive health, and nutrition managers who were part of middle management but were responsible for implementation and were therefore kept as a separate group.

8.4.2 Current roles of participants

It was important to understand the participants' current roles but also the context of their perceptions and their level of interaction with the workforce.

How the different categories of managers described their current roles is summarised in Table 8.1 below.

Table 8.1. Summary of managers' descriptions of their current roles

Manager category	Current roles
Senior managers Directors	<ul style="list-style-type: none">• Responsible for all health programmes in the sub-structure, including hospitals, PHC and CBS.• Building relationships with other departments and stakeholders to improve the lives of the people in the geographical area.• Responsible for service delivery in the sub-structure.
Middle managers	<ul style="list-style-type: none">• Overseeing implementation, supervisory role and mentorship role.• Coordinating clinical programme for child health services.• Responsible for comprehensive health services and programmes (child health, nutrition, women and maternal health, mental health, chronic disease management).• PHC management in sub-district; managing all district health services.• Responsible for community-based services in the district.• Operational and strategic management.• Clinical support and implementation of health policies.• Financial planning and control, HR planning and management.
Nutrition managers	<ul style="list-style-type: none">• Co-ordinating nutrition services and programmes in the district.• Translating nutrition policy into an implementation plan.

Manager category	Current roles
	<ul style="list-style-type: none"> • Co-ordinating nutrition sub-programmes/interventions. • Implementing policy and guidelines. • Providing technical support to the dietitians within the sub-structure. • Monitoring the nutrition budget, including the NPO budget. • Placing orders for facilities and ensuring correct stock levels are maintained.

Managers elaborated on the roles played by the three groups in the quotations appearing below. They are indicative of the fact that a senior manager's role is more strategic, that of a middle (operational) manager involves more supervision and implementation oversight, while that of a nutrition manager involves coordinating the implementation of the nutrition programme.

Senior managers:

“Look, basically my role is to provide strategic direction and leadership....to my executive team and the sub-structure itself and to ensure governance to also be responsible for stewardship and linking all sectors together to look at the social determinants of health and to look at the whole system for an approach towards health and service delivery and to also look at the service priorities that are identified in the department and also the area that we are responsible for. To also be responsive to the Burden of Disease in our geographical area and to work collaboratively across all the service delivery platforms and to bring about some form of coherence in the system.”

“I co-ordinate all health programmes within DHS and I support PHC services and am the project manager of all new health projects within the district.”

Middle manager:

“Managing the sub-district through my other managers, including PHC assistant managers, clinical governance/family physician, HAST coordinator/CBS coordinator pharmacy, finance, HR and building relationships in the geographical area.”

Nutrition manager:

“Implement policy and guidelines. Provide technical support to the dietitians within the sub-structure. Monitor the nutrition budget, including the NPO budget. Place orders for facilities and ensure correct stock levels are maintained.”

From the above table and the quotes, it is clear that the roles of the managers differed according to the level of management. The district managers had oversight over all services in the DHS and were the strategic leaders. The middle managers were involved in the operational management of the services, be it FBS or CBS. Nutrition managers focused specifically on the operational management of nutrition-specific services and programmes. Equity was questioned as one of the districts had not been allocated a nutrition manager post and it was expected that the person who needed to implement the service also needed to fulfil the manager’s role.

“I am managing and implementing the INP in the district in absence of an INP-manager’s post. All the districts got a post, but not the district *x* in the Western Cape.”

8.4.3 Descriptions of the composition of the nutrition workforce

Managers were asked to describe the composition (demographic, qualified professionals and numbers) of the public health nutrition workforce. Table 8.2 below provides a summary of themes from the data received. Most nutrition managers could give details of the qualifications of dietitians and how many dietitians were in the workforce. Everyone indicated that the number of staff was insufficient for the areas they had to cover. Some of the senior and middle managers were unsure of the numbers of nutrition staff but knew that there were dietitians in the workforce.

Table 8.2. Summary of workforce descriptions and composition themes

Theme	Quotations
Workforce definition is wider than nutrition professionals	“...what is the nutrition workforce – what is your definition? I see all health professionals as part of the nutritional workforce – they not always competent and skilled in all nutritional aspects, but definitely a major role player.”
No clarity on workforce composition	“I don’t know because my deputy director for comprehensive health programmes is responsible for that but I do have a dietitian that kind of does the central co-ordination for us so she’s in our office probably 30% of the time, sometimes she is out in the field and then there’s another one that works closely with her but I really don’t know how many we have hey, I don’t know how many we have in the sub-structure, probably about 6 or something but I stand corrected. I’ll have to check for you.”
Insufficient number of dietitians	<p>“Here is 2 dietitians: I really think it is “understaffed” to reach a community which is far-spread. The population is only 60 000 yes, but it is 5 hospitals, 8 towns, 12 clinics. Over years the DOH’s staff in terms of Admin, and Nursing, even Doctors etc. increased a lot. It will be very interesting to compare the different staff-components “increase” over the years. I am sure Allied Health (and Nutrition) stagnated in staff-numbers, although multiple functions and responsibilities were added.”</p> <p>“Distribution of dietitians working in the service is also not sufficient for the workload required of them.”</p> <p>“There is one dietitian per sub-district that delivers a service at the hospital and clinics in Community.”</p> <p>“Limited and thinly spread: 1 Coordinator plus 3 dietitians, very large area to service. Spend much time on the road, etc.”</p>
Job functions of dietitians not focussed enough	“But basically they make sure that the facilities are sorted in terms of compliance, they double check to see whether the stock is ordered accordingly to the correct tender, they also co-ordinate special functions like with breastfeeding week and with wellness issues, they align to the first 1000 days as well and various other priorities so that is more or less what they do. Even though there is co-ordinators in our office, they sort of create a team to support each other and all of those things.”
Dietitians well qualified	“If the area is the Province: The qualifications of the dietitians are good but the numbers are inadequate, especially in the community setting.”
Nutrition managers’ capacity inadequate	“There are no INP managers with a sufficient nutrition background coordinating nutrition services in all districts and substructures.”

8.4.4 Perceptions of core functions of the nutrition workforce

Managers gave their inputs on what they considered to be the core functions of the nutrition workforce (refer to Annexure Table A8.1).

Overall, managers indicated that dietitians were responsible for all nutrition activities, including prevention, promotion, treatment and rehabilitation services in the facilities and communities. The middle managers gave more specific and extensive inputs on what they saw as the core functions, including specific interventions. In some instances they provided more detailed information than the nutrition managers.

One of the nutrition managers' responses suggested that the functions should be determined by the needs of the community.

“I would think that the core function will differ due to circumstances and focus areas. I would like to think that it must be to support with professional scientific knowledge to improve the nutritional status of the community.”

8.4.5 Competencies of the nutrition workforce

The managers were asked what competencies they would identify as being necessary for effective public health nutrition practice. Competencies were quantified as skills, knowledge and attitudes. Annexure Table A8.2 summarises the main competencies as gleaned from the responses. The competencies (knowledge, skills and attitudes) provided by all managers are indicated in Table 8.3 below.

Table 8.3. Competencies of the nutrition workforce as supplied by all managers

Knowledge	Skills	Attitudes
<ul style="list-style-type: none"> • Qualified in the field of nutrition • Burden of Disease • Nutrition assessment • Nutrition interventions and management of patients • Data management • Public health • Human nutrition • Anthropometry • Nutrition policy • Nutrition interventions 	<ul style="list-style-type: none"> • Time management • Economic • Innovation • Communication • Facilitation • Computer literacy • Administration • Financial management • Analytical • Programme coordination • Interpersonal • Leadership • Presentation 	<ul style="list-style-type: none"> • Caring, especially towards customers • Resilient • Positive • Willing to help • Friendly • Empathetic • Team player

From the table it is evident that all managers agreed that the workforce needed knowledge and to be qualified in nutrition science, human nutrition, disease management and nutrition practice. Broader knowledge areas of public health, the BoD, nutrition policy and the management of data were also identified. This pointed to the fact that managers saw the workforce operating holistically, thus needing broad knowledge in health practice. The skills and attitudes identified seemed to be very specific to the health workforce.

8.4.6 Differences between dietitians and nutritionists

The responses to the question as to whether managers knew the difference between dietitians and nutritionists were quite astounding, as can be seen from the quoted text below. All the respondents were not too sure what the differences were and there was clearly great confusion among managers. Explanations of a dietitian showed much variation, with most respondents indicating that dietitians have both formal qualifications and training in nutrition.

“Dietitian: Part of the health team by giving nutrition treatment for patients with diagnosed diseases in hospital/clinics.”

“A dietitian has a four-year University degree and is more skilled and specialised and can provide one-on-one therapy and can make a diagnosis after assessment.”

“Dietitian: is a graduated allied health professional.”

“Dietitian: can work clinically in tertiary and secondary hospitals.”

“Dietitians use evidence-based science in nutrition to formulate eating plans for individuals who require special plans based on their medical conditions. They can also work in public health settings to advise groups of people on healthy eating. They are also qualified to work in the food service field. Dietitians are regulated by law.”

Explanations of nutritionists were just as diverse, with only one respondent providing an answer that was close to being correct:

“A nutritionist has a 2-year diploma, is mostly focussed on health promotion in communities. A dietitian is more skilled and specialised and can provide one-on-one therapy and can make a diagnosis after assessment.”

“Nutritionist: Give ‘education’ to general public with regards to general health aspects.”

“A nutritionist does not have a degree but a certificate or diploma and can work only in hospitals in the ‘voedseldiens’ (food service) and has a great contribution towards the menus of hospitals.”

“A nutritionist is responsible for the provision of feeding information.”

“Nutritionists work more in public health settings and give general nutritional advice to groups.”

“Nutritionist: provide public health interventions, no curative care and a dietitian: provide public health interventions and curative care.”

Some of the statements clearly indicated that participants did not know the difference:

“You know, I’m going to take a shot at that one. I think that a dietitian is the one... I don’t want to say higher qualified but I think they got level of, well, a degree or competency to allow him or her to do a proper assessment, maybe to kind of like prescribe what the clients require and so on, and I see the nutritionist maybe as the one that ...also looks at and gives the right advice and nutritional advice and can counsel and advise and can guide the client through a process but I don’t know whether they could prescribe you know nutritional products or whatever is required for the client so I think in my mind a dietitian is probably to say higher qualified you know and I think there was a time when it was a nutritionist then it became a dietitian and it was a higher qualification, something like that I recall, but yeah I really...that’s kind of my total understanding of it.”

“The training received is different. Being a registered dietitian indicates one has received the highest level of training needed. The qualification is different.”

“I am not completely sure of the difference, we are both experts in nutrition. I think it’s the qualification that differs. In my mind I think that a dietitian has a degree in dietetics and is able to do all components of nutrition, e.g. counselling, therapeutic, community and food service, whereas a nutritionist may not have a degree so they do more community work and not necessarily counsel patients within a clinical setting.”

8.4.7 Nutrition roles of dietitians, nutritionists and professional nurses

Managers were asked to give an indication of how they viewed the roles of dietitians, nutritionists and nurses in their district/sub-district as these apply to public health nutrition.

Annexure Table A8.3 provides summaries of the roles of the three professionals, as identified by the managers. Despite managers not knowing the difference between nutritionists and dietitians, they were able to provide inputs for the respective roles. A few managers indicated that they did not have nutritionists and could not give an indication of their roles. A worrying comment from one of the managers was that there was not much difference in the roles of the three, i.e. “Nurses do the same work as dietitians and nutritionists but not as in-depth.”

8.4.8 Managers’ expectations of competencies of dietitians, nutritionists and professional nurses

Managers expected all three professionals to be competent and qualified in what they did, and to display certain generic competencies, such as providing training, and engaging in quality improvement planning and ensuring that staff showed competence in practice. More details are provided in Table 8.4 below:

Table 8.4: Managers’ expectations of the competencies of dietitians, nutritionists and nurses

Dietitians	Nutritionists	Professional nurses
<ul style="list-style-type: none"> • BSc Dietetics degree and postgraduate qualification • Completed modules in areas of interest, e.g. clinical, food service or curative care • Training in policies/updates on new developments/tendencies, skills, etc. • In-depth knowledge of patient assessment and food ingredients that will assist patients • Communication skills for interpersonal intervention • Competent in all areas of dietetics • Involved in quality improvement planning 	<ul style="list-style-type: none"> • Professional qualification as a nutritionist • Public health and programme expertise • A general understanding of what the dietitian knows • Ability to convey information in a coherent and understandable way • Competent • Involved in quality improvement planning 	<ul style="list-style-type: none"> • Degree or diploma as a professional nurse or higher • Basic nutrition training and guidance from dietitian/INP coordinator (mother/baby-friendly initiative/severe acute malnutrition/other nutrition-related topics) • Know-how to refer clients • Clinical examination skills • Knowledge of nutritional assessment and healthy lifestyle intervention • Knowledge of community health issues • Competent • Involved in quality improvement planning

It should be noted that some managers indicated that nutritionists should have a general understanding of what dietitians know. There was acknowledgement that nurses should be supported by dietitians.

8.4.9 Addressing training needs of dietitians, nutritionists and professional nurses

Suggestions for addressing the training needs of the three professionals by managers were:

- There should be more departmental training on chronic disease management, e.g. diabetes, for dietitians.
- Professional nurses should receive continuous professional development on healthy lifestyle interventions and on-the-spot, in-service training by dietitians.
- Combine interdisciplinary training, focus on more generic training (public health-related issues) and provide in-service training of teams.
- Use all possible opportunities for training, e.g. workshops, meetings, conferences, in-service-training, train the trainer and e-learning.
- Training should be incorporated into individual development plans.
- Proper training analyses should be done.
- Online, accredited courses should be devised which could be in the form of short diploma courses.
- An in-service programme, which is competency-based, should be devised for all dietitians in public health.
- Nutrition trainers should be employed in training units.

8.4.10 Effectiveness of public health nutrition interventions

An open question was posed to managers to reflect and provide their thoughts on whether they thought the current public health interventions in their settings were addressing the nutrition challenges.

Managers gave lengthy inputs indicating mostly that there was no effectiveness in the system:

“Currently we are working more curatively than preventatively. We need to go back to focusing on working preventatively. I think it is very ineffective. Nutrition programming planning is too scattered. There is a dire need to focus on one domain, e.g. exclusive breastfeeding, supplementation, curative services, etc. and commit to a medium-term plan to address and sustain that area and then move strategically to the next area. It is ineffective to stretch such a thinly spread resource that is very poorly connected to supporting services such as health promoters, community organisations and nursing in various directions. If I could choose I would interrogate the Burden of Disease in the district, prioritise health needs and plan in order or trend/BoD the activities in the district. It also feels as though the nutrition programme is not concrete, the efforts are not recorded

and marketed appropriately and this lack of M&E framework portrays the dietitians as not meaningfully contributing to aspects of health promotion, curative intervention, cost saving (decrease hospital stay) or rehabilitation.”

Some managers pointed out some positives and provided advice in areas where they thought things were not working so well:

“There are some good intervention strategies currently but more needs to be done on a national level to move away from the magic bullets and move to a health/food systems approach.”

“More dietitians working in all the sub-districts will have a far better impact. They are currently too thinly spread. Decrease the money for Nutrition Therapeutic Programme and rather re-use it to place more dietitians in the field to educate and treat the people than to do ‘hand-outs’ which are often ‘mis-used’.”

“It seems at ground-level that the Department of Social Development’s Nutrition-projects” (e.g. Zero-Hunger, etc.) are poorly managed, mostly ‘non-existing’ and have no impact. Either DoH must do that via newly appointed dietitians, or just leave the projects and use the money for education. The impact will be better.”

Some of the managers clearly qualified their statements and felt that the staff shortages, vertical implementation and the lack of prioritisation were barriers to efficiency:

“Not effective enough. Too little dietitians and other staff. Staff get tired and burnt out because of heavy load – not having enough time to do everything thorough. Dietitians driving very far.”

“At the moment the nutritional intervention happens in a vertical way and is therefore less effective. The social determinants of health have a huge impact on the patient’s wellness. If it was more integrated as part of a multidisciplinary approach it would yield more results.”

“Currently they make a very little impact with the huge social burden, poverty plays a huge role. Too little, too late sometimes, don’t have enough focus on nutrition and nutrition is seen as a programme by some people and not part of an integrated health approach.”

8.5 Limitations

The time constraints and preferences of managers led to their using different data collection methods, i.e. oral and written. However, as these managers were highly literate, their written responses were detailed and self-explanatory.

8.6 Discussion

Yuan (2001) has shown that written data-gathering and oral data-gathering techniques have the same drawbacks and that the methods should be decided by the research questions and objectives of the researcher (Yuan, 2001).

Most managers identified the nutrition workforce as dietitians, providing exact numbers placed at facilities and/or in districts. Building relationships and working in a team were important aspects for the managers. The staff shortages in various functions were noted and managers were of the opinion that other health professionals should be considered as part of the nutrition workforce.

Overall, managers felt that the nutrition workforce was responsible for providing nutrition services, which include preventative, clinical/therapeutic, rehabilitative and promotive services, which should be delivered at all levels of care. The competencies and roles named by managers are comparable to the global public health nutrition competencies (Hughes et al., 2011). A number of training options to address needs were suggested which could be further explored.

Most to all of the managers did not know the difference between dietitians and nutritionists. There was recognisable confusion among managers judging from their dissimilar responses. Confusion was also visible between dietitians and nutritionists, with some managers wanting nutritionists to have a general understanding of what dietitians do.

Managers were generally not positive about the impact of nutrition interventions in terms of their implementation and recommended that more integrated vs. vertical programmatic approaches are needed. Opportunities do exist to improve implementation by learning from historical lessons and managing clients more holistically. There were also suggestions by managers that more focus should be given to a few key interventions, especially in light of staff shortages. Some nutrition managers also cited the challenge that nutrition is not given sufficient priority, yet positive outcomes are expected even with there being full knowledge of nutrition staff limitations.

8.7 Conclusion

The qualitative information provided by managers provided useful insights that can be used to plan for and address challenges associated with the nutrition workforce so that nutritional outcomes can be improved. Service planning, however, needs to include the nutrition workforce. Managers' poor understanding of the different nutrition professionals and their roles might have distorted their ability to provide leadership towards effective implementation. The negative perception of the nutrition workforce's performance seems to occur in an environment in which there is not enough information to make an objective judgement. It is not entirely clear what the basis was for the strong perception that nutrition services are only delivered vertically if they form part of comprehensive health services; perhaps it is rather an issue of prioritisation, leadership and support? The absence of nutrition workforce frameworks left managers without any direction to plan for the nutrition-related Burden of Disease as part of health systems planning.

8.8 Key messages from managers' perceptions

- Managers recognise the dangers of putting the blame for poor nutrition on the health workforce.
- Not all managers know the differences between dietitians and nutritionists, which can lead to confusion about their respective roles.
- The limited availability of dietitians in the health service due to limited posts is a barrier to implementation of nutrition-related initiatives.
- The competencies of the workforce specify several nutrition-specific qualifications but also many generic areas of competence.
- Professional nurses should be provided with support from nutrition professionals.
- Inequity exists in the allocation of posts, including those of nutrition managers.

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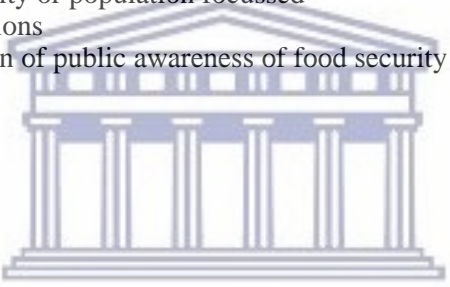
Table A8.1. Managers' responses on the nutrition workforce's core functions

Senior managers	Middle managers	Nutrition managers
<ul style="list-style-type: none"> • To provide community, stakeholder and one-on-one patient prevention, promotion and care as they relate to nutritional lifestyle changes both from a preventative and curative perspective. • To see to the nutritional requirements of the population for which they are responsible due to, for example, under-nutrition or obesity. • To engage in general nutrition and chronic disease management, encompassing all nutrition requirements. 	<ul style="list-style-type: none"> • To provide nutrition-related therapeutic services to patients. • To ensure that there are health promotion and breast feeding programmes in place. • To provide community, stakeholder and one-on-one prevention, promotion and care as they relate to nutritional lifestyle changes both from a preventative and curative perspective. • To be a consultant to the PHC staff when they need help. • To consult with hospital dietitians regarding in-patients. • To ensure that every client has access to nutritional health information and care. • To promote, support and implement the mother/baby-friendly initiative. • To improve complementary feeding through continued breastfeeding, supplementary feeding, and growth monitoring and promotion. • To ensure optimal maternal nutrition during pregnancy and introduce lactation treatment of malnutrition during pregnancy. • To promote healthy eating habits for specific dietary problems and to reduce the risk of chronic diseases. • To render dietetic services at all clinics in the sub-district. • To take part in community -based services and activities, e.g. visiting crèches and community kitchens, and liaise with other departments. • To administer the sub-district's allocated financial budget for HFBNP. • To provide feedback (i.e. information, stats) regarding targets, processes, etc. 	<ul style="list-style-type: none"> • To co-ordinate the following interventions: <ul style="list-style-type: none"> ○ Mother/baby-friendly initiative/breastfeeding restoration ○ Severe acute malnutrition ○ Moderate acute malnutrition ○ Community-based services ○ Child health ○ Chronic care ○ Nutrition rehab programme ○ Health days ○ Food services ○ Crèche programmes • To implement policies and interventions, monitor the services, provide patient care (curative services), and advocate for the service and nutrition as a health promotion avenue. • To co-ordinate and execute nutrition-related programmes/initiatives with the help of non-nutrition staff (nursing/allied/non-clinical/community health workers). Organise sufficient training to encourage the abovementioned to help with the programme. • To improve the nutritional status of patients. • To ensure that policies and guidelines are implemented. • To ensure that nutrition programmes are implemented in the facilities. • To advocate disease-specific nutrition and provide counselling • To organise community outreach. • To provide infant and child nutrition services. • To provide maternal nutrition services.

Table A8.2 Managers’ responses on essential competencies of the nutrition workforce

Senior managers	Middle managers	Nutrition managers
<ul style="list-style-type: none"> • A broad knowledge of diseases and the specific burden in the geographical area. • An understanding of nutritional assessment and the interventions required to assist with the improvement of patients’ health. • An understanding of data (an advantage). • Time management skills so as to provide an efficient service. • Insights into public health. • A caring attitude. • Customer care in order to build rapport. • Qualified in their field. • Understanding of the whole society approach. • Understanding of the quadruple Burden of Disease and chronic diseases. 	<ul style="list-style-type: none"> • Understanding of the health system – ensuring linkages to appropriate care and resources. • Knowledge of human nutrition and focussed areas within the health sector. • Very resilient and able to work in interdisciplinary teams. • Economic skills and visionary insights. • Knowledge of economics, agricultural support and healthy lifestyles. • Willingness to help and reach out. • A zero-tolerance attitude to corruption. • A broad knowledge of diseases and the specific burden in the geographical area. • An understanding of nutritional assessment and the interventions required to assist with the improvement of patients’ health. • Ability to speak the language of the patients/clients to ensure they understand the importance of doing certain things. • Friendly and empathetic and caring attitude towards the client. • Knowledge of relevant policies and protocols. • Facilitation skills. • Computer literacy. • Willingness to travel. • Skills in analysis and interpretation of the sub-district’s stats. • Anthropometric skills and knowledge. • Financial skills to work with budgets. • Administration skills. 	<ul style="list-style-type: none"> • Analytical skills • Socio-cultural and political skills • Planning skills • Implementing skills • Communication skills • Organising skills • Management and leadership skills • Professional accountability • Logical and systematic thinking ability • Ability to be innovative in approaching community or clinical situations • Natural aptitude for learning • Ability to relate well and communicate well with other disciplines and departments • Confident in presenting the programme • A good moral compass, and inherent understanding and values such as integrity, compassion and respect • Policy development skills • Programme coordination skills • Assessment skills • Knowledge of all systems that impact on nutrition and vice versa • Knowledge of gathering stats and how to interpret and use them • People skills, creativity, computer and cooking skills, team leader attributes • Knowledge of nutrition, tenders and programmes • Patience and willingness to help BSc in Dietetics • Passion for community work • Mother/baby-friendly initiative and breastfeeding training. • Training of trainers and assessors courses • Knowledge of relevant policies and guidelines to implement effective nutrition services within the facilities

Table A8.3. Managers' perceptions of the roles of dietitians, nutritionists and professional nurses

Dietitians	Nutritionists	Professional nurses
<ul style="list-style-type: none"> • Provision of therapeutic services • Health promotion • Disease prevention • Treatment and support • Counselling and rehabilitation • Service leadership • Education in policy matters • Co-ordination of local advocacy • Individual dietetic counselling of patients • Education in nutrition for health professionals • Education in nutrition for groups in relation to specific disease conditions, e.g. NCDs • Training of other staff • Programme management • Nutrition screening • Community outreach • One-on-one, group or community-focussed interventions • Diagnosis determination and associated treatment in line with the correct diet. • Expert advice on any nutritional challenges or illness-related nutritional advice • Provision of advice to doctors in respect of patients' diets in hospital and the community. 	<ul style="list-style-type: none"> • Nutrition advocacy • Public health intervention leadership • Health promotion and disease prevention • Provision of community services • Education of groups and individuals in general healthy eating but not disease-specific topics • Nutrition screening • Nutrition training • Home visits • Community or population focussed interventions • Promotion of public awareness of food security <div style="text-align: center;">  <p>UNIVERSITY of the WESTERN CAPE</p> </div>	<ul style="list-style-type: none"> • Health promotion and education • Programme implementers and provision of support • Integration of key services staff • General health education on specific topics, e.g. breastfeeding, complementary feeding, NCDs (after training by a dietitian) • Implementation of nutrition interventions, e.g. Nutrition Therapeutic Programme • Nutrition screening and basic education and history • Referral to dietitians if needed • Holistic management of patients within scope of practice, inclusive of nutritional education, and if a more specialist intervention is required, refer to the dietitian • Follow SoP, scripts – adhere to nutrition instructions

CHAPTER 9: NUTRITION WORKFORCE DEVELOPMENT FRAMEWORK

Chapter 9 brings together all the findings from the previous eight chapters. All these parts relating to HRH workforce development are integrated into one in this chapter.

Health systems thinking is applied to the problem statement, together with research questions applicable in the South African context and the related Burden of Disease. The elements of literature, workforce capacity, workforce development and planning are consolidated with the evidence from the workforce surveys and engagements with managers. The workforce is described and roles delineated through an agreement process followed by triangulation of all data sources. A workforce framework intended to guide managers in their planning is proposed incorporating the agreed definitions, roles and responsibilities of the nutrition workforce. Based on the findings, a workforce development framework is proposed. Key findings are then incorporated into key messages. Applicable references are listed at the end of the chapter.

9.1 Literature review

Human resources are “health system building blocks” and can be seen as a sub-system of the health system (Fujita et al., 2011: 5). One of the ways in which to implement the SDGs – especially Goal 3 (‘Ensure healthy lives and promote well-being for all ages’) – is by responding to the challenge sent out to developing countries to increase health financing and the health workforce in order to achieve universal health coverage (Campbell, 2016).

The call for an increase in health financing was objected to by some authors as it seems unrealistic for countries to increase their budgets if they are already struggling with their existing financial resources to meet the health needs of the population (Cometto & Campbell, 2016).

The Global Human Resources for Health (HRH) strategy towards 2030 points to four key areas in which health systems should be strengthened in order to effect change. The workforce should be boosted to be fully functional in terms of education, employment, retention and training. Planning is necessary to ensure that the workforce is fit for purpose and able to respond to the needs of the population through the strengthening of workforce capacity and systems (WHO, 2016a). The 69th World Health Assembly (WHA) recommended specific actions in four key areas. South Africa as a country supported these recommendations. Following the WHA, the High Level Commission on Health Employment and Economic Growth made recommendations to mobilise the political heads to invest in the workforce – particularly in

education and training to ensure that health workers have the necessary competencies to respond to the needs of the population, considering the Burden of Disease and demographics. At the same time milestones towards 2030 were set for countries which included aspects relating to the health workforce, i.e. co-ordination, regulation, accreditation, enumeration, monitoring and evaluation. To respond to HRH systems thinking, more comprehensive approaches are needed which should include comprehensive assessments and responses based on experience and evidence from the field, which could be validated when applied in different settings (Fujita et al., 2011).

A “house model” as an HRH framework (see Figure 9.1), incorporating the World Health Organization HRH Action Framework, was proposed by Fujita et al. (2011) from lessons learned from Afghanistan, the Democratic Republic of Congo and Cambodia. The available human resources form the foundation of the house. Planning for HR in an entire system includes focussing on the legal, regulatory and policy frameworks and links to core functions as well as human resource management processes such as production, deployment and retention. Through coordination, monitoring and evaluation, the needs of the workforce can be identified. The roof of the house represents the health systems responding to the needs of the population from a human resource perspective (Fujita et al., 2011).

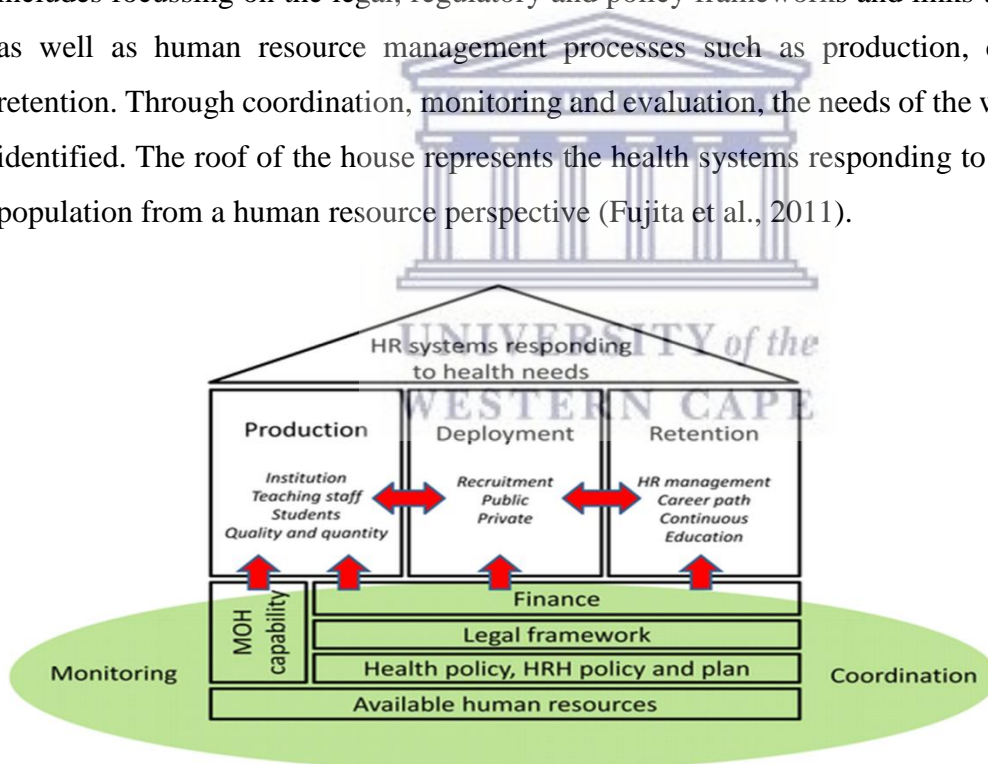


Figure 9.1. Human Resources for Health (HRH) systems development analytical framework – the “house model”

Source: Fujita et al. (2011)

The WHO has used a conceptual framework to reinforce the central role of HRH in order to provide universal health coverage (UHC) to the population. UHC means that all people and

communities can use the promotive, preventive, curative, rehabilitative and palliative health services that they need, which are of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship (WHO, 2016). The framework considers four critical dimensions of HRH: availability, accessibility, acceptability and quality, which are defined in the context of HR below:

- **Availability** – the sufficient supply/appropriate stock of health workers, with the relevant competencies and skills mix that correspond with the health needs of the population (WHO, 2016);
- **Accessibility** – the equitable distribution of health workers in terms of travel time and transport (spatial), opening hours and corresponding workforce attendance (temporal), infrastructure attributes (physical, such as disabled-friendly buildings), referral mechanisms (organisational), and the direct and indirect costs of services, both formal and informal (financial) (WHO, 2016);
- **Acceptability** – the characteristics and ability of the workforce to treat all patients with dignity, to create trust and to enable or promote demand for services, which may take different forms such as a same-sex provider or a provider who understands and speaks one's language and whose behaviour is respectful in terms of age, religion, social and cultural values (WHO, 2016); and
- **Quality** – the competencies, skills, knowledge and behaviour of the health worker as assessed according to professional norms (or other guiding standards) and as perceived by users (WHO, 2016).

In a 36-country analysis on UHC, South Africa is shown to have made progress in terms of availability and access, but in terms of acceptability, quality and HRH governance, only partial progress has been made (Campbell et al., 2013).

Combining and utilising frameworks that are visible makes processes for engagement, facilitation, planning and dealing with HRH challenges easier.

9.2 Research process

The United Nations Standing Committee on Nutrition (2014) has expressed the need for a more prominent role for nutrition in the quest to realise the SDGs due to nutrition's significant contribution to economic, social, education and health outcomes. Nutrition services are part of the comprehensive/integrated package of promotive, preventive, curative, rehabilitative and palliative health services. Planning for the nutrition workforce is currently also integrated into

the broader HR plans and no specific human resource strategies for nutrition are available in the South African context to guide planning for the nutrition workforce.

A research project was implemented, discussed in Chapter 1 from sections 1.6 to 1.10, to address South Africa's nutrition workforce development concerns. Information was sought to propose a comprehensive nutrition workforce development framework, which would include the following:

1. Literature review of human resource development, including planning frameworks for public health and public health nutrition.
2. Document scoping reviews of scope of practice, competencies of dietitians, nutritionists, professional nurses, doctors, community health workers and health promoters against globally agreed public health competencies.
3. A job description review.
4. A national workforce survey among dietitians and nutritionists.
5. A survey among nurses in primary health care with a focus on community-based services (only in the Western Cape province of South Africa).
6. Interviews with managers in the public health service with a focus on district health services (only in the Western Cape province of South Africa).

The methodology for the respective components was captured in individual chapters from Chapter 2 to Chapter 8 of this thesis, and the information gathered was used to develop a consensus study to describe the workforce and delineate its roles and responsibilities. Thereafter, a triangulation of all data sources was performed and used to form part of the HRH workforce development framework incorporating learning points from the evidence gathered in the South African context.

9.3 Simplified Delphi study

The Delphi study was found to be the most appropriate method to obtain consensus on the description of the workforce and its related roles and responsibilities. Delphi techniques are widely used in public health as they are relatively inexpensive, provide privacy and anonymity, allow for repetition, controlled feedback and statistical aggregation of group responses, and do not require representativeness of the sample (Hasson, Keeney, & McKenna, 2000; Hughes, 2003b).

9.3.1 Study aims

The aims were to obtain consensus on *who the nutrition workforce is* with reference to primary health care service delivery and to obtain consensus on the nutrition-related roles and responsibilities of five cadres of staff (community health workers, health promoters, nurses, doctors and the new professional: dietitian-nutritionist). It was decided to include the new nutrition professional for future planning as one group rather than as dietitians and nutritionists separately.

9.3.2 Rationale

The rationale for selecting the Delphi technique as the appropriate method to reach consensus was as follows:

- The structured communication technique will enable interactive decision-making without certain individuals on the panel dominating the input.
- Opportunities are presented for collective intelligence of various stakeholders in public health and nutrition service delivery.
- Tacit, intuitive knowledge/experienced thinking is needed from a number of stakeholders in the process where complete knowledge does not exist.
- Expert participants are selected on the basis of their competencies and will be able to gather new information between rounds.

9.3.3 Methods

Figure 9.2 was developed as a flow process to outline the various components of the Delphi study.

Research question

The following two questions were drafted as research questions on which to reach consensus:

1. Who is the nutrition workforce?
2. What are the nutrition-specific roles and responsibilities of the respective cadres?

Selection criteria of panellists

Panellists were opportunistically selected on the basis of the following selection criteria:

- Experience and the necessary insights in the field of nutrition and public health;
- Nutrition service managers at national and provincial level working in the integrated nutrition programme in the Department of Health, which is currently the main employer of nutrition professionals and which influences workforce development.

- Academic institutional (dietetic and nutrition) representatives responsible for the training of students who have been involved in the HPCSA process of describing the new health professional;
- Dietetic, nutritionist, nursing and medical professional organisational representatives who are involved in setting norms and standards for their professions;
- Members of the HPCSA Board for Dietetics and Nutrition;
- Other key informants who have been managing and working in public health, public health nutrition, health promotion, nursing and community-based services. Some of these panellists have dual posts, i.e. some work in services as specialists, e.g. in paediatrics, and train medical students; others work in services responsible for nursing strategies and coordination.

Research instrument

The description of the nutrition workforce was completed and the specific roles and responsibilities of the five key cadres (community health workers, health promoters, nurses, doctors and the new professional: dietitian–nutritionist) were determined based on published literature, job description documents, and HPCSA, SANC and SAQA documents.

Documents were drafted to accommodate offline and online responses from participants utilising word processing packages and Survey Monkey. The description of the workforce was initially drafted in a narrative format and panellists were asked to express their opinion in terms of the descriptions (refer to Addendums 8 and 9).

A five-point Likert scale was used to rate the roles and responsibilities, from strongly disagree to strongly agree for the respective cadres.

Data collection and management

After completion of all the documents, panellists received an invitation to participate in the study. The process to be followed was outlined to them. They were informed that there would be two rounds, that the document would be updated based on the round 1 findings and that they would receive a summary of the findings from round 1 with those of round 2. Panel members were provided with a unique participant code and their anonymity was protected.

A summary of the nutrition workforce description and delineated roles and responsibilities were shared with them electronically. Participants were given two weeks for completion, with

the option of either responding by return email or doing an online completion using Survey Monkey.

First and second reminders were sent during this period and a final reminder was sent by the third week to all who had not responded. Final responses were collected for round 1 after the third week, followed by the capturing of email submissions into Survey Monkey. All data was exported into Excel for round 1 analysis.

The same procedure was followed for round 2, with the addition of a summary document that provided feedback to participants on the round 1 findings. Data was also transferred into the SPSS program to compare the level of agreement in round 1 and round 2.

Analysis

Description of the workforce

Data was read through and re-read to acquire an understanding of the comments and insights provided on the description of the workforce in round 1. The inputs were used to develop and provide a description for round 2. In round 2, the narrative description was rated by participants to determine the agreement against the respective statements using a 5-point Likert scale, i.e. strongly disagree, disagree, unsure, agree and strongly agree. Frequencies were calculated for the ratings and interpreted. Additional comments received were summarised, and content and thematic analysis was done by reviewing statements and grouping them under key themes that surfaced (refer to Annexure Table A9.11, after the references).

Roles and responsibilities of cadres

The findings from each round were rated against a 5-point Likert scale, i.e. strongly disagree, disagree, unsure, agree and strongly agree. The additional comments in round 1 were summarised, evaluated and utilised to effect changes to the description of roles and responsibilities in round 2. Frequencies were calculated for the respective ratings of each round.

Additional comments and statements

Additional comments received were summarised, and content and thematic analysis was done for the qualitative data by reviewing statements and grouping them under key themes that surfaced.

Statistical comparisons of rounds 1 and 2

The differences in agreement between the rounds were calculated. The calculation of a consensus cut off of > 50 % (majority) was applied with less than 10% change between rounds 1 and 2 being interpreted as agreement stability. The findings from the two rounds were used to finalise the description of the workforce and the role delineation which have since been incorporated into the workforce development framework.

Round 1 and round 2 data that was comparable was entered into the SPSS program. The medians, range and p values for the two rounds were calculated per cadre utilising a non-parametric test (Mann-Whitney U-test). Comparative data was tabulated and analysed between the rounds and p values were evaluated for significant differences.



Figure 9.2 below shows the flow process in the Delphi study.

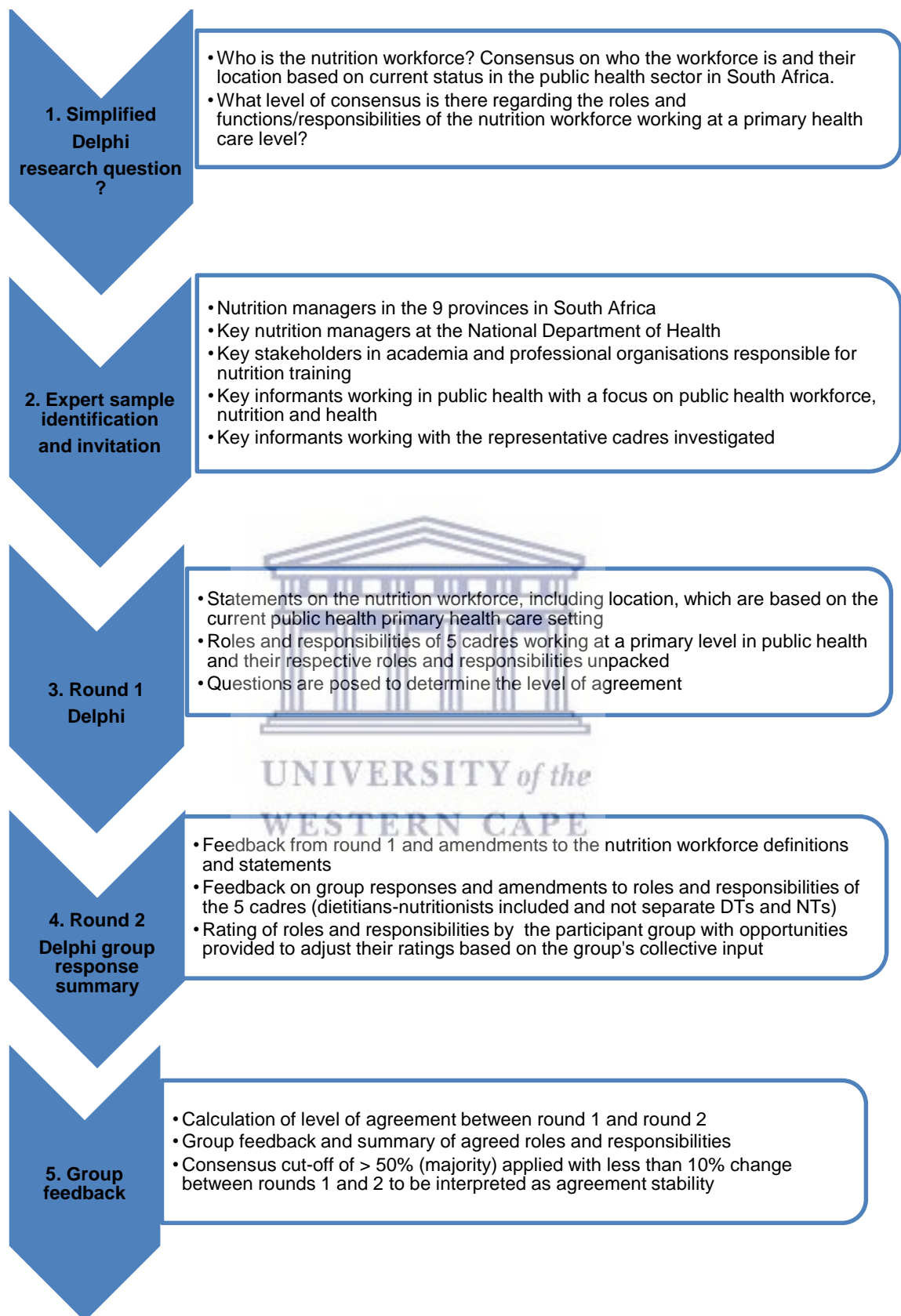


Figure 9.2. Flow process of Delphi study

9.3.4 Results

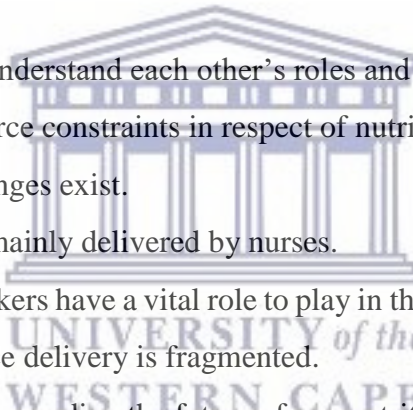
9.3.4.1 Round 1

The section below provides a summary of the findings from round 1. For summary tables, see Annexure Table A9.1 to Table A9.10.

Description of the nutrition workforce

The comments received showed that a description of the nutrition workforce was needed, clarification of roles and responsibilities was essential, the workforce comprised multiple disciplines and the role of multiple sectors could not be overlooked. The current description was viewed as inclusive and relevant to the current and future situation by most panel members. Panel members reported that the explanations given were understandable, including the associated dilemmas. Participants, however, raised concerns in their comments and in some instances recommended solutions to the challenges noted.

Summary of main themes

- 
- Cadres do not clearly understand each other's roles and responsibilities.
 - There are human resource constraints in respect of nutrition professionals.
 - Training-related challenges exist.
 - Nutrition services are mainly delivered by nurses.
 - Community health workers have a vital role to play in the delivery of nutrition services.
 - Current nutrition service delivery is fragmented.
 - There is uncertainty surrounding the future of one nutrition professional.
 - Health promoters play an essential role in the delivery of prevention and promotion services.

Additions proposed to the nutrition workforce description

- Include the fact that nutrition professionals must be registered with the HPCSA.
- Facility includes hospitals and others; therefore, add clinical dietetics/nutrition and food service management.
- Add the importance of monitoring and evaluation of nutrition programmes and services at provincial and district levels.
- Policy development mainly takes place at national and provincial level.
- Social workers should be included in other sectors to provide extension nutrition services.

Eighteen additional comments and/or concerns were captured which were addressed as far as possible in round 2.

Points needing clarity/concerns

- Clarity should be provided if ratings are based on current roles and/or future roles. The dietitian–nutritionist is not yet in existence, so the question could be raised how relevant it is to rate one professional in light of the current status of having the professionals separate. There seems to have been insufficient consultation with all levels of stakeholders before the decision was taken to have one nutrition professional.
- To compare nurses and doctors in existing structures could be viewed as unfair.
- It is understandable that nutrition should be the focus of a health system, but the role and function of nutrition within agriculture, the food industry, and economic and social development also need to be considered.
- Advocacy is missing.
- There is limited availability of dietetic services in PHC and in facilities.

Proposals/key statements

- The scope of the functions mentioned is in line with the literature, current expectations and policy directives.
- The project is essential and very valuable in terms of mapping the way forward for nutrition professionals in the country.
- The profile of the dietitian–nutritionist needs to be escalated.
- Role players should perform duties in line with their competence, training and skill level.
- Improved supervision of services is required to ensure that clients' service needs are met.
- The integration of necessary services needs to be strengthened, along with the broader areas of expertise such as development, food security and innovation through partnerships.
- Add behaviour modification interventions as part of the roles.
- More emphasis should be placed on reducing the burden of lifestyle diseases.

9.3.4.2 Round 2

Twenty-nine of the 30 participants from round 1 participated in round 2, and three new participants joined the group, bringing the total number of panellists in round 2 to 32. Detailed tables appear in Annexure Tables A9.12 to A9.21.

Description of the nutrition workforce

The statements to describe the nutrition workforce were based on the comments and recommendations provided in round 1. In round 2, participants were asked to rate the statements relating to the nutrition workforce. General agreement was evident in round 2 for all statements, with 93% indicating agree to most strongly agree. Annexure Table A9.11 shows the ratings of the 32 panellists.

Round 2 additional comments on the description of the workforce

Participants provided eight additional comments which are summarised below:

- The multidisciplinary team approach should be implemented.
- Health care workers should all understand the importance of nutrition.
- The roles of the workforce must be articulated in job descriptions and supported by training, and job aids should be made available.
- Staff should not only be trained on what to do but also on how to perform effectively.
- Community-based nutrition and dietetic services should be extended to the community through outreach, e.g. at shopping centres.
- The role of extension workers should be clarified further.

One of the participants commented that the statements were very self-explanatory:

“I cannot see that anyone who has the nutritional health of our population at heart could not but strongly agree with the statements. In Afrikaans, one would have said ‘dis vanselfsprekend’!”

Fifteen additional comments and/or concerns were captured in round 2. A summary appears below.

Points of concern/needing clarity

- It is important to understand the real meaning and intention behind healthy lifestyles.
- The decision to have one nutrition professional is still subject to approval by the minister and this should be considered in the forward planning. It is also recommended

not to talk about how cadres will be absorbed but rather that the future professionals need to address the nutrition-related challenges in the country.

- Staffing numbers are of great concern.

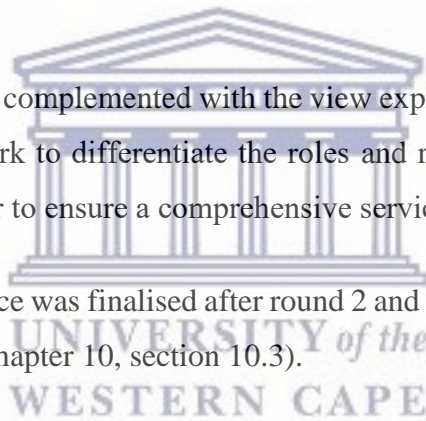
Proposals

- To ask for input on the roles and responsibilities of non-nutrition actors.
- The roles and functions of health promoters should be reduced in number.
- Training of all cadres should include a module on basic nutrition topics.
- Dietitians should work more closely with food service managers to improve the quality of nutrition in facilities.
- A distinction should be made between counselling and education.
- Dietitians–nutritionists should have the competence to work with other sectors beyond health.

General statements

- The research work was complemented with the view expressed that it would add value. “A collective framework to differentiate the roles and responsibilities of all nutrition stakeholders will go far to ensure a comprehensive service.”

The description of the workforce was finalised after round 2 and incorporated the additions and assorted comments (refer to Chapter 10, section 10.3).



9.3.4.3 Comparison of round 1 and round 2

Attributes of panellists in round 1 and round 2

The panellists who participated in both rounds were targeted on the basis of selection criteria described in the methodology section of this thesis. Most panellists (19) were knowledge experts and representatives of organisations from the spheres of, for example, public health, nutrition, medicine and nursing. Of the remaining panellists, seven were from academia and six worked in nutrition services in provincial and national health departments in South Africa.

In the comparison of the findings from the two rounds, the multidisciplinary team approach was highlighted as well as the importance of the workforce having the right knowledge but also having the appropriate skills to do the work.

The description of the nutrition workforce was left open-ended in round 1 and rated in round 2 after the incorporation of the comments from the panel in round 1. The results in round 2

indicated a > 50% agreement in the statements. Refinements of certain statements as proposed in round 2 were incorporated into the final description of the workforce (see Table A9.11). These related to the PHC description and the inclusion of the district hospital, with the district hospital acting as the hub for the PHC platform. The question was also raised as to how the transition of the two professionals should be managed while approval is awaited from the ministry of health for the introduction of one nutrition professional in future. There was agreement in respect of almost all roles and responsibilities with the exception of the involvement of health promoters in the review of PHC nutrition data, documentation and reporting on interventions. The roles and responsibilities of the cadres appeared to be obvious but they had never been explicitly described.

A central theme that came through in both rounds was the importance of ensuring that the workforce is fully trained to fulfil their functions, understand each other's roles in the multidisciplinary team, and address fragmentation and duplication of services in a resource-constrained environment. Furthermore, an enabling environment with clear role definitions, leadership and supervision is required to support the workforce.

The statistical calculation of the medians and p values are represented in Table 9.1 below.

Table 9.1. Comparison of participants' responses in round 1 and round 2 of the Delphi study

Total score per cadre median (range)	Round 1	Round 2	P value*
Total score all cadres (min – max)	175(133–185)	176(148–185)	0.526
Total score community health workers	42(9–45)	43(35–45)	0.385
Total score health promoters	20(12–20)	19(14–20)	0.390
Total score professional nurses	34(25–35)	34(26–35)	0.380
Total score doctors	29(11–30)	28(22–30)	0.895
Total score dietitians–nutritionists	55(44–55)	55(42–55)	0.437

*Note: P value calculated using the Mann-Whitney U-test

The above table indicates no statistical significant difference ($p > 0.05$) for any of the cadres between the two rounds, indicating agreement. The medians increased slightly for total cadres and CHWs, decreased slightly for health promoters, and stayed the same for professional nurses, doctors and dietitians–nutritionists. However, none of these differences was statistically significant.

Table 9.2 presents the comparative results of rounds 1 and 2 for all roles and responsibilities per cadre. The consensus ranges for all cadres were well above the 50% cut-off and the change was less than 10% between rounds.

The individual findings were as follows:



Table 9.2. Comparison and interpretation of cadres' roles and responsibilities in round 1 and round 2

Roles and responsibilities of community health workers Cumulative agreement* = Agree plus strongly agree	Cumulative agreement* round 2 %	% shift round 1 to round 2
1. Provide basic nutrition screening at household level – weight, height, mid-upper arm circumference	97%	-3.78%
2. Identify clients who are nutritionally at risk, including maternal mental health	97%	-0.46%
3. Refer families and children to health services	97%	-0.32%
4. Promote good nutrition and health by supporting mothers with infant and young child nutrition, e.g. exclusive breastfeeding, continued breastfeeding and complementary feeding from six months	100%	-3.46%
5. Provide basic nutrition education	97%	-4.19%
6. Assist in campaigns by administering Vitamin A supplements, deworming and mid-upper arm circumference assessments	97%	-10.67%
7. Provide support to mothers by encouraging households to be responsive to the needs of children in terms of growth and development	94%	-0.65%
8. Promote healthy lifestyles	94%	-0.42%
9. Support clients towards self-care and management	94%	-3.75%

The findings for community health workers indicated majority agreement of > 90% for roles and responsibilities from round 1 to round 2, with increasing levels of agreement in round 2; this thus reflects negative figures with the greatest shift in the role relating to involvement in campaigns.

Table 9.2 (continued)

Roles and responsibilities of health promoters Cumulative agreement* = Agree plus strongly agree	Cumulative agreement* round 2 %	% shift round 1 to round 2
1. Promote nutrition and health through the course of life for the prevention of ill health	94%	-1%
2. Provide nutrition and health education among groups	88%	6%
3. Liaise with and refer clients to the multidisciplinary team, especially those at risk	97%	3%
4. Support clients towards self-care and management	84%	6%

The findings for health promoters indicated majority agreement of > 80%, with promotion of nutrition and health through the course of life for the prevention of ill health showing an increased level of agreement between round 1 and round 2 and a decrease in all other roles ranging between 3% and 6%.

Table 9.2 (continued)

Roles and responsibilities of nurses Cumulative agreement* = Agree plus strongly agree	Cumulative agreement* round 2 %	% shift round 1 to round 2
1. Promote good nutrition and health through the course of life	94%	0%
2. Perform nutrition screening and assessments	94%	6%
3. Interpret and act on growth monitoring and promotion	97%	3%
4. Provide basic health and nutrition education	88%	9%
5. Liaise with and refer clients to the multidisciplinary team	97%	3%
6. Implement nutrition policies and programmes	97%	-4%
7. Advise on basic nutrition interventions	78%	1%

The findings for nurses indicated majority agreement of > 80% on all roles and responsibilities except for advising on basic nutrition interventions. There was increased agreement on the implementation of nutrition policies and programmes, such as severe acute malnutrition, between round 1 and round 2.

Table 9.2 (continued)

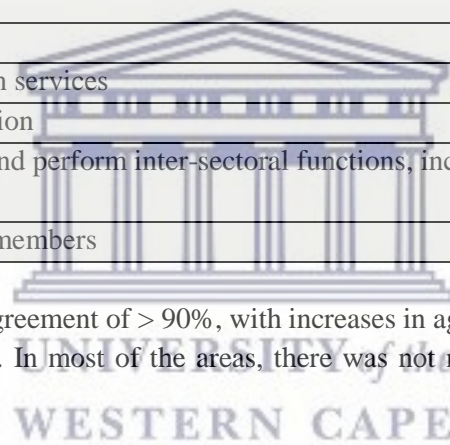
Roles and responsibilities of doctors Cumulative agreement* = Agree plus strongly agree	Cumulative agreement* round 2 %	% shift round 1 to round 2
1. Promote good nutrition and health through the course of life	97%	0%
2. Perform nutrition assessments and interpret results	78%	8%
3. Diagnose nutrition conditions and state of health	97%	0%
4. Liaise with and refer clients to the multidisciplinary team	97%	3%
5. Implement nutrition policies and programmes	91%	-8%
6. Advise on basic nutrition interventions	84%	-5%

The findings for doctors indicated majority agreement of > 80% on all roles and responsibilities, with an increase in agreement in round 2 on the implementation of nutrition policies and advising on basic nutrition interventions.

Table 9.2 (continued)

Roles and responsibilities of dietitians–nutritionists Cumulative agreement* = Agree plus strongly agree	Cumulative agreement* round 2 %	% shift round 1 to round 2
1. Promote good nutrition and health through the course of life	100%	0%
2. Provide nutrition services to clients – in-/out-patients and in the community (outreach)	100%	0%
3. Conduct research and carry out analytical functions	94%	-6%
4. Manage nutrition interventions in terms of strategy and programmes	100%	0%
5. Engage in capacity-building/training in nutrition	100%	-3%
6. Participate in nutrition policy processes	100%	-3%
7. Manage nutrition services	97%	0%
8. Engage in clinical nutrition services/therapeutic nutrition services	94%	3%
9. Engage in nutrition communication and nutrition education	100%	0%
10. Promote a conducive food and nutrition environment and perform inter-sectoral functions, including food service management	100%	0%
11. Liaise with and refer clients to multidisciplinary team members	100%	0%

The findings for dietitians-nutritionists indicated majority agreement of > 90%, with increases in agreement in round 2 in two areas, i.e. research and analytical functions, capacity-building and nutrition policy processes. In most of the areas, there was not much difference between the rounds with only small shifts between rounds 1 and 2.



9.4 Triangulation of all data

To increase the credibility and validity of the data, triangulation of all the data sources was performed in the study (which had been presented in earlier chapters) to corroborate the findings.

Two main types of triangulation (data and methodological) were used to explain the assessment complexities, and to interrogate and crystallise the findings. The data was mapped to provide a more balanced picture. Studying the data from more than one standpoint allowed for convergence of thoughts and opinions, and at the same time created opportunities to uncover inconsistencies and a deeper understanding of the data (UNAIDS, 2010).

The sources for triangulation included the following:

- literature
- scoping document reviews
- dietitians', nutritionists' and nurses' surveys
- interviews with managers
- Delphi consensus study

The workforce development lens (having the right staff, at the right place, doing the right things) was applied to six practising cadres in the current health system.

In applying the acquired competencies from training and job descriptions per employer expectations, the perceptions of core staff and managers on their roles, responsibilities and competencies were investigated using mixed methodologies. The workforce description and role delineation were done through an iterative Delphi study process among key stakeholder experts.

Figure 9.3 below provides a summary of the main themes after triangulation of the data.

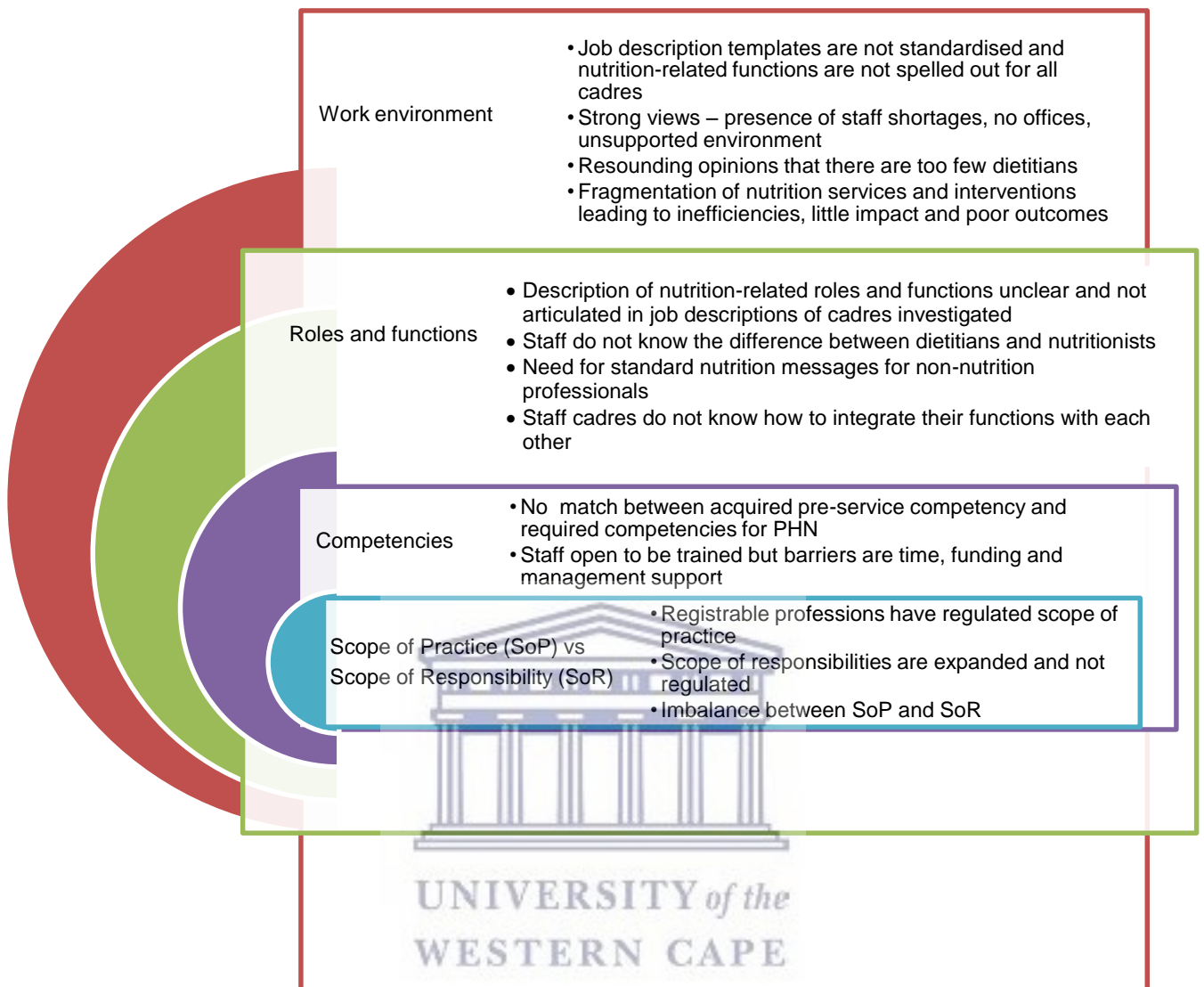


Figure 9.3. Summary of key insights based on triangulation

Scope of practice vs. scope of responsibility

The registrable professionals have scopes of practice (SoP) for their professions which describe the procedures, actions and processes that the practitioner may perform. In the workplace the practitioners take responsibility for their roles and functions, as spelled out in their job descriptions.

To be eligible to register in the professions, certain competencies need to be achieved in candidates’ pre-service training. These competencies can be defined as a set of skills, knowledge, abilities, attributes and experiences that become part of the job descriptions when

specific professional posts are advertised. These were apparent in the job description reviews of the four registrable professions in the nutrition workforce (Chapter 5).

The scope of responsibility (SoR) can be expanded in practice with the addition of more functions and/or delegated tasks to staff. Nursing cadres tend to take on the greater responsibility, especially in the PHC platform where staff shortages exist and the services are nurse driven.

Overlap in the scopes of the four professionals was observed, as was the sharing of functions such as advising, educating and promoting good health and nutrition. The two non-registrable professionals do not have a specific scope for their profession. In practice, the scope of responsibility of lower levels of staff is expanded where they are required to fill the gaps due to professional staff shortages. Task shifting occurs in the absence of a scope of practice, with informal arrangements and delegation of tasks to lower levels occurring in good faith and not on the basis of an assessment of staff competence.

Acquired competencies vs. required competencies

Acquired competencies refer to the current competencies that cadres have on completion of their pre-service training. Required competencies include competencies needed, based on cadres' roles and responsibilities, to do the jobs they have been appointed for, including filling any gaps.

The question can be asked, when comparing the scope of practice, competencies and job descriptions, if the nutrition workforce is able to fulfil their respective roles and responsibilities. Dietitians and nutritionists country-wide and nurses in the Western Cape indicated that all the competency modules in the global PHN context are important for them individually and as a collective.

Using the world public health competency framework in this regard has shown that dietitians and nutritionists are the only categories that have been trained in most to all of the PHN competency areas. Based on the findings, all cadres need more training in certain elements of the critical, cross-cutting and practice competency areas. When comparing these to job descriptions and perceptions, there is no match between the acquired competencies and the required competencies to perform a job. Based on the scores provided, the specific competency areas for the different cadres that needed additional input were:

- **Dietitians:** Enabling knowledge, analytical, public health system knowledge and skills, food and nutrition systems knowledge, professional, communication and capacity-building, and intervention management.
- **Nutritionists:** Nutritional science, analytical, public health system knowledge and skills; food and nutrition system knowledge, professional, communication.
- **Professional nurses and doctors:** Enabling knowledge, nutritional science, analytical, public health system knowledge and skills, food and nutrition system knowledge, nutrition education, nutrition assessment, monitoring and evaluation and surveillance, capacity-building and intervention management.
- **Health promoters and community health workers:** Enabling knowledge, nutritional science, analytical, public health system knowledge and skills, food and nutrition system knowledge, nutrition education, management knowledge and skills, leadership knowledge and skills, professional, communication, nutrition assessment, monitoring and evaluation and surveillance, capacity-building and intervention management.

From the analysis, doctors and nurses currently have limited knowledge in 11 of the 13 public health nutrition areas, with health promoters and community health workers needing more input in all 13 areas. There was also acknowledgement by nurses in their survey that there are many advantages to their training but that, in their opinion, it is inadequate when it comes to nutrition.

The study provides a baseline understanding of the gaps in training that exist amongst dietitians and nutritionists, considering that in future there will be only one nutrition professional. Dietitians and nutritionists should receive further bridging training in the six areas indicated above. Dietitians and nutritionists confirmed in their ratings on their functions that they spent most of their time on intervention management, which highlights the need to strengthen this specific competency area.

The majority of respondents indicated that their proficiency level was at the entry level. More than one-third of all nurses participating in the survey marked themselves at entry level on nutrition disease management, food science, food service management, policy development and media skills. This finding correlates with the competency assessment for nurses. Dietitians and nutritionists in their survey did not view nurses as having good capacity to fulfil nutrition-related functions.

The content knowledge areas are designed specifically for a particular profession and aligned to the roles and responsibilities. The nutrition-related roles of doctors, nurses, health promoters and nurses are not spelled out in their current competency frameworks, scopes or job descriptions, leaving a major gap in determining their competency to fulfil their nutrition-related roles.

Nurses and dietitians/nutritionists indicated that they were motivated to attend training but the barriers for training are funding, time and management support.

Inherent requirements – attributes

Inherently all six cadres needed knowledge of the health service and legislation (patients' rights, Batho Pele principles and ethical work practice). There was a good match between what was required across all seven cadres and the attributes specified in their job descriptions.

Communication skills were the one area that was inherently required for all cadres, highlighting its importance for health practice. The level and degree of skills differed across the cadres, with the registrable professions requiring more analytical, computer-based and administrative skills.

Honesty, integrity, professionalism, good human relations, care and the ability to work in a team were required across the board. How to measure these attributes before appointing staff can be quite challenging, though.

Job descriptions – employer expectations

The negative aspects found in the job description analysis, i.e. no standardisation of same-level posts, no standard templates, the lack of a clear description of nutrition-related roles and responsibilities, left job descriptions open to interpretation and irregular implementation. This aspect was confirmed in the case of dietitians and nutritionists in the survey among government employees. Despite 92% having job descriptions, one of the respondents commented that “there seem to be too many” and “yes, but outdated”.

As with other cadres, the scope of responsibility of dietitians and nutritionists had expanded. A comment from a government staff member suggested that their JDs were being undermined and they had to be responsive to demands from management.

Roles and functions

The roles and functions relating to nutrition differed for the respective cadres, with dietitians and nutritionists mostly involved in all the PHN functions. They named nutrition-specific interventions as the area in which they spent most of their time. Dietitians and nutritionists worked with the multidisciplinary team primarily with nurses, followed by doctors and health promoters. Doctors and nurses spent most of their time providing clinical care. Nurses, on their part, indicated that they worked mainly with other nurses, followed by (in order) health promoters, dietitians, doctors and nutritionists.

Nurses indicated that the main nutrition activities that they were involved in on a regular basis related to clinical nutrition, such as enteral nutrition, implementing nutrition policies such as feeding schemes and making referrals in the community-based services platform. They did report having regular contact with a nutrition mentor (dietitian), mostly on a weekly basis in the Western Cape, and valued the inputs of nutrition leaders in the field.

Health promoters' and community health workers' time was mostly spent on preventative aspects, including nutrition education and promotion. Nutrition education and promotion were found to be key activities across all the cadres which emphasised the need for key messages to be conveyed to the workforce, especially as dietitians and nutritionists expressed strong opinions that nurses as the major workforce did not have the necessary capacity.

These descriptions of roles and functions from the respective document reviews, individual cadre surveys and manager interviews compared well with each other. It was apparent from the nurses' survey and interviews with managers that they did not know the difference between dietitians and nutritionists, from which it can be deduced that they did not have a full understanding of their roles and functions. Nurses' perceptions of their roles compared well with the findings from the Delphi study and from what was stated by the managers. There was also a good alignment between what managers said and what the panel agreed the roles of dietitians and nutritionists should be, given their skills and attributes.

Work environment

Dietitians and nutritionists, as the core nutrition service providers with the most competencies, strongly indicated that they worked in environments where they received very little support. The feeling of being unsupported was exacerbated by the staff not being exposed to effective leadership, the lack of offices to work from, the limited availability of human resources for nutrition functions, an absence of mentors and poor co-ordination. However, they reported that

they did engage in planning with the multidisciplinary team and that they received support from other health staff and their peers. Community-based service nurses echoed these sentiments in their responses about the work environment. Considering the above factors, one can seriously question what the morale of the workforce was.

A shortage of staff in the health system was a key theme noted in the survey among dietitians, nutritionists, nurses and managers. Nurses, dietitians and nutritionists indicated limited staff availability, constrained budgets and inadequate management support as major weaknesses in the health system. The need for more dietitians was echoed by nurses and managers.

The fragmentation of nutrition services and interventions was a key theme emanating from managers' perceptions of the effectiveness of public health nutrition interventions as well as the panel who participated in the Delphi study. The latter stressed that inefficiencies lead to an inability of the workforce to have any real impact or deliver meaningful outcomes in terms of nutrition.

9.5 Discussion

The gaps and opportunities in terms of acquired and required competencies were identified as was the need to gather information to arrive at a better understanding of who the nutrition workforce is. The Delphi study was designed to delineate the nutrition-specific roles and responsibilities. The findings can thus be used to determine the specific gaps in nutrition knowledge and skills covered in pre-service curricula. The evidence from the study could form the basis of an evaluation to ensure that the acquired knowledge matches the required knowledge in order to fulfil the respective roles and responsibilities.

Nutrition services are mainly delivered by nurses in health facilities and the scope of nurses' responsibility has been expanded in the absence of core nutrition personnel. Clarity and understanding surrounding the respective roles are needed, especially in light of HR capacity constraints. Human resource shortages diminish geographical access and delivery of nutrition services in terms of responding to referrals.

Despite screening being done, it does not guarantee action or that clients will be seen or followed up because of the problem of staff shortages. The wording used in scope documents for doctors to provide holistic care and for nurses to provide comprehensive care is too vague. Better alignment of the scope of practice with scope of responsibility is required for nurses to determine who can and who will be allowed to do what.

Health promoters have also played an essential role in prevention and promotion services in facilities, which sometimes also extend to community-based services, but due to staff shortages and capacity constraints, their reach within the population is limited. Community health workers, on the other hand, can play a vital role in providing nutrition services in the community, but their training seems to be inadequate, their scope of responsibility has expanded and their conditions of service have become onerous in the current system.

Nutrition service delivery was perceived to be fragmented by participants, which affects clients' compliance. Integrated services are called for but how to operationalise them remains unclear. Participants in a study conducted by Kugelberg et al. (2012) also reported that they experienced fragmented support for public health nutrition services at the implementation level, citing the following as constraining factors: management not supporting nutrition as a priority and not filling nutrition professional posts as planned, decision makers favouring clinical health perspectives as opposed to prevention and promotion, and a lack of cohesion in the workforce at the individual level. The study suggested that communication and coordination between policy makers and local implementers were key to achieving policy objectives and strengthening service delivery (Kugelberg et al., 2012).

Capacity development is an essential requirement for achieving health objectives (Shrimpton et al., 2013; Kugelberg et al., 2012). Evidence has shown that progress against many nutrition indicators has been poor and/or the situation has remained unchanged. The need for advocacy in the context of a multidisciplinary team approach, inclusive of other relevant sectors, was highlighted by participants. Addressing undernutrition, for example, calls for a multi-sectoral approach with a broad workforce to collaboratively address the multi-level causes of malnutrition.

All the cadres investigated were not adequately trained to deliver all the public health nutrition functions in South Africa. Based on the findings, dietitians and nutritionists are the best trained.

There were also areas of overlap revealed in the review of the attributes of the workforce. In that context it would be most beneficial for content knowledge to be acquired in pre-service training. However, the functioning of the health system, health legislation and organisational values could be imparted more generically as part of in-service training in staff induction programmes organised by employers. Training health professionals by itself has not been found to be a silver bullet unless it is part of initiatives to better understand the health system (Shrimpton et al., 2013).

The different training options identified by the workforce could be considered, e.g. off-campus courses, online professionally recognised and accredited courses and in-service modular format programmes. The issues of acquired vs. required competencies require strengthening.

Alignment with the scope of practice and the scope of responsibility is important. It is highly probable that staff, facing growing service demands, are being required to take on more than what is covered in their scope of practice. The absence of a clear scope of practice and/or scope of responsibility for professionals who are not required to register with professional bodies carries a great risk to the population served. The frontline staff in these instances are at lower levels and they could be delegated tasks for which they have inadequate knowledge and skills.

Clarity in terms of roles and responsibilities among the nutrition workforce is needed, not only to address the issue of what to do, but also of who should do what, and how. Certainty cannot be provided if clients would prefer generalists as opposed to specialists in certain service areas. A more co-ordinated approach should be taken to ensure that role players understand their individual and collective roles. This theme was forthcoming in the study and has also been raised in various publications on nutrition capacity. Institutionalisation of PHN in service delivery was found to be an enabling factor in Europe where nutrition service is part of regional and local priority service goals (Shrimpton et al., 2013; Kugelberg et al., 2012).

The lack of standardisation of job descriptions of same-level posts, use of many templates and lack of clear descriptions of nutrition-related roles and responsibilities of cadres leave things open to interpretation and irregular implementation. Human resource departments need to ensure the quality assurance of job descriptions and to conduct regular audits.

For South Africa, the decision regarding the introduction of the one nutrition professional has been approved by the Professional Board for Dietetics and Nutrition. The next step will be to obtain the approval of the Minister of Health. The proposal to have one professional is supported by professional bodies, yet not fully understood by all involved. It would be vital for South Africa to have a process of integrating current dietitians and nutritionists into one system in future. Building a professional identity linked to professional training would also be important to ensure confidence in the competence of the workforce. Work is under way in South Africa to align training of only one nutrition professional (HPCSA, 2016).

Defining and clarifying the functional roles of the nutrition workforce, together with the information gathered through document reviews and surveys of the current nutrition service

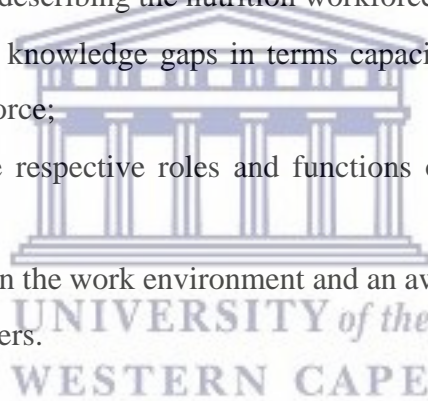
and practice, have informed and provided valuable intelligence towards a proposed planning framework for the nutrition workforce in South Africa.

9.6 Conclusion – Proposed nutrition workforce development framework

For South Africa to address the nutrition-related Burden of Disease, it has to plan for the nutrition workforce and ensure that they have the right staff – doing the right things, at the right time and place, within the public health system, in order to provide universal health services to the population.

To address the objectives of HRH planning and inform workforce development according to a health systems approach in the South African context, the study identified gaps in the workforce development process and in its capacity. Baseline evidence presents the opportunity to address the nutrition-related inputs required by the health workforce and to start tackling the changing Burden of Disease in a systematic manner. The study has provided:

- A starting position for describing the nutrition workforce;
- Information to fill the knowledge gaps in terms capacity, i.e. knowledge, skills and attributes of the workforce;
- The delineation of the respective roles and functions of key personnel in the PHC service platform;
- Baseline information on the work environment and an awareness of the transformation opportunities and barriers.



Considering the findings, a workforce development framework is proposed to address the nutrition-related challenges in the South African context. The proposed nutrition workforce development framework addresses the objectives of HRH planning (Green, 2007; WHO, 2016), and incorporates elements of the conceptual frameworks developed by Hughes (2003a, 2003b) for the Australian workforce and the global PHN workforce development and capacity frameworks (Hughes et al., 2011; Hughes, & Margetts, (2012); Shrimpton et al., 2013). A literature review, work experience, observations and the collection of data through a mixed methodology were used to develop, expand and integrate existing workforce development frameworks into a health systems approach to HRH.

Figures 9.4 and 9.5 below show that the components are part of a whole system and are neither static nor able to be seen in isolation from one another.

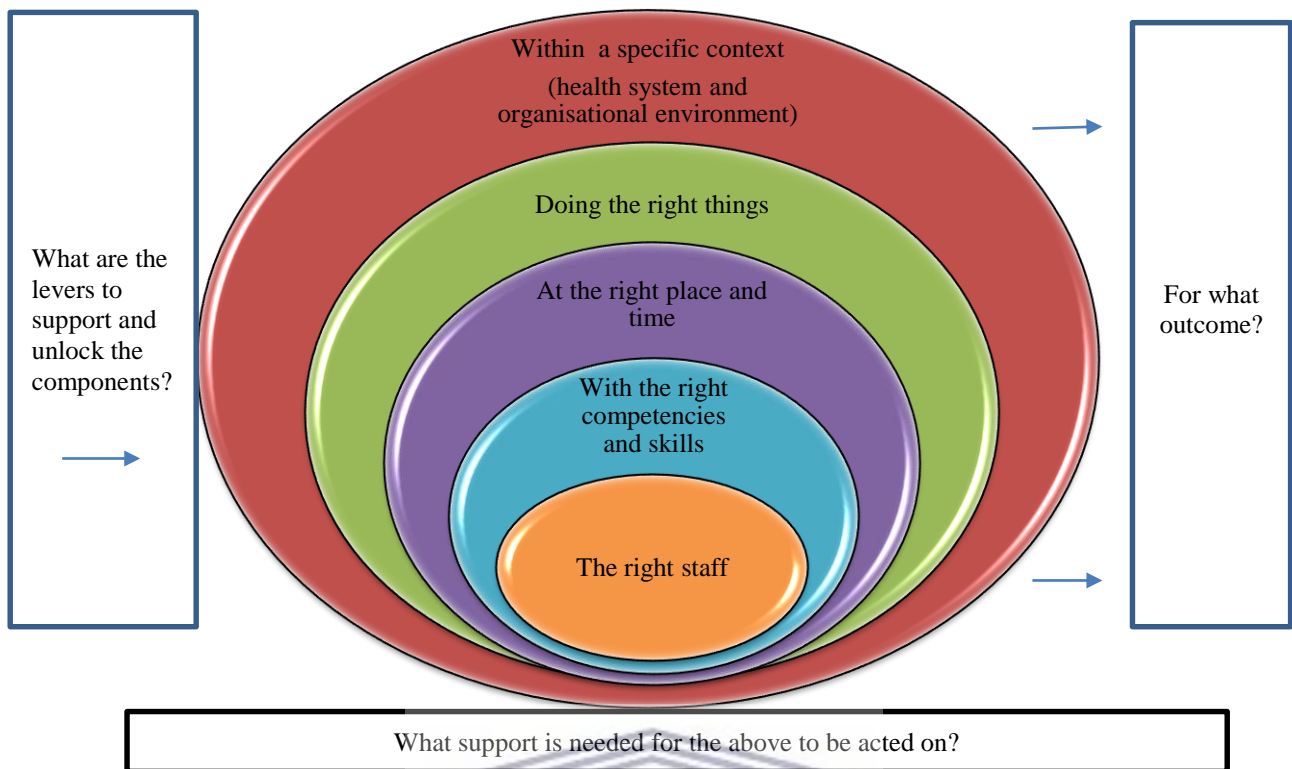


Figure 9.4. HRH workforce components to address the nutrition-related burden



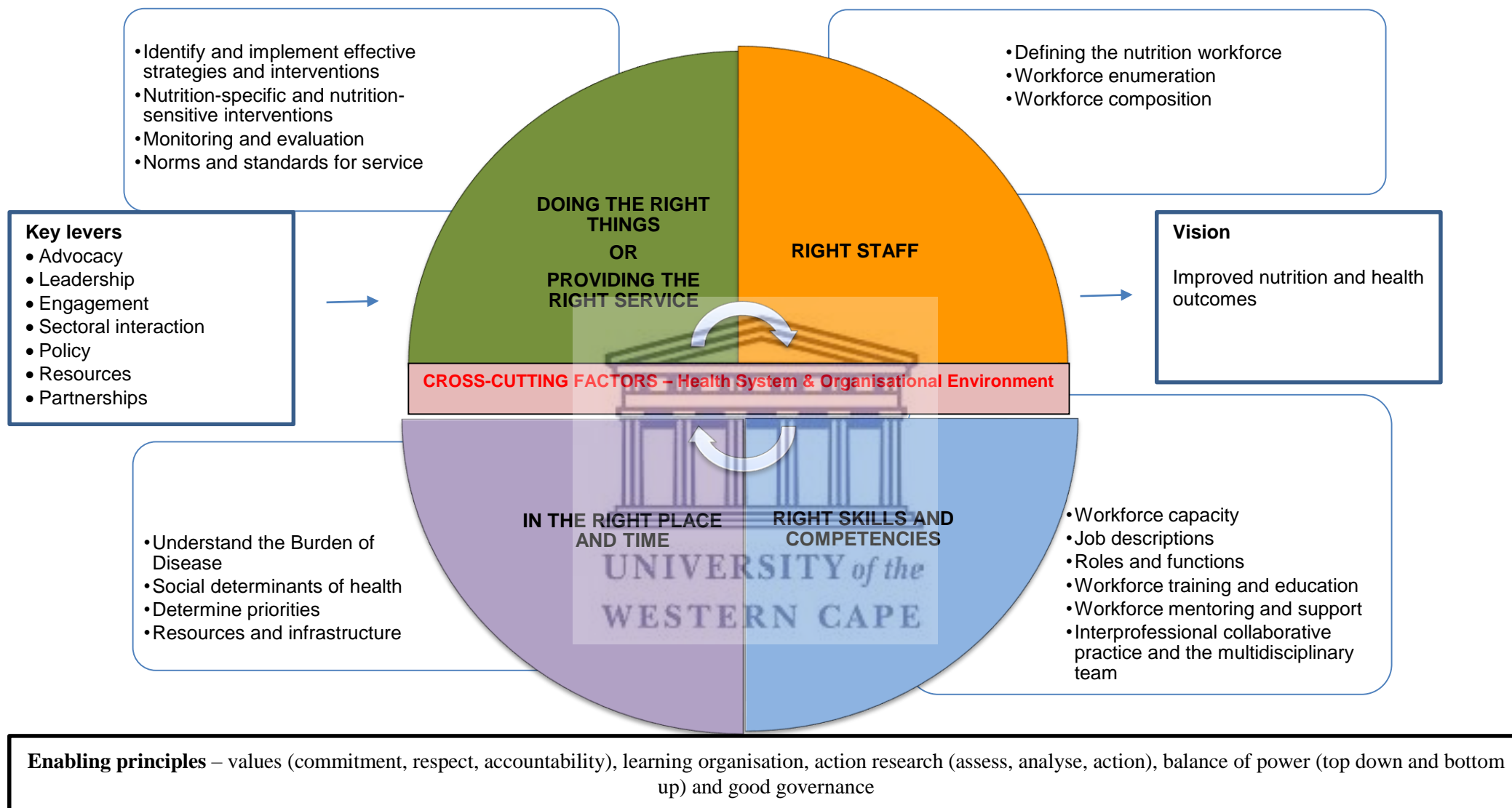


Figure 9.5: Proposed nutrition workforce development framework in the South African context for HRH

The section below describes the individual components and sub-components as well as the levers and support base in the framework for the South African context to improve nutrition and nutrition-related health outcomes.

9.6.1 The right staff

Defining the nutrition workforce – fit for purpose and to practice

It is important to define who the workforce is, what their specific purpose should be and how they should act to achieve the goals and objectives set. Campbell (2013) states that in order to achieve universal health coverage it is important to have a “health workforce that is both fit for purpose and fit to practice” (Campbell, 2013).

The Delphi consensus assessment and iterative process provided a description of the nutrition workforce and its functioning in the health system, with a focus on primary health care in South Africa.

The nutrition workforce includes all human resources engaged in nutrition work. Addressing nutrition challenges requires a broad workforce who can collaboratively address the multi-level causes of malnutrition. In the context of service delivery in the health sector it was agreed that nutrition services are provided at primary, secondary and tertiary levels of health care. The district hospital is the hub for the PHC services, which include community health centres, community day centres, clinics and community-based services in homes and in the community. Nutrition services are part of the comprehensive service package; thus, advocacy, monitoring and evaluation of nutrition services should be embedded as part of the health system functions.

Workforce composition

The PHN workforce globally is seen to include all those who make a contribution to protect and promote health through better nutrition. This is also the case in South Africa, as was revealed through the iterative Delphi agreement process in the study. The workforce composition is not limited to nutrition professionals; there is widespread acknowledgement that multidisciplinary teamwork is required. The PHC services are mainly nurse driven and supported by the implementation of a multidisciplinary team inclusive of dietitians and nutritionists. The scopes of responsibility among nurses have been expanded due to staff shortages and it is understood that their responsibilities should be aligned with their relevant scopes of practice. Dietitians and nutritionists have as their main responsibility and core function the provision of nutrition services.

To transition from the current state of two registered professionals to one in future will require futuristic planning which integrates the new professional into the services and re-skills existing cadres to fulfil their nutrition service roles with competence and confidence.

The new professional dietitian–nutritionist can be placed at various levels in the health system, i.e. national, provincial, district, sub-district or facility level. Multidisciplinary team members in the health sector who contribute to the delivery of nutrition services are: health promotion practitioners/nutrition advisers, community health workers, nurses, medical practitioners, other allied health professionals and environmental health officers.

Workers in other sectors can provide extension nutrition services. The creation of posts in other sectors such as education, social services and agriculture is advisable as opposed to appointing generic liaison and field personnel. Nutritionists' competencies should be used in the community-based services platforms to provide technical support and training to other cadres working in that space.

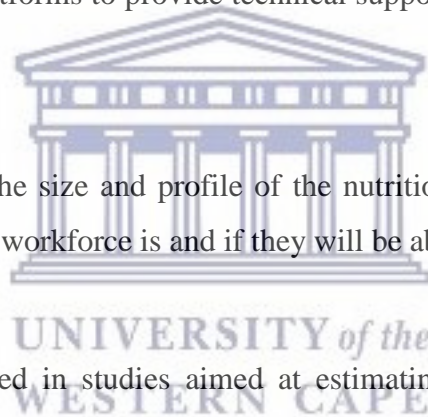
Workforce enumeration

Having an understanding of the size and profile of the nutrition workforce is important for determining who the nutrition workforce is and if they will be able to respond to the nutrition-related Burden of Disease.

Limitations have been reported in studies aimed at estimating the public health nutrition workforce. Some examples noted are: occupational classifications that do not always reflect the duties and qualifications and multidisciplinary nature of the public health nutrition workforce, the lack of uniform job descriptions, the variety of roles and responsibilities, the diversity of job titles, the limited workforce data collection systems and the limited research data on the public health workforce (Hughes, 2002).

This study focussed on six cadres in the PHC platform of the health service and reviewed the demographic, educational and practice characteristics, scope of practice, training requirements and job description analysis of these cadres. The information gathered through the study can be used as a baseline to profile the PHC nutrition workforce in the South African context.

Profiling the nutrition workforce, which is multidisciplinary, can be challenging. However, it can be done by applying a systematic approach, understanding the operational functioning of



key staff cadres in terms of nutrition and the service delivery models applied in the health system. Systematic approaches would include the following;

- Applying a geographical perspective to taper down the overwhelming size of the workforce that needs to be itemised.
- Using position titles to investigate the nutrition specialist cadres (there are only two professionals who are registrable). The titles used in HR databases can be analysed to determine the number and placement of staff.
- Investigating the multidisciplinary team and their contributions by understanding how the service operates, e.g. identifying the touch points of clients as they move through the system and evaluate who the key multidisciplinary team members are in their management structures.
- In the South African context, PHC services are mainly nurse-driven, supported by community health workers in homes and health promotion officers in health facilities. Doctors' contact with clients is mainly at facility level and they are also key members of the multidisciplinary team.
- Enumeration of these cadres in the PHC context is thus possible and could be mapped geographically, including staff numbers, service delivery points at the level of a district, sub-district and facility, including outreach services by the facility.

Data on the health workforce in low- and middle-income countries was found for only five cadres of health workers, i.e. doctors, nurses, pharmacists, dentists and midwives (Scott & George, 2017). Predicting the workforce needs in the South African context is problematic as data on current full-time-equivalent public health nutritionists/dietitians does not exist.

Workforce needs can thus only be estimated on normative values from other countries, e.g. the US benchmark of one full-time equivalent (FTE) public health nutritionist per 50 000 population (Hughes, 2004). In South Africa the WHO WISN tool has not been fully explored in the nutrition workforce setting and is still underdeveloped.

9.6.2 The right competencies and skills

Workforce capacity

It has been reported that one of the contributing factors to the suboptimal nutritional status in South Africa is the insufficient capacity of human resources (Government of South Africa, 2017). Shrimpton et al. (2013) highlight the evident gap between available capacity and the ability to achieve nutrition and health objectives in low- and middle-income countries. The authors refer to capacity development and/or capacity-building in relation to nutrition as “the process by which individuals, groups and societies increase their ability to perform, solve problems, define objectives, understand and deal with development issues to achieve objectives in a sustainable manner” (Shrimpton et al., 2013: 683).

Developing the capacity of the workforce so as to be fit to practise in nutrition is a complex process and requires the four determining factors, which are at multiple levels, to be addressed. The following section investigates these four factors in the South African service context:

- a) **System-level requirements:** Systemic assessment is needed to inform planning which includes legal frameworks and supporting policies, e.g. national development plans, food and nutrition security policies, nutrition strategies, health systems, health structures and funding. Professional competency standards relate to qualifications, while quality assurance systems are needed for accredited and non-accredited training to ensure that capacity development in nutrition meets the requirements to deliver specific services. Regulatory bodies in South Africa such as the HPCSA, SANC and SAQA can play a key role in ensuring that these systems are in place.
- b) **Organisation-level requirements:** The field of nutrition involves multiple sectors/stakeholders, which can include government, non-governmental and training institutions. It is important for sectors to work together through appropriate co-ordination mechanisms (e.g. information systems) and implement systems to create enabling environments for the nutrition workforce so that they can deliver services efficiently and effectively. Co-ordination at all levels is required, including national, provincial, district, sub-district, facility, community and household level. The mainstreaming of nutrition into the development agenda could create opportunities in South Africa for sectoral co-ordination and training between the tertiary education institutions, professional organisations and regulatory bodies.

- c) Workforce-level requirements:** Specific competencies (knowledge, skills and attitudes) are required by the workforce to fulfil their roles and responsibilities. The competencies are dependent on the sector and the level of service delivery. Direct nutrition-specific interventions are implemented mainly in the health sphere where indirect, nutrition-sensitive interventions are implemented by other sector departments. There is also an overlap with some interventions shared between sectors, creating opportunities for sharing in practice. Understanding the respective roles and responsibilities of professional nutrition workers and other cadres of the workforce allows management to determine the immediate and emerging nutrition training needs. Ongoing professional development is required which should include formal and in-service training. These systems of Continuing Professional Development points have already been implemented in South Africa for dietitians, nutritionists and doctors according to the HPCSA regulations.
- d) Community-level requirements:** These integrate elements of community development into nutrition capacity development. Community participation and involvement of the beneficiaries in nutrition programmes are essential components in creating a greater and more long-lasting impact in communities. Capacitating staff in their respective roles to facilitate processes to include communities as active participants in programmes is absolutely essential for achieving greater population coverage and the implementation of community-based programmes. In order to ensure that the nutrition workforce is fit for purpose, a process of continuous learning is required, including needs assessment, analysis, planning, implementation, reflection and communication.

As the decision is still pending regarding the new nutrition professional, existing and emerging professionals need to be capacitated as both dietitians and nutritionists. The study found that, compared with the global PHN competencies, dietitians should receive more training in the competency components of: enabling knowledge, analytical processes, public health system knowledge and skills, food and nutrition system knowledge, communication, capacity-building and intervention management. Nutritionists, in turn, should receive training in: nutritional science, analytical processes, public health system knowledge and skills, food and nutrition system knowledge, and communication. In the current circumstances the regulations pertaining to the provision of therapeutic services cannot be taken up by nutritionists (refer to Table A4.1). Short courses could be offered to bridge gaps.

Job descriptions

The job description could be seen as a composite of the scope of practice, competency framework, and roles and functions. Competency standards for nutrition are currently not in job descriptions in the South African setting. Delisle et al. (2017) highlight the inclusion of competency standards in the job descriptions of the workforce as one of the recommendations for strengthening the nutrition workforce in low- and middle-income countries (Delisle et al., 2017).

Based on the job description analysis, better alignment can be achieved between the scope of practice, competencies, and roles and functions not only of nutrition professionals but the entire frontline workforce. The analysis has shown that all the cadres contribute to public health nutrition functions to varying degrees. The explicit nutrition-related roles and functions of cadres should be articulated in the job description and performance plans. Quality assurance by human resource departments can support job description processes through the standardisation of same-level posts and job description templates for the workforce. The balance of power between what the employers require from the workforce and employees' expectations are needed. Updates and changes to job descriptions should thus not be done in isolation from the human resource management processes as this will detract from the workforce achieving the collective goals and targets set.

Roles and functions

The participants in the workforce study agreed that fragmentation of nutrition services could be mitigated through clarification and better understanding of individual roles within a multidisciplinary team.

For the South African context, an iterative Delphi process was used in the study to describe the roles of the workforce beyond nutrition professionals, i.e. also including those working as frontline staff in the PHC services. These included doctors, nurses, dietitians-nutritionists, health promoters and community health workers (refer to section 9.4.)

The placement and main functions were also described for the different levels, i.e. national, provincial, district, sub-district and facility for the nutrition professionals:

- At national, provincial and district level they are responsible for policy development, planning, implementation support, and coordination and overseeing/supervision of nutrition services in health.

- Dietitians-nutritionists placed at sub-district and facility level form part of the frontline staff and are responsible for provision of services in the areas of clinical dietetics/therapeutic nutrition, community dietetics, community nutrition, public health nutrition and food service management. Within the scope of practice in the current system, nutritionists are not practising therapeutic nutrition.
- Nutritionists are therefore not placed at hospitals but operate in primary care facilities and in community-based services.
- Dietitians placed at hospitals are engaged in providing mainly therapeutic dietetic services to in- and out-patients and also provide outreach in PHC services. In addition, food service management support is provided.
- The roles of extension workers in nutrition include nutrition promotion and education, advocating for nutrition services, identifying and referring clients, and engaging collaboratively to address the underlying causes of malnutrition.

The roles of community development practitioners (CDPs) have been defined and outlined in the SA Food and Nutrition Security Plan 2017–2022. A CDP is someone who facilitates activities that enable households and communities to manage their own development in order to achieve sustainable livelihoods. Their roles and responsibilities vary according to their level of operation but they are expected to have a clear understanding of their area of operation – be it a community, ward, municipality, district or province (Government of South Africa, 2017). Nutritionists could be ideal for such positions.

Shrimpton et al. (2017) write about nutrition being everybody's business but also the importance of having someone responsible for implementation of nutrition actions. The authors propose that there should be a public health nutrition manager for a district who also takes responsibility for capacity-building of frontline staff and ensures that the district's nutrition services are functioning.

In the district level in South Africa, nutrition managers are responsible for nutrition programming, coordination, supervision and training. At the provincial level, staff are responsible for advocacy, planning, research and training.

Delisle et al. (2017) support the need for competent managers who are trained to scale up nutrition programmes (Delisle et al., 2017). The description of the roles of the respective workers relates to a workforce pyramid in the South African setting. However, in the current

reality in the country, staff do not have the professional profile necessary for the principal tasks (programming, coordination, supervision and training; or advocacy, planning, research and training). The entry-level staff at a Bachelor's degree level do meet the profile in the current South African context, but they rated their own competency levels as entry level. From the survey, South Africa needs to find ways to bridge the capacity and skills gaps through training and staff retention strategies to ensure that staff acquire sufficient insights and experience before moving on to managerial posts.

Workforce training and education

Human resource strategies should assess and monitor the capacity of the workforce based on their defined nutrition-related roles and responsibilities, as indicated in their job descriptions. The strategies should also use opportunities to address gaps through in-service programmes and inclusion of priority areas in workforce development plans.

Globally, hybrid training programmes, which combine distance training and periodic in-person sessions with tutors and peers, are a recommended approach for pre-service and in-service training as well as for continuous education of nutrition professionals (Shrimpton et al., 2016). Dietitians, nutritionists, nurses and managers in the South African workforce have suggested the same but highlighted the need to focus on interdisciplinary training and providing training for teams as opposed to vertical, discipline-specific training.

Continuing professional development (CPD) regulations are in place for the professional cadres of the workforce in South Africa who need to acquire a certain number of CPD units. CPD events are not planned in an integrated manner in South Africa, which could be a barrier to the nutrition workforce's training and development progress. More emphasis should be placed on the training areas that were found to be gaps in the workforce survey and document reviews. Training is done according to the regulations and competencies specified by the Professional Board. Academic and training institutions cannot change the formal training of undergraduate courses on their own but should be collaborating more closely with the health services in terms of CPD needs to ensure that priority training areas for the workforce are incorporated and prioritised.

Workforce mentoring and support

Globally, gaps do exist between the workforce's knowledge and practice. Supervision activities tend to focus on inspecting, auditing and reporting rather than on quality improvement. Mentorship and coaching have been implemented as less punitive interventions to support and

strengthen quality improvements in the health system. Most training relies on didactic approaches with very little on-the-job, practical training that takes into account the whole system as opposed to the individual, vertical parts. Post-training supportive supervision and coaching have been found to be beneficial in assisting with the translation of theoretical knowledge into practice. Mentorship is provided through the sharing of experience from a more experienced individual to a less experienced individual and has been shown to benefit both the mentor and mentee in improving their performance – not only in knowing what to do but also in knowing how to do it (Manzi et al., 2017). Palermo, Hughes and McCall (2010) report that mentoring or on-the-job training, rather than formal training, can be an effective strategy for building a professional identity and stimulating development, especially among entry-level staff members (Palermo, Hughes, & McCall, 2010).

The results from the South African survey indicate that having mentors is less common among nutrition professionals but more common among nursing professionals in the workforce. Nutrition professionals also indicated that their work environment is not supportive, and thus the notion of supportive supervision is not available to them. This aspect complicates their relationships with supervisors who were unclear about their roles and functions and even their capacity. For the South African nutrition workforce, mentoring and support should be introduced as part of the HR process of workforce development. Advocacy and communication, in turn, are needed to inform non-nutrition professionals about what the scope and capacity of nutrition professionals are.

Teamwork – inter-professional collaborative practice and multidisciplinary teams

Greater collaboration is needed between disciplines considering the challenges of the nutrition transition, the determinants of health and the limited resources available for the provision of services (Supper et al., 2015; HRH Global Resource Centre, 2018). Teamwork in health is something that should be promoted, especially in resource-constrained areas of health care and also where essential care is provided in a decentralised manner. Teamwork is where two or more people work together towards a common purpose and display a commitment to collaboration and communication. In health care, this is clearly evident in the multidisciplinary team made up of doctors, nurses and many other professionals who share resources and are responsible for different tasks.

Inter-professional collaboration has been defined in the context of primary health care as integrative cooperation of different health professionals, blending complementary

competencies and skills in order to make the best use of resources (Samuelson et al., 2012). Exploratory research and systematic reviews conducted with nurses and other health professional groups have revealed some facilitating factors and barriers. Among the factors that have been found to facilitate collaboration in teams are: the perceived benefits for patients, appropriate infrastructure and support, confidentiality, team awareness and communication. On the other hand, some of the barriers that have been found in studies are: a shortage of nurses, insufficient time to discuss cases, problems associated with hierarchy, varying priorities, heavy workloads and a lack of communication (Supper et al., 2015).

It is usually accepted that providing basic nutrition education to individuals and screening can be performed by the broader workforce, leaving the more complex nutrition interventions such as therapeutic interventions and counselling to the nutrition professional. Nutrition professionals in multidisciplinary teams should be involved in educating other team members in nutrition interventions and patient education (Stallings, 2000).

The need for the health team to understand each other's roles, competencies and responsibilities is a key component of working together on nutrition goals. In the workforce study, it was found that the multidisciplinary team members, including managers, do not know or understand the roles (including responsibilities and competencies) of nutritionists and dietitians. Not knowing clearly who is responsible for what, when and how makes it virtually impossible to effectively integrate services with one another. The lack of proper integration can lead to confusion, influence the quality of care provided to clients and result in professionals taking on responsibilities that are beyond their scope of practice.

9.6.3 The right time and place

Understand the Burden of Disease

The nutrition workforce needs to understand the Burden of Disease (BoD) in order to respond to nutrition-related challenges. BoD studies, which have been conducted since 1990, provide information on morbidity and mortality, introducing a metric DALY (disability-adjusted life-year) to quantify the Burden of Diseases, injuries and risk factors. From the BoD studies, data has become available on how to reduce diseases by reducing modifiable risk. Diet and nutrition are accepted modifiable factors in the prevalence of non-communicable diseases (NCDs) which are becoming more evident earlier in life and are adding to the public health burden (WHO, 2018).

The NCDs of particular importance are obesity, diabetes, cardiovascular disease including hypertension, cancer, osteoporosis and dental diseases, which are rapidly increasing in developing countries such as South Africa which is weighed down by a quadruple Burden of Disease. South Africa witnesses the prevalence of food insecurity, undernutrition, high stunting rates and obesity in the same population that is gripped by poverty, inequity and rapid urbanisation – which threaten public health and development. Multi-sectoral, multidisciplinary approaches with effective leadership are thus needed as ‘best buys’ for the prevention, treatment and care of diseases and other sources of ill health in order to tackle the nutrition-related Burden of Disease (NDOH, 2016).

Social determinants of health

Poor nutrition and an unhealthy diet are leading risk factors for various chronic health conditions and other diet-related diseases, which contribute to the Burden of Disease. Social determinants at individual, community and population/societal level all impact nutrition. These are inclusive of: upstream factors (social-structural influences on health and health systems, government policies and social, physical, economic and environmental factors), midstream/intermediate factors (psychosocial factors, including social support and health-related behaviours) and downstream factors (factors that affect physiological and biological functioning). Scott et al. (2017) demonstrate how to address these determinants at different levels in the health system and in partnership with other sectors using the obesity phenomenon as a case study in the South African context (Scott et al., 2017). Dissecting and understanding the social determinants in terms of the nutrition-related burden create opportunities to develop programmes of action.

Determine priorities

Priority setting should be done based on the evidence, professional consultations and needs identified by communities. Strategic and operational plans at global, national and provincial level should be developed to indicate the specific goals and objectives that need to be achieved. Nutrition priorities for South Africa have been articulated in nutrition strategic plans but the implementation thereof has been weak.

The roadmap for Nutrition in South Africa 2013–2017 was signed off in 2013 based on a landscape analysis and framework to reposition nutrition and nutrition-related issues and actions prominently in the health care system while at the same time highlighting the multi-sectoral actions needed (NDOH, 2013).

A DPME evaluation performed in 2014 proved that implementation is a problem and that there is no synergy between departments addressing nutrition in children under the age of 5 years. The evaluation found that South Africa had more than 60 policies, strategies, plans and programmes for addressing hunger and malnutrition, but lacked a single integrated national plan to achieve this goal. Positive findings, however, were that the right to food is entrenched in the Constitution (in sections 27, 28 and 35) and policies exist to address immediate, basic and underlying factors associated with poor nutrition (DPME, 2014). To address the problem of insufficient synergy and coherence, a National Food and Nutrition Security Plan (NFNSP) 2017–2022 was developed to collectively tackle the challenges of food insecurity and malnutrition. The latest plan shows that South Africa is committed to the Sustainable Development Goals of ending malnutrition and hunger by 2030. The plan involves a multi-sectoral approach, integrating sectoral interventions from health, social development, education and food security under the leadership of the Presidency to improve co-ordination at the highest level. The main priorities for South Africa are based on the findings of the 2016 household survey and have set impact targets covering interventions to address vulnerability to hunger, undernutrition, and under-5 overweight and obesity (Government of South Africa, 2017).

The local context, however, also needs to be accommodated when global and national priorities are set. This is so that the strategic objectives can be effectively translated so that they find their way into local operational plans for implementation. Further integration of priorities is required from a sectoral perspective, e.g. within the health sector nutrition priorities must be integrated in the areas of maternal, child and women’s health services, chronic disease management and wellness.

Resources and infrastructure

The availability and effective use of resources (human, financial and infrastructure) are essential for enhancing coordination among nutrition services (Government of South Africa, 2017). In the WHO’s health system framework, three of the six building blocks relate to resources and infrastructure, i.e. health workforce, information, medical products, vaccines and technologies, and financing (WHO, 2007). Quality service provision is influenced by the operational environment, including physical infrastructure (buildings, installations and energy sources), logistics and support systems (supply systems, communication, information, transport and waste disposal systems) (Erasmus, Poluta, & Weeks, 2012).

The findings from the study have revealed the existence of numerous challenges with regard to resources and infrastructure for the nutrition workforce, specifically nutrition professionals. The information gathered indicates that on average one-third of nutrition professionals in the public sector work in environments in which they do not have access to offices, transport or the internet, there is insufficient storage space for the goods necessary to deliver their services, and there are staff shortages. These factors (which are evident throughout the country) are similar to those found in the Western Cape and reported in the South African Journal of Clinical Nutrition in 2011 (Goeiman et al., 2011). The DPME 2014 report found that due to the lack of benchmarks for appropriate levels of staffing and funding of nutrition interventions, it is not possible to determine the sufficiency of financial and human resources allocated for nutrition in South Africa. Resources in the current South African system are mostly combined with the budgets of other programmes as part of integrated services (DPME, 2014).

The findings highlight that there is a great need to address the resource and infrastructure challenges that are hampering effective nutrition service delivery and programme implementation. Clearly, further research aimed at finding innovative solutions could add much value.

9.6.4 Doing the right things

Identify and implement effective strategies and interventions

It is an acknowledged fact that most nutrition interventions are delivered through the health sector and that non-health interventions are critical. However, multi-sectoral approaches are viewed as being very complex and co-ordination of sectoral plans are deemed to be very difficult. Despite these potential stumbling blocks, these approaches are nevertheless necessary to address malnutrition in all its forms (IFPRI, 2011).

Kim et al. (2017) emphasise the importance of convergence of sectoral programmes to scale up essential interventions for maternal, child health and nutrition interventions. Consistency is required to ensure effective co-ordination between sectoral interventions. Furthermore, clarification of roles and responsibilities, effective leadership, accountability, supervision and interpersonal communication are necessary to facilitate multi-sectoral convergence, especially at the frontline level (Kim et al., 2017).

UNICEF has described the pathway to optimal nutrition as having both nutrition-sensitive and nutrition-specific interventions. Nutrition-sensitive interventions include agriculture and food

security, social safety nets, early childhood development, maternal mental health, women's empowerment, water and sanitation, childhood protection, and health and reproductive services. Nutrition-specific interventions, on the other hand, encompass a package of interventions along the entire life cycle, including adolescent health and preconception nutrition, micronutrient supplementation, breastfeeding and complementary feeding, treatment of severe acute malnutrition and disease prevention.

The dynamic interaction between these interventions requires an enabling environment, characterised by leadership, capacity and financial resources, proper governance, and the application of knowledge and evidence. An enabling environment facilitates implementation of nutrition-sensitive interventions which in turn facilitate the implementation of nutrition-specific interventions such as enhanced breastfeeding, availability of nutrient-rich foods, improved feeding and caregiving practices, and low BoD (DPME, 2014; Government of South Africa, 2017; Black et al., 2013; WHO, 2013).

The National Food and Nutrition Security Plan (NFNSP) 2017–2022 in South Africa captures the priorities for the country based on the nutrition situation. The goal of the plan is to establish the necessary systems to lead, coordinate, budget and monitor the implementation of a priority set of actions to improve the country's food and nutrition status by 2030 (Government of South Africa, 2017). The assumption of responsibility for nutrition at the level of the Presidency seems to suggest a commitment to action as opposed to nutrition simply being on the political agenda and/or the expressed political commitment is devoid of any action steps.

Norms and standards for service

A norm can be defined as 'the desired status' with regard to compliance and requirements. According to the National Health Act, Act 61 of 2003, a norm is "a statistical normative rate of provision or measurable target outcome over a specific time period". A standard is a 'mandatory legal requirement' or a recommendation that one is expected to follow to obtain the desired norm outcome. It is a statement of an expected level of quality delivery. Together they reflect the ideal performance level (NDOH, 2017).

Norms and standards for nutrition services are being developed in South Africa in the health sector based on existing legislation, policies, guidelines, and protocols relating to nutrition services. The aim of norms and standards in the South African context is to ensure provision of good quality nutrition services by:

- setting uniform nutrition standards for client services;

- establishing a foundation for the development of job aids;
- revising training curricula;
- monitoring and evaluation;
- implementing quality assurance programmes.

The norms and standards currently focus more on the nutrition professionals and outline nutrition care practices in all spheres of the health system, namely primary, district, regional and tertiary levels of care. Specifically, they cover therapeutic, community-based and food service management areas of nutrition services (NDOH, 2017). Norms and standards are essential for service delivery as they ensure a certain level of care across the services platform.

Monitoring and evaluation

Nutrition is a cross-cutting issue which should be mainstreamed in all development plans and also in health. Monitoring of nutrition targets has always been included in the global goals and targets set for countries. The UN Decade of Action on Nutrition (2016–2025) was declared in 2016 (WHO, 2016b). It served to reaffirm commitments towards the Comprehensive Implementation Plan on Maternal Infant and Young Child Nutrition (CIP-MIYCN) as well as global targets of prevention of NCDs. Similarly, targets have been set as part of the Sustainable Development Goals and countries like South Africa have followed suit, signing up to work towards achieving these goals.

The human resources indicator included as part of the CIP-MIYCN is the number of trained nutrition professionals per 100 000 population. There is a strong call to monitor the capacity of the workforce at all levels: organisation, workforce and community level (Shrimpton et al., 2017). Yet finding the appropriate indicators appears to remain a challenge. Monitoring and evaluation, as well as a set of SMART impact targets and indicators, have been included in the NFNSP. One of the six strategic objectives is to develop a monitoring and evaluation system for food and nutrition security (FNS), including an integrated risk management system for monitoring FNS-related risks (Government of South Africa, 2017).

9.6.5 Specific context – Health system and organisational environment

Internal and external factors in the environment affect the success of nutrition programme implementation and service delivery. Internal factors affecting collaboration include leadership, vision, managerial capacity, organisational structures, values, culture and

incentives. External environmental factors include whether or not nutrition is seen as a development priority, and economic, social, cultural, political and legal factors (IFPRI, 2011).

Health worker performance is influenced by workers' motivation levels which are influenced by the organisational environment and social context within which they find themselves.

Franco, Bennett, & Kanfer (2002) developed a conceptual framework for understanding determinants of motivation and described how health worker motivation is influenced by health sector reform. Key elements are: individual processes (people's goals, values and expectations), organisational factors (infrastructure, structural processes and culture) and cultural factors (the intersection between social norms and functioning of the organisation and societal values and expectations) (Bhatnagar, 2017; Scott & George, 2017). The WHO has suggested ways of strengthening leadership and management. In the study, the four main organisational criteria needed for improved health services and sector goals were identified as: adequate numbers of managers, adequate competencies, financial support systems and enabling work environments (Kwamie, Bhatnagar, & Lehmann, 2017; Scott & George, (2017). Governance in health care has been seen as a neglected area in the field of HRH, yet it is crucial for policy formulation, implementation and quality of care (Dieleman, & Hilhorst (2011).

Governance can be defined as the rules that distribute roles and responsibilities among government, providers and beneficiaries and which shape their interactions. Governance encompasses authority, power and decision making in the arenas of civil society, politics, policy and public administration. Four dimensions of governance are: performance, equity and equality, partnerships and collaboration, and oversight (Royal Tropical Institute, 2010). Governance can positively influence patients' experiences by promoting openness and a culture of accountability through the involvement of service users in the process of health planning and service delivery (Kaini, 2013).

Nutrition services are delivered within the wider health system and external environment. It is important not to ignore and neglect the context and issues (key levers and enabling principles) highlighted in preceding sections and to ensure that internal (including organisational) and external factors are considered when planning for the nutrition workforce.

9.7 Key messages from all the data

- A workforce development planning framework with key components, sub-components, levers and enabling principles is proposed to improve nutrition and health outcomes.

- A lack of a shared vision in terms of nutrition services and interventions leads to poor implementation of policies, disappointing outcomes and little impact – all of which are exacerbated by staff shortages. Geographical access and delivery of nutrition services are also diminished, which limit the prospects of making suitable client referrals.
- Major weaknesses in the health system, as identified by nurses, dietitians and nutritionists, are too few staff having to handle too much work, tight budgets and poor management support.
- The work environments of nutrition professionals are not conducive to motivation or efficiency. Staff shortages, limited office and storage space and limited time for training are all problems that have led to the workforce feeling unsupported.
- Quality assurance of standard HR practices can be called into question as job description templates and the contents of same-level posts are not standardised.
- Nutrition-related functions are not specified in competency frameworks or the job descriptions of non-nutrition professionals, and thus cadres in the workforce are not sure where their nutrition-related roles begin and end. The wording used in scope documents indicating that doctors and nurses should provide holistic care and comprehensive care, respectively, is too vague.
- In the scopes of the four registrable professionals, there is an overlap in functions such as advising, educating and promoting good health and nutrition. Capacity-building should focus on interdisciplinary training in teams.
- There is an imbalance between the scope of practice and the scope of responsibility due to poor regulation by coordinating bodies. As a result, task shifting, informal arrangements and delegation of tasks to lower levels occur, despite the lack of capacity.
- The differences between the two nutrition professionals (dietitians and nutritionists) are not known or understood by other cadres of staff.
- Competency gaps exist in nutrition intervention management and capacity-building among nutrition professionals. All cadres need more training in these and other critical, cross-cutting and practice PHN competency areas.
- Dietitians and nutritionists are the core nutrition service providers with the most competencies.
- Standardised key nutrition messages are required for non-nutrition professionals.
- An enabling environment with clear role definition, leadership, multidisciplinary teamwork and supportive supervision is required.

- Communication, co-ordination and advocacy between policy makers and local implementers are key factors in the strengthening of service delivery.
- It is necessary to build a professional identity that is linked to professional training as it will inspire greater confidence in the competence of the nutrition workforce.
- An understanding of the nutrition-related Burden of Disease factors is needed when determining priorities.

Effective evidence-based strategies and interventions to address the nutrition-related Burden of Disease should be delivered according to norms and standards of expected service quality, with implementation being closely monitored and evaluated.

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Table A9.1. Round 1: Community health workers' summary of findings

Findings	Community health workers
Agreement	Most participants agreed (average 35%) and/or strongly agreed (average 59%) on the roles and responsibilities defined in all areas. One participant indicated that the scope of the functions mentioned was in line with the literature, current expectations and policy. The most important functions highlighted in the comments were screening, referral and health awareness.
Disagreement	Only one participant strongly disagreed with all the proposed roles and responsibilities. One participant disagreed with nutrition education and two disagreed with involvement in campaigns. One participant was unsure about basic nutrition screening, CHW assistance during campaigns, support given to mothers for the promotion of growth and development, and promotion of healthy lifestyles. Two participants were unsure of CHWs' support in respect of self-care and management.
Recommendations for additional roles and responsibilities	<ul style="list-style-type: none"> • Find cases and follow up with defaulters, e.g. chronic diseases of lifestyle clients • Counsel caregivers in responsive stimulation, e.g. play and communication • Screen for maternal mental health. • Refer clients to social services and other inter-sectorial partners, e.g. agriculture. • Provide psycho-social support. • Review PHC nutrition data. • Lead implementation of new policies and procedures in the PHC environment. • Add health and hygiene to promotional activities. • Add health education to nutrition education. • Add referrals to health services, including the full comprehensive service package (family planning, immunisation, antenatal care and chronic conditions). • Assemble documentation and report on interventions. • Conduct community-based growth monitoring.
Recommendation to remove	None
Summarised themes from 25 comments received	<ol style="list-style-type: none"> 1. Capacitation of CHWs – Training needs to be provided to ensure that they have the capacity to carry out identified roles and functions. Specific skills and competencies need to be obtained based on the tasks assigned to CHWs, be they at individual, household, community or campaign/population level. 2. CHW work environment – CHWs need to be supported in the work environment through the provision of appropriate resources (job aids and equipment) and supervision. Other aspects in the work environment to consider or review are their conditions of

	<p>service, who they report to and how their work will be monitored and evaluated. CHWs need guidance from professionals before interventions are implemented.</p> <p>3. CHW role clarification – Indicate what their main functions are and clearly distinguish what tasks are not included in their functions, e.g. providing injections and medication. Assigned roles must be aligned and must comply with applicable regulations.</p> <p>4. CHWs should have dedicated nutrition roles – There are good examples of CHWs working in nutrition, indicating improved outcomes. They should be involved in community-based growth monitoring as children are lost to health facilities after 18 months of age. The tools for nutrition screening should include children under 6 months and older than 5 years, and adults.</p>
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Table A9.2. Round 1: Roles and responsibilities of community health workers

Community health workers' roles and responsibilities	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total
1. Provide basic nutrition screening at household level – weight, height, MUAC.	1(3%)	0(0%)	1(3%)	10(34%)	17(59%)	29(100%)
2. Identify clients who are nutritionally at risk.	1(4%)	0(0%)	0(0%)	10(36%)	17(61%)	28(100%)
3. Refer families and children to health services.	1(3%)	0(0%)	0(0%)	8(28%)	20(69%)	29(100%)
4. Promote good nutrition and health by supporting mothers through infant and young child nutrition, e.g. exclusive breastfeeding, continued breastfeeding and complementary feeding from 6 months.	1(4%)	0(0%)	0(0%)	9(31%)	19(66%)	29(100%)
5. Provide basic nutrition education.	1(3%)	1(4%)	0	9(33%)	16(59%)	27(100%)
6. Assist in campaigns by administering vitamin A supplements, deworming and MUAC assessments.	1(3%)	2(7%)	1(3%)	12(41%)	13(45%)	29(100%)
7. Provide support to mothers by encouraging households to be responsive to the needs of children in terms of growth and development.	1(3%)	0	1(3%)	11(38%)	16(55%)	29(100%)
8. Promote healthy lifestyles.	1(3%)	0	1(3%)	10(33%)	18(60%)	30(100%)
9. Support clients in working towards self-care and management.	1(3%)	0	2(7%)	11(37%)	16(53%)	30(100%)
Average	3%	1%	2%	35%	59%	100%

Note: The weights assigned were as follows: 1= Strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, and 5 = Strongly agree

Table A9.3. Round 1: Health promoters' summary of findings

Findings	Health promoters
Agreement	Most participants agreed (average 31%) and/or strongly agreed (average 64%) on the roles and responsibilities defined in all areas.
Disagreement	<p>No single participant strongly disagreed with all the proposed roles and responsibilities.</p> <p>One participant disagreed with the role of nutrition and health promotion through the course of life and two disagreed with support given to clients regarding self-care and management.</p> <p>One participant was unsure about nutrition and health promotion through the course of life. Two participants were unsure about the role of nutrition education in groups and one person was unsure about support given to clients regarding self-care and management.</p>
Recommendations for additional roles and responsibilities	<ul style="list-style-type: none"> • Ensure that health promoters are involved at all levels of care. Add participation in community-based outreach, campaigns and interventions. • Expand service activities to include broader health and wellness, e.g. prevention of smoking and alcohol abuse, promotion of good hygiene practices and safe sex, etc. • Advise on responsive stimulation, maternal mental health and psycho-social support. • Promote and support breastfeeding, and provide counselling on complementary feeding and dietary adequacy. • Refer at-risk mothers and children to PHC nurses. • Provide training on selected health topics. • Conduct monitoring and evaluation of activities.
Recommendation to remove	The scope for promotion should not necessarily extend throughout the life cycle.
Summarised themes from 15 comments received	<ol style="list-style-type: none"> 1. Health promoter training – Health promoters need to be trained adequately to fulfil their function of lifestyle education. They require the necessary tools to promote healthy lifestyles and engage with communities through focus group discussions. Extensive training is required if they are to cover all age groups and need to incorporate comprehensive aspects of disease prevention in their practice. 2. Health promoters are part of the multidisciplinary team and should be acknowledged – The role of health promoters is not well known to everyone in the multidisciplinary team. They have insights into communities' practices and behaviours that may impact nutrition outcomes. They are able to come up with practical and relevant solutions for behavioural change. They are valuable in a PHC setting and in the community.

Table A9.4. Round 1: Roles and responsibilities of health promoters

Health promoters' roles and responsibilities	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total
	n (%)	n (%)	n (%)	n (%)	n (%)	n(%)
1. Promote good nutrition throughout life for the prevention of ill health.	0(0%)	1(3%)	1(3%)	8(28%)	19(66%)	29(100%)
2. Provide nutrition education to groups.	0(0%)	0(0%)	2(7%)	9(31%)	18(62%)	29(100%)
3. Refer clients to multidisciplinary teams.	0(0%)	0(0%)	0(0%)	10(36%)	18(64%)	28(100%)
4. Support clients in working towards self-care and management.	0(0%)	2(7%)	1(3%)	8(27%)	19(63%)	30(100%)
Average	0(0%)	1%	3%	31%	64%	100%

Table A9.5. Round 1: Nurses' summary of findings

Findings	Nurses
Agreement	Most participants agreed (average 31%) and/or strongly agreed (average 64%) on the roles and responsibilities defined in all areas.
Disagreement	There was no strong disagreement on any of the roles and responsibilities. Only one participant disagreed with the promotion of good nutrition and health, nutrition education, and implementation of nutrition policies and programmes, while three participants disagreed with advising on nutrition interventions. One participant was unsure about the promotion of good nutrition and health and the implementation of nutrition policies and programmes, while three were unsure about advising on nutrition interventions.
Recommendations for additional roles and responsibilities	<ul style="list-style-type: none"> • Promote, protect and support breastfeeding. • Prescribe and issue special feeds, e.g. in the case of severe or acute malnutrition. • Report and record nutrition data, and get involved in data management. • Listen to and counsel patients. • Rephrase basic nutrition and health education. • Rephrase by adding the word liaison in reference to multidisciplinary team. • Engage in responsive stimulation and parenting. • Refer clients to social services. • Interface with CHWs and health promoters about at-risk children.
Recommendation to remove	None A question was raised by a participant as to who would do the quality assurance.

Summarised themes from 15 comments received	<p>1. Nurses' training – The scope of the functions mentioned are in line with the literature and current expectations. Nurses need to be adequately trained to fulfil their roles. They can potentially do more in terms of clinical interpretation and treatment, provided they have been capacitated. Nurses should be trained to provide age-related advice. Nurses should be provided with a set of key messages to share with clients.</p> <p>2. Multidisciplinary team; nurses are key cadres for improving nutrition outcomes – Nurses are the main implementers of services at the PHC level and take responsibility for interventions at the frontline. In the absence of dietitians, nurses take on the responsibility of managing clients, especially in cases of severe or acute malnutrition. Nurses are allowed to assess, classify and prescribe supplements in severe acute malnutrition cases. Nurses should augment services of dietitians and not be seen to act within the scope of dietitians. Nurses should be seen as members of the multidisciplinary team as opposed to the only ones to take on the responsibility of implementing interventions.</p> <p>3. Task shifting – Nurses' scope of responsibility has expanded. They are required to provide comprehensive, integrated services and fill in for others due to staff shortages and service demands. Basic nutrition education can be provided by health promoters and other cadres. With the increasing workloads they have to shift basic functions to health promoters, CHWs and nursing assistants. Nurses should refer clients to dietitians/nutritionists and augment nutrition services.</p>
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Table A9.6. Round 1: Roles and responsibilities of nurses

Nurses' roles and responsibilities	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
1. Promote good nutrition and health throughout life.	0(0%)	1(3%)	1(3%)	9(30%)	19(63%)	30(100%)
2. Conduct nutrition screening and assessments.	0(0%)	0(0%)	0(0%)	10(34%)	19(66%)	29(100%)
3. Conduct growth monitoring and promotion.	0(0%)	0(0%)	0(0%)	9(31%)	20(69%)	29(100%)
4. Provide basic nutrition education.	0(0%)	1(3%)	0(0%)	10(34%)	18(62%)	29(100%)
5. Refer clients to multidisciplinary teams.	0(0%)	0(0%)	0(0%)	7(24%)	22(76%)	29(100%)
6. Implement nutrition policies and programmes.	0(0%)	1(3%)	1(3%)	10(34%)	17(59%)	29(100%)
7. Advise on nutrition interventions.	0(0%)	3(10%)	3(10%)	8(28%)	15(52%)	29(100%)
Average	0%	3%	2%	31%	64%	100%

Note: The weights assigned were as follows: 1= Strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, and 5 = Strongly agree

Table A9.7. Round 1: Doctors' summary of findings

Findings	Doctors
Agreement	On average, the levels of agreement for agree and strongly agree on all roles and responsibilities were 26% and 64%, respectively
Disagreement and unsure	One participant strongly disagreed with nutrition assessment of clients, implementation of nutrition policies and advising on nutrition interventions. One participant disagreed with the promotion of nutrition through the course of life and diagnosis of nutrition conditions and health; three participants disagreed with nutrition assessment of clients and advising on nutrition; and four participants disagreed with the implementation of nutrition policies and programmes. Two participants indicated that they were unsure about advising on nutrition interventions.
Recommendations for additional roles and responsibilities	<ul style="list-style-type: none"> • Prescribe special feeds in the absence of a dietitian. • Rephrase by adding the word liaison in reference to multidisciplinary team. • Rephrase – doctors interpret assessment results; they do not actually conduct the nutrition assessments.
Recommendation to remove	None A question was raised by a participant as to who would do the quality assurance, monitoring and evaluation of services.
Summarised themes from 15 comments received	<ol style="list-style-type: none"> 1. <u>Multidisciplinary team</u> – Doctors are part of the multidisciplinary team and the entire team takes part in lifestyle education, especially in the context of obesity. Doctors should recognise the role of dietitians–nutritionists and refer appropriately to nurses and other members of the team. Advocacy is needed for the strengthening of services and assistance with clinical governance. 2. <u>Doctors' training</u> – The scope of the functions mentioned are in line with the literature and current expectations. Appropriate training is required on the latest interventions and policies, such as support for the promotion of breastfeeding and complementary feeding, micronutrient supplementation, the management of moderate and severe acute malnutrition, responsive stimulation and caregiver responsiveness (parenting).

Table A9.8. Round 1: Roles and responsibilities of doctors

Doctors' roles and responsibilities	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
1. Promote good nutrition and health throughout life.	0(0%)	1(3%)	0(0%)	9(30%)	20(67%)	30(100%)
2. Conduct nutrition assessments of clients.	1(3%)	3(10%)	0(0%)	9(31%)	16(55%)	29(100%)
3. Diagnose nutrition conditions and health.	0(0%)	1(3%)	0(0%)	6(21%)	22(76%)	29(100%)
4. Refer clients to multidisciplinary teams.	0(0%)	0(0%)	0(0%)	8(28%)	21(72%)	29(100%)

5. Implement nutrition policies and programmes.	1(3%)	4(14%)	0(0%)	5(17%)	19(66%)	29(100%)
6. Advise on nutrition interventions.	1(3%)	3(10%)	2(7%)	9(31%)	14(48%)	29(100%)
Average	2%	7%	1%	26%	64%	100%

Note: The weights assigned were as follows: 1= Strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, and 5 = Strongly agree

Table A9.9. Round 1: Dietitians’–nutritionists’ summary of findings

Findings	Dietitians–Nutritionists
Agreement	The average agreement on all roles and responsibilities was 14%; while the average overall strong agreement on all roles and responsibilities was 84%.
Disagreement and unsure	There was no disagreement on any of the roles and responsibilities.
Recommendations for additional roles and responsibilities	<ul style="list-style-type: none"> • Advocate for recognition of nutrition through stronger nutrition information management. • Rephrase clinical nutrition to therapeutic nutrition services at a specific level as per the regulations. • Add sub-points suggested under the main points. • Promote healthy lifestyles, and plan and implement broader healthy lifestyle programmes.
Recommendation to remove	<p>None</p> <p>A comment was made that the management of nutrition services is too broad and needs to be clarified.</p> <p>The question was raised as to who would be responsible for quality assurance, monitoring and evaluation.</p>
Summarised themes from 15 comments received	<ol style="list-style-type: none"> 1. <u>Staff numbers to be increased</u> – Access to nutrition professionals is limited to once-a-month visits at outreach sites. Services need to be available in response to referrals. CHWs should assist with outreach activities. 2. <u>Implementation of key nutrition interventions</u> – The scope of the functions mentioned is in line with the literature, current expectations and policy. There is a need to focus on interventions to reduce stunting. Provision of services should include households, NGOs and institutions. 3. <u>Understanding the role of the dietitian–nutritionist</u> – It is suggested that there should be geographical co-ordination and support forums for service delivery which can function in facility and community settings. Communication with role players will lead to improved services and outcomes. 4. <u>Training of the new nutrition professional</u> – Training needs to be appropriate and include knowledge and skills that deliver nutrition services at the individual, community and population level. Areas of exposure could include: the health system – PHC platform; nutrition programmes and indicators; multidisciplinary activities such as campaigns and/or health promotion and home visits with the CHWs; food and nutrition-related legislation; and management and leadership of nutrition policy and programmes. Opportunities should be sought to include undergraduate and postgraduate training.

Table A9.10: Round 1: Roles and responsibilities of dietitians–nutritionists

Dietitians’–nutritionists’ roles and responsibilities	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
1. Promote good nutrition and health throughout life.	0(0%)	0(0%)	0(0%)	1(3%)	28(97%)	29(100%)
2. Provide nutrition services to in-/out-patients and in communities (outreach).	0(0%)	0(0%)	0(0%)	4(14%)	25(86%)	29(100%)
3. Research and analyse nutrition programmes and interventions.	0(0%)	0(0%)	1(3%)	8(28%)	20(69%)	29(100%)
4. Manage nutrition interventions in terms of strategy and established programmes.	0(0%)	0(0%)	0(0%)	5(17%)	25(83%)	30(100%)
5. Provide training/build capacity in nutrition.	0(0%)	0(0%)	1(3%)	1(3%)	27(93%)	29(100%)
6. Contribute to nutrition policy processes.	0(0%)	0(0%)	1(3%)	4(14%)	24(83%)	29(100%)
7. Manage nutrition services.	0(0%)	0(0%)	1(3%)	4(14%)	24(83%)	29(100%)
8. Provide clinical nutrition services.	0(0%)	0(0%)	1(3%)	5(17%)	23(79%)	29(100%)
9. Engage in nutrition communication and education.	0(0%)	0(0%)	0(0%)	4(14%)	25(86%)	29(100%)
10. Promote a sound food and nutrition environment and inter-sectorial functions, including food service management.	0(0%)	0(0%)	0(0%)	7(24%)	22(76%)	29(100%)
11. Refer clients to multidisciplinary teams.	0(0%)	0(0%)	0(0%)	3(10%)	26(90%)	29(100%)
Average	0%	0%	1%	15%	84%	100%

Note: The weights assigned were as follows: 1= Strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, and 5 = Strongly agree

Table A9.11. Round 2: Description of the nutrition workforce

Nutrition workforce description	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
1. The nutrition workforce includes all human resources engaged in nutrition work.	0(0%)	0(0%)	0(0%)	14(44%)	18(56%)	32(100%)
2. Addressing the nutrition challenges requires a broad workforce who can collaboratively address the multi-level causes of malnutrition.	0(0%)	0(0%)	0(0%)	7(22%)	25(78%)	32(100%)
3. Nutrition services are provided at the primary, secondary and tertiary levels of health care.	0(0%)	1(3%)	1(3%)	7(22%)	23(72%)	32(100%)

Nutrition workforce description	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
4. The PHC service platform includes hospitals, community health centres, community day centres, clinics and community-based services in homes and in the community.	0(0%)	2(6%)	2(6%)	9(28%)	19(59%)	32(100%)
5. PHC services are mainly nurse-driven and supported by the implementation of a multidisciplinary team approach, inclusive of dietitians and nutritionists.	0(0%)	1(3%)	0(0%)	14(44%)	17(53%)	32(100%)
6. In the health sector the core function and main responsibility of dietitians and nutritionists is providing nutrition services.	0(0%)	0(0%)	1(3%)	14(44%)	17(53%)	32(100%)
7. The HPCSA Board for Dietetics and Nutrition decided that in future only one nutrition professional would be trained as the key professional to address the nutrition-related challenges in South Africa.	1(3%)	3(9%)	3(9%)	11(34%)	14(44%)	32(100%)
8. Transitioning from the current state of two registered professionals to one in future will require careful planning aimed at integrating the new professional into existing services, and absorbing and upskilling existing cadres to fulfil their nutrition service roles competently and confidently.	1(3%)	1(3%)	2(6%)	8(25%)	20(63%)	32(100%)
9. The new professional dietitian–nutritionist can be placed at various levels within the health system, i.e. national, provincial, district, sub-district and facility level.	1(3%)	0(0%)	1(3%)	8(25%)	21(68%)	31(100%)
10. At national, provincial and district level, they are responsible for policy development, planning, implementation, support, co-ordination and overseeing/supervision of nutrition services in health.	1(3%)	0(0%)	1(3%)	10(31%)	20(63%)	32(100%)
11. Dietitians–nutritionists placed at sub-district and facility level form part of the frontline staff and are responsible for implementing the provision of clinical dietetics/therapeutic nutrition, community dietetics, community nutrition, public health nutrition and food service management.	1(3%)	0(0%)	0(0%)	11(34%)	20(63%)	32(100%)
12. In the current system nutritionists are not practising therapeutic nutrition. Nutritionists are therefore not placed at hospitals but are rather assigned to primary care facilities and community-based services.	0(0%)	1(3%)	5(16%)	13(41%)	13(41%)	32(100%)

Nutrition workforce description	Strongly disagree	Disagree	Unsure	Agree	Strongly agree	Total
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
13. Dietitians placed at hospitals are engaged in providing mainly therapeutic dietetic services to in- and out-patients as well as outreach to PHC services. Food service management support is also provided.	1(3%)	2(6%)	1(3%)	13(41%)	15(47%)	32(100%)
14. Multidisciplinary team members in the health sector who contribute to the delivery of nutrition services are: health promotion practitioners/nutrition advisers, community health workers, nurses, medical practitioners, other allied health professionals and environmental health officers.	0(0%)	0(0%)	1(3%)	10(32%)	20(65%)	31(100%)
15. Training of all cadres of staff in nutrition is essential and should be aligned to their key roles and functions.	0(0%)	0(0%)	1(3%)	8(25%)	24(75%)	32(100%)
16. The scopes of responsibility have been expanded, especially among nurses due to staff shortages, but there should be alignment with their relevant scopes of practice.	0(0%)	0(0%)	2(6%)	12(38%)	18(56%)	32(100%)
17. Nutrition services are part of the comprehensive service package; thus, advocacy, monitoring and evaluation of nutrition services should be embedded in the health system's functions.	0(0%)	0(0%)	0(0%)	10(31%)	22(69%)	32(100%)
18. Fragmentation of nutrition services can be mitigated through clear role clarification and better understanding of individual roles within a multidisciplinary team.	0(0%)	0(0%)	1(3%)	14(44%)	17(53%)	32(100%)
19. Workers in other sectors, e.g. agriculture, teaching and social development, can provide extension nutrition services.	1(3%)	2(6%)	1(3%)	12(38%)	16(50%)	32(100%)
20. Roles for extension workers in nutrition include: promoting and providing education in nutrition, advocating for nutrition services, identifying and referring clients and engaging collaboratively to address underlying causes of malnutrition.	0(0%)	0(0%)	3(9%)	16(52%)	12(39%)	31(100%)
Average	1%	2%	7%	35%	58%	100%

Table A9.12. Round 2: Community health workers' summary of findings

Findings	Community health workers
Agreement	Most participants agreed (average 32%) and/or strongly agreed (average 57%) on the roles and responsibilities defined in all areas. The cumulative level of agreement was 89%.
Disagreement	The level of agreement for the five new areas (added in round 2, based on round 1 findings) was well accepted except for the revision of PHC nutrition data, documents and reports on interventions with a 47% cumulative level of disagreement and 9% unsure.
Recommendations for additional roles and responsibilities	No additional roles and responsibilities were proposed by participants in round 2. Participants did, however, stress in their comments the need for CHWs to be adequately capacitated, competent and supported to fulfil their functions.
Recommendation to remove	None
Summarised themes form 15 comments received	<ol style="list-style-type: none"> 1. Capacitation of CHWs – Training needs to be provided to ensure that they have the capacity to perform the roles and functions identified. Specific skills and competencies must be acquired based on the tasks assigned to CHWs, whether at individual, household, community or campaign/population level. Specific training to improve maternal and child outcomes should be focused on. 2. CHW work environment - CHWs need to work under supervision and to be supported. 3. CHW roles – CHWs should be performing certain functions, such as administering vitamin A, following up on severely or acutely malnourished children and carrying out community-based growth monitoring and promotion. Referrals should be made to health facilities and not necessarily directly to other departments, e.g. social services. <p>More than one participant noted that historically CHWs focussed on chronic care as opposed to maternal and child health. “Currently CHWs ignore nutrition services.”</p>

Table A9.13: Round 2: Roles and responsibilities of community health workers

Community health workers' roles and responsibilities	Strongly disagree		Disagree		Unsure		Agree		Strongly agree		Total
	n	%	n	%	n	%	n	%	n	%	n(%)
1. Provide basic nutrition screening at household level – weight, height, mid-upper arm circumference.	0	(0%)	1	(3%)	0	0%	11	34%	20	63%	32(100%)
2. Identify clients who are nutritionally at risk.	0	(0%)	1	(3%)	0	0%	14	44%	17	53%	32(100%)
3. Refer families and children to health services.	0	(0%)	1	(3%)	0	0%	10	31%	21	66%	32(100%)
4. Promote good nutrition and health by supporting mothers through infant and young child nutrition, e.g. exclusive breastfeeding, continued breastfeeding and complementary feeding from 6 months.	0	(0%)	0	(0%)	0	0%	9	28%	23	72%	32(100%)
5. Provide basic nutrition education.	0	(0%)	0	(0%)	1	3%	10	32%	20	65%	31(100%)
6. Assist in campaigns by administering vitamin A supplements, deworming and MUAC assessments.	0	(0%)	0	(0%)	1	3%	15	47%	16	50%	32(100%)
7. Provide support to mothers by encouraging households to be responsive to the needs of children in terms of growth and development.	0	(0%)	1	(3%)	1	3%	10	31%	20	63%	32(100%)
8. Promote healthy lifestyles.	0	(0%)	1	(3%)	1	3%	8	25%	22	69%	32(100%)
9. Support clients in working towards self-care and management.	0	(0%)	1	(3%)	1	3%	10	31%	20	63%	32(100%)
10. Counsel caregivers on responsive caregiving, e.g. play and communication.	1	(3%)	0	(0%)	4	13%	7	22%	20	63%	32(100%)
11. Review PHC nutrition data and documents and report on interventions.	3	(9%)	8	(25%)	7	22%	7	22%	7	22%	32(100%)
12. Conduct community-based growth monitoring and promotion.	1	(3%)	1	(3%)	4	13%	9	28%	17	53%	32(100%)
13. Find cases and follow up with clients at home.	0	(0%)	0	(0%)	2	6%	13	41%	17	53%	32(100%)
14. Refer clients to social services and other inter-sectorial partners.	0	(0%)	2	(6%)	4	13%	10	32%	15	48%	31(100%)
Average	1%		4%		6%		32%		57%		100%

Note: The weights assigned were as follows: 1= Strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, and 5 = Strongly agree

Table A9.14. Round 2: Health promoters' summary of findings

Findings	Health promoters
Agreement	Most participants agreed (average 32%) and/or strongly agreed (average 54%) on the roles and responsibilities defined in all areas. The cumulative average agreement on all areas was 86%.
Disagreement	The level of disagreement was low; however, three new areas added after round 1 prompted questions, with more than 15% of participants indicating that they were unsure, i.e. provide training in health topics; conduct monitoring and evaluation of activities; and advise on responsive stimulation, maternal mental health and psycho-social support. These which could be indicative that some of the panel members are not entirely convinced that it should be included as functions.
Recommendations for additional roles and responsibilities	<ul style="list-style-type: none"> Five new roles and responsibilities were added after round 1. Comments to include information sessions to inter-sectorial forums on wellness and prevention of chronic diseases and nutrition screening of infants and adults.
Recommendation to remove	None
Summarised Themes from 10 comments received	<ol style="list-style-type: none"> Health promoter training – Health promoters need to be trained adequately to fulfil their roles and responsibilities including nutrition and chronic diseases of lifestyle. Health promoters are part of the multi – disciplinary team – The role of health promoters are not well understood by themselves and others in the team.

Table A9.15. Round 2: Roles and responsibilities of health promoters

Health promoters' roles and responsibilities	Strongly disagree		Disagree		Unsure		Agree		Strongly agree		Total
	n	%	n	%	n	%	n	%	n	%	n
1. Promote nutrition throughout life for the prevention of ill health.	0	0%	2	6%	0	0%	10	31%	20	63%	32(100%)
2. Provide nutrition and health education for groups.	0	0%	1	3%	3	9%	10	31%	18	56%	32(100%)
3. Liaise and refer clients, especially those at risk, to multidisciplinary teams.	0	0%	1	3%	0	0%	12	38%	19	59%	32(100%)
4. Support clients in working towards self-care and management.	0	0%	1	3%	4	13%	8	25%	19	59%	32(100%)
5. Assist in campaigns and provide outreach services using multidisciplinary teams.	0	0%	0	0%	1	3%	11	34%	20	63%	32(100%)
6. Provide training in health topics.	0	0%	2	6%	5	16%	10	31%	15	47%	32(100%)
7. Monitor and evaluate activities.	0	0%	1	3%	9	28%	11	34%	11	34%	32(100%)

8. Refer at-risk mothers and children to PHC nurses.	0	0%	1	3%	1	3%	10	31%	20	63%	32(100%)
9. Promote and support breastfeeding, and provide counselling on complementary feeding and dietary adequacy.	0	0%	1	3%	3	9%	10	31%	18	56%	32(100%)
10. Advise on responsive stimulation, maternal mental health and psycho-social support.	0	0%	3	9%	5	16%	10	31%	14	44%	32(100%)
Average		0%		4%		10%		32%		54%	100%

Note: The weights assigned were as follows: 1= Strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, and 5 = Strongly agree

Table A9.16. Round 2: Nurses' summary of findings

Findings	Nurses
Agreement	Most participants agreed (average 30%) and/or strongly agreed (average 63%) on the roles and responsibilities defined in all areas. Six new roles and responsibilities were added from round 1, with levels of agreement in all these areas being > 80% as cumulative values of agree to strongly agree.
Disagreement	There were low levels of strong disagreement (one participant) and disagreement (between two and three participants) on some roles and responsibilities. Similarly, unsure findings were mainly in advising on basic nutrition and new areas of responsive caregiving and parenting.
Recommendations for additional roles and responsibilities	No new additions were recommended from round 2.
Recommendation to remove	None
Summarised themes from 8 comments received	<ol style="list-style-type: none"> 1. Nurses workload – This should be considered so that expectations are reasonable and realistic. One notable comment was: “Nurses are supposed to be involved and responsible for the above (IN THE IDEAL WORLD); however, it is often not the case.” 2. Training – This should encompass enough content for nurses to be well versed in nutrition and should include more than just basic nutrition information. It should include aspects of micronutrient supplementation and nutrition assessments. 3. Multidisciplinary team (MDT) – Nurses should be seen as members of the multidisciplinary team, with important roles in terms of collaboration, advocacy, implementation and communication vis-à-vis the patient and other MDT members.

Table A9.17. Round 2: Roles and responsibilities of nurses

Nurses' roles and responsibilities	Strongly disagree		Disagree		Unsure		Agree		Strongly agree		Total
	n	%	n	%	n	%	n	%	n	%	n
1. Promote good nutrition and health throughout the course of life.	0	0%	2	6%	0	0%	11	34%	19	59%	32
2. Conduct nutrition screening and assessments.	0	0%	2	6%	0	0%	10	31%	20	63%	32
3. Interpret and act on growth monitoring and promotion.	0	0%	1	3%	0	0%	9	28%	22	69%	32
4. Provide basic health and nutrition education.	2	6%	1	3%	1	3%	11	34%	17	53%	32
5. Liaise with and refer clients to multidisciplinary teams.	0	0%	1	3%	0	0%	9	29%	21	68%	31
6. Implement nutrition policies and programmes to counter severe or acute malnutrition.	0	0%	1	3%	0	0%	9	29%	21	68%	31
7. Advise on basic nutrition interventions.	1	3%	3	9%	3	9%	10	31%	15	47%	32
8. Promote and support breastfeeding, and provide counselling on complementary feeding and dietary adequacy.	0	0%	0	0%	0	0%	11	34%	21	66%	32
9. Listen to and counsel patients.	1	3%	1	3%	0	0%	9	28%	21	66%	32
10. Refer clients to social services and other inter-sectorial partners.	1	3%	0	0%	0	0%	8	25%	23	72%	32
11. Interface with CHWs and health promoters about at-risk children.	1	3%	0	0%	0	0%	8	25%	23	72%	32
12. Advise on responsive stimulation and parenting.	1	3%	1	3%	2	6%	7	23%	20	65%	31
13. Review, report and record nutrition and other health-related data and interventions.	0	0%	2	6%	1	3%	12	38%	17	53%	32
Average		2%		3%		2%		30%		63%	100%

Note: The weights assigned were as follows: 1= Strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, and 5 = Strongly agree

Table A9.18. Round 2: Doctors' summary of findings

Findings	Doctors
Agreement	On average, the levels of agreement were 28% (agree) and 63% (strongly agree) on all roles and responsibilities.
Disagreement and unsure	One to three participants indicated strong disagreement and disagreement, while one to two participants were unsure about advising on basic nutrition and prescribing special feeds.
Recommendations for additional roles and responsibilities	Two new responsibilities were added from round 1. No additional roles or responsibilities were recommended in round 2.

Recommendation to remove	None
Summarised themes from 3 comments received	1. <u>Doctors' role and training</u> – Doctors do not provide comprehensive nutrition services. The undergraduate training needs to capacitate doctors to fulfil expectations.

Table A9.19. Round 2: Roles and responsibilities of doctors

Doctors' roles and responsibilities	Strongly disagree		Disagree		Unsure		Agree		Strongly agree		Total
	n	%	n	%	n	%	n	%	n	%	n
1. Promote good nutrition and health throughout life.	1	3%	0	0%	0	0%	8	25%	23	72%	32
2. Conduct nutrition assessments and interpretation.	1	3%	3	9%	3	9%	7	22%	18	56%	32
3. Diagnose nutrition conditions and health.	1	3%	0	0%	0	0%	9	28%	22	69%	32
4. Liaise with and refer clients to multidisciplinary teams.	1	3%	0	0%	0	0%	5	16%	26	81%	32
5. Implement nutrition policies and programmes.	2	6%	1	3%	0	0%	9	28%	20	63%	32
6. Advise on basic nutrition interventions.	2	6%	2	6%	1	3%	13	41%	14	44%	32
7. Prescribe special feeds in the absence of a dietitian.	0	0%	0	0%	2	6%	12	38%	18	56%	32
8. Promote and support: breastfeeding; complementary feeding and dietary adequacy; micronutrient supplementation; and the management of moderate and severe or acute malnutrition, responsive stimulation and caregiver responsiveness (parenting).	0	0%	2	6%	0	0%	9	29%	20	65%	31
Average	3%		3%		2%		28%		63%		100%

Note: The weights assigned were as follows: 1= Strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, and 5 = Strongly agree

Table A9.20. Round 2: Dietitians’–nutritionists’ summary of findings

Findings	Dietitians–nutritionists
Agreement	On average, the levels of agreement on all roles and responsibilities were 19% (agree) and 79% (strongly agree) on all roles and responsibilities.
Disagreement and unsure	Only one participant strongly disagreed on clinical nutrition services and one was unsure about research, management and clinical services.
Recommendations for additional roles and responsibilities	There was only one new addition from round 1. There were recommendations to add words to no 5 – monitoring and coaching; no 6 – policy analysis; no 8 – dietary education and counselling; no 9 – awareness creation/campaigns and development of materials; and no 10 – collaboration and networking. One participant noted that food service staff had been excluded.
Recommendation to remove	None
Summarised themes from 7 comments received	1. <u>Dietitian–nutritionist role</u> – They should take a leadership role at all levels of care and should be involved in training other cadres. The role played in food services is too limited; overall, this cadre should play a greater role in advocacy and strategically positioning nutrition for improved health and nutrition outcomes.

Table A9.21. Round 2: Roles and responsibilities of dietitians-nutritionists

Dietitians’–Nutritionists’ roles and responsibilities	Strongly disagree		Disagree		Unsure		Agree		Strongly agree		Total
	n	%	n	%	n	%	n	%	n	%	n
1. Promote good nutrition and health throughout life.	0	0%	0	0%	0	0%	6	19%	26	81%	32
2. Provide nutrition services to in-/out-patients and in communities (outreach).	0	0%	0	0%	0	0%	6	19%	26	81%	32
3. Research and analyse nutrition programmes and interventions.	1	3%	0	0%	1	3%	5	16%	25	78%	32
4. Manage nutrition interventions in terms of strategy and programmes.	0	0%	0	0%	0	0%	7	22%	25	78%	32
5. Provide training/build capacity in nutrition.	0	0%	0	0%	0	0%	7	22%	25	78%	32
6. Contribute to nutrition policy processes.	0	0%	0	0%	0	0%	6	19%	26	81%	32

Dietitians'–Nutritionists' roles and responsibilities	Strongly disagree		Disagree		Unsure		Agree		Strongly agree		Total
	n	%	n	%	n	%	n	%	n	%	n
7. Manage nutrition services.	0	0%	0	0%	1	3%	4	13%	27	84%	32
8. Provide clinical nutrition services/therapeutic nutrition services.	1	3%	0	0%	1	3%	5	16%	25	78%	32
9. Engage in nutrition communication and education.	0	0%	0	0%	0	0%	6	19%	26	81%	32
10. Promote a good food and nutrition environment and inter-sectorial functions, including food service management.	0	0%	0	0%	0	0%	7	22%	25	78%	32
11. Liaise with and refer clients to multidisciplinary team members.	0	0%	0	0%	0	0%	7	22%	25	78%	32
12. Promote healthy lifestyles, and plan and implement broader healthy lifestyle programmes.	0	0%	0	0%	0	0%	7	22%	25	78%	32
Average	1%		0%		1%		19%		79%		100%

Note: The weights assigned were as follows: 1= Strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, and 5 = Strongly agree



CHAPTER 10: IMPLEMENTATION OF WORKFORCE DEVELOPMENT FRAMEWORK

Chapter 10 demonstrates the application of the nutrition workforce development framework proposed for the Western Cape province (WCP) in the South African setting. The Western Cape health system context is incorporated into the discussion, including strategies, policy applications and specific data from the province. The intention is for the framework to be used as an approach in any setting and/or province in South Africa. The chapter (and the thesis) comes to an end with a conclusion and reflections.

10.1. Introduction

The sections below outline the theoretical interpretation and application nutrition workforce development framework areas and sub-components, as presented in Figures 9.3 and 9.4 for the WCP. Understanding the Western Cape context is key to planning, as indicated in the outer circle in Figure 9.4. The profile of the province was extracted from the Annual Performance Plan 2018/2019 (Western Cape Government: Health, 2018).

10.2. Western Cape context – Health system and the environment

Location

The WCP is one of nine provinces in South Africa located at the southern part of Africa. Its two neighbouring provinces are the Eastern Cape and the Northern Cape. The WCP has six districts: Metro with four sub-structures and five rural districts namely, Eden, Central Karoo, Cape Winelands, West Coast Winelands and Overberg.

The province has district health services (DHS), including district hospitals, community health centres, community day clinics, clinics and community-based services that are mainly provided by non-profit organisations (NPOs). Provincial hospitals are categorised into regional and tertiary services. The DHSs are also the platform responsible for PHC services.

Figure 10.1 below provides a visual representation of the Western Cape province districts, sub-districts and neighbouring provinces in South Africa.

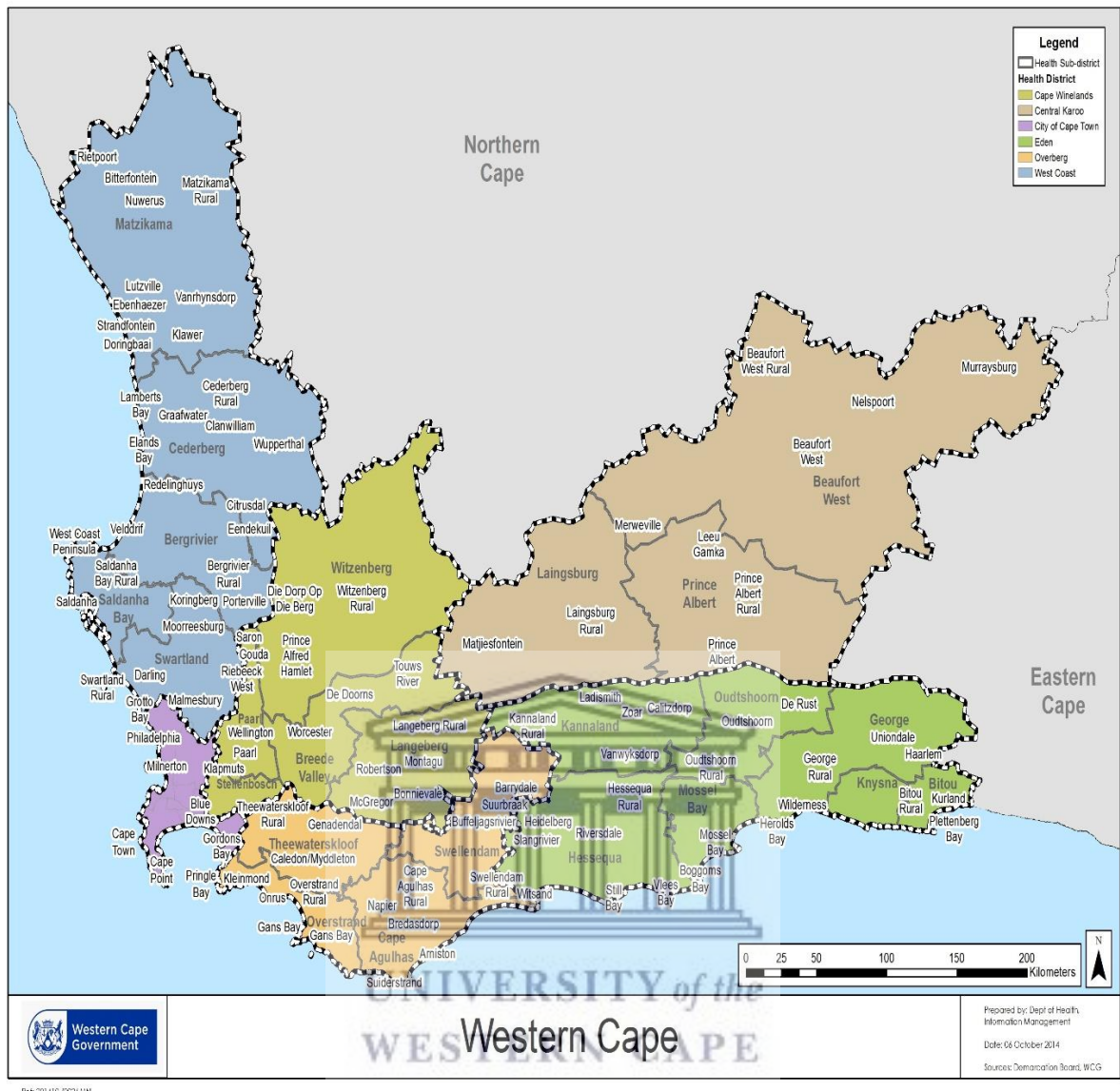


Figure 10.1. Map of the Western Cape province districts and sub-districts

Demographic profile

The 2017 mid-year estimate of the Western Cape population was about 6 510 312. Growth in the population has been observed across all age groups, except 20–29 year olds, with the district population remaining relatively unchanged. Most of the population resides in the Metro (64%), followed by 14% in the Cape Winelands and 10% in Eden. The estimated uninsured population is 75%. Discrepancies have been observed in population estimates provided by different organisations. To manage this anomaly and aid planning, an annual circular is issue to standardise population estimates (Circular H11/2017). Life expectancy in the Western Cape is the highest in the country, i.e. 66.8 years for males and 71.8 for females (2016–2021).

Socio-economic profile

Based on Statistics South Africa's labour force survey and general household survey, the province has an unemployment rate estimated at 20.6%. The majority of the population over the age of 20 have completed secondary education, with only (1.5%) not having had any schooling. This has resulted in a relatively high rate of literacy (91%).

Some 18% of the population live in informal housing, while about 99% of households have access to water and 94% to adequate sanitation. Violence and safety are significant problems in the province, though, with alcohol and substance abuse being key risk factors that intensify the pressure on services and add to the Burden of Disease (BoD). Of all the provinces in South Africa, the Western Cape is regarded as having one of the lowest poverty rates. Poverty has, however, increased with 37.1% of the population of the Western Cape falling below the upper bound (i.e. individuals who have the resources to purchase adequate food but not enough to lift themselves out of poverty) and 10% of the population falling below the food poverty line (i.e. the rand value below which a person is unable to purchase enough food to meet their daily energy requirements), as set by Statistics South Africa. Twenty-one percent of the population in the province is at the lower bound poverty line (i.e. individuals do not have sufficient money to purchase both adequate food and non-food items). These individuals have to trade off food and non-food items (Western Cape Government, 2018).

Epidemiological profile

The province has a quadruple BoD, with non-communicable diseases accounting for two-thirds of all deaths followed by injuries, HIV/Aids and TB (15% of the burden). A summary of the BoD is provided under section 10.5.1 and illustrates how workforce placement and prioritisation are based on the BoD.

Organisational environment

The WCP is currently engaged in a process of improving efficiencies and aligning management structures, functions and processes under its Management Efficiency and Alignment Project (MEAP). The process affects the filling of posts, especially at management levels, and aims to address duplication and inefficiencies and ensure that posts correlate with where staff operate and job titles, among others.

- **Workforce capacity:** To measure the operational capacity of staff in the health services, approved personnel lists have been developed. The current vacancy rate is 3.6% and the turnaround time to fill posts is three months. Of the 32 626 funded posts, most can be

found in the three tiers of health services: 12 466 (38%) are in the district health services followed by 6 548 (20%) in provincial hospitals and 9 522 (29%) in the central hospital services. Most people in the WCP workforce are skilled (N=12 480; level 3–5) followed by production level workers (N=8 770; levels 6–8) and supervision posts (N=8 424; level 9–12).

- **Workforce profile:** Shortages of nurses have been noted by nurses overall. Despite shortages, there is an oversupply of nurses being trained but these cannot be absorbed due to the unavailability of posts. Table 10.1 below indicates the WCP's public health personnel distribution as at 31 March 2017. The table shows the numbers, percentages and distribution of staff across the service platform, including the estimated annual staff costs. For nutrition professionals, only dietitians are employed in the province and constitute the third smallest category of staff in terms of numbers (92/31 463; 0.29%). Strategies are in place to address nursing shortages and increase the numbers of medical specialists as part of strengthening the governance in the district health services platform.

The workforce comprises primarily women (52%). Recruitment of qualified staff is challenging and block ads are placed to mitigate the challenges. Dietitian posts (representing scarce skills) are also included in the block adds. The average age of staff entering the service is between 23 and 26 years of age. Other human resource (HR) challenges include absenteeism and the management of sick leave. An employment wellness programme is in place with relationship issues, stress and organisational issues dominating the problem profile.

Table 10.1. Public health personnel as at 31 March 2017

Public Health Personnel							
Category	No Employed	% of Total Employed	No./100 000 People	No./100 000 Uninsured People	Vacancy Rate	% of Total Personnel Budget	Annual Cost/ Staff Member
Medical officers	2038	6.48%	32033	42.825	2.07%	16.2%	711135
Medical specialists	694	2.21%	10.908	14.583	2.94%	9.7%	1151810
Dental specialists	6	0.02%	0.094	0.126	0.00%	0.1%	1820973
Dentists	96	0.31%	1.509	2.017	3.03%	0.8%	522076
Professional nurses	6095	19.37%	95.799	128.075	4.06%	22.8%	390616
Staff nurses	2604	8.28%	40.929	54.718	2.03%	5.5%	232806
Nursing assistants	4144	13.17%	65.134	87.078	2.43%	7.4%	195818
Pharmacists	433	1.38%	6.806	9.099	2.26%	2.5%	559195
Physiotherapists	147	0.47%	2.311	3.089	2.65%	0.5%	301042
Occupational Therapists	180	0.57%	2.829	3.782	1.10%	0.6%	319419
Psychologists	80	0.25%	1.257	1.681	9.09%	0.5%	436484
Radiographers	454	1.44%	7.136	9.540	4.22%	1.8%	397334
Emergency Medical staff	1850	5.88%	29.078	38.874	5.80%	4.85	291743
Dietitians	92	0.29%	1.446	1.933	0.00%	0.3%	344832
Other allied health professionals and technicians	1534	4.88%	24.111	32.234	4.30%	4.6%	296556
Other staff	11016	35.01%	173.146	231.481	3.96%	22.1%	203531
Grand Total	31463	100.00%	494.526	661.137	3.56%	100.0%	325788

Source: Western Cape Government: Health (2018)

- Organisational culture:** This is an important aspect as it influences the workforce's ability to perform effectively and efficiently. Entropy levels (misalignment of processes and systems) based on Barrets Values Survey are decreasing and more positive values are emerging with organisational culture shifting from level 3 (efficiency) to level 4 (transformation) and level 5 (internal cohesion) in 2017. Controlling behaviour is still experienced but the workforce is able to align its personal values with that of the

organisation, i.e. accountability, caring, respect, honesty, responsibility and commitment. Organisational culture assessments have shown that the WCP Department of Health (DoH) can be described as “client oriented and accessible”, which are enabling factors for service delivery. The value of trust is most important for employees personally, but it is not expressed in the current organisational culture, thus requiring further investigation (Western Cape Government: Health, 2018).

- **Quality of Care (QoC):** Mechanisms are in place to assess QoC, including: complaints and compliments, national norms and standards, infection prevention and control, occupational health and safety, and ideal clinic and maintenance programmes (Western Cape Government, 2018). Programme-specific assessments for nutrition have been carried out in terms of food service management and mother/baby-friendly care.

Built environment /Infrastructure

The nutrition workforce’s infrastructural needs have been identified as a key aspect in the environment, including office space to conduct counselling and storage spaces for specialised nutrition products. Infrastructure objectives have been set and systems have been put in place to ensure that infrastructure is being planned, delivered, operated and maintained.

Knowledge management

Knowledge management (KM) is informed by service delivery for patient-centred care and improved health outcomes within a regulatory environment, which in turn is influenced by information, communication and technology. Information management systems are in place whereby data is collected, collated and stored, and information is provided throughout the health system. Data systems have been integrated into a provincial data centre which is working towards the electronic consolidation of patient-level data in the external and internal environments.

Nutrition data and information are part of comprehensive processes that are in place to decide which data elements should be gathered. The province has, however, been reducing the number of registers that are kept in order to move towards more electronic processes. Prioritisation and rationalisation of data and indicators has been under way. Some nutrition-related data is routinely captured into the system, as required by the national district information system. With the rationalisation of data elements, nutrition programme-specific information has been reduced, leading to some programmatic information becoming unavailable for decision making.

Economic context and financial management

Challenges exist in both the national and global economic climate. Budgets in real terms have been shrinking and service demands have been growing. Systems are in place to manage the funds allocated to the province through budget administration and management processes, which incorporate monitoring and auditing.

Eight budget programmes are in place with a total budget allocation for 2018/2019 of R23.06 billion. Currently sub-programme 2.7 funding is allocated for nutrition. The purpose of the funding is “rendering nutrition services aimed at specific target groups combining direct and indirect nutrition interventions to address malnutrition” (Western Cape Government: Health, 2018: 56). An amount of R50.25 million has been allocated for the 2018/2019 financial year, which is 0.54% of the total budget for district health services. Nutrition funding allocated to secondary and tertiary hospital services is integrated into facility budgets and not specified.

Partnerships

The province has a service-level agreement to facilitate the rendering of services, e.g. Metro district with the City of Cape Town for the provision of PHC. In addition, community-based services (CBS), including intermediate care and home and community-based care, are provided by NPOs and governed by service-level agreements based on a defined service package. Nutrition services have also been integrated into the PHC and CBS service packages. Advantages of partnerships include an increase in service coverage and the ability to tap into expertise that does not necessarily exist within the DoH which operates within resource-constrained environment.

Policy mandates

The province aligns itself with international, national and provincial policies. Planning is further aligned to provincial strategic plans, with joint initiatives specifically implemented to cater to provincial strategic goals (PSGs). Strategic Goal 3, for example, is led by the DoH and focusses on increasing wellness and safety and tackling social ills through a Whole of Society Approach (WoSA). Specific projects under PSG 3 are the Western Cape on Wellness (WoW), integrated service delivery pilot, teachable moments and the First 1000 days. Nutrition is a key element in the First 1000 days and WoW projects.

Facilities

Table 10.2 below provides a summary of the facilities per district in the Western Cape province.

Table 10.2. Facilities in the Western Cape province

Type of facility	Cape Town	Cape Winelands	Central Karoo	Eden	Overberg	West Coast
CHC	9	0	0	0	0	0
CDC	46	6	1	6	2	1
Fixed clinics	72	39	8	35	17	26
District hospitals	8	4	4	6	4	7
Regional hospitals	2	2	0	1	0	0
TB hospitals	2	1	1	1	0	2
Psychiatric hospitals	4	0	0	0	0	0
Rehabilitation hospitals	1	0	0	0	0	0
Central hospitals	3	0	0	0	0	0
Intermediate care facilities	12	6	3	5	2	5

Source: Western Cape Government: Health 2018/2019 Annual performance plan

Nutrition services are needed at all types of facilities and therefore, facilities should have access to nutrition professional input. In the current system no full-time, professional nutrition staff are placed at any psychiatric hospitals or intermediate care facilities, which is a major gap as the patients in these facilities require therapeutic nutrition interventions.

10.3. The right staff

Defining the nutrition workforce fit for purpose and to practice

The nutrition workforce is described as fit for purpose and fit to practise for South Africa, based on the findings of the Delphi study in Chapter 9 and applied to the WCP.

The nutrition workforce includes all human resources engaged in nutrition work in the WCP. It is acknowledged that addressing the nutrition challenges requires a broad-based workforce who can collaboratively address the multi-level causes of malnutrition.

Multidisciplinary team members in the health sector who contribute to the delivery of nutrition services are: health promotion practitioners/nutrition advisers, community health workers, nurses, medical practitioners, other allied health professionals and environmental health officers. The scopes of responsibility among nurses at implementation level are expanded due to staff shortages. However, it should be understood that their responsibilities should be aligned to their relevant scope of practice.

In the context of service delivery in the health sector in the WCP, nutrition services are provided at primary, secondary and tertiary levels of health care. Nutrition services are part of the

comprehensive service package and are delivered across the service platform in 354 facilities and through community-based services. Monitoring and evaluation of nutrition services are embedded as part of the health system functions.

Workers in other sectors, e.g. agriculture, teaching and social development, can provide extension nutrition services. The absence of staff with capacity leads to poor implementation, as was shown in the DPME (2014) report. In the current system, these sectors rely heavily on the health sector for technical advisory services. This is not practical or sustainable as a continuous service considering the high service demand within the health sector itself. Ideally, these sectors should have dedicated nutrition professionals such as dietitians and nutritionists to provide training and monitor the quality of service integration into their programmes and interventions.

Workforce composition

The workforce composition is not limited to nutrition professionals only, and it is acknowledged that multidisciplinary teamwork is required. In the health sector, dietitians have the core function and responsibility of providing nutrition services. Dietitians in posts in the WCP can be placed at various levels within the health system, i.e. provincial, district, sub-district and facility level. The WCP has no posts for nutritionists and currently there are 92 dietitian posts (refer to Table 10.1) across the facility-based services platform. The PHC service platform includes community health centres, community day centres, clinics and community-based services in homes and in the community, with the district hospital being a hub for PHC services. In the PHC platform, services are mainly nurse-driven and supported by the multidisciplinary team inclusive of dietitians.

In the WCP there are a total of 354 facilities in the six districts, including community health centres (9), community day clinics (62), fixed clinics (197), district hospitals (33), regional hospitals (5), TB hospitals (7), psychiatric hospitals (4), rehabilitation hospitals (1), central hospitals (3) and intermediate care facilities (33). In reviewing the service points, the number of nutrition-specific personnel is not adequate – specifically in districts with many service points, including community-based services.

To indicate the composition and density of staff per geographical district, maps were developed to visually display the distribution of the nutrition workforce. Discussions took place with a geographic information system specialist in government to establish what data was available and what he envisaged regarding the maps. It was decided to develop a template to capture data for mapping. Formal permission was obtained to use available personnel data, i.e. the distribution

of cadres per geographic location, to visually display the distribution and density. A database was then compiled in Excel, with the HR data being filtered according to job title. The template included staff numbers for doctors, nurses, dietitians, health promoters and dietitians per service area, i.e. districts, sub-districts and facilities. Only those categories that provide direct services in PHC were included.

For community-based services data was obtained from the information management unit. Data was extracted and included in the same database. The excel data base was checked and validated where after maps were developed working closely with geographic information system specialist.

The map in Figure 10.2 below shows the PHC service platform, including key staff cadres responsible for nutrition services at that level.

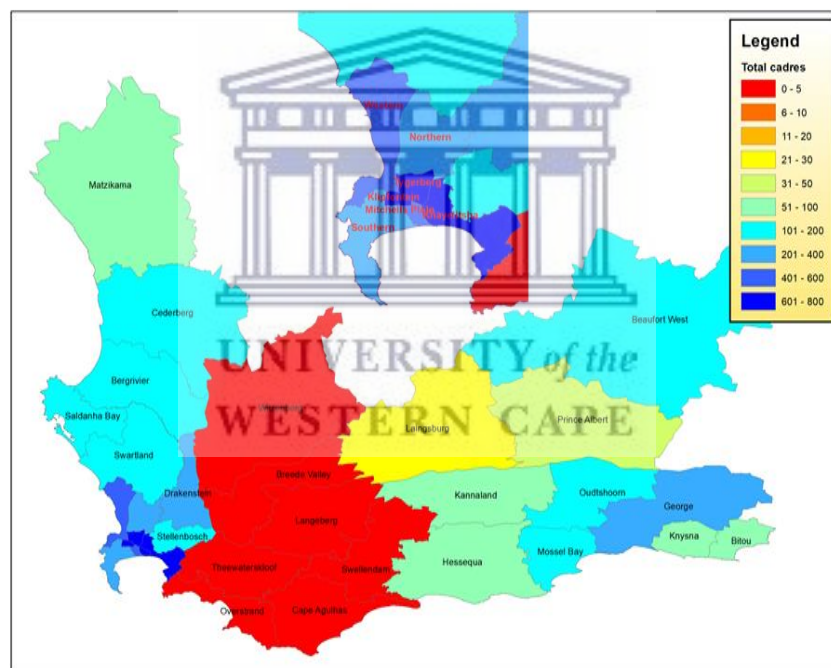


Figure 10.2. Distribution of staff cadres in PHC delivering nutrition services

Note: No data exists for community-based services in the Witzenberg sub-district. Data for community-based services in the Matzikama sub-district was excluded due to number errors. The respective data gap and data errors are under investigation by the information management unit in the province.

Reviewing the distribution pattern provides a visual impression of the service coverage per district and sub-district. The Metro, which has 62% of the province's population, has the greatest number of staff and also the greatest number of service sites.

Workforce enumeration

Understanding the size and profile of the nutrition workforce is important for determining who the nutrition workforce is and if they will be able to respond to the nutrition-related Burden of Disease. The maps in Figure 10.3 indicate the density of the nutrition workforce (which includes nurses, doctors, community health workers, community health worker coordinators and supervisors, health promoters and dietitians. From the maps it is obvious that dietitians are available throughout the province but the numbers are very low. Table 10.3 below shows the coverage of dietitians for the population focussing only on dietitians placed in PHC in the district health services.

Table 10.3. PHC placed dietitians – coverage of the population per district and needs

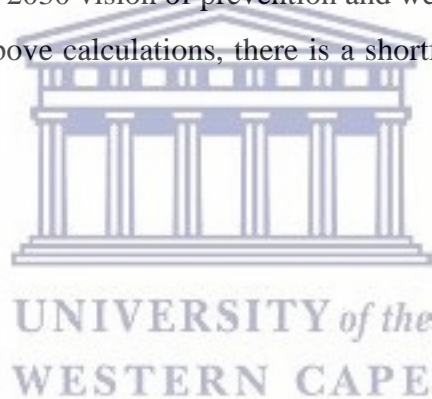
District	Number of dietitians currently placed	Population numbers	Coverage of dietitians for population based on current placement	Dietitians 1: 50 000 required
Metro Sub-Structure 1: Northern/Tygerberg total	5	1 065 235	213 047	21
Metro Sub-Structure 2: Western/Southern total	4	1 088 649	272 162	21
Metro Sub-Structure 3: Klipfontein/M Plain total	6	926 183	154 364	18
Metro Sub-Structure 4: Khayelitsha/Eastern total	3	1 004 878	334 959	20
Metro DHS total	18	4 084 946	226 941	81
Cape Winelands District total	6	899 240	149 873	17
Overberg District total	2	287 777	143 888	5
Central Karoo District total	2	76 061	38 031	2
Eden District total	6	620 759	103 460	12
West Coast District total	5	449 287	89 857	8
Rural DHS total	21	2 333 124	111 101	46
Western Cape total	39	6 148 069	157 643	122

Note: Population estimates for 2017/2018; all data as at December 2017, excluding district hospitals

The four sub-structures in the Metro are part of the Metro District Health Service (DHS) and Rural DHS which are Cape Winelands, Overberg, Central Karoo, Eden and West Coast districts.

Currently there are great inequities in the distribution of dietitians in the province, especially considering the Khayelitsha Eastern sub-structure with only three dietitians available to cover the entire area. When applying the international norm of 1 dietitian to 50 000 population, there are huge gaps. The numbers that will be required are indicated in the last column. An additional 82 dietitians would be required in total for the province. Another method that can be explored to specifically address dietitians is to review the coverage of facility-based services per area per dietitian.

The WCP currently has 42% of dietitians in PHC focussing on PHN and 58% in hospital services focussing primarily on therapeutic nutrition in a clinical setting. There is a clear demand for more nutrition professionals to lead the nutrition-specific interventions, especially as the province moves towards the health care 2030 vision of prevention and wellness as opposed to illness and curative care. Based on the above calculations, there is a shortfall of 83 dietitians in the PHC service platform.



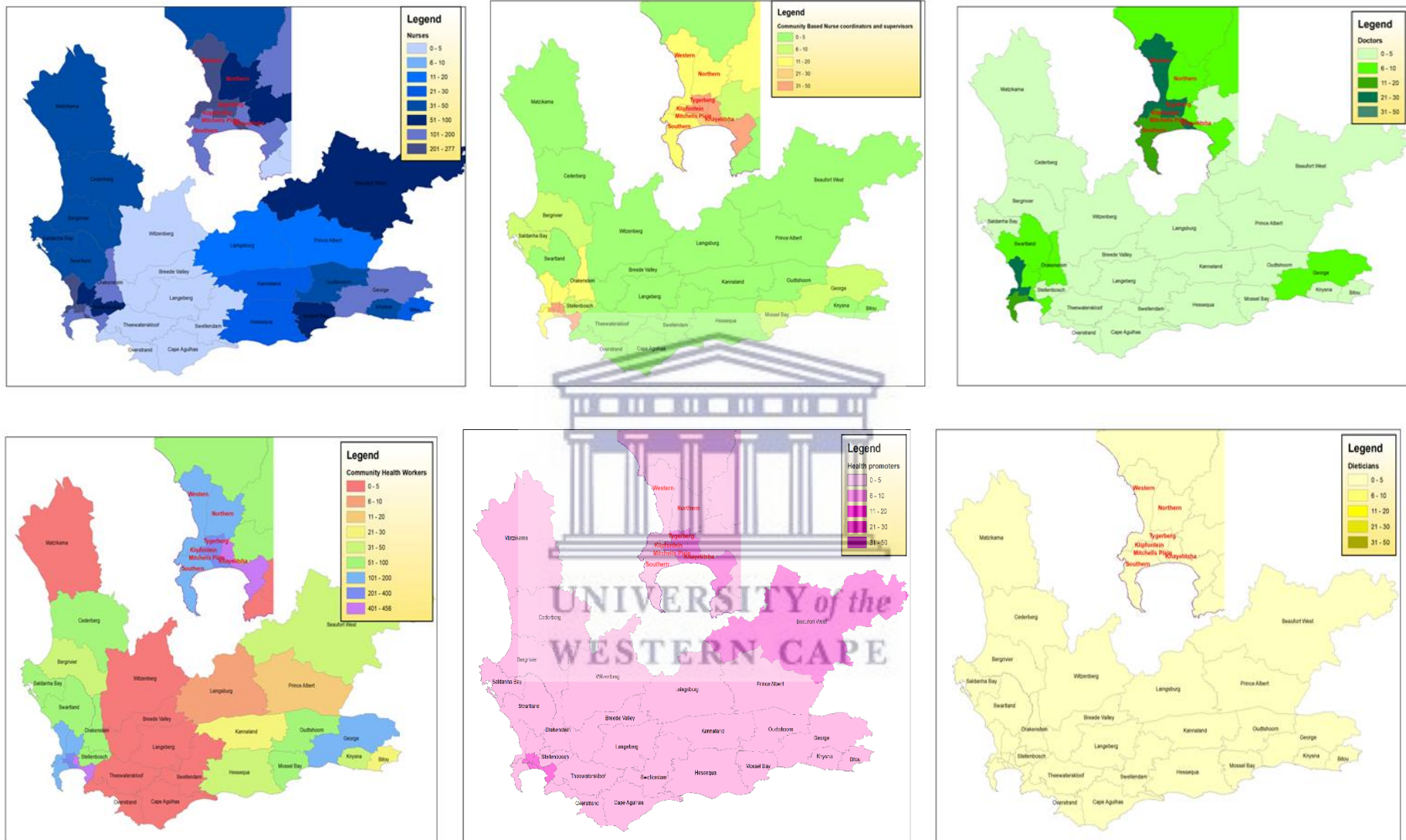


Figure 10.3: Density maps of the nutrition workforce

Source: Author, with assistance from GIS head in the WCP

10.4. The right competencies and skills

Workforce capacity

Currently the nutrition workforce in the Western Cape does not have the capacity to implement nutrition services considering the cadres that were evaluated in the workforce study. Dietitians are the best qualified to fulfil their roles and functions, whereas all other cadres require training in specific nutrition areas. The entry-level training of all the cadres was found to be insufficient. It is recommended that the capacity of the workforce to respond to the challenges be addressed in the following ways:

- Training should be accredited, whether it is offered online in modular format or combined with didactic training.
- Organisational-level arrangements to improve capacity in other sectors should be taken up through sectoral engagements. The Western Cape has engagements with higher education institutions which are responsible for training; it can work with these institutions to fill gaps in pre-service training.
- Workforce-level requirements could be addressed through in-service training in areas relating to cadres' roles and functions as well as priority areas set by the province.
- Top-up training in specific areas could be provided in modular form and also integrated into existing training.
- Training should not only focus on the what, but also on the how.
- Mentoring and coaching elements should be incorporated into training of all cadres.
- Orientation of the workforce is needed so that everyone understands one another's role and knows who should take over when and where.
- Community participation should be explored to ensure the long-lasting impact of interventions.
- Cost-effectiveness studies could be conducted to measure the specific impact of nutrition professionals with the implementation of nutrition-specific and nutrition-sensitive interventions.
- All staff should receive a basic orientation on nutrition policies as they enter the service as part of their induction.
- Dietitians require training on capacity-building and nutrition intervention management.

Roles and functions

The agreed roles as per the Delphi study were used to outline the roles and responsibilities of the cadres. There was agreement on the respective roles of the five cadres predominant in the PHC platform. The province focusses on integration of services but it is important to differentiate the roles before such integration. The differentiated roles applicable to the WCP are indicated in the boxes below:

Box 10.1. Roles and responsibilities of community health workers

1. Provide basic nutrition screening at household level – weight, height, MUAC.
2. Identify clients who are nutritionally at risk (including maternal mental health).
3. Refer families and children to health services.
4. Promote good nutrition and health by supporting mothers through infant and young child nutrition, e.g. exclusive breastfeeding, continued breastfeeding and complementary feeding from 6 months.
5. Provide basic nutrition education.
6. Assist in campaigns by administering vitamin A supplements, deworming and MUAC assessments.
7. Provide support to mothers by encouraging households to be responsive to the needs of children in terms of growth and development.
8. Promote healthy lifestyles.
9. Support clients in working towards self-care and management.
10. Counsel caregivers on responsive caregiving.
11. Conduct community-based growth monitoring and promotion.
12. Find cases and follow up with clients at home.
13. Refer clients to social services and other inter-sectorial partners.

Box 10.2. Roles and responsibilities of health promoters

1. Promote nutrition and health throughout life for the prevention of ill health.
2. Provide nutrition and health education for groups.
3. Liaise with and refer clients (especially those at risk) to multidisciplinary teams.
4. Support clients towards self-care and management
5. Assist in campaigns and conduct outreach services with the multidisciplinary team.
6. Refer at-risk mothers and children to PHC nurses.
7. Promote and support breastfeeding; counsel on complementary feeding and dietary adequacy.
8. Advise on responsive caregiving.

Box 10.3. Roles and responsibilities of nurses

1. Promote good nutrition and health throughout life.
2. Conduct nutrition screening and assessments.
3. Interpret and act on growth monitoring and promotion.
4. Provide basic health and nutrition education.
5. Liaise and refer to the multidisciplinary team.
6. Implement nutrition policies and programmes such as severe acute malnutrition.
7. Advise on basic nutrition interventions.
8. Promote and support breastfeeding; counsel about complementary feeding and dietary adequacy.
9. Listen to and counsel patients.

10. Refer to social services and other inter-sectorial partners.
11. Interface with CHWs and health promoters about at-risk children.
12. Advise on responsive caregiving.
13. Review, report and record nutrition and other health-related data and interventions.

Box 10.4. Roles and responsibilities of doctors

1. Promote good nutrition and health throughout life.
2. Conduct nutrition assessments and interpretations.
3. Diagnose nutrition conditions and health.
4. Liaise with and refer clients to multidisciplinary teams.
5. Implement nutrition policies and programmes.
6. Advise on basic nutrition interventions.
7. Prescribe special feeds in the absence of a dietitian.
8. Promote and support: breastfeeding, complementary feeding, dietary adequacy, micronutrient supplementation, and management of moderate and severe acute malnutrition and responsive caregiving.

Box 10.5. Roles and responsibilities of dietitians–nutritionists

1. Promote good nutrition and health throughout life.
2. Provide nutrition services to in-/out-patients and in communities (outreach).
3. Research and analyse functions.
4. Manage nutrition interventions in terms of strategy and programmes.
5. Provide training/capacity-building in nutrition.
6. Contribute to nutrition policy processes.
7. Manage nutrition services.
8. Provide clinical and therapeutic nutrition services.
9. Engage in nutrition communication and education.
10. Promote a good food and nutrition environment and inter-sectorial functions, including food service management.
11. Liaise with and refer clients to multidisciplinary team members.
12. Promote healthy lifestyles, and plan and implement broader healthy lifestyle programmes.

Job descriptions

The job descriptions, as composites of the scope of practice, competency framework and roles and functions, should be reviewed. Human resource units in the WCP should address the lack of standardisation of templates and individuals changing their job descriptions of their own accord. In particular, the respective nutrition roles and functions should be articulated more clearly in the job descriptions of the workforce. Quality assurance of job descriptions should be carried out by the HR department on a regular basis. A draft job description can be proposed for nutrition professionals.

Workforce training and education

Pre-service training should be reviewed and adjusted to capacitate the workforce to respond to their nutrition-related roles and functions. In addition, interdisciplinary exposure to the work is needed for the workforce to understand their respective nutrition-related roles. CPD events should be planned in a more integrated manner and closer collaboration is needed between the internal training department of the DoH and training institutions.

Workforce mentoring and support

Supervision activities should be performed in a supportive and less punitive manner. Mentorship and coaching should be extended to all cadres in the workforce.

Teamwork

Greater orientation of the multidisciplinary team roles and functions is needed. The balance of power – when delegating tasks, shifting tasks and expanding cadres' scope of responsibility – should be carefully handled as activities are delegated outside the scope of practice. Managers should focus on aspects that facilitate collaboration such as a shared vision, ensuring appropriate infrastructure, recognising the value of teams rather than individual interests, and communication.

10.5. The right place and time

Understanding the Burden of Disease

The workforce needs to understand the Burden of Disease to ensure that they respond to the specific problems of the population and reach the desired goals and outcomes. BoD profiles per district are available in the province. The nutrition workforce should be aware and informed of the relationship between nutrition and the BoD which will enable them to identify the challenges they need to work on.

The overall BoD status of the WCP is articulated below:

Premature mortality: The breakdown of causes of death and premature mortality for 2014 (N=41 354) was as follows: infections and parasitic (6%); maternal, perinatal and nutrition (2%); HIV/Aids and TB (15%); cancers (20%); diabetes (7%); cardiovascular (20%); other NCDs (16%); and injuries (14%).

The leading causes of premature mortality (years of life lost) in 2014 were: HIV/Aids and TB (19%), injuries (19%), cancers (17%), cardiovascular (14%), other NCDs (15%), infections and parasitic (7%), diabetes (5%), and maternal, perinatal and nutrition (4%).

Other key indicators:

MTCT: The mother-to-child transmission rate was 1.1% in 2015/2016.

Deliveries (births): 91 322 (2016/2017).

Maternal, infant and child mortality: In 2014, the maternal mortality rate was 59/100 000; the neonatal mortality rate was 7/1000 live births; the under-5 mortality rate was 21.4/1000; and the infant mortality rate was 17.3/1000. The case fatality rates were diarrhoea (0.1%), pneumonia (0.4%) and severe/acute malnutrition (1.7%).

Non-communicable diseases: There is a high prevalence of risk factors such as obesity, smoking and physical unfitnes; Type 2 diabetes and hypertension are the most prevalent chronic diseases.

Injuries: Interpersonal violence is the most common cause of injury followed by unintentional and transport-related injury, with alcohol abuse as one of the main risk factors. Reducing injury due to alcohol will be one of the game changers.

Homicide: This is the most common form of death with the highest burden both in infants and in 10–17 year-olds. Road traffic injuries account for 25% of all deaths and peak in the 5–9 year-old group. Gunshot-related injuries sustained during interpersonal violence are the most prominent, increasing the workload in emergency centres.

Climate change: Changes in climate have affected water security in the province.

Nutrition situation: The WCP has a double burden of malnutrition with prevalence of undernutrition (underweight and stunting) and over-nutrition (overweight and obesity) in the same population and in many instances in the same household. The FuturesCape policy brief, reflecting on the double burden, estimates a loss in GDP by 2040 of 5% (R357 billion in household spending lost due to stunting and up to R950 billion from obesity). More than one in 10 children are underweight (11.9%) and more than one in five children are stunted (22.9%).

Over-nutrition, on the other hand, in children of 2–14 years indicates 26% of females and 22% of males are either overweight or obese. The adult obesity rate in the province is the highest in the country, at 44% for men and 75% for women.

The effects of stunting in childhood leads to a reduction in earning potential in adults of up to 30% and are exacerbated by the increased risk of chronic diseases due to overweight and obesity later in life.

Risk factors leading to the poor nutritional status of the population are: poverty, lack of infrastructure, inadequate diets, disease, behavioural factors, food system factors, inadequate care for mothers and children, and unhealthy environments (Western Cape Government, 2018).

Social determinants of health

Factors at individual, community and population level are evident and reported in the above section under Burden of Disease. A provincial food and nutrition strategy exists in the WCP; however, a multi-level food and nutrition security action plan, involving all relevant stakeholders, is needed to address the risk factors leading to poor nutritional status in the province.

Determining priorities

Based on the provincial *profile*, the key priorities of the DoH are:

- Improve HIV/AIDS and TB outcomes;
- Improve women, child and adolescent health with a particular focus on the first 1000 days which require not only health responses but inter-sectorial responses;
- Improve non-communicable disease outcomes.

Nutrition priorities for South Africa are:

- Nutrition in the first 1000 days on a continuum, specifically ensuring that mothers continue to breastfeed up to two years and beyond, mother/baby-friendly initiatives, interventions to support mothers, Kangaroo Mother Care as an intervention for nutritional support and optimum complementary feeding;
- Provision of supplementary/therapeutic feeding;
- Correct management of acute malnutrition;
- Food and nutrition security interventions (strategic objectives 4 and 5 in the national Food and Nutrition Security Plan).

With the WCP setting its own priorities within the context of global and national priorities and strategies, it is important for nutrition strategies to be aligned with these priorities. In the province, the First 1000 days initiative provides opportunities to integrate nutrition into the broader range of services, with a particular focus on maternal, infant and young child nutrition.

Resources and infrastructure

Quality of service is influenced by the prevailing operational infrastructure. The challenges noted by the nutrition professionals in terms of their work environment have been ongoing and have

been reported in the current workforce study as well as in a workforce study published in 2011. The same challenges exist in the public health sector, i.e. limited resources, insufficient training programmes on offer, limited office space, and poor understanding among doctors and nurses of the roles of nutrition professionals as well as a lack of acknowledgement (Goeiman et al., 2011). Employers need to take far greater interest in responding to the challenges.

10.6. Doing the right things

Identifying and implementing effective strategies and interventions

There is evidence in the literature of various nutrition-specific and nutrition-sensitive interventions:

Nutrition-specific interventions and programmes include: • Adolescent health and preconception nutrition • Maternal dietary supplementation • Micronutrient supplementation or fortification • Breastfeeding and complementary feeding • Dietary supplementation for children • Dietary diversification • Feeding behaviours and stimulation • Treatment of severe acute malnutrition • Disease prevention and management • Nutrition interventions in emergencies (Black et al., 2013).

Nutrition-sensitive programmes and approaches include: • Agriculture and food security • Social safety nets • Early child development • Maternal mental health • Women's empowerment • Child protection • Classroom education • Water and sanitation • Health and family planning services (Black et al., 2013).

The WCP, however, needs to identify the specific interventions to focus on based on the resources available. The WoSA approach provides opportunities to work multi-sectorally. A national strategic plan is currently in place with high-level commitment for implementation at the Office of the Premier in the WCP. However, the province will have the task of formulating its own implementation plan. Sectoral convergence, especially at implementation level, will be needed to ensure integration of the interventions and activities, not only at the higher levels but also at the local level where the actual implementation takes place.

Norms and standards for services

Both nationally and provincially norms and standards documents are currently in draft format and will guide and provide standards for services, focussing on nutrition professionals. There is a need for nutrition services to be delineated as a service category before integration into the more comprehensive PHC and other services across the levels of care.

Monitoring and evaluation

Nutrition surveillance is a well-known form of monitoring and evaluating nutrition and food interventions and policy. Through monitoring and evaluation of nutrition services, the following can be achieved:

- Revision of services, interventions and programmes;
- Measurement of progress;
- Identification of gaps and problems in planning and/or implementation;
- Contribution to operational action research to strengthen implementation;
- Measurement of effectiveness and impact.

In the WCP, information management systems integrate monitoring of services and interventions by tracking key indicators. Some of the performance indicators are included in annual performance plans and others are monitored by service and programme managers.

It would be important for nutrition service and programme indicators to form part of the information and knowledge management systems. Nutrition managers should through their leadership ensure that nutrition elements are identified, motivated and integrated into existing systems for monitoring, evaluation and reporting. Evaluation of interventions can be facilitated through research, collaboration with universities, knowledge translation and M&E units in the province.

10.7. Specific context – health system and organisational environment

The WCP province government has set out values to deliver their services which are: innovation, competence, care, accountability, integrity, responsiveness and respect. All these values help to create an enabling environment for the workforce. Key building blocks in the transformation journey of the health department have been identified as good governance (internally and externally), leadership development, an inclusive organisational culture and systems resilience (Western Cape Government: Health, 2018). An obvious challenge, however, is the fact that inequities persist, with not all districts having nutrition managers to provide leadership and/or

advocate for nutrition. Nutrition professionals in these areas report to managers who do not always understand their roles and responsibilities. As a result, they feel disempowered – as was found in the study among government nutrition workers. Opportunities should be created to address issues of concern that are raised by nutrition professionals.

10.8. Conclusion

The application of the nutrition workforce planning framework in the Western Cape province provides a unique opportunity to address the challenges in an objective and systematic manner, and within the specific context of the WCP health system, with a view to inducing a shift from illness to wellness.

In the current health system, managers decide which posts are going to be filled based on the motivations they receive and resources available. Nutrition is both on the agenda and is prioritised and there is commitment to it on paper. However, nutrition professionals ‘lose out’ in practice as they have to compete with other cadres of staff, especially in a predominantly biomedical environment with services being mainly nurse-/doctor-driven.

A better understanding of the nutrition-related Burden of Disease, who the nutrition workforce is and what their respective roles and functions are will inform the process of filling posts. Implementing nutrition interventions using cadres lacking in capacity leads to poor performance and outcomes.

This situation is evident from this research study and from the unchanging nutrition status in the WCP. Service provision has become too generalised and specialisations such as nutrition are sucked into comprehensive care with a curative focus, complicated by a lack of nutrition-specific indicators providing real-time evidence in a bureaucratic environment.

The decisions made within an environment of power pose a challenge to the nutrition services, making it difficult for them to truly form part of a comprehensive suite of services that are integrated into service packages and are multidisciplinary in nature. The small budget allocated to nutrition and persistent power struggles result in nutrition as a discipline being marginalised and seen simply as a vertical programme as opposed to a service. Proposals have been made regarding the number of dietitians that will be required, using international population norms. The workforce enumeration suggested can assist with forward planning and with addressing the inequities that exist between districts.

Nutrition professionals operate in an environment in which senior managers are not clear about their capacity or what their roles and functions should be. Even nutrition managers enjoy very little power or authority, making it extremely difficult for them to advocate for or effect change in nutrition services. Managers need to have a better understanding of the roles, responsibilities and capacity of the nutrition workforce.

The HPCSA scope of practice regulations are not enforced and the generic professionals' scope of responsibility is extended to incorporate nutrition actions. The lack of clarity and non-regulation make the practice of expanding the scope of responsibility without the necessary capacity the norm. The delineated roles and responsibilities of the dietitian-nutritionists, nurses, doctors, community health workers and health promoters, which were developed through consensus in the study, provide clarity as to the nutrition-specific roles and functions of the cadres which can be incorporated into their respective job descriptions. In-service training should be aligned to actual service needs. There is an opportunity for institutions to work closer with the DoH to address knowledge and skills gaps.

The question can be posed: are nutrition professionals giving away their profession in the comprehensive space of service delivery because of the small numbers of staff available? Managers have reiterated that nutrition professionals are not focussed enough, are involved in too many activities at once. The lack of nutrition policy implementation and the difficulty of proving nutrition-specific outcomes as part of comprehensive services lead to 'lip service' rather than action. This can be seen in South Africa's current draft Food and Nutrition Security Plan – though costed, no specific funding has yet been committed. Similarly, the WCP has not developed a collective implementation plan. In view of the complexities, the WCP should start taking aggressive steps to address the immediate needs of low exclusive breastfeeding rates, food insecurity and obesity in the province.

10.9. Overarching summary recommendations

Reducing the nutrition-related Burden of Disease is an ethical and sound economic investment and a key element in health care which requires complementary, integrated strategies and approaches to ensure optimal nutrition for all in the country.

This thesis has contributed intelligence to the field of workforce development in the South African context, focussing on PHC service delivery and taking into account the BoD and associated risk factors. Using a mixed research methodology, evidence-based workforce information was collected and key themes were identified and explored. Key messages based on

the findings were summarised at the end of each chapter in order to progressively build up a picture of the nutrition landscape in South Africa. An overarching summary and recommendations are presented below.

Political will, priorities, policy, power and partnerships (the ‘Five Ps’)

Nutrition workforce development in South Africa is lagging behind, despite the fact that political commitment/will is evident, nutrition has been prioritised and policies exist. Together these actions have not led to an improvement of the nutritional status of the population. Particularly worrying is that policies have been shown to have been poorly implemented. Competing priorities, integration initiatives in various quarters, inadequate allocation of resources (human and material) and a lack of understanding of the core nutrition professionals’ capacity and ability to act in the health workforce have been found to be the contributing factors. The cross-cutting nature of nutrition as a component of comprehensive health services places nutrition as an essential service at risk, viewed as an item to be integrated that can be managed by generalists. The nutrition-related Burden of Disease ‘gets lost’ and becomes less of a priority as it is absorbed into general business.

Power imbalances exist whereby nutrition professionals (in small numbers) are placed at implementation levels but are unable to automatically influence management decisions in a larger organisational system. Sectoral engagement, leadership, advocacy, communication, information and appropriate resource allocation are needed in an enabling environment to leverage support for nutrition programmes and services. Entering into strategic partnerships that can be formed could further enhance nutrition services in a resource constrained environment.

Description and delineation of nutrition workforce roles

The nutrition workforce in the health system refers to all who are engaged in nutrition work. Dietitians and nutritionists are the main custodians and providers of nutrition services in the health sector. Yet confusion reigns among managers and multidisciplinary team members in a resource-constrained environment. While the future vision of one professional can be supported on the basis of the evidence produced in this study, the lack of a clear roadmap with timeframes for implementation of a single nutrition professional is a concern. The study has highlighted gaps in training and practice that can inform the processes needed to address the capacity limitations of dietitians and nutritionists.

Other health professionals (nurses, doctors, allied health groups) and community health workers contribute to nutrition programmes and services as parts of comprehensive packages of care. The

delineation of roles, clear scopes of practice and of responsibility/work, and job descriptions aligned to scopes of practice are needed. The roles of extension workers in other sectors are also important. Understanding the roles and responsibilities within scopes of practice is important as it indicates when cadres have the capacity to act and when they should refer. The scope of work drafted for community health workers in the study is well aligned with the proposed draft scope of work drafted in April 2018 by the NDOH. The latter is part of the policy on community outreach services by ward-based teams which was approved by the Cabinet in December 2017 (NDOH, 2018).

The nutrition-specific roles and functions clarified and presented in the study for the key frontline cadres can form the basis of further development of nutrition workforce roles and functions in the broader South African context.

Nutrition workforce ability to act

Competency reviews have shown that the workforce needs further skills acquired at an entry level as well as on the job through work-integrated learning in public health nutrition. The context and enabling work environments, mentoring, supportive supervision and appropriate compensation for staff are important parts of workforce development and performance. Specifically, the nutrition professionals must be adaptive to changes taking place in the environment and extend their services beyond health facilities to include disease prevention. Programmes are poorly implemented when the barriers to workforce development are not addressed and staff who do not have the capacity to act start to feel overburdened and unsupported. The need to strengthen the capacity of the nutrition workforce is vital. To this end baseline assessments are needed to identify the gaps.

This study has identified the capacity gaps of nutrition professionals and the supporting workforce in the health sector. Specific areas that need attention are intervention management, capacity-building, public health systems knowledge, leadership skills and communication that focusses more on the population's health than individual health. There is also a need to train other cadres, who support nutrition professionals, in the basic principles of nutrition so that they not only acquire knowledge but also practical insights and are able to judge when to refer. It is recommended that public health nutrition managers based at the district level be appointed to support and train other cadres, to provide leadership and to assist with the development and integration of nutrition into operational plans. Hybrid training could be offered as part of continuing professional development, inclusive of ongoing mentoring and coaching.

Job descriptions, roles and responsibilities

Well-defined job descriptions are required that are aligned to scopes of practice and that outline clear roles and responsibilities, inclusive of accountability structures. Job descriptions need to be adapted to changes in the environment and priorities but HR departments must also play a greater role in ensuring the quality assurance of job descriptions on behalf of employers. Clear performance standards based on priorities are needed to ensure that goals and targets set are in fact achieved. Capacity gaps can be bridged through more focussed individual personnel development plans. Furthermore, opportunities exist to integrate and more specifically detail the nutrition-specific roles in the job descriptions of the entire workforce.

Government-employed nutrition workers

The study revealed a number of challenges in the work environment of dietitians and nutritionists. Of great concern is evidence of a workforce who feels unsupported, is overloaded, is required to work in unpleasant work spaces, feels the pressure of continual staff shortages and is misunderstood by managers. Position statements are not standardised, which can contribute to confusion, on the part of managers and co-workers, about nutrition professionals' roles and functions. The study showed that managers do not know the difference between dietitians and nutritionists and perceive nutrition professionals as being ineffective; however, they acknowledge that staff shortages are a challenge. The lack of support structures for governance, leadership, advocacy and communication need to be taken up with managers, the workforce and HR departments. Supportive supervision approaches and a learning-oriented organisational culture are needed to improve relationships and forge better understanding between the nutrition workforce, nutrition professionals and managers.

Nurses' role in the nutrition workforce

Nurses' primary function is nursing care but their scope of work has expanded in line with growing needs. Nurses acknowledge that their capacity to act in the area of nutrition is limited and they need access to nutrition professionals on a regular basis. However, they need to be orientated to understand the capacity and abilities of dietitians and nutritionists in order to work optimally within a multidisciplinary team. Nutrition-specific roles must be reflected in their job descriptions as it cannot be assumed that they can be held accountable for fulfilling certain nutrition-related functions without these being specified.

Nutrition workforce development framework for South Africa

The study has provided a knowledge base for decision making in the field of nutrition workforce development in South Africa with respect to job descriptions, competencies, and workforce and manager perceptions. Pre-service and in-service recommendations based on PHN competency analysis could inform pre- and in-service training. The description of the workforce and confusion surrounding roles and functions were clarified through a consensus role delineation process for personnel in the PHC space, i.e. dietitians–nutritionists, doctors, nurses, health promoters and community health workers.

Regarding future needs of nutrition-related personnel it is suggested that a systematic approach be followed, utilising a proposed nutrition workforce development framework as a planning tool at provincial and national levels. Key HRH gaps have been identified that could be incorporated into HR plans.

It is recommended that the proposed workforce development framework be utilised as a guide and/or tool to plan for the nutrition workforce, including all the components identified as relevant and necessary in the South African context.

10.10. Significance of the study

The study makes an important contribution by laying a knowledge- and evidence-based foundation for the development of South Africa's nutrition workforce.

Pre-service and in-service recommendations made can be used to address gaps in training. The job description analysis provided key insights that can be used by human resources management units. Furthermore, the delineated roles and responsibilities developed offer a solution to the confusion surrounding roles, functions and competencies of key cadres in the nutrition workforce.

Provinces in South Africa can use the planning framework to forecast future needs of nutrition personnel by following a systematic approach to nutrition workforce development.

The available information can be used for the development of an HR nutrition plan for South Africa.

Areas for future research

This study focussed on nutrition workforce development in PHN; it has not dealt with food and nutrition systems or primary prevention. Opportunities exist, however, to conduct research on food and nutrition systems and how these relate to the Burden of Disease.

The perspectives on the nutrition workforce among nurses and managers were limited to the Western Cape Province. Further research could be conducted to obtain the perspectives of the other provinces in South Africa.

The planning framework can be applied and tested as well as costed in order to address the gaps in districts, sub-districts and provinces. In addition, the use of the planning framework in the broader context of public health can be explored.

While the study did not include the role of extension workers in other sectors, research to delineate the roles and responsibilities in other sectors can add value by presenting a holistic picture of the contributions of the nutrition workforce.

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10.12. Addendums

Addendum 1. Workforce development terms and definitions

- **Competencies** refer to the knowledge, skills and attitudes (ways of thinking) required to effectively perform a specific role in practice (Hughes, 2012)
- **Delineation of roles** refers to the precise definition and outlining of tasks/jobs of cadres' personnel.
- **Dietitian (DT)** refers to a trained professional in dietetics who is registered as a dietitian with the HPCSA.
- **Human resource planning (HRP)** is an ongoing process of determining and satisfying an organisation's human resource needs, as derived from statutory mandates, strategic objectives and available financial resources (NDOH, 2004).
- **Nutritionist (NT)** refers to a trained professional in nutrition who is registered with the HPCSA as a nutritionist.
- **Public health nutrition (PHN)** refers to the promotion of nutrition and health at a population level, focussing on food and nutrition systems, wellness and primary prevention of nutrition-related illness and supported by nutritional epidemiology (Hughes, 2003).
- **Workforce development (WD)** refers to strategies that influence the work environment, training, work practice and careers. It concentrates on the skills, knowledge and behaviours needed to deliver services (Hughes, 2003).
- **Workforce** refers to the total number of workers employed to operate in a specific sector.
- **Workforce capacity** refers to the ability of the workforce to do its work depending on size, composition, competency mix and support (and in turn influenced by leadership, organisational support and information) (Hughes, 2003).
- **Health system** refers to inputs, processes, outputs and outcomes for health service delivery to achieve a desired health outcome. Inputs must be available and accessible, and must be accompanied by health financing, human resources, materials and equipment, pharmaceuticals, physical facilities, clinical guidelines, operational policies and an information system. These inputs are used in system processes, i.e. management of health services, case management, and organisation of care and quality assurance, to produce outputs that lead to the desired outcomes and impact positively on the population (World Bank, 2008).

Addendum 2. Ethics approval by the University of the Western Cape



OFFICE OF THE DEAN DEPARTMENT OF RESEARCH DEVELOPMENT

05 September 2012

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape has approved the methodology and ethics of the following research project by:
Mrs H Goeiman (School of Public Health)

Research Project: A comprehensive nutrition workforce framework for the public health sector addressing the nutrition-related disease burden in South Africa.

Registration no: 12/6/26

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*

Private Bag X17, Bellville 7535, South Africa
T: +27 21 959 2988/2948 . F: +27 21 959 3170
E: pjosias@uwc.ac.za
www.uwc.ac.za

A place of quality,
a place to grow, from hope
to action through knowledge

Addendum 3. Permission from Australia to use/adapt Workforce Survey Questionnaire

From:
To: "hilarygoeiman@gmail.com" <hilarygoeiman@gmail.com>
Date: 2012/07/06 08:29 AM
Subject: FW: Permission to use /adapt Workforce survey questionnaire & advance

From: Roger Hughes [mailto:rohughes@bond.edu.au]
Sent: 22 May 2012 10:35 PM
To: Hilary Goeiman
Cc: hilarygoeiman@gmail.com; Swart, Rina (rswart@uwc.ac.za)
Subject: Re: Permission to use /adapt Workforce survey questionnaire & advance

Dear Hilary

Please accept this email as permission to use/ adapt questionnaire and interview items from my earlier studies, as requested , to support your important study. I look forward to assisting in any way that I can.

Regards

Professor Roger Hughes
Head of School
Professor of Health Professional Education
School of Health Sciences
Bond University
Gold Coast
Queensland, Australia.



Addendum 4. Dietitian and nutritionist workforce survey

Nutrition Workforce Survey

1. Project Title: A comprehensive nutrition workforce framework for the Public Health Sector

Please note that this survey can be answered by all - Dietitians and Nutritionists.

* 1. Do you require more information on the survey?

Yes

No

* 2. Do you want to continue with the survey

Yes

No

Nutrition Workforce Survey

2. INFORMATION PAGE

What is this study about?

This is a research project being conducted by HILARY GOEIMAN at the University of the Western Cape. We are inviting you to participate in this research project because you are a stakeholder in nutrition.

The purpose of this research project is to develop a comprehensive nutrition workforce framework for the public health sector to respond to the nutrition-related disease burden in South Africa (SA).

The framework will be developed based on information collected through self-administered questionnaires, key informant interviews, literature review, document analysis and a Delphi study.

You will be asked to:

- complete a self-administered questionnaire designed for dietitians and nutritionists. The questionnaire can be completed on line (<https://www.surveymonkey.com/s/HDGOEIMAN>) or alternatively through postal paid reply and it will take approximately 30 - 45 minutes to complete the questionnaire.

You can re-enter the survey on line at any time to update your existing response until the cut-off date of 30 September 2014.

For postal paid reply you are requested to post the completed questionnaire to Hilary Goeiman.

A pre paid envelope have been provided for this purpose.

We will do our best to keep your personal information confidential.

To help protect your identity and ensure confidentiality the following will be put in place:

- All records of your participation, (the questionnaire and the signed consent form) will be locked away at all times and will be destroyed after the research has been completed.
- Questionnaires can be completed anonymously and only the researcher and study leaders will have access to information.
- At all times, the source of the information will be kept confidential.
- If we write a report or article about this research project, your identity will be protected to the maximum extent possible.

There are no known risks associated with participating in this research project.

This research is not designed to help you personally, but the results may provide and contribute to the knowledge base for decision making to inform nutrition staffing in the public sector in terms of; the right numbers (quantity), the right skills and competencies (quality), doing the right things at the right place and time considering all the nutrition and health related factors in South Africa.

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time.

If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

This research is being conducted by Hilary Goeiman and the School of Public health at the University of the Western Cape. If you have any questions about the research study itself, please contact Hilary Goeiman at (021) 4835663 or 083 333 1320 or e-mail hilarygoeiman@gmail.com

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact the study supervisor:

Prof EC Swart

Study Supervisor: Faculty of Community and Health Sciences:

University of the Western Cape

Private Bag X17

Bellville 7535

Telephone: 021 – 959 2309

Fax: 021 – 959 3686

E-mail: rswart@uwc.ac.za

This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee.



Nutrition Workforce Survey

3. CONSENT

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The study has been described to me in a language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

* 3. consent given by marking yes

Yes

No

Nutrition Workforce Survey

4. NUTRITION PRACTICE INDIVIDUAL QUESTIONNAIRE

Please note that the questions are based on and/ or have been adapted from existing Human resource workforce studies in South Africa and internationally.

Please complete all sections and answer all questions. Reply by marking the correct answer and/ or click the appropriate answer and/or comment in the space(s) provided.

5. DEMOGRAPHIC INFORMATION AND CURRENT POSITION

The following questions are related to attributes of dietitians and nutritionists and the information is important to help us understand the sample.

4. Please provide your contact information (optional)

Name:

Email Address:

5. Please indicate the province where you currently practice

- Gauteng
- Limpopo
- Free State
- Western Cape
- Kwazulu Natal
- Eastern Cape
- North West
- Mpumalanga
- Northern Cape
- Other (please specify)

6. What is your current age in years?

- ≤25yrs
- 26 -35 yrs
- 36-45 yrs
- 46 – 55 yrs
- >55 years

7. What is your gender?

- Male
- Female

8. Ethnic group

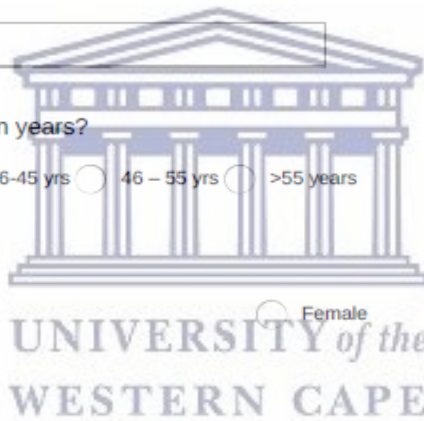
- White
- Coloured
- African
- Indian

Other (please specify)

9. What is your primary home language ?

- Afrikaans
- Sesotho sa Leboa
- siSwati
- English
- Setswana
- Tshivenda
- IsiXhosa
- IsiNdebele
- Xitsonga
- IsiZulu
- Sesotho

Other (please specify)



10. Are you registered with the Health Professions Council of South Africa (HPCSA) or other professional councils?

HPCSA

Other Professional bodies

Other (please specify)

11. If registered with the HPCSA or other professional councils please indicate what you are registered for?

Dietitian

Nutritionist

Both as Dietitian and Nutritionist

Other (please specify)

12. How many years are you in professional practice?

<1 yrs 1 – 2 yrs >2 – 5yrs >5 -10 yrs >10 years

13. What is your current position/ job title?

14. Who is your employing organisation?



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15. What is the nature of the position you currently hold? If you have more than one position tick in the other category or check for the appropriate answer .

- Hospital based dietitian
- Dietitian placed to fulfil community nutrition role
- Dietitian in state department at regional/district office
- Dietitian in private practice
- Dietitian at academic institution
- Dietitian at research institution
- Dietitian in foodservice management
- Public health nutritionist in state health department at district/regional office
- Public health Nutritionist in non-governmental organisation
- Public health nutritionist in government department other than health
- Nutritionist working in academic institution
- Nutritionist working in research
- Nutritionist working in food industry
- Nutritionist working as a Project manager

Other (please specify)



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16. Which of the following describes your current work status?

- Permanent full time
- Temporary full time
- Permanent part time
- Contract
- Unemployed
- Volunteer
- Self Employed(private practice)

Other (please specify)

17. How many years are you in your current position?

- <1 yrs 1 – 2 yrs >2 – 5yrs >5 -10 yrs >10 years

18. How long do you expect to be in your current (main) position?

- Expect to change jobs in the next year 1 – 2 yrs 2 – 5 years 5yrs and more Unsure

19. What position do you report to in your current position?

- Chief/senior dietitian in a hospital Regional/District dietitian
 Medical Superintendent in hospital Health Programme Director
 Chief Executive Officer District Director
 Head of Nursing

Other (please specify)

20. What is the main source of funding for your position?

- Government Department Project Grants
 Non-government organisation (NPO) Industry
 University Self generated

Other (please specify)

21. Are you responsible for budget management in your position?

- Yes No Sometimes

22. Estimate the total nutrition budget you have been responsible for in the last financial year?

- R 0 >R1 000 000
 R1000 – R500 000 Don't Know
 >R500 000 – R1 000 000 Not applicable



23. Rate the level of satisfaction on the following areas (tick only one)

	Very low	Low	Average	High	Very High
The current level of awareness amongst health workers of your role	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your current salary/Income	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your autonomy to make decisions about your practice/work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Career opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Continuing professional development opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to resources for nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to professional support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to information to inform planning and practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. Do you have access to a nutrition mentor (Someone with experience that can provide professional support)?

Yes No Unsure

25. If yes how often do you have contact with your mentor ?

Daily Weekly Monthly Only when needed

Nutrition Workforce Survey

6. PRACTICE (ROLES AND FUNCTIONS)

26. In reviewing your own experience how important are the following factors in your professional development?

	Very low	Low	Average	High	Very high
Working with and learning from leaders in the field of nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doing additional training and coursework in the field of nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gaining work experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attendance at conferences and workshops	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing for publication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-directed learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other(Describe)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

27. Which of the following describes the nature of the community you provide a service to?(tick relevant box)

- National population Private industry
 Provincial population Private practice
 Regional/District population Academia

Other (please specify)

28. To what extent does your role involve collaboration/networking with other agencies and sectors?

	Never	Rarely	Occasionally	Often
Government departments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local government	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community organisations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-governmental organisations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Private/Industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Universities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional organisations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

29. To what extent does your role involve collaboration/networking with health and other professionals?

	never	rarely	occasionally	often
Health promotion staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional nurses and other category of nurses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dietitians	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutritionists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teachers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental health officers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Researchers/academics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Epidemiologists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

30. Give an assessment of the capacity (ability to achieve nutrition objectives) of the following government employees to effectively address the priority nutrition challenges/ issues in South Africa?

	Very Limited	Limited	Average	Good	Very Good
Dietitians	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutritionists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional nurses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. What do you consider as the major strengths and weaknesses of the services in your area to address food and nutrition issues?

Please rate each item listed against the weakness-strength scale. Add and rate any others that are relevant but not listed.

	Major Weakness	Weakness	Neither Strength or Weakness	Strength	Major strength
Community awareness of services/expertise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human resources available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial resources available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Skills of workforce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community participation in programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multi-disciplinary planning and collaboration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Focus on education and awareness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Focus on environmental change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coordination	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of local data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Link with other sectors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Targeting of disadvantaged groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support from other health staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (List and rate)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)




32. On average how often would you be INVOLVED in the following Analytical functions/Activities?

	Never	Less than Monthly	Monthly	Weekly	Daily
Assessing population needs to determine nutrition program and service priorities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evaluating nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring nutrition service and program delivery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assessing and monitoring the determinants of nutrition and health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess the impact of public policy on nutrition and health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring and addressing food advertising and marketing practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other(list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. How would you rate your LEVEL OF ATTAINMENT in the the following Analytical functions/Activities?

	Entry level	Capable	Competent	Proficient	Expert
Assessing population needs to determine nutrition program and service priorities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evaluating nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring nutrition service and program delivery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assessing and monitoring the determinants of nutrition and health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess the impact of public policy on nutrition and health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring and addressing food advertising and marketing practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other(list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. On average how often would you be INVOLVED in the following Capacity Building functions/Activities?



	Never	Less than Monthly	Monthly	Weekly	Daily
Developing intersectoral partnerships to promote nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Providing leadership in communities to promote and support effective action on nutrition issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accessing resources to support public health nutrition action	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing organisational capacity to participate in and address nutrition issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing community capacity to participate in and address nutrition issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

35. How would you rate your LEVEL OF ATTAINMENT in the following Capacity Building functions/Activities?

	Entry level	Capable	Competent	Proficient	Expert
Developing intersectoral partnerships to promote nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Providing leadership in communities to promote and support effective action on nutrition issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accessing resources to support public health nutrition action	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing organisational capacity to participate in and address nutrition issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing community capacity to participate in and address nutrition issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

36. On average how often would you be INVOLVED in the following Intervention Management functions/Activities?

	Never	Less than Monthly	Monthly	Weekly	Daily
Translating research into public health nutrition practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing strategies to address nutrition issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planning community/ population based nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promoting optimal nutrition throughout the lifespan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implementing nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promoting equal access to healthy food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Addressing misinformation about nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advocate for food and nutrition related legislation to protect and promote health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

37. How would you rate your LEVEL OF ATTAINMENT in the following Intervention Management functions/Activities?

	Entry Level	Capable	Competent	Proficient	Expert
Translating research into public health nutrition practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing strategies to address nutrition issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planning community/ population based nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promoting optimal nutrition throughout the lifespan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implementing nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promoting equal access to healthy food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Addressing misinformation about nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advocate for food and nutrition related legislation to protect and promote health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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38. How often do you participate in the following professional activities

	Never	Less than Monthly	Monthly	Weekly	Daily
Speaking in area of expertise at seminars, conferences, radio, community based meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attending meetings of professional organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Representing an organisation or the dietetic profession at community events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Providing service to dietetic and other health professional groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organising community groups round nutrition issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Serving as a resource to legislators or policy makers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sending letters on nutrition related issues to legislators or policy makers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Holding office in professional organisations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)					



39. What qualification have you completed and or currently working towards?

	Earned	Working towards
High School Diploma	<input type="radio"/>	<input type="radio"/>
Bachelor's Degree Dietetics	<input type="radio"/>	<input type="radio"/>
Bachelor's in Nutrition	<input type="radio"/>	<input type="radio"/>
Bachelor's Public Health	<input type="radio"/>	<input type="radio"/>
Bachelor's Home Economics/Consumer Science/Human ecology	<input type="radio"/>	<input type="radio"/>
Bsc Med Honours in Nutrition and Dietetics	<input type="radio"/>	<input type="radio"/>
Master's Degree Dietetics	<input type="radio"/>	<input type="radio"/>
Master's Nutrition	<input type="radio"/>	<input type="radio"/>
Master's Public Health	<input type="radio"/>	<input type="radio"/>
Master's Home Economics/Consumer Science/Human Ecology	<input type="radio"/>	<input type="radio"/>
Doctorate Dietetics	<input type="radio"/>	<input type="radio"/>
Doctorate Nutrition	<input type="radio"/>	<input type="radio"/>
Doctorate Public Health	<input type="radio"/>	<input type="radio"/>
Doctorate Home Economics/Consumer Science/Human Ecology	<input type="radio"/>	<input type="radio"/>

Other (please specify)

40. Are you currently enrolled for any other courses?

Yes

No

If yes (please specify)

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41. Do you have any intentions of doing further professional training?

Yes No Unsure

If Yes (please specify)

42. If you are a graduate of nutrition and dietetic training, rate the adequacy of your training to prepare you for Public Health Nutrition?

	Very inadequate	Inadequate	Neutral	Adequate	Very Adequate
Very inadequate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inadequate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neutral	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adequate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very Adequate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

43. Rate the level of importance of the following competency elements on ENABLING KNOWLEDGE to be effective in Public Health Nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Identify environmental determinants of nutritional status, health and disease and describe how these factors might be addressed to improve nutrition and disease prevention in populations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Identify and interpret socio-cultural and psychological factors that influence individual health behaviour.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Identify and interpret the biological factors that determine the nutrition and health status of individuals and populations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Critique the role of cultural and social factors affecting nutrition and health in communities, organisations and policy arenas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Apply theories of individual behaviour and behaviour change to public health practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Compare basic models of disease causation for communicable and noncommunicable disease, including the role of nutrition and diet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Compare the sociological, anthropological and political science underpinnings of health leading to identification and interpretation of these determinants.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Analyse the economic factors that influence individual dietary behaviour, health status and utilisation of health services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)



44. Rate the level of importance of the following competency elements on NUTRITION SCIENCE to be effective in Public Health Nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Apply knowledge of dietary requirements across age-groups, gender and health states to inform and evaluate public health nutrition practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Prioritise strategies for public health nutrition intervention based on assessment of nutrition status, determinants, existing capacity and assessment of strategy effectiveness relevant to practice context.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Collect and critically examine intelligence about public health nutrition intervention options to develop effective and contextually relevant public health nutrition interventions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Apply knowledge of food composition to inform relevant areas of practice (including nutritional assessment, food guidance, monitoring and surveillance, nutrition intervention).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Use contemporary and evidence based food guidance devices to promote optimal population dietary behaviour.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Demonstrate knowledge of foods and food preparation methods used in the community, relevant to practice context.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Apply knowledge of food science to inform relevant areas of practice(including nutritional assessment, food guidance, monitoring and surveillance, nutrition intervention).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Critique nutritional requirement standards and identifies uses and limitations in practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Apply basic theories of education theory as it applies to food guidance .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

45. Rate the level of importance of the following ANALYTICAL competency elements to be effective in Public Health Nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Locate, evaluate and interpret information about the key determinants of nutritional status and health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Apply information and intelligence from various sources to analyse public health nutrition issues and identify specific intervention needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Identify and describe the role of evidence in developing health policies and programs and appropriately apply evidence to these tasks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Use health and nutrition -related data collections appropriately to describe the food and nutrition related health situation and trends in populations, identify possible determinants, and monitor progress toward population goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Critically appraise the quality of primary and secondary nutrition and health research data in the context of hierarchies of evidence.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Identify appropriate uses of qualitative information for research, planning and evaluation in public health nutrition practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Describe the strengths and weaknesses of qualitative methods in the context of public health nutrition practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Identify and describe the strengths and weaknesses of quantitative and qualitative methodologies to describe the public health needs of populations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

46. Rate the level of importance of the following PUBLIC HEALTH SYSTEMS competency elements to be effective in Public Health Nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Contrast and use various approaches for setting priorities regarding problems and population groups to target, health and nutrition service development and investment, and nutrition-related research.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Identify and define the core functions of public health and identify the individual and organisational responsibilities within health and other sectors that fulfill these functions in a nutrition context.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

47. Rate the level of importance of the following FOOD AND NUTRITION SYSTEMS competency elements to be effective in Public Health Nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Identify and categorise key stakeholders in the food and nutrition system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Describe the major trends in food and nutrition system development and identify their implications for society.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Describe the structure and dynamics of the food and nutrition system and the key dimensions of system performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Comprehensive understanding of policies and legislation relevant to the food and nutrition system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

48. Rate the level of importance of the following NUTRITION COMMUNICATIONS competency elements to be effective in Public Health Nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Translate technical nutrition information into practical advice and guidance on food and eating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Communicate with individuals, groups, organisations and communities from various cultural socio-economic, organisational and professional backgrounds to enable them to take actions to improve nutrition and health outcomes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Develop nutrition education/guidance material that is evidence-based, culturally sensitive, and pitched at the appropriate literacy level, to meet the needs of the target group.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Develop, implement and evaluate education programs to enable people to change their knowledge, attitudes and behaviour concerning health choices, taking account of the context in which target behaviours are performed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Apply the basic principles of age-appropriate education and learning theories as they apply to public health nutrition practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)



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49. Rate the level of importance of the following cross-cutting competency elements to be effective in Public Health Nutrition practice? (MANAGEMENT, LEADERSHIP, PROFESSIONAL AND COMMUNICATION)

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Identify, estimate potential implications and manage risk as it applies to public health nutrition practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Manage project resources achieving and reporting progress against budget and time-line contexts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Facilitate group/team work and operate effectively as a member of a group or team.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Use analytical, critical thinking, and problem-solving skills to make effective decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	not important at all	Low importance	mid-range importance	Important	Very Important
5. Act as an advocate for the public's health and articulation of the needs of vulnerable groups.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Manage complex relationships and competing interests of the various stakeholders in the food and nutrition system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Apply the principles of advocacy and lobbying appropriately to garner support for action on nutrition problems of public health significance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Contribute to developing key values and a shared vision in planning and implementing public health programs and policies in the community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Describe the mission and priorities of the public health organisation where one works, and applies them in practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Accept leadership roles in organisations and committees to promote nutrition and health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Apply ethical principles to the collection, maintenance, use and dissemination of data and information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Give prominence to promoting equity in approaches to improving nutrition in populations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Apply culturally-relevant and appropriate approaches with people from diverse cultural, socioeconomic and educational backgrounds, and persons of all ages, genders, health status, sexual orientations and abilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Demonstrate consistent reflective practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Demonstrate a commitment to life-long learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Identify and disclose potential, perceived and real conflicts of interest in practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Apply principles of ethical decision making in the context of intervention and cost effectiveness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Demonstrate values and principles that underpin public health nutrition policy debates, organisational practices, and program planning and evaluation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Contribute to the evidence base relating to effective public health nutrition practice and actively communicate this information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Demonstrate effective written and oral communication in a range of contexts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Utilise appropriate methods for interacting and communicating sensitively, effectively and professionally with persons from diverse backgrounds, ages and preferences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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	Not Important at all	Low importance	Mid-range importance	Important	Very Important
22. Interpret information for professional, nonprofessional and community audiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Use information technology to effectively communicate, locate information and analyse data.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Apply interpersonal skills (including negotiation, team work, motivation, conflict resolution, problem solving skills).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25 Listen to others in non-biased manner, respect varying points of view and promote the expression of diverse opinions and perspectives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Communicate effectively with individuals, families, groups, communities and colleagues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Describe and apply methods of listening to and involving the public and communities in improving health and reducing inequalities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Collect, evaluate and interpret information from a variety of traditional and new technology sources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. Solicit input from individuals, organisations and community groups.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. Use the media, advanced technologies and community networks to communicate information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. Mobilise individuals and communities by using appropriate media, community resources and social marketing techniques.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

50. Rate the level of importance of the following PRACTICE competency elements (NUTRITION ASSESSMENT) to be effective in Public Health Nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Accurately interpret nutrition assessment data against relevant standards.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Integrate nutrition assessment data in order to prioritise nutrition intervention.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Define and communicate population-level nutrition problems and priorities based on nutrition assessment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Identify and use appropriate dietary methodology to collect retrospective, current and prospective food and nutrient intakes for individuals that identify nutrient and food intake patterns.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Identify and utilise available medical, social, cultural, psychological, environmental data to perform nutritional assessment, appropriate to practice context.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Accurately interpret growth assessment data against relevant standards.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)



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51. Rate the level of importance of the following PRACTICE competency elements (NUTRITION MONITORING AND SURVEILLANCE) to be effective in Public Health Nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Utilise data from monitoring and surveillance to describe trends in risk factors for diet-related disease, among key population groups.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Describe common measures of indicators for population health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Analyse a health problem and identify the appropriate level/s at which to target the disease, condition or determinant, and population groups to be targeted.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Interpret mixed method research findings relevant to a populations nutrition and health status including those generated by qualitative methods.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Identify the contribution of disease surveillance and monitoring to policy and program planning and evaluation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Identify and understand the role of risk factor surveillance to inform analysis of diet-related problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)



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52. Rate the level of importance of the following PRACTICE competency elements (BUILDING CAPACITY) to be effective in Public Health Nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Establish linkages with key stakeholders.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Recognise that organised effort at a population level is required to achieve improved health outcomes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Identify and collaborate with partners in addressing public health issues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Identify individual and organisational responsibilities for promoting public health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Involve communities as active partners in all aspects of public health nutrition effort.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

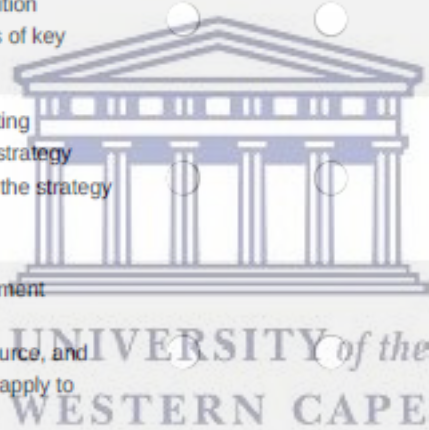
	Not Important at all	Low importance	Mid-range importance	Important	Very Important
6. Use skills such as team building, negotiation, conflict management and group facilitation to build partnerships.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Identify community assets and available resources.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Demonstrate an ability to build community capacity by sharing knowledge, tools, expertise and experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Contribute to team and organisational learning in order to advance public health goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Apply community development processes and principles in public health nutrition practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Advocate for resource allocation that promote and protect the health and well-being of individuals and communities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Identify and develop key workforce components (individuals, groups,units) with an interest in public health nutrition effort.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Conduct a stakeholder analysis (including analysis of power and control) and identify prospective partners with reference to the health needs of a specific population/community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Describe methods of evaluating community, organisation and system level capacity to address public health nutrition issues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Apply the principles of effective inter-sectoral action and apply to population health activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Apply the principles of capacity building to enhancing public health effort and outcomes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Describe the key determinants of effective partnership development and apply strategies to support sustainable and effective collaboration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Describe the determinants of community and organisational capacity as they relate to public health action.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

53. Rate the level of importance of the following PRACTICE(INTERVENTION MANAGEMENT)

competency elements to be effective in Public Health Nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Apply information and intelligence from various sources to analyse public health issues and identify specific intervention needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Apply the principles of public health intervention planning and develop a plan for a specified population, including the evaluation of objectives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Assess the evidence of effectiveness of interventions, programmes and services designed to enhance nutrition and public health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Identify and describe the program logic of a population health program/project (i.e. The relationship between the rationale and objectives of a program, program planning, implementation and evaluation).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Design a process, impact and/or outcome evaluation plan for a public health nutrition program/project that reflects the needs of key stakeholders.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Describe the range of health promoting strategies and methods, and for each strategy and method, identify groups for whom the strategy or method is appropriate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Apply knowledge of project management principles (including scope, time, cost, procurement, quality, risk, human resource, and communication management) as they apply to population health interventions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Actively communicate and promote intelligence gains from program planning, implementation and evaluation activities, to maximise diffusion of innovation, share intervention research findings and practice wisdom.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Design a health promoting intervention for an individual, community or organisation using theory and evidence to guide the selection of strategies and the identification of outcomes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Identify capacity building, timeframes, governance structures, resource needs (budgeting), organisational and agency needs that would allow an intervention to be effectively implemented.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Assess the relative merits (e.g. considering suitability to target group, resource requirements, etc.) of alternative disease prevention measures (e.g. education, incentives, legislation, policies, standards, screening).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



	Not Important at all	Low importance	Mid-range importance	Important	Very Important
12. Apply relevant behavioural and social science theories to a selected health promotion intervention, and review and evaluate the adequacy of the approach(es) selected for practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Other (please specify)

54. Against the following competency areas rate the importance of the area to be effective in Public Health Nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
1. Enabling Knowledge(Biological,Environmental,social,economic,political)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Nutrition Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Analytical/Research and Application of Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Public Health systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Food and Nutrition systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Nutrition Communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Leadership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Professional development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Effective Communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Nutrition assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Nutrition Monitoring and Surveillance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Building Capacity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Intervention Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

55. Which of the following options would make further training more feasible to you? (tick more than one if required)

- | | |
|---|---|
| <input type="checkbox"/> Courses off campus | <input type="checkbox"/> In service programmes |
| <input type="checkbox"/> Full time courses on campus | <input type="checkbox"/> Modular format programmes |
| <input type="checkbox"/> Summer /winter school programmes | <input type="checkbox"/> Professionally recognised/Accredited |

Other (please specify)

56. Which of the following do you think are barriers (preventing) and or incentives (facilitating) you to further develop your skills in public health nutrition?

	Not Barrier	Barrier	Neither/Neutral	Incentive	Major Incentive
Own assessment of need to develop skills in a specific area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Funding availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-motivation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Level of support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal rewards of further training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional recognition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interest in public health nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list and rate)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

Nutrition Workforce Survey

8. Government employees please complete all 5 questions below ,

non-government employees to go to last question

57. Are you a government employee

- Yes No

9. Government employees

58. Do you have a job description?

- Yes No

If No (please specify)

59. Do you have an Individual Development Plan in place?

- Yes No

If No (please specify)

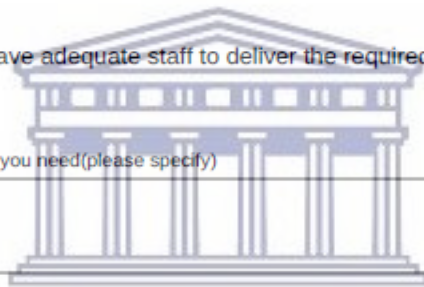
60. In your opinion do you have adequate staff to deliver the required nutrition and / dietetic services?

- Yes No

If No how many more positions do you need (please specify)

61. Estimate the adequacy of staff for nutrition in your area?

- 0-19% 60-79%
 20-39% 80-100%
 40-59%



62. Please indicate by marking/ticking answer whether the following are available in your work environment?

	Yes	No	Sometimes
Own office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Own telephone for work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work e mail access	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet Access at work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Storage space at work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transport for work purposes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If no to any of the above (please specify)

63. Would you like to receive a copy of any reports presenting the results of this survey?

Yes No

If Yes please include details on page 1

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Nutrition Workforce Survey

10. Thank you for your time and contributions to the project

If you have any enquiries please contact Hilary Goeiman on HilaryGoeiman@gmail.com

Addendum 5. Nurses' questionnaire

NUTRITION WORKFORCE SURVEY - NURSES

Project Title: A comprehensive nutrition workforce framework for the Public Health Sector

* 1. Do you require more information on the survey?

- Yes
- No

NUTRITION WORKFORCE SURVEY - NURSES

INFORMATION PAGE

What is this study about?

This is a research project being conducted by HILARY GOEIMAN at the University of the Western Cape. We are inviting you to participate in this research project because you are a stakeholder in public health nutrition or a dietitian or a nutritionist.

The purpose of this research project is to develop a comprehensive nutrition workforce framework in the public health sector to respond to the nutrition-related disease burden in South Africa (SA).

The framework will be developed based on information collected through self-administered questionnaires, key informant interviews, literature review, document analysis and a Delphi study.

What will I be asked to do if I agree to participate?

You will be asked to:

- complete a self-administered questionnaire designed for dietitians or nutritionist or professional nurse at primary health care.

The questionnaire can be completed on line or alternatively through postal paid reply. It will take approximately 30 minutes to complete the questionnaire.

Would my participation in this study be kept confidential?

We will do our best to keep your personal information confidential.

To help protect your identity and ensure confidentiality the following will be put in place:

- All records of your participation, (the questionnaire and the signed consent form) will be locked away at all times and will be destroyed after the research has been completed.
- Questionnaires can be completed anonymously and only the researcher and study leaders will have access to information.
- At all times, the source of the information will be kept confidential.
- If we write a report or article about this research project, your identity will be protected to the maximum extent possible.

What are the risks of this research?

There are no known risks associated with participating in this research project.

What are the benefits of this research?

This research is not designed to help you personally, but the results may provide and contribute to the knowledge base for decision making to inform nutrition staffing in the public sector in terms of; the right numbers (quantity), the right skills and competencies (quality), doing the right things at the right place and time considering all the nutrition and health related factors in South Africa.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary.

You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time.

If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

What if I have questions?

This research is being conducted by Hilary Goeiman and the School of Public health at the University of the Western Cape. If you have any questions about the research study itself, please contact Hilary Goeiman at (021) 4835663 or 0833331320 or e-mail hilarygoeiman@gmail.com

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact the study supervisor:

Prof EC Swart

Study Supervisor: Faculty of Community and Health Sciences:

University of the Western Cape

Private Bag X17

Bellville 7535

Telephone: 021 – 959 2237

Fax: 021 – 959 3686

E-mail: rswart@uwc.ac.za

This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee.

NUTRITION WORKFORCE SURVEY - NURSES

CONSENT

The study has been described to me in a language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

* 2. consent

Yes

No

NUTRITION WORKFORCE SURVEY - NURSES

INDIVIDUAL QUESTIONNAIRE FOR PROFESSIONAL NURSES

Please note that the questions are based and/ or have been adapted from existing Human resource workforce studies in South Africa and internationally.

All the information will be treated as confidential and will be used in the process of developing a comprehensive nutrition workforce framework for the public health sector addressing the nutrition-related disease burden in South Africa.

Please complete all sections and answer all questions. Reply by marking the correct answer and

or click the appropriate answer and/or comment in the space(s) provided.

3. Please provide your contact information (optional)

Name:

Address 1:

City/Town:

State/Province:

ZIP/Postal Code:

Country:

Email Address:

Phone Number:

4. What is your gender?

Male

Female



5. What is your home language ?

Afrikaans

English

IsiXhosa

IsiZulu

Sesotho sa Leboa

Setswana

IsiNdebele

Sesotho

siSwati

Tshivenda

Xitsonga

Other (please specify)

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6. Are you registered with the South African Nursing council (SANC) or other professional council?

- YES,SANC
- NO
- YES, Other Professional bodies
If other please indicate.

Other (please specify)

7. Who is your employing organisation?

8. Number of years in current position?

- <1 yrs
- 1 – 2 yrs
- >2 – 5yrs
- >5 -10 yrs
- >10 years



9. Do you have nutrition work in your job description?

- Yes
- No

If No (please specify)

10. Do you have an individual development plan in place?

- Yes
- No

If No (please specify)

11. What position do you report to in your current position?

- Chief Executive Officer
- Nursing manager
- Regional/Area PHC manager.
- Director
- Other (list)

Other (please specify)

12. What is the Source of funding for your position?

- Government Department
- Non-government organisation (NPO)
- University
- Project Grants

Other (please specify)

13. Rate the level of satisfaction on the following (tick only one)

	Very low	Low	Average	High	Very high
The current level of awareness amongst health workers of your role	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your current salary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your autonomy to make decisions about your practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Career opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Continuing professional opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to resources for intervention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to professional support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to information to inform planning and practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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14. Do you have access to a nutrition mentor/specialist (Someone with experience that can provide professional support)

- Yes
- No
- Unsure

15. If yes, how often do you have contact

- Daily
- Weekly
- Monthly
- only when needed

16. In reviewing your own experience how important are the following factors in your professional development?

	Very low	Low	Average	High	Very high
Working with and learning from leaders in the field of nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doing additional training and coursework in the field of nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gaining work experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attendance at conferences and workshops	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing for publication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-directed learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other(Describe)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

NUTRITION WORKFORCE SURVEY - NURSES

PRACTICE (ROLES AND FUNCTIONS)

17. Which of the following describes the nature of the community you service (tick relevant box)

- National population
- Urban town
- Provincial population
- Rural area
- Regional/District population
- Facility

Other (List)


18. What are 3 OR 4 major roles/activities in terms of nutrition of your current position? PLEASE LIST.
e.g. Group nutrition education, nutrition screening

19. To what extent does your role involve collaboration/networking with other sectors/organisations

	never	rarely	occasionally	often
Other government departments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local government	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community organisations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-governmental organisations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Private/Industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Universities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional organisations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

20. To what extent does your role involve collaboration/networking with other health professionals?

	never	rarely	occasionally	often
Health promotion staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dietitians	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutritionists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional nurses and other category of nurses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teachers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental health officers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Researchers/academics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Epidemiologists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)				

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21. Give an assessment of the capacity of the following government employees to effectively address the priority nutrition challenges/ issues in South Africa? Rate only one per row

	Very limited	Limited	Average	Good	Very good
Dietitians	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutritionists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional nurses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. What do you consider as the major strengths and weaknesses of services in your area to address food and nutrition issues? please rate each item against the weakness-strength scale.

	Major weakness	Weakness	Neither strength or Weakness	Strength	Major strength
Community awareness of services /expertise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staff available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Budgets available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge and skills of workforce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community participation in programmes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multi disciplinary planning and collaboration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Focus on education and awareness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Focus on the environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of local data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
linkages with other sectors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Targeting of interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support from health staff/advice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other(list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

23. On average how often would you be involved in the following activities?

	Never	Less than monthly	Monthly	Weekly	Daily
Clinical nutrition one on one	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Small group activity with clients with nutrition health problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Small group activities with general community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training other health professionals addressing clients nutrition needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never	Less than monthly	Monthly	Weekly	Daily
Training non health staff (e.g. Day-care staff)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implementing/coordinating community wide nutrition education programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implementing/coordinating community programs re food supply/access	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition technical support to other departments and agencies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition monitoring and surveillance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Responding to individual requests for information and advice on nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media liaison /advocacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supporting national media campaigns on nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seeking funding for nutrition projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participation in development/review of food and nutrition legislation/policy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engage in nutrition related Research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Present nutrition research to forums	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Student training/supervision on nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implementing/coordination of nutrition policies and programmes in health facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Foodservice management for groups/institutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compilation of food specifications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop nutrition information, education and communication materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enteral and parental nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anthropometric measurements of clients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



	Never	Less than monthly	Monthly	Weekly	Daily
Referring clients to dietitian/nutritionist for counselling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other(list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

24. Estimate the percentage time spent on each of the following categories?

Managing food and other material resources	<input type="text"/>
Providing Nutrition Care to individuals	<input type="text"/>
Implementing nutrition programs/policies for population groups	<input type="text"/>
Teaching other professional students on nutrition	<input type="text"/>
Conducting nutrition Research	<input type="text"/>
Other , please specify	<input type="text"/>



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25. Which of the following nutrition related activities have you participated in during the last year as part of your job or voluntary? (mark all that apply)

- Speaking in area of nutrition
- Organising community groups round nutrition issues
- Sending letters on nutrition related issues to legislators or policy makers
- conducting nutrition training
- other , please specify

Other (please specify)

NUTRITION WORKFORCE SURVEY - NURSES

TRAINING and CONTINUING PROFESSIONAL DEVELOPMENT

26. What qualification have you completed and or currently working towards?

	Earned	Working towards
High School & Diploma in Nursing	<input type="radio"/>	<input type="radio"/>
Bachelor's Degree Nursing	<input type="radio"/>	<input type="radio"/>
Other Bachelor's degree (list)	<input type="radio"/>	<input type="radio"/>
Master's Degree Nursing	<input type="radio"/>	<input type="radio"/>
Master's Public Health	<input type="radio"/>	<input type="radio"/>
Other Master's degree (List)	<input type="radio"/>	<input type="radio"/>
Doctorate Nursing	<input type="radio"/>	<input type="radio"/>
Doctorate Public Health	<input type="radio"/>	<input type="radio"/>
Other Doctorate (list)	<input type="radio"/>	<input type="radio"/>

Other (please specify)



27. Which of the following do you think are barriers and or incentives to further develop YOUR skills in public health nutrition?

	Major barrier	Barrier	Unsure	Neither	Incentive	Major incentive
Own assessment of my need to develop my skills in this area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Funding availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-motivation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Level of support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal rewards of further training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional recognition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list and rate)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

28. Please list other courses that you have attended in the last year?

29. In your opinion what are the advantages and disadvantages that nursing training provide for community and/or public health nutrition practice?

Advantages

Disadvantages



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30. Against the following competency areas rate the importance in each area for professional nurses at PHC level?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
Nutrition assessment methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition throughout the life cycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition and disease aetiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition management of disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food service management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Needs assessment in nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme planning in nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme Evaluation in nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public health principles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategy development/selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Policy development in nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advocacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition monitoring and Surveillance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presentation skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication skills(writing and verbal)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborating skills with other professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

31. What level of attainment do you think YOU HAVE in the following competency areas?

	Entry level	Capable	Competent	Proficient	Expert
Nutrition assessment methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition throughout the life cycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition and disease aetiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition management of disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food service management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Needs assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme Evaluation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public health principles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategy development/selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Policy development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advocacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition monitoring and Surveillance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presentation skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication skills(writing and verbal)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborating skills with other professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

32. Which of the following options would make further training more feasible to you? (tick more than one if required)

- Courses off campus
- Full time courses on campus
- Summer /winter school programmes
- In service programmes
- Modular format programmes
- Professionally recognised/Accredited

Other (please specify)

33. Do you know if there is a difference between a dietitian and nutritionist? if yes please explain?

- Yes
- No
- IF YES Explain shortly



34.

IF ANSWER WAS YES COMPLETE QUESTIONS SEPERATELY FOR DIETITIANS AND NUTRITIONISTS, if YOUR ANSWER IS NO ANSWER DIETITIAN/NUTRITIONIST QUESTIONS ONLY

Against the following competency areas rate the importance in each area for DIETITIANS in public health nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
Screening and needs assessment/situation analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess nutritional status assessment methods of clients and groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrate ,analyse and interpret nutritional assessment data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilize appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutritional related health issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not Important at all	Low importance	mid-range importance	Important	Very Important
Assess patient/client/group food preferences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determine needs for nutrition services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess nutrition training needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor and evaluate appropriate nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with relevant stakeholders and community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with the different members of the health care team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote and monitor patient/client compliance with the nutrition care plan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compile & adapt normal and therapeutic menus to comply with patient/client and/or group needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicate effectively with individuals and groups.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advocate for nutrition - related issues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human resource management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme planning and implementation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme Evaluation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Policy development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition monitoring and Surveillance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



	Not Important at all	Low importance	Mid-range importance	Important	Very Important
Collaborating skills with other professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategy development/selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition throughout the life cycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition and disease aetiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dietetic management of disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ethical practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management and personal development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding of food legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

35.

What LEVEL OF ATTAINMENT do you think DIETITIANS have in the following competency areas?

	Entry level	Capable	Competent	Proficient	Expert
Screening and needs assessment/situation analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess nutritional status assessment methods of clients and groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrate ,analyse and interpret nutritional assessment data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilize appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutritional related health issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess patient/client/group food preferences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Entry level	Capable	Competent	Proficient	Expert
Determine needs for nutrition services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess nutrition training needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor and evaluate appropriate nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with relevant stakeholders and community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with the different members of the health care team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote and monitor patient/client compliance with the nutrition care plan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compile & adapt normal and therapeutic menus to comply with patient/client and/or group needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicate effectively with individuals and groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advocate for nutrition-related issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human resource management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme planning and implementation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme Evaluation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Policy development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition monitoring and Surveillance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborating skills with other professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



	Entry level	Capable	Competent	Proficient	Expert
Strategy development/selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition throughout the life cycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition and disease aetiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dietetic management of disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutritional science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ethical practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management and personal development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding of food legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

36. Against the following competency areas rate the importance in each area for NUTRITIONIST in public health nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
Screening and needs assessment/situation analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess nutritional status assessment methods of clients and groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrate ,analyse and interpret nutritional assessment data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilize appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutritional related health issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess patient/client/group food preferences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determine needs for nutrition services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
Assess nutrition training needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor and evaluate appropriate nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with relevant stakeholders and community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with the different members of the health care team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote and monitor patient/client compliance with the nutrition care plan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compile & adapt normal and therapeutic menus to comply with patient/client and/or group needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, execute and control food procurement, storage, production, distribution, and consumption of the final product.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Standardise recipes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apply food quality standards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compile & interpret food specifications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrate the food service system in nutrition service delivery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicate effectively with individuals and groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advocate for nutrition-related issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human resource management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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	Not Important at all	Low importance	Mid-range importance	Important	Very Important
Financial management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme planning and implementation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme Evaluation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Policy development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition monitoring and Surveillance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborating skills with other professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategy development/selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition throughout the life cycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition and disease aetiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dietetic management of disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutritional science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ethical practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management and personal development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding of food legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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37. What LEVEL OF ATTAINMENT do you think NUTRITIONISTS have in the following competency areas?

	Entry level	Capable	Competent	Proficient	Expert
Screening and needs assessment/situation analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess nutritional status assessment methods of clients and groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrate ,analyse and interpret nutritional assessment data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Entry level	Capable	Competent	Proficient	Expert
Utilize appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutritional related health issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess patient/client/group food preferences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determine needs for nutrition services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess nutrition training needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor and evaluate appropriate nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with relevant stakeholders and community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with the different members of the health care team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote and monitor patient/client compliance with the nutrition care plan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compile & adapt normal and therapeutic menus to comply with patient/client and/or group needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicate effectively with individuals and groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advocate for nutrition-related issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human resource management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme planning and implementation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme Evaluation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



	Entry level	Capable	Competent	Proficient	Expert
Policy development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition monitoring and Surveillance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborating skills with other professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategy development/selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition throughout the life cycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition and disease aetiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dietetic management of disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutritional science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ethical practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management and personal development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding of food legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)



38. Against the following competency areas rate the importance in each area for DIETITIANS/NUTRITIONIST in public health nutrition practice?

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
Screening and needs assessment/situation analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess nutritional status assessment methods of clients and groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrate ,analyse and interpret nutritional assessment data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not Important at all	Low importance	Mid-range importance	Important	Very Important
Utilize appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutritional related health issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess patient/client/group food preferences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determine needs for nutrition services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess nutrition training needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor and evaluate appropriate nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with relevant stakeholders and community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with the different members of the health care team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote and monitor patient/client compliance with the nutrition care plan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compile & adapt normal and therapeutic menus to comply with patient/client and/or group needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, execute and control food procurement, storage, production, distribution, and consumption of the final product.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Standardise recipes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apply food quality standards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compile & interpret food specifications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



	Not Important at all	Low importance	Mid-range importance	Important	Very Important
Integrate the food service system in nutrition service delivery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicate effectively with individuals and groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advocate for nutrition-related issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human resource management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme planning and implementation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme Evaluation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Policy development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition monitoring and Surveillance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborating skills with other professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategy development/selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition throughout the life cycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition and disease aetiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dietetic management of disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutritional science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ethical practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management and personal development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding of food legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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39. What LEVEL OF ATTAINMENT do you think DIETITIAN/NUTRITIONISTS have in the following competency areas?

	Entry level	Capable	Competent	Proficient	Expert
Screening and needs assessment/situation analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess nutritional status assessment methods of clients and groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrate ,analyse and interpret nutritional assessment data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilize appropriate nutritional assessment methods to predict, diagnose and analyse severity and causes of nutritional related health issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess patient/client/group food preferences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determine needs for nutrition services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess nutrition training needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor and evaluate appropriate nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with relevant stakeholders and community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients /clients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborate with the different members of the health care team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote and monitor patient/client compliance with the nutrition care plan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compile & adapt normal and therapeutic menus to comply with patient/client and/or group needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



	Entry level	Capable	Competent	Proficient	Expert
Communicate effectively with individuals and groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advocate for nutrition-related issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human resource management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme planning and implementation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme Evaluation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Policy development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition monitoring and Surveillance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collaborating skills with other professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategy development/selection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition throughout the life cycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition and disease aetiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dietetic management of disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutritional science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ethical practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management and personal development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding of food legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (list)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

NUTRITION WORKFORCE SURVEY - NURSES

General

GENERAL

40. In your opinion do you have adequate staff to deliver the required nutrition and / dietetic services?

- Yes
 No

If No (please specify)

41. Please indicate by marking/ticking answer whether the following are available in your work environment?

	Yes	No
Own office	<input type="radio"/>	<input type="radio"/>
Own Telephone	<input type="radio"/>	<input type="radio"/>
Own E - mail access	<input type="radio"/>	<input type="radio"/>
Own Internet Access	<input type="radio"/>	<input type="radio"/>
Own Storage space	<input type="radio"/>	<input type="radio"/>
Access to reliable transport for duties i.e Home visits	<input type="radio"/>	<input type="radio"/>
If NO to any of the above, explain	<input type="radio"/>	<input type="radio"/>

If no to any of the above (please specify)

42. Please highlight any matter and main challenge that impact on service delivery including NUTRITION that you have experienced and indicate possible solutions ?

Challenges

Solutions

43. Would you like to receive a copy of any reports presenting the results of this survey?

- Yes
 No

If Yes please include details on page 1

NUTRITION WORKFORCE SURVEY - NURSES

Thank you for your time and contributions to the project by way of questionnaire completion.

If you have any enquiries please contact Hilary Goeiman on HilaryGoeiman@gmail.com

Addendum 6. Approval by the Western Cape Government: Health



STRATEGY & HEALTH SUPPORT

Health.Research@westerncape.gov.za

tel: +27 21 483 6837; fax: +27 21 483 9893

5th Floor, Norton Rose House, 8 Riebeeck Street, Cape Town, 8001

www.westerncape.gov.za

REFERENCE: WC_201710_012
ENQUIRIES: Ms Charlene Roderick

University of Western Cape

Robert Sobukwe

Belville

Cape Town

7535

For attention: Mrs Hilary Gosman

Re: Developing a comprehensive nutrition workforce framework for the public health sector to respond to the nutrition-related disease burden in South Africa.

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.

Please contact following people to assist you with any further enquiries in accessing the following sites:

Metro District Health Services	Dr Giovanni Perez	021 815 8668
Rural District Health Services	Dr Renette Crous	044 695 0047

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final feedback (**annexure 9**) within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).

3. In the event where the research project goes beyond the estimated completion date which was submitted, researchers are expected to complete and submit a progress report (**Annexure 8**) to the provincial Research Co-ordinator (Health_Research@westerncape.gov.za).
4. The reference number above should be quoted in all future correspondence.

Yours sincerely



DR J EVANS

ACTING DIRECTOR: HEALTH IMPACT ASSESSMENT

DATE: 20/10/2017



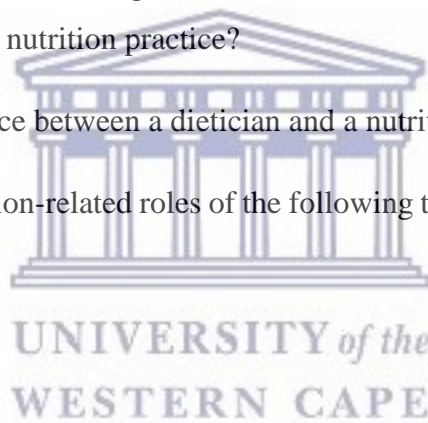
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Addendum 7. Managers' semi-structured questionnaire

Title of project:

A comprehensive nutrition workforce framework for the public health sector addressing the nutrition-related disease burden in South Africa

1. What is the title of your current position and role?
2. How would you describe your current work roles?
3. How would you describe the composition (demographic and qualified professionals and numbers) of the public health nutrition workforce in your area?
4. What do you consider as the core functions of the public health nutrition workforce?
5. What competencies (skills, knowledge and attitudes) would you identify as being necessary for effective public health nutrition practice?
6. Do you know the difference between a dietician and a nutritionist? Please explain.
7. How do you see the nutrition-related roles of the following three groups in your district/sub-district/province:
 - Dieticians?
 - Nutritionists?
 - Professional nurses?
8. What level of competency in your view is required for the public health sector by:
 - Dieticians?
 - Nutritionists?
 - Professional nurses?
9. How would you suggest the training needs of dieticians, nutritionists and nurses being addressed?
10. How effective do you think the public health nutrition interventions currently are in addressing nutrition challenges?



Addendum 8. Delphi Study – Round 1

Simplified Delphi - Nutrition workforce

Participant Information Page

We are inviting you to participate in this research project because you are a stakeholder and /or an expert in the field of public health nutrition. This is a research project is being conducted by HILARY GOEIMAN at the University of the Western Cape as part of a PhD study in Public Health.

The purpose of this research project is to develop a comprehensive nutrition workforce framework in the public health sector to respond to the nutrition-related disease burden in South Africa (SA).

The following components have been concluded;

- Review of literature of human resource development including planning frameworks for Public Health and Public Health Nutrition.
- Document review on scope of practice, competencies of dietitians, nutritionists, professional nurses, doctors, community health workers and health promotors against global public health agreed competencies.
- National workforce survey with dietitians and nutritionists.
- Interviews with nurses in Primary health care with a focus on community based services.
- Interviews with Managers in the public health service with a focus on District Health Services.

The Delphi study is the final component of the PhD study to obtain agreement on the delineated roles and responsibilities of the nutrition workforce.

You will form part of a panel that will comment and provide inputs into the delineated roles and responsibilities of the nutrition workforce. Documents will be e-mailed (at least 2 rounds) to you to rate and comment.

After consensus has been reached you will be notified in writing and the delineated roles and responsibilities will be finalised.

Delphi study e mails will be managed by the researcher only and the identity of panel members will not be disclosed to other panellists. At all times, the source of the information will be kept confidential. Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time.

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact the study supervisor:

Prof EC Swart

Study Supervisor: Faculty of Community and Health Sciences:

University of the Western Cape

Private Bag X17

Bellville 7535

Telephone: 021 – 959 2237

Fax: 021 – 959 3686

E-mail: rswart@uwc.ac.za

This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee (Registration number12/6/26)

1. Do you wish to participate in the Simplified Delphi

Yes

No

2. Participant code



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3. Please comment on the text below.

Defining the nutrition workforce is an important part of the process of delineating the roles and responsibilities of the workforce.

Nutrition workforce includes all human resources engaged in nutrition work.

In the Health sector the key nutrition workforce personnel who are responsible to deliver nutrition services are Dietitians and Nutritionists. They are responsible as their core for nutrition functions on a full time basis. These officials can be regarded as nutrition officers who are professionally trained in nutrition and or have a qualification in nutrition.

South Africa has decided that in future that only one nutrition professional will be trained as the key professional to fulfil the core nutrition functions.

Within this context that the new professional Dietitian - Nutritionist can be placed at various levels within the health system i.e. national, provincial, district, sub-district and facility level.

At national, provincial and district level they are responsible for policy development, planning, implementation support coordination and overseeing/supervision of nutrition services in health.

Dietitian - Nutritionist placed at sub district and facility level form part of the frontline staff and are responsible for implementation to provide Community dietetics, Community Nutrition and Public Health Nutrition.

In the current system where there are still 2 cadres i.e. Dietitians and Nutritionists, nutritionists are not involved in community dietetics.

Nutritionists are not placed at hospitals but at primary care facilities and are involved with preventative nutrition interventions.

Dietitians placed at hospitals provide dietetic services to in and out patients and can also provide outreach to PHC services.

Multidisciplinary team members that contribute to the delivery of nutrition services are - health promotion practitioners/nutrition advisers, community health workers, nurses, medical practitioners, other allied health professionals and environmental health officers in the health sector.

These workers are part of the frontline staff but do not have nutrition specific qualifications or formal nutrition training and provide nutrition services as part of their work.

Workers in other sectors e.g. Agriculture, Teachers, Development workers can provide extension services including nutrition promotion and education in their respective fields.

4. Below find Delineated key nutrition roles and responsibilities of the nutrition workforce at the **Primary Health Care service platform**.

Rate your level of agreement and provide additional comments below.

Rate agreement for Community Health Workers

	strongly disagree	disagree	Unsure	Agree	strongly agree
Provide basic nutrition screening at household level - Weight, Height, MUAC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify clients that are nutritionally at risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Referral of families and children to health services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote good Nutrition and health by supporting mothers with infant and young child nutrition e.g. Exclusive Breastfeeding, continued breastfeeding and complementary feeding from 6 months	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide basic nutrition education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assist in campaigns by administering Vitamin A supplements, deworming and MUAC assessments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide support to mothers by encouraging households to be responsive to the needs of children in terms of growth and development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote healthy lifestyles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support clients towards self-care and management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



5. Please add additional functions and comments

6. Rate agreement for Health Promoters

	strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
Nutrition and health promotion throughout the life course for the prevention of ill health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition education with groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Referral to multidisciplinary team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support clients towards self-care and management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify) and comment

7. Rate agreement for Nurses

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
Promote good Nutrition and Health throughout the life course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition screening and assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpret growth monitoring and promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic nutrition education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Referral to multi-disciplinary team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implementation of nutrition policies and programmes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advise on nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify) and comment



8. Rate agreement for Doctors

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
Promote good Nutrition and health throughout the life course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition assessment of clients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diagnosis of nutrition conditions and health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Referral to multi-disciplinary team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implementation of nutrition policies and programmes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advise on nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify) and comment



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9. Rate agreement for Dietitian - Nutritionist

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
Promote good Nutrition and health throughout the lifecycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide nutrition services to clients in/out patients and in community(outreach)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research and analytical functions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing nutrition interventions in terms of strategy and programmes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Capacity building /training in nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Involved in nutrition policy processes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of nutrition services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clinical nutrition services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nutrition communication and nutrition education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food and Nutrition environment and inter-sectorial functions including foodservice management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Referral to multi-disciplinary team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Other (please specify) and comments

10. Do you have any other comments, questions, or concerns?

Addendum 9. Delphi Study - Round 2

Simplified Delphi - Nutrition workforce ROUND 2

Participant Information Page

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The following components have been concluded;

- Review of literature of human resource development including planning frameworks for Public Health and Public Health Nutrition.
- Document review on scope of practice, competencies of dietitians, nutritionists, professional nurses, doctors, community health workers and health promoters against global public health agreed competencies.
- National workforce survey with dietitians and nutritionists.
- Interviews with nurses in Primary health care with a focus on community based services.
- Interviews with Managers in the public health service with a focus on District Health Services.

The Delphi study is the final component of the PhD study to obtain agreement on the delineated roles and responsibilities of the nutrition workforce.

You will form part of a panel that will comment and provide inputs into the delineated roles and responsibilities of the nutrition workforce. Documents will be e-mailed (at least 2 rounds) to you to rate and comment.

After consensus has been reached you will be notified in writing and the delineated roles and responsibilities will be finalised.

Delphi study e mails will be managed by the researcher only and the identity of panel members will not be disclosed to other panellists. At all times, the source of the information will be kept confidential. Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time.

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact the study supervisor:

Prof EC Swart

Study Supervisor: Faculty of Community and Health Sciences:
University of the Western Cape
Private Bag X17

Bellville 7535

Telephone: 021 – 959 2237

Fax: 021 – 959 3686

E-mail: rswart@uwc.ac.za

This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee (Registration number 12/6/26)

1. Do you wish to participate in the Simplified Delphi ROUND 2

Yes


No

2. Participant code

3. The description below is a description and reflection of the Nutrition Workforce based on current and future situation.

Please rate your level of agreement on each statement.

	Strongly disagree	Disagree	Unsure	Agree	Strongly Agree
1. Nutrition workforce includes all human resources engaged in nutrition work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Addressing the nutrition challenges requires a broad workforce who can collaboratively address the multi-level causes of malnutrition.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Nutrition services are provided at primary, secondary and tertiary levels of health care.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The PHC service platform includes hospitals, community health centres, community day centres, clinics and community based services in homes and in the community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



	Strongly disagree	Disagree	Unsure	Agree	Strongly Agree
5. In the PHC services are mainly nurse driven and supported by the implementation of a multidisciplinary team approach inclusive of Dietitians and Nutritionists.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. In the Health sector Dietitians and Nutritionists has the core function of providing nutrition services as their main responsibility.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. The HPCSA Board of Dietetics and Nutrition decided that in future only one nutrition professional will be trained as the key professional to address the nutrition-related challenges in South Africa.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. To transition from the current state of two registered professionals to one in future will require futuristic planning to integrate the new professional into the services, absorb and up skill existing cadres to fulfill their Nutrition service roles with competence and confidence.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. The new professional Dietitian - Nutritionist can be placed at various levels within the health system i.e. national, provincial, district, sub-district and facility level.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Strongly disagree Disagree Unsure Agree Strongly Agree

10. At national, provincial and district level they are responsible for policy development, planning, implementation support coordination and overseeing/supervision of nutrition services in health

11. Dietitian - Nutritionist placed at sub district and facility level form part of the frontline staff and is responsible for implementation to provide Clinical dietetics/Therapeutic nutrition, Community dietetics, Community Nutrition, Public Health Nutrition and Foodservice Management.

12. In the current system within the scope of practice nutritionists are not practicing therapeutic nutrition. Nutritionists are therefore not placed at hospitals but at primary care facilities and in community based services.



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13. Dietitians placed at hospitals are engaged in providing mainly therapeutic dietetic services to in and out patients and also provide outreach to PHC services. Foodservice management support is also provided.

Strongly disagree Disagree Unsure Agree Strongly Agree

14. Multidisciplinary team members in the health sector that contribute to the delivery of nutrition services are - health promotion practitioners/nutrition advisers, community health workers, nurses, medical practitioners, other allied health professionals and environmental health officers .

15. Training of all cadres of staff in nutrition is essential and should be aligned to their key roles and functions.

16. The scopes of responsibility are expanded, especially amongst nurses due to staff shortages but there should be alignment with their relevant scope of practice.



17. Nutrition services is part of the comprehensive service package thus advocacy, monitoring and evaluation of nutrition services should be embedded as part of the health system functions.

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18. Fragmentation of nutrition services can be mitigated through clear role clarification and understanding of individual roles within a multidisciplinary team.

19. Workers in other sectors e.g. Agriculture, Teachers, Social and Development workers can provide extension nutrition services

	Strongly disagree	Disagree	Unsure	Agree	Strongly Agree
20. Roles for extension workers in nutrition - nutrition promotion and education advocating for nutrition services, identifying and referral of clients and engage collaboratively to address underlying causes of malnutrition.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)/Comments

4. Below find Delineated key nutrition roles and responsibilities of the nutrition workforce at the **Primary Health Care service** platform.

Rate your level of agreement on each row and provide additional comments below.

Rate agreement for Community Health Workers

	strongly disagree	disagree	Unsure	Agree	strongly agree
1. Provide basic nutrition screening at household level - Weight, Height, MUAC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Identify clients that are nutritionally at risk including maternal mental health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Referral of families and children to health services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Promote good Nutrition and health by supporting mothers with infant and young child nutrition e.g. Exclusive Breastfeeding, continued breastfeeding and complementary feeding from 6 months	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Provide basic nutrition education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

strongly disagree disagree Unsure Agree strongly agree

6. Assist in campaigns by administering Vitamin A supplements, deworming and MUAC assessments

7. Provide support to mothers by encouraging households to be responsive to the needs of children in terms of growth and development

8. Promote healthy lifestyles

9. Support clients towards self-care and management

10. Counseling caregivers on responsive caregiving e.g. play and communication

11. Review PHC nutrition data, document and report on interventions

12. Conduct Community Based Growth Monitoring and Promotion

13. Case finding and follow up of clients at home

14. Referral to social services and other inter-sectorial partners



5. Please add additional functions and comments

6. Rate agreement for Health Promoters

	strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. Nutrition and health promotion throughout the life course for the prevention of ill health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Nutrition and Health education with groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Liaise and Refer clients to the multidisciplinary team especially those at risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Support clients towards self-care and management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Assist in campaigns and conduct outreach services with the multidisciplinary team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Provide training on health topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Conduct monitoring and evaluation of activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Refer mothers and children identified as at risk to PHC nurses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Promote and support breastfeeding; counsel about complementary feeding and dietary adequacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Advise on responsive stimulation, maternal mental health and psychosocial support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Other (please specify) and comment

7. Rate agreement for Nurses

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. Promote good Nutrition and Health throughout the life course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Nutrition screening and assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Interpret and act on growth monitoring and promotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Basic health and nutrition education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Liaise and Refer to multi-disciplinary team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Implementation of nutrition policies and programmes such as severe acute malnutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Advise on basic nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Promote and support breastfeeding; counsel about complementary feeding and dietary adequacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Listening and counseling of patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Referral to social services and other inter-sectorial partners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Interface with CHWs and Health Promoters about at-risk children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Advise on responsive stimulation and parenting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Review, reporting and recording of nutrition and other health related data and interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Other (please specify) and comment

8. Rate agreement for Doctors

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. Promote good Nutrition and health throughout the life course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Nutrition assessment and interpretation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Diagnosis of nutrition conditions and health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Liaise and Refer to multi-disciplinary team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Implementation of nutrition policies and programmes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Advise on basic nutrition interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Prescribe special feeds in the absence of a dietitian	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Promote and support; breastfeeding complementary feeding and dietary adequacy, micronutrient supplementation, the management of moderate and severe acute malnutrition, responsive stimulation, and caregiver responsiveness (parenting).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Other (please specify) and comment

9. Rate agreement for Dietitian - Nutritionist

Detail to functions can be viewed in PDF document if required

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. Promote good Nutrition and health throughout the life course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Provide nutrition services to clients in/out patients and in community(outreach)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Research and analytical functions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Managing nutrition interventions in terms of strategy and programmes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Capacity building /training in nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Involved in nutrition policy processes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Management of nutrition services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Clinical nutrition services/ Therapeutic Nutrition services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Nutrition communication and nutrition education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Food and Nutrition environment and inter-sectorial functions including foodservice management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Liaise and Refer to multi-disciplinary team members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Promotion of healthy lifestyles, planning and implementation of broader healthy lifestyle programmes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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Other (please specify) and comments

10. Do you have any other comments, questions, or concerns?

Addendum 10. Turnitin report

The thesis was submitted to Turnitin before submission to a professional editor to prevent plagiarism and obtain feedback on the writing process. The document was split into two due to the size and the Turnitin results reflected 11% similarity index for part 1 and 7% for part 2.

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13 March 2019

Prof Rina Swart
Faculty of Community and Health Sciences
University of the Western Cape

Dear Prof Swart

CONFIRMATION OF PROFESSIONAL EDITING SERVICES

This is to confirm that I have edited the PhD thesis of **Hilary Goeiman** (titled 'Developing a comprehensive nutrition workforce planning framework for the public health sector to respond to the nutrition-related burden in South Africa') in accordance with the standards upheld by the Professional Editors' Guild in South Africa.

The editing work entailed:

- Correcting typographical/grammatical errors
- Ensuring consistency of style/language usage
- Ensuring a logical flow to the discussion points and arguments

Thank you for affording me the opportunity to work with Hilary and the UWC in this interesting project.

Yours sincerely

Ali Parry
Director, Trade Matters (Pty) Ltd
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