THE PROVISION AND USE OF CONTRACEPTION AMONGST ANTENATAL AND POSTPARTUM WOMEN IN A RURAL AREA OF THE EASTERN CAPE

by

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Abstract

In South Africa's public sector maternity services injectable progestogen-only contraceptives (POCs) have typically been administered immediately after delivery to women choosing to use these methods. POCs are hormonal methods which contain a progestogen similar to the natural hormone that a woman's body makes. POCs have been approved as a safe and effective contraceptive method by major international regulatory bodies such as the Federal Drug Administration (FDA) of the USA, and the International Planned Parenthood Federation (IPPF), as well as locally by the South African Medicine Control Council. In South Africa POCs are on the Essential Drug List for Primary Health Care [1]. They have become a popular contraceptive method amongst many women all over the world, in particular in South Africa, where they comprise 49% of current methods used [2].

A series of studies arose in response to the draft South African National Contraceptive Guidelines (1999), which recommended that women wishing to use a POC as their contraception method postnatally be advised to delay use of POCs until six weeks postpartum. This recommendation followed the international guidelines of the WHO and the IPPF, which were based on theoretical concerns that the early transfer of small amounts of hormones to the infant through breastmilk may affect its growth development. The studies sought to investigate the feasibility of recommending this delay in POC administration, taking into account both the mother's risk of pregnancy in the early postpartum period and her ability to return to a health service at six weeks post-delivery, to initiate a method of contraception.

Studies were conducted in 2000 in Gugulethu, an urban area in Cape Town, and in 2001, in Stellenbosch in the rural Western Cape. A further need arose to investigate and explore these issues in an area where conditions would be different from the Western Cape. Hence, a similar study was conducted in a rural area of the Eastern Cape. A site where the Health Systems Trust was active as the Initiative for Sub-District Support (ISDS) was chosen as a study area.

For the purpose of this research we undertook an extensive literature review of the effects of the use of POCs on breastfed infants in the postpartum period. This literature review did not find any scientific evidence to support possible adverse effects on the infant [3,4].

In addition, a quantitative survey was conducted amongst 346 women attending the child health clinic (CHC) and amongst 346 women attending the antenatal clinic (ANC) at St Patrick's Hospital, in Bizana in the Eastern Cape during 2002. The women were interviewed to determine contraceptive knowledge and prior and in the case of post-natal women, current contraceptive use; practices concerning contraceptive use; pregnancy risk in the early postpartum period; knowledge of the time they are likely to become pregnant; the feasibility of delaying POC initiation; access to contraceptive services with regards to time, transport and costs; and breastfeeding practices and patterns of sexual activity in the postpartum period.

The results of the survey were as follows: Most women were able to access health services without difficulty. Contraceptive use was low at 29%. Six percent of women may be at risk of becoming pregnant, should they not use contraception, as they were not exclusively breastfeeding and were sexually active within the first six weeks postpartum. Seventy-eight percent and 75% of women at the CHC and ANC respectively, lacked good knowledge about the time they were most fertile. Most women did not regard exclusive breastfeeding as a reliable method of contraception (40% and 47%, at the CHC and ANC respectively). Disturbingly, nearly 20% of the women experienced difficulties if they refused sexual intercourse with their husbands or male partners.

A workshop was held with stakeholders (Health Systems Trust and health service providers) in February 2003. The purpose of the workshop was to report on the findings in order to make recommendations regarding ways in which to improve the quality of contraceptive and other reproductive health services provided. This final report has been written on the basis of the study findings, as well as feedback during this workshop. The National Contraceptive Policy Guidelines published subsequent to this study have been amended from the original draft and recommend that women be given a choice about the timing of postpartum POC initiation, after appropriate counselling. Arising from this study, it is further recommended that effective implementation of the guidelines requires that providers counsel women appropriately about the theoretical risks of immediate post-delivery POC initiation and assist women in their assessment of postpartum pregnancy risk (i.e., their intentions regarding resumption of sexual relations, and their ability to negotiate this; their ability to use barrier-method contraceptives; the feasibility of exclusive breastfeeding for at least six weeks post-delivery; and the feasibility of visiting a clinic six weeks postpartum to initiate a

contraceptive method). POCs should be available immediately after delivery for women who choose not to delay initiation of sexual activity, or for those who have no choice in delaying sexual activity. The provision of adequate information will assist women in making informed choices with respect to their reproductive health.

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Definition of Terms

Employment

Working more than twice a week.

Exclusive breastfeeding

Feeding the infant with breast milk only. i.e., no supplementary feeds, including water.

Supplementary feeding

Adding water, formula, cow's milk or other foods to the infant's diet.

Immediately Postpartum

In this study we define immediately postpartum as the time after delivery of an infant at a health centre until the time the mother and infant leave the health facility.

Lactational Amenorrhea Method (LAM)

A contraceptive method which provides 98% protection in the first six months to women who are exclusively or almost exclusively breastfeeding and remain amenorrheic.

Injectable progestogen-only contraceptives

Depo-Provera/ Petogen (Medroxyprogesterone acetate, IMI, 150mg, 12 weekly), Nur-Isterate (Nor-ethisterone enanthate IMI, 200mg, 8 weekly), the two brands of POCs available in South African public sector Reproductive Health Services.

Sexual Activity

Sexual intercourse in this context is defined as that in which there is penetration of the vagina by the penis.

Fertility

Fertility is defined as the ability to conceive and bear children. The fertile period of life lies between puberty and menopause, although fertility at each extreme is much reduced because of the lessened frequency of ovulation.

Fertile period[1]

Fertile period is the time during which having sexual intercourse could lead to a pregnancy. Women normally ovulate about 14 days from the first day of their period, although this varies considerably from woman to woman. Fertile period starts about 4-5 days before ovulation, and ends about 24-48 hours after it. This is because sperm can live in your body for approximately 4 to 7 days, and the egg can live for 24 to 48 hours after being released.

[1] A woman may begin counting her fertile period on the first day of her menstrual period. A woman is most fertile on the days before ovulation and the day of ovulation. Knowing fertile days can help a woman to increase her chances of getting pregnant, as well as avoid an unwanted pregnancy.

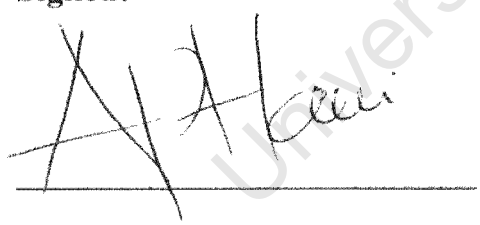
List of Abbreviations

ABET	Adult Basic Education
ANC	Antenatal Clinic
CHC	Child Health Clinic
CHC	Community Health Centre
CHW	Community Health Workers
COC	Combined Oral Contraceptive
DMPA	Depot medroxyprogestogen acetate
FDA	Federal Drug Administration
HST	Health Systems Trust
IPC	Injectable Progestogen Contraceptives
IUCD	Intrauterine Contraceptive Device
IPPF	International Planned Parenthood Federation
ISDS	Initiative for Sub-District Support
POCs	Progestogen-Only Contraceptives
PAWC	Provincial Administration of the Western Cape
PHASA	Public Health Association of South Africa
PPASA	Planned Parenthood Association of South Africa
LAC	Local Authority Clinic
MOU	Maternity Obstetrics Unit
NET EN	Norethisterone oenanthate
UCT	University of Cape Town
WHRU	Women's Health Research Unit
WHO	World Health Organisation

Declaration

I, Andiswa Hani, hereby declare that the work on which this thesis is based is original and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any university.

Signed: **Date:**



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Chapter 1: Introduction

1.1. Background and Motivation for the Study

Progestogen-only contraceptives (POCs) have been used for more than 30 years, both locally and internationally [1]. Examples of POCs used in SA are the progestogen-only pills (Microval and Micronovum), injectable DMPA (Depo-Provera and Petogen), and the injectable NET-EN (Nur-Isterate). These methods of contraception have been shown to be effective and safe. On this basis they have been approved for contraceptive use by major international regulatory bodies such as the Federal Drug Administration (FDA) and the International Planned Parenthood Federation (IPPF), as well as locally by the South African Medicine Control Council. Women all over the world commonly use POCs as a method of contraception. In South Africa use of POCs amongst women using contraceptives comprises 49% of all contraceptive methods used [2]. Many women in South Africa who attend public sector maternity services have been given the progestogen-only method of contraception (DMPA or Net-En) immediately after delivery. Norplant implants are not available in SA.

Draft National Contraceptive Guidelines developed by the National Department of Health recommended that women wishing to use POCs post-natally should delay use until six weeks postpartum[1]. The policy recommendations followed WHO and IPPF recommendations. These recommendations were based on theoretical concerns about the potential adverse effects of POCs on early infant development. The rationale, on which the recommendation was based, is that there is a need to prevent early transfer of small amounts of the progestogen hormone to the infant since it is known that hormones pass into breast milk [3]. Concern has been raised as to whether this might affect the growth and development of the infant [3,4,5]. One theory is that the immature neonatal liver may not be efficient in metabolising hormones [3,4,5].

As a result of these proposed national guidelines the Reproductive Health Programme of the Provincial Administration of the Western Cape (PAWC) requested that a study be conducted in collaboration with the Women's Health Research Unit in the School of Public Health and Family Medicine, and the Contraceptive and Sexual Health Unit in the Department of Obstetrics and Gynaecology at the University of Cape Town. They were concerned about implementing these guidelines without first assessing whether or not this was going to be practical, feasible and acceptable to women. If the policy were implemented, it would be

possible that many women would not have adequate contraceptive protection and that the number of unwanted pregnancies could increase.

As a result, studies were conducted in Gugulethu [6], Cape Town in 2000, in Stellenbosch [7,8], Western Cape during 2001 and in the Eastern Cape during 2002.

This dissertation will present a brief summary of the findings of studies conducted in Gugulethu and Stellenbosch, examining the use of POCs in the postpartum period, as background to the findings of a study conducted in the Eastern Cape. The latter forms the focus of this dissertation. Detailed findings of other studies have been reported on elsewhere [6,7,8].

The first study was conducted in Gugulethu. The rational for the Gugulethu study was to provide information on whether or not the recommended practice of giving contraception at six weeks postpartum was practical and acceptable to women and the health-care workers. The Gugulethu study was crucial as it formed the basis for the Kayamandi and the Eastern Cape studies.

The **Guguletu study** indicated high rates of intended and actual use of postpartum contraception [6]. Ninety-seven percent of the women at the Maternity Obstetrics Unit (MOU) intended using contraception postpartum, and at the Local Authority Clinic (LAC) the actual use of postpartum contraception was 86% [6]. In both study populations the progestogen-only injection was the most commonly-used method of contraception (73%). This high rate of POC use has been confirmed in other studies [9,10] . At the Local Authority Clinic (LAC) 98% of the women who were on POCs reported receiving their POC immediately after delivery. The study also showed that 10% of women might be at risk of becoming pregnant, should they not use contraception, as they reported being sexually active and not exclusively breastfeeding [6].

Given the information on the possible theoretical effects of POCs on the infant, most women did not wish to change their initial choice of contraceptive method. Neither did the majority of women (68%) wish to delay use of their POC. There are a number of possible reasons for this. Firstly, women may have had difficulty comprehending information, which is based on theoretical risks [6]. Secondly, the fear of theoretical risks from immediate use may be outweighed by that of an unwanted pregnancy [6]. Women stated that they were unable to

decide in advance when they would be sexually active, as it was possible that their partners might coerce them into recommencing sexual activity.

Those women (32%) who wanted to wait until six weeks postpartum before using POCs gave the following reasons for this decision [6]: They were concerned about the effect of the contraceptive on the baby; they did not intend becoming sexually active in this period; or they usually waited before starting a method of contraception after pregnancy. The study showed that condom use was almost non-existent at both facilities; at the LAC, 1% of women reported having used a condom and at the MOU none of the women reported using condoms as a form of contraception prior to becoming pregnant. Neither did they wish to use condoms post-delivery. In light of the high prevalence of HIV infection in South Africa, this latter issue is of great concern. The findings correspond with other studies in similar areas of Cape Town. For example, a Khayelitsha study revealed a low reported condom usage of 9% amongst sexually active women [11].

The study findings demonstrated that implementation of the draft guidelines was likely to have an impact on the choices that the majority of the women could make with respect to postpartum contraceptive use [6]. We concluded that while women should be given adequate information to allow them to make an informed choice, POCs should continue to be available for women who choose to initiate contraception immediately postpartum.

In a second study, conducted in Kayamandi in Stellenbosch [7, 8], a rural area of the Western Cape, 180 women attending the antenatal clinic and 200 women attending the CHC took part in the survey. They were interviewed to determine their knowledge, attitudes and practices concerning contraceptive use, breastfeeding patterns and sexual activity in the postpartum period.

As in Gugulethu, following the initial interview, women attending the antenatal clinic were given information about the possible adverse effects of progestogen-only contraceptives in the first six weeks after birth. They were then once again asked whether they would use contraception immediately after the birth, about their contraceptive preference and the reasons for their decisions.

At the CHC, the study showed that 94% of women were using contraception. Similar to women in Gugulethu, 98% of women interviewed reported having used progestogen-only contraceptives and the majority of them had started them immediately after delivery.

Eighteen percent of women were breastfeeding exclusively at six weeks. Twenty-two percent reported being sexually active in the six weeks following the birth.

Among women at the ANC, before receiving information about possible adverse effects of progestogen-only contraceptives, 91% of the women reported that they intended using progestogen-only contraceptives and 84% of them intended receiving them immediately after birth.

After receiving information about the possible adverse effects of progestogen-only contraceptives, 91% of them still intended using progestogen-only contraceptives as their method of choice. However, in contrast to the Gugulethu findings, 91% of the women were concerned about the effects of progestogen-only contraceptives on infants and wished to delay use until six weeks after birth. Ninety-five percent of the women stated that they would be able to initiate contraceptive use when taking their children for immunization six weeks after the birth and 58% did not believe exclusive breastfeeding would be a reliable method of contraception in the first weeks postpartum.

This study demonstrated that, similar to women living in urban areas, women living in peri-urban areas were able to make informed decisions suitable to their situation when provided with explicit and appropriate information concerning the option of initiating the contraceptive method of their choice immediately postpartum or after six weeks.

Subsequent to this study in August 2001, the National Department of Health published New National Contraceptive Guidelines [12]. These subsequent guidelines were amended from the original draft and recommend that women be given a choice about the timing of postpartum POC initiation, after receiving appropriate counselling. Arising from this study, it was further recommended that effective implementation of the guidelines requires providers to counsel women about the theoretical risks of immediate post-delivery POC initiation and to assist women in their assessments of postpartum pregnancy risk (i.e., their intentions regarding their ability to negotiate resumption of sexual relations; their ability to use barrier-method contraceptives; the feasibility of exclusive breastfeeding for at least six weeks post-delivery; and the feasibility of visiting a clinic six weeks postpartum to initiate a contraceptive method). POCs should be available immediately after delivery for women who choose not to delay initiation of sexual activity and contraception. The provision of adequate information will assist women in making informed choices with respect to their reproductive health.

It was felt important to examine these issues in a rural area of South Africa as it was anticipated that there might be differences in health-seeking behaviour of rural and urban or peri-urban women. For instance, their contraception use and breastfeeding patterns could be different, as well as their access to health services. Collecting information in a rural area setting would inform national guidelines about the provision of contraception in diverse settings.

A Health Systems Trust Initiative Sub-District Support (ISDS) site was chosen as the study area to conduct a further study in a rural area of the Eastern Cape, to investigate and explore these issues in an area where conditions may be different from those in the Western Cape.

The ISDS is a partnership project between the Health Systems Trust and the Department of Health that aims to demonstrate mechanisms for improving standards of health-care delivery through the provision of sustained support to selected districts across the country. It hopes to identify those factors which hinder the quality of health-care delivery, and to develop specific and multi-pronged interventions to improve delivery and inform the on-going process of health policy and health-systems development. The ISDS initiative is aimed at contributing to the improvement and development of the health-care system, building support slowly and systematically for this system, documenting the changes which are brought about, and analysing the critical "success factors" so that they can be shared [13].

The Eastern Cape is one of the most disadvantaged of South Africa's nine provinces. After KwaZulu-Natal and Gauteng, Eastern Cape is the third most populous province of South Africa. After Northern Province and North West, it has the third highest non-urban population of the nine provinces. In a province such as Eastern Cape, where 62.7% of the population of approximately 5.9 million live in non-urban areas, PHC facilities are often readily available source of health care. It is a largely rural small province with a female population of close to 1.6 million within the age group 15-49 years [14]. Region E health district, in which the study was conducted, represents a severely under-resourced rural health-district in South Africa. The majority of the population in this region is Xhosa-speaking, and most people live in rural villages or in scattered homesteads. The region has an estimated population of 290,000. It epitomizes the challenges faced by the Department of Health in providing basic health-care to a substantial proportion of the country's disadvantaged rural population [13].

There is little data concerning the health status of the population. That, which is available, demonstrates high rates of malnutrition (high poverty rates are known to exist in the former Transkei), a maternal mortality rate of approximately 200/100,000 live births, and a perinatal mortality rate in excess of 40 per 1000 live births [13]. The HIV prevalence in the Eastern Cape at the time of the study was 21,7% [15]. According to a survey conducted by the Reproductive Health Research Unit in the Eastern Cape, termination of pregnancy services in the province provided 18 TOPs per 100 000 women over a period of three years [16]

The study focused broadly on postpartum contraception amongst antenatal and postnatal women. It determined what contraceptive methods and services women used prior to becoming pregnant and what they would use after the birth. The research was conducted within the context of local needs and was mindful of the need for capacity-development within the health services in the area. The reason for this was that little information was available on contraceptive use in the Bizana area.

The study was conducted at an ISDS site so that the findings of the study could be implemented and sustained, in order that the community may benefit from the research project. This corresponds with the core objective of the ISDS which states that research projects must be sustainable, replicable and linked to the other activities and policies of the Department of Health. The information provided through this study was made available to an Obstetrics Support Programme, which was already in place in the community and added to the data needed to plan appropriate health programmes to improve the health of the people in the region of the Eastern Cape (Region E).

1.2. Purpose

The purpose of this study was to provide the Eastern Cape Province Department of Health with health information on contraceptive use that would be useful in the provision of good quality reproductive health-care services, particularly in the area of contraceptive service provision.

The study aim was to determine the past and intended use of contraception and the related health-seeking behaviour amongst postpartum and antenatal women. A further aim was to determine whether changing the time of administration of injectable progestogen-only contraception from immediately after delivery to six weeks after delivery would be practical,

feasible and acceptable to both women and the health-care workers. It was considered important to determine what women's wishes were in this regard.

1.3. Objectives

The objectives of this study were to determine the following amongst women attending public sector child health and antenatal clinics:

1. Their demographic profile
2. Their previous use of contraceptives and what services women used to obtain their contraception
3. Their intended future use of contraceptive methods, and for those women intending to use contraception postpartum, which services they would use to obtain their contraception
4. Reasons for non-use of a method amongst women not intending to use contraception
5. When women resumed sexual activity postpartum
6. Breastfeeding patterns amongst postpartum women
7. Whether women had knowledge about the period in their monthly cycle when they were most likely to become pregnant, if they were sexually active
8. What kind of problems or difficulties women may have experienced if they refused sex with their partners

In addition, amongst women intending to use POCs after delivery, the following were determined:

9. Women's views on whether it would be convenient for there to be a delay in receiving POCs
11. The availability of health services to provide POCs to women at six weeks postpartum

Chapter 2: Literature Review

2.1. Use of POCs as a Contraceptive Method Internationally

Injectable progesterone-only contraceptives (POCs) are licensed for contraceptive use in more than 106 countries and it has been reported that currently more than 25 million women use POCs, worldwide. It is estimated that over 40 million women worldwide have used this method at some point. However, despite their widespread availability, POC's are not the most commonly used method among women using a modern contraceptive method, except in South Africa, Indonesia, Thailand and New Zealand.

There are two main types of injectable POCs, namely DMPA and NET EN. Both are highly effective in preventing pregnancy [17]. According to a Johns Hopkins Population Report, DMPA is reported to be available in more countries in the world than NET-EN [18]. Bigrigg *et al.* [19] report that Depo Provera has been used by more than 30 million women world–wide since its introduction in 1963. Depo-Provera (medroxyprogesterone acetate, DMPA) when given as a 150 mg dose by deep intramuscular injection every three months, is a highly effective contraceptive with a very low failure rate comparable to modern copper IUDs, and lower failure rates than many other methods [19] such as condoms, a diaphragm with spermicide, fertility-awareness-based methods, female condoms, and spermicides. In common practice these latter methods are only somewhat effective; although they maybe more effective when used correctly and consistently [20]. Most clinical trials of DMPA report less than one pregnancy per 100 women in the first year of use [21].

Given that POCs are highly effective methods, they should be included at clinics and other integrated family planning services among the family planning methods available as a first-line method to all who wish to make an informed choice about reversible methods of contraception.

2.2. POC Prevalence and Use in South Africa

The overall national contraception prevalence in South Africa for all modern method usage is 61%[2] .Owing to recent historic population policies, even before 1994 South Africa had a high prevalence of contraceptive use compared to other sub-Saharan African countries [22]. High levels of contraceptive use have contributed to the decline in South Africa's total fertility rate, from 3.3 in 1991 to 2.9 in 1999 [22]. The injectable progestogen-only contraceptive is the

most commonly used method among women using public sector health services (comprising 49% of current contraceptive use among sexually active women), followed by the oral contraceptive pill and female sterilisation (both about 20% of current options exercised by sexually active women) [23].

The POCs currently available in South Africa are depot medroxyprogestogen acetate (DMPA), registered as Depo-Provera and the generic equivalent, Petogen, and norethisterone oenanthate (NET-EN) registered as Nur-Isterate. DMPA and NET EN are on the Essential Drug List for Primary Health-Care [24] in South Africa and are freely available in public sector facilities [1]. Among those women using a contraceptive method, injectable contraceptive use is higher in rural areas than in urban areas (33% versus 28% amongst sexually active women) [22]. Use is also higher amongst younger South African women, with POCs being used by 51% of 15-19 year old sexually active women.

The factors relating to the high rate of use of POCs in South Africa are complex. These include the previous apartheid government's policy of promoting this method as part of regulating population growth among black people [22]. Another reason for the high use of POCs is that it is a favoured method of the health services providers who see this as a quick and reliable method that can be administered without lengthy explanations and client training within the context of busy primary health-care clinics. POCs may also be the method of choice of many women because of their convenience, as women have to return to a clinic for their contraception only every two or three months. In addition, in a study conducted in KwaZulu-Natal more than half the women (52.9%) in the study reported that they considered POCs to be the most effective method to use in preventing pregnancy [25]. Other reasons women gave for preferred use were: they were a safe method; they were recommended at the clinic; they had few side effects and they were a method that could be used covertly in situations where women found opposition to contraception by male partners. Some women also reported that they were told by a health service provider to use POCs [25].

A number of studies have been undertaken in South Africa on contraceptive prevalence, dual contraceptive use to protect against pregnancy and sexually transmitted infection, and reasons for method-switching or discontinuation. One published qualitative study amongst 40 adolescents in the Limpopo Province of South Africa, exploring reasons for non-use of contraception amongst sexually active adolescents, found the main reasons for reluctance to use a method were the experience or fear of side effects, and harassment by clinic nurses who

regard the adolescents as being too young to be sexually active. However, an extensive literature search revealed no published studies that described reasons for specific contraception method choice amongst South African users more broadly.

2.3. The Safety of Using POCs Postpartum

Several research groups [3,26,27] recommend that although POCs could be used safely during lactation, non-hormonal methods should be considered as the first choice for lactating women as they do not interfere with breastfeeding and there is no potential transfer of exogenous substances to the infant. Non-hormonal methods include barrier methods (male condoms, female condoms, diaphragms and spermicides) and intrauterine devices. These methods could be used at any time postpartum. The male condom has a 3-12% failure rate (depending on the correct use) in non-breastfeeding women. However, consistent use of this method in South Africa is poor [25]. The diaphragm is not currently available in South Africa. The Intrauterine Contraceptive Device (IUCD) available in the public health sector reproductive health services is a Copper-T (CuT 380A and Dalcept CU 375). It is available at clinics and hospitals, and whilst the IUCD can be inserted directly after delivery with no increased risk of expulsion, this is not a common practice. Instead, the IUCD is usually inserted at six weeks postpartum, and is not a commonly-chosen contraceptive method.

As part of this study, an external literature review was conducted to examine the evidence on the safety of using POCs postpartum with regard to infant health. In a study conducted in Thailand, children exposed to DMPA (Depo-Provera) during their mothers' pregnancy and during breastfeeding were compared to a control group composed of children with no hormone exposure during pregnancy or breastfeeding [28].

The study concluded that the use of DMPA during pregnancy or breastfeeding did not adversely affect the long-term growth and development of children. A prospective, non-randomized study carried out in seven centres in five countries by a World Health Organisation Task Force examined the growth, development and the health of infants whose mothers used POCs during lactation[29]. This study concluded that progestogen-only contraceptives used during lactation had no adverse effect on infant growth and development.

Another concern raised relates to the effects of POCs on breastfeeding initiation and quality. Since progesterone withdrawal may initiate lactagenesis, it may be preferable for natural progesterone levels to decline to baseline before a POC is given [3]. However, most studies

report that POCs do not affect lactation. Kennedy *et al.* report that progestogen-only methods can be safely used during lactation [3]. In one study [30] conducted, the effects of progestogen-only contraceptives, both on lactation and infant growth, were examined. The study was initiated among breast-feeding women in Iran who were six weeks postpartum. One group of 51 women in this group received progestogen-only methods (POP, progestogen-only pill, or DMPA) and another group of 89 women received non-hormonal contraception (intrauterine device, condom, female and male sterilization). Only women who had given birth to healthy term babies without major health problems and who were exclusively breastfeeding were enrolled in this study. Breast milk components were compared between two groups at the 26th week. Infant growth was serially checked through monthly visits during the first six months of life in both groups. The study found that neither POPs nor DMPA had any adverse effects on breast milk components and infant growth. Therefore, it was concluded that both were suitable and safe contraceptive methods in breastfeeding women [30].

Very few studies exist on the effects on lactation of introducing progestogen-only methods prior to the sixth postpartum week. The International Medical Advisory Panel of the International Planned Parenthood Federation [4] advises Planned Parenthood affiliates that Progestin-only pills, injectables, and Norplant do not affect the quantity or quality of breast milk or length of lactation, and are therefore suitable for breastfeeding women who cannot or do not wish to use non-hormonal methods. However, as a precautionary measure they recommend that initiation of hormonal methods should be delayed until six weeks postpartum. In another study, the opinions of twenty international experts in reproductive endocrinology and family planning service delivery were solicited concerning contraceptive pill use during breastfeeding [31]. In particular, experts discussed whether breastfeeding women who use POCs should be advised to switch to combined estrogen-progestin pills (COCs) during lactation. These experts agreed that POCs could be used safely and effectively throughout the period of lactation and there was no need to switch to another contraceptive method or another type of pill [31].

This extensive literature review of studies, related to the effects of POCs on breastfed infants, did not find any scientific evidence to support the theoretical concerns of possible adverse effects on the infant [3,4]. In addition, according to Professor Dave Woods, an associate professor in Perinatal Paediatrics at the Red Cross Memorial Children's Hospital in Cape

Town, in his local experience over a period of 25 years, no harmful effects of POCs on breastfed infants have been found [32].

In conclusion, from the literature review it appears that the recommendation in the proposed South African National Contraceptive Guidelines that POCs should be introduced only at six weeks postpartum appears to be based on theoretical concerns that have not been scientifically substantiated.

Chapter 3: Methodology

3.1. Study Design

A **descriptive cross-sectional study** was conducted to fulfil the main objectives. It consisted of two parts: a preliminary situational analysis of contraceptive services provided, and a survey among pregnant women and women who had recently given birth. This latter will form the main body of this dissertation.

3.2. Study Population and Site

The study site was St. Patrick's Hospital in Bizana in the Eastern Cape province of South Africa. The study population consisted of mothers with children less than six months and older than six weeks attending the hospital based CHC as well as women attending the antenatal clinic. A detailed breakdown of gestational age for women attending the ANC is not available. The age of CHC women's last child was 0-6 months. On the advice of key individuals in the HST/ISDS initiative, women in this study were not provided with information on the theoretical potential effects of POCs on the infant postpartum. It was felt that in a very rural setting, where most women are illiterate or have low levels of education and lack knowledge on reproduction, providing theoretical[ii] information of this type could lead to greater anxiety than in an urban area, particularly in a context where women may have fewer choices socially and within the health services.

3.3 Sampling

A convenience sample of 346 mothers attending the CHC and 346 pregnant women coming for their first or for their routine antenatal check-up at the ANC was selected. Sample size was calculated using the Epi Info statistical package. The sample size calculations were based on the expected rate of exclusive breastfeeding among women being 20%, at six weeks postpartum, at a 95% confidence level .

[ii] See earlier explanation that the literature review did not find the theoretical concerns to be based on scientific evidence.

3.4. Methods of Data Collection

A situational analysis was conducted prior to the study to collect the background information on the available health services in the Bizana health district; the type of services the hospital offered; antenatal clinic availability and attendance; child health clinic availability and attendance of women with children between the ages of six weeks and six months; type of contraceptive methods offered; contraceptive supplies at services; health-service related problems in rendering postpartum contraception services; number of hospital deliveries; number of home deliveries; number of TOPs done. The results of the situational analysis does not form part of this dissertation.

3.4.1 Survey

Women were interviewed as they arrived at the health facility. Face-to-face interviews using a structured questionnaire were conducted. Information on demography, contraceptive use, breastfeeding patterns, and sexual activity was gathered. The principal researcher or field interviewers identified the women to be interviewed. The women were interviewed over a 3 months period.

Most women's home language was Xhosa. Therefore, the questionnaires were translated into Xhosa, and then back-translated back into English, to ensure consistency (see Appendix B). Specially trained local community workers, recommended by the hospital matron and who had prior data collection experience conducted the interviews assisted by myself as the Principal Investigator (PI). The PI selected, trained and supervised the interviewers on a regular basis. Both interviewers had tertiary education qualifications - one a Diploma in Public Management and the other a Diploma in Accounting. Rigorous training sessions were held with the CHW's which included going through the questionnaires was conducted with them prior to the data collection period. The PI also spent substantial time supervising the CHW, sat in on a selection of interviews and questionnaires were checked before sent for data capturing.

3.4.2. Feedback workshop

A feedback workshop was held as part of the dissemination process of the study. Nurses who worked at the hospital based clinic and at the maternity ward were invited to take part in

workshop as well as the representative from HST and the hospital superintendant was also present at the workshop. Grounded theory analysis was used to determine themes. The results from the women's interviews were triangulated with those of the health care providers. See Appendix C.

3.4.3. Pilot study

A pilot study consisting of ten interviews was undertaken to ensure that questions were phrased in a way that would enable us to achieve the objectives. The data collection tool was slighly different from the two earlier studies. The changes that were made were in order to meet the objectives of the study and additionally to investigate contraceptive use, breastfeeding patters and sexual activity in the rural area of the Eastern Cape. In the previous two studies the questionnaire provided participants with information on the potential theoretical effects of IPC's on infant health immediately post-partum. This was not provided in this study for the reasons outlined under 3.2. The Principal Investigator was also provided with technical assistance by the doctor who worked at the Reproductive Health and Sexual Health Clinic at Groote Schuur Hospital.

3.5. Measurement Variables

The following variables were assessed and analysed for this dissertation.

1. Demographic characteristics of women, including: age, level of education, employment status and sexual partner relationship status, as well as area of residence of women's sexual partners and the period in which the women saw their partners
2. Accessibility of contraceptive and ante-natal services, including: distance to the clinic, time and cost to get to a clinic
3. Contraceptive use, including current and past use, reasons for use and non-use, method use by women postpartum and intended method use among women attending the ANC
4. Knowledge of LAM as a contraceptive method
5. Knowledge regarding the most fertile period in a woman's menstrual cycle
6. Feasibility of providing POCs at six weeks postpartum
7. Breastfeeding patterns and sexual activity in the first six weeks postpartum

3.6. Data Management and Statistical Analysis

3.6.1. Data management

The data were double entered and verified using STATA Statistical package.

3.6.2. Statistical analysis

Univariate or descriptive analysis was done to determine demographic, attitudinal and biomedical factors associated with knowledge of contraceptive methods. Descriptive statistics, such as the mean, median and frequency distributions, were used to describe all variables measured. Differences in quantitative variables were assessed with the Student *t*-test, comparing the women attending the CHC and the ANC. Tests of significance for categorical variables were based on a chi-square test or Fisher exact test, where appropriate. Confidence intervals (CI) are reported at a confidence level of 95%. The odds ratios (OR) are reported as measures of association. All *p*-values were derived from two-sided tests. A *p*-value of 0.05 or less was considered statistically significant. Data analysis was performed using a triangulation of statistical packages, namely SAS version 8 (SAS Institute, Cary, North Carolina, USA), STATA and Statistical Package for Social Sciences (SPSS) and Epinfo.

3.7. Logistics

The author of this dissertation, a researcher in the Women's Health Research Unit (WHRU) in the School of Public Health and Primary Health Care at the University of Cape Town (UCT) at the time of the study acted as Principal Investigator (PI) and conducted the study. A senior researcher in the WHRU and a consultant from the ISDS assisted her. Community Health Workers (CHW) were employed as interviewers. The situational analysis was undertaken in February 2002 and the survey between March and May 2002 (see time frame, Appendix B).

3.8. Ethical Considerations

The Ethics Research Committee of the Health Sciences Faculty of the University of Cape Town approved the research protocol. Permission from the health services in the Eastern Cape Sub Health District Region was obtained to conduct the study. Women were informed about the study and their consent was sought for participation in the study. They were assured that should they decide not to participate, they would not in any way be disadvantaged in terms of their treatment at the health service. Anonymity and confidentiality of data were ensured, and women were informed that they could withdraw at any time and not answer questions that they did not feel comfortable with (for informed consent form, see Appendix B). Participants were not compensated for interviews.

The Superintendent of St Patrick's Hospital and members of the health-services working in the area were consulted regarding the research project as well as persons working in the HST ISDS.

Chapter 4: Results

4.1. Univariate Analysis

4.1.1. Demographic profile

The demographic profiles of the women attending the Child Health Clinic (CHC) and the Antenatal Clinic (ANC) respectively are given in Table 1. Women attending the CHC and ANC were similar in age and relationship status. They differed in the residence of their partner, educational levels and employment status. A lower proportion of women attending the ANC had lower than a Grade 7 level of education than women attending the CHC, however, this was not significant (p=0.232).

A similar proportion of women attending the CHC and ANC were unemployed. However, among the unemployed women at the CHC, most were seeking work, whereas most of those at the ANC were not seeking work (p=0.036).

Of the 95% (n=331) of women at the CHC who stated that they had a sexual partner, 42% (n=138) reported that their sexual partner lived outside Bizana.

In contrast, at the ANC, of the 98% (n=341) of women who had a sexual partner, far fewer (8%; n=95) stated that their sexual partner lived outside Bizana.

Among those whose partner lived outside of Bizana, the largest proportions of the partners of women at the CHC and ANC lived in either Durban or Gauteng; 10% (n=9) and 7 % (n=6) respectively lived on the nearby South and North Coast of KwaZulu-Natal province (KZN). The remainder lived in a combination of other areas.

Table 1: Demographic profile of women attending the CHC and ANC

Variable	CHC		ANC	
	n=346	%	n=346	%
Age in years:				
Mean age (SD)	25.4	(6.7)	24.8	(6.5)
Relationship status[iii]**:**				
Have a partner	331	96	341	99
Single no partner	15	4	5	1
Type of sexual partner:				
Husband	147	44.4	135	39
Boyfriend	180	54.4	204	60
Casual partner	4	1.2	2	1
Residence of a partner:				
Bizana & surrounding areas	193	58	246	72
Outside Bizana	138	42	95	28
Highest grade passed:				
Never went to school to Grade 6	87	25	59	17
Grade 7 or higher	259	75	287	83
Employment status:				
Unemployed looking for work	121	35	73	21
Unemployed not looking for work	34	10	80	23
Homemaker	165	48	139	40
Employed	14	4	33	10
Student/scholar	8	2	17	5
Other	4	1	4	1

4.1.2. Accessibility of clinics for CHC and ANC attendees

The majority of women attending either the CHC or the ANC, 53% and 57% respectively (Table 2), stated that they travelled less than 10km to get to the clinic, followed by those who travelled between 11 and 51 km, 43% and 28% respectively. Approximately half the women at either the CHC or the ANC, 50% and 57% respectively, stated that they spent less than

[iii] The total number of women attending the CHC for this variable is 331 as 15 women did have a sexual partner and the total number of women attending the ANC for this variable is 341 as five women did not have a sexual partner.

30 minutes travelling to a health facility, and just over a third spent between 30 minutes and an hour. Only a small proportion of women at either the CHC or the ANC, 4% and 6% respectively, said they spent two hours or more to get to the clinic. The most common mode of transport used by women to get to the clinic in both groups was a taxi, 73% and 71% respectively. Only 22% and 21% respectively of women walked to the health facility, whilst a small proportion, 5% and 8% respectively, reported using buses to reach the clinic. A similar proportion of women at the CHC and the ANC, 21% and 20% respectively, had no transport costs as they walked to the clinic. Forty-four percent of women at the CHC and 47% at the ANC, stated that they spent less than US$ 0.83 (R5) on a taxi fare to get to the clinic, 33% and 30% respectively, spent between US$ 0.83 (R5) and 1.60 US$ (R10), whilst only 2% and 3% respectively said they spent between US$ 1.80 (R11) and US$ 3.30 (R20) for the taxi fare to get to the health-service.

Table 2: Accessibility of clinics

Variable	CHC		ANC	
	N=346	%	n=346	%
Distance travelled (km):				
Less than 10	184	53	198	57
11 to 50	149	43	95	28
51 to 100	12	3.5	31	9
>100	1	0.3	22	6
Duration to get to clinic (minutes):				
<30	172	50	198	57
30 to 60	123	35	95	28
60 to 90	37	11	31	9
>90	14	4	22	6
Mode of transport:				
Taxi	252	73	246	71
Walking	75	22	71	21
Bus ride	19	5	29	8
Transport fare:				
No cost	73	21	71	20
< US$ 0.83 (R5) for a taxi to clinic	151	44	163	47
US$ 0.83 (R5) to US$ 1.60 (R10)	115	33	103	30
US$ 1.80 (R11) to US$ 3.30 (R20)	7	2	9	3

4.1.3. Use of contraceptive method

CHC

Twenty-nine percent (n=101) of the 346 women attending the CHC reported using some form of contraception after delivery. Table 3 shows the type of contraceptive methods used by women.

Table 3: Contraceptive methods used after delivery by women at CHC

Types of contraception	n= (%)
POCS	93 (92)
COCs	4 (4)
Sterilization	3 (3)
Condoms	1 (1)
TOTAL	**101 (100)**

Of the women who received contraception after delivery, 32% (n=32) had received contraception from the community health centres and 68% (n=69) had received it from the hospital. Amongst women using contraception after delivery, 92% said it was easy for them to get to the clinic and 8% said they had difficulties, as the health-service was far and they had to borrow money to travel to the clinic. Table 4 shows the reasons for non-use of contraception among women attending the CHC.

Table 4: Reasons for non-use of contraception, post-delivery

Reason	n= (%)
Have not thought about it	80 (32.6)
Not sexually active	55 (22)
Choose not to	35 (14)
Perceived side effects of using contraception[iv]	34 (14)
Health service provider barriers[v]	21 (9)
Breastfeeding	9 (4)
Husband/family disapprove	5 (2)
Waiting to use contraception	5 (2)
Taking a break	1 (0.4)
TOTAL	**245 (100)**

ANC Women's past and intended method of contraception

Thirty four percent of women (n=116) attending the ANC stated that they had used contraception in the two years preceding their pregnancy and 87% (n=300) reported that they intended to use some form of contraception after birth. Table 5 shows past and intended contraceptive method use.

[iv] Perceived side effects when using contraception included : it takes a long time to conceive after having used a contraceptive; it makes them wet,; it makes them gain weight; and it makes them feel ill.

[v] Health service provider barriers includes, inter lia, when a health service provider informs a client to come at some other time which is less convenient for the client to receive their contraception.

Table 5: Past and intended method of contraception

Type of contraceptive method used by women in the past two years		**Type of contraceptive method women reported intending to use post-delivery**
POCs	**n= (%)**	**n= (%)**
COCs	103 (89)	161 (53.7)
Sterilization	12 (10)	36 (12)
Condoms	--	23 (7.7)
IUD	1 (1)	4 (1.3)
Unsure of method of choice	--	1 (0.3)
TOTAL	--	75 (25)
	116 (100	**300(100)**

Of the 116 women previously using contraception, 36% (n=42) stated that they had received their method from the hospital clinic, 62% (n=72) said they had received it from the community health centre, and 2% (n=2) had received it from a mobile clinic. Of the 230 women who stated that they had not used contraception in the past two years, 20% (n=46) said they had used contraception at some stage in the past and 80% (n=184) reported never having used contraception.

Among the 46 women who had used contraception previously, reasons for stopping were the following: 54% (n=25) said they had experienced problems with their method, 22% (n=10) said they stopped for a variety of other reasons, 20% (n=9) said they wanted to fall pregnant and 4% (n=2) said that they were not sexually active, and therefore had no need for contraception.

The women who intended to use contraception postnatally reported that they would access contraception in the following ways: most women, 75% (n=226), wanted to obtain their contraceptive from the hospital or clinic, 17% (n=50) wanted to receive theirs from a community health centre and 8% (n=5) wanted to obtain it from either a mobile clinic or from various other places.

Most women (66%) wanted to receive their contraceptive method immediately after delivery.

The overwhelming majority (93%; n=277) said access to the clinic to obtain contraception would not be a problem for them. Table 6 shows the reasons for women not intending to use contraceptives postpartum.

Table 6: Reasons for non contraception use postpartum

Reasons	n = (%)
Need husband's approval	13 (29)
Reasons related to perceived side effects	12 (27)
Did not like using contraception	11 (25)
Breastfeeding	3 (7)
Must still decide	3 (7)
Will not be sexually active	2 (5)
TOTAL	**44 (100)**

4.1.4. Knowledge of lactation amenorrhoea method (LAM) and fertility

The majority of the women both at the CHC and at the ANC had little knowledge of the protection against pregnancy given by exclusive breastfeeding (LAM).

Table 7: Knowledge of the reliability of LAM as a contraceptive method

Variable	CHC	ANC
	n= (%)	n= (%)
LAM does not provide protection against pregnancy	138 (40)	162 (47)
LAM does provide protection against pregnancy	93 (27)	99 (29)
Don't know	115 (33)	85 (24)
TOTAL	**346 (100)**	**346 (100)**

At the CHC, just over a fifth of women, (22%; n=13), had correct knowledge about the time during their monthly cycle when they were most likely to become pregnant, if they were sexually active.

At the ANC, a quarter (n=7) of women had correct information about their fertile period. Table 8 provides detailed information on the knowledge of women at the CHC and the ANC regarding when they believed they were most likely to become pregnant and categorises this according to good or poor knowledge.

Table 8: Women's knowledge of fertility

Fertility	CHC	ANC
Knowledge of the menstrual cycle	**n= (%)**	**n= (%)**
• Have good information about most fertile period, i.e., most fertile period is: "12 days after menstruation" "After 2 weeks from menstruation" "Within 14 days after menstruation"	13 (45)	7 (25)
• Have poor information or incorrect information about fertile period, i.e., most fertile period is: "3 days before menstruation" "Last day of menstruation" "When my periods are almost due" " When I slept with someone during my periods"	47 (78)	21(75)
TOTAL	**60[vi] (100)**	**28[vi] (100)**

[vi] The total number of women equal to 60 at the CHC and 28 at the ANC is based on the number of women who answered affirmatively that they knew when their most fertile period was. The remaining 286 and 318 from the CHC and ANC respectively were unable to answer this question and so have been excluded from the analysis.

4.1.5. Breastfeeding patterns

CHC

Eighty-eight percent (n=305) of CHC women stated that they were breastfeeding at the time of the interview. Only 13% (n=39) of these women were exclusively breastfeeding, with the remainder supplementing. Sixty-eight percent (n=207) of the women who were supplementing, supplemented at six weeks postpartum. Of those (n=41) who stated that they were not breastfeeding at the time of the interview, 73% (n=30) reported that they had breastfed their infant at some stage and 27% (n=11) reported they had never breastfed their infants. Of those who stated they had breastfed at some time or another (n=30), 63% (n=19) stated that they had exclusively breastfed their babies until six weeks postpartum.

ANC

Among women attending the ANC, the vast majority (93%; n=321) stated that they intended to breastfeed their babies, 4% (n=13) were unsure and 3% (n=12) did not intend breastfeeding. Of the 206 women who had had children previously, 98% (n=202) stated that they had previously breastfed their children. Sixty-nine percent (n=140) of these women stated that they had supplemented breastfeeding at six weeks postpartum.

4.1.6. Sexual Activity and sexual negotiation

Amongst women from the CHC, 87% (n=301) stated that their partner (husband or boyfriend) initiated sexual activity, 12% (n=42) stated that both of them initiated sexual activity, 0.6% (n=2) said it could vary and 0.3% (n=1) said they initiated it. Of the women who said that their partner initiated sexual activity, 13% (n= 45) reported experiencing problems when refusing sex with their partner.

Amongst women interviewed at the ANC, 89% (n=307) stated that their partner (husband or boyfriend) initiated sexual activity, 9% (n=33) said they both initiated it and 2% (n=6) said they initiated it. Of the 307 women who stated that their partner initiated sexual activity, 17% (n=51) of women reported having had problems when refusing sex. Table 9 shows problems experience by women refusing sex with their partner.

Table 9: Problems experienced by women at the CHC

Problem	ANC	CHC
	n= (%)	n= (%)
Forced sex / verbal & emotional abuse	34 (67)	22 (49)
Verbal & emotional abuse	17 (33)	23 (51)
TOTAL	**51 (100)**	**45 (100)**

Of the 346 women attending the antenatal health clinic, 40% (n=140) of women reported that they were expecting their first child, with the remainder already having children. Amongst the 206 women who reported having given birth previously, 94% (n=193) resumed sexual activity at six weeks post delivery, after their previous births.

4.2. Bivariate Analysis

Bivariate analyses were performed to examine relationships between various variables.

4.2.1. Contraception and other variables

Slightly more women (31%) who had a higher level of education (grade 7 and above) reported current use of contraception among women attending the CHC compared to (23%) of those women who had a grade 0 to grade 6 education. However, this was not statistically significant (p=0.159).

There was a significant association between intention to use contraceptives after delivery and a higher educational status of expectant mothers attending the ANC. Women who had levels of education of Grade 7 and above were significantly more likely to consider using contraceptives post delivery (p=0.018).

Table 10: Contraceptive use and education

	Level of education by grade		
	Grade 0[vii] to Grade 6 n= %	**Grade 7 or higher n= %**	**P-value**
Using contraception at CHC:			
Yes	20 (23)	80 (31)	
No	67 (77)	179 (69)	
TOTAL	**87 (100)**	**259 (100)**	**0.159**
Intend using contraception at ANC:			
Yes	46 (78)	256 (89)	
No	13 (22)	31 (11)	
TOTAL	**59 (100)**	**287 (100)**	**0.0183**

Over two thirds of women (69%; n=234) at the CHC who reported having a sexual partner were not using contraception at the time of the interview. At the ANC, 87% (n=298) of women who had a sexual partner reported that they intended using contraception after delivery. As can be seen in Table 11 there was no significant association between having a sexual partner and current use of contraceptives among women attending the CHC (p=0.437) or among those intending to use contraception at the ANC, (p=0.622).

[vii] Grade 0 was included to incorporate women who never went to school.

Table 11: Women's sexual partnership and contraceptive use

	Has a sexual partner n= %	No sexual partner n= %	P-value
Women attending CHC:			
Using contraception	97 (28)	3 (20)	
Not using contraception	234 (69)	12 (80)	
TOTAL	**341**	**15**	**0.437**
Women attending ANC:			
Wanting to use contraception	298 (87)	4 (80)	
Not wanting contraception	43 (13)	1 (20)	
TOTAL	**341**	**5**	**0.622**

While there were no significant differences in their use by age, POCs were a popular choice in contraceptive method use across all ages of women in both groups of women (Table 12).

Table 12: Women's contraceptive choices according to age

	Age category			
	14-19 n= %	20-25 n= %	>26 n= %	P-value
Contraceptive choices for CHC:				
Condoms	0	0	1 (5)	
COCs	1 (5)	1 (3)	2 (9)	
POCs	19 (95)	32 (97)	41 (86)	
Sterilization	0	0	3	
TOTAL	**20**	**33**	**47**	**0.221**
Contraceptive choices for ANC:				
IUD	0	0	1 (1)	
Condoms	0	2 (1.6)	2 (2)	
COCs	10 (34)	15 (12)	13 (12.5)	
POCs	37 (54)	73 (60)	43(41)	
Sterilization	0	2 (1.6)	21 (20)	
Don't know	8 (12)	29 (24)	24(23)	
TOTAL	**69**	**121**	**104**	**0.776**

4.2.2. Residence of sexual partner and contraceptive use

As can be seen in Table 13, there were no significant associations between the place of residence of a woman's sexual partner and their use of contraception either among women at the CHC or among women intending to use contraception at the ANC.

Table 13: Residence of sexual partner and contraceptive use

	Residence of sexual partners		
	Women who reside in the same area as the sexual partners n= %	**Women who do not reside in the same area as their sexual partners** n= %	**P-value**
Women using contraception at CHC:			
Women using contraception	55 (28)	42 (30)	
Women not using contraception	138 (72)	96 (70)	
TOTAL	**193**	**138**	**0.703**
Women at the ANC intending to use contraception:			
Women intending contraceptive use	298 (87)	4(80)	
Women not intending contraceptive use	43 (12)	1 (20)	
TOTAL	**341**	**5**	**0.622**

4.2.3. Breastfeeding patterns and other variables

Table 14 describes the breastfeeding status and types of feeding practiced among women breastfeeding by age. At the CHC, supplementary feeding was the most popular (77%) type of feeding in all age groups.

Table 14: Women`s breastfeeding patterns according age

	Age category			
	14-19 n= (%)	**20-25 n= (%)**	**>26 n= (%)**	**P-value**
Breastfeeding at CHC:				
Yes	56 (85)	117 (89)	127 (79)	
No	10 (15)	14 (11)	17 (11)	
TOTAL	**66**	**131**	**144**	**0.871**
Breastfeeding intentions for ANC:				
Want to	68 (89)	129 (92)	124 (90)	
Don't want to	5 (7)	5 (4.5)	2 (1.5)	
Unsure	3 (4)	6 (4)	4 (3)	
TOTAL	**76**	**140**	**130**	**0.390**
Type of feeding at CHC:				
Exclusive breastfeeding	11 (20)	16 (14)	12(9)	
Supplementary feed	44(80)	101 (86)	116 (91)	
TOTAL	**55**	117	**128**	**0.146**

There were no significant associations between breastfeeding and the age of the mother among women attending the CHC, (p=0.871) or between the mother's age and her breastfeeding intentions among women attending the ANC (p=0.390). There was also no significant association between age and type of breastfeeding among breastfeeding women attending the CHC, (p=0.146).

Educational level had no significant effect on whether women attending the CHC breastfed their infants or women attending the ANC intended to breastfeed.

4.2.4. Fertility knowledge and other variables

There was no significant association between level of education and knowledge about their most fertile period for women attending either the CHC or the ANC. Table 15 shows fertility knowledge and levels of education.

Table 15: Fertility knowledge and level of education

	Level of education		
	Grade 0-Grade 6 n= %	**Grade 7 or higher n= %**	**P-value**
Fertility information knowledge at CHC:			
Correct information	14 (16)	46 (18)	
Incorrect information	73 (84)	213 (82)	
TOTAL	**87**	**259**	**0.722**
Fertility information knowledge at ANC:			
Correct information	3(5)	25 (9)	
Incorrect information	56 (95)	262 (91)	
TOTAL	**59**	**287**	**0.352**

Neither was there any statistically significant association between breastfeeding and level of education among women attending either the CHC or the ANC.

Table 16: Breastfeeding patterns by women's education level

	Level of education		
	Grade 0- Grade 6 n= %	**Grade 7 or higher n= %**	**P-value**
Breastfeeding at CHC:			
Yes	81 (93)	224 (86)	
No	6 (6.9)	35 (11)	
TOTAL	**87**	**259**	**0.098**
Intending to breastfeed at ANC:			
Want	54 (92)	264 (93)	
Do not want	3 (5)	9 (3)	
Unsure	2 (3)	11 (4)	
TOTAL	**59**	**284**	**0.018**

The result indicates that there was no association between breastfeeding and higher level of education among women at either the CHC or the ANC.

There was a significant association between higher levels of education and knowledge of the reliability of LAM among women attending the CHC (p-value<0.001) However, among women attending the ANC, there was no statistically significant association.

Table 17: Knowledge of the reliability of LAM according to women's educational level

	Level of education		
	Grade 0 - Grade 6 n = %	**Grade7- or higher n = %**	**P- Value**
Knowledge of the reliability of LAM at CHC:			
LAM does not protect against pregnancy	21 (24)	117 (45)	
LAM does protect vs. pregnancy	38 (44)	55 (21)	
Don't know	28 (32)	87 (33)	
TOTAL	**87**	**259**	**<0.001**
Knowledge of the reliability of LAM at ANC:			
LAM does not protect vs. pregnancy	23 (39)	139 (48)	
LAM does protect vs. pregnancy	17 (29)	82 (28)	
Don't know	19(32)	66 (22)	
TOTAL	**59**	**287**	**0.269**

4.2.5. Intention to breastfeed and work

Of the 321 ANC women who wanted to breastfeed their children after delivery, 41% (n=133) stated they were staying at home and did not have intentions to look for work.

4.2.6. Sexual activity and breastfeeding patterns postpartum

Sexual activity and breastfeeding was examined to establish the women's risk of becoming pregnant in the postpartum period if no contraception method was used. It has been accepted that when a woman is exclusively breastfeeding in the first six weeks post delivery and remains amenorrhoeic [20], and she engages in sexual activity, she is protected from becoming pregnant.

CHC

Twenty seven percent (n=93/346) of women attending the CHC reported being sexually active during the first six weeks after delivery. Of those who were sexually active, 23% were exclusively breastfeeding.

Table 18: Sexual activity and breastfeeding in the first six weeks

Breastfeeding	Sexual activity	
	Yes	No
	n= (%)	n= %
Exclusive breastfeeding [viii] in the first 6 weeks:		
Yes	21 (23)	232 (92)
No	72 (77)	21 (8)
TOTAL	**93 (100)**	**253 (100)**

4.2.7. Determinants of intimate partner status

Most women across all ages at the ANC had a current intimate partner, (Table 19). Among the ANC and CHC attendees, there was no significant association between a woman's age and having a sexual partner (p-value=0.325 and p-value=0.783 respectively).

[viii] See definition of terms

Table 19: Woman's sexual partnership according to women's ages

	Age category				
	14-19 n= (%)	**20-25 n= (%)**	**>26 n= (%)**	**Total**	**P-value**
Sexual partner status for ANC attendees:					
Currently has partner	75 (22)	136 (97)	130 (0)	341	
Currently no partner	1 (20)	4 (3)	0 (0)	5	
TOTAL	**76**	**49**	**63**	**346**	**0.325**
Sexual partner status for CHC attendees:					
Currently has partner	62 (19)	124(95)	140 (97)	326	
Currently no partner	4 (27)	7 (5)	4 (3)	15	
TOTAL	**66**	**131**	**66**	**341**	**0.783**

The results indicate that there was no association between having a sexual partner and knowledge about fertility for women attending either the CHC or the ANC (Table 20). It should be noted that owing to small sample sizes, some cells had fewer observations and thus reduced the power of the statistical test.

Table 20: Women's sexual partnership and correct information about fertility

	Sexual partner		
	Have a partner n=%	**no partner n= %**	**P-value**
Knowledge about fertility at CHC:			
Good knowledge about most fertile period	59 (18)	1 (7)	
Poor knowledge about fertile period	272 (82)	14 (93)	
TOTAL	**331**	**15**	**0.484**
Knowledge about fertility at ANC:			
Good knowledge about most fertile period	28 (8)	0 (0)	
Poor knowledge about fertile period	313 (92)	5 (100)	
TOTAL	**341**	**5**	**0.504**

Chapter 5: Discussion

5.1. Demography

The demographic profiles of women attending the child health clinic and the antenatal clinic were similar with respect to their usual place of residence, with many of the women being from Bizana and the surrounding areas. A sizeable proportion of women at both the CHC and the ANC (25% and 17% respectively) had less than seven years of formal schooling. The proportion of women who were unemployed was high, namely 35% amongst women attending the CHC, and 21% amongst women attending the ANC. It is possible that a greater proportion of women at the CHC were intentionally unemployed, as they may have stopped working subsequent to the birth of their babies in order to care for them. The mean age of both groups of women was almost identical (25.4 and 24.8 years respectively), as was the age range of 15-50 years and 14-47[ix] years for the CHC and ANC respectively.

The unemployment profile of women attending the CHC in this study corresponds closely with the 2001 South African Health Review (SAHR) figures for the Eastern Cape Province, which reported an unemployment rate of 36.5%, the highest in the country. It also reported an adult illiteracy rate among African people of 83% [22]. These low levels of education and employment are, in part, a result of the fact that this section of the Eastern Cape Province fell under the former Transkei. This area was neglected with respect to education, employment and in terms of other important socio-economic factors.

5.2. Place of residence and its possible impact on sexual relations

The majority of the women's sexual partners lived with them in Bizana and the surrounding areas. However a sizeable percentage of women (42%) at the CHC reported that their partner lived in areas outside of Bizana. This is a result of the migratory labour system, established under colonialism and perpetuated in a stronger form under Apartheid. As part of this system, many men leave their families behind in a rural area to seek work in the towns or cities. This is reflected in this study in that most women's partners had migrated to Durban or the North and South Coasts of the province where work opportunities are better. As a result, women

[ix] The upper end of the age limit of women attending the CHC and ANC may appear high for women who were pregnant/had just been pregnant, but this was indeed what women reported as their age as.

reported being separated from their partner for long periods of time and having intermittent contact. This has implications for sexual activity patterns and for contraceptive use.

Firstly, this may mean that when partners return home, it could be difficult to delay sexual activity - they and their partner are likely to take advantage of this opportunity of being together, to have intimate sexual contact. If these visits occur within the first six weeks postpartum, this will make delaying use of postpartum contraception difficult for women, as they may risk a further pregnancy, unless they are exclusively breastfeeding or using condoms consistently. However, there were low levels of condom use and exclusive breastfeeding among women in this study. In addition, women in rural areas frequently have low social status within the broader community and in their personal relationships. For these women, having sexual intercourse with a partner could be seen as a sign of loyalty and fidelity. As most women in rural areas are solely dependent on their sexual partner for financial support, this may make it even more difficult for many of them to refuse sex or negotiate safer sex with their partner when the partner returns home. This underscores the need for women to have a choice as to whether to initiate contraception immediately postpartum or delay initiation until six weeks postpartum. Secondly, it may also impact on their contraceptive use more generally. As sexual activity is irregular and intermittent, some women may not see the need to use a constant method of contraception if there are long periods of sexual abstinence. This might explain some of the reluctance on the part of some women to use a regular method.

5.3. Health service accessibility

The majority of women did not experience physical access problems health facilities, examined in terms of distance, time travelled to get to a health service and the cost of transport to reach a health facility. Therefore, physical access alone would not constitute a major obstacle to contraceptive access for women either generally, or if the National Department of Health's recommendations that women receive POCs after six weeks postpartum, were implemented.

However, the study showed that for a minority of women, physical access to services is difficult: they travel far and long and have to pay a substantial amount for transport to get to a health facility. Women in this minority group would experience problems with returning to a health service to access contraception, and contraceptive policy guidelines for service

provision need to be sufficiently flexible to meet these women's needs should they wish to access a contraceptive method immediately postpartum.

5.4. Contraception use

The study showed a low rate of contraceptive use, with only 29% of women at the CHC reporting using contraception.[x] There may be substantial unment needs for contraceptive among this rural population of women – contraceptive services need to address this: women need access to better information on contraception; knowledge among women of the benefits of contraception in preventing unintended pregnancies needs to be improved; there needs to be better counselling about the side effects of particular methods; and if a woman experiences negative side effects from a method, providers need to take this seriously and be willing to explore with women other possible method choices.

The main reasons that women attending the CHC gave for not using contraception were: they had not thought of using a method (33%); they were not sexually active (22%); or did not like the side effects of the contraceptives they had used or chose not to use (14% each). Among those women attending the ANC, over half (54%) had reported that they had stopped using contraception owing to perceived side effects. The reasons for women attending the CHC reporting 'choosing not to' use contraception need further research. Among those women who gave their reasons for non-use as being that they had not thought of it or did not like the side effects, there is an indication that there may be an unmet need for a contraceptive method. A wider choice of contraceptive methods may also be indicated so that those women experiencing side effects from a particular method, don't discontinue contraceptive use. This must be addressed by the reproductive health services.

Similarly, among women attending the ANC, the main reason given for stopping use of their previous method was 'perceived negative side effects' (54%). A minority (20%) reported stopping because they wanted to become pregnant. Once again this shows that most did not want to become pregnant but stopped for other reasons, e.g., side effects – this again shows

[x] It is understood that sample of women between 6 weeks span a large reproductive transition. Therefore there might be differences in contraceptive use, breastfeeding and sexual activity. This figure represents an average.

that many of these pregnancies were unintended and these women's contraceptive needs should have been more adequately met.

Inequity in gender relations also impacted on women`s ability to use contraception, with some women giving their husbands`s opposition as a reason for non-use. In Bizana, cultural practices frequently dictate that men are in control and make reproductive decisions, including how many children a woman should have. Some women in rural areas live in their in-laws' homesteads. This leads to greater scrutiny by the family, making it difficult for them to use contraceptives if their partner is opposed to this. Low literacy levels may also impact negatively on women having adequate information about contraceptives. This calls for improvements in the contraceptive health service delivery, as well as for health-care workers to be mindful of the social issues that affect women`s ability to use contraceptives.

Eighty-six percent of women at the ANC stated they intended using contraception postpartum. The possible reason could be due to the fact some of them may not have planned their current pregnancy and may be thinking more about planning future pregnancies. However, while it may be a woman's intention to use contraceptives, translating this into practice may encounter the barriers already mentioned and so despite these intentions, unplanned or unintended pregnancies may occur. Studies in South Africa have also found a high rate of unintended pregnancy. For example, the SADH found that 36% of pregnancies in South Africa were unintended [2].

In both study populations, the progestogen-only injection was the most commonly used method of contraception, both in the past and as an intended future contraception method. This high rate of POC use is similar to that described in other studies [11,17]. This finding is similar to the findings in the South African Demographic survey on the high use of injectables in the Eastern Cape, North West and Free State. In a study on contraceptive practice in a rural district of KwaZulu-Natal, respondents stated that injectable contraceptives were most convenient, effective and could be used secretly [25].

The study showed that at both facilities, reported condom use was very low. In light of the high prevalence of HIV-infection in South Africa, this is an issue of great concern. Most women find it difficult to negotiate use of condoms with their partner. In some instances when they wish to use condoms, they are accused of being promiscuous or of lacking in trust. These findings correspond with other studies in peri-urban areas such as Khayelitsha, which

revealed a low condom usage of 9% amongst sexually active women [11]. In South Africa the use of barrier methods is low. The 1998 South Africa Demographic and Health Survey (SADHS) found current condom use to be 1.9% amongst all those interviewed between the ages 15 to 49 years and 2.3% amongst women who had been sexually active in the four weeks prior to being interviewed [2].

At the CHC, 98% of the women who were on POCs reported having received their POC immediately after delivery. The implementation of the draft guidelines, recommending that women wait for six weeks before using POCs, could have an adverse impact on the majority of the women wishing to use postpartum contraception, and who may wish to initiate use immediately for a variety of reasons related to their social circumstances and their limited ability to negotiate a delay in resuming sexual relations.

5.5. Breastfeeding patterns and LAM

A large proportion (88%) of women attending the CHC reported that they were breastfeeding at the time of the interview. However only 13% were exclusively breastfeeding, with the remainder supplementing. Twenty-one percent of women were sexually active and not exclusively breastfeeding. As these women may be at risk of becoming pregnant, a choice should be offered to women to initiate contraception immediately or wait until six weeks postpartum, and they should be given adequate information to make an informed choice. Women also had poor knowledge of LAM and there is a need to provide more information and education to women regarding LAM's benefits.

A further point is the fact that a large proportion of breastfeeding women (79%) was already supplementing at six weeks postpartum. There is cause for concern as this is in an area of high HIV prevalence. There is some evidence to show that infants who are mixed-fed (who consume other liquids, milk, or solid foods as well as being breastfed) in the first months of their life have a higher risk of becoming infected with HIV than those who are exclusively breast- or bottle-fed [33,34,35].

5.6. Fertility

The majority of women at the ANC and the CHC did not have accurate knowledge about when their most fertile period was likely to be. This is further highlighted by the high proportion of South African women who experience unintended pregnancies (36%) [36].

Initiatives to improve women's knowledge about fertility could enhance their ability to have greater control over their reproductive lives.

5.7. Sexual negotiation

The vast majority of women at the CHC and the ANC reported that their partner initiated sexual activity. Among this rural population of women, men's control over sexual activity continues to predominate. Women appear to exercise little power or participation in sexual decision-making. It is of concern that some women experienced sexual, emotional or physical abuse if they refused sex with their partner. This may be exacerbated by the fact that many women's sexual partner did not live with them and that they visited occasionally, often for short periods of time. In these circumstances when their partner returns for vacation, bringing their earnings home with them, it may be particularly difficult for women to refuse to have sex. Other studies have similarly found that women may experience problems when they refuse sex [37]. In an Indian study where the prevalence of sexual violence was documented in five districts, between 18-40% of the men reported having non-consenting sex with their wife (having sex when she was unwilling), while between 4-9% reported forced sex (physically forcing a non-consenting wife) [38].

Social and cultural attitudes that give rise to male dominance in sexual relations need to be addressed. Interventions to decrease gender inequality and to empower women to exercise active participation in sexual relations are important.

Chapter 6: Conclusions

This study provides additional information on factors that hinder provision and use of contraception amongst a population of South African women. It also clarifies issues that impede the ability of women to make informed decisions about their reproductive health.

The findings indicate that the majority of women in this rural area were able to access contraceptive and antenatal services without major difficulties. However, despite this, the study showed low contraceptive use amongst women. In addition, barrier methods were barely used by women, which is an issue of concern given the high rate of HIV-infection amongst women in South Africa. Women need to be empowered so that they are able to control their own lives and, in particular, their sexual and reproductive lives. Owing to low levels of education, widespread poverty and bleak socio-economic opportunities in rural communities, women face difficulties in asserting themselves with regards to sexual decision-making. Patriarchal cultural beliefs predominate in such communities. Women who do not reside with their sexual partner are particularly vulnerable to pressures to conform to norms and practices dictated by their in-laws'.

A profound shift is needed in social and economic power relations between men and women, as well as changes in the broader socio-economic situation. While this cannot be achieved overnight, initiatives should be put in place to increase education for girls and women, and socio-economic interventions by government and the private sector should be encouraged in order to improve women's social and economic opportunities.

Education on reproductive health should be prioritised by health providers, so that men and women can be better equipped with knowledge (such as the most fertile period in a woman's menstrual cycle, the effectiveness of using traditional contraceptive methods like Lactational Method Amenorrhoea and so forth) to make more informed decisions concerning their reproductive health.

Objective 3 of the 2002 National Contraception Policy Guidelines of the National Department of Health relating to the provision of high-quality contraceptive services states that "central to the concept of high-quality care is the need for service providers to be sensitive and responsive to clients' needs, and to respect the right of each client to make an informed choice of contraceptive method" [12]. In light of these findings the most prudent contraceptive policy would appear to be for POCs to be available if women choose to initiate

contraception usage immediately postpartum, but that women should be given adequate information to allow them to make informed choices in this regard.

The data gathered in this thesis have led to the following recommendations with regards to providing good quality reproductive health-care services, particularly in the area of contraceptive services provision.

Recommendations

All recommendations were discussed and supported by local health care providers.

- Women should be given comprehensive counselling about the type of contraception they could use to enable them to make informed choices.
    - ≈ Dual protection is an appropriate strategy for many women in the context of South Africa's HIV epidemic, and should be integrated into contraceptive method delivery. This should take into account the dual risk of pregnancy and acquisition of sexually transmitted infections.
    - ≈ Women should be counselled on means to be more prepared to decrease the risk of contracting HIV and other STIs when their partner visits.
    - ≈ HIV-positive women should be given additional counselling about breastfeeding and its risks in HIV transmission to infants.
- Women should also be given reproductive information that will assist them in making informed choices.
    - ≈ Information should include information on the benefits of exclusive breastfeeding as a contraceptive method and on other contraceptive methods that are available.
    - ≈ Information should be available to women on when the most fertile period occurs in their reproductive cycle.
- Gender issues should be taken into consideration in the design, management and delivery of reproductive health-services.
    - ≈ Men should also be involved in the reproductive health of women

- A comprehensive reproductive approach should take into account women's opportunities to participate in and benefit from economic development.

  ≈ Social and economic roles that women and men play, and the power relations that exist should be taken into consideration in the ways in which clinic staff assess their clients' needs and provide care.

- Strengthening of health services more generally is needed to ensure that rural women have better access to contraceptive information and reproductive health services.

References

1. Department of Health of South Africa. *Draft Framework & Guidelines For Contraceptive Services.* Pretoria: DOH, 1999.

2. Department of Health. *South Africa Demographic and Health Survey.* Pretoria: DOH, 1998.

3. Kennedy KI, Short RV, Tully MR. Premature Introduction of Progestin-Only Contraceptive Methods during Lactation. Review Article. *Contraception* 1997; 55:347-350.

4. International Planned Parenthood Federation (IPPF). International Medical Advisory Panel. *New IPPF statement on breastfeeding, fertility and postpartum contraception.* IPPF Medical Bulletin. 1990 April; 24 (2): 2-4.

5. The International Guidance Working Group. *Recommendations for Updating Selected Practices in Contraceptive Use: Results of a Technical Meeting.* Volume I: Combined Oral Contraceptives, Progestin-only Injectables, Norplant Implants, and Copper-Bearing IUDs. Chapel Hill, NC, 1994; Vol I: 3-37.

6. Hani A, Cooper D, Hoffman M. The use of progestogen-only contraceptives for postpartum contraception. Research report. Gugulethu. 2000. (Unpublished)

7. Hani A, Moss M, Cooper D, Morroni C, Hoffman M. Informed Choice –the timing of postpartum contraceptive initiation. *South African Medical Journal 2003*; 93:862-864.

8. Hani A. *Informed Choice: Use of After-birth Contraception.* The Quarterly Journal of Women's Health Project (WHP) Review. No 41. Research Roundup, Autumn 2002: 20.

9. Moederdyk N, Oberleitner B, Seitshiro M, Zungu M. Attendance patterns at Wesfleur Antenatal Clinic and Choice of postpartum contraception. 4th Year Medical Student Epidemiology Project Report. 2000.

10. Reproductive Health Task force, South African Ministry of Health, WHO-HRP Report. Geneva. 1994.

11. Cooper D, Marks A. Research Report no.2. An evaluation of the Community Based Distribution (CBD) of Contraceptives Programme in Khayelitsha, Cape Town: Follow-up survey, University of Cape Town, 1999: 1-13.

12. Department of Health. *New National Contraceptive Guidelines.* Pretoria: DOH, 2002.

13. McCoy D. A Summary and progress Report of Activities in Mount Frere. Health Systems Trust, March 1998.

14. Population Census, 1999.

15. Department of Health, Republic of South Africa. *National Health and Syphilis Sero-prevalence Survey of women Attending Public Antenatal Clinics in South Africa 2000.* Pretoria: DOH, 2002. **http://www.doh.gov.za /docs/reports-f.html** (last accessed June 2003)

16. Reproductive Health Priorities Conferences. (South Africa –August 2000). National Incomplete Abortion Research Population Reports. 1995. New Era for Injectables. Series K, Number 5.

17. Mishell DR Jr., Kharma KM, Thorneycroft IH, Nakamura RM. Estrogenic activity in women receiving an injectable progestogen for contraception. *American Journal of Obstetrics and Gynaecology,* 1972; 113(3): 372-376.

18. Lande RE. *New Era for Injectables, Population Reports,* Series K, No5. Population Information Program, Center for Communication Programs, The Johns Hopkins School of Hygiene and Public Health, Baltimore, Maryland, USA. 1995.

19. Bigrigg A, Evans M, Gbolade B, Newton J, Pollard L, Szarewski A, Thomas C, Walling M. Depo Provera. Position paper on clinical use, effectiveness and side effects. *British Journal of Family Planning.* 1999 July; 25 (2): 69-76.

20. Hatcher RA, Rinehart W, Blackburn R, Geller JS, Shelton JD. *The essentials of Contraceptive Technology.* A Handbook for Clinic Staff. John Hopkins Population Information Program. Publisher of Population Reports. 1997.

21. Affandi B. Long acting progestogens. *Best Practise and Research Clinical Obstetrics Gynaecology.* 2002; Vol. 16, No 2: 169-179.

22. Cooper D, Morroni C, Orner P, Moodley J, Harries J, Cullingworth, Hoffman M. Ten years of Democracy in South Africa: Documenting Transformation in Reproductive Health Policy and Status. . *Reproductive Health Matters* 2004; 12 (24): 1-16.

23. Department of Health. *South Africa Demographic and Health Survey*. Pretoria: DOH, 2001.

24. Department of Health. Standard Treatment and Essential Drugs List for South Africa. Pretoria: DOH, 1998.

25. Smit JA, McFadyen ML, Harrison A, Zuma K. Where is the condom? Contraceptive Practice in a Rural District of South Africa. *African Journal of Reproductive Health* 2002; 6 (2): 71-78.

26. Diaz S, Zepeda A, Maturana X, Reyes MV, Miranda P, Casado ME, Peralta O and Croxatto HB. Fertility regulation in nursing women. IX. Contraceptive performance, duration of lactation, infant growth, and bleeding patterns during use of progesterone vaginal rings, progestin-only pills, Norplant^{R} implants, and Copper T 380-A intrauterine devices. Original Research Article. *Contraception* 1997; 56:223-232.

27. Diaz S, Croxatto HB. Contraception in lactating women. *Current Opinion in Obstetrics and Gynaecology* 1993; 5:815-822.

28. Parthaisong T, Yenchit C, Gray R. The long term growth and development of children exposed to Depo-Provera in pregnancy or lactation. *Contraception* 1992; 45:313-324.

29. World Health Organization, Task Force for Epidemiological Research on Reproductive Health; Special Programme of Research, Development and Research Training in Human Reproduction. Progestogen-only contraceptives during lactation: I. Infant growth and progestigen-only contraceptives. *Contraception* 1994; 50: July, 35-51.

30. Baheiraei A, Ardsetani N, Ghazizadeh. Effects of progestogen-only contraceptives on breastfeeding and infant growth. *International Journal of Gynaecology & Obstetric* Volume 74, Issue 2, August 2001, 203-205.

31. Visness CM, Rivera R. Progestin-Only Pill Use and Pill Switching During Breastfeeding.*Contraception* 1995; 51: 279-281.

32. Prof. Dave Woods (Personal Communication).

33. Coutsoudis A, Pillay K, Spooner E, Kuhn L, Coovadia HM (1999). Influence of infant feeding patterns on early mother-to-child transmission of HIV-1 in Durban, South Africa: a prospective cohort study. *Lancet*, 354: 371-476.

34. Coutsoudis A (2000). Promotion of exclusive breastfeeding in the face of the HIV pandemic. *Lancet*, 2000, 356:1620-1621.

35. Coutsoudis A (2001). Breastfeeding and Risk of HIV Transmission. Presented at the 17th International Congress of Nutrition, Vienna, Austria, August 27-31, 2001.Abstract (3.03.001).

36. Cooper D, Dickson K, Blanchard K, Cullingworth L, Brown H, Mavimbela N, von Mollendorf C, van Bogaert LJ, Winikoff B. Medical Abortion: The possibilities for introduction in the public sector in South Africa. *Reproductive Health Matters* 2005; 13 (26) In Press.

37. Martin L. Violence against women: an analysis of the epidemiology and patterns of injury in rape homicide in Cape Town and in Johannesburg. Unpublished MMed Forensic Pathology Thesis: University of Cape Town; 1999.

38. Dobash RE, Dobash R, editors. *Women violence and social change.* Routledge. New York; 1992.

APPENDIX A

Timeframe

The total project timeframe was 12 months. A project work plan is presented below.

Activities		2001	2002											
		12	1	2	3	4	5	6	7	8	9	10	11	12
Situation analysis	PI + Senior Researc her (SI)													
Instrument development	PI													
Pilot study														
Capacity building + training	PI													
Data collection	CHW													
Data entry + analysis	PI													

Ethical Considerations

A research protocol was sent to the Ethics Research Committee of the Health Sciences Faculty of the University of Cape Town. It was also given to the Superintendent of St. Patrick's Hospital, and permission was requested to conduct the study at the hospital.

The ethics committee approved the study. Women who were presenting at the Antenatal Clinic for their routine antenatal check up, as well as women with children less than six months and older than six weeks were approached for their informed consent to be enrolled into the study. The consent form is given below.

Information Sheet and Consent Form for Interviewees

Hello, my name is .....I work at the University of Cape Town's Women's Health Research Unit. We are gathering information about contraception and breastfeeding patterns. This is important to us, as we would like to advise the health services about what the needs are and assist in planning better services.

Participant's rights

If you agree to participate, we would take up about half an hour of your time for you to be interviewed on the above issues.

Whether you participate or not in this study is completely voluntary. If you decide to participate, you could also decide to stop participating at any time. You are not required to answer any questions that you are not comfortable with. Your decision not to participate in the study or to withdraw from the study will not be shared with anyone. If you decide not to take part or to withdraw from participating at any stage, this will not affect your care at any service you may be attending.

Are you willing to continue with this interview?

[If agreed, continue. If not, thank the participants for their time and discontinue the interview]

Only our research team will see the information we collect. Your name will not be used as part of any of the results from this study (so this information is anonymous) and your answers will be kept confidential.

If you have questions about the study you may ask them now. If you don't have any questions we will go ahead and begin with the interview.

[At end of interview thank the participant for their time]

CHC Questionnaire

ST. PATRICK`S HOSPITAL, BIZANA, E.CAPE

CHILD HEALTH QUESTIONNAIRE
(hospital clinic)

THE PROVISION AND USE OF CONTRACEPTION AMONGST ANTENATAL AND POSTPARTUM WOMEN IN A RURAL AREA OF THE E.CAPE

Date: _____/ ____/ _____ **Form no.** ☐☐☐

Hello my name is …… I am working for the University of Cape Town; I am gathering information about contraception and breastfeeding patterns. I would like to ask you a few questions. Your answers are confidential; your name will not be recorded on the form.

DEMOGRAPHICS

1. How old are you? _____ years ☐☐
2. How old is your baby? _____ weeks ☐☐
3. What brings you to the clinic today? ☐

Immunisation	1
Child sick	2
Weighing	3
Other	4

4. What is the highest grade you passed at school? _____ ☐☐

5. What is your employment status? ☐

Unemployed, looking for work	1
Unemployed, not looking for work	2
Home maker	3
Full time employed	4
Part time employed	5
Casual worker	6
Student/scholar, learner	7
Other, please specify	8

6. Do you have a current partner? _____ ☐

Yes	1
No	2

6.1 **IF YES, ASK:** Is he your: ☐

Husband	1
Boyfriend	2
Casual partner	3
Other	4

6.1.1 Does he stay in Bizana? ☐

Yes	1
No	2

6.2 **IF NO,** Does he stay out of the area? Specify the area in which he stays? ☐

6.2.1 How often do you see him? ☐

Weekends	1
Fortnight	2
When he is on leave i.e. December	3
Other	4

TRANSPORT TO THE CLINIC

Some women experience difficulties in trying to get to the clinic for services. I would like to ask you a few questions about how you got to the clinic.

7.1 How far from this clinic do you live? ☐

0-10 km	1
11-51	2
51-100	3
>100km	4

7.2 How long does it take you to travel from home to the clinic? ☐

Less than 30 min	1
More than 30 min to an hour	2
Hour and half	3
2 hour and more	4

7.3 What means of transport do you use to get to the clinic? ☐

Own car	1
Taxi	2
Bus	3
Minicab	4
Walk	5
Other	6

7.4 Approximately how much does it cost to travel to the clinic? ☐

No cost (walk)	1
Less than R5	2
R5-R10	3
R11-R20	4
R20-R30	5
R30-R40	6
R40-R50	7
>R50	8

BREASTFEEDING PATTERNS

8. Are you breastfeeding this child? ☐

Yes	1
No	2

IF ANSWER TO QUESTION 8 IS YES, CONTINUE WITH 8.1
IF NO, GO STRAIGHT TO QUESTION. 8.2

8.1 **IF YES,** Are you? ☐

EXCLUSIVELY/FULLY BREASTFEEDING (No other form of feeding, only breastmilk)	1
SUPPLEMENTING (Addition of any other form of feeding (e.g. cereal, milk, other))	2

8.1.1 **IF SUPPLEMENTING**, when did you start introducing other feeding? ☐☐

Weeks/months _____

8.2 **IF NO,** Did you ever breastfed this child? ☐

Yes	1
No	2

8.2.1 **IF YES,** how long did you exclusively breastfeed? _____ weeks ☐☐

8.2.2 How old was the baby when you stopped breastfeeding? _____ weeks ☐☐

BREASTFEEDING: Lactational Amenorrhea Method

9. Some people think if you give your baby only breastmilk, and your periods have not returned, you cannot fall pregnant in the first six months even if you are sexually active. Some people say you can.

What do you think? ☐

Yes, you can fall pregnant	1
No, you can`t fall pregnant	2
Don`t know	3

CONTRACEPTION

10. Are you using contraception now? ☐

Yes	1
No	2

IF ANSWER IS YES TO QUESTION 10, CONTINUE WITH QUESTION 10.1
IF ANSWER IS NO TO QUESTION 10, GO STRAIGHT TO QUESTION 10.2

10.1 **IF YES ASK**, Which method are you using? ☐

IUD	1
Condoms	2
Oral contraceptives - combined pills	3
Progestogen-only pills	4
Injection	5
Sterilisation	6
Other, specify	7

10.1.1 Where did you obtain this method of contraception? ☐

Community Health Centre	1
Hospital	2
Mobile Clinic	3
Other	4

10.1.2 Were you easily able get to the clinic to obtain your contraceptive method? ☐

Yes	1
No	2

10.1.3 **IF NO,** What kinds of problems did you experience? ☐

.....

.....

.....

10.1.4 How soon after delivery did you start? _____ weeks ☐☐

(if immediately, fill in 1).

ASK THE FOLLOWING QUESTION ONLY IF THE WOMAN IS USING AN INJECTABLE CONTRACEPTIVE (i.e. Depo or Nur.Isterate)

10.1.5 How soon after the delivery did you start using your injectable? ☐

Immediately after delivery	1
6 weeks after delivery	2
Other (specify)	3

IF ANSWER TO QUES. 10.1.5 IS 1 (IMMEDIATELY AFTER DELIVERY), ASK QUESTION 10.1.6

10.1.6 If the health service had only been able to give you your injectable at six weeks and not immediately after delivery would this have been a problem to you? ☐

Yes	1
No	2

10.1.7 **IF YES,** what kinds of problems do you think you may have experienced? ☐

.....

.....

QUESTION 10.2 IS ONLY TO BE ASKED OF WOMEN WHO ANSWERED 2 (NO) TO QUESTION 10

10.2. **IF NO, ASK:** Why have you decided not to use using a contraceptive? ☐

.....

.....

SEXUAL ACTIVITY

I would now like to ask you some personal questions about sexual activity after the baby's birth.

11. Have you and your partner had sexual intercourse since the delivery of your baby? ☐

Yes	1
No	2

11.1 **IF YES, ASK**: How soon after delivery did you this start? _____ weeks ☐☐

11.2 Who decided on or initiated sexual activity? ☐

Myself	1
Husband	2
Partner/boyfriend	3
Other	4

IF ANSWER TO QUESTION 11.2 IS 1 (MYSELF), GO STRAIGHT TO QUESTION. 12

IF ANSWER IS 2 (HUSBAND) OR 3 (PARTNER/BOYFRIEND), CONTINUE WITH QUESTIONS 11.3,11.4 & 11.5

11.3 Do you experience any difficulties or problems in refusing at any time? ☐

Yes	1
No	2

11.4 **IF YES, ASK:** What kind of difficulties or problems do you face? ☐

.....

.....

.....

11.5 Is it difficult at any particular time (probe for e.g. If he is migrant worker, if he comes home at year end) ☐

.....

.....

.....

12. Do you know the period in your monthly cycle you are likely to become pregnant if you are sexually active? ☐

Yes	1
No	2

12.1 **IF YES, ASK:** When are you mostly likely to become pregnant? ☐

.....

.....

.....

ANC questionnaire

ST. PATRICK`S HOSPITAL, BIZANA, E.CAPE

ANTENATAL QUESTIONNAIRE
(hospital clinic)

THE PROVISION AND USE OF CONTRACEPTION AMONGST ANTENATAL AND POSTPARTUM WOMEN IN A RURAL AREA OF THE E.CAPE

Date: ____/ ____/ _____ **Form no.** | | | |

Hello my name is …… I am working for the University of Cape Town, I am gathering information about contraception and breastfeeding patterns. I would like to ask you a few questions. Your answers are confidential; your name will not be recorded on the form.

DEMOGRAPHICS

1. How old are you? _____ years ☐☐

2. What is the highest grade you passed at school? _____ ☐☐

Unemployed, looking for work	1
Unemployed, not looking for work	2
Homemaker	3
Full time employed	4
Part time employed	5
Casual Worker	6
Student/scholar, learner	7
Other, please specify	8

3. Are you employed? ☐

4. Do you have a current partner? ☐

Yes	1
No	2

4.1 **IF YES,** Is he your: ☐

Husband	1
Boyfriend	2
Casual partner	3
Other	4

4.1.1 Does he stay in Bizana? ☐

Yes	1
No	2

4.1.2 **IF NO,** Does he stay out of the area? Specify the area in which he stays? ☐

.....

4.1.2.1 How often do you see him? ☐

Weekends	1
Fortnight	2
When he is on leave (i.e. December)	3
Other	4

PREGNANCY HISTORY

5. How many pregnancies have you had? _____ ☐☐

5.1 How many living children do you have? ☐☐

BREASTFEEDING PATTERNS

6. Do you intend to breastfeed the baby you are expecting? ☐

Yes	1
No	2
Not sure	3

IF A WOMAN HAS HAD PREVIOUS LIVE CHILDREN, CONTINUE WITH QUESTION 6.1, OTHERWISE GO TO QUESTION 7

6.1 Have you breast-fed any of your babies? ☐

Yes	1
No	2

6.2 **IF YES,** When did you introduce other food to your last baby (i.e. bottlemilk or solids)?

_____ weeks/months (circle which applies) ☐☐

TRANSPORT TO THE CLINIC

Some women experience difficulties in trying to get to a clinic for services.

I would like to ask you a few questions about how you got to the clinic today.

7. How far from this clinic do you live? ☐

0-10 km	1
11-51 km	2
51-100 km	3
>100 km	4

7.1 How long does it take you to travel from your home to the clinic? ☐

Less than 30 min	1
More than 30 min to an hour	2
1 hour and a half	3
2 hours or more	4

7.2 What means of transport do you use to get to the clinic? ☐

Own car	1
Taxi	2
Bus	3
Minicab	4
Walk	5
Other	6

7.3 Approximately how much does it cost to travel to the clinic? ☐

No cost (walk)	1
Less than R5	2
R5-R10	3
R11-R20	4
R20-R30	5
R30-R40	6
R40-R50	7
>R50	8

CONTRACEPTION

8. Did you use a contraceptive method in the previous 2 years before this pregnancy? ☐

Yes	1
No	2

IF YES CONTINUE WITH 8.1 & 8.2
IF NO, GO TO QUESTION 8.3

8.1 **IF YES,** Which method did you use? ☐

IUD	1
Condoms	2
Oral contraceptive - Combined pills	3
Progestogen-only pills	4
Injection	5
Other, specify	6

8.2 Where did you obtain this method of contraception? ☐

Community Health Centre	1
Hospital	2
Mobile clinic	3
Other	4

8.3 Did you ever use a contraceptive? ☐

Yes	1
No	2

IF YES ASK QUESTION 8.3.1

8.3.1 If **YES,** Why did you stop? ☐

To plan pregnancy	1
You encountered problems	2
Not sexually active	3
Other	4

9. Do you intend to use contraception after this delivery? ☐

Yes	1
No	2

IF YES, CONTINUE WITH 9.1
IF NO, GO TO QUESTION 9.2

9.1.1 In which health centre would you like to receive the method? ☐

Community Health Centre	1
Hospital	2
Mobile Clinic	3
Other	4

9.1.2 Do you think you will be able to easily get to the clinic to obtain your contraception? ☐

Yes	1
No	2

9.1.3 **IF NO,** What kinds of problems do you think you may experience? ☐

.....

.....

.....

9.1.4 Which method do you intend using? ☐

IUCD	1
Condoms	2
Oral contraceptive - Combined pills	3
Progestogen-only pills	4
Injection	5
Other, specify	6

ASK THE FOLLOWING QUESTION ONLY IF SHE INTENDS TO USE AN INJECTABLE CONTRACEPTIVE
(i.e. Depo or Nur.Isterate)

9.1.5 When would you like to get this method? ☐

Immediately after delivery	1
6 weeks after delivery	2
Other (specify): ……	3

IF ANSWER TO QUESTION 9.1.5 IS 1 (IMMEDIATELY AFTER DELIVERY) ASK THE FOLLOWING QUESTION 9.1.6 & 9.1.7

OR

IF 2 (6 WEEKS AFTER DELIVERY), GO TO QUESTION 9.1.8

9.1.6 If the health service could only offer an injectable contraceptive at six weeks and not immediately after delivery would that be a problem for you? ☐

Yes	1
No	2

9.1.7 IF **YES,** What kinds of problems do you think you may experience? ☐

……

……

……

QUESTION 9.1.8 IS ONLY TO BE ASKED OF WOMEN WHO ANSWERED 2 (6 WEEKS AFTER DELIVERY) TO QUESTION 9.1.5

9.1.8 Would it be convenient for you to have your contraceptive at the same time as when you bring your child for immunization at 6 weeks? ☐

Yes	1
No	2

BREASTFEEDING: Lactational Amenorrhea Method

10. It is thought that if you give a baby only breastmilk and your periods have not returned, you are unlikely to fall pregnant in the first six months even if you are sexually active. What do you think? ☐

Yes, you can fall pregnant	1
No, you can't fall pregnant	2
Don't know	3

I would like to ask you a few more final questions.

I would appreciate it if you could answer them.

QUESTION 11 IS ONLY TO BE ASKED OF WOMEN WHO HAVE HAD PREVIOUS BIRTHS

11. How soon after pregnancy did you resume sexual activity following your previous births?

_____ weeks ☐☐

12. Who decides or initiates sexual activity in your relationship? ☐

Myself	1
Husband	2
Partner/boyfriend	3

IF ANSWER TO QUESTION 12 IS 1 (MYSELF), GO STRAIGHT TO QUESTION 13

IF ANSWER IS 2 (HUSBAND) OR 3 (PARTNER/BOYFRIEND), CONTINUE WITH QUESTIONS 12.1, 12.2 & 12.3

12.1 Do you have any difficulties or problems in refusing at any specific time? ☐

Yes	1
No	2

12.2 **IF YES,** What kind of difficulties or problems do you face? ☐

.....

.....

.....

12.3 Is it difficult at any particular time (probe for i.e. If he is a migrant worker if he comes home at year end) ☐

.....

.....

.....

13. Do you know the period in your monthly cycle you are likely to become pregnant if you are sexually active? ☐

Yes	1
No	2

13.1 **IF YES,** When are you mostly likely to become pregnant? ☐

.....

.....

.....

APPENDIX C

Feedback Workshop

A Feedback Workshop was conducted in Bizana on the 26th of February 2003. The purpose of the workshop was to report on the findings in order to make recommendations regarding ways in which to improve the quality of contraceptive and other reproductive health services provided. Twenty nurses attended this workshop from St. Patrick's hospital and other surrounding clinics as well as other health service providers. All those attending were providing reproductive health services in their respective places of work. Copies of the draft report were made available prior to the workshop and after the study findings were presented verbally, attendees were divided in groups to discuss the following issues:

- How health services could provide appropriate information on contraception, the various contraceptive methods, and how and when they can be used
- How health services could deal with obstacles to providing reproductive health information
- Education about LAM/Fertility
- How to address issues of women who have problems when they refuse sex with their husbands or partners
- What are the resources needed to deliver good reproductive health care?
- Issues of women's choice in regard to the New Contraceptive Guidelines and implications arising from the study
- Who should we involve in dealing with the above issues?
- Whether further dissemination of results would be useful and if so, to whom

The need to enable women to make an informed choice

The nurses felt that women or clients should be given appropriate information and be counselled about different types of contraceptives to enable them to make an informed choice about their decisions relating to reproductive health. The women should be given information on the advantages and disadvantages of using contraception. Nurses should also respect client's choices and decisions in this regard.

How to deliver information and work together with other organisations (intersectoral collaboration)

Media channels such as radio, posters, pamphlets and newspapers could be used to disseminate reproductive health information

The public health services could also work closely with organisations such as LoveLife and PPASA. These organisations were thought to play a pivotal role in educating the youth about reproductive health i.e. encouraging use of condoms, discouraging teenage pregnancy and creating awareness about HIV/AIDS. They were considered to be well resourced and accessible and available in most areas in South Africa, for example, in Bizana, Lovelife is situated opposite St. Patrick's Hospital. Services such as social services and legal services should also be part of reproductive health care to deal with human right issues such as sexual violence, rape etc.

Reproductive health education should be made compulsory and should be integrated as part of the Life Skills programmes run in primary and secondary schools and should be added to the 2005 Department of Education curriculum. Other reproductive health issues should be addressed at community level. NGO's working in reproductive and preventative health could, for example, teach women about basic reproductive health issues such fertility and LAM and encourage women to breastfeed at least for 3 months.

Health service provider attitudes and addressing misconceptions

The health service providers themselves should adopt a more positive attitude towards clients (i.e. stop reprimanding patients) and should correct misconceptions that clients have about using contraception (it makes them wet etc). The health service providers should specify return dates on client's cards and they should always use a language that is used by a client. The nurses should at least try to provide contraceptives in a private area, where clients could feel free to ask questions and where they will not feel demeaned. They should use a friendly approach to providing contraceptives and cater for the needs of adolescents. They could use peer educators for counselling.

Barriers to facilitating factors in implementation of improvements

The nurses agreed that many of the above suggestions were possible and feasible but some of them needed additional infrastructure; for example, creating privacy would need additional space in the clinic. In order for nurses to give appropriate information they would need to be trained regularly and they would also need be retrained and go on advanced reproductive health courses to give clients updated information. They stated that sometimes they tried their best to provide good quality reproductive care but were not always rewarded for their efforts and for the amount of work that they did. They said they were willing to extend their working hours to make it easier for the clients who finished work late to make use of family planning services. They suggested incentives for health workers from government that did not necessarily have to be monetary. Most of them stated that they worked in depressing conditions and that they were understaffed. An improvement in staffing, a continuous flow of resources and equipment, opportunities for further training, greater support and an improvement in working conditions would be appreciated. In addition, there should be continuous flow of resources, personnel and equipment.

Other issues around contraceptive seeking behaviour could not be dealt with, without the collaboration of other stakeholders such as churches, Imbizo, community headmen, elders and Men as Partners (PPSA). The involvement of these stakeholders is very crucial in issues related to cultural beliefs, societal norms and religion. These stakeholders are influential in communities and they have an enormous impact on the community in shifting beliefs, particularly, for example, in encouraging men to support their partners during pregnancy and after delivery, and supporting that reproductive health decisions should be made by a couple.

Nurses felt that women should be empowered financially because many problems that women experience regarding reproductive health, stem from the fact that women are not financially independent of their partners. In most instances women are victims of being coerced into sexual activity. Financial empowerment and knowledge can allow women to decide for themselves and to take better care of themselves and their families without having to rely on their partners for financial support. Collaboration of the business sector is crucial in this regard, as women can be taught life and technical skills so that they are able to compete in the market and generate income for themselves.

Following discussions of the above issues the nurses made the following recommendations:

- Free education to all including ABET
- Accurate statistics to be provided government- for provision of services to areas where there are deficits
- Establishment of projects that will empower women
- Provision of durable materials- e.g. condoms
- NGO's involvement- e.g. LoveLife
- Frequent training programmes for health service provider