


An evaluation of the health promotion activities for women at risk of alcohol intake during pregnancy at antenatal clinics in Stellenbosch

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ABSTRACT

Drinking alcohol during pregnancy leads to fetal development problems ranging from pre-term deliveries and low birth weight babies to the more severe mental and physical retardation characterised by fetal alcohol syndrome. Recent studies in the Western Cape winelands suggest that maternal drinking is a large and untreated health problem that has led to high levels of fetal alcohol effects among children of farm workers.

The aim of this qualitative exploratory study was to investigate the alcohol and maternity information-gathering tools and interventions in place in the public health service in the Stellenbosch district. The study adhered to an action research model and employed four methods of data collection, each of which informed the next stage of research: direct observation in the clinics, document analysis, semi-structured interviews with nurses and recent mothers from the farms and separate focus groups with the same populations.

Several gaps in antenatal health care delivery emerged from the investigation. While nurses are aware of the effects of maternal drinking, the regularity and comprehensiveness of the education they provide to pregnant women is questionable. There are also problems in the climate of the interaction between the pregnant woman and the nurse, leading to a situation in which mothers deny and underreport alcohol use. This gap has made follow-up education or counseling difficult to administer, even when nurses are prepared to deliver secondary interventions. The situation is further complicated because the vast majority of first booking appointments take place after a pregnant woman drinking alcohol would have caused damage to her fetus. In addition, there are no attempts to monitor how many women are drinking and there is a general lack of health-promoting activities.

This report concludes with four major recommendations for health-promoting actions to be taken in the clinics. It calls for improving screening for alcohol intake, standardising the interventions to discourage maternal drinking, monitoring the problem and the intervention through a maternal register, and general promotion of women's health.

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INTRODUCTION

By drinking as little as one beer or spirit (1.5oz) per day, pregnant women put their unborn children at risk of mental and physical retardation (Mills et al, 1984). Small quantities of alcohol have been correlated with low birth weight and preterm delivery (Lazzaroni et al., 1993) and it is known that larger quantities lead to a cluster of life-long birth defects known as Fetal Alcohol Syndrome (FAS).

Unfortunately, for the farm workers in the winelands of the Western Cape province of South Africa, high alcohol consumption is an integral part of life for both men and women. A cross-sectional analytical study of workers on fruit farms found the vast majority of worker's responses suggestive of problem drinking (London, 1999).

There is much room for speculation on the causes of these high levels of alcohol consumption, and on the resultant and contributing low health status of farm workers generally (London, 1999a).

Undoubtedly the vicious cycle of poverty and dependence on farmers is a major component of the alcohol abuse, as is the legacy and possible on-going practice of the 'dop' system, a relic of colonial farming in which farmers paid workers in tobacco, bread, and wine. The system existed for three centuries and resulted in a significant power disparity between the farm workers and farm owners.

While paying labor in alcohol has been formally outlawed, studies purport its continued existence on 2 -20% of farms (London, 1999a).

A study of pregnant women in three rural and urban communities in the Western Cape reported that 42.8% of the women admitted to varying degrees of alcohol ingestion during their current pregnancies (Croxford and Viljoen, 1999). Of the women drinking, nearly one quarter was consuming enough to risk the development of FAS in their unborn children. These rates are

unmatched anywhere else in the world. The Western Cape prevalence of FAS or FAS-related effects, an entirely preventable form of mental retardation, is the highest recorded to date in an overall community population (May et al., 2000). There is a correspondingly high rate of low birth weight babies; in some districts within the province, 23% of babies are born under 2.5kg (Department of Health, Provincial administration of the Western Cape, 2000).

The Stellenbosch district hospital is the site of delivery for all pregnant women using public health services in the greater Stellenbosch area, including all nearby farms. Antenatal care is provided by the Hospital's clinic in Cloetesville, as well as at five of the seven municipal clinics in the area: Kylemore, Ida's Valley, Aan Het Pak (AHP), Kaya Mandi and Jamestown. Both the district and municipal health settings are overseen by the West Coast winelands Department of Health.

Guidelines for antenatal care come from the national government and are modified and distributed by the region.

Until recently, there were no sustained integrated or targeted interventions for alcohol reduction on the Stellenbosch farms. Several years ago, a network of nurses, service providers, university public health staff, rural development agency representatives and other interested individuals formed the organisation "Dopstop" to try to involve farmers and workers in reducing the effects of alcohol abuse. Dopstop Association began its work with a baseline survey of the conditions on the farms and the frequency of alcohol distribution by farmers, and has now committed to working with other organisations tackling the range of social problems contributing to and created by alcohol abuse. Partner organisations include Women on Farms, the Foundation for Alcohol Related Research and the Rural Health Education Trust.

In contrast to the wealth of publications on the biochemical mechanisms of FAS, relatively little research has been done on the patterns of drinking by pregnant women and how those behaviors can be prevented. Far less has been done in developing countries or in rural environments. There is a clear need for focused health promotion research on these issues in the Western Cape winelands, and there is support from the provincial departments of health to back it up, as this year FAS was declared a provincial priority.



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Esther, Justin, mahalo.

ABBREVIATIONS & DEFINITIONS

- AHP. Aan Het Pak clinic in Cloetesville
- ARBD. Alcohol-related birth defects
- CAGE, AUDIT, MAST, TWEAK, T-ACE. Screening tools for alcohol use
- CDC. Center for Disease Control
- CHW. Community health worker
- DOH. Department of health
- DHS. District health system
- DHIS. District health information system
- DSM- IV. Diagnostic and Statistical Manual IV
- FAS. Fetal alcohol syndrome
- FAE. Fetal alcohol effects
- HISP. Health Information Systems Programme
- NGO. Non-governmental organisation
- PAWC. Provincial administration of the Western Cape
- RAM. Rapid assessment methods
- RMR. Routine monthly report
- TB. Tuberculosis
- WHO. World Health Organisation

“Coloured” in this study refers to the Apartheid-era historic definition.

“Black” is used to refer to the Xhosa-speaking population of African descent.

PROBLEM

There is an unacceptably high rate of maternal alcohol intake during pregnancy in the farm worker community of Stellenbosch. A critical service in the prevention of maternal drinking is the antenatal clinic. It was not known what percentage of pregnant women attend the clinic, whether alcohol screening is done, and whether any health promotion intervention is carried out with women at risk of alcohol consumption during pregnancy.

PURPOSE

The purpose of this study was to develop recommendations to decrease the incidence of maternal drinking during pregnancy through the antenatal clinics.

SIGNIFICANCE

The major stakeholders in this study include all mothers and potential mothers in the area and the nurses of the antenatal clinics at the two sites. This investigation is of value to pregnant women in improving their health and that of their unborn babies. In this way, it is also a child's rights issue. By reducing the likelihood of children being born with fetal alcohol effects, this study will lessen the burden on clinic nurses and the health system at large that care for the children in later stages of the disorder development. It will also illuminate gaps in the information-collection systems and make recommendations for ways that programme managers can capture and use information related to maternal alcohol intake. The list of beneficiaries or stakeholders in this study could be expanded to include the farming industry, which will have healthier employees, the education system, which will have more able students, and all other areas of society that interact with children affected by fetal alcohol exposure. In addition, the resultant recommendations from the study may be applicable to antenatal clinics outside the Stellenbosch area and should facilitate the initiation of further studies.

AIM

The aim of this study was to explore the knowledge of and attitudes towards maternal drinking among nurses and mothers living on farms within the Stellenbosch winelands, and to describe the current alcohol-related information collecting and health promotion strategies employed in the antenatal clinics.

OBJECTIVES

- 1.) Review best practices for brief interventions to reduce maternal alcohol consumption
- 2.) Identify current interventions for at risk pregnant women in use at the clinics
- 3.) Critically evaluate the current system of collecting, analysing and employing information relating to drinking habits at the Stellenbosch hospital and the municipal and district antenatal clinics of Cloetesville
- 4.) Describe how and where farm workers learn about the ill effects of alcohol intake during pregnancy
- 5.) Explore the attitudes and knowledge among nurses with regards to maternal drinking
- 6.) Solicit suggestions of mothers and nurses on how to reduce maternal drinking
- 7.) Make recommendations for an intervention to decrease drinking during pregnancy
- 8.) Make recommendations for an information system to monitor maternal drinking and the effects of the recommended intervention

LITERATURE REVIEW

In order to understand the clinical and social aspects of maternal drinking as well as the context in which it exists in South Africa, the following literature review begins with an overview of alcohol consumption on the farms and the clinical effects of maternal drinking. A section on trends in alcohol prevention strategies follows, including a discussion of both screening tools and brief interventions. The literature review then provides a sketch of South African health services and attempts to reorient them, with mention of the primary health care approach and health promotion, in which this study is grounded. A brief description of health information and monitoring systems follows. Finally, there is a discussion of action research, the methodology employed in this study.

Alcohol consumption on the farms

Despite attempts by the Department of Health and other government bodies to address the inequities that resulted from apartheid policies, there remains in South Africa an enormous disparity between populations in quality of life. The over one million farm workers in the country's agriculture sector are on the deprived end of this spectrum, falling far below average on a range of social indicators. Within the Western Cape winelands, home to approximately 150,000 farm workers, more than two-thirds of the workers earn a monthly income of less than R900 per month (Community Agency for Social Enquiry, 1995); fewer than half of farm workers have running water or toilet facilities in their homes; illiteracy is common and more than five years of schooling is uncommon. Further, farm workers are often dependent upon farmers for housing and access to health services, both of which are relatively limited (London, 1999a).

There are extremely high rates of alcohol abuse among farm workers, in part due to the social and economic factors mentioned. Studies have found alcohol intake in the Western Cape winelands to

be twice that of nearby city dwellers. Using hospital-based screening tools, 60% of farm workers were identified to be drinking at levels indicative of alcoholism (London, 1999a). Another cross-sectional study of a sample of all Stellenbosch farms reported that just fewer than 75% of the adult population considered themselves previous or current drinkers (te Water Naude, 1998). The average weekend consumption per drinker was 1.5 litres for wine and 3.3 litres for beer consumption.

The high rates of alcohol abuse among farm workers can also be partially attributed to the structure of the agricultural economy, and the infamous 'dop' system that rewarded labor with wine. The dop system began three hundred years ago when European settlers farming the Cape Colony hired indigenous people to work on their farms. Instead of wages, the farm workers were often paid in alcohol, a tradition that led to a form of social control that has outlasted the actual dop system (Scharf et al., in London, 1999). People with already limited mobility found their lives further restricted. Aside from not accumulating any disposable income from their labor, farm workers became dependent on farmers for food and shelter. In the past century, several attempts were made to discourage the dop system through legal measures, but it was only in 1961 that the 1928 Liquor Act was amended to criminalise payment of labor in alcohol. Significantly, no provision was made to outlaw the gratis gifting of wine by farmers to workers, an omission which has allowed the dop system to continue today, albeit in a less frequent and overt form. Estimates from studies and industry sources purport its continued existence on between 2 -20% of the Stellenbosch farms (London, 1999a). Not all the dop-practicing farms actually produced wine (te Water Naude et al., 1998).

Alcohol consumption has been on the rise in the South African population at large, paralleling a rise in urbanisation. In the two decades prior to 1991, the per capita consumption of alcohol tripled

(Parry, 1998). More recently, there has been an increase in low quality inexpensive wine and in shebeens illegally selling alcohol (Daniels and Pillay, 2001). Ironically, the legislation being discussed to address the later problem, the Western Cape Liquor Act, proposes removing trading-hour restrictions on alcohol and extending the sale of beer and spirits to supermarkets (Ludski, 2001), thus increasing access to alcohol. This Act also proposes making attempts to shut down shebeens (Streak, 2001). In particular for the farm working communities of the Western Cape winelands, alcohol is an integral part of life. Drinking occurs on weekends, after picking fruit in the fields during the week, in a typical 'binge' pattern. In the cross-sectional study of alcohol consumption among workers on fruit farms, nearly three-quarters reported drinking only on weekends (London, 1999).

Although the exceedingly high levels of alcohol intake reported above are higher for men than women, over one-third of women reported drinking regularly. Of particular significance is the high percentage of women drinking through pregnancy. In a study of 636 pregnant women from three underprivileged areas in the Western Cape, 42.8% of subjects admitted to drinking during their pregnancies (Croxford and Viljoen, 1999). Among these women, nearly 24% were drinking at levels that would put their children at risk for fetal alcohol syndrome. Well over a half of the women in the study were aware that alcohol could be damaging to a fetus.

These high rates of maternal drinking in the area may contribute to the 15% of infants born in Stellenbosch with low birth weights (DOH WCW, 2000). The repercussions of maternal drinking are also visible among children in the rural farm worker communities. A recent case-control study of first grade students in the Western Cape found 40.5 to 46.5 out of 1000 of children to be suffering from the poor growth, reduced intellectual function and facial dysmorphology characteristic of FAS

(May et al., 2000). This is the highest overall community rate ever reported. FAS was more common in rural areas than urban ones, and all the children with FAS were either coloured or black.

Clinical effects of maternal drinking

That drinking alcohol during pregnancy leads to adverse fetal outcomes has long been known. In biblical times, there were social prohibitions on alcohol consumption for newlyweds to save couples from producing children with disabilities (Spagnolo in Croxford and Viljoen, 1999). More recently, the effects of alcohol on fetal development have been studied and there is a known range of alcohol-related birth defects (ARBD) that result from fetal alcohol exposure. At the far end of the spectrum is complete Fetal Alcohol Syndrome (FAS), a disorder coined by Smith and Jones in 1973 and more recently modified by Sokol and Clarren in 1989 to describe a child with the following attributes

(National Institute on Alcohol abuse and Alcoholism, 1991):

- 1.) Prenatal and/or postnatal growth retardation (weight and/or length below the 10th percentile);
- 2.) Central nervous system involvement, including neurological abnormalities, developmental delays, behavioural dysfunction, intellectual impairment, and skull or brain malformations; and
- 3.) A characteristic face with short palpebral fissures, a thick upper lip, and an elongated, flattened midface and philtrum.

There is growing evidence that as little as one drink a day can adversely affect fetal growth and development (Chang et al., 1999). A study examining the effects of light or moderate maternal drinking during pregnancy found a decrease in mean birth weight associated with maternal drinking, and an increase in the probability of a preterm delivery (Lazzaroni et al., 1993). More serious neurobehavioral deficits and prenatal growth retardation also have been found in children whose mothers drank moderately during pregnancy (NIAA, 1991).

Alcohol exerts a particularly teratogenic effect between the 3rd and 8th week of pregnancy for most organ systems (Center for Disease Control, 1988). This is problematic for any community, considering that most women are not aware of their pregnancies until they are six weeks pregnant (CDC, 1988). Although it is impossible to establish a threshold for risk of fetal alcohol effects, some studies have shown corresponding increases in cranial abnormalities with increasing exposure to alcohol (Ernhart et al. in NIAA, 1991). In addition to the effects of maternal drinking on newborns, there are myriad additional adverse social consequences to maternal drinking. It is also known that mothers with one child with ARBD are much more likely to have another child with similar outcomes.

Trends in alcohol prevention strategies for pregnant women

In the past, early alcohol prevention strategies promoted comprehensive coordinated programmes with social, cognitive-behavioral and medical services (Department of Health and Human Services, *Special Report to the U.S. Congress on Alcohol and Health*, 2000). Other reports advocated for the inclusion of outreach strategies, as well as for family support and counseling services (Finkelstein, 1993 in DHHS *Special Report to the U.S. Congress*, 2000). Subsequent trends classified alcohol reduction interventions along three levels of prevention: “primary prevention approaches”, which try to prevent women from drinking before they start; “secondary approaches” that promote early detection and treatment of maternal drinking; and “tertiary approaches” that target women who are known to be at risk because they already have one FAS child or are drinking heavily.

In the last decade, alcohol prevention strategies have adopted a more public health approach, proposing that the vast majority of energy be directed at primary prevention, which should be appropriate for nearly 80% of women of childbearing age (May, 1995). Since that time, however, the

United States Institute of Medicine has reverted to a scheme of “universal”, “selective” and “indicated” levels of prevention that focus on more tailored interventions for each category. This shift is reflected in the strategies described in a literature review for the U.S. Congress, which focus on intensive case management for women who already have one child with fetal alcohol effects, and on coordination with other programmes such as contraceptive promotion (DHHS *Special Report to the U.S. Congress*, 2000). A concerted approach has yet not been formalized to address maternal drinking among Native Americans, as it was only identified as a problem recently.

Clinic-based brief interventions

In recent times, brief clinic-based interventions for moderate, as opposed to only heavy, drinkers have gained popularity. The term “brief intervention” can refer either to a clinical intervention by a specialist in alcohol counseling or to an intervention in the clinic for patients who are attending for other reasons, but have been identified as at risk.

While there have been few large-scale studies or reviews of studies to determine their effectiveness, what research has been done on simple cost-effective interventions to reduce maternal alcohol consumption is promising. A review of the literature suggests that any intervention is better than none. In a randomized control trial of obstetric patients in Boston, subjects given a simple alcohol assessment or subjects given a brief one-time counseling intervention both showed reductions in drinking, with no significant difference reported between the group that received a more in-depth intervention and those who just went through screening (Chang et al., 1999). This is consistent with other studies attempting to reduce prenatal alcohol consumption and with the reports of the WHO Brief Intervention Study Group, 1996 (Schorling in Chang et al., 1999).

Brady (1998) offers suggestions on how to talk to people about their drinking habits and how to motivate people to make changes in their lives. She advocates for interventions by doctors, saying that their advice is expected, personal, detailed, private, and can be used by the client as an excuse in situations where there is pressure to drink (Brady, 1998). Some clinic-based studies in the U.S also motivate for the intervention of doctors (Morse, 2000). Recommended components of an intervention include screening and motivational interviewing with behavioural strategies for goal setting and change (Litt et al., 1993).

Motivational interviewing in particular has proven to be a successful and cost-effective brief intervention. A study comparing the effects of a single hour-long motivational interview with written information covering the same topics showed a far greater reduction in alcohol consumption and peak intoxication among the sample of women who received the personal intervention (Handmaker et al., 1999). Guidelines for conducting “empathetic client-centred” talks with patients are outlined in an oft-cited text on motivational interviewing (Miller and Rollnick, 1991). The following is referred to as the FRAMES approach. It is not specific to gender or type of drinker.

1. Feedback to the patient about personal change. The patient is provided with the risks of alcohol consumption and the effect it has on her health.
2. Responsibility to change. The patients’ responsibility and choice for reducing drinking is emphasised by telling her that no one can make her stop drinking.
3. Advice to change. The patient is given advice on how to reduce or stop drinking.
4. A Menu of alternative options to change. The patient is given a variety of strategies to stop or limit drinking.
5. Interviewing which is Empathetic. The patient is given a warm, reflective and understanding interview.
6. Self-efficacy. The patient is encouraged to be optimistic about her ability to change.

Chang et al, 2000 found the FRAMES-based motivational interview effective in a study of the goals of pregnant women who were drinking and their antepartum alcohol intake.

In general, programmes with self-help components appear to be effective. Home visits by community health nurses have also shown success in reducing alcohol consumption and other unhealthy behaviours for pregnant women (Starn, 1992), although these require greater time and money. The dissemination of written materials to discourage alcohol consumption, a cheaper approach, has been far less successful than those mentioned above (Calbro, 1996).

Alcohol-reduction strategies in Australia and Canada

Although not targeted at pregnant women, innovative, culturally sensitive interventions have been implemented in indigenous cultures in North American Indian reservations and Aboriginal populations in Australia. The movement started in Canada, where attempts were made to incorporate traditional healing practices and cultural values into Western models of alcohol reduction. One popular hybrid programme includes a twelve-step Alcoholics Anonymous programme and a traditional sweat lodge used for curing disease (Brady, 1995). Four hundred community-based alcohol and drug abuse programmes and 51 First Nations-controlled treatment centres are now in operation in Canada (Brady, 1995).

There is support among South African researchers to learn from health promotion campaigns created by Aboriginal people of Northern Australia, who share a similar health profile and social environment with the farm workers in the Western Cape. Aboriginal and local government and non-government agencies have developed action plans that stress joint decision-making to address the effects of alcohol abuse and raise awareness about excessive alcohol use. Prevention efforts are being implemented at individual and societal levels. For instance, the Northern Territory Living With Alcohol (LWA) Programme embraces a comprehensive strategy that provides services for people abusing alcohol through community education, training, legal strategies and research. While there is

no monitored indicator related to maternal drinking, the programme has shown success in reducing alcohol-related deaths and accidents and overall consumption of alcohol.

In a booklet designed for strengthening indigenous community action on alcohol, Brady (1998) outlines specific recommendations for state-run health services, which could be applied to the South

African context:

- Display posters on alcohol issues in the waiting area
- Have suitable pamphlets available for cutting down or staying away from alcohol
- Employ an indigenous drug and alcohol worker
- Ensure this person has a card to hand out with a name and phone number
- Encourage all health staff to be proactive in asking about clients' lifestyles with respect to alcohol consumption
- Remind health workers that it is their job to talk to people about alcohol as it is a health problem
- Encourage the health workers to refer at-risk patients
- Invite speakers or visiting experts to talk to the clinic staff about new ideas
- Organise an annual one-day in-service training on the latest ideas about treating alcohol
- Link services with a good drug and alcohol information service

Screening tools

An integral component of a strategy to reduce maternal drinking involves proper identification of at-risk mothers. Surprisingly, even in advanced medical settings, the current laboratory tests for detecting biochemical indicators of heavy drinking are not yet as sensitive as self-reported screening questionnaires (Sokol, 1989). In developing and developed countries, much attention has been given to the following five tools:

Table 1: Commonly-used alcohol screening tools

AUDIT (WHO, 1988)	(Alcohol Use Disorders Identification Test). Developed in the 1980s by the World Health Organisation (WHO), the AUDIT is a ten-item questionnaire about drinking and its effects on a clients' life over the past year; it is often accompanied by a clinical procedure.
CAGE (Ewing, 1984)	<p>The CAGE questionnaire was made in the late 1960s in North Carolina; it consists of four items with one point is awarded for each positive answer. Two or more positive answers are the standard cutoff for identifying alcohol abusers.</p> <ol style="list-style-type: none"> (1) Have you ever felt you ought to <u>C</u>ut down on your drinking? (2) Have people <u>A</u>nnoyed you by criticizing your drinking? (3) Have you ever felt bad or <u>G</u>uilty about your drinking? (4) Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (<u>E</u>ye-opener)?
MAST (Selzer, 1971)	The full length MAST is one of the older questionnaires and was designed for use by doctors and lay health workers; it is a 25-question interview in which items are weighted 0, 1, 2, or 5 and the end scores range from 0 to 53. An abbreviated version is often used.
TWEAK (Russel, 1994)	<p>TWEAK is a five-item mix of the CAGE and abbreviated MAST questionnaires and includes a question on passing out from alcohol consumption. It was designed for pregnant women and is distinguished by its indirect first question. It has a maximum possible score of seven with two points possible for the first two questions and one for the last three.</p> <ol style="list-style-type: none"> (1) <u>T</u>olerance-How many drinks can you hold? (2) Does your spouse (or [do your] parents) ever <u>W</u>orry or complain about your drinking? (3) Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover? (Ever had an <u>E</u>ye-opener?) (4) Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening before? (<u>A</u>mnnesia?) (5) Have you ever felt you ought to <u>K</u>ut/Cut down on your drinking?
T-ACE (Sokol et al, 1989)	The T-ACE has four items, three of which it shares with TWEAK (tolerance, cut down, and eye-opener). It also takes one item from the CAGE: Have people annoyed you by criticizing your drinking? As with TWEAK, two points are awarded for the tolerance question, and one each for the other three questions, for a possible total of five points.

Although they are used in a range of different cultural settings, few of the alcohol screening tools have been tested in developing countries or rural areas. The CAGE questionnaire was evaluated against the Diagnostic and Statistical Manual IV (DSM-IV) for substance abuse and dependence in a

sample of adults in a rural primarily coloured and Afrikaans-speaking area of the North West Province of South Africa with high rates of alcohol abuse (Claassen, 1993). The study reported a sensitivity of 100% and a specificity of 78% for alcohol dependence, and so encouraged its adoption for other rural South African communities.

However, in populations where over half the population qualifies as alcohol abusers, the specificity is of greater concern than sensitivity. Another South African study compared the AUDIT and CAGE questionnaires in coloured tuberculosis patients at the Brooklyn Chest Hospital. The CAGE outperformed the AUDIT by a slim margin, correctly identifying problem drinkers in 62% of the cases as opposed to the 57% found by the AUDIT (Schoeman et al., 1994).

Outside of South Africa, the CAGE and MAST questionnaires have been criticized for being ineffective in situations where subjects are embarrassed or otherwise afraid of disclosing their alcohol intake. The general conclusion is that the T-ACE and TWEAK are better tools because they ask questions about alcohol consumption in an indirect manner— through questions about tolerance, the psychological consequences of drinking, and people's concern for them, and thus, minimise denial and underreporting. It has been suggested that another way to address these problems would be to inquire about past, as opposed to current, alcohol intake (National Institute on Alcohol abuse and Alcoholism, 1991).

More delicate questioning is particularly important when screening women, where heavy drinking is less socially acceptable and may prevent women from accurately reporting alcohol consumption or its related problems. It is not uncommon for a woman who reports drinking in very small quantities to actually be drinking at levels that puts her fetus at risk (Chang et al., 1999). Further, women

experience fewer of the alcohol-driven social and economic consequences, such as difficulties with employment, finances, or legal affairs (Bradley et al., 1998) and may not score as high on traditional 'effects of alcohol abuse' questionnaires for those reasons. Not surprisingly, a study of the CAGE, MAST, TWEAK, T-ACE, AUDIT and RAPS (Rapid Alcohol Problems Screen) showed an overall lower sensitivity for women than men. Given the differences, the study found AUDIT and RAPS to be most sensitive across ethnicity and gender (Cherpitel in Ahern et al., 1999).

Even within female populations, the sensitivity of the tests varies by race and socio-economic status, and the findings in the literature are equally inconsistent. A study comparing the five tools first described above among disadvantaged African-American obstetric patients found the TWEAK and T-ACE to be most sensitive (Russel et al., 1996). However, a thirteen-article review of brief screening questionnaires in women reported that the CAGE questionnaire was the best tool for black women and the TWEAK and AUDIT (Alcohol Use Disorders Intoxication Test) questionnaires preferable for racially mixed communities (Bradley et al., 1998).

It has been suggested that the accuracy of screening tools for women may be improved by using more than one tool at time, by encouraging women to talk through their responses during the interview, and by lowering the threshold for positive alcohol screens (Bradley et al., 1998; Ahern et al., 1999).

South African health services

South African health care of the past was divided by race, region and type of service, separations that produced a system with extreme fragmentation and centralization. Not only were there four different authorities for each race – white, coloured, black and Indian— but there were also different

facilities for different types of services, and rural services and homelands had additional independently functioning health care networks. Prior to 1994, there were fourteen central-level departments of health and over 400 local authorities and regional service councils (Braa et al, 1999).

In an attempt to rectify the health care inequities brought about by the Apartheid era system, the new government proposed a complete restructuring of health services according to a primary health care (PHC) approach. One of the four major objectives of the new plan was to improve maternal, child and women's health (DOH, *White Paper for the Transformation of the Health System in South Africa*, 1997).

In 1994, then Minister of Health Nkosasana Zuma announced the government's intent to provide free primary health care to all pregnant women and children under five.

The vehicle identified for the promised package of interventions was a unified district health system (DHS) that is now being implemented (SAHR, 1998). The district model has made headway in working through the inherited administrative inefficiencies and improving health care delivery, but the previous fragmentation of services is still an obstacle to progress. District demarcation is not complete in all provinces.

The primary health care approach and health promotion

Nearly a quarter decade ago, when the WHO and UNICEF articulated their goal of Health for All by the Year 2000, they adopted primary health care (PHC) as their cornerstone and defined it in the Declaration of Alma Ata (WHO, 1978). The Alma Ata document contained progressive ideas about treating health according to a basic needs approach and acknowledging the underlying social, economic and political causes of ill-health. It called for health services to be available, accessible, acceptable and appropriate (Watt and Vaughan, 1981).

More specifically, the PHC approach has five underlying principles – an equitable distribution of health services, community participation, appropriate technology, intersectoral collaboration, and a greater focus on the individual prevention of the causes of health problems and society-level promotion of health living practices. These principles are to be carried out at every level of care, from primary health promotion, to secondary preventative interventions in a clinic, and on to hospital-based tertiary and quaternary curative and rehabilitative services. The PHC approach marked a departure from the traditional medical model that was based on the curative and rehabilitative aspects of health care (Watt and Vaughan, 1981).

One of the cornerstones of the primary health care approach is health promotion, which is advocated by domestic and international health organisations. Its tenets are delineated in the Ottawa Charter for Health Promotion (WHO, 1996) where it is defined as the process of enabling people to increase control over and improve their health. Action to this end includes building healthy public policy, creating supportive environments, strengthening community action, developing personal skills, and reorienting health services. In reorienting the focus of health services, health care workers are encouraged to extend the scope of their work to collaborations with other social, political and economic actors. It is only by understanding these other factors in their clients' lives that health workers will be able to address the complex needs of an individual within their complex environments.

Reorienting health services

A rapidly increasing total of 629 health facilities provide different packages of health services to people living in the Western Cape. In the last five years, 55 new clinics have been constructed and

34 upgraded and PHC visits have increased; 2.3 million (+27%) more people are seen at PHC facilities than were three years ago. The policy of free PHC services and the construction of new facilities have increased access to antenatal services in the Western Cape winelands over the past two years (DOH, *Annual Statistical and Health Profile Report*, 2000), but there is evidence to suggest that the quality of care may have suffered over the same period. The per capita expenditure on PHC decreased, as did the personnel dedicated to PHC, and some local studies have reported a lack of compassion and care on the part of clinic nurses (SAHR, 1998). Calls have been made to improve basic and in-service nurse training.

The care lacking in the clinic setting could result from myriad factors, the most basic being undervaluing of the idea of care in the medical model where curative work by doctors is met with greater respect. Care can be complicated to convey. In order for an action of a health worker to be perceived as caring, that person must intend it to be caring (Meulenberg-Buskens et. al, 1999). Caring is rooted in communication: the health worker must give the patient the message of caring. The Australian Living With Alcohol Program outlines a care-based approach to treating a woman who was drinking alcohol before she was pregnant. Along with giving information of fetal alcohol effects, the program instructs health care workers to tell women that they are there to help and support her (Living With Alcohol, 1998). In order to train health workers to appreciate the cultural needs of a client with care, some researchers propose first asking health workers about their own experiences of being cared for – how and where they have had care, and what it felt like – along the rationale that by evoking those feelings, it may give health workers insight into the feelings of patients (Meulenberg-Buskens et. al, 1999)

Increased workloads and decreased resources result in stress for health care workers and poor quality of care for clients. Numerous international studies have shown healthcare professionals to harbor particularly negative attitudes toward substance abuse patients (Swenson-Britt et al, 2000). Clients are aware of health professionals' negative attitudes, and this awareness can undermine therapeutic efforts (Moodley-Kunnie, 1998).

The attitudes of nurses are dependent on how competent and confident they feel with respect to their work. A large sample of American nurses treating substance abuse in pregnant women were found to have limited knowledge about substance exposure, addiction, and its effects, and held negative and punitive attitudes toward women who abused substances while pregnant (Selleck & Redding, 1998). Health care staff with more education on substance abuse and pregnancy harbor more positive attitudes towards clients (Coles et al, 1992). Gerace et al, (1995) showed that increases in knowledge scores correlated with greater clinical confidence ratings and attitude changes; nurses began to see addiction as treatable and reported feeling less judgmental toward patients.

Efforts to provide health care staff with in-service training to improve health care delivery are consistent with the government's efforts to improve overall programme function in the public service. The Department of Public Service and Administration outlined steps and goals to transform the public service in the "Batho Pele" (People First) document. For transformation to succeed, Batho Pele calls for the implementation of the following eight service delivery principles:

- Regularly consult with customers
- Set service standards
- Increase access to services
- Ensure higher levels of courtesy
- Provide more and better information about services

- Increase openness and transparency about services
- Remedy failures and mistakes
- Give the best possible value for money

Health information

There is an inherent catch-22 in the capture of health information. For health information to be worth collecting, it must be put to use in a manner that improves the health of the community.

However, in order to identify the health problems of a community and plan interventions accordingly, it is necessary to collect information routinely. The routine processes of data collection, collation, analysis, interpretation and feedback to managers and staff, are necessary components of a health information system. In South Africa, the fragmentation and centralisation of the old health services left some districts with inappropriate information systems for their management needs (Braa et al, 1999).

This is manifest in myriad ways that are common to many national health systems now in the process of decentralisation. In a technical report on building district health information systems, the WHO (1994) outlines familiar problems in data collection and reporting:

- Health service staff is required to do excessive data recording and reporting.
- Many of the data are not needed for the tasks the staff perform.
- Data routinely reported are not believed to be valid or reliable.
- There is inconsistent recording of diseases because case definitions are not clear.
- Many countries tolerate incomplete registration and death certification.

Once the proper information has been collected and analysed, problems can also arise in putting it to use. Factors that contribute to under-utilisation of data include insufficient decentralisation of authority, lack of managerial initiative, lack of resources, skills and support and data of insufficient quality (WHO, 1994).

The aim of a health information system is to improve service delivery by improving the decision-making capacities of health systems managers (DOH DHIS, 1998).

In designing an information system, it is preferable to have one that is “action-led” as opposed to “data-led” (WHO, 1994), which assumes all data are useful and worth collecting. In contrast, the action-led approach focuses on health information that directly supports management decision-making. It assumes that the necessary data is probably already being collected but needs to be analysed and used properly. The Health Information Systems Programme (HISP) presents the following philosophy of data flow:

- Different levels in the system have different needs
- Ideally, the higher the level, the smaller the need
- Data should be used by those who collect the data
- Each level should give feedback to the level below
- Data should flow horizontally to decision-makers and important stakeholders
- Data analysis should occur at the lowest level possible

Monitoring and evaluation

Once objectives for a health campaign have been set, structures need to be designed for monitoring and evaluation, systematic methods of measuring the progress of a programme and assessing its effectiveness. The question must be answered whether the recommended approach is the best way to reduce the problem, as well as who has benefited from the programme, and in what way (Heywood et al, 1994).

For the health challenge tackled in this study, structures should be in place to monitor maternal drinking and the impact of the intervention eventually implemented. It is important to spend time choosing indicators that will provide the information necessary to determine changes in status quo

document analysis, direct observation, semi-structured in-depth interviews and focus groups. Below is a brief review of their known advantages and disadvantages.

Direct observation allows a researcher direct access into the world of those being studied, and a deeper understanding of this situation. This technique is often employed in clinic settings to monitor the movement of patients or to observe how workers feel in relation to their environments. The disadvantages of participant observation include the amount of time required, difficulties in obtaining access to sites and the personal problems for the researcher of being accepted in the setting (Katzenellenbogen, 1997). The mere presence of a researcher can also intimidate staff members and lead to atypical behavior by subjects. The literature on employing participant observation as a method stresses the importance of proper introductions and good-byes with the staff or subjects, along with details of the research intent and outcomes.

Another traditional introductory method used to explore the operations of the antenatal clinics and the attitudes and experiences of the nurses and mothers is the semi-structured in-depth interviews. This technique encourages personal explanations, detailed responses and the chance for the researcher to ask follow-up questions. However, interviewees may feel threatened by one-on-one situations and data accuracy suffers if interviewees are removed from the studied context. These issues can be pre-empted and potential biases removed by establishing trust between interviewee and interviewer at the outset of the process and holding the interview in a private but familiar location. This is of particular importance in a study such as this one, where interviewees with mothers may present language difficulties. Studies on this research technique suggest researchers initiate the interviews with structured questions, but be flexible in accommodating unanticipated responses.

Clarifying and summarizing responses has been found to improve the quality of in-depth interviews (Katzenellenbogen, 1997).

The most frequently used research method for programme development is focus group research, in which one researcher and a group of 5-10 subjects gather to discuss several predefined topics (Morgan, 1997). Focus groups are open and flexible, and encourage an exploration of attitudes and ideas not available through quantitative methods and often more difficult to access through one-on-one interviews. Further, it has been found that involving members of the target population in qualitative research from the outset of the research process produces more relevant outputs (Meyer, 2000). Ideas can go through continual in process testing by the group. In addition, the stimulating nature of group discussion has been found to spark more ideas than the same number of individual interviews. Disadvantages arise when one group member dominates the conversation, thereby squelching the ideas of other participants. The analysis of the data from the focus group transcript can also be difficult, requiring transcription, and in this case, translation.

The research process must be followed by a plan to keep up the action through monitoring, feedback and successful stories. In mobilising a community, Brady warns that attention must be paid to local concerns, and that action and evaluation must be decided on together. This study departs slightly from true action research in that time constraints prevented documentation of the implemented changes in the health care setting. It may better be referred to as qualitative research inspired by the action research approach.

METHODOLOGY

A qualitative exploratory study based on the principles of action research was undertaken to investigate the alcohol-related information collected from and disseminated to pregnant women visiting antenatal clinics in the Stellenbosch district. Data was collected during February and March 2001 using four methods, each of which informed the next stage of research: direct observation of clinic activity, document analysis, semi-structured interviews with mothers and nurses, and focus groups with the same populations.

As it was found that the vast majority of the mothers at risk for antenatal alcohol consumption attend the Cloetesville clinic, attention was focused on that site. Cloetesville is also the referral clinic for high-risk patients from all the other clinics. Observations and interviews were also completed at the Kaya Mandi clinic, which services a largely urban Xhosa community, and the Aan Het Pak (AHP) clinic in Cloetesville, whose clientele are primarily urban coloured people.

Direct observation in the antenatal clinics

Direct observation of clinic activity took place over a period of one week in February 2001. Approximately two hours was spent casually speaking with staff and observing activity at the Kaya Mandi and AHP clinics during their morning hours of peak activity. The Cloetesville Day Hospital antenatal clinic was visited on multiple occasions. In each location, time was spent observing the clinic environment. Attention was paid to alcohol or pregnancy-related posters or pamphlets available to clients. An attempt was made to determine the process of antenatal care in each clinic and of the first booking appointment.

One first booking interview of a half hour's length was observed. However, it was clear that the presence of the researcher affected the nurse's behaviour, and as such, no further bookings were observed. Researcher observations were validated through questions to health staff and brief interviews were conducted with the medical doctor and family planning sister at Cloetesville. Data was recorded manually in a notebook and further corroborated through notes and discussion with the translator, who was present throughout data collection.

Document analysis

While at the clinics, samples of all documents pertaining to antenatal care and alcohol intake were collected. Additional documentation came from the hospital, the municipality and PAWC. Samples of patient files, monthly statistics, and protocols were analysed for content and completeness, in an attempt to catalogue what kinds of information is collected regarding potentially drinking pregnant women and to see how and where that information is used. Where necessary, documents were translated from Afrikaans into English.

Interviews with nurses and health promoters

Three health promoters and four antenatal nursing sisters from three clinics were interviewed in their place of work for an average of twenty minutes each— two from AHP, one from Cloetesville and one from Kaya Mandi. Questions in the interviews explored nurse attitudes and understanding of maternal drinking, and clarified elements of the direct observation and documents collected without the use of an interview schedule. To reduce the formality, no recording devices were employed and interviews were conducted orally with a translator so nurses could speak in their preferred language. Ultimately, all interviews were conducted in English. Responses were recorded by hand and later coded for themes.

Interviews with recent mothers

Purposeful sampling was used to select six mothers from Devon Valley who had given birth within the past two years and were willing to engage in semi-structured interviews. The sample included some women believed to have been drinking during their pregnancies, all of whom had attended local antenatal services. The identification process was facilitated by each farms' community health worker in Devon Valley (who doubled as crèche mothers) and had intimate knowledge of the behaviours of the mothers.

The interviews with mothers were conducted in Afrikaans using a semi-structured questionnaire and responses were recorded manually and by tape recorder, with permission of the subjects. Efforts were made to ensure that the women did not think they had been selected for the study based on their drinking habits. They were asked to participate as recent mothers. The interview covered three areas: information asked and given to them at the antenatal clinics with respect to alcohol intake, the women's understanding of the effects of maternal drinking, and where that information came from. The questionnaire began with questions about smoking, iron supplements and basic information about the mothers' delivery to partially mask the focus of the study. (See appendix A for schedule.)

Focus group with nurses

A focus group was conducted at the Cloetesville Clinic with six nurses and one social worker to try to further build on the information provided from the interviews and observation period. All nurses and health promoters from the individual interviews were invited, but only the ones based in Cloetesville were able to attend. The Cloetesville health promoter was away for training. The discussion opened with a question about what ideas came to mind when nurses saw a woman

drinking while she was pregnant. After a brief discussion, the following research findings were presented to the focus group for response. (Sources were made available but not presented with the data.)

- 1.) The rate of FAS was 40.5 –46.45 per 1000 school kids in an anonymous semi-rural Western Cape community (May et al, 2000). The average for the developed world is 0.97.
- 2.) Just under 43% of pregnant women were found to be drinking through pregnancy in a study of Western Cape communities (Cape Metropole, George/Oudtshoorn, Vredenberg/Saldhana) and 24% were found to be drinking at levels that would harm a fetus (Croxford and Viljoen, 1999).
- 3.) Even moderate drinking leads to low birth weight, preterm babies and mild effects of FAS.
- 4.) When asked about drinking habits, women tend to underreport and deny personal alcohol consumption.

The second half of the focus group was devoted to exploring the problem in its local context and discussing potential solutions. The nurses were asked to first write down their own ideas and then present them to the group. Towards the end of the hour, the researcher distributed samples of the TWEAK, T-ACE and AUDIT screening tools and presented several alternative less direct methods of asking women about their alcohol consumption. The hour-long discussion was predominately conducted in English, with infrequent lapses into Afrikaans. The tape was transcribed and coded for the following themes: attitude towards and understanding of maternal drinking, perceptions of the problem, clinic practices, and suggestions for reducing alcohol intake among pregnant women. In both this focus group and the later one with the mothers, attention was paid to how many people mentioned a given idea and to how enthusiastically it was supported by the group (Morgan, 1997).

A second focus group with the antenatal nurse, family planning nurse, health promoter and senior sister at Cloetesville was initially planned to feedback on the progress of the research and to explore the feasibility of the preliminary recommendations. On two occasions, a time was agreed upon for the meeting, but the nurses were unavailable. This meeting was ultimately replaced by individual conversations with the senior sister, antenatal nurse and health promoter.

Focus group with recent mothers

After the focus group with the nurses, an hour-long focus group with mothers was conducted on a Saturday afternoon at the Waterkloof crèche to further explore the clinic interactions from the perspective of pregnant mothers and to obtain reactions to the nurse's ideas. Five mothers participated in the focus group along with two community health workers/crèche mothers, both of whom had also had children and experience with the local antenatal services. The focus group was conducted by the translator entirely in Afrikaans and all the women present spoke equally and freely, with the exception of one woman, who left early without explanation.

Two role-plays were used to stimulate discussion. In the first one, a nurse was shown visiting a mother who had just given birth. The nurse informed the mother that her baby was alive and basically healthy, but that there was one small problem. The focus group was then asked to empathise with the mother and provide ideas of what she may be thinking is wrong with her child. This was an attempt to explore what physical problems mothers worry about most. After a brief discussion, two contrasting role-plays of the first booking experience were performed. The final third of the focus group covered what could be done to decrease maternal drinking. The nurse's suggestions were presented to the mothers for reaction and discussion.

The focus group was recorded, translated and transcribed. Subsequently, the transcript was coded for the emerging themes: mothers' concerns about the health of their babies; knowledge of the effects of alcohol on a pregnant woman; attitudes towards drinking; clinic experiences towards clinic experiences references to information asked and given at the clinics; and suggestions and obstacles for reducing alcohol intake among pregnant peers.

RESULTS

1. Direct observation

1.1 Structure of antenatal services. The structure of antenatal service varies by clinic. At Cloetesville, all new bookings are done on Mondays and the rest of the days are allocated for mothers at different stages of pregnancy. There is one nurse who cares for all the antenatal clients. Sisters rotate through antenatal care at Kaya Mandi and AHP. There are fixed days for stages of pregnancy at AHP whereas antenatal services are rendered everyday at Kaya Mandi. All first booking appointments are conducted privately.

1.2 Alcohol screening and follow-up practices. Theoretically, the first booking experience for all women at Cloetesville should include a visit with the health promotion officer for initial questioning and counseling, and then a physical examination and more in-depth questioning period with the antenatal nurse. In reality, the health promoter is often away from the clinic with other work-related activities. When she is present on Mondays, she gathers all the women at the clinic for first bookings for a talk that includes information and visuals about alcohol. In contrast to the nurses, the health promoter seems to have a deep understanding of the women's environments, especially concerning the social pressures to drink. When told about how high the rates of maternal drinking are suspected to be locally, she became motivated to tackle the problem. It is likely that the clinic experience for women at their first bookings varies greatly depending on the presence of the health promoter.

Although all women are asked about their drinking habits in the first booking appointment, it is not clear if all of them get a talk about alcohol. If the antenatal nurse believes a woman is, "leading a sober life", she may skip the alcohol lecture. The first booking forms vary slightly from site to site, as do the protocols for asking about alcohol intake. There are no written questions asking if mothers

take alcohol or if they drink, but there is space on all the charts for notes to be made. It seems that the first booking appointment could be extended to include a more comprehensive screening or brief intervention. The antenatal nurse at Cloeteville expressed interest in this idea.

All pregnant women at the Cloeteville clinic see the doctor when they are between 24 and 28 weeks. The doctor does not ask about alcohol unless the chart informs her that a mother already has one FAS child or has admitted to heavy drinking. The family planning sister at Cloeteville discusses alcohol in her talks to women about contraception, but only as it relates to decreasing social inhibitions. Rarely does she address the health implications of excessive alcohol intake and never issues of alcohol and pregnancy.

In addition to interventions, any woman who is found to be drinking, smoking or using drugs has her file marked with an ink stamp on which is written "alcohol/drug/smoke". That information is referred to in follow up visits, but it is never compiled systematically or analysed. A woman judged to be severely abusing alcohol is sent to the social worker at Stellenbosch hospital, who then makes referrals to doctors or different rehabilitative centres in the community, as necessary. According to the social worker, "anti-booze" medications are offered to most clients with drinking problems, but not to pregnant women, for health precautions. If a pregnant woman presents to the social worker, she will be referred to a doctor and will then be monitored weekly in appointments with the social worker. After delivery, she is given assistance with "dry out" or detoxification.

1.3 Media available to pregnant women. In the office of the antenatal sister at Cloeteville there was an article on the wall with a picture of FAS child. There are no pamphlets or posters about maternal drinking or FAS at any of the clinics. The Cloeteville antenatal nurse reported using the picture for

illustration during her talks and expressed interest in additional visual tools to talk about FAS. The health promoter used her handcrafted teaching booklet. Later conversations with PAWC staff revealed that PAWC had printed pamphlets related to drinking and maternal health, but none of the clinic staff were aware or in possession of the pamphlets. All three clinics have televisions and video machines, although only the Kaya Mandi clinic's TV was in use during the direct observation period. The senior sister said she alternates health education videos from the libraries with "soapies" to keep people interested. The television was in the middle of the waiting room and had a full captive audience.

1.4 Clinic environment and accessibility. In both AHP and Kaya Mandi, there is one waiting room for the whole clinic, so all clients could hear the health promoter's talks and, at Kaya Mandi everyone can watch the same programming if a video is being played. Cloeteville has multiple waiting rooms and women wait for their antenatal appointments in the hallway outside the sister's office.

For both the AHP and Kaya Mandi clinics, the populations they serve live near the clinics. Getting to clinic is a much larger obstacle for the farm workers attending the Cloeteville clinic who may live up to 18 km from the health center and whose primary mode of transportation is by foot. The senior sister at Kaya Mandi said she encouraged pregnant women to come to clinic anytime or to go to the hospital if it is closed; this would not be feasible for the Cloeteville clientele. (For a map of the Stellenbosch area, see appendix C.)

2. Document analysis

2.1 Information collection and flow. Two sets of data were collected at the clinics that relate to antenatal care – the routine monthly report (RMR) and the information recorded on the maternal charts. Each

of the seven clinics in the Stellenbosch district complete the RMR manually and send it on a monthly basis to the Municipality where the nursing service manager compiles it in a computerised form and sends copies back to the clinics and on to the districtⁱ. Ideally, the district is supposed to report back to the municipality regularly on the RMR, but that only occurred once last year when the deputy director for the province made a presentation to the municipality on the 2000 dataⁱⁱ. The health information system is currently under transformation with HISP training underwayⁱⁱⁱ. The primary focus of the HISP training for the West Coast winelands is on capturing accurate RMR data. On a more local level, the senior sisters of all the clinics meet monthly with the nursing services manager to discuss, among other topics, the RMR data. The RMR for the Stellenbosch district has the following five indicators under maternity and neonatal services: (For the complete RMR, see appendix D.):

- First antenatal visit before 20 weeks
- First antenatal visit 20 weeks or later
- Follow-up antenatal visit
- Total antenatal visits
- First antenatal visit

While each of the antenatal clinics collects this data, they do no on-site compilation or analysis. This is true for all other services at the clinic. (There is no TB programme at Cloeteville, which would have required on-site data analysis.) All analysis occurs at the province, where the data from the Stellenbosch clinics and hospital are collated. (The hospital data goes directly to PAWC.) Two forms of data are collected at the Stellenbosch hospital during delivery—maternal and perinatal monthly statistics and the birth register. (See appendix E.)

The information that was available at the Cloetesville Clinic had come from the district and was incomplete. It was not possible to determine simple figures such as the average number of first booking appointments per month for that site.

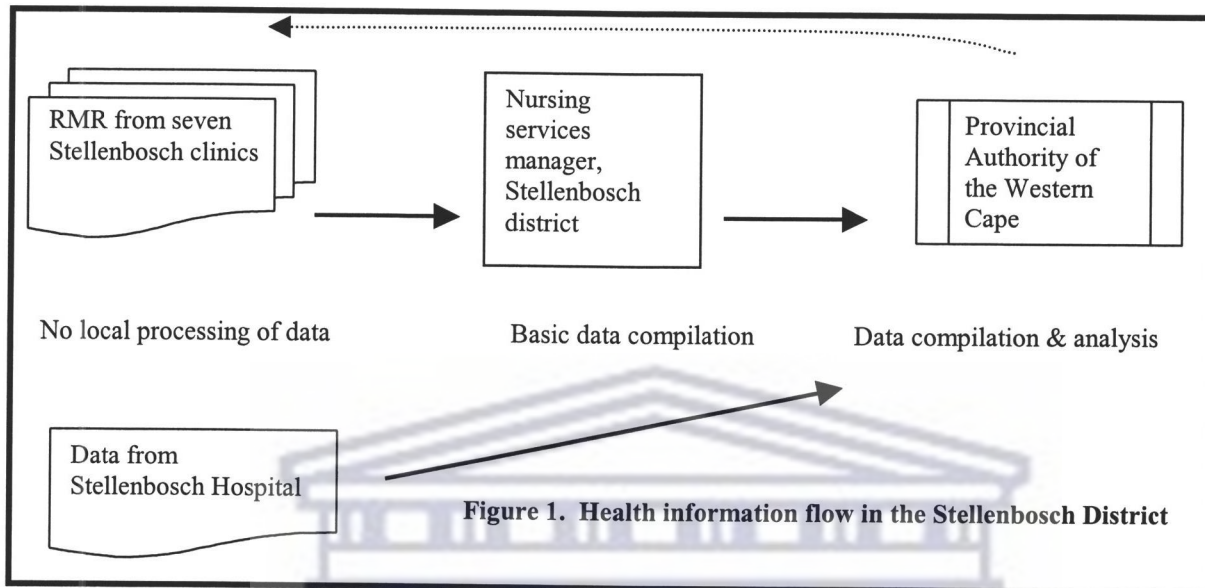


Figure 1. Health information flow in the Stellenbosch District

2.2 Information collected at clinics regarding drinking habits. The district operates according to the national protocol for antenatal care, which requires the recording of a full history and physical examination in a mother's first booking. The only information mandated regarding maternal drinking habits is if women are drinking or not. Women's responses are recorded in files that are stored at the clinic until the woman is ready for delivery, at which point the charts are sent to Hospital. The charts of mothers who were seen at Cloetesville are returned to Cloetesville after delivery while all other maternal charts are stored at the Hospital. There has been no attempt to look at the numbers of women abusing alcohol on a clinic or district-level basis.

The only documentation related to the alcohol intervention (a brief lecture in the first booking appointment) is informal notations on the client's chart by the antenatal nurse or health promoter. The nurse may manually write in a referral to the health promoter on a woman's file. The health

promoter in turn may add notes there and record additional information in her own diary. There is no protocol to guide the alcohol lecture.

2.3 Pilot project in neighboring district. Although outside the Stellenbosch district, Paarl has a pilot intervention on the prevention and management of FAS underway. The nurses give women who visit TC Newman hospital for antenatal services the five-question TWEAK questionnaire. Those who admit to drinking are followed up with in one of two ways. Heavy drinkers are referred to a one-on one-session with a doctor and the lighter drinkers are sent to social services for support. No additional information or counseling is provided for mothers who do not openly admit to drinking. The pilot includes a programme for the management and rehabilitation of children with fetal alcohol effects^{iv} to improve the identification, assessment and placement of children with fetal alcohol effects. Thus, the pre-school cards of babies whose mothers drank are marked with an asterisk by the maternity ward at birth to maximize early interventions for the child. It is significant to note that this programme focuses on the rehabilitation, as opposed to prevention, of FAS. According to the PAWC deputy director for antenatal care, the pilot project has not been considered a success. Only three mothers have been referred to either option since the programme's inception in the beginning of 2000. There are concerns with the truthfulness of the pregnant women's responses to the questionnaire. As such, the programme has not been rolled to other areas^v.

2.4 Percentage of unbooked deliveries and frequency of clinic attendance. The province reports that the percentage of unbooked deliveries in the Stellenbosch district for 1999 was just over 4%. Given that there were 1308 (PAWC) births that year in the public service, it can be assumed that just over fifty women did not attend antenatal services in the district. That number could also be the result of the

regular flow of women from the Eastern Cape who travel to Stellenbosch to deliver, but do not necessarily attend antenatal services there.

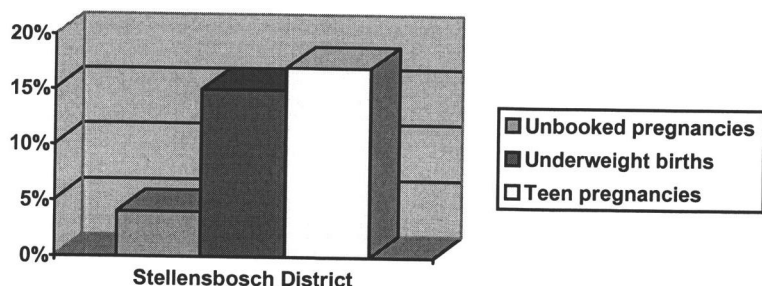


Figure 2: Delivery data for Stellenbosch

Stellenbosch is in between the four other districts within the Western Cape winelands on unbooked deliveries; at the far ends are Vredendal with a rate of 3% and Malmesbury, which is up to 7%. The same PAWC document reports that 15% of newborns in Stellenbosch are underweight (less than 2.5kg) and that 17% of all deliveries are by teenage mothers. These calculations were made by PAWC, integrating data from the clinics and Hospital. Thirty-two percent of all first booking visits are under twenty weeks and the average number of antenatal visits per delivery was 4.3^{vi}.

2.5 Additional figures of interest. According to a graph of the raw data on routine clinic visits created by the district and available at the clinic, there were an average of 40 first booking appointments per month in 2000 or a total of 476 for the year at Cloetesville. (Averages calculated by the researcher.) There are 550 family planning visits per month. The numbers of separate female contraceptive and termination of pregnancy services per year in the district are tabulated below.

	Oral pill cycle	Depo-provera & Nuristerate injection	Emergency contraception	Termination of pregnancy
Year total for 2000	28899	20593	239	66

Table 2: Reproductive health services for Stellenbosch 2000

3. Interviews with nurses and health promoters

3.1 Attitudes and knowledge of maternal drinking. General knowledge of the effects of maternal drinking was high at all clinics; the variation came in the degree to which nurses perceived it to be a problem for them locally. The sisters and health promoters from all AHP and Kaya Mandi did not view FAS as a major problem in their communities and as such were not particularly concerned with maternal drinking. Both of the senior sisters at these clinics said that they are focusing their energy towards more pressing problems for them such as HIV and TB. The sister in charge of all first bookings at Cloetesville, who has the most contact with the farm worker population, was more concerned. She was aware that even small amounts of liquor regularly lead to impaired fetal development. In her attitudes towards maternal drinking, she expressed some sympathy for the mothers' situation, but far more for the unborn child, and stressed "playing on the mothers feelings" in order to convince them to stop drinking. The health promoter at Cloetesville was surprised by the rates of FAS found locally and expressed interest in addressing maternal drinking in the community. (At present she has been engaged in outreach to reduce teenage pregnancies, which are higher in Stellenbosch than in any of the neighboring districts.)

3.2 Clinic screening and practices with pregnant women. Nurses reported that they are required to fill out first booking forms. (See appendix B). Some reported asking follow-up questions on the quantity and type of alcohol consumed but this information was not required or systematically recorded. If a mother says she drinks or smokes, that information is recorded on her chart, but is not sent or copied to other places. If a mother attending the clinics is found to be abusing alcohol, she is referred to the social worker at the hospital. The Cloetesville antenatal nurse estimated that two to three women per month admit to drinking, but that she suspects one or two more drink but don't

tell her. She spoke of being able to see the effects of alcohol in a woman's face or smell it on her clothes, even when the woman denied drinking. Sisters from other clinics said they very rarely encountered pregnant women who were drinking and they did not believe there was a problem with denial or underreporting.

3.3 Alcohol-related activities with pregnant women. According to the nurses at Cloeteville and AHP, all women receive counseling on the effects of alcohol during their first bookings. If a woman further admits to taking alcohol, she is referred to the respective clinic's health promoter where she receives additional counseling and a note of the referral is made on her record. In Kaya Mandi, there is no routine alcohol counseling in the first booking interview. All of the people waiting in the clinic see videos and hear talks by the health promoter on healthy living, which sometimes covers alcohol abuse. The nurses believe that there is a high level of knowledge about alcohol and pregnancy among the community as a result of the clinic and the media. The senior sister explained, "Everybody drinks a lot, but women say, "now I am pregnant so I don't take alcohol."

In both Cloeteville and AHP, the health promoter conducts weekly talks about maternal health to all the women waiting for first bookings. The Cloeteville health promoter said that when women drink or are dishonest about their alcohol intake she addresses them individually (she estimates 2-3 cases last year). She does not tell people to stop drinking, but rather to cut down. "I tell them whatever you drink, the baby drinks, so if you are falling all over the place, so is the baby." She has no videos or pamphlets on FAS but she uses a self-made maternity teaching aid with a section on alcohol use. She records high-risk mothers in her diary to follow-up and refers severe alcohol abusers to the social worker at the Hospital.

3.4 Suggestions for reducing maternal drinking. Although there was no consensus on how to decrease maternal drinking, education and early booking of pregnant women were commonly repeated ideas. The antenatal nurse at Cloetesville suggested that the clinics follow-up with women who are drinking more frequently; tell them more about a good diet; show drinks that are tasty but nonalcoholic; and show mothers a baby with FAS to scare them. The Cloetesville health promoter said lifestyle changes for farm workers are needed to provide recreational activities other than drinking, such as rugby games between farms. She was also concerned with the availability of alcohol, saying that wine can be bought everywhere and is brought to the farms by bakkie on Friday afternoons. Juices and other beverages are harder to find and more expensive, and are thus unlikely to be acceptable substitutes for liquor.

The senior sister at AHP thought that education in schools was the most important way to reach people. She said, "Target the high schools. By the time they get to clinic, it will be too late." The other sister at AHP wanted to involve the farmers in getting women to clinic regularly. "Sometimes the women are too afraid to ask the farmers to go to clinic. They have to walk there and miss a day of work." She suggested promoting antenatal care in a similar way to the tuberculosis DOTS programme and using the mobile clinics for antenatal care. The health promoter at AHP said that education in the schools and clinics is the way to reduce maternal drinking. At Kaya Mandi, the senior sister suggested giving health promotion talks to everyone in the waiting rooms so that men could also learn and the health promoter there suggested involving employers to create other activities on the farms and to use a health promoter on mobile clinics.

4. Interviews with recent mothers

Interviews took place during lunch breaks inside the crèches of three Devon Valley farms—Waterkloof, Weltevrede and Fransmanskloof. They were conducted privately, and no personal information such as name, age or history of alcohol abuse was solicited. The sample included two women under twenty, two between twenty and thirty, and two above thirty. Half of the women had more than one child and all had at least one child under two years of age. One was nine months pregnant at the time of the interview. All of the women had attended antenatal services at least four times, and all had delivered at Stellenbosch Hospital. Five of six had visited the Cloetesville clinic for antenatal care.

4.1 Understanding of maternal drinking. When questioned about the effects of drinking while pregnant, the women showed differing levels of knowledge. Three of the women mentioned some form of growth impairment.

- “Everything you drink, the baby drinks”
- “The baby will be small”
- “Giving birth will be difficult”
- “Its brain will be affected”

Three women initially said they did not know anything about what happens when mothers drink, though on further questioning, one subject remembered that it could lead to brain damage and another said that “you and the baby both get sick” but she could not explain how or why.

4.2 Source of knowledge. Of the three more alcohol-knowledgeable women, two reported learning all information from the antenatal clinic visits and one mentioned that more came from a youth camp run by the Rural Health Education Trust. The mothers did not credit their CHWs or other clinic or outside services for their information about the effects of maternal alcohol consumption,

4.3 Information asked and given at clinic. All of the subjects recalled being asked by the nurses in their first clinic booking if they were drinking or smoking. Regardless of the response from the mother, no one reported follow up at the clinic at that time. Mothers who answered in the negative did not receive further information on either subject at any subsequent visit. Those who admitted to smoking or drinking reported being told about fetal alcohol effects. One woman was informed of FAE in a group information session for smoking. Another mother reported having to raise her hand in a group to identify herself as a drinker, after which point the whole group received counseling. There was no mention from any of the mothers of one-on-one counseling. One woman said the nurses had warned her of alcohol intake during her previous pregnancy five years ago, but not in her more recent pregnancy.

5. Focus group with nurses

5.1 Attitudes towards and understanding of maternal drinking. When asked what ideas came to mind watching a pregnant woman drink alcohol, nurses made references to the mothers while expressing greater concern for infants. There was a high level of knowledge of fetal alcohol effects.

- "I think why is she drinking? Do you know you are pregnant? Do you know the consequences for the baby? Do you think its fair to the baby?"
- "Terrible. So unfair to the baby. . Why does she do it? Unfair for mother too, but the mother has a choice."
- "Sometimes I feel hopeless when I see a woman with a drinking problem and she is pregnant... sometimes I feel like she will change."
- "When I see a woman who is pregnant and she use alcohol, I always feel sorry for the baby because the baby will be born underweight and the baby will be suffering from alcohol syndrome."
- "I think of brain damage, I think of a child and a mother with poor health; I think of an uninformed, insensible mother. I think of an unfair situation towards the child."

5.2 Perception of problem within social context. Maternal drinking was seen as one component of an alcohol abuse problem rooted in a larger social and cultural context.

- "...And on the farms, they know when the first batch of grapes can be harvested and they start using their baths to make their own wine. And until the last bunch of grapes is harvested, they don't have a bath." (*Nurse who was the wife of a farmer and lived on a farm for many years*)
- "I think it is part of the socio-economic environment and it also part of the culture... the farms have stopped the DOP system but there is still a lot of smuggling and bakkies that come with the liquor and the people can go just everywhere and there is liquor in the neighbourhoods. I mean it is very difficult to make a decision not to drink anymore because it is part of a bigger thing." (*Social worker*)
- "I find the problem... especially in Kaya Mandi and Cloeteville ... you walk into a house and there are three or four people that have been retrenched and the TV is on and they all have a glass of beer. My biggest problem is where do they get the funds to buy these bottles of beer? And it is ten in the morning." (*Nurse who lived on a farm*)

5.3 *Maternal drinking and the clinics.* With the exception of the social worker, all the nurses expressed surprise at the levels of FAS quoted from the Croxford and Viljoen (1999) study. Several called the numbers "shocking" and two sisters expressed doubt over the accuracy of the study.

- "I can't imagine that they are quite as high as that...my experience on the farms tells me its not quite that high.... Over the years, there has been a change that your older generation because they thought there was nothing else to do ..."
- "It is shocking that it is found to be the highest in the world. It's shocking.
- It's not nice to hear. But we realise that it is a big problem." (*Social worker*)
- "I find it shocking. I used to work in children's ward of hospital 5-6 years ago but you didn't hear as much about FAS. You didn't realise that they had it. Just in the past few years you hear about it in the news and stuff. I haven't heard of so many children with it, but we just didn't realise it."
- "We realised that something was wrong but we weren't aware of the FAS syndrome."

There was agreement that these statistics did not concur with pregnant women's reports at the Cloeteville clinic. The nurses believed the women were denying and minimizing their alcohol intake.

- "I don't recognise that percentage because like I say, they will drink and they will lie to you. Or you don't smell anything or they look reasonably decent people, whatever you want to say. Sometimes you get the idea you don't trust what they are saying, but how do you prove it?" (*Antenatal nurse*)
- "They are seldom honest. Sometimes they say, "I take a bit of beer." Maybe it's a full one, I don't know."
- "Some people think if they take beer, its not alcohol. It is a big danger for alcoholics in general because they say I only had a beer." (*Social worker*)

5.4 *Suggestions.* Education of pregnant women and school children and early bookings were the most mentioned strategies for reducing alcohol consumption generally. Nurses promoted a direct approach in interacting with pregnant women, sometimes invoking guilt to persuade women not to drink.

- "Educate women who are already pregnant. Tell them there are more things to do in the weekends, movies, other activities. And educate the children."
- "You have to start with the children, at school level, you see to it that they have sufficient food in the house and that they realise what a decent meal is so if the parents are drunk, there is food in the house. ... break a bad cycle, get a child with any promise from just being a labourer on a farm."
- "Get them (pregnant women) as early as possible. Give advice and counseling when they first book. Treat the patient with empathy but approach the problem. It doesn't help to say that it is not a problem when it is a problem."
- "...get group involvement in terms of sports or activities, where you can keep the people active, whether it's a church activity or a school activity whatever can keep them occupied outside of drinking and drugs and if you can teach them the right values at an early stage because many of them fall into the situation because that is what they see it home."
- "I think you should say, "do you care about the baby you are carrying? And try to play on their feelings with the baby and then maybe she'll come out with the truth and say she will stop drinking." (*Antenatal nurse*)
- "You have to be strict with them and tell them what they can do and what they cannot."

Other suggestions included individual counseling and the distribution of pamphlets on alcohol abuse.

The nurse who had worked on a farm told of her experience arranging soccer and rugby matches between farms and gave another example of a farm in Wellington where farm workers produce their own wine. This nurse stressed the importance of creating activities that instill pride and personal responsibility. As before, she saw alcohol abuse as needing a broad strategy, "it's about uplifting the whole community."

5.5 *Reaction to screening tools.* There was little time left for a discussion of screening tools and alternative methods of asking questions about alcohol. More explanation of the tools was necessary to obtain feedback on them. One objection was voiced to substituting the current method of asking

about alcohol consumption with the question “when did you last have alcohol?” She thought that assuming a mother was drinking would be upsetting.

6. Focus group with recent mothers

6.1 Health concerns for infants. In response to the first role-play, women gave their ideas about what they would worry about most if informed that their newborn child had a minor health complication. Four women mentioned physical disabilities – broken arms, broken legs, something wrong with the eyes, leaky heart valves. The other suggestions made included TB, AIDS, jaundice and illness generally.

6.2 Knowledge of the effects of alcohol on pregnancy. Multiple references were made to the specific effects of alcohol on fetal development and maternal health, and all the women were aware of it as a bad idea generally. The allusions to fetal alcohol effects were most often made while telling stories of their own experiences or explaining what a nursing sister had told them.

- “In my child, I see that it is wrong to drink and smoke. That child of mine is very dumb. You can see the difference between my 10 year-old and him; no one has to tell you. The 14 year-old is smaller than the 10 year-old. And the 10 year-old is more clever.” (*Mother with one FAS child, now abstinent*)
- “The sister told me: Look at your small hands! Look at your small feet! Your baby will have the same! You mustn’t drink!”

One of the community health workers mentioned alcohol as an exacerbating factor for women who have epilepsy or high blood pressure.

6.3 Attitudes towards drinking. The mothers spoke freely and with humor about their alcohol use. Two told stories of being drunk during delivery.

- “When I went into labour with my second child, I was drunk that Sunday ... I was drinking with my first child and nothing happened to him so I was drinking with my second child as well.” (CHW who *doesn't drink anymore*)
- “I was drinking and smoking during all my pregnancies. My first baby died because he had head and chest problems. My third child was born small so he had to go to the incubator. During my second delivery, I was drinking more and more because I couldn't get drunk. I was drunk when I gave birth. I was drinking and I was told that I would have a small baby if I continue drinking. I didn't stop while I was pregnant. After that, I stopped drinking, when my husband was at the Lord.” (Mother with FAS child)
- “I was smoking but not drinking. I have a boy and he is big and strong but he has an extra finger. I was shocked.”

6.4 *Experiences in the antenatal clinics.* In response to the role plays of first bookings, most women identified with the second, more abrasive role play, and spoke of the positive effects of having nurses “talk softly” with them, in all clinic visits.

- “I was told that I mustn't drink and smoke because it is dangerous for me and the baby. I was a smoker and when I went back, the nurse asked if I still smoke and I said yes because I can't leave it and I was told that the baby would suffer because of my smoking.”
- “I want her to talk to me softly and with courtesy. If she was shouting and talking ugly, I would not be able to answer, I don't like it.” (CHW who *drinks occasionally*)
- “I feel that if they talk softly and politely, then I will also answer like that. And I will feel that she loves me and wants to help me ... I didn't talk easily. When they asked me if I drink or smoke, I said no. And then we got books and I was talking honestly and the sister was very nice...”

All of the women reported having been asked during their first booking appointment if they drank alcohol or smoked cigarettes. Two made specific references to follow-ups with nurses. There were more comments on the attitudes of the nurses than on what they were told by nurses. The messages of the nurses as recalled by the mothers were limited to alcohol being dangerous during pregnancy because it can lead to a small or “slow” baby. None of the mothers mentioned being given pamphlets or referrals to sources outside the clinic.

6.5 *Attitudes towards advice on alcohol.* Mothers freely discussed lying or misleading nurses about their alcohol consumption in the first booking appointments.

- “Sometimes ... just to get the interview with over, you say yes sister, yes. Just agree with the sister, but you don’t stop drinking. You know you may have high blood pressure or epilepsy and you mustn’t drink but the friend offers you the wine.” (CHW)
- “The nurse told me that I mustn’t drink and I listen when I am there with the sister but after I go out and drink anyway.
- “Although the sister told me that when I go out there, I mustn’t smoke, then I tell her I won’t but when I feel like it when I am outside, I am going to buy cigarettes.”

There were multiple references to the frequency of drinking in the community and the difficulty of quitting. Women agreed that the decision must ultimately come from the inside.

- “We know we are wrong, but when it comes to weekends...”
- “Now also I am sorry about my child.” (*Woman with 14 year-old with FAE*)
- “But even when you are sorry, you keep on smoking and drinking.”
- “They show you the picture of the ultra sound and you can see in the afterbirth the effect of smoking... although you see it there, you still don’t stop.”
- “Although the sister does whatever she can, you aren’t going to stop unless you want to.”

Women spoke of not reacting well to being told what to do, especially by peers. There was a fair amount of joking around this issue.

- “If she (points to another mother/CHW) comes and tells me to stop (drinking), I am going to say, is this your money?”
- “I don’t like to be around really drunk people but I’m not going to tell them to stop because I also drink.” (CHW)

6.6 Suggestions. The mothers had a mixed reaction to the suggestions made by the nurse focus group.

Drinking alcohol was spoken of as part of the fabric of farm culture, and a presence that would be hard to get rid of, even in the face of other opportunities. There was a positive, though not enthusiastic, response to education in schools. The idea of additional education for mothers through pamphlets or videos was received with skepticism.

- “There is little interest (in more activities on the farms). Although you organise all sorts of things... they are just not interested.”
- “Some person will still have booze in his car and if the guy is talking too long, he will go back and drink a little.”
- “The women need more activities.”
- “ If I take a pamphlet, I just leave it there.”

It was also mentioned that after a sport match of farm workers, people would want to party and that would involve heavy drinking. The mothers gave no suggestions about finding more activities for women. Empathetic counseling was accepted as a possible tool for changing mothers' behaviours if it was done individually. "Maybe there is something private and you don't want another woman to hear. Because that one will tell someone else. Better if it is just me and the sister. During group counseling, the sister may be talking generally, but everyone knows the sister is referring to me... so I am not going to feel nice. "



DISCUSSION

In exploring the alcohol-related procedures – screening, interventions and information systems – of the Stellenbosch antenatal clinics, along with the attitudes, knowledge and perceptions of the clinics' clients and staff, this study has exposed several major problem areas in need of address. The following discussion will first describe these procedures by collectively considering the results of the various research methods. It will then look at the findings in light of local and international research to suggest health-promoting actions.

Part I: The current situation

Screening, interventions and referrals

The results of the nurse interviews and direct observation suggest the alcohol-related screening in the first booking interview is quick, ineffective and predictable in outcome. The antenatal nurses ask, "Do you take alcohol?" to which, in all but the rare case, women reply in the negative. In the focus group, women freely admitted lying to the nurses, often because they felt antagonism from the nurses. This is consistent with myriad reports that women tend to deny or underreport levels of drinking in screening situations (Chang et al, 1999). Just wanting to get the interview over with was another reason mothers gave for lying to the nurses. Nurses were also aware of the dishonesty in this interaction, though not to the extent that mothers' reports suggested.

Theoretically, the current alcohol intervention for pregnant women in the Stellenbosch clinics is an educational lecture on FAS given by the antenatal nurses or health promoters in the first booking appointment. This is in accordance with the national guidelines for antenatal care that mandate that expectant mothers be informed of the repercussions of antenatal substance abuse in their first visits. Specifically at Cloetesville, the lectures given by the antenatal nurse (one nurse conducts all first

booking sessions) consist of a brief verbal explanation of FAS, the display of a photograph from the newspaper of a child with FAS, and an admonition not to drink while pregnant. This talk appears to be more comprehensive and more sympathetic when given by the health promoter. However, the health promoters at all the clinics, and particularly at Cloeteville, are often off-site, for training or other health promotion activities, making comprehensive alcohol talks unreliable.

There are further compromises to the regularity of this intervention. Although the antenatal nurses at Cloeteville and AHP said that they talk to all pregnant women about alcohol use, regardless of their response to the question about intake, at other times, the antenatal nurse at Cloeteville admitted to skipping or shortening the talk when it was clear that women “were leading a sober life”.

If a woman admits to drinking in the first booking, she is referred to the health promoter for additional education and counseling. This ‘follow-up intervention’ occurs infrequently; the health promoter in Cloeteville estimated that she counseled two or three women last year. Any patient judged to be severely abusing alcohol is sent to the social worker at Stellenbosch hospital, who then makes referrals to doctors or different rehabilitative centres in the community, as necessary. A cursory examination of the hospital referral system suggests that the tertiary, hospital-based interventions for alcohol abuse are well structured, but that the primary and secondary interventions at the clinics are in need of greater attention.

In the focus group, nurses said they wanted pregnant women to come in earlier for their first appointment. Currently, nurses encourage women to first attend clinic when they are two to three months pregnant, but the majority of those arrive far later. PAWC reports that only 32% attend clinic before or at twenty weeks, and the Cloeteville antenatal sister estimated that about 30% of the

women she sees for first bookings are over seven months pregnant. However, even if drinking women were told about antenatal alcohol use at two or three months of pregnancy, their unborn children would still be very much at risk for FAE (CDC, 1988). Therefore, while bringing women in to antenatal care earlier cannot hurt, clinics must not rely on the first booking appointment to be the only contact point to educate women about alcohol during pregnancy.

Health information

There are no information systems in place at the Stellenbosch antenatal clinics to monitor maternal drinking. If a woman admits to any form of substance abuse in her first booking interview, the antenatal nurse marks her patient chart with an ink stamp and notes the type and quantity of substance used. That data is not collated or analysed, nor is it clear if nurses refer back to it when the same woman returns for follow-up visits.

The larger antenatal health information system in the Stellenbosch district is also incomplete. The clinics collect the data listed on the RMR and then send it to the municipality where it is analysed and sent on to province, but that information is not fed back routinely and its value is not appreciated. The accuracy of the data collected is also questionable given the many empty spaces on the RMR spreadsheets. Indeed there is not much of an “information culture” in the district and staff is not trained to interpret data. Simple figures such as the number of first bookings per month was not immediately available at Cloetesville, nor was the value of such a figure understandable to any of the nurses. It was equally difficult to ascertain the number of deliveries at Stellenbosch Hospital last year. After questioning the municipality, the clinics and the hospital with no success, the data was finally retrieved from PAWC.

There is little point dwelling on specific problem areas in the information structure of the district as it is under transformation and HISP is currently training mid-level managers and people acting as health information officers^{vii}. The PAWC deputy director for antenatal services projected that clinic nurses would be sufficiently trained to take part in the health information system within eighteen months.

Knowledge of and attitudes towards maternal drinking

All the research methods in this study triangulate the finding that nurses are well informed of the effects of alcohol on fetal development. Mothers demonstrated varying degrees of knowledge on the topic, nearly always crediting the clinics as the source of their information. The message remembered by women in the individual interviews was about not getting the baby drunk. Women recalled being told “whatever you drink, the baby drinks.” Younger women may be getting additional education on alcohol from school and camps.

The sisters at AHP and Kaya Mandi did not perceive either FAS or maternal drinking to be a problem in their communities and there is no evidence to suggest otherwise. At Cloeteville, where there was a basic acknowledgement of the problem, nurses were still surprised by the rates of maternal drinking and fetal alcohol syndrome found in nearby communities (May et al, 2000). They showed some awareness of pressures and norms from the women’s external environments and were quick to frame maternal drinking as a part of a larger problem, specific to the farm working community. Unemployment, poverty and malnutrition were seen to go hand in hand with alcohol use on farms. Mothers also saw high rates of alcohol abuse as deeply rooted in their communities and were not hopeful about tempering the situation in the near future. Their stories in the focus

group corroborated nurse's impressions and academic research (London, 1999; te Water Naude et al, 1998) on the frequency and ubiquity of drinking on farms.

With the exception of the health promoter, the sisters seemed hardened to the problem of maternal drinking. They were far more likely to show concern for the health of the unborn child than for the pregnant women using alcohol. This attitude was manifest in the reports of the women and in the approach of the Cloetesville antenatal nurse, who thought it best to use guilt and "play on the mother's feelings for the child" in order to persuade a woman not to drink. Some of the attitudes and suggestions of nurses could be construed as condescending or paternalistic. Multiple references were made to the idea of "teaching values" and engaging women in activities to "occupy them" so they wouldn't drink. Similar moralistic, stereotypical, and pessimistic views have been reported in other studies of nurses' attitudes towards substance abuse addiction in pregnant women (Gerace et al, 1995).

Mothers spoke openly and honestly about their own alcohol use during the interviews and focus group on the farm, in contrast to their behavior in the clinic setting. They referred to the nurses with varying degrees of fear, respect, and animosity, and on occasion, spoke highly of sisters who had treated them "softly". They mentioned being more inclined to cut back on unhealthy habits when they felt supported by the clinic staff, findings that argue for nurses to be trained in better ways to convey care to their clients.

Part II: Approaching the problem

The situation described above calls for action on multiple fronts. The problem of maternal drinking by farm working women attending the Stellenbosch antenatal clinics (and in particular the Cloetesville clinic) can be broken down into four action areas:

- How to improve identification of women who are drinking
- How to help women who are drinking
- How to monitor maternal drinking and any “help” provided
- How to promote health among pregnant women at risk for drinking

How to identify women at risk for drinking alcohol during pregnancy

There is no way to screen or intervene and help a woman if she does not feel comfortable in the clinic. Continued denial of alcohol use by women will negate the usefulness of any proposed intervention to reduce drinking and any information system put in place to monitor alcohol use. The fact that women lie even before the nurses begin their guilt and baby-focused lecture on alcohol suggests that the rapport between nurse and client needs attention. Screening could be improved by changing the following:

- Climate of the interview
- Screening procedure

Interview climate. At present, the interaction between nurses and pregnant mothers reflects several service gaps seen in other South African studies of clinic health service delivery (SAHR, 1998), and that justify the Batho Pele’s (1998) call for higher levels of courtesy in client interactions. In particular, there is insufficient attention to the specific needs of a woman and to “women’s wellness”, notions that are being urged by government (White Paper for the Transformation of the Health System in South Africa, 1997) researchers (Meulenberg-Buskens et al, 1999), and NGOs (Women’s

Health Project). Exposing nurses to a women's wellness approach that looks at women's health in a broader context could address these gaps. In keeping with health promotion principles, maternal drinking should not be perceived as an isolated problem, but rather one unhealthy habit of a woman in a living situation in need of address.

Not only is the current guilt-based approach used in the first booking appointments unlikely to discourage women from drinking, there is evidence to suggest that *generally* stressing the baby's health is not a motivating force for drinking women. Giving *detailed* information about fetal alcohol syndrome, however, does seem to affect women's behaviours. In the Chang et al (1999) study examining the relationship between drinking goals and subsequent alcohol consumption, the general health of the baby was the most commonly cited reason for modifying antenatal alcohol use, but one that ultimately, had no correlation with antenatal abstinence. On the other hand, women who specifically cited FAS as a reason did show reduction in their alcohol consumption. This suggests that knowledge about the specific consequences of maternal drinking is a stronger motivating force than the general desire to have a healthy baby. It further supports the idea that nurses should spend more time educating women about the effects of alcohol on fetal development.

While it is known that nurses sometimes display negative attitudes towards pregnant women who abuse substances (Selleck & Redding, 1998), studies report that staff with more education on substance abuse and pregnancy show more positive attitudes towards clients (Coles et al, 1992) and feel less judgmental (Gerace et al, 1995). In-service training in women's health, methods of conveying care, and the problem of substance abuse within the Western Cape winelands context for nurses may likely improve the climate of all the nurse-client interactions.

This shift will require provincial support, which is appropriate considering that it is in line with the objectives of the transformation of the South African health sector and of public service more broadly. It is further consistent with the reorientation of health services promoted by the Ottawa Charter. Improving the climate of the clinic interaction will do more than facilitate screening for alcohol among pregnant women; better understanding and communication between clients and health care workers will make all forms of interventions more likely to succeed.

It is ironic that less than ten minutes from some of the farms lies an urban community where social pressures would make it difficult to drink publicly while pregnant, whereas on the farms, social pressure makes it difficult not to drink. Social support is known to have a large impact on antenatal alcohol intake, and is undoubtedly a contributing force to the prevalence of drinking on farms in Stellenbosch. In a sense, this study asks clinic health care staff to create an alternative social support environment that discourages alcohol use during pregnancies, but that is otherwise supportive and caring. Admittedly, these recommendations demand an enormous amount from nurses.

Screening. Assuming that women are made to feel comfortable in the clinic setting, there is still no guarantee that they will react well to being asked about their alcohol use. Therefore the mode of questioning must be examined.

Research suggests that less direct questioning methods are more likely to elicit honest answers from substance abuse patients, and particularly with women (Bradley et al., 1998). This argues against the current method of simply asking, "Do you take alcohol?" However, very few of the internationally recommended screening tools have been tested locally and there are many reasons to believe that they would not be effective for this context. For instance, the CAGE, which has been promoted

locally (Claassen, 1999), though not tested, has been used with success on farms with men and women (London, 1999). However, environment plays a large role in affecting responses to a screening tool, and it cannot be assumed that tools that work on farms would necessarily work in clinics. (This raises the question are clinics the proper place for screening, which is answered in part by the regularity with which farm working women attend antenatal services. It is an opportunity that should not be passed up given the spread out nature of the community.)

Most of the tools employed today were designed for the classic "alcoholic" who drinks until intoxication on a regular basis, often in the face of negative effects. The drinking patterns of the farm workers in the Western Cape are closer to the WHO definition of 'binge drinking' in which alcohol is consumed during a period set aside for that purpose and possibly contributing to personality problems, but without necessarily creating a dependence (WHO, 1994). In that case, screening tools with questions about needing an 'eye opener' (CAGE, TWEAK, T-ACE), implying weekday consumption, may be irrelevant.

Another reason why the aforementioned screening tools may miss large segments of the farm worker population is due to the social acceptability of drinking. In communities where over half of the adult population drinks regularly, the CAGE, T-ACE and TWEAK questions about feeling annoyed by pressure from friends, feeling a need to cut down or feeling guilty about drinking, may also be inapplicable.

Indeed, the CDC reports that the typical American woman drinking during pregnancy is unmarried, college-educated, a smoker, employed or a student, with an annual income of under \$10,000 or over \$50,000, of minority race or ethnicity, and with limited access to antenatal care. This profile is too

great a departure from those of the farm-working women to assume that screening tools or interventions successful with American women would work in the Western Cape Winelands. The fact that the CAGE, T-ACE and TWEAK have been successful in studies investigating maternal drinking in economically-disadvantaged (Reynolds et. al, 1995) or rural disadvantaged (Ettlinger, 2000) women in the United States does not make them more applicable locally as none of them were conducted in communities where high alcohol consumption was socially acceptable.

Screening tools used for adolescents (e.g., Drug Use Screening Inventory, Family Drinking Survey) held some initial promise as teens represent another community where social pressure encourages drinking. Yet the focus of these tools is often on avoiding over reporting and therefore the questions are written in a direct, specific manner that may intimidate pregnant women.

Local researchers have noted the need for screening tools to be adjusted for different cultures (London, 1999). This study suggests that a new screening procedure should be developed by and for members of the farm working community. In the interim, it would be useful to implement a simple tool that would encourage women to be honest and provide some information on the extent of the problem. In lieu of the current method of asking about personal alcohol intake as part of a longer inventory on pregnancy, nurses could try the following alternatives:

1. Couch alcohol question in context of nutrition ("What are you eating? What are you drinking? Have you made changes in your habits since you got pregnant?")
2. De-emphasise alcohol by asking about other beverages ("Do you drink coffee? Tea? Cool drinks? Beer? Wine?")
3. Inquire about past alcohol use ("Have you ever taken beer or wine? When was the last time?")
4. First inquire about alcohol use of partner or a friend ("Does your husband drink? Do you ever drink with him?")
5. Use question about alcohol use of friend to find out what a mother knows about the effects of drinking ("Do you have any friends who are drinking while pregnant? What could you tell them about alcohol and pregnancy?")

How to help women who are drinking

Before piloting a new intervention, the current clinic education intervention must first be standardised. Regardless of their response to questions about alcohol use, all women should receive the same talk from the nurses or health promoters. This talk should be comprehensive (preferably with ample visuals) and systematically given to all women as early on in pregnancy as possible. Given that only 32% of women are seen at or before twenty weeks, efforts need to be undertaken to encourage women to attend clinic earlier, and to find other opportunities for alcohol education.

Family planning represents one clinic service often frequented by women that could accommodate an alcohol education intervention. Giving the same alcohol and maternity talk in family planning consultations may educate women about the perils of maternal drinking well before they get pregnant. The antenatal nurse or health promoter could also target youth by holding group talks in the afternoons when the school-age clients come in for family planning services. Other clinic services should be examined to determine if they would be appropriate for a brief alcohol and pregnancy education intervention.

In addition to providing the basic information about alcohol use during pregnancy, clinics must be equipped to deliver additional care for women who are drinking at potentially dangerous levels. In selecting a brief intervention, it is necessary to consider the amount of time and energy clients will want to put into helping themselves. Probably the most effective brief intervention and the least work-intensive one for clients is motivational interviewing, which could be adapted for use in the Stellenbosch clinics with input from mothers. Using the empathetic, client-centred FRAMES approach described in the literature review, nurses or health promoters could administer a brief motivational interview such as the one outlined below (Chang et al, 2000).

1. Review client's general health and course of pregnancy
2. Review client's lifestyle changes since pregnancy including work schedule, exercise, cigarette smoking and alcohol consumption
3. Request the client to identify her drinking goals while pregnant and their reasons
4. Have the subject identify circumstances when she would be tempted to drink
5. Brainstorm with her to identify alternatives to drinking when she is tempted
6. Summarise the session by emphasizing four key points: pregnancy goals, reason for goal, risk situation for drinking and alternatives to alcohol and note them down in take home manual

With proper training, motivational interviewing should be easy to adapt for Cloeteville as both the health promoter and the antenatal nurse expressed interest in learning more about using it as a brief intervention. Already, the health promoter engages in unstructured counseling with women referred to her for drinking problems. Importantly, as suggested in the FRAMES approach, the dangers of maternal smoking should also be addressed in a motivational interview and any other intervention for alcohol-reduction.

Another method of intervening and reaching women early on in pregnancy is to make use of the mobile units. Using the mobile clinics for antenatal care represents a kind of adapted home visit, a method of intervention which has been shown to be effective in reducing alcohol consumption and other unhealthy behaviours for pregnant women (Starn, 1992). It also addresses the issue of access, which is fundamental to a functional health care system. The nurses mentioned the long distances farm-working women have to travel in order to get to the Cloeteville clinic. If the mobile clinics conducted antenatal services, women's access to services would be increased and the amount of work time lost to travel decreased.

How to monitor the problem and the intervention

An information system based in the Cloeteville antenatal clinic should be implemented to inform health workers about the levels of maternal drinking and the progress of their efforts to reduce it. In order for a health information system to succeed, it is important not to collect extraneous data, and

to make use of all data collected. If data is not used and shared, it is not useful. Ideally, data should be analysed by trained health workers at the clinics and then reported to clinic staff and as well as to district and provincial health departments (WHO, 1994). Realistically, in the West Coast winelands, this analysis may have to take place at the regional level until health workers at the clinics have been trained^{viii}. Training of staff should be a major priority for the clinics and district.

When clinic staff is trained and able to collect and analyse their data, they will be in possession of the information necessary to improve their services and won't have to wait for reports from the district. In the interim, nurses should be encouraged to use the maternal drinking-related information on an individual level; it should be reviewed prior to follow-up bookings with clients.

Assuming alcohol education has been standardised for first antenatal bookings and family planning appointments and efforts are underway to encourage women to book earlier, an action-led information system should be implemented for use in the first booking appointment. Five indicators should be necessary and sufficient to monitor the levels of maternal drinking and monitor the progress of the interventions in place to try to reduce it. Health workers should be encouraged to be creative in posing the questions in their attempts to record the following data in a register:

1. Drinking (Y/N)
2. Number of weeks pregnant (already collected)
3. Relative knowledge of effects of alcohol (negligible, basic, comprehensive)
4. Source of knowledge (tick off areas, but do not offer suggestions: TV, radio, school, youth group/camp, friends, family, social environment, family planning appointment, prior antenatal visit, prior clinic visit, other)
5. Use of Cloeteville family planning services (Y/N)

The number of positive responses to question one, the crude number of women drinking, can be divided by total first booking appointments to establish the percentage of women drinking while pregnant. This can be calculated on a monthly or quarterly basis. Data from question two, the

number of weeks pregnant a woman is during her first booking, will inform the clinic if their efforts to decrease that age have worked. This age is also relevant in selecting a course of action for a woman who is drinking during pregnancy.

The level of knowledge about alcohol during pregnancy and source of that knowledge will be important in determining if the clinic has been successful in its' attempts at education. This data will also inform health workers of other information disseminators, and identify potential collaborators. Collecting data on the use of family planning services at Cloetesville will provide information on the effectiveness of the family planning appointment as a point of intervention. If it were found that women who are drinking never attend family planning, an alcohol intervention there would be unnecessary.

These indicators further satisfy the WHO (1994) checklist of indicators for use in district level management described in the literature review. They will be useful to staff and show short-term changes if analysed on a short-term basis. They are extremely easy to calculate, their purpose is clear and they are representative of the population visiting the Cloetesville clinic. Finally, they are consistent with the national objectives of improving maternal and child health and they will undoubtedly be useful for comparison with other communities in and outside the Stellenbosch district. Other community-based organisations and NGOs may also be interested in the information.

Additional downstream indicators should be considered to monitor the long-range effects of attempts to reduce maternal drinking. One should ask if the rates of FAS have gone down. This information could be estimated by looking at low birth weights as a proxy, or more reliably, by checking for developmental and physical delays in primary school children (May et al, 2000).

Partnerships could be established with researchers who are already monitoring FAS levels in the community, such as the Foundation for Alcohol Related Research.

Health promotion

The nurses at Cloetesville requested posters for the clinic and pamphlets to distribute to women. Although there are arguments against the dissemination of written materials for discouraging alcohol consumption as an isolated intervention (Calbro, 1996), public information campaigns with printed media have been effective for alcohol-related health education (Reynolds et al, 1995). There is a range of media that could be developed for health promotion within the clinic setting, with the aim of educating more than just pregnant women.

The national guidelines for antenatal care expressly state that no materials should be distributed to women without first being discussed in detail. As such, it is important to identify, or preferably, develop a pamphlet on the effects of maternal drinking that covers issues pertinent to the health of pregnant women living in the winelands. Any media created should be done with recent mothers from the farms and nurses.

Other more interactive forms of media should be explored as well. In working with aboriginal communities in Australia, researcher Maggie Brady employs a flip chart on alcohol and maternity with pictures on the front and text for nurses to read on the back^{ix}. Another motivating media tool Brady has used is the creation of a book of women's stories about giving up alcohol. By highlighting the achievements and successes of substance abusers, these stories, told and recorded by community members, can inspire others to change their habits (Brady, 1995a).

All of the clinics in the Stellenbosch district are equipped with televisions and video machines, though only the one at Kaya Mandi is put to regular use. By showing videos related to maternal drinking in the clinic waiting rooms, health care staff could educate men as well as women, and perhaps make the clinic experience more pleasant for everyone. Finally, as part of an increased focus on women's health, clinics could start support groups for women who are drinking during pregnancy and for women who have children with FAS. This later population may need assistance with childcare as well as personal motivation.

Beyond the clinic setting

In accordance with the primary health care approach, efforts should be made to address underlying reasons for the prevalence of alcohol abuse on the farms.

Access to health care services should be improved. If women had better access to clinic services, they may attend clinic for first booking appointments earlier, and would be able to receive more clinic support if they were drinking. Improving access should be explored with farmers and community health workers, who together may be able to arrange more frequent transport for women.

Access to alcohol should also be explored. This is a timely issue, given that trading-hour restrictions on alcohol may soon be lifted (Ludski, 2001). It would also be wise to investigate the bakkies that reportedly sell liquor on farms and determine the other ways that farm workers get their alcohol.

In general, the farm CHWs appear to be an underutilised resource. Equipped with skills to promote health and teach women about alcohol and pregnancy, they are not afforded the same respect as

clinic-based health workers. Clinic collaborations with the CHWs could increase the amount of education farm workers receive, possibly reduce the first booking 'age', and also increase CHWs influence within the farm community. Another underutilised resource for improving access is the mobile clinics. In addition to providing direct antenatal care in their monthly visits to farms, they could engage in broader health promotion activities around alcohol and maternity.

Finally, there are a range of potential collaborators that could strengthen health promotion efforts including schools, churches, the Dopstop Association, other community-based and non-governmental organisations and media sources. Most importantly, in keeping with the tenets of health promotion and primary health care, new projects to reduce maternal drinking must have at their core the direction and desires of farm-working women. The fact that this population is hard to access makes their involvement all the more crucial.

Limitations of the study

This study focused on the population of coloured female farm workers who attend the Cloeteville clinic in the Stellenbosch region for antenatal services, whose living conditions are unusual, though not unique in South Africa. The conclusions that emerged from this study are towards improving the health of pregnant women from that particular community and do not necessarily apply to antenatal care services at the other clinics in Stellenbosch, much less in South Africa.

Methodologically, the study was limited by the small sample (6) of mothers who participated in the interviews and focus group, and by the fact that they all came from Devon Valley farms that have on-site community health workers. Not all the farms in the region are so equipped. In addition, time constraints allowed for only one focus group with the mothers. Other limitations arose from

the focus groups with the clinic-based health workers and nurses who had repeated scheduling conflicts that eventually prevented the proposed follow-up focus group at the Cloetesville clinic. The original focus group was itself compromised by the absence of the Cloetesville health promoter, who was off-site for much of the early stages of this research. Both this study and the clinic were compromised by her absence.

This investigation highlighted numerous issues in need of further research that should be undertaken with the guidance and participation of the target community. There is a need for research into how clinic staff can reach out to women earlier in their pregnancies and bring them in for their first booking appointments before their babies are at risk for FAS. Research should also be conducted to determine the optimal environments and methods for education about alcohol and pregnancy. In addition, considerable collaborative research with farm workers will be necessary to create a screening tool and a secondary clinic-based alcohol intervention.

The logo of the University of the Western Cape, featuring a stylized classical building with a pediment and columns.

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CONCLUSION

By investigating the alcohol and maternity information-gathering tools and interventions in place in the public health service in the Stellenbosch district, this study identified several gaps in the antenatal health care delivery. If addressed, they may facilitate prevention or reduction of alcohol consumption by pregnant women in the Western Cape winelands.

The problem of maternal drinking by farm working women attending the Stellenbosch antenatal clinics (and in particular the Cloetesville hospital clinic) can be broken down into four action areas:

- How to improve identification of women who are drinking
- How to help women who are drinking
- How to monitor maternal drinking and any “help” provided
- How to promote health amongst pregnant women at risk for drinking

These challenges can be addressed through a series of clinic-based health promotion activities.

Health workers should start improving alcohol screening by developing a culturally-appropriate screening tool and by softening the climate of the interview through in-service training for nurses on women’s wellness, care, and specifics about substance abuse in the farm worker community. Next, the education intervention in place should be standardised so that all women receive a comprehensive talk about the effects of maternal drinking in their first booking interview with an option of a secondary intervention if necessary. Ideally, education should be given as early and often as is feasible, possibly in family planning consultations. In a similar vein, ways to bring women in earlier for their first booking appointments should be explored, possibly through increased collaboration with community health workers and the mobile clinics. Finally, in order to monitor maternal drinking and evaluate the effectiveness of the intervention, a health information system should be developed.

RECOMMENDATIONS

As the focus of this study was the antenatal clinic, the majority of recommendations are strategies designed for use in the clinic setting. This is not to imply that clinic action is the only or the best way to reduce maternal drinking in Stellenbosch, and accordingly, suggestions for community activities are included.

Improve screening for alcohol intake in first booking appointments

- Soften climate of the interview through training nurses on the women's wellness approach, ways to show care, and specifics about substance abuse in the farm worker community.
- Introduce new screening methods that ask about alcohol use in more sensitive and less direct ways than the current procedure or traditional screening tools.

Standardise and adapt interventions to discourage maternal drinking

- Ensure that all women receive a comprehensive talk about the effects of maternal drinking in their first booking interview.
- Implement the same intervention in family planning consultations.
- Train nurses to use motivational interviewing for use with women found to be drinking during pregnancy.

Monitor maternal drinking and intervention through health information system

- Train clinic staff to use alcohol registers in the first booking appointments.
- The register could include the following information: drinking (Y/N); number of weeks pregnant; relative knowledge of effects of alcohol (negligible, basic, comprehensive); source of knowledge (tick off areas, but do not offer suggestions: TV, radio, school, youth group/camp, friends, family, social environment, family planning appointment, prior antenatal visit, prior clinic visit, other); and use of Cloetesville family planning services (Y/N).

Promote women's health

- Provide training for nurses on women's wellness and client-centred care.
- Educate in clinic through posters, pamphlets, videos and other media; work with local health department and target communities to create and distribute media.
- Use mobile clinics for antenatal care and maternal health promotion.
- Explore ways to bring women in earlier for their first booking appointments.
- Increase collaboration with community health workers.
- Support community health workers, the Dopstop Association, social workers, other NGOs and health promotion programmes in their efforts to reduce maternal drinking in the winelands.
- Address smoking in the development of interventions to reduce maternal drinking.



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ENDNOTES

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ii Weideman D, 12 March 2001.
iii Miles J, Deputy director, PAWC, 30 March 2001- personal communication.
iv Carstens C, Deputy director, PAWC, 5 February 2001- Proposed Rehabilitation Programme, West Coast
v Carstens C, 5 February 2001- personal communication.
vi Miles J, 30 March 2001.
vii Solomon L, Health Information Systems Programme manager, 11 April 2001- personal communication.
viii Solomon L, 11 April 11, 2001.
ix Brady M, Researcher, 2 March 2001- personal communication.



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APPENDICES

- A. Interview schedule for recent mothers
- B. First booking form from Cloetesville
- C. Map of Stellenbosch area
- D. Routine monthly report
- E. Perinatal and maternal statistics from hospital



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