

A Description of the Occupational Safety of Large-scale Food Service Units in the Metropole Region under the Management of The Provincial Administration Western Cape.

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A mini-thesis submitted in partial fulfilment of the requirements for the degree of Master in Nutrition Management in the Department of Dietetics, University of the Western Cape.

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September 2006

ACCIDENTS, OCCUPATIONAL SAFETY, FOOD SERVICE UNIT, LARGE-SCALE KITCHENS, METROPOLE REGION, RATING, AUDIT, (PAWC) PROVINCIAL ADMISTRATION WESTERN CAPE.

ABSTRACT

A description of the occupational safety of large-scale food service units in the Metropole Region under the management of The Provincial Administration Western Cape.

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In order to provide a safer work environment for food services staff in large-scale food service units, an investigation into what kind of occupational accidents most commonly occur and to determine the most common sources is required. In this mini-thesis a description of the occupational safety in kitchens of hospitals located in the Metropole Region of the Western Cape under the management of the Provincial Administration Western Cape is attempted.



A tertiary hospital (TH), a regional hospital (RH) and a specialized hospital (SH) have been represented in this study sample. The TH provided 67 interviewees, whilst the RH provided 8 interviewees and the SH 14. Each hospital have been evaluated using 3 different questionnaires: (1) Unit Audit List: designed to evaluate and rate the physical kitchen unit such as the building, layout and interior design. This was used in conjunction with a criteria developed from relevant legislation. (2) Staff Knowledge Audit List is a questionnaire used to evaluate and rate the staff knowledge with regards to safe working methods in large-scale kitchens. This was used in conjunction with a pre-determined answer sheet. (3) Accident History Sheet is a questionnaire designed to assess all experiences with regards to occupational accidents in these kitchens. A rating was developed for the first two from Rating 1 (most favourable) to a Rating 5 (least favourable).

The results from the Unit Audit List indicated Personal Protective Wear, Employer Responsibilities and Maintained Standards of Prevention have received below averaged ratings. All three hospitals received a reasonable rating for Equipment safety. The results from the Staff Knowledge Audit List indicated that staff knowledge on safe working methods ranged from little knowledge to no knowledge (Ratings 2 and 3).

The largest number of staff has experienced falls, trips and Slips (F) during the course of their employment as food service workers. The results of the Accident History questionnaire in order of high to low: F at 88%, Hit by moving/falling Objects (HbMO) at 52%, Burns (B) at 66%, Cuts, bruises and lacerations (CBL) at 63%, Muscle strains (MS) at 46%, Hearing problems (HP) at 39% and those affected by chemical were 36%.

At the TH the F have been caused by the shoes made available combined with wet floors. At RH and SH falls were more due to having lack of safety shoes, food on wet floors (FoWF), and the sieves over the water channels.



Food trolleys (FT) were the major cause of being hit by moving objects (HbMO), while burns (B) have largely been associated with recon ovens (RO) particularly at the TH. The crockery at the dishwashing machine (CD) at TH is also the major contributor for the high percentage of cuts, bruises and lacerations (CBL) at the TH, while at RH and SH this was mostly due to knives and hand tools (KHT). Muscle strains (MS) were the 5th on the list and intrinsic to the lifting of heavy loads (LHL). Generally it appears as though all 5 of these major occupational accidents have been associated with human-related sources. Hearing problems (HP) have been indicated by more than two-thirds of all the interviewees. Also more than two-thirds of all interviewees have been in the service in the same kitchen environment for more than 10 years.

Conclusively, an occupational safety checklist has been developed based on the areas that received the lowest ratings.

SEPTEMBER 2006

AKNOWLEDGEMENT

I wish to thank all the participants who have been interviewed for having the patients to endure such a time-consuming interview. I also wish to thank the managers and the food service supervisors that made it possible for me to have uninterrupted flow of candidates coming to the office that was provided for me on the kitchen premises. I also want to acknowledge the staff of Red Cross Children' Hospital and GF Jooste Hospital for being part of the pilot study. Lastly I want to express my appreciation to my husband Nicholas Coetzee for his continued support during the grueling hours spent accomplishing this goal.



MELANIE ROSS

Cape Town, South Africa
September 2006

KEYWORDS

A DESCRIPTION OF THE OCCUPATIONAL SAFETY OF LARGE-SCALE
FOOD SERVICE UNITS IN THE METROPOLE REGION UNDER THE
MANAGEMENT OF THE PROVINCIAL ADMINISTRATION WESTERN CAPE

MELANIE ROSS

ACCIDENTS

OCCUPATIONAL SAFETY

FOOD SERVICE UNIT

LARGE-SCALE KITCHENS

METROPOLE REGION



RATING

AUDIT

PAWC (PROVINCIAL ADMISTRATION WESTERN CAPE)

LIST OF ABBREVIATIONS

INCIDENTS:

B	BURNS
CBL	CUTS, BRUISES AND LACERATIONS
ES	ELECTRICAL SHOCK
F	FALLING, TRIPPING & SLIPPING
HbMO	HIT BY MOVING/FALLING OBJECTS
HP	HEARING PROBLEMS
LHL	LIFTING HEAVY LOADS
MS	MUSCLE STRAINS
NPI	NEEDLE PRICK INJURY
PPE	PERSONAL PROTECTIVE EQUIPMENT



STATISTICAL:

CI	CONFIDENCE INTERVAL
SD	STANDARD DEVIATION
TaVMG	TOTAL AVERAGE MEAN GENSORE

OTHER:

HMC	HEALTH MINISTRY COUNCIL (SA)
HSE	HEALTH AND SAFETY EXECUTIVE (UK)
NHMCSNS	NATIONAL HEALTH MINISTRY COUNCIL
NOSA	NATIONAL OCCUPATIONAL ASSOCIATION OF SA
PAWC	PROVINCIAL ADMINISTRATION WESTERN CAPE SUBCOMITTEE FOR NUTRITION SERVICES

EQUIPMENT:

BPPmC	BUCKETS, PANS, POTS & other metal equipment
BW	BOILING WATER
CB	CROCKERY AT BELT
CD	CROCKERY AT DISHWASHER
CfFL	CONTAINERS FOR FOOD INSERTS
CHW	CROCKERY AT HAND WASHING
CRW	CROCKERY RETURN FROM WARDS
Do	DOLLIES
DrC	DRAIN CLEANER
FOWF	FOOD ON WET FLOORS
FP	FOOD PROCESSOR
FT	FOOD TROLLEYS
HT	HAND TRAYS
HWSH	HOT WATER SUPPLY HOSE
JMC	JIGSAW MEAT CUTTER
KHT	KNIVES & HAND TOOLS
MS	MEAT SLICER
OvC	OVENCLEANERS
PCfBD	PLASTICK CONTAINERS FOR BULK DISHING
PP	POTATOE PEELER
PV	PRESSURE VESSELS
PW	PLASTICK WRAPPER

RD	ROLLER DOOR
RO	RECON OVENS
Sh	SHELVES
SL	SOUP LID
SO	STEAM OVENS
SP	STEAM POTS
SpI	STEAM PIPES
SpOF	SPLATTERING OF FOOD
SW	STEEL WOOL
TO	TIN OPENER
TP	TILTING PAN
U	URN
VS	VEGETABLE STEAMER
WiFFC	WALK-IN FRIDGES, FREEZER & CHILBLASTERS

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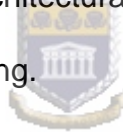


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CHAPTER 1

1.1. INTRODUCTION

In South Africa, all public hospital institutions provide patient meals that are prepared in a large-scale kitchen unit located on the hospital premises. Food service is often outsourced to a private catering concern or it is expedited by in-house catering. The latter is manned by food service staff, called food service aids, who prepare and distribute meals. They are employed by the institution that falls under various government administrations in the country, of which the Provincial Administration Western Cape (PAWC) is one. These kitchens are built, from the foundation to the immovable equipment and areas such as offices, with the use of architectural, engineering, electrical, plumbing, carpentry and other interior planning.



However well the planning and the execution of these plans for the building of these kitchens may have been, the end product will have a direct influence on the occupational safety of the physical work environment of the food service worker. The large-scale kitchens in hospitals within the Western Cape Province may have potential occupational risk-producing elements that are not yet clarified.

Aside from the physical building, the layout of the kitchen, heavy-duty stainless steel equipment and steam pressure vessels, elements such as heat from steam, boiling water, hot oil, cold from fridges, freezers, and chillers, moving objects, sharp objects and electric wires also add to the potential risk.

Some environmental conditions such as ventilation, illumination, and noise level have an effect on food service workers. The inadequate management of all the potential occupational risks can be regarded as an additional risk factor.

A working group has investigated occupational hazards in the food service environment and compiled their results for the National Health Ministry Council (HMC) Subcommittee for Nutrition Services Directorate in 1992. It indicates that unsafe actions of the workers in a large-scale catering unit and unsafe conditions of the unit are the cause of approximately 80% and 10%, respectively, of all occupational accidents. These estimates are portrayed alongside the causes of injuries in a large-scale kitchen unit: Accidents involving falls account for 20% of all accidents, physical handling of objects, 23%, people hit by moving objects, 14%, incidents involving machinery, 10%, vehicles, 10%, hand tools, 6%, hitting against objects, 7%, and all other types, 13% (HMC, 1992).

Government legislature has provided The Occupational Health and Safety Act of 1993 (OHSACT of 1993) and other complementary legislation to ensure the safety of a variety of occupations. Although there is no specific legislation for large-scale kitchens which directly refers to the food service worker, this legislation can be interpreted for this specific working environment.

1.2 RATIONALE

The Occupational Health and Safety Act of 1993 (OHSACT 1993) were first compiled in 1941. Fifty-two years later, it was re-invented in the new democratic dispensation of South Africa.

The National Buildings Regulations of the South African Bureau of Standards (SABS 0400-1990) are tentatively linked to parts of the OHSACT of 1993.

This means that the physical building, and its facilities, is an important aspect of the work environment of workers in any workplace. This is particularly true for the large-scale kitchen environment where hospital patients' meals are being prepared. Many institutions in the Western Cape have kitchens that have been restructured and upgraded over the years, and have been fitted with new equipment. It is, however, not known whether these Acts and others have been used to assist the planners of these structures.

Institutions administrated by PAWC have delegated managerial responsibility to the institutional heads from whom the local departmental head acquires control and responsibility. The Food Services Manager becomes ultimately responsible for ensuring that a reasonable effort is made towards occupational safety.

The challenge becomes the Food Service Manager's to establish what is "reasonable risk". However, the OHSACT of 1993 is legislation tempered with "reasonability and practicability", which means that there is an undetermined

“realistic goal” that should be reached, which considers the legislation as far as possible. An attorney I consulted have expressed that the law must always be interpreted in the “spirit of the law” (Charles Olckers,. Personal communication, 15 May 1998). It becomes a challenge to formulate the standards of safety and risk within the large-scale kitchen environment and, probably, in many other occupations. Thus, it was necessary to attempt to describe the *status quo* by creating criteria from the legislature and other sources of material and thereby evaluate and rate the institution.

A frame of reference or a checklist that is specific to the large-scale kitchens may then be developed from the results of these ratings. This checklist would include all the most important elements that affect food service workers, specific to this region, notwithstanding the relevant acts.




1.3. AIM & OBJECTIVES

AIM

The main aim of the study is to investigate occupational safety of the large-scale food service units in the Metropole Region of the Western Cape Province under the management of PAWC, using relevant legislature applicable to food service.

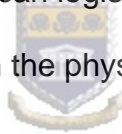
OBJECTIVES

- (1) To evaluate and rate the large-scale kitchen unit with regard to the physical conditions that could lead to accidents and injury by means of a questionnaire. 
- (2) To evaluate and rate the staff knowledge on safe working methods and determine the common sources of accidents by means of a questionnaire.
- (3) To determine associations between ratings allocated for conditions in the physical unit, safety knowledge of the workers and the sources of accidents.
- (4) To construct a checklist from gathered information that can be used to evaluate occupational safety.

CHAPTER 2

2. LITERATURE REVIEW

This chapter discusses the various accident rates and types that are commonly associated with commercial or large-scale kitchens. This review will attempt to describe the internal or underlying or, specifically, human-related sources of accidents, such as the misuse of knowledge and training received or lack of motivation and communication, and other human failings which might contribute to injury on duty within a large-scale catering environment. This review attempts to point out the external factors or nonhuman-related risk factors. It will also describe the relevance of South African legislature and how it is used to develop the criteria for occupational safety in the physical kitchen unit.



2.1 WHY INVESTIGATE ACCIDENTS IN THE CATERING INDUSTRY?

Several studies have shown that working conditions may be responsible for health and safety problems and elevated mortality rates in certain occupations and economic sectors (for example, labourers and farmers) (Desplanques, 1984; Koskela, 1982). The Bureau of Labor Statistics, 1999, (USA), report on the industry groups with the largest number of nonfatal occupational injuries and illnesses and states that eating and drinking places have an incident rate of 5.6 (incident rate is the number of injuries and illnesses per 100 full-time workers).

This was slightly below the national average for private industry, which has an incident rate of 6.3 (Filiaggi & Courtney, 2003).

Accidents such as slips and falls and hand injuries have been reported in a USA-based magazine, *Nations Restaurant News*, which states that this type of injury has recently taken a costly toll on the catering industry (Prewit, 2004; Prewit, 2005, Varaljay, 2000).

In the United Kingdom, it has been reported that the rate of statutorily reportable injuries in the catering industry is believed to be as high as that in general manufacturing (factories), despite the public perception that kitchen work is relatively safe. Reportable injury statistics are said to be notoriously unreliable because of the high level of under reporting that is known to exist (Stevens, 1992).

2.2 IDENTIFYING ACCIDENT TYPES AND RATES

Amiel (1989) from the University of Witwatersrand in South Africa, conducted a research to address the problem of safety in commercial kitchens and to isolate the causes of accidents. The methodology that was employed was the use of accident report forms specifically designed for use in commercial kitchens. The researcher collected 135 accident report forms from 14 restaurants in the East Rand and Johannesburg areas over a period of 11 months. From the analysis of the results, three major accidents were isolated. These were slips, trips and falls

(frequency of 20%), burns (frequency of 20%), and cuts (frequency of 29.4%)
The recommendations from this study concluded that the appropriate design and redesign of safe equipment should be addressed to reduce the risk of injuries (Amiel, 1989).

The United Kingdom's Health and Safety Commission (UKHSC) report, administered by the Health and Safety Executive (HSE), identifies the patterns of risks mentioned in reports of accidents to the HSE and local authorities and concludes that the main accidents in the catering industry are slips and trips and falls (30% of all injuries, but 75% of all major injuries); at least 88% were said to be from slippery floors and around 7% due to objects left in walkways and on uneven floor surfaces), lifting and manual handling of heavy objects (29% of all reported injuries), and contact with hot surfaces and harmful substances (16% of all reported injuries, where at least 61% of these are from splashes, and 13% are from hot objects) (HSE, 1997a).

Being struck by moving articles, including hand tools, comprises 10% of all reported cases. Walking into objects contributes 4%, machinery contributes 3%, and falls contribute 1.8% of all accidents but are the second most significant cause of major injuries following slip accidents. Fire and explosion contribute 1.6% of reported accidents, electric shock, 0.5%, and transport, 0.3% of the reported cases (HSE, 1997a).

The South African counterpart to the UK HSE, (The Health Ministry Council or HMC) indicated that unsafe conditions of the unit (environmental conditions) are the cause of approximately 20% of all occupational accidents. These estimates are portrayed alongside the causes of injuries in a large-scale kitchen unit: Fall accidents comprise 20%, physical handling of objects, 23%, hits by moving objects, 14%, injuries from machinery 10%, vehicle accidents, 10%, injuries from use of hand tools, 6%, hitting against objects, 7%, and all other types, 13% (HMC, 1992).

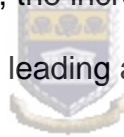
Prewit (2004) quotes The Bureau of Labor Statistics' annual census of: occupational injuries and fatalities: 3.4 of 100 food service workers hurt themselves from slips or falls bad enough to require at least a day off from work in 2002. Prewit also expounds on the 10 leading causes of workplace injuries in food services from the 2004 Liberty Mutual Safety Index in the USA. Falls on the same level were reported to be 12.5%, bodily reactions, 10.8%, falls to a lower level, 9.2%, being struck by objects, 8.9%, repetitive motions, 5.7%, highway incidents, 5.2%, striking against objects, 4.7%, being caught in compressing equipment, 3.8%, and assaults or violent acts, 0.9% in food services (Prewit, 2004).

Filiaggi and Courtney, focusing on restaurant hazards, also quote The Bureau of Labor Statistics' annual census of 1999. All nonfatal occupational injuries and illnesses resulting in days away from work in restaurants due to injury or illnesses

such as sprains, strains and tears is 34%, cuts and punctures account for 18%, bruises for 10%, heat burns for 10%, fractures for 7%, and all others for 21% (Filiaggi & Courtney, 2003).

2.3 THE UNDERLYING SOURCES OF ACCIDENTS

Maguire and Howard (2001) performed a study on the social and physical environment in catering kitchens and the role of the chef in promoting health and ensuring safe behavior. This study suggests the following matters as important in understanding the processes affecting health and safety in catering kitchens: perceptions of others (both public and non-kitchen staff) towards catering workers, the pressure of the service, the increasing heat and tempo of the workload, and the role of the chef in leading and 'orchestrating' the activity.



In Amiel's (1989) study, it was found that slips, trips and falls correlated significantly with greasy or slippery surfaces or material. Also, uneven surfaces were significantly correlated with slips and trips. Burn injuries have also been significantly correlated with materials being moved manually (source or agent of injury) and also correlated with "lifting material or equipment"(movement preceding the injury). A number of relationships have been identified as correlating with cuts, such as mechanically moving tools or equipment by placing part of the body in a position of risk. The worker's failure to use protective equipment was correlated with mechanical moving tools or equipment being moved or used by the worker (Amiel, 1989)

Familiar environmental factors encountered by chefs were increased temperature, noise and tempo of work. In this study, “heat” was identified as both a metaphor and a reality that comes along with the large-scale catering industry. The most obvious example where heat is used as a metaphor and is also a reality of life in the public catering environment is given by Johns and Menzel's expression for bullying in the kitchen environment, “If you can't stand the heat, get out of the kitchen” (Johns & Menzel, 1999). This study found this expression to be a justification for bullying amongst chefs. The study indicates that both its primary and secondary data suggest that kitchen violence is widespread and is deeply embedded in a chef's working culture.

Hares (2001) pointed out that the accident rate could be decreased in the kitchen environment by increasing the level of awareness or information of workers. This study was conducted in a community hospital catering service in New York where the accident rate was particularly high in 1995, as high as one accident for every 3701 worked hours. The main underlying discovery was that 54% of all accidents were due to haste, inattention, or inappropriate work-methods, all of which were avoidable. Discussions with employees indicated that these accidents were accepted as part of the risk of working in a hospital kitchen.

Haynes and Beck's (2005) review on the rationale for a safety analysis risk assessment (SARA) discusses the nature of food service work. They suggest that negligence contributes to hazards such as equipment failure. Negligence, in

turn, is as a result of fatigue, carelessness, excessive haste, inattention and poor visibility.

Overexertion is reported to be the highest of 10 leading causes of injuries in the 2002 Liberty Mutual Safety Index in the USA, at 26.6%, while falls on the same level at 12.5% and being struck by an object was 8.9%. Although overexertion has been regarded as a direct cause of injuries in this study, it is also regarded as an underlying source of accidents (Prewit, 2001). Filiagi and Courtney (2003) reveal the same sources of injuries from the Bureau of Labor Statistics of 1999, with overexertion causing 14%, falling on the same level at 26%, and being struck by objects at 15%.



Cloutier, David and Duguay (1998) highlighted the fact that, with age, there is a decrease in the occurrence of accidents, though, with age, there is an increase in the severity of the accident amongst nurses and food service workers.

2.4 INVESTIGATING RESEARCH METHODOLOGIES

Researchers Maguire and Howard's (2001) study on the social and physical environment in catering kitchens chose a research method that was emergent; that is, the direction of the study was not totally predicted during the designing phase but rather was pursued as issues emerged during the research. Thus, interim findings influenced the further progress of the research. The methodology used by Maguire and Howard was *qualitative* in nature instead of *quantitative*

because of the uncertainties which surround human behavior, and the social, individual, and technical unknowns in the catering kitchen. In this particular study, the method included a first phase that was observational, giving rise to the introduction of the quantitative phase (environmental monitoring).

The quantitative phase, in turn, included corroborating the qualitative findings. The quantitative measurements done were those of air temperature and sound level. The results on the temperature measurements indicated that temperatures steadily increased as serving time approached and noise level was irregular but were consistently high (up to 90dBA). The sound was consistent with the sound of clattering equipment and raised voices reverberating around a kitchen, where the hard surfaces offer no sound attenuation. Maquire and Howard expressed the view that the interviewees emphasised knife injuries, slips and trips and were equally emphatic on heat-related injuries.

The HSE divides assessment into four areas, with a fifth one being close to risk free: *slight risk* (in this study, this received a Rating 1). The first is called *minimal risk*, that is, safe conditions with safety measures in place (in this study, this was a Rating 2). Then there is also *some risk*, that is, *acceptable risk*; however, attention must be given to ensure that safety measures operate (in this study, this received an allocation of Rating 3). *Significant risk* indicates that safety measures are not fully in operation and require immediate action (in this study, this received an allocation of Rating 4). A *dangerous risk* indicates that

operations of process or equipment should be stopped immediately. The equipment or the unit and/or wrongful actions by workers need to be checked and recommended for clearance, repairs or restructuring of processes, or new policies and procedures need to be put into place. The last category of risk assessment in this study was awarded a Rating 5. The method applied in this study to quantify accidents as reported during the interviews have thus been based on the model described by the United Kingdom's Health and Safety Executive (HSE, 1997b).

2.5 A REVIEW ON LEGISLATION AND APPLICATION IN THIS STUDY

The foremost legislature, relevant to this subject, found in South Africa is The Occupational Health and Safety Act 85 of 1993 (OHSACT 85 of 1993), first compiled in 1941. It compels employers to provide working environments that alleviate potential and pure risks detrimental to the health and safety of the worker. Other legislation pertaining to the catering environment and which links tentatively to the above Act is the South African Bureau of Standards of 1990 report (SABS 0400-1990) and Section 35 of the Machinery and Occupational Act 6 of 1983 (MOSACT 6 of 1983).

Section 35 of MOSACT 6 of 1983 is composed of The Environmental Regulations for Workplaces (MOSACT 6-ERW, 1991), The Electrical Installations Regulations (MOSACT 6-EIR, 1992) and the General Safety Regulations (MOSACT 6-GSR, 1991). The regulations under OHSACT 85 of 1993 applicable

to the catering environment are: OHSACT General Machinery Regulations, 1988, Schedule D a notice in respect of machinery other than a boiler under Regulation 9 (2) (OHSACT-GMR, 1998), the OHSACT Facilities Regulations (OHSACT-FR, 2004), the General Administrative Regulations (containing Material Data Sheets) (OHSACT-GAR, 1996), the Regulations for Chemical Substances (OHSACT-RCS, 2003) and Vessels under Pressure Regulations (OHSACT-VUP, 1999).

SABS 0400-1990 provides useful data for the criteria for investigation of the physical features necessary to provide a structurally safe building facility. The SABS standards are specifically designed to provide guidelines to building contractors and building inspectors. They ensure that clients receive optimum standards from the finished product. In this particular study, the physical catering unit has been evaluated using extractions from this and other legislation. Areas covered by the SABS-0400 are the receiving area/delivery area, dimensions, walls, ceilings and roof, floors, plumbing, and windows.

A very specific example is where the height of the ceiling is not at least 2.4 meters over a minimum of 70% of the floor area, and if there are areas where the ceiling is lower than 2.5 meters, this height should not be less than 2.1 meters over the remaining floor area (OHSACT, 1993). This would mean that this kitchen would have a low ceiling and would potentially be an uncomfortable work environment. This would inadvertently affect airflow, limit the potential for

standard hood extraction, and contribute to a range of human factors such as mood, that in turn, increase the risk.

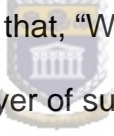
MOSACT–ERW (1991) is important legislation that can be rigorously applied to the catering environment. It is a very specific legislation, providing precise measurements for thermal requirements, lighting (illuminance), windows, ventilation, noise and hearing conservation, fire precautions, and means of egress. This legislation demands the services of a registered practitioner to make calibrated equipment with regards to noise and hearing conservation, ventilation, and lighting or illuminance.

The OHSACT-ERW regulations for windows, housekeeping and fire precautions, and means of egress, have been incorporated into the criteria for the physical assessment. The OHSACT-ERW for housekeeping provides very specific laws on the amount of working floor-space that should be provided for each worker (2.25 m² per person). This was incorporated into the criteria for floors (which would also encompass points from the SABS-0400-1990). It would also provide pointers for floors, roofs, ceilings, waste materials, stairways and rails.

MOSACT 6-EIR, (1992) broadly covers the requirements for electrical installations and ensures compliance for quality standards and safety measures through certification. PAWC buildings' electrical installation units must also comply with legislation. All large-scale kitchen units belonging to PAWC must

have a compliant installation, with responsibility allocated to the employer. Certified documents are acquired from qualified electricians and workshop managers at the PAWC institutions.

OHSACT-GSR provides legislation that is useful and relevant to the large-scale food service environment. Sections of this legislation of particular importance are those on personal safety equipment and facilities, first aid, emergency equipment and procedures, working in confined spaces (for example offices and storage places) and stacking of articles (such as in the case of the kitchen storage areas).

MOSACT 6-GSR (1991): 3(2) states that,  “Where more than five employees are employed at a workplace, the employer of such employees shall provide a first aid box or boxes at or near the workplace which shall be available and accessible for the treatment of injured persons at that workplace” (1993), and this other Acts, should be viewed in the “spirit” in which it was written (Refer to Chapter 1, page 4).

However, the legislation does not compel employers without reasonability and practicability. Thus, the question needs to be asked, for the purpose of the study and/or any other assessment of this nature, whether first aid is sufficiently accessible to staff. If an arrangement exists whereby staff can gain quick access to staff health at any given time of the day and this is close by the kitchen, and

there is a small complement of staff, this could be seen as acceptable. However, the legislation also stipulates that, for every 50 staff members, there should be not only a first aid box (this should be made available even if there are only 5 members) but also a trained and certified first aid worker available during normal working hours (MOSACT 6-GSR, 1991).

In the event of an emergency, such as when blood is gushing from a cut hand or an arm is seared by a hot stove, that requires immediate attention, it would thus be a violation against that person if he or she had to wait in a hospital emergency room far from the kitchen unit. In a catering environment, this is of great importance because of the potential risk factors such as hot steam, hot surfaces, sharp objects, wet floors, high noise levels, and all heavy-duty equipment.



This Act does not allow one to see the precise and practical application of the law in a food service environment, as can be seen, for instance, in the broad statement in 8(2): “Without derogating from the generality of an employer’s duties, under sub-regulation 8(1), the matters to which those duties refer include in particular 8 (2) (e)”providing such information, instructions, training and supervision as may be necessary to ensure, as far as reasonably practicable, the health and safety at work of his employees” (OHSACT, 1993). Providing instruction, training and supervision are a clear rule of law. However, this, and other regulations, demands and is subject to the type of business that employs people. Supervision in the catering environment could mean checks and

balances on the availability of safety equipment, and/or the use of that equipment, that would ensure the health and safety of the worker. Instruction and training could entail the implementation of on-the-job health and safety communication or the inclusion of safety training with heavy-duty equipment (an example is use of the jigsaw meat cutter machine) into the orientation program of the kitchen unit.

OHSACT-FR (2004) is another tool to assist the employer. It effectively addresses issues directly related to food service, such as sanitation (referring to toilets, showers and hand basins.) facilities for safekeeping (referring to lockers), change rooms, smoking prohibition, drinking water and conditions of rooms and facilities. These regulations are also linked to the SABS-0400, 1990.

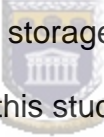


OHSACT-FR (2004): 4(1) on the subject of change-rooms, states: “In respect of employees”4(1) (b): “who need to undress, the employer shall provide separate change-rooms for males and females respectively, in accordance with the provisions of Part C of SABS-0400”. With reference to the provisions in the SABS-0400, part C, that particularly deals with the dimensions of the change-rooms, is purely directed at the square meters per member allowed for change-rooms as well as for dining areas. The point that is being made is that all OHSACT legislation is linked and refers to the SABS-0400 legislation, which provides precise measurements and materials called “deemed-to-satisfy rules”.

OHSACT-GMR (1998): Schedule D makes reference to the use of safety equipment in relation to machinery other than boilers. Machinery that is used in a large-scale food service unit is of a wide variety, and the law does not specify any description of the type of safety equipment needed to use them safely; however, the Department of Public Works provides specifications on large-scale kitchen equipment. The specification covers not only items such as tilting pans but also permanent fixtures such zinc splash-backs and fixed and mobile stainless steel tables (Dept. of Public Works, 1994). However, OHSACT-GMR also makes specific reference to moving machinery, such as the conveyer belt, and spells out the appropriate conduct of workers to ensure their safety and the responsibilities of the employer. Conveyer belts are commonly used in large-scale kitchens where food is dished up at kitchen level. Another machine that can also be regarded as moving machinery is the dishwasher.

The Vessels under Pressure Regulations, (OHSACT-VUP, 1999) were published under OHSACT 85 of 1993. These regulations apply to all users of vessels under pressure. Hospital kitchens make use of pressure vessels that supply steam pressure to large boilers/pots, steam ovens and/or vegetable steamers. Various catering services, especially fast-food outlets and restaurants often make use of gas cylinders, an item not commonly used by PAWC food service kitchens. This piece of legislation also provides a scope of application to users of portable gas containers in these industries.

The services of an approved inspection authority, or a person appointed in writing by a user (in the case of this study, it would be PAWC) competent to do such inspections, is required to test pressure vessels. Pressure vessels can be regarded as a pure risk factor. Should a manufacturer or user (management of the institution) have neglected to provide parts to the pressure vessel according to the legislation, or neglected the upkeep of the maintenance schedule of the pressure vessels, they would be in violation of the law. Catering staff is most likely without any technical background to understand the dangers that surround such equipment.

The means of transferring essential information on hazards of handling a chemical substance during transport,  storage and processing from a supplier to a handler, have not been evaluated in this study due the need for qualified assistance. The tool to be used would be The Guide to Completing Material Safety Data Sheets (Director of Occupational Health and Safety, 2002). Chemical Substances Regulation (OHSACT-RCS, 2003) have also not been included into this study because of their requirement for the services of an approved occupational hygienist or inspection authority.

2.6 CONCLUSION OF LITERATURE REVIEW

It is certain that the large-scale catering environment presents a wide variety of types of accidents that can result from a combination of underlying sources. The most common form of accidents within the catering industry appear to be slips,

trips and falls, burns, and cuts. These do seem to have a direct impact upon productivity and loss of labour hours and, therefore, cause an overall loss of funds. All of the preceding evidence points to an occupational safety programme that should be developed for a catering service.

Two of the basic elements of a safety programme at any institution should be in place. There should be an acceptance at all levels of management of the responsibility for occupational safety training (Brady, 1987). The 1993 OHSACT has been revised and many additions have been brought to the Act, such as the inclusion of a Health and Safety Committee of where a representative from each department represents the department at this forum. The Chief Executive Officer (CEO) is directly responsible for procedural compliance (in this case, PAWC), and would delegate authority down to the institutional heads. The “Management Declaration”, spells out the position of the CEO in relation to the Act, thus preserving and maintaining the management prerogative (OHSACT, 1993).

This committee is led by the health and safety co-ordinator, who ensures that someone is chosen from the catering department and all other departments on the institution to be part of this forum. On-the-job health and safety communication, putting up of posters, formal safety training, inductions, first aid training and safety representative training are all factors in which the Health and Safety Committee may have a lively interest. The creation of communication through this medium helps to stimulate the use of safe practices (Mocke, 1998).

CHAPTER 3

3. RESEARCH DESIGN AND METHODOLOGY

3.1 STUDY DESIGN

This is a descriptive study.

3.2 STUDY POPULATION

There are 11 large-scale units managed by PAWC in the Cape Metropole Region, consisting of three tertiary academic hospitals, four regional hospitals, three specialised institutions and one district hospital.

3.3 STUDY SAMPLE

The study sample consists of three large-scale kitchen units, randomly selected from each group of institutions: one tertiary, one regional and one specialised institution. A 50% random sample from every rank (the various ranks consist of food service supervisors, food service aids 1 and food service aids 2) from the tertiary hospital were interviewed. The researcher interviewed a total of 67 permanent staff members at the tertiary hospital.

The regional hospital has a complement of nine staff members, eight of whom were interviewed. The food service unit, at the time, had a chronic lack of staff due to vacant posts. One staff member had been on temporary disability during the time of study.

At the specialised hospital, all 14 staff members were interviewed. This is the total complement of staff at this particular unit.

The researcher conducted all 89 interviews.

3. METHOD

3.4 QUESTIONNAIRES

The researcher developed three different questionnaires. They are called the Unit Audit List, the Staff Knowledge Audit List and the Accident History Sheet. Together with this, the researcher developed the criteria for external/physical evaluation and a list of expected answers to be used on conjunction with the Staff Knowledge Audit List.



3.5 UNIT AUDIT LIST

The Unit Audit List (refer to Addendum A) is developed from an official OHSACT inspector's report adjusted to suit the purposes of this study. The criteria which have been used in conjunction with the Unit Audit List are developed and extracted from various sources of legislation and literature (Refer to Addendum B). The Unit Audit List did not include noise, illumination, ventilation, pressure vessels and hazardous chemical substances because of the requirement in the legislation to appoint a registered practitioner who is equipped with the knowledge and the equipment for the assessment of such external factors.

The researcher developed a rating based on the description of various levels of risk described by food service literature, whereby 1 is rated the most favorable, and 5 the least favorable (HSE, 1997).

Unit Audit Ratings: 1-5

1: Conditions that adhere to all of the criteria can be regarded as risk-free.

2: Conditions that present a slight or minimum risk. The unit meet a large percentage of the criteria.

3: Conditions that present the presence of uncertainty, which offers a chance of accident or loss (speculative risk).

4: Conditions that present a significant risk, a hazard, a condition, activity, object or substance which introduces or increases the frequency or severity of a loss-producing accident. The safety measures are not operating and require immediate attention.



5: Conditions that present a dangerous risk, and all operations or processes should be stopped immediately. These can be described as *perilous*. This indicates that the condition is the direct source of an accident or loss. The conditions are also far removed from the standards in the regulations (HSE, 1997b).

The criteria for the Unit Audit List were applied in the following manner. The receiving area is used as an example:

Receiving Area:

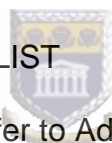
1. Wide double door with a catch to hold open the doors.
2. Ramp over which to push heavily loaded trolleys.

3. Electronic scale immediately available at the receiving floor space.
4. Heavy-duty trolley for transporting heavy goods, which can move easily about corners when loaded, that decreases strain.
5. The doorway needs to be clear of objects stacked up high.

If a kitchen unit met 3 out of 5 of the criteria, the following calculation was applied: $3/5 \times 100\% = 60\%$ and thus would indicate Rating 2.

Rating 1	80-100%	Rating 4	21-39%
Rating 2	60-79%	Rating 5	0 – 20%
Rating 3	40-59%		

3.6 STAFF KNOWLEDGE AUDIT LIST



The Staff Knowledge Audit List (refer to Addendum C) has been developed by the researcher to evaluate staff knowledge on the subject of safe methods of work in the large-scale food service environment. The questionnaire was developed from material from, particularly, *The Hospitality Industry Handbook on Hygiene and Safety for South African Students and Practitioners* (Gordon-Davis, 1998). This questionnaire was also used in conjunction with an Expected Answer Sheet (refer to Addendum D). The researcher also developed a rating for this evaluation that takes the same format as the rating for the Unit Audit List. Every answer given by the interviewee was judged according to the following format:

Staff Knowledge Audit Ratings: 1 - 5

1. The worker has the required knowledge according to the list of expected answers and has also received some training in the field.
2. The worker has good knowledge and insight by way of instinct and/or more than 10 years of experience of working in the kitchen; normally no training was given on the subject.
3. The worker has little or no knowledge, although he or she has more than 10 years of experience, and no training was received on the subject.
4. The worker has no knowledge, and no training was received on the subject.
5. The worker has no knowledge on the subject, although training was offered in this regard.



3.7 ACCIDENT HISTORY SHEET

The Accident History Sheet (refer to Addendum E) evaluates the worker's past experiences with accidents and injuries on duty, and possible sources of accidents and other shortcomings. The latter part of the investigation leaned on the assumption that the worker's version of events that have occurred in the past is truthful. The evaluation is based on the last 10 years of service. Incidents are divided into categories for staff members who recalled one experience or account, those who recalled more than one account, and those who had innumerable accounts of every type of accident or incident on the list of accidents investigated. Statistical analysis reduces the "more than one" and "innumerable" accounts to percentages of "one or more".

3.8 PILOT STUDY

A pilot study was done at one tertiary hospital and one specialised hospital (all regional hospitals were included in the sample). A pilot study was done to test the questionnaires and to develop the sequence for this study. It was done also to develop the rating scales and to enhance the validity of the questionnaires. The criteria used to judge the physical unit were also researched and re-applied.

3.9 DATA COLLECTION

The researcher collected all data. No demographic information was collected, only the data concerning experience with regard to accidents.

Step 1: The physical unit (building and equipment) was evaluated through a physical evaluation and measuring of the unit. Certain aspects, for which the Environmental Regulations for Workplaces and Electrical Installation Regulations provided specific guidelines with regard to issues of ventilation, lighting, noise level, pressure vessels, hazardous substances and electrical installations, must be investigated by a qualified individual who would come in with the necessary equipment to determine the conditions. Physical conditions, including issues with regard to protective clothing, risk management responsibilities and environmental safety, are all compiled in one questionnaire called the Unit Audit List. The food services manager would provide answers to the section on employer responsibilities.

Step 2: A list of criteria outlining the standards and requirement which was extracted from legislature was used to carefully compare all the aspects of the

physical unit in this Unit Audit List and each aspect was rated according to a rating mechanism that describes how the unit rates in terms of the desired criteria.

Step 3: Each employee was interviewed in a quiet, small office compartment, made available by prior arrangement. The answers were given through demonstration and verbal answers. Questions were posed in a way that the worker could identify with. Employees from every rank were randomly interviewed. The language used was predominantly English, although Afrikaans was also used if a staff member felt more comfortable.

Step 4: The workers were evaluated using a list of expected answers extracted from various sources of literature. The knowledge of the worker was rated according to the accuracy of answers. An overall rate for the unit was obtained.



Step 5: The ratings acquired for the physical conditions of the unit, risk management, and the knowledge regarding safe working methods are correlated with the sources and types of accidents the worker has experienced.

Step 6: Based on the outcomes of these relationships, a guideline can be produced using the Unit Audit List and the Staff Action Audit List, together with the criteria for each and the rating mechanism.

3.10 DATA ANALYSIS

The percentage for each rating on every interviewee's personal questionnaire, such as the Staff-Knowledge Audit List was first manually calculated on each questionnaire. These percentages were then processed on the computer, using the MS Excel software package. At this point, all data was statistically analysed with the assistance of a qualified statistician.

To determine a level for knowledge, significance testing was applied to total average scores for all three institutions' staff members' knowledge test. A general score (Genscore) with standard deviations was obtained for each institution. A table of mean weighted scores indicates average Genscores, standard deviation (SD) of Genscores and the maximum and minimum of these Genscores for each institution separately, and then the total for all three combined. SD is used to indicate the confidence that can be given to the average Genscore achieved for each institution in order to determine an overall rating for each institution.

The Accident History Sheet that describes the sources of accidents of each worker was also processed on MS Excel computer software. Frequency tables were used to compare various types of accidents with each other for each institution. Frequency tables were also used to compare all the items of equipment most commonly used in a kitchen with each other in relation to the percentage of single accidents and to the percentage of "more than one" accident. Similarly, frequency tables were also used to compare some

underlying sources of accidents with each other in relation to the various types of accidents.

The ratings acquired for each aspect of the physical unit from the Unit Audit List was processed on MS Excel software to acquire a general score for each of the 11 components of the Unit Audit List. The principle of the Total Average Mean Weighted Score was applied to determine to which rating the unit leans. A Genscore was also obtained for each category on the Unit Audit list each institution.

3.11 RELIABILITY AND VALIDITY

This study was piloted at two large-scale kitchens to enhance the validity and reliability of the questionnaires. Designing, testing and then redesigning the questionnaires took place during and after the pilot study, thereby increasing construct validity.

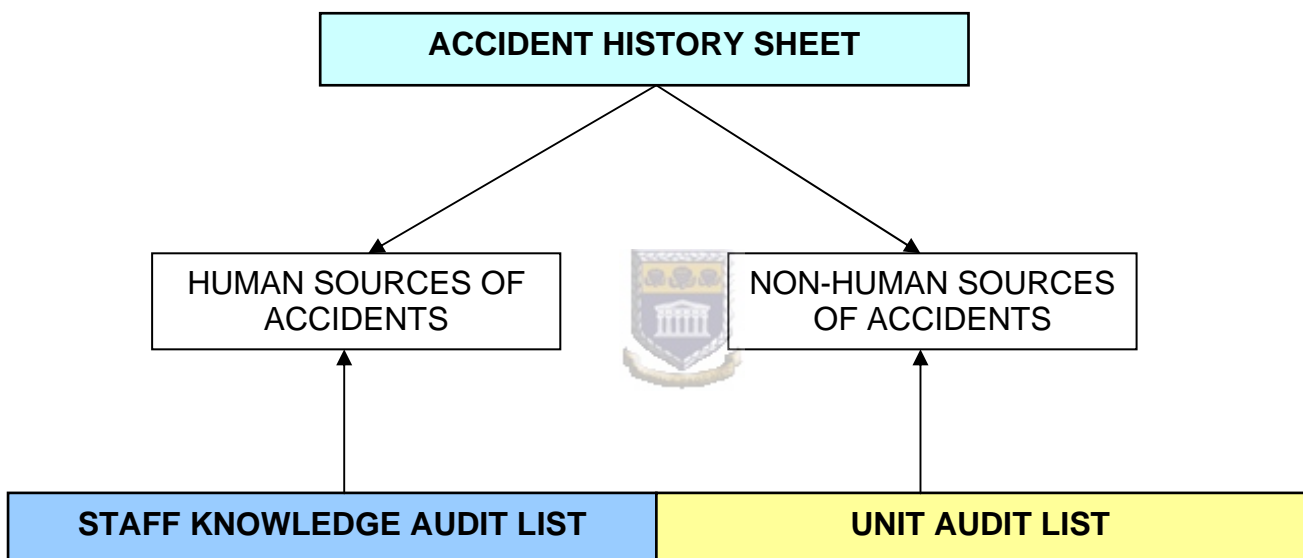
3.12 ETHICAL APPROVAL

Approval was obtained from the Director-General of The Department of Health in the Western Cape and the necessary feedback was obtained (refer to Addendum F). Permission was obtained from the institutional head and the unit manager to do the research (refer to Addendum G). A written consent was obtained from each employee interviewed (refer to Addendum H).

All information provided regarding past incidents and the results of knowledge tests will remain confidential. The Staff Knowledge Audit List was encoded

and no names were recorded, to maintain strict confidentiality. Permission was also acquired from the Senate for Higher Degrees of the University of the Western Cape to do this study and permission gained from the Senate Research Committee for ethical evaluation. Interviewees had the right to withdraw without fear of prejudice.

3.13 CONCEPTUAL FRAMEWORK



CHAPTER 4

4. RESULTS

4.1 INTRODUCTION

Table 1 indicates that 74% of all the interviewees had been working in the same food-service department for more than 10 years.

Table 1. Comparison of the number of years in the food service department.

YEARS OF SERVICE	TH	RH	SH	TOTAL	%OF TOTAL
Up to 10 years	17	1	5	23	26
More than 10 years	50	7	9	66	74
Total number of interviewees	67	8	14	89	100

- TH - Tertiary hospital
- RH – Regional hospital
- SH – Specialized hospital

More than two-thirds of all the interviewees from each hospital have been in service for more than 10 years in the same kitchen unit.

4.2 UNIT AUDIT LIST

An overall summary of the ratings obtained from the results of the three hospitals is presented in Table 2.

Table 2: Overall Summary Table on the Unit Audit List

RATINGS	OVERAL CATERGORY	TH	RH	SH
RATING 5				C
RATING 4	Personal Safety Wear (C)	C	C	
	Employer Responsibilities (E)	E	E	E
RATING 3	Maintained Standards of Prevention (B)	B	B	B
RATING 2	Equipment Safety (D)	A & D	A & D	A & D
RATING 1	Physical Facility (A)			

- TH - Tertiary hospital
- RH – Regional hospital
- SH – Specialized hospital

Two hospitals have a similar overall trend with regard to personal safety wear and employer responsibilities that converge to reflect a Rating 4, an unfavorable rating. The SH obtained the lowest rating for observations on personal safety wear that converge on Rating 5.

All three hospitals were observed to have physical facilities and equipment safety converging on Rating 2, which is a favorable result. All three hospitals were given a Rating 3 for maintaining standards for prevention.

Table 3 introduces a statistical investigation on how this summary in Table 2 was obtained. Table 3 shows the general scores or Genscores (also called the Mean Weighted Scores) obtained for each hospital individually.

Table 3. General scores for each hospital for each category from the Unit Audit List

TH	RH	SH	CATEGORY
2.09	2.09	2.18	A. PHYSICAL FACILITIES
2.50	2.50	2.50	B. MAINTAINED STANDARDS FOR PREVENTION
2.80	3.20	4.80	C. PERSONAL SAFETY WEAR
2.17	2.17	1.75	D. EQUIPMENT SAFETY
3.50	3.50	3.25	E. EMPLOYER RESPONSIBILITIES
2.16	2.69	2.90	OVERALL

- TH - Tertiary hospital
- RH – Regional hospital
- SH – Specialized hospital



The TH, RH and SH obtained high scores (3.25 to 3.50, where the maximum score is 5 for all categories) for employer responsibilities that converge on Rating 4, which meant that this was an area that can be greatly improved upon.

Following employer responsibilities was personal safety wear with the TH at 2.80, the RH at 3.20 (converging on Rating 3) and the SH, with a very high score of 4.80 (that converges on Rating 5). This meant that personal safety wear was most neglected at SH.

Following personal safety wear was the issue of maintained standards of prevention, with a result of 2.50 for all three institutions, which indicates a Rating 3. Rating 3 would mean that the conditions or the standard that is maintained

brings the presence of uncertainty that offers a chance of accident or loss (speculative risk).

4.3 STAFF KNOWLEDGE AUDIT LIST

The rating of knowledge for the three hospitals, separately, on the subject of safe working methods is summarised in Table 4.

Table 4. A summary of each hospital's results on the Staff Knowledge Audit List

RATINGS	TH	RH	SH
RATING 5			
RATING 4			
RATING 3	TH (more staff)	RH (more staff)	SH
RATING 2	TH	RH	SH (more staff)
RATING 1			

- TH - Tertiary hospital
- RH – Regional hospital
- SH – Specialized hospital

Results for every individual hospital show the following: more of the TH staff has been rated at Rating 2 than at Rating 3. No single staff member from each hospital has been rated at the Ratings 1, 4 and 5. At the RH, the trend is similar to the TH. The SH, however, indicated that more of the staff have been rated at Rating 2 and the remainder at Rating 3.

Rating 2 means that the workers have good knowledge and insight (satisfactory answers were given, but not 100%) and they have acquired it by way of instinct and/or number of years in service (more than 10 years) in the kitchen, and no

training was acquired on this subject. Rating 3 meant that the workers have little to no knowledge on the subject (meaning that answers that was given were 40% correct) or close to nothing and have received no training on the subject.

Table 5 shows the statistical result from the Staff Knowledge List and confirms the observations in Table 4.

Table 5. The averaged percentage scored at every rating for each hospital.

HOSPITAL	Average % +/-SD: Rating 1	Average % +/-SD: Rating 2	Average % +/-SD: Rating 3	Average % +/-SD: Rating 4	Average % +/-SD: Rating 5
TH	1.6+/-3.56	49.8+/-10.39	48.1+/-12.24	0.4+/-0.98	0.3+/-0.98
RH	5.5+/-12.12	44+/-12.29	40.1+/-18.21	6.5+/-6.72	3.9+/-7.64
SH	0+/-0.0	52.9+/-9.86	47.1+/-9.86	0+/-0.0	0+/-0.0
ALL	1.7+/-4.79	49.7+/-10.58	47.2+/-12.48	0.9+/-2.74	0.6+/-2.54

- TH - Tertiary hospital
- RH – Regional hospital
- SH – Specialized hospital

TH Knowledge Ratings: Rating 1 - 5

The total average percentage that the staff at the TH acquired for Rating 1 was 1.6%, with a standard deviation (SD) of 3.56. This means that only 1.6% of staff received some training on the subject and gave appropriate answers.

An average of 49.8% with an SD of 10.39 was obtained at Rating 2. A slightly lesser percentage was obtained for Rating 3 (48.1%) with an SD of 12.24. Thus, it is clear to see that the majority of the staff was rated at Rating 2 and the rest at Rating 3, as was indicated in Table 2.

RH Knowledge Ratings: Rating 1 - 5

The RH shows a similar trend to the TH. The majority of staff were rated at Rating 2 (average of 44%) and an SD of 12.29. A total average of 40.1% with an SD of 18.21 was acquired for Rating 3. At Rating 1, Rating 4 and Rating 5, the total average percentage showed a similar trend, with 5.5% (SD 12.12), 6.5% (SD 6.72) and 3.9% (SD of 7.64) respectively. The RH results indicate a wider spread of staff with knowledge on this subject.

SH Knowledge Ratings: Rating 1 – 5

The SH produced a slightly different scenario with regard to knowledge from RH and TH. More staff has been rated at Rating 2 than at Rating 3. It produced a 0 at Rating 1 and at Rating 5, and the rest received an average percentage of 52.9 (SD 9.86) at Rating 2 and 47.1 at Rating 3 (SD 9.86).

Table 3 shows that all SH staff was rated at Rating 2 (52.9% and SD of 9.89) or at Rating 3 (47.1% and SD of 9.86). No one person has been rated at Rating 1, Rating 4 or Rating 5, with a result of 0% and SD of 0.0.

Table 6 shows an in-depth analysis of the mean weighted scores or Genscores obtained for each institution. The Genscore is an expression of the overall position of every hospital in terms of their positions against the statistical true maximum (most favourable result) and the true minimum (least favourable result).

Table 6. Table of mean weighted scores (Genscores) from knowledge testing.

HOSPITAL	DATA	TOTAL
TH	Count of Genscore	67
	Average Genscore	352.04
	Standard Deviation of Genscore	12.22
	Minimum of Genscore	312
	Maximum of Genscore	388
RH	Count of Genscore	8
	Average Genscore	340.75
	Standard Deviation of Genscore	30.59
	Minimum of Genscore	292
	Maximum of Genscore	387
SH	Count of Genscore	14
	Average Genscore	352.93
	Standard Deviation of Genscore	9.86
	Minimum of Genscore	330
	Maximum of Genscore	364
Total count of Genscores		89
Total average of Genscores		351.17
Total Standard Deviation of Genscores		14.55
Total Minimum of Genscores		292
Total Maximum of Gencores		388

Rating 1 is the most favourable outcome, while for answers judged at Rating 5, the most undesirable outcome, the Genscore would be 100 (true minimum). The average Genscore obtained in Table 4 for all staff varies between 100 and 500. Five hundred is the true highest maximum, and 100 the true lowest minimum.

In Table 6, the total of Genscores, also called the Total Averaged Mean Scores (TavmG), for knowledge obtained is 351.17. In Figure 1, the Confidence Interval (CI), against the true maximum of 500, is 380.27 (Standard Deviation is $14.55 \times 2 = 29.10 + 351.17 = 380.27$). In Figure 1, the CI, against true minimum of 100, is 322.07 ($351.17 - 29.10 = 322.07$). The difference between the true minimum, 100 and 322.07 is equal to 222.07 compared to the difference of the true maximum of 500 and 380.17 that is equal to 119.73.

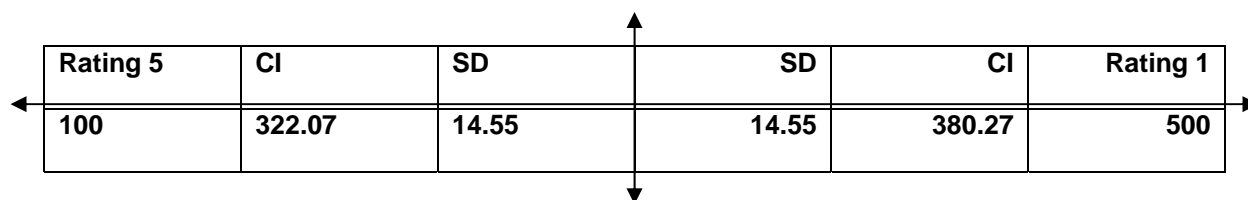


Fig 1. Confidence Interval (CI) of the total standard deviation (SD) of Genscore.



This indicates that the hospitals were closer to the true maximum of 500 than to the true minimum of 100.

Table 6 shows that individual average Genscores for the TH and the SH are similar to the overall TavmG, just over 352. This meant that more staff interviewed from these two institutions were rated at Rating 2 than those who were rated at Rating 3. The RH had a TavmG of 340 with a large SD of 30.59. This indicates that there is a spread over Ratings 1, 4 and 5. These results confirm the summary of observations made in Table 4.

Figure 2 depicts these observations visually. It shows the distribution of the average source of observations for all the interviewees from the three hospitals.

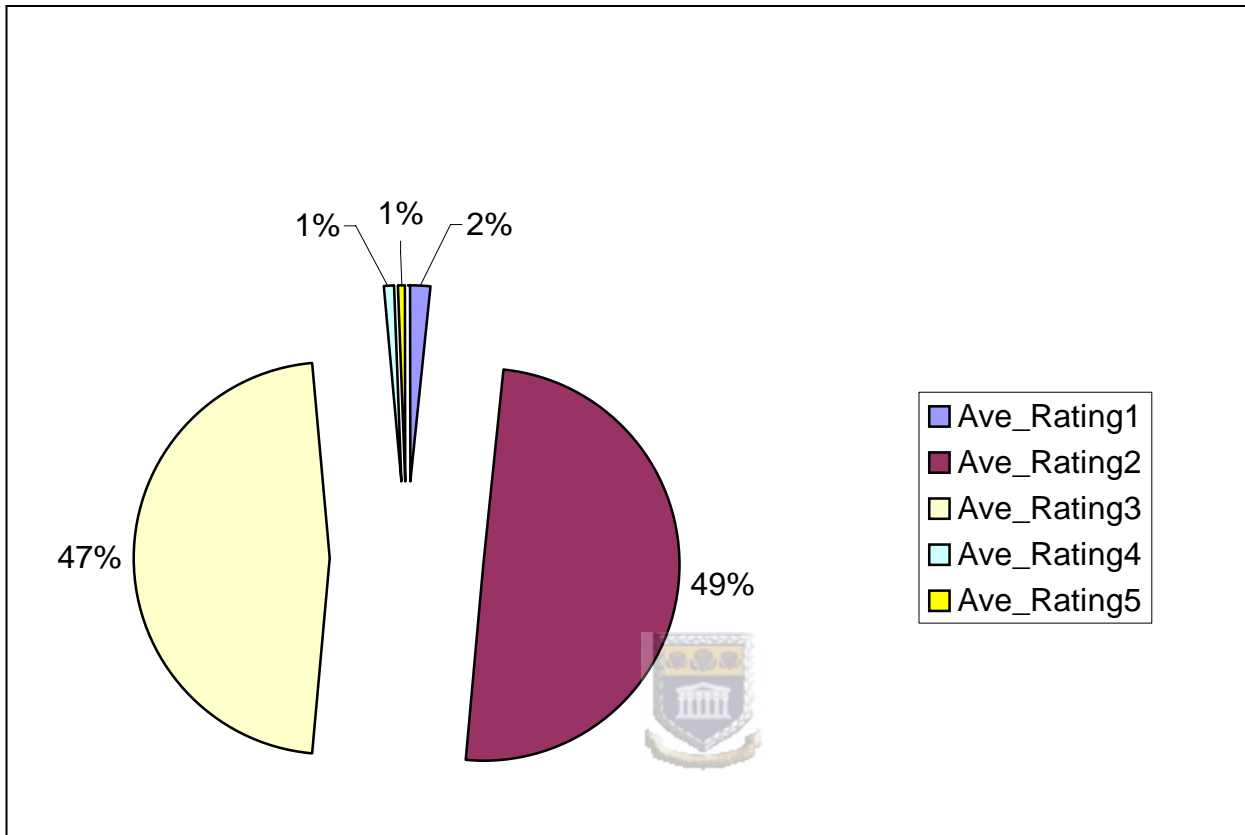


Fig 2. Distribution of total average source of observations for all three hospitals.

4.4 ACCIDENT HISTORY SHEET

Table 7 summarises the accident recall of all the staff from the three hospitals combined, in terms of the 11 categories of occupational accidents.

Table 7. Total numbers of interviewees that experienced such incidents from list of 11 categories listed.

Types of incidents, accidents & injuries	All	% of total interviewed
Falling, tripping & slipping	70	79%
Hit by moving & falling objects	46	52%
Burns	59	66%
Cuts, bruises & lacerations	56	63%
Muscle strains	41	46%
Hearing problems	35	39%
Affected by chemicals	32	36%
Motorized equipment	9	10%
Electrical shock	2	2%
Explosion	2	2%
Needle-prick injury	1	1%
Total number of incidents	353	

The results in Table 7 (highlighted) in order of high to low percentage experienced is: falling, tripping and slipping injuries (F) at 79%, followed by burns(B) at 66%, Cutscuts, bruises and lacerations (CBL) at 63%, and being hit by moving and falling objects (HbMO) at 52%. Muscle strains (MS) are at 46% and those who experienced hearing problems (HP) is accounted for 39% of all the staff that were interviewed.

Those who were affected by chemicals account for 36% of all those who were interviewed. Two persons have indicated an electrical shock, while only one person indicated an incident of needle-prick injury in the kitchen.

Table 8 summarises the accident recall of the TH, only in terms of the 11 categories of occupational accidents.

Table 8. Total numbers of interviewees from the TH that experienced such incidents from the list of 11 categories.

Types of incidents, accidents & injuries	All	% of total - TH
Falling, tripping & slipping	59	88%
Hit by moving & falling objects	45	67%
Burns	45	67%
Cuts, bruises & lacerations	43	64%
Muscle strains	32	48%
Hearing problems	25	37%
Affected by chemicals	23	34%
Motorized equipment	4	6%
Electrical shock	1	1%
Explosion	0	0%
Needle-prick injury	1	1%
Total number of incidents	278	

Table 8, which deals only with the TH, and Table 7 indicate that amongst the percentage of staff who experienced the occupational accidents; the first 5 ratings appear in exactly the same order from high to low: Falling, tripping and

slipping, being hit by a moving object, burns, cuts, bruises and lacerations, and then muscle strain. The TH figures depicted in Table 8 show that the various categories (highlighted) follow exactly the same order as found in the combined Table 7: Falling, tripping and slipping (F) is right at the top, at 88%; being hit by moving and falling objects (HbMO) is at 67%, burn injuries, at 67%; cuts, bruises and lacerations (CBL), at 64% and muscle strains, at 48%.

Hearing problems are experienced by 37% at the TH, but 39% of all participants were indicated to have hearing problems.

The needle-prick incident which occurred at the TH was due to plated service, where soiled plates are returned to the kitchen. Soiled plates are returned to the main kitchen with all kinds of medical waste such as needles.

Table 9 summarises the accident recall of the two hospitals, the RH and SH, separately, in relation to the 11 categories of occupational accidents. It cannot be regarded as conclusive for the type of institution due to the size of the sample of interviewees. The order in which they follow from high to lowest percentage observations does not, however, follow the same order as that of the TH. The RH and the SH also do not follow the same order.

Table 9. Total number of staff members from RH and SH individually that have experienced such incidents.

Types of incidents, accidents & injuries	RH	% of total - RH	Types of incidents, accidents & injuries	SH	% of total -SH
Cuts, bruises & lacerations	7	88%	Burns	12	86%
Hearing problems	6	75%	Affected by chemicals	9	64%
Motorized equipment	5	63%	Falling, tripping & slipping	8	57%
Falling, tripping & slipping	3	38%	Muscle strains	8	57%
Burns	2	25%	Cuts, bruises & lacerated	6	43%
Explosion	2	25%	Hearing Problems	4	29%
Muscle strains	1	13%	Electrical shock	1	7%
Hit by moving/falling objects	0	0%	Hit by moving/falling objects	1	7%
Affected by chemicals	0	0%	Explosion	0	0%
Needle-prick injury	0	0%	Motorized equipment	0	0%
Electrical shock	0	0%	Needle-prick injury	0	0%
Total number of incidents	25		Total number of incidents		

At the RH, cuts, bruises and lacerations have been experienced by 88% of all the staff and 75% complain of hearing problems. This is followed by accidents with motorized equipment, 63%, and falling, tripping and slipping by 38% of the staff. Burn injuries have been experienced by 25% of the interviewees. It is only at RH that the occurrence of an explosion has occurred.

SH indicated a very different scenario, as observed in Table 9. Burns injuries are highest on the list, with 86% of the interviewees having suffered burns. A large percentage, 64%, indicated that chemicals have affected them, while 57% of

interviewees indicated muscle strains and falling, tripping and slipping. Cuts, bruises and lacerations have only been experienced by 43% of the interviewees.

Table 10 provides a list of equipment that is associated with the 11 categories of occupational accidents at the TH, and Table 11 provides the same list, also associated with the 11 categories, but specifically for the RH and SH. The results show that those who identified more than one incident related to the use of equipment were more than those who had experienced only one incident. The highest “more than one” incident related to use of equipment was found to be involved with the food trolleys, followed by the recon ovens. Table 10 further shows buckets, pans, pots and other metal containers to be third on the list. In Table 10, the staff from the TH identified the causes of injury or incidents, in order of high to low, to be oven cleaners (OvC) lifting heavy loads (LHL), crockery in dishwashers (CDW), hand trays (HT), and food on wet floors (FoWF), followed by the jigsaw meat cutter (JMC).

Table 10 and 11 depicts food trolleys (FT) and recon ovens (RO) at the top of the list in both of these tables.

Crockery at hand washing (CHW) and dollies (D) is at 7%, while knives and other hand tools (KHT) are only identified by 6% of the TH staff. Plastic wrappers (PW) and urns (U) are identified by 4% of the staff, with more than one incident, while 3% of the staff had one single incident relating to an urn.

Table 10. All incidents experienced by the TH in relation to all equipment/factors

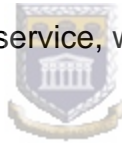
All incidents experienced at TH	%Single	% of "one or more"
Food trolleys	46%	54%
Recon ovens	33%	39%
Buckets, pans, pots	24%	24%
Oven cleaners	22%	22%
Lifting heavy loads	12%	15%
Crockery at dishwashers	10%	13%
Hand trays	13%	13%
Food on wet floors	12%	12%
Jigsaw meat cutter	10%	10%
Crockery at hand washing	6%	7%
Dollies	7%	7%
Knives & other hand tools	6%	6%
Plastic wrapper	0%	4%
Urn	3%	4%
Crockery returning from the ward	3%	3%
Steam pots	3%	3%
Steam supply pipes	3%	3%
Electrical shock at recon ovens	1%	1%
Hot water supply hose	1%	1%
Meat slicer	1%	1%
Surgical needles	1%	1%
Plastic containers for bulk dishing	1%	1%
Potatoe peeler	1%	1%
Roller Door	1%	1%
Shelves	1%	1%
Soup lid	1%	1%
Steel wool	1%	1%
Tin opener	1%	1%
Walk-in-fridges & chill blasters	1%	1%
Boiling water	0%	0%
Crockery at belt	0%	0%
Containers for food Inserts for distribution	0%	0%
Drain cleaner	0%	0%
Food processor	0%	0%
Steam ovens	0%	0%
Splattering of hot food	0%	0%
Tilting pan	0%	0%
Vegetable steamer/oven	0%	0%

Table 11. All incidents experienced by all interviewees from all three hospitals in relation to all equipment/factors

All incidents experienced by all	%Single	% of “one or more”
Food trolleys	36%	44%
Recon ovens	22%	29%
Oven cleaners	26%	27%
Buckets, pans, pots & other metal containers	19%	21%
Lifting heavy loads	16%	18%
Knives & other hand tools	11%	15%
Crockery at dishwasher	8%	10%
Hand trays	8%	10%
Food on wet floors	9%	9%
Jigsaw meat cutter	8%	8%
Crockery at hand washing	4%	7%
Containers for food distribution	4%	6%
Dollies	6%	6%
Splattering of hot food	4%	6%
Pressure vessels	4%	4%
Plastic wrapper	2%	3%
Urn	2%	2%
Crockery returning from ward	2%	2%
Steam supply pipes	2%	2%
Tilting pans	1%	1%
Boiling water	1%	1%
Drain cleaner	1%	1%
Electrical shock	1%	1%
Hot water supply hose	1%	1%
Meat slicer	1%	1%
Surgical needles	1%	1%
Plastic containers for bulk dishing	1%	1%
Potatoe peeler	1%	1%
Roller door	1%	1%
Shelves	1%	1%
Soup lid	1%	1%
Steel wool	1%	1%
Tin opener	1%	1%
Vegetable steamer/oven	1%	1%
Walk-in fridges, freezers & chill blasters	1%	1%
Crockery at belt	0%	0%
Food processor	0%	0%
Steam oven	0%	0%

Table 11 includes all of the staff from all three hospitals. It appears that the first three items on Table 11 and Table 12 follow the same order from the high to the low percentages.

Lifting heavy loads is in fifth place for the TH (Table 10) and for the three hospitals combined (Table 11). At the TH, lifting heavy loads is at 12% and 15%, whereas the total of the three hospitals combined indicates 16% and 18% for a single experience and more than one experience respectively. Table 11 indicates that injury by knives and hand tools takes sixth place, with 15% and 11%, whereas at the TH, injury by crockery at a dishwasher takes sixth place instead, with 10% and 13%. Injury by crockery at a dishwasher and on hand trays is very specific to the TH due to the plated service, with an outstanding 10% of staff that identified this type of injury.



4.5 ACCIDENT HISTORY SHEET: TABLES BASED ON PERCEPTION

Table 12 shows the human factors or the unsafe actions of all the workers from the three institutions that influenced the occurrence of such incidents. These results are speculative as they are drawn from the workers' opinions on how the interviewees perceived themselves or others to have influenced the occurrence of these accidents.

The perception of staff with regard to the source of accidents appears to show a trend indicating that human-related factors are stronger than nonhuman-related factors. The total number of observations in Table 12 is 223, as compared to 62

observations in Table 13 (nonhuman or external risk factors). This indicates that more of the accidents recalled have been associated with the manner of work, negligence of other persons or departments and negligence by themselves when safety shoes and other personal safety wear is not being worn.

Table 12 indicates the figures for burns (37 associations out of 52) cuts, bruises and lacerations (31 associations out of 46), being hit by a moving object (13 associations out of 27), and muscle strains (16 associations out of 32). These appear to have the most significant correlation with the manner of work that is too fast paced due to circumstances out of the workers' control. These circumstances include things such as time pressure and low staff numbers.

There appears to be a connection between muscle strains and job weight in relation to the worker, with a total of 31 associations of 32. These results are indicative of the perception that certain jobs are better suited to a certain number of persons or a particular sex.

Being hit by a moving or falling object is closely associated with negligence by other departments or sectors, and is regarded as flagrant (9 associations out of 14). These role-players or departments in food services seem to be flagrantly negligent in their duties rather than unaware of the danger they are causing (5 associations out of 14). Being hit by moving or falling objects, in this instance, is very common in relation to the pushing of food trolleys.

Falling, tripping and slipping have been closely associated with protective wear, particularly safety shoes, being available but having been regarded by the staff as insufficient, meaning that they had to be the very cause of the accident (24 associations out of 41 staff who had such incidences). Protective shoes have also been regarded as available (i.e. they have been provided), but have caused discomfort and blisters.

Incidents caused by chemicals were largely associated with protective wear, specifically hand gloves, being available, but insufficient (17 associations out of 41 staff who had such incidences).



Table 12. Unsafe actions of workers (human-related) factors perceived by interviewees as contributing to accidents

	Total	Falls, trips & slips	Hit by moving & falling objects	Muscle strains	Cuts, bruises and lacerations	Affected by chemicals	Burns	Electrical shock
A. Manner of Work								
A1. Too fast due to pressure, absenteeism, low staff numbers								
A1.	97	0	13	16	31	0	37	0
A2. Job weight relative to the worker								
A2	17	1	0	15	0	0	1	0
B. Negligence by other individuals or departments								
B1. Flagrant	14	0	9	0	0	0	5	0
B2. Unaware of danger causing/creating	19	0	5	0	6	1	6	1
C. Protective Wear								
C1. Negligence by self								
C1. Available, did not wear	6					6		
C2. Available, not quick access to it	9					9		
C3. None available	11	4		1	1	5	3	
C4. Available, insufficient	41	24				9		
C5. Available, discomfort, allergies, blisters, etc.	25	24				1		
Total no. of observations	223	53	27	32	46	32	52	1

Table 13 shows the nonhuman factors other than the physical building and all the equipment found in Table 10 and Table 11 that influenced the occurrence of such incidents. These results are speculative as they are drawn from the worker's opinion on how the incidents have occurred.

Being hit by a moving object has most significantly been identified to be also as a result of equipment being in disrepair or old but still in use (17 out of 19 such incidences). Sieves fitted over water channels have also been causing the falling, tripping and slipping accidents, (8 out of 17 incidences). This is largely due to the sieves not fitting securely over the channel.

Items on the floor have been identified to also cause or contribute to falling, tripping and slipping (8 occasions out of 17 such incidences), while 3 out of 17 sourced the wetness of floors as a sole source of falling, tripping and slipping.

Table 13: Nonhuman-related (External) factors perceived by interviewees as contributing to accidents

	Total	Falls, trips & slips	Hit by moving & falling objects	Muscle strains	Cuts, bruises and lacerations	Affected by chemicals	Burns	Electrical shock
A. Other equipment & fixtures (excl food trollies)								
A1. Lacks maintenance								
A1.	3		1		2			
A2. In disrepair/old, but still in use								
A2	28		17	1	8		2	
B. Walk-ways, receiving & delivery areas								
B1. Wetness	3	2						
B2. Stacked items, blockage								
C. Doors								
C1. In repairs, no notification	1		1					
C2. Lacks maintenance	1			1				
D. Preparation Areas								
D1. Sieves over channels	8	8						
D2. Wetness	5	3		2				
D3. Items on the floors	9	4						
D4. Cold drafts & hot temp.	1							
D5 Accident due to falling	9			4			5	
D6. Yrs of strain & bad ergonomics	2			1				
Total	62	17	19	9	10	0	7	0

CHAPTER 5

5. DISCUSSION

5.1 INTRODUCTION

The Bureau of Labor Statistics (BLS) in the United States of America determines accident rate in food services as the largest number of nonfatal occupational injuries and illnesses per 100 workers. Since this current study having 89 interviewees only, it was not possible to determine such an accident rate. The 1999 BLS report indicated an accident rate of 5.6, while this study's total number of incidents is shown to be 353 (Table 7) for 89 workers (Filliagi & Courtney, 2003).



Amiel (1989) successfully isolated three major types of accidents, which is falls, trips and slips burns and cuts. This study showed similar outcomes, where the category of “falls, trips and slips” is followed by “hit by moving and falling objects”, which, in turn, is followed by burns and cuts, according to the order of highest to lowest percentages (Table 7 and Table 8). The accident called “hit by moving objects or falling objects” is second in this study due to the high level of accidents with food trolleys (Table 10 and Table 11). This piece of equipment is specifically problematic at the TH, and therefore dominates the overall result (Table 10).

5.2 ACCIDENT TYPES AND RATES

The Bureau of Labour Statistics (USA) indicates that accidents caused by being “struck against an object” constitute 4.7% of all occupational accidents,

compared to the current study with a percentage of 52% (Table 7). Another comparison, that of being “hit by a moving or falling object”, indicates that the PAWC result amounts to 52%, compared to the HSE (UK), with 10%, and HMC (SA) claiming 14%. The PAWC result indicated a percentage of 66% (Table 7), compared with the HSE (UK) result of 75% (HSE, 1997a; HMC, 1992).

A comparison may be drawn between the results from the three PAWC institutions in this study and previous studies from the HSE in the United Kingdom and the results from the HMC in South Africa. This study indicated an overall percentage of 79% of falls, trips and slips (F), compared to the HSE’s 30% and the HMC’S 20% of all injuries, while Prewit’s Liberty Mutual Safety Index in the USA indicated 12.5% for falls on the same level and 9.2% for falls on a lower level (Prewit, 2004). In the HSE report, 88% were due to slippery floors and 7% due to objects stacked in walkways and to uneven floors (HSE, 1997a). Food on wet floors (FOWF) has been identified by a total of 9% of those who had a single experience and 9% of those who had more than one experience, providing a total of 18% of all interviewees in this study (Table 11).

This study indicated that (CBL) cuts, bruises and lacerations, 63% followed burns (B) (66%) with for those who had one experience compared to 10% muscle strains had a (MS) 46% occurrence compared to 34% (Filliagi & Courtney, 2003). Filliagi and Courtney (year) quote heat burns at 10% and

that lifting heavy loads (LHL) contributed to 16% for all those had one experience and 18% for those who had more than one experience.

There is seemingly a trend among food service staff working in large-scale kitchens to develop hearing problems over a number of years. The overall result, showed that 74% have had service for more than 10 years in the same kitchen. Hearing problems (HP) is ranked sixth on the list of 11 categories and were experienced by 39% of the total number of interviewees. The age of interviewees have not been a consideration, only the number of years being exposed to the clanging noises of a large-scale kitchen unit.

5.3 UNDERLYING SOURCES OF ACCIDENTS

According to the statement made by HMC for Nutrition Services in South Africa (1992), unsafe actions of workers cause 80% and unsafe conditions contribute to 20% of accidents. The Accident History Sheet results appear to show that human factors have a greater effect than non human-related sources.

The human-related factors assessed in this study range from the manner of work being too fast-paced due to pressure of mealtimes in the midst of low staff numbers and/or absenteeism, job weight in relation to the worker, negligence by other persons/departments and negligence by the workers themselves by not wearing protective wear made available to them. These results echo the findings by Maguire (2001) that there is an increasing tempo of workload during the course of the day. There is always an ever-increasing

heat, which, in turn, affects humans so they become less careful, and therefore accidents are more likely to happen.

Protective wear is the responsibility of the employer to obtain and to manage but the responsibility of the worker to wear. Employers must also obtain the approved quality and the most comfortable and effective safety wear.

Personal safety wear includes foot wear and temperature-sensitive clothing, such as gloves for walk-in freezers, freezer shoes, freezer suits, protective clothing, safety shoes, aprons, and headgear, while personal protective equipment includes items such as gloves for working with chemicals, long-sleeved oven gloves, and masks and earplugs for noise reduction. Hand protection is intrinsic to the Hazardous Chemical Substances Regulations (OHSACT, 1993) that deal specifically with a variety of chemical substances and the use of material safety data sheets. A material data sheet is a means of transferring essential information on the hazards of handling a chemical substance during transport, storage and processing from supplier to the handler (The Chief Dir. of Occupational Health and Safety, 2002).

Unsafe actions are also driven by the knowledge that workers have. The HMC attributes the increase in the accident rate to lack of understanding of the work or the correctness of safety procedures (HMC, 1992). The overall knowledge rating for all three hospitals converges on Rating 3, and less than half converge on Rating 2. Generally, no training has been acquired on the subject of occupational safety or safe working methods in large-scale kitchens. This meant that workers had little or no knowledge and those who

had some knowledge acquired it through long service and “common sense”; this is really what they accept to be acceptable. Again, as with the Unit Audit List, though each hospital is so different in size, type of service and staff complement, the ratings for knowledge appear to show the same trend.

Hares (2001) has proven that increasing the level of awareness or the number of informed workers can decrease the accident rate. This author has identified “inattention” or “ineffective work method” to be the underlying causes of 54% of all accidents that could have been avoided. The results of the investigation on some underlying sources of accidents in the present study showed that the largest number of accidents have been indirectly caused by the manner of work of staff, often being too fast due to time pressure. Fewer accidents have been correlated to the actual “job weight relative to the worker” and the least caused by “negligence by other individuals or departments”.

Protective wear is largely available but most likely insufficient or causing great discomfort since individual needs for specific protective wear are not catered for (41 out of 223 occupational accidents associated with protective wear in this study). It appears that proper hand protection for specific jobs requires much attention in the Metropole Region.

Many authors, such as Prewit (2001) and Filliagi and Courtney (2003), report overexertion to be a major source of some leading causes of injury. The PAWC study did not specifically provide information on overexertion. Low staff numbers heightened inattention and negligence and “job weight relative to worker” is thus skewed and therefore, arguably, has resulted in overexertion.

Age has not been investigated in this study, since this can be regarded as an additional underlying human source of occupational accidents, as proven by Cloutier, David and Duguay (1998). The PAWC study reveals that 74% of all interviewees have been in the service for more than 10 years.

5.4 THE TERTIARY HOSPITAL

The TH acquired an overall rating for the Unit Audit List that converged on Rating 2, which is generally a favourable result, while for the Staff Knowledge Audit List, the rating was mostly Rating 3 rather than Rating 2. This simply means that more staff had little knowledge or none than those who had a better level of knowledge. Both of these ratings indicate that there is no training acquired and those on Rating 2 acquired knowledge through years of experience.



The number of years that staff spent in the same kitchen had a great impact on their knowledge on the subject of safe working methods in the large-scale kitchen. Fifty of the 67 interviewees from the TH have been there for more than 10 years and only 17 have been there under 10 years.

It appears that the high percentage of falling, slipping and tripping” (F) is largely attributable to the poor quality of protective shoes that are made available but are insufficient or cause discomfort and thus are not being worn or being worn but actually become the source of the fall. A potential source of this type of accident is also the sieves over the water channels not fitting securely and food on wet floors (FOWF) or simply wet floors.

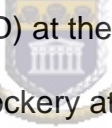
At the TH, the incidents such as being hit by moving or falling objects are largely attributed to food trolleys (FT). The TH has food trolleys on which a single metal shaft holds two trolleys together. This is particularly unique to the TH and was often recalled by interviewees to have fallen on their feet. Food trolleys have also been the cause of bumps and knock because other staff that return them push them carelessly and knock them against food service workers. A potential source of accidents involving being hit by a moving or falling object can also be equipment and fixtures in disrepair but still in use, such as described by those who experienced accidents with the roller door (RD).

Buckets, pans, pots and other metal containers (BPPmC) are third from the top of the list of equipment sources of accidents for the TH only. Possible contributing factors such as the unsafe actions of the worker or human-related factors are the manner in which staff members complete their work or the culture of work. Another factor that is a potential source of an incident involving being hit by a moving object (HbMO) is that equipment and fixtures are in disrepair or old, but still in use.

Burns are third from the top of the list of 11 categories of occupational accidents and are largely caused by the recon ovens (RO) that are specific to the TH. It is only here that food is cooked, dished and chilled until the next day for reconstituting in the recon oven at ward level. The results also appear to show a strong association between burns and the manner of work that is often

too fast due to time pressure, staff lack and so forth. Also, the lack of appropriate personal protective equipment (PPE) that is appropriate for the removal of hot plates from the recon oven can be regarded as an added reason for the high incidence of burns.

This is followed by plastic wrapper machines (PW) that, due to negligence by other workers who often leave the machines on after use, cause burn injuries to their colleagues. Urns(U), steam pots (SP), steam supply pipes (Spi), hot water hoses (HWSH), and plastic containers for bulk dishing (PCfBD), that tend to buckle when filled with hot fluid or food are other items which contribute to burns.

The crockery at the dishwasher (CD) at the TH is the main cause of cuts, bruises and lacerations” (CBL).  Crockery at the dishwasher is sixth on the list in the order of the highest to lowest percentage. The fast-paced movement of the act of removing crockery from the food trolleys causes breakage in the act of unpacking food trolleys. Packing crockery into the dishwasher appears, as with burns, to be an underlying cause of cuts, bruises and lacerations.

In the order of high to low percentages on the equipment list for the TH, crockery in the dishwasher is followed by old hand trays (HT), the jigsaw meat cutter (JMC), the meat slicer (MS) and the crockery at hand washing (CHW), followed by knives and hand tools (KHT) or sometimes. Crockery returning from the ward (CRW), not knowing that crockery is broken also sometimes causes cuts, bruises and lacerations, though to a lesser degree.

Muscle strains (MS) have also been experienced by 48% of the staff from TH. Muscle strain can largely be associated with lifting heavy loads (LHL) and is found to be fifth on the list of incidents experienced in relation to the factors associated with equipment on the list for the TH. Two factors that appear to be intrinsic to muscle strain and lifting heavy loads at the TH are fast-paced work and job weight in relation to the job.

Most of the interviewees at the TH have been at the institution for more than 10 years in the same food service environment, which may have been a contributing factor to developing hearing problems. However, this study does not provide conclusive evidence which require further investigation. Hearing problems can be attributed to human-related factors such as the non-compliance of to the rule for wearing the earplugs issued, for instance, in the dishwashing area at the TH or simply age.

Of the 67 interviewees, 23 recalled being affected by chemicals used, especially in the dishwashing machine. The lack of personal protective wear, which may be available but to which workers do not have quick access, or is available but insufficient for the job function, are the reasons for the high impact of chemicals at this institution, as shown by the high percentage who indicated they had experienced incidents with chemicals. This protective wear for those working in the dishwashing area should be that of rubber type of chemical resistant long-sleeve glove.

The single needle-prick injury incident is an isolated incident very specific to the TH, where soiled dishes were returned in the food trolley for dishwashing. Staff that remove the soiled plates often deal with medical waste left on the plate. This can be regarded as a flagrant disregard for safety measures that are already in place at ward level.

5.5 THE REGIONAL HOSPITAL

An overall rating for the RH for the Unit Audit list is a rating that converges on Rating 4, a very unfavourable rating. The results of the Knowledge Audit List show that most staff have been rated at Rating 3 and the remainder at Rating 2. As with the TH, more food service workers at the RH know very little of safe working methods in large-scale kitchens although they have worked in the same environment for more than 10 years.



The scenario at the RH is similar to that of the TH, though the results cannot be regarded as indicative of the natural trend of occupational accidents at such regional hospitals. Cuts, bruises and lacerations rank highest on the list for the RH, though these could be more associated with knives and hand tools at the RH than at the TH.

The great majority of interviewees complained of experiencing hearing problems. As in the case of the TH, the majority of staff at RH have been in the same kitchen for more than 10 years. The RH does not have a general dishwashing area in the kitchen as the TH does, but hearing problems have still been indicated by the majority of the staff.

Personal safety equipment in the RH is at an all-time low, converging on Rating 4, an unfavourable condition. It appears that burns are closely associated with splattering of hot food (SploF) and falling or slipping on the sieves in front of large pots, thus causing workers to be burnt on hot tilting pans and pots, and not on recon ovens, as is the case at the TH.

Falling, slipping and tripping can possibly be attributed to the lack of wearing quality safety shoes and due to the wet floors at this hospital.

There has been an incident in this kitchen where two individuals experienced psychological trauma due to an explosion caused by incorrect bolts placed on pressure vessels that did not comply with legislative standards.



5.6 THE SPECIALIZED HOSPITAL

The overall rating for the SH converged on Rating 4, an unfavourable rating. The SH was at an all-time low in terms of the personal safety equipment (Rating 5). The main source appears to be the chronic non-existence of most of the safety wear and personal safety equipment. The non-existence of a qualified Food Services Manager at this institution was noted.

The SH has shown results for knowledge testing that are slightly better than the other two hospitals, such as more staff achieving results converging on Rating 2 than on Rating 3. However, the basic trend still converges on Rating 2 and Rating 3.

Burn injuries appear to be experienced by most of the SH staff. As with the RH hospital, these are mostly caused by splattering of hot food and falling, tripping and slipping, and by other equipment on the list of equipment/factors associated with such incidents.

At the SH, 9 out of 14 have been affected by chemicals used. This could be associated with lack of adequate personal protective equipment, which entails the use of masks and gloves for doing oven cleaning.

Falling, tripping and slipping (F) and muscle strains (MS) received equal percentages in this study. Falling, tripping and slipping are largely associated with the lack of protective shoes in the unit.



The container for the food inserts for distribution (CfFI) that is unique to the SH is a hot box, in which food containers are placed for distribution. These hot boxes are the main source of the high level of muscle strains. These boxes are extremely heavy once all containers are loaded with food for delivery to each ward. They are loaded in the vehicle and transported to the various wards, which means that they are off-loaded by hand one after the other.

5.7 CONCLUSION

The overall trend of the combined and individual results on the Unit Audit Lists of the three hospitals indicate that personal protective wear, employer responsibilities and maintained standards of prevention can be revisited and improved. Equipment safety is at an acceptable level but should be able to be monitored for the upkeep thereof.

Knowledge of the food service staff in PAWC institutions is, with regard to safe working methods in large-scale kitchens, generally very little to none, and no training on this subject was acquired. The knowledge that the workers have obtained is largely due to working in the same environment for a number of years. Training, such as on-the job and formal training, will have a reducing effect on the number accidents.



Based on the representative results from the TH, falling, tripping and slipping constitute the foremost occurring occupational accident in the food service units in the Metropole Region in the Western Cape. This is largely due to reasons associated with ineffective shoes (shoes that generally cause falls) and/or the lack thereof or non-compliance with regulations to wear shoes that are available. Other contributing causes would be wet floors and food on wet floors (FOWF) and ill-fitting sieves over water-channels.

Falling, tripping and slipping is followed by being hit by moving or falling objects, in second place, which is largely caused by food trolleys, particularly

at the TH. Other causes that generally affect the other hospitals, in this regard are buckets, pans, pots and other metal containers (BPPmC).

Thirdly, cuts, bruises and lacerations are caused by crockery at the dishwasher and hand trays at the TH, whereas at the other hospitals, knives and hand tools mostly cause this type of injury.

Muscle strains are generally more associated with lifting heavy loads which appear to be closely associated with or work load in relation to the worker.

Hearing problems appear to be common occurrences at all hospitals and can be caused by the number of years working in the large-scale kitchen itself.



Being affected by chemicals is predominantly associated with the lack of personal protective wear. This entails non-compliance with regulations regarding the wearing of what is available and the lack of appropriate wear or effectiveness of what is available.

At all the hospitals, there appears to be an erroneous work ethic, such as in the large-scale kitchens where work is too fast-paced due to pressure. This poor work ethic appears to have a high level of association with the majority of the major occupational accidents such as being hit by moving or falling objects, muscle strains, cuts, bruises and lacerations, and burns.

A tool to address occupational safety, such as a checklist, could assist in addressing personal safety wear, employer responsibilities and equipment safety (Refer to Addendum 11). The checklist to evaluate equipment safety would include all the most commonly used equipment in the large-scale kitchen, those in repair, those requiring repairs and those in use (See Addendum I2).

This checklist would not necessarily include all the factors associated with occupational safety in large-scale kitchens, especially in the light of all the external factors such as lighting (illumination), noise, ventilation, pressure vessels and material data sheets for hazardous chemical substances. Not all the results have been discussed in this dissertation, and thus the checklist could be tested and expanded in the future.



Factors, which affect the percentages in this study, are the size of the samples, the type of hospital and the size of the hospital. At smaller hospitals, there would be a smaller number of meals; thus, it would take less time to dish up with a lesser chance of causing injury. Contrary to the TH sample that involves a much larger kitchen, with more staff that can get injured, more meals to dish up, and more time spent on dishing up, and thus a greater percentage of injuries, the number of injuries at any of the smaller hospitals would be less.

5.8 RECOMMENDATIONS

An assessment of every job is recommended. This exercise should involve the assessment of the number of movements, height of equipment used, weight of items to be lifted, time taken to complete a cycle of movements and the total time required to complete an entire job. This information will give insight into the number of workers needed to do one job, such as cleaning a 10kg bag of potatoes. Thus, with the use of a work analysis study, all duties can be determined that would produce the final menu for the day within a specific "cut-off" time, a proper assessment of the number of staff can be determined.

Knowledge with regard to occupational safety and the use of safe working methods in large-scale food service units in PAWC institutions is average and, largely, no training on the subject matter has been acquired. Training is advised for all institutions to create greater awareness of the dangers and the importance of applying safe work methods. This should be included in orientation, especially with regard to the use of equipment. On-the-job training and formal training should be compulsory for all persons entering the food service unit.

A further recommendation to the TH is perhaps the use of unbreakable crockery that is aesthetically pleasing and would decrease the rate of cuts, bruises and lacerations from the crockery at the dishwasher and to possibly replace old hand trays that also cause cuts, bruises and lacerations. Burns can also be reduced if an oven glove can be provided that covers the entire

arm but gives the ability to grip plates from the recon oven. Food trolleys are predominantly the cause of the high incidence of being hit by moving or falling objects. The metal shaft holding food trolleys together does not have secure fittings and seems to fall frequently on the feet of staff. A more secure fitting needs to be developed for the food trolleys.

At the SH and the RH, staff numbers are particularly low, and an investigation into every work load in relation to the number of workers should be done.

Lack of protective equipment and personal safety wear poses the greatest risk for accidents. Generally, it is recommended that hospitals pay attention to the quality, comfort and specific use of the personal safety wear and the protective equipment rather than to cost.



A further recommendation for the SH is to discontinue the use of the large hot boxes used to carry the food inserts to the wards, such as the containers for food inserts. These are unique to the SH, are extremely heavy, and have to be picked up from the kitchen, placed in the vehicle and then moved from the vehicle to the ward. Possibly, the use of hot boxes with their own custom-made attached fold-in trolley could be of better use.

5.9 LIMITATIONS

The Staff Knowledge Audit List was limited because it is impossible to test for all existing knowledge with regard to safe working methods in a large-scale kitchen. To determine whether this knowledge is applied on a daily basis does require further study in this area. The research is reliant on the truthfulness of the participating staff members concerning their accident history. This will influence validity.

The subject matter on the occupational safety of the food service worker is broad, and the sample size is too small to provide conclusive evidence for all food service institutions. Only one institution is representative of each type of hospital. The sizes of the SP and the RH interview samples were rather small to be representative of each type of institution in terms of staff knowledge.



External (non-human related) potential risk factors have not been evaluated in this study. Steam pressure vessels, illuminance (lighting), ventilation, and materials management sheets required the services of a registered practitioner. This section was removed from the Unit Audit List because of its financial implications. The assessment on the kitchen building and equipment is largely reliant on the contents of the criteria and it assumes that the content for each area, for example, the receiving area, are sufficient and correct. This assessment and the assessment on the knowledge and the history are largely determined by the efficiency and skill of the researcher.

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ADDENDUM A

UNIT AUDIT LIST

Date of investigation: _____

Unit: _____

RATINGS:1(very good) – 5(very bad)

DESCRIPTION	1	2	3	4	5
A. PHYSICAL FACILITIES					
1. RECEIVING AREA					
2. WALK-IN FRIDGES & DEEP FREEZERS					
3. DIMENSION					
4. WALLS					
5. CEILING/ROOF					
6. FLOORS					
7. PLUMBING					
8. WALKWAYS & CORRIDORS					
9. STORE ROOMS					
10. WINDOWS					
11. COUNTERS, TABLES & ZINCS					
B. MAINTAINED STANDARDS FOR PREVENTION					
1. FLOOR HYGIENE & SAFETY					
2. PREVENTION OF SLIPS & TRIPS					
3. PREVENTION OF CUTS					
4. PREVENTION OF FIRE & BURNS					
C. PERSONAL SAFETY WEAR					
1. FOOT WEAR					
2. TEMP. SENSITIVE CLOTHING					
3. PERSONAL PROTECTIVE EQUIP					
4. HAND PROTECTION					
5. CONTROL OVER PPE					
D. EQUIPMENT SAFETY					
1. CANOPIES					
2. CHIPFRYERS					
3. MOTORISED EQUIPMENT					
4. TILTING PANS					
5. STEAM OVENS & VEG STEAMERS					
6. ELECTRICAL MATIRIALS					
7. FIRE EQUIPMENT					
8. HOBART MIXERS.					
9. WASTE BINS					

10. MOBILE TABLES & FOOD TROLLEYS							
11. POTATOE PEELERS							
12. CLEANING IMPLEMENTS							
13. OTHER PORTABLE ELECTRICAL EQUIPMENT							
14. MANUAL HAND TOOLS							
E. EMPLOYER RESPONSIBILITIES							
1. UPKEEP OF INCIDENT RECORDING & INVESTIGATION							
2. SAFETY SIGNS							
3. SANITARY FIXTURES							
4. SHOWERS							
5. CHANGE ROOMS							
6. HEALTH & SAFETY ORGANIZATION							
7. WASTE MANAGEMENT							
8. FIRE PROTECTION & PREVENTION							
TALLY							
	1	2	3	4	5	TOT	GTOT
A.							
B.							
C.							
D.							
E.							
F.							

****ADDENDUM A & ADDENDUM B MUST BE USED CONCURRENTLY****

ADDENDUM B

CRITERIA FOR UNIT AUDIT LIST

PHYSICAL FACILITIES

1 Receiving Area:

1. Wide double door with a catch to hold open the doors.
2. Ramp to push over heavily loaded trolleys.
3. Electronic scale immediately available at the receiving floor space.
4. Heavy-duty trolley for transporting heavy goods, which can move easily about corners when loaded that decrease strain.
5. The doorway needs to be clear of objects stacked up high.

2. Criteria for Walk-in Freezers & deep freezers.

1. These should have an operable door from the inside.
2. Should have a non-slip floor covering.
3. Should have no cracked tiles or torn metal gorging from the floor if it is a steel covered floor.
4. The freezers must be well illuminated.
5. No peeling of paints, or/and due to dampness on walls or leakage anywhere else.

3. Criteria for Dimension: Part C of SABS 0400.

1. The total floor area is based upon the plan dimensions but shall not include the area occupied by built in cabinets or cupboards or any dividing wall or partitions
2. The dimension of the kitchen should be at least 2.4m over a minimum of 70% of the floor area, and not less than 2.1m over the remaining floor area.

4. Criteria for walls: Part K of SABS 0400

1. There should be no major cracks and hairline cracks in the walls.
2. There should be dampness on the walls due to bad construction that allow no penetration of water into any part of the building.
3. Any wall must have fire resistance, structural strength and stability, that is, it must be built with brick and mortar.
4. Walls in the kitchen must be clean and have no peeling of paints.
5. Outside structural walls should be at least 270mm thick
6. The walls also has to be sound proof & leak proof,

5. Criteria for Ceiling/Roof:

1. Roof height must be more than 2.4m.
2. No unsightly damp and loose hanging boards must protrude over the kitchen, if indeed so there should be a net above or an erected catch platform.
3. The Roof of the kitchen should be leak proof and sound proof.

6. Criteria for Floors:

1. At least 2.25square meters of effective open kitchen floor area must be available to every worker.

2. Workspace in the kitchen must flow, an unimpeded workspace must be made available, i.e., and no unnecessary bulky and excess equipment must stand in the work area, or waste materials which can impede the flow of work & become a hazard.
3. Floors, walkways, gangways must be in good state of repair; skid free (have riffle like texture that is easily cleanable)
4. Floors in the kitchen must be water resistant and fire resistant, i.e. it must be solid slab and have a durable water resistant tile on it.
5. There should be no penetration of moisture from underneath the floor slab since it is a slab supported by ground and filling and have an under floor membrane.
6. There should be no uneven slopes, if so, it should be marked with white or yellow markings to indicate the slopes.
7. Openings in the floors, hatchways, and any open sides of floors or buildings through which persons are liable to fall, must be guarded by a board, fence or mesh wire.
8. A catch platform, or a net above an entrance or passageway or above a place where persons work or pass should be made to prevent falling objects, or a danger sign should be put up.
9. Floor space in a kitchen should have adequate drainage for squeegeing wet floors easily and quickly.
10. In front of the zinks and areas where there are lots of water at all times, should have water resistant rubber covering to prevent slipping.

7. Criteria for Plumbing

1. Any type of joint between pipes or between pipes shall be made of the appropriate material of the pipes and the materials.
2. They must remain watertight, in other words there should be no leakage when under normal working conditions.
3. These pipes and fittings must be able to withstand an internal water pressure of 50kPa and an external water pressure of 30kPa without leaking.

8. Criteria for Walkways and Corridors

1. Floors where there is high level of trafficking, or walkways and corridors should be covered by skid resistant covering or removable rubber mat.
2. There should be at least one sign indicating: "Keep left" to allow oncoming traffic to pass on the right.
3. A mirror can be installed at blind spot or blind corner.
4. 760mm high handrails must be provided at the staircases.
5. There should be no blockages in walkways due to objects stacked in the way.
6. Corridors must be well illuminated.

9. Criteria for storing of items (store rooms):

1. Heavy objects must not be stacked high, so as to create difficulty lifting it off.
2. A steady ladder must be provided for removing items from the shelves.
3. No direct sunlight must fall on cleaning materials or flammable chemicals in the dry stores.
4. Natural ventilation must be provided in a store according to the criteria for ventilation and windows.
5. A regular trolley must be provided to the store person to load off heavy items removed from the shelves.

6. Heavy objects must be kept on the ground level or the lowest level in the stores.
7. Floors must be kept clean & floors kept clean and trip free.
8. Racks must be of a steady nature, i.e. not buckle down over it's hinges, or tilt downwards when leaned over.

10. Criteria for windows

1. If the area in the employee spends most of day in an area of not more than 100m², the employer must be provided with a window that is
2. Not less than three fifths of the square root of the floor area of the room measured in square meters.
3. The windowsills are not higher than 1.5 meters above the floor level.
4. Such windows must be glazed with transparent material in conditions where if natural light will cause an adverse effect on materials used that room, or where the processes in that room is seriously affected by sunlight, humidity, temperature, or air movement, this shall apply.
5. Where there is penetration of direct sunlight into the workplace may pose a threat to a person in the workplace, the employer shall ensure that such a place is screened avoid such penetration?

11. Criteria for counters, tables and zincs.

1. All metal equipment except for stainless steel, must have a powder coated enamel
2. Tables must be strong, easily cleanable
3. Counters should be stainless steel with the edging with rounded off top ("turned down").
4. All exposed surfaces of stainless steel must have a satin finish, except otherwise specified.
5. The table units should be securely fixed to floors either by non-ferrous bolts in the surface bed of the floor.
6. Tables should be reinforced with 1.6mm thick mild steel backing plate and with vermin proof sound deadening material in-between.
7. The unit counters should have at the wall sides approximately 150mm high splash backs.

MAINTAINED STANDARDS FOR PREVENTION

1. Criteria for Floor Hygiene & Safety:

1. Floors must kept grease free or oil free, and there should be no polish left on the floors.
2. Floors should be cleansed regularly, on a daily basis with an SABS approved detergent to alleviate the transfer of common floor bacteria.
3. Areas where the floors are wet most of the day, somebody must be delegated to continuously push away excess water with a squeegee and dried off with a mop to prevent slipping.
4. Skirting and tile groves must be kept clean and dry.

2. Criteria for preventing slips & trips

1. Areas of the floor that is always wet must be covered with skid-resistant floor covering like a rubber mat.
2. Anything spilt immediately wiped off and are they properly cleaned?
3. Objects should not be stacked high, stores or anywhere else that would pose threat of falling.
4. There should be no objects & electrical cords lying about.
5. Ladders used in the kitchen and the stores must be sturdy and safe to use.
6. Is the IN and OUT signs at the doors used correctly?

7. Are there yellow or black markings indicating uneven surfaces?
8. Wet and/or mud outside areas
9. Dry contamination, e.g. polythene bags left on floors, cardboards laid over spills?
10. water & grease-laden vapour (poor ventilation)
11. Adequate cleaning methods, e.g. use of a warm soapy water to remove grease?
12. Supervision adequate in all areas.
13. Fluids must be stored lower than eye level.
14. Horse playing while at work.
15. Excessive noise and or heavy trafficking of other people apart from kitchen staff.
16. Inadequate illumination to see floor properly or glare.
17. Sieves of the drainage channels should be securely fixed into the channel so that they don't move about when stepped on them.

3. Criteria for Fire and burns

1. Fire evacuation must be visibly displayed.
2. Steam pipes must not leak.
3. Thermostats of chip fryers must be in working order.
4. Canopies must be kept clean.
5. Hot fluids must be stored not higher than eye level.
6. Staff clothing working in all areas must not fit loosely.
7. No staff member should have on loose hanging jewelry, etc especially in an area where there is conveyer belt or a large dishwasher.
8. Fire extinguishers must be placed in strategic places in the catering unit.
9. Every kitchen must have a fire blanket.
10. Cooks must only use aprons made of a strong cotton/denim material..

4. Criteria for preventing cuts

1. Staff must not carry knives in their pockets.
2. Knives that are in use must be sharp.
3. The kitchen must have chopping boards available at all the sections: preparation, pre-preparation.
4. There should be strong butchers knives and chopping boards/and or butcher's block in the meat preparation area.
5. Knives must be stowed away in a drawer laying flat and / or in a knife sheath that fit correctly.
6. Knives or sharp utensils that are hanging, must hang in a position that the blades are not exposed.
7. Tin openers should be in sharp condition and preferably mounted on a sturdy stainless steel table.
8. The use of good rubber gloves should made available and enforced in the areas of dishwashing by hand or at the dishwasher.

PERSONAL SAFETY WEAR

1. Criteria for Foot wear

1. Shoes must enclose the entire foot.

2. The sole should have good grip (sole must have a tread pattern),
3. The sole should preferably be rubber that has the ability to suck out air when walking in the water.
4. The shoe should preferably have a hard protective section at the toe, for males who has to lift heavy objects.
5. The shoe should have a snug and comfortable fit since staff member must wear for the entire day.
6. Shoes must have a renewal management system.
7. Shoes purchased must be worn by the staff present.

2. Criteria for temperature sensitive clothing

1. Should be strong made of pure cotton or at least 35% cotton mixed with 65% polycot ton material.
2. Staff should have strong apron preferably a cotton mix with denim apron in heated areas like the preparation area and recon kitchens where ovens are used.
3. Staff should only wear plastic should they be working with water and not in any area where heat and flame is used
4. Headgear should be a light material, preferably cotton or the traditional theatre style caps.
5. If workers have to work in fridges, freezers or chillers where temp is less than 6°C over a period of 4 hours, reasonable measures should be taken to protect the worker
6. If the temperatures in the freezers or chillblasters less than 0°C, and maybe the time that the worker is exposed is limitless at temp. up to -18°C, or, in lower than 18°C not below -18°C be exposed only 50 minutes max. continuously with 10 minutes interval, or, in lower than -34°C not below -57°C be exposed 2 periods for 30 minutes each, 4 hours apart with a total low temp exposure only 1 hour per day.
7. At below -34 °C, a nylon freezer suit or equivalent, that should be double layered, a woolen Balaclava or equivalent, fur-lined leather gloves, waterproof outer gloves with knitted woolen or equivalent inners and waterproof aprons where wet or thawing substances are handled, woolen socks and waterproof industrial boots.
8. A person working in temperatures lower than -18°C for periods exceeding 5 minutes in every hour, need to be provided with and ordinary overall, gloves and shoes as described above.
9. Such a person working in these temperatures need to be declared fit to work in such an environment by medical practitioner or a registered nurse.
10. These clothing must dry prior to entering the environment.

3. Criteria for use of personal protective equipment (PPE)

1. Hand protection, must provided for all tasks, mechanical: handling knives, food mixers, graters and loads; thermal and chemical functions.
2. Eye and face protection masks when working with chemicals giving off fumes, such as drain cleaners.
3. Heavy duty aprons for cleaning
4. Hearing conservation equipment for noisy areas.
5. Temperature-sensitive clothing
6. Cotton or other denim/cotton aprons for cooks.

Criteria for Hand protection

1. When using chemicals with the active ingredient of sodium hydroxide, often used in potent ovencleaners, a chemical resistant that covers at least $\frac{3}{4}$ of the forearm, that is made of natural latex rubber, which gives the high level of comfort, elasticity and the resistance and strength of natural rubber.
2. Fire resistant cotton like or other natural material gloves should be provided for the use of working with heated temperatures.
3. Fur-lined leather gloves should be made available when working in the walk-in-freezers removing bulky hard frozen meat items.

Criteria for Control over PPE

1. A separate cupboard for the safekeeping of all gloves, caps, aprons, freezer jackets, heavy duty aprons, masks and ear protection.
2. Reusable must be rinsed thoroughly with hot and cold water and allowed to dry and checked into this cupboard.
3. Protective and personal clothing should not be kept in the same accommodation.
4. Clean personal clothing that was not used yet, must be kept from the soiled, to prevent being contaminated.

EQUIPMENT SAFETY

Criteria for Canopies

1. The plan dimension of the canopy is recommended to exceed the plan of the cooking area of cooking appliances.
2. There should be an overhang of 250-300 mm all round for island canopies.
3. Wall mounted canopies have front overhang of 250 mm at the front and 150 mm at the end.
4. Canopies should not be low as to cause obstruction.
5. Canopies and ductwork should be of a non-combustible material and fabricated so as to not to encourage accumulations of dirt and grease or allow condensation to drip from the canopy.
6. The ductwork should of suitable access for cleaning, & grease filters need to be readily removed.
7. The design and performance of canopies need to be effective in removing cooking fumes preventing them from passing through the breathing zone. An approximate air flow rate in liters per second (L/S) can be calculated from the total hood size and following minimum hood face velocities: 0.25m/s, for light, 0.4m/s for medium and 0.5m/s for heavy duty cooking. Not less than 17.5 L/S per square metre of floor area and not less than 30 air changes is advisable. A lower is advisable e.g. 10 if the kitchen is subdivided into separate rooms.
8. Filters or the canopies should be cleaned on a regular basis according to the cleaning schedule in the kitchen.
9. There should be no leakage in the ductwork from the vapour extracted.

Criteria for the Use of the Chip fryer:

(not an used by the institutions, thus not included in the "Unit Audit List")

Thermostats of chip fryers must be in working order, since this shuts down the elements when the recommended temperature has been reached in the oil.

Criteria for use of Motorised equipment:

1. Every user or employer must by law provide safety equipment in connection with the machinery.
2. Every user of this machinery must use the safety equipment necessary for the equipment when using them.
3. No person working in close proximity to moving machinery such as a conveyer belt or a large dishwasher, shall wear any loosely fitting outer clothing, jewelry or ornament, any watch or key chain or any long loose-hanging hair or anything that may be caught up in moving parts of such machinery.
4. The machinery must stand in a safeguarded area.
5. No persons must use the machine or even enter the safeguarded area other than the competent persons for the job.
6. Any person intending to start a machine shall before doing so satisfy him that no other person is endangered.
7. There should be a checklist available & licensing.

Criteria for Tilting Pans and Tilting Pots

1. Brat Pans and tilting pans should not be accidentally tilted, when touched.
2. Brat Pans must have a lid
3. The lids must have a side-mounted handle.
4. The lids should drop down by itself when it is lifted.
5. Thermostatically controlled "on" and "off" indicator lights working order
6. Electrical supply, is three phase, 4 wires, 380V, each circuit must be protected by a circuit breaker.
7. Screwed spindle and bush must be self-locking at any any angle when the handle wheel or handle is released, in case of tilting pots, hydraulic fluids must be maintained to ensure that is does not flip over and cause sever burns.

Criteria for Steam Ovens and Vegetable steamers

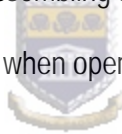
1. Steam pipes must be protected carrying steam pressure, to prevent burn injuries.
2. Steam cock of steamers in full working order when used.
3. Steam ovens and steamer should be directly located underneath a working canopy.
4. Should have a sturdy doors, when opened, it should not move back by itself, while removing an item from the steamer.
5. A visible notice/reminder warning against the danger of not closing the steam cock, or bringing down the heart to zero, before opening the doors.
6. No loose hanging metal or stainless part on the machine.
7. If veg steamer is a pressure vessel, the necessary pressure standards for steam pressure vessels must apply.
8. There should be no water leakage from the pressure vessels or the equipment transporting steam pressure to the machine.

Criteria for Electricity and Electrical Materials

1. Electrical cords must be in good condition, in other words there should be no exposed areas in the wires.
2. There should be no electrical cords lying about.
3. All electrical equipment must be installed in compliance with prescribed safety measures.
4. Labeling of electrical switchgear.
5. Marked electrical wiring to supply source: steam pressure or electricity.
6. Wiring providing three phase electrical supply to large equipment such Brat Pans must fully insulated and covered by a thick neoprene/rubber covering and mounted away from heat.
7. The employer (user/lessee) of the institution's electrical installation, must ensure safety, maintenance and the safe use of the installation.
8. A certificate of compliance for that installation must be available at the institution.

Criteria for Hobart Mixers

1. This machine should have open free space to accommodate its bulk and allow freedom of movement when the machine switched on.
2. It must stand in a well-illuminated area in the kitchen.
3. Only individuals trained to assemble, disassemble and operate the machine must work with it.
4. Clear red "switch-off" button must be in full working order.
5. Simple operating step-by step for assembling attachments should be made available and visible close to the machine.
6. Warning notice of possible dangers when operating the machine.



Criteria for Waste Bins

1. Each kitchen should have a pig swirl bin, a paper bin, and a general waste bin and an area where cardboard boxes are flattened and kept.
2. Waste materials should not be allowed to accumulate and cause, a routine for removal of waste must be implemented.
3. Each bin should have mobile trolley for removals, such as the clini bins to prevent the lifting of loaded bins onto a trolley or bins with wheels.
4. Each bin should have tow sturdy handles for easy grip.

Criteria of Mobile tables, Dollies and food trolleys.

1. Mobile table must have 1.6 thick backing plate with sound proof deadening material in between.
2. The edging of the top of the table must be turned down all round and the lower edge beaded over.
3. The moveable table unit must have tow fixed and two fully swiveling heavy-duty firm castors with rubber or neoprene tyres.
4. The fixed castors must be fitted with brakes.
5. Food trolleys should have firm handle bar with rubber hold to shield against heat from the heated trolley.
6. Food trolleys must have an area where the electrical cords.

7. Food trolleys tied together, must be easily manoeuvrable around the corners, and not labour-intensive to move forward.
8. A metal clasp must hold the metal tie between two trolleys, should not be easily fall off with movement or when the trolley is knocked by accident.

Criteria for Potatoe Peelers.

1. The potatoe peeler should empty into a large deep zink or potatoe sorting table with bowl or the potatoe sorting table with the slope, so that no holding of a bucket or bending is necessary which causes nuisance or strain
2. The potatoe peeler must have fully lockable door that does not open by accident when the machine is switched on.
3. An instruction notice should be visible close to the machine indicating the step-by step safe use of the machine, to remind staff to fill the cask first before switching on the machine.
4. Excess water from the machine must be led into the general drainage system, preventing excess water nuisance on the floors.

Criteria for cleaning implements (mops, broom, etc)

1. A bucket and water system must be made available, no hand ringing of mops should occur.
2. Squeegees must be utilized for the removable of excess water.
3. All implements must have a place of storage and not lie about in any work environment.

Criteria for portable electrical equipment.

1. Should preferably have a 3-point plug.
2. Electric cord should have no openings.
3. Heavy-duty blenders/liquidizers must have secure fitting neoprene clutch, and should not pose any threat when working at full speed without holding down the lid.
4. Any manual electrical piece, such as blenders, meat slicers, etc, should be used only under supervision or used by a trained individual.
5. Each equipment piece should have instruction available.



Criteria for manual hand tools

1. Knives must be stored flat or hung up so that blades and points are not exposed.
2. Tin openers must be sharp and mounted on a sturdy fixed table.
3. The correct tools for opening crates, boxes, tins and bottles.
4. A rammer should be available to feed an automatic cutter or mincer.
5. A good knife sharpener must be at hand.
6. Handles of knives must not be loose fitting from its blade.
7. Blades should fit properly onto the knife.

EMPLOYER RESPONSIBILITIES

Upkeep of incident Recording & investigation

1. Schedule for cleaning facilities & change rooms of the employees.
2. All the documentation for needed for injury on duty
3. Injury/Occupational disease record and dressing book
4. Statistics

5. Are there records kept of staff operating the machinery.

Safety signs:

2. Is there a safety sign related to the danger of wet and oily floors?
3. Is there a safety sign related to the prevention of burns?
4. Is there a safety sign related to the prevention of cuts?
5. Is there a safety sign related to the prevention of slips and trips?
6. Is there a safety sign related to the use of flammable materials?
7. Are there signs indicating where to find the fire extinguishers, fire blankets, and fire escape doors?
8. Are there any signs: electrical, mechanical, protective equipment, traffic signs & symbolic safety signs
9. Is there sign about getting first aid.

Criteria for Conditions of Sanitary fixtures:

1. Adequate number of sanitary fixtures must be provided in relation to the population, in this case the kitchen staff, i.e. not less than one sanitary fixture for every thirty staff members.
2. The drainage installation must be able to carry the hydraulic load and is capable of discharging into any common drain, or connecting sewer, in other words, there must not be a frequent blockage or build up of toilets or basins.
3. All components of and materials must be watertight, no nuisance or danger to health will be caused by the operation of the installation.
4. Sanitary fixtures must be located that they are easily accessible to the staff.
5. Any necessary inspection or cleaning and maintenance required must be performed through the means of access provided.
6. Male and female sanitary fixtures must be provided with a conspicuous sign indicating this.
7. If a toilet is not accessible to staff close to the kitchen, if it there is less than 11 persons working in the kitchen. Proof of written arrangements should made available to closets and basins adjoining to the kitchen premise:

The facility must freely available and accessible.

No more than 30 persons are already using that facility

The facility must maintain in a clean and hygienic condition.

8. The toilet pans must be firmly attached to a wall or rigid supported by bracket with it's own flushing device.
9. Toilet paper must be made available to staff.
10. Every toilet or water closet must have a seat and cover.
11. Hand towels or a clean towel must be provided at the washbasin
12. Toilet soap or a similar cleansing agent should be provided.

Criteria for Employer responsibilities in respect of showers:

1. Showers and hand basins must have hot and cold or premixed running water.
2. The walls of the shower must be smooth and impermeable, crack free and no permeation of damp.
3. The floor must be slip-free floor covering, not bare cement flooring.
4. The floor has to be sloped for more effective drainage.

5. If there are windows in the shower, the windows have to be glazed in obscure glass to ensure right of privacy.
6. In respect of rooms that houses water closets, urinals, washbasins or showers the employer must provide a conspicuous sign outside at the entrance to indicate the sex of the persons the room is intended for.
7. This room must have adequate ventilation; the total area of an opening of the glazed window must be not less than 5% of the floor area of the room or 0.2sqm.
8. Showers must have screen walls, partitions or doors to ensure privacy.
9. Water supplied must be clean, have no odours, and colourless in appearance.

Criteria for Employer responsibilities in respect of facilities for safekeeping and change-rooms:

1. Separate change rooms must be provided for females & males according the provisions.
2. A personal facility for safekeeping must be provided for each worker to keep clothes and belongings safe and in a good condition.
2. Staff that needs to undress for work, must be provided with a change-room.
3. There should be no door leading to an area where hazardous substances like suntanned hides, skins, unwashed wool, or mohair are being treated, or processed
11. According Part C of the SABS 0400 0.8square meters should at least be available for each person, that is, not less than 6 square meters should be available for 15 people within a change room. and not less than 12 square meters for 16 – 100 people in a change room.
3. No goods should be stored in the change room not related to the room.
4. If the change room has a window needs to be glazed with obscure glass.
5. Screening of the entrances to change room must be done to afford privacy.
6. A conspicuous sign at the entrance must be provided indicating male and female.
7. Facility for drying of wet clothes, if the clothes of the employees for whom the clothes have been provided, may become wet in the course of their work.
8. Change rooms must be well ventilated, naturally or artificially. If naturally with windows, the total area of the openings of the window should not be less than 5% of the floor area.
9. No employee must be allowed to change in other place other than the change room provided
10. Staff may eat in change rooms only if (if there is no common room close by):
 - A partition is provided at least 2 meters high between showers and eating places
 - No direct communication between toilets and change rooms.
11. The change rooms and facilities must be maintained in a clean, hygienic, safe, whole and leak-free condition
12. Kitchen staff should have access to showers.

Criteria for Health and safety organization

1. Chief executive officer responsible, awareness of fsm
2. Persons made responsible for health and safety coordination
3. Appointment of health and safety rep
4. Health and safety committees
5. On-the-job health and safety communication
6. First aider and occupational health services facilities sufficiently allocated.
7. First aid training
8. Posters, bulletins, newsletters, etc

9. Suggestion scheme
10. Reference library
11. Regular reports (monthly, annual)
12. Induction/Orientation
13. Safety rep training
14. Staff health facilities
15. Plant inspection
16. Internal self audit
17. Written safe work procedures
18. Proof of permanent employment
19. Health and safety Policy

Criteria for Waste Management system

1. Cleaning schedule must include removal of waste, and the frequency per day.
2. Off-duty or daily schedule should include removal of waste.
3. Recycling: Paper, general waste, plastic, cardboard boxes, pigswirl and paper.
4. Cleaning of pigwirl fridge must be included in the cleaning schedule.
5. Signs indicating where the various waste removal must be placed, i.e. area or bin for each type of waste.

FIRE PROTECTION & PREVENTION

1. Fire extinguishing equipment, such as fire blankets, fire hoses and extinguishers should be made available.
2. These should be placed in strategic positions and sufficient to cover the entire floor kitchen floor space.
3. Locations where it is positioned should be marked by symbol and direction to it on the floor.
4. The institution should have a maintenance schedule for the upkeep of all equipment.
5. The fire alarm must be in full working order at the crash of the little window to activate it.
6. A schedule for a fire fighting drill for kitchen and all the departments of the institution must be in existence.
7. The kitchen unit should have a working security system.
8. In the event of a huge outbreak, the kitchen should have in place an emergency plan, which is a plan of action all visible to secure the safe egress of the staff.
9. Safety exits must be marked clearly and if there are none, the front or back doors must be allocated as safety exits, and marked as safety exits.
10. The institution must allocate fire officers and a prevention and protection co-ordinator.
11. Staircases and steps from one floor to the next, (example if the kitchen is on 3rd floor, and the only means of exit is via the steps down), must be provided with substantial handrails
12. If staircases intended to be used as fire escape, should be a non-combustible material, kept clear from obstructions, and gradient and wide enough to accommodate a number of persons for a quick and safe egress.
13. Considering the size of the workplace (kitchen), and the number of persons working in that kitchen, at least two means of egress situated far apart as is practicable.

14. Staircases and steps from one floor to the next, (example if the kitchen is on 3rd floor, and the only means of exit is via the steps down), must be provided with substantial handrails

MEASUREMENTS FOR a OCCUPATIONAL PRACTITIONER (Not included in the "UNIT AUDIT LIST"

Criteria for Ventilation

1. The kitchen workplace needs to naturally ventilate or mechanically (artificially) to ensure that the air the worker breathes is not endangering their safety.
2. The time weighted average concentration of carbon dioxide, taken in over an hour period, must not exceed ½ percent by volume of air.
3. The Carbon dioxide content thereof does not at any time exceed 3% by volume of air.
4. The prescribed exposure limit for airborne substances in the air must not be exceeded.
5. The concentration of any flammable gas, or vapour , should not exceed the lower explosive limit of gas, or vapour in the case of kitchens.

Criteria for Noise and Hearing Conservation

1. No employee should work in an environment with a noise level higher than 85dB, unless the employer could reduce the noise level to lower than 85dB acoustically by isolating the source of the noise.
2. Where the above is not possible, then the boundaries of the noise zones should be demarcated with posters or notices.
3. Prohibit any person from working or entering that area without hearing protectors.
4. These hearing protectors must be kept hygienically clean, and kept in a dust free container.
5. The employer must instruct this employee working to make use of these hearing protectors and inform the employee about the high noise level.

Criteria for Ventilation

6. The kitchen workplace needs to naturally ventilate or mechanically (artificially) to ensure that the air the worker breathes is not endangering their safety.
7. The time weighted average concentration of carbon dioxide, taken in over an hour period, must not exceed ½ percent by volume of air.
8. The Carbon dioxide content thereof does not at any time exceed 3% by volume of air.
9. The prescribed exposure limit for airborne substances in the air must not be exceeded.
10. The concentration of any flammable gas, or vapour , should not exceed the lower explosive limit of gas, or vapour in the case of kitchens.

Criteria for Lighting (Illuminance)

1. The average illuminance at any floor level in any workplace within five meters of a task is not less than one fifth of the average illuminance on that task
2. Glare in any workplace is reduced to a level that does not impare vision
3. Luminaries and lamps are kept clean and, when defective, are replaced for repaired forthwith.
4. The emergency sources of lighting must be capable of being activated within 15 seconds of the failure.

5. The emergency light source must last long enough to ensure safe evacuation.
6. The emergency light sources must be checked at intervals not less than 3 months to ensure that it is in good working order.

HAZARDOUS CHEMICAL SUBSTANCES

1. These are subject to Regulations found in the Hazardous chemical substances Regulations of 25 August 1995. Requires completion of Material Safety Data Sheets

Criteria for Ergonomics in the Main Kitchen

Subject to Information Data Sheets requiring filling for each task performed in the kitchen.

PRESSURE VESSELS

Subject to legislation found in the "Vessels Under Pressure" Legislation.

Percentage calculated: eg: Criteria for Receiving Area have a total of 5 observations. If the institution complied with 3 out 5: $3/5 \times 100\% = 60\%$

Rating 1	80-100%	
Rating 2	60-79%	Criteria for Receiving Area
Rating 3	40-59%	
Rating 4	20-39%	
Rating 5	0-19%	



ADDENDUM C
STAFF KNOWLEDGE AUDIT LIST

UNIT: _____

POSITION OF STAFF MEMBER: _____

ACTION RELATED ACCIDENTS	RATES 1(very good) – 5(very bad)				
	1	2	3	4	5
A. PREVENTING CUTS					
Did you receive training on how to prevent cuts?	NO			YES	
1. How must your knife be before you use it?					
2. When you use a knife, it must point towards your body parts. True or false, Why?					
3. What is the safest way to store a knife or sharp object?					
4. What do you need when chopping or cutting?					
5. How do you prevent a chopping board from slipping when working on slippery surface?					
6. One must always try to catch a falling knife. True or false. Why?					
7. When passing a knife to others, how would you do this. Demonstrate.					
8. When carrying a knife, always carry the knife with the sharp point pointing downwards. True or false.					
9. Demonstrate how you would wipe a knife clean.					
10. What do you do with broken glass?					
11. Can you think of three misuses of knives?					
12. Identify three knives and their uses.					
13. Where do you keep your paring knife?:					
14. What do you use when you feed an automatic mincer?					
15. When you have knives and broken glass at the bottom of a zinc filled with water, what do need to do to prevent injury?					
TOTAL					
B. PREVENTING BURNS	1	2	3	4	5

Did you receive training on how to prevent burns?	YES			NO		
1. Why is it necessary that your clothes fit properly and does not hang loosely when working around open flames and stoves?						
2. How can you test whether a cooking surface is hot?						
3. What could happen to oil that fries too long and become too hot?						
4. Why is it important not to fill a pot or saucepan to the brim with oil or water?						
5. Name at least 3 things that could happen when you accidentally put an empty pot on the stove.						
6. What should wear when you need to remove a pot from a stove?						
7. How do store hot fluids?						
8. What kind of apron do you wear when cooking?						
9. When you are cooking on a stove, how do you position pots and pans? Why?						
10. When opening a steamer, what do you need to do first before opening it?						
11. Demonstrate how you would lift a lid from a saucepan.						
12. Where do stand when you open the steamers or steam ovens?						
13. What do need to do before opening a steam oven?						
14. How do you light a gas stove?						
15. Fire originates from three elements. They are?						
16. Demonstrate how you plug in or disconnect a plug..						
17. Why do you think it is necessary to have dry hands when electrical pieces?						
18. In case of electrical shock, switch off the....?						
19. Can you put excessively wet food into hot oil? Why?						
20. When using deep-fat fryers, the thermostats must be accurate. Why?						
21. What chemical agent will help to put out a fire caused by electricity?						
22. When frying chips in a chipfryer, when the oil is hot, when do put in the chips,						

TOTAL					
C. PREVENTION OF FALLS & SLIPPING (this is done by way of observation & interview)	1	2	3	4	5
Did you receive training on how to prevent falls?	YES			NO	
1. Why do think it is necessary to continuously wipe up water or any other substance up from the floors as soon as possible?					
2. Name three mediums on floors that can cause someone to slip?					
3. Does the worker have protective non-slip shoes on?					
4. How would you best move an object from one place to the next if there are no trolleys to prevent oneself from slipping or falling with this object?					
5. What precaution should one take when you are pushing a trolley loaded with objects blocking your view?					
6. Why is it not advisable to rush when carrying large objects?					
7. Which side do you walk on stairs, corridors and thoroughfares?					
TOTAL					
D. PREVENTING BODILY STRAINS	1	2	3	4	5
Did you receive training on how to prevent bodily strains?	YES			NO	
1. What piece of equipment do you use to move a heavy object from one point to the next?					
2. How would go about getting something from a freezer box?					
3. How would reach for something from a high shelf?.					
4. Your best method to place a heavy large object from the floor to a high shelf?.					
5. Demonstrate: Picking up a heavy object from the floor before walking?.					
6. When you perform the above duty, do you or would you work alone?					
7. Push or pull mobile equipment. Which can cause back muscle injury?					
TOTAL					

E. USING CHEMICALS	1	2	3	4	5
Did you receive training with regards to the use of chemicals?	YES		NO		
1. How do you store chemicals?					
2. In what sort of conditions should chemicals not be stored?					
3. Do you always read labels of chemicals?					
4. What could happen when we use a confined unventilated area?					
5. How can potent chemicals make you sick and how they make unconscious?					
6. Can you use a chemical container for storing food?					
7. You can use some chemical near an open flame. True or false? Why?					
8. When you work with an undiluted potent chemical, like caustic soda, oven cleaner, etc, what do you use to protect hands and arms & other parts of your body?					
9. Do you have access to these in no. 8?					
10. Why should one avoid splashing when working with a chemical?					
11. What is the first thing one should do after working with a chemical?					
12. When working with a chemical, keep your hands from your face, why?					
TOTAL					
F. PROCEDURE WHEN DISCOVERING A FIRE	1	2	3	4	5
Have you been trained to handle small fires?	YES		NO		
1. Explain how you would handle discovering a small fire.	1				
2. If the fire is a huge one how would you go about when you discover it?		1			
3. Demonstrate: Use of a fir extinguisher.		1			
TOTAL	1	2	0	0	0

Tally: categories A, B, C, D & D : example F

SECTIONS	1	2	3	4	5
A					
B					
C					
D					
E					
F	33.3%	66.7%	0%	0%	0%

Addendum C and Addendum D must be used concurrently

ADDENDUM D

EXPECTED ANSWERS LIST

Prevention of Cuts

Question 1

1. It should be sharp and clean.
2. The handle must be tight fitting
3. The handle should not be greasy.

Question 2

1. false,
2. Can injure yourself

Question 3

1. In a pouch or protective shield.
2. Or store in a flat position in the drawer
3. Or hung up so that the blades and points are not exposed.

Question 4

1. Chopping board
2. And or a butcher's block



Question 5

1. You can place a wet cloth underneath a chopping if you are working on wet slippery surface.

Question 6

1. False
2. You most likely going to grab it on the blade side

Question 7

1. With the handle pointed towards the person

Question 8

1. True

Question 9

1. demonstrate

Question 10

1. Sweep it together with a dustpin and brush.
2. Put it in a piece of newspaper, cover and put in a plastic bag and discard.

Question 11

1. Lifting a lid from a hot pot on the stove

2. Using a knife to taste food.
3. Using a knife to tease somebody.
4. Using the handle side to push something by holding the blade side

Question 12

1. Chef's knife
2. Butcher's knife
3. Bread Knife
4. Deboning knife
5. Paring knife

Question 13

1. In my locker or in the drawer or elsewhere other than on the body.

Question 14

1. You need a rammer or a plunger to push food down and automatic mincer

Question 15

1. You need to first drain the water from the zinc and then start taking the sharp objects from the zinc or removing the broken glass.

Prevention of Burns



Question 1

Loose fitting close can catch fire more easily or could come into the source of heat.

Question 2

By passing your backhand +/- 5-10cm above the surface.

Question 3

1. It is likely to catch smoke and later catch fire.
2. Pose a real danger to the person who still need to use it.

Question 4

1. When it boils over it can cause the fluid to splatter on a stove which can burn any person nearby if it is water.
2. If it is oil, that boils over, it can cause a real fire when it falls on the stove or the open flame.

Question 5

1. The pressure of the heat inside the empty pot can build up and blow the lid up against the ceiling or pop off against and unsuspecting bystander.

2. Someone unsuspecting can try take the pot off thinking the stove is off since the container is empty, and thus get burned.
3. The pot can burn out eventually and cause a thick smoke in the room which is detrimental for your health.

Question 6

1. Should first pull it closer to you.
2. Should wear gloves if the handles are not heat resistant materials.
3. Place the hot container on a table or trolley close by.

Question 7

Not higher than eye level.

Question 8

A strong cotton/denim material apron.

Question 9

1. Turn away the handles of the pots and pans.
2. So they won't be knocked off or exposed to the source of heat.

Question 10

Close the steam cock.

Question 11

The worker needs to lift the lid away from the body.



Question 12

Must stand next to the steamer

Question 13

Lower the pressure of the steam oven to zero before opening the doors.

Question 14

1. Strike a match before opening the gas supply.
2. Open gas supply slowly while keeping the lit match next to the flame opening so that the flame do not blow out too high too suddenly.

Question 15

1. Heat
2. Oxygen
3. any combustible material.

Question 16

Must switch the power off before plugging or disconnecting.

Question 17

You could experience electrical shock.

Question 18
The Main switch

Question 19
No, the oil can splatter and cause burn injuries.

Question 20
The temperature of the oil must be controlled so that it does not become too hot.

Question 21
Carbon dioxide

Question 22
Remove the baskets first, then switch on the chipfryer to heat the oil, then put in the chips in the basket first, and then place it back in the fryer.

Prevention of falling and slipping

Question 1
Prevent any person walking by from slipping and falling.

Question 2
1. Oil
2. Food
3. Soap



Question 3
Worker must have on the prescribed shoe with the characteristics of being closed, comfortable, and the sole must have good tread to prevent slipping.

Question 4
1. One could pull it on the floor with long metal bent to hold on to the item, like a crate.
2. One could roll it slowly, if this is possible
3. One could lift it on to cloth, and pull it across if the floors are smooth.

Question 5
See that all objects are cleared away in the way of the trolley and then push the trolley slowly and carefully on.

Question 6
Accidents happen quicker when one is rushing from one place to the other, and slipping and falling happen more often.

Question 7
On the left side.

Preventing Bodily Strains

Question 1
A trolley

- Question 2
1. Try to pull it close to me first with a metal handle
 2. Lift it up with both hands
 3. Put it on a trolley nearby.

- Question 3
1. Pull a trolley close by
 2. Climb on steady ladder
 3. Move the item from the top in step by step manner
 4. Lift it eventually on to the trolley

- Question 4
1. Place it on a trolley
 2. Lift it to the lowest end of the shelf and then to the next
 3. Lift it to the shelf I want carefully



- Question 5
1. Feet apart
 2. Grab with both hands on to the item
 3. lift on top of the knees
 4. lift up to stand upright and then walk

Question 6
Try to get assistance.

Question 7
Push mobile equipment. Pulling causes strain.

Using chemicals

Question 1
Away from food.

Question 2
Should be stored away from sunlight, in cool dry place.

Question 3
Yes

Question 4

You breathe the chemicals in, and some chemicals could be potent, and if you don't get sufficient fresh air, you could faint.

Question 5

1. If you by accident did not clean a container with hot water sufficiently after use of chemical in a pot
2. Or if you breathe it in sharply if it is potent.

Question 6

NO

Question 7

1. False
2. It is better not to use any chemical near an open flame cause chemicals are made of chemical substances.

Question 8

1. Rubber gloves
2. mask and a heavy-duty apron

Question 9

Yes



Question 10

Could splash on your eyes or your skin and cause irritation or allergy

Question 11

Wash your hands thorough with warm water and soap

Question 12

Chemical can cause skin irritation or you could have an allergy to it or you could touch a sensitive area of the face like the lip, eye or nose.

Discovering a small fire

Question 1

1. The first step would be try smother the flame with the fire blanket
2. If it continues we use the fire extinguisher to stop it.

Question 2

1. Close the window
2. Crash the fire alarm.
3. Call the emergency number available.
4. Allow all persons to evacuate safely keeping a wet cloth over their noses.

Question 3

1. Lift the extinguisher off it's hook
2. Hold on to the handle and pull on to the key.
3. Press the handle while holding the nozzle with the other hand and spray.



ADDENDUM E

ACCIDENT HISTORY SHEET

UNIT: _____

POST LEVEL OF STAFF MEMBER: _____

QUESTION		1-10 yrs	More than 10 yrs
How many years working in the kitchen? _____			
Did you experience any of the following during your time of employment in this kitchen ?			
Category of incidences, accidents & injuries			
Category	Equipment items Used at the time	1 incident	More than 1
1. Falling, tripping & slipping			
2. Hit by moving & falling objects			
3. Burns			
4. Cuts, bruises & lacerations			
5. Muscle strains			
6. Hearing problems experienced			
7. Affected by chemicals			
8. Motorised equipment			
9. Electrical shock			
10. Needle prick injury			
11. Explosion			
12. Permanent damages to body			

1 TO 12: CATEGORY OF ACCIDENT

	TOTAL	1	2	3	4	5	6	7	8	9	10	11	12
Non-human influences on accidents													
<i>Equipment: fixtures (excl FT)</i>													
A1.lacks maintenance													
A2.in disrepair/old, but Still in use													
B1. Wetness, rain, etc													
B2.stacked items, blockage													
<u>C. DOORS</u>													
C1.in workshop repairs, No notification													
C2.lacks maintenance													
<u>D. Preparation area</u>													
D1.sieves over channels Not securely fitting													
D2.wetness													
D3.items on the floor													
D4.Yrs of strain & bad ergonomics													
TOTAL													
Human influences on accidents													
<u>A. Manner of Work</u>													
<i>A1. Too fast due to press Ure, due to absenteeism,</i>													
<i>A2.Job weight relative To the worker</i>													
<u>B. Negligence by other People/departments</u>													
<i>B1. Flagrant</i>													
<i>B2. Unaware of danger Being caused/creating</i>													
<u>C. Protective Clothing(PC)</u>													
<i>C1. Avail, did not wear</i>													
<i>C2. Avail, not quick access to PC</i>													
<i>C3.None available</i>													
<i>C4. Available, but effective</i>													
<i>C5. Avail, cause discomfort, allergies, blist.</i>													
TOTAL													

Addendum E is used immediately after Addendum C

Verwysing
Reference
Isalathiso

19/4/4/9

Navrae
Enquiries
Imibuzo

Dr LS Bitalo

Telefoon
Telephone
Ifowuni

(021) 460-9119

ADDENDUM F



Departement van Gesondheid
Department of Health
iSebe lezeMpilo

The Chief Food Service Manager
Red Cross Children's Hospital

ATTENTION: MRS. M. COETZE

SUBJECT: APPLICATION FOR PERMISSION TO DO RESEARCH ON OCCUPATIONAL SAFETY: YOURSELF

Your application dated 20/04/2004 and received by my office on 21/05/2004 acknowledged.

The Department has no objection to your request.

Best Wishes.

Kc Househam

PROFESSOR KC HOUSEHAM
HEAD: HEALTH WESTERN CAPE

Date: 3/6/2004
C: My documents/ReqMCoetzee



Dorpstraat 4
Posbus 2060
KAAPSTAD
8000
Faks (021) 483 5677

4 Dorp Street
P O Box 2060
CAPE TOWN
8000
Fax (021) 483 5677

Enquiries
Imibuzo Mr. L.J. du Preez
Navrae

Reference
Isalathiso 2103
Verwysing

Date
Umhla 3 June 2004
Datum

Telephone
Ifowuni 021-4026434
Telefoon

SOMERSET HOSPITAL

ADDENDUM G



Serving the Community

PROVINCIAL ADMINISTRATION
WESTERN CAPE
DEPARTMENT OF HEALTH

ULAWULO LWEPHONDO
INTSHONA KOLONI
ISEBE LEZEMPILO

PROVINSIALE ADMINISTRASIE
WES KAAP
DEPARTEMENT GESONDHEID

Mrs. M. Coetzee
Chief Food Services Manager
Red Cross Hospital
RONDEBOSCH
7700

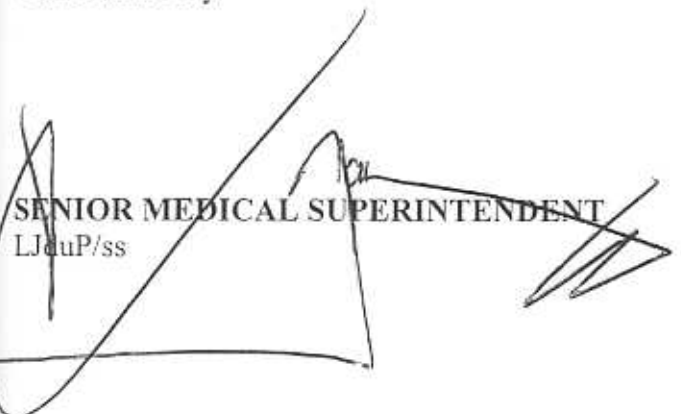
Dear Mrs. Coetzee

PERMISSION TO DO RESEARCH ON OCCUPATIONAL SAFETY

I will have no objection if you do your research at this hospital.

Yours faithfully




SENIOR MEDICAL SUPERINTENDENT
LJduP/ss

Dr A. ROSSI

(021) 404-3169

(021) 404-5291

arossi@pgwc.gov.za

Rm/Coetzee/r

22 June 2004

PROVINCIAL ADMINISTRATION : WESTERN CAPE
ADDENDUM *Department of Health*

PROVINSIALE ADMINISTRASIE : WES-KAAP
Departement van Gesondheid

ULAWULO LWEPHONDO : INTSHONA KOLONI
Ishebe Lezempilo

Mrs M.S. Coetzee
Chief Food Services Manager
Main Kitchen
Red Cross Children's Hospital
Rondebosch
7700

Dear Mrs Coetzee



RE: PERMISSION TO DO RESEARCH ON OCCUPATIONAL SAFETY

Thank you for your letter addressed to Dr J. Du Toit: Acting CEO:
Groote Schuur Hospital, dated 24 May 2004.

Please be informed that permission is hereby granted to proceed with
your research project at Groote Schuur Hospital.

Yours sincerely

Dr A. ROSSI
Medical Superintendent

Groote Schuur Hospital
Private Bag,
Observatory, 7935
Telephone: 404-9111



Groote Schuur Hospitaal
Privaatsak,
Observatory, 7935
Telefoon: 404-9111



Research Ethics Committee
E46 Room 26, Old Main Building Groote Schuur
Hospital, Observatory, 7925
ADDENDUM C
Queries : Xolile Fula
Tel : (021) 406-6492 Fax: 406-6411
E-mail : Xfula@curie.uct.ac.za

07 June 2004

REC REF: 208/2004

Mrs M Coetzee
Chief Food Services Manager
Red Cross Children's Hospital

Dear Mrs Coetzee

A DESCRIPTION OF OCCUPATIONAL SAFETY TO DEVELOP A GUIDELINE TO MEASURE THE LEVEL OF OCCUPATIONAL SAFETY SPECIFIC TO LARGE-SCALE FOOD SERVICE UNITS WITHIN THE METROPOLE REGION UNDER THE MANAGEMENT OF PROVINCIAL ADMINISTRATION WESTERN CAPE


Thank you for submitting your study to the Research Ethics Committee for review.

It is a pleasure to inform you that the Ethics Committee has formally approved the above-mentioned study on the 02 June 2004.



Please quote the REC. REF in all your correspondence

Yours sincerely


PROF. T. ZABOW
CHAIRPERSON

ADDENDUM H

Consent form

This serves to verify that I, the undersigned give consent to be interviewed and questioned with regards to safety in the kitchen and my history relating to accidents and or injuries. I also give consent to be tested for knowledge on this subject. I understand that all the information will be treated confidentially; only code numbers will be used for research purposes and all the information will be reported anonymously.

Name of Candidate: _____

Signature of Candidate: _____

Name of witness: _____

Signature of witness: _____

Date: _____



ADDENDUM I(1) Occupational Safety Checklist

Physical Checklist

A. Maintained Standards of Prevention:

1. Floor Hygiene and Safety:	In hand	yes	no
1. Are all the floors grease-free and polish-free?			
2. Are floors cleansed on a daily basis?			
3. Are the floors being cleansed with an SABS approved detergents?			
4. Is water in watery areas, continuously pushed away?			
5. Are all skirting and tile groves kept clean and dry?			
TOTAL: PERCENTAGE yes: _____			
2. Criteria for preventing slips and trips:	In hand	yes	no
1. Are all areas of the floor that is very slippery or wet, covered by a skid-free floor covering? Eg, zinc areas.			
2. Is there is culture of wiping up spills and splattering of food immediately from floors?			
3. Are there any objects stacked high in the preparation areas?			
4. Are there any electrical cords or ropes lying about that may cause someone to trip?			
5. Are ladders used in the kitchen areas of a very sturdy nature?			
6. Is the IN and OUT signs at the doors ?			
7. Are these signs : IN and OUT signs at the doors correctly used?			
8. Are there any yellow or black markings indicating uneven surfaces?			
9. Are there any wet and/or dry mud outside areas?			
10. Are there any dry contamination, eg. Polythene bags or cardboard over spills, left on floors for any amount of time longer than a half-hour?			
11. Do find water and grease-laden vapour on floors due to poor ventilation or extractors being off for longer than a half-hour?			
12. Are adequate cleaning methods being used, like warm soapy water to remove grease from the floors?			
13. Are fluids stored lower than eye-level?			
14. Are staff by any amount of time, horse playing while at work?			
15. Are there excess noise due to a vast number of people, not kitchen staff frequently entering the kitchen?			
16. Do you find in any area of the kitchen inadequate lighting or a glare on any of the work floor areas?			
17. Are the sieves of the drainage channels securely fixed into the channel so that they do not move if it is stepped on?			
TOTAL: PERCENTAGE yes: _____			
3. Criteria for Fire and Burns	In hand	yes	no
1. Are the fire evacuation procedure visibly displayed?			
2. Are there any leaking steam pipes?			

3. Are the thermostats of chip fryers in full working order?			
4. Are the canopies kept grease-free ?			
5. Are hot fluids stored or kept lower than eye-level during work time and when it is being stored away?			
6. Are there any staff working in the preparation areas working with loosely fitting clothing?			
7. Is there a fire extinguisher at every strategic place in the kitchen?			
8. Are the steam generators and boilers checked on a regular basis?			
TOTAL: PERCENTAGE yes:_____			
4. Criteria for preventing cuts	In hand	yes	no
1. Are any staff member carrying a knife in his/her pocket?			
2. Are all knives in use sharp?			
3. Are there adequate chopping boards in all areas: pre-and preparation areas and special diet & kosher kitchens.			
4. Are all knives stowed away in a drawer laying flat and/or knife sheath?			
5. Are hanging sharp utensils hanging in a position that the blades or sharp points are not hazardously exposed?			
6. Are heavy duty tin openers sharp and mounted securely on a sturdy table?			
7. Are the use of rubber gloves enforced in areas where dishwashing occurs by hand?			
TOTAL: PERCENTAGE yes:_____			



B. Personal Safety Wear.

1. Criteria for Foot wear	In hand	yes	no
1. Does the shoes enclose the whole foot.			
2. Does the sole have a good grip; does it have a good tread?			
3. Is the sole made out of rubber that has the ability to suck out the air when walking in a splash of water?			
4. Staff who have to pick up heavy items, does their shoes have a hard protective section at the toe?			
5. Does the shoe have a soft and comfortable feel on the inside that makes it comfortable to work in for the entire day?			
6. Is there a renewal management system for the shoes?			
7. Are the shoes being worn by your staff?			
TOTAL: PERCENTAGE yes:_____			
2. Criteria for Temperature Sensitive Clothing	In hand	yes	no
1. Uniforms worn by kitchen staff should be made of pure cotton or at least 35% cotton mixed with 65% poly-cotton material.			
2. Staff working in the cooking areas should have on an apron made of strong denim-cotton mix.			
3. Are staff wearing plastic aprons erratically in cooking areas?			
4. Are wearing a headgear made of a lightweight material?			
5. Staff that have to work in fridges, freezers or chillers where the temperature is less than 6°C over 4 hours, are reasonable taken to protect the worker?			
6. Are persons working in temperatures lower than -18°C for periods exceeding 5 minutes in one hour, are there an overall, waterproof gloves and			

waterproof industrial boots provided?			
7. Have the staff working in these areas been declared fit by a medical practitioner or a registered nurse?			
TOTAL: PERCENTAGE yes: _____			
3. Criteria for the use of Personal Protective Equipment			
1. Are hand protection provided for all tasks: mechanical (handling knives, food mixer, graters; thermal (oven cooking) and chemical functions (oven cleaning, drain cleaning, etc.)?)			
2. Are eye and/or facemasks being used or readily available when strong chemicals are being used, such as when drain-cleaners, and oven-cleaners.			
3. Are there heavy-duty aprons available?			
4. Are these being used by workers for cleaning & other?			
5. Is there any hearing conservation equipment available?			
6. Is the use of the above being enforced?			
7. Is the use of temperature-sensitive clothing being enforced?			
TOTAL: PERCENTAGE yes: _____			
4. Criteria for Hand Protection	In hand	yes	no
1. When using chemicals with the active ingredient such as Sodium hydroxide, often used in very potent oven cleaner, are a chemical resistant glove that covers at least ¾ of the forearm made of natural latex rubber? (That gives the high level of comfort, elasticity and resistance and strength of natural rubber)			
2. Are fire-resistant cotton-like or other natural material gloves being used in cooking areas?			
3. Are fur-lined, water resistant gloves being provided for working in walk-in freezers for removing bulk frozen foodstuff?			
TOTAL: PERCENTAGE: _____			
5. Criteria for Control over Personal Protective Equipment	In hand	yes	no
1. Are a place of safekeeping for keeping gloves, caps, aprons, freezer jackets, overalls, heavy-duty aprons, masks and hearing protectors?			
2. Are reusable chemical resistant gloves being rinsed inside and outside and allowed to dry for reuse?			
3. Are PPE kept separate from staff change-rooms?			
4. Have your staffs received 4 sets of uniforms to ensure and allow a clean change?			
TOTAL: PERCENTAGE yes: _____			

C. Employer Responsibilities

1. Upkeep of Incident Recording & Investigation	In hand	yes	no
1. Is there a schedule for cleaning staff facilities?			
2. Is all the necessary documentation for Injury on duty immediately available in the kitchen?			
3. Is there an Injury/Occupational disease record and dressing logbook available in the kitchen?			
4. Are there statistics with regards to Injury on duty?			
5. Are there records kept of staff operating certain machinery?			
TOTAL: PERCENTAGE yes: _____			
2. Safety Signs	In hand	yes	no
1. Is there a safety sign related to the danger of wet and oily floors?			
2. Is there a safety sign related to the prevention of burns?			
3. Is there a safety sign related to the prevention of cuts?			
4. Is there a safety sign related to the prevention of slips and trips?			

5. Is there a safety sign related to the use of flammable materials?			
6. Are there signs indicating where to find the fire extinguishers, fire blankets, and fire escape doors?			
TOTAL: PERCENTAGE yes:_____			
3. Sanitary Fixtures			
1. Is there at least 1 sanitary fixture for every 30 staff member?			
2. Is there a frequent blockage of toilets due connecting sewer pipes?			
3. Are sanitary fixtures mounted with watertight materials preventing leaks?			
4. Are sanitary fixtures easily accessible to staff?			
5. Are the above facilities close and accessible for cleaning inspection?			
6. Are there male and female sanitary facilities provided with a conspicuous sign that clearly marks "male" and female".			
7. If a toilet is not accessible to staff and less than 11 persons are working in the kitchen, is there proof of written arrangements for the use of adjoining closets away from the kitchen?			
8. If there is such an arrangement, is it freely available and accessible?			
9. If there is such an arrangement, are there no more than 30 persons using it?			
10. If there is such an arrangement, is this closet kept in a clean & hygienic condition?			
11. Are all toilet fixtures firmly attached to the wall and floor and supported by a bracket with it's own flushing device?			
12. Are toilet paper provided to the staff?			
13. Does every water closet or toilet have a sturdy fixed seat cover?			
14. Are hand towels or a clean towel provided to staff?			
15. Is toilet soap or a similar cleansing agent provided to staff?			
TOTAL: PERCENTAGE yes:_____			
4. Showers	In hand	yes	no
1. Are showers provided to staff?			
2. Are these showers and hand basins provided with hot and cold water?			
3. Are walls of the showers smooth, impermeable, crack free and no permeation of damp?			
4. Are the floors of showers covered with a slip-free floor covering, not baring the cement?			
5. Are the floors of the shower cubicles sloped for effective drainage?			
6. Are the windows of the showers glazed in obscure glass?			
7. Are there conspicuous signs indicating male or female?			
8. Is there adequate ventilation in showers? The total area of an opening of the glazed window must not be less than 5% of the floor area of the room or 0.2sqmeters.			
9. Are there screen rails, partitions or doors on shower cubicles to ensure privacy?			
10. Is the water supply to showers clean and odourless, and colourless?			
TOTAL: PERCENTAGE yes:_____			
5. Change-rooms			
1. Are there separate rooms for male and female in term of change rooms?			
2. Are they fitted with a personal facility for safekeeping for each worker?			
3. Are there no doors leading do an area where hazardous substances like suntanned hides, skins, unwashed wool or mohair are being treated or any other substances or equipment that may generate a health risk?			
4. Are change rooms not ever used for storing of unnecessary goods?			
5. Are there at least 0.8 square meter provided for each person, that is not			

less than 6sqm must be provided for 15 people.			
6. If change rooms have windows, is it glazed glass that is obscure?			
7. Are screens available for privacy?			
8. Are change rooms marked with a conspicuous "male" and "female" sign?			
9. If staff clothing tends to become wet during their work, is there a drying facility for drying their clothes?			
10. Are change rooms well ventilated? If naturally ventilated with windows, is the total area of the openings of the window not less than 5% of the floor area?			
11. Is the changing of clothing restricted to the change rooms only?			
12. Are eating prohibited in change rooms where toilets and latrines are close?			
TOTAL: PERCENTAGE yes: _____			
6. Health and Safety Organization (HSO)	In hand	yes	no
1. Are there persons responsible for HS Organization at your institution?			
2. Is there an appointed HS representative in the kitchen?			
3. Is there a health and safety committee at your institution?			
4. Do you have on-the-job health and safety communication at an incident?			
5. Do you have a trained health and safety person for every 50 staff members, and if not applicable, are emergency services provided?			
6. Are poster, bulletins provided to staff for their awareness of potential hazards in a large-scale kitchen?			
7. Is there a suggestion scheme available?			
8. Is there a reference library available/books on the topic?			
9. Are regular reports, monthly and annual available?			
10. Is there an induction or orientation program in the kitchen available?			
11. Are regular safety representative training provided at your institution?			
12. Are there staff health facilities available?			
13. Are there regular plant inspection done, such as by an Occupational Health and Safety hygienists.?			
14. Are there regular Internal self audits done in the kitchen?			
15. Are there any written safe work procedures in the kitchen?			
16. Does each staff member have proof of employment?			
17. Is there a Health and Safety Policy in place?			
18. Are the Occupational Health and Safety Act available?			
TOTAL: PERCENTAGE yes: _____			
6. Waste Management	In hand	yes	no
1. Is there is a cleaning schedule for waste removal in the kitchen available?			
2. Are paper, general waste, plastic, cardboard & pig swirl kept separate to accommodate recycling processes?			
3. Are there signs indicating where the various wastes must be kept in the kitchen before it is removed?			
4. Is cleaning of the pig swirl fridge part of this cleaning schedule?			
TOTAL: PERCENTAGE yes: _____			

Internal and External Potential Hazards Checklist

Accident: Falling, tripping and slipping	% mark	yes	no
Do you have all the measures in place found in A1.			
Do you have all the measures in place found in A2?			
Do you have all the measures in place found in B1?			
TOTAL: PERCENTAGE yes: _____			

Accident: Hit by moving or falling objects						
Please tick yes if (1). Or (2). Or (1+2) is occurring at your kitchen.						
Equipment	1. Non-human✓	2.Human factor✓	Intervention recommended	Yes (1.)	Yes (2.)	Yes (1+2)
1.Food trollies	Is there a connecting bar between trollies or other parts that keeps on falling off?	Negligence of way of work.(NGWW) Is staff being careless about handling it?	Better trollies/repair awareness of danger caused by other staff			
2.Dollies		(NGWW)	awareness			
3. Tilting pans	Lid falls over		Repair/replace			
4. Potatoe Peeler	shaking		Repair/replace			
5. Roller doors	Not secured	(NGWW)	awareness			
6. Pot lids	hydraulics		Repair/replace			
7. Food processor	shaking		Repair/replace			
Totals						
Total aver percentage _____ (eg. 14/21=66%)						

Accident: Burns	% mark	yes	no
Do you comply with measures in A.3?			
Do you comply with measures in B.2?			
Do you comply with measures in B.3?			
Do you comply with measures in B.4?			
TOTAL: PERCENTAGE yes: _____			

Accident: Burns						
Please tick yes if (1). Or (2). Or (1+2) is occurring at your kitchen.						
Equipment	1. Non-human✓	2.Human factor✓	Intervention recommended	Yes (1.)	Yes (2.)	Yes (1+2)
1.Recon Ovens	No long sleeve oven gloves that allows you to grip plates		Purchase special oven gloves, cover forearm, easy to grip plates			
2.Steam pots	1.Standing wrong position when	Manner of work	Repair hydraulics.			

	opening lid. 2.hydraulics	(MOW)	<i>Train staff</i>			
3.Splattering of hot food		(MOW)				
4.Plastick wrapper		(MOW)				
5.Urn		(MOW)				
6.Steam supply pipes	Wrong position/not covered		<i>Have it covered</i>			
7.Tilting pans	1.Standing wrong position when opening lid. 2.hydraulics		Repair hydraulics. Train staff			
8.Boiling water		(MOW)				
Hot water supply hose	Boilers need checking		Boilers need checking			
9.Plastick containers for bulk dishing	Inappropriate to dish large quantity-bend		Replace with stainless steel			
10.Vegetable steamer		(MOW)				
11.Steam Ovens		(MOW)				
Totals						
TOTAL: PERCENTAGE yes: _____ (eg.14/33=42%)						

Accident: Cuts, bruises and lacerations				yes	no	%mark
Do you comply with measures A. 4?						
Please tick yes if (1). Or (2). Or (1+2) is occurring at your kitchen.						
Equipment	1. Non-human ✓	2.Human factor ✓	Intervention recommended	Yes (1.)	Yes (2.)	Yes (1+2)
1.Buckets, pans, pots & other..	Old, with sharp edges?	Too fast-are they falling about?-MOW	<i>Training & replace</i>			
2.Knives & hand tools	Blunt?	Too fast staff not careful enough?-MOW	<i>Training & Replace</i>			
3.Crockery at dishwasher		-MOW	<i>Pressured. Staff work too fast</i>			
4.Hand trays	Worn off		<i>Replace</i>			
5.Crockery at handwashing	Gloves	-MOW	<i>Buy gloves & train</i>			
6.Jigsaw meat cutter		-MOW				
7.Steelwool	Gloves					
8.Tin Opener	Blunt, not sturdy	-MOW				
9.Crockery at belt		-MOW				
10.Needle prick injury		Negligence by others				
Totals						
Total average percentage: _____ (eg. 20/30=66.6%)						

Accident: Muscle strains						
Please tick yes if (1). Or (2). Or (1+2) is occurring at your kitchen.?						
Equipment	Non-human/managerial factors ✓	Human factor ✓	Intervention recommended	Yes (1).	Yes (2).	Yes (3).
1. Buckets, pans, pots & other..	Pressured / low staff	-MOW	Revise delegated work-staffing			
2. Potatoe Peeler	Job rel to worker (females)	Too fast-MOW	Revise delegated work-staffing			
3. Containers for food inserts	Pressured / low staff/ old fashioned way-decentralised distribution	Too fast-MOW	Revise delegated work-staffing			
Total						
Total Average Percentage yes:				_____ (eg. 7/9=77.7%)		

ALL FACTORS: Total Average % yes	PERCENTAGE	COMMENT
1. Floor Hygiene and Safety:		
2. Criteria for preventing slips and trips		
3. Criteria for Fire and Burns		
4. Criteria for preventing cuts		
5. Criteria for Foot wear		
6. Criteria for Temperature Sensitive Clothing		
7. Criteria for the use of Personal Protective Equipment		
8. Criteria for Hand Protection		
9. Criteria for Control over Personal Protective Equipment		
10. Upkeep of Incident Recording & Investigation		
11. Safety Signs		
12. Sanitary Fixtures		
13. Showers		
14. Change-rooms		
15. Health and Safety Organization (HSO)		
16. Waste Management		
Internal and External Potential Hazards :		
17. Accident: Falling, tripping and slipping		
18. Accident: Muscle strains		
19. Accident: Burns: section1		
20. Accident: Burns: section 2		
21. Accident: Cuts, bruises and lacerations: 1		
22. Accident: Cuts, bruises and lacerations: 2		
23. Accident: Falling, tripping and slipping		
24. Accident: Hit by moving or falling objects		
TOTAL AVERAGE %		

ADDENDUM I(2): MONTHLY EQUIPMENT MAINTENANCE CHECKLIST

EQUIPMENT LIST	INDICATE THE NUMBER				
	IN USE	IN REPAIRS	MAINTENANCE	CONDEMNED	REPLACED
BAIN MARIES					
BUCKETS, PANS, POTS & OTHER METAL CONTAINERS					
CHILBLASTERS					
CONTAINERS FOR FOOD INSERTS					
CONVEYER BELT					
CROCKERY AT BELT					
CROCKERY AT DISHWASHER					
CUTTING BOARDS					
DOLLIES					
FOOD PROCESSOR					
FOOD TROLLEY					
FREEZERS					
HAND TRAYS					
HOBART MACHINE ATTACHMENTS					
HOT WATER SUPPLY HOSE					
JIGSAW MEAT CUTTER					
KNIVES, & HAND TOOLS (DISH UP SPOONS, ETC)					
LIGQUIDIZERS					
MEAT SLICER					
ORDINARY 2 & 3-TIERED TROLLEYS					
PLASTICK CONTAINERS for BULK DISHING/PREP					
PLASTICK WRAPPER					
POTATOE PEELER					
PRESSURE VESSELS					
RECON OVENS					
RICE STRAINERS - LONG HANDLE					
ROLLER DOOR					
SHELVES					
SOUP LID					
STAINLESS STEEL FOOD INSERT LIDS					
STAINLESS STEEL FOOD INSERTS					
STAINLESS STEEL VEGETABLE STRAINERS					
STEAM OVENS					
STEAM PIPES					
STEAM POTS					
STEAM PRESSURE VESSELS					
TILTING PAN					
TILTING POTS					
TIN OPENER					
URN					
VEGETABLE STEAMERS					
WALK-IN FRIDGES,					

