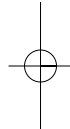
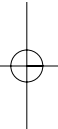
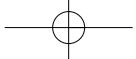


**Family Planning as part of
Reproductive Health,
including the HIV/AIDS
aspects, in Zimbabwe and
Southern Africa**

D.A.A. Verkuyl

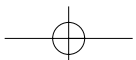


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Cover: A good friend helping to start the discussion about IUCDs. It is not that she does not know where they belong. A child with kwashiorkor with no access to breast milk because its mother died of AIDS. Examples of houses visited, note the house number.



Family Planning as part of Reproductive Health,
including the HIV/AIDS aspects,
in Zimbabwe and Southern Africa

Contraceptie als deel van de reproductieve
gezondheid, inclusief de HIV/AIDS aspecten,
in Zimbabwe en Zuidelijk Afrika
(met een samenvatting in het Nederlands)

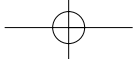
Proefschrift

Ter verkrijging van de graad van doctor
aan de Universiteit Utrecht op gezag
van de Rector Magnificus, Prof. Dr W.H. Gispen,
ingevolge het besluit van het College voor Promoties
in het openbaar te verdedigen
op woensdag 4 juni 2003 des namiddags om 4.15 uur

door

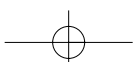
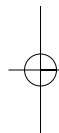
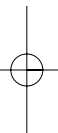
Douwe Arie Anne Verkuyl FRCOG

geboren op 17 oktober 1946 te Zwijndrecht



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Department of Obstetrics, Neonatology and Gynaecology
University Medical Centre, Utrecht



do you have any other comments on the treatment and care
you received while in hospital? Please feel free to comment
on anything.

The treatment was alright.
The food was not enough, I had
to phone home for more food.
If you still want to have some advise on family
planning, or sterilization, please visit clinic.

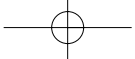
CONTENTS

Chapter 1	Justification, Aims and Outline of this thesis.	1
Chapter 2	Introduction into family planning in Zimbabwe and sub-Saharan Africa, including the HIV/AIDS aspects. An overview with background information and research findings reported in this thesis combined with a study of the relevant literature. "State of the art"	11
Chapter 3	Integration of family planning service into Maternal and Child Health and other services at Harare Central Hospital. <i>(The Centr Afr J of Med 1990; 36: 311-5)</i> Together with Fawcus S, Willis JA & Mutasa H.	79
Chapter 4	Characteristics of patients attending Harare Hospital with incomplete abortion. <i>(The Centr Afr J Med 1985; 31: 67-70)</i> Together with Crowther CA.	87
Chapter 5	Tubal ligation candidates who did not get their operation. <i>(The Centr Afr J of Med 1996; 42:150-2)</i>	93
Chapter 6	Study from Zimbabwe on client perception of sterilisation under local anaesthesia.	101
Chapter 7	Sterilisation during unplanned caesarean sections for women likely to have a completed family - should they be offered? Experience in a country with limited health resources. <i>(Brit J Obs & Gyn 2002; 109: 900-904)</i>	119
Chapter 8	Satisfaction, complaints and regrets of 1954 sterilised women compared to a control group.	135
Chapter 9	Please help! our condom tore last night. <i>(S Afr Med J 1998; 88:43-5)</i> Together with Rutgers RAK.	189

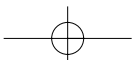
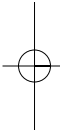
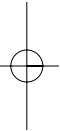
Chapter 10	Self reported sexual and reproductive behaviour of male and female student nurses and midwives in Bulawayo. <i>(The Centr Afr J. of Med 2000; 46(12): 325-329)</i>	201
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Chapters mainly based on experience, opinions and viewpoints and not on formal studies

Chapter 11	Family planning in Zimbabwe in the nineties. <i>(The Centr Afr J of Med 1991; 37: 308-16)</i>	215
Chapter 12	Viewpoint; Two world religions and family planning. <i>(Lancet 1993; 342: 473-5)</i>	231
Chapter 13	Provider-dependent contraception giving Third World women more power to achieve their reproductive goals.	239
Chapter 14	Practising obstetrics and gynaecology in areas with a high prevalence of HIV infection. <i>(Lancet 1995; 346: 293-6)</i>	249
Chapter 15	A guest editorial: consequences, cultural factors, detection and prevention of HIV/AIDS in sub-Saharan Africa. <i>(Obst and Gyn Surv 1997; 52:1-3)</i>	259
Chapter 16	Youth, sex, taboos and condoms. <i>(SAfAIDS 1998; 6: 10-1)</i>	263
Chapter 17	Where women cry when they are HIV negative. <i>(Lancet 1994; 344:70)</i>	271
Chapter 18	General discussion and conclusions.	273



Chapter 19	Findings and recommendations.	287
Chapter 20	Nederlandse samenvatting.	297
	Addendum.	309
	List abbreviations (LA), Acronyms.	317
	Curriculum Vitae.	321
	List of publications.	325
	Acknowledgements.	329



1

Justification, aims and outline of this thesis

JUSTIFICATION

Family planning (FP) is a subject that has fascinated the author since the period in which he worked in the gynaecology department of the “Elisabeth Gasthuis” in Haarlem in 1975, in preparation for a job as district doctor in Lesotho. There, women were seen on a daily basis who had failed to prevent an unwanted pregnancy. Many came from Germany and Belgium.

In Africa the situation turned out to be similar, women had a completed family after two more children than in Europe, but at the same age. Women rarely came from Germany, but quite often came from South Africa and even from Ireland.

Expatriate and local experts were very sure that the women in Lesotho were not ready for FP and that the culture would not allow tempering with fertility anyway. However, all these very ill women were seen with induced abortions and in the consultation rooms of the outpatient department, many women indicated that they would like more spacing between children, or would like to prevent childbearing altogether. Women had to be asked however if they wanted FP, whether they were seen with an ill child, an obstructed labour or for a horse traffic accident (HTA). On the hospital grounds, there was a clinic of the national FP organisation, which was not busy at all because people would gossip if one were seen there. This is understandable in a country where most men between 20-40 years of age have a job as migrant contract labourers far away in the mines of South Africa.

The hospital became more or less the FP centre of the country. IUCDs were imported, a laparoscope organised and sterilisations performed.

After six years, the author started to work in a large, academic hospital in newly independent Zimbabwe. There were 20.000 referred deliveries every year in that hospital and more than 4.000 women with abortions with complications which necessitated an evacuation of retained (septic) products. Again, few staff members were interested in FP. If one thought FP was a good idea one could refer the woman to the FP organisation 800 meters further down the road, but not even the professor could prescribe pills, injections or IUCDs. No FP methods were stocked by the pharmacy. If a woman came openly to the out patient department for help with an unwanted pregnancy one could do nothing (spies everywhere) but prescribe antibiotics so that perhaps she would not get a serious infection from the ensuing backstreet abortion. Sterilisations were done with the fourth caesarean section or with a ruptured uterus but the post partum ones, let alone the interval sterilisations became increasingly rare. There was always an excuse. Mostly the excuses had to do with lack of time or staff. In addition, the husband's signature was

needed till 1991, for, for example a Para 6, who desired a sterilisation during an unplanned caesarean section and had no telephone at home. Somebody on a small motorbike could easily find the husband but could not be organised. Often the hospital staff would not cooperate with a sterilisation because they were afraid of angry husbands. In 25 years in Africa, the author has never seen an angry husband while the Basotho are among the more violent tribes in Africa and the Ndebele, an offshoot of the Zulu, have a famous martial tradition. It was much more difficult in Harare to make that large bureaucratic hospital FP friendly. Studies were needed to support opinions and that is how FP research started, at first related to all the induced abortions admitted. The senior and middle level staff in Harare became increasingly involved in private practice and FP for the poor was first to lose their attention.

Later as a consultant in Bulawayo, the author was able to instigate integration of FP in the obstetrics and gynaecology department. This culminated in a Women-Walk-In-Clinic in front of the maternity unit, integrating all services at that location apart from major gynaecological surgery. Still on a national and regional level, studies were needed to add to the body of knowledge required to give proper FP services and to remind colleagues that there was an unmet demand.

Back working in the Netherlands, the author noticed that FP had become a subject of little interest here. The figures, showing that country as doing best in the world as far as FP is concerned - low abortion rates, low teenage pregnancy rates – are not improving anymore. On the contrary they are deteriorating.

Interest in HIV-1 infections was forced onto the author. They were first noticed as being a new disease in the USA in the early eighties, while reading the Lancet in Lesotho late at night waiting for full dilatations in breech deliveries. Later, especially in Bulawayo, this disease dominated gynaecological practice and we were forced to develop our own approach, as there was still little guidance in the literature.

In the mean-time, if HIV transmission stopped today, nearly as many people have died and still would die of HIV, 70 million, as have died in all military conflicts, excluding genocide, in the 20th century, which is estimated to be 72 million. Of course transmission will not stop today and 5 million people became infected in 2002, 3.5 million of those in Africa.

AIMS

The aim of this dissertation is to report on studies performed in relation to the family planning (FP) aspect of female reproductive health, in order to contribute to the improvement of FP services in sub-Saharan Africa.

Therefore, the central issue in this thesis is: is there an unmet need for FP in general and/or for certain specific contraceptive methods and if so, what can be done to improve the situation? Furthermore, what has changed or has to change in contraception because of the HIV/AIDS epidemic?

The studies were done in Zimbabwe but the situation is similar in many African countries, there is only a difference in pace, phase and accent. This thesis should give a health worker a comprehensive introduction into the FP field.

Nearly every aspect of FP use by females has been studied and the results have been correlated to what is revealed in the relevant literature.

The aspects studied were as follows :

- what characteristics have women reporting with an incomplete abortion and what is their FP history.
- the effectiveness of the contraceptives used in Zimbabwe.
- whether it is a good idea to integrate FP in the health services or is a vertically organised FP establishment better.
- the behaviour of health workers if confronted by young, unmarried sexually active women.
- the competence of health workers if asked to provide emergency contraception.
- whether women receive the services they need and what can be improved.
- whether women remember a sterilisation operation under local anaesthesia as being very painful and/or as more painful than a delivery.
- whether it is unethical to give women of higher parity the option of having a sterilisation if they need an unexpected caesarean section or other operation.
- the number of women who regret being sterilised and whether women who have been sterilised have more mental or physical complaints than a control group.
- the failure rate of sterilisations.

The HIV/AIDS aspects of obstetrics and gynaecology were evolving at the end of the ninety-eighties and the author happened to be at the epi-centre of the African developments. Not much formal research was done, nor allowed, but patients, developments and literature were studied intensively, resulting in three experience-based papers, about:

- the interaction between HIV/AIDS, gynaecology, obstetrics and FP.

- what form should sexual education have?
- simple mathematical models comparing the failure rate of condoms vis-à-vis pregnancy and HIV protection.
- epidemiology of HIV transmission.

To have an idea about the risks well-educated young people ran to become infected with HIV a large group of student nurses were studied:

- sexual relationships, HIV testing of partners and condom use.
- the start of sexual activity and use of FP methods.

The studies were not performed in a vacuum and forces in society influenced developments in relation to FP and in relation to the HIV epidemic. This resulted in articles being based on opinion instead of research although, still with a scientific foundation.

These articles are about:

- the best approach to FP in Zimbabwe.
- the attitude of the Roman Catholic Church and Islam vis-à-vis FP.
- well meaning (bourgeois) outsiders who have unpractical opinions about the best FP for poor women.
- the need to give proper, informative sexual education and the right information about condoms.

OUTLINE

Chapter 1 “*Justification, aims and outline*”

Chapter 2, “*Introduction into family planning in Zimbabwe and sub-Saharan Africa, including the HIV/AIDS aspects*”, relates the results of the studies performed and reported in this thesis to what is known from the relevant literature including the newest developments. All aspects of practical FP are discussed, including those related to HIV/AIDS.

Chapter 3, “*Integration of family planning service into Maternal and Child Health and other services at Harare Central Hospital*” shows the benefits of integrating FP in the normal hospital services and gives at the same time background information explaining how FP provision (used to?) works in a large southern African hospital if more detailed background is wanted then one is advised to read also Chapter 11. In chapter 4, the results of not using FP, or using the wrong method, or using a good method wrongly are show in a report called “*Characteristics of patients attending Harare Hospital with incomplete abortion*”, describing women admitted for incomplete abortions in a situation where terminations of pregnancy are illegal and often unsafe. This is a detached description. It would of course have been easy to relate many horror stories about women who died, developed gas gangrene or tetanus, lost their uterus or became otherwise infertile. The follow-

ing 4 chapters are about women who have a completed family while also much information is available in those papers about women who want to space their family rather than stop having children because they are found in the control groups in chapters 7 and 8. Chapter 5 sets the stage, showing that women especially those with little income have limited access to reliable contraception for this phase of their reproductive lives. The paper is called: *"Tubal ligation candidates who did not get their operation"*. Chapter 6 explores one solution to this problem by studying the feasibility of sterilising women under local anaesthesia. If this technique were acceptable to females then women could be operated on with far more efficiency, it would be safer and fewer women would have to be disappointed, the name of the paper is: *"Study from Zimbabwe on client perception of sterilisation under local anaesthesia"*. Another way to increase the capacity of the health services in dealing with the many women wanting to stop child bearing is to use the opportunity provided by a hospital admission and especially by an operation which is to be performed anyway, for example a caesarean section, a removal of an ovarian cyst, a repair of an incisional hernia or an operation prompted by an ectopic pregnancy. The ethical considerations pertaining to this approach are discussed specifically in chapter 7, called: *"Sterilisation during unplanned caesarean sections for women likely to have a completed family - should they be offered? Experience in a country with limited health resources"*, furthermore, women are followed-up and interviewed to study their satisfaction and to compare the results with those of a control group. The fourth paper in this group, chapter 8, named: *"Satisfaction, complaints and regrets of 1954 sterilised women compared to a control group"*, deals with most aspects related to female sterilisation. Data were collected from nearly three thousand women who were either sterilised or were part of the control group and many short case histories are attached to it, to make it easier to readers to understand what the practical situation is. To show that there is much to improve in the provision of other FP services a study was set up based on "ghost patients" pretending to need emergency contraception after an accident with a condom. It is called: *"Please help! our condom tore last night"* and contained in chapter 9. It studies the technical competence and empathy of different categories of health workers e.g., general clinic and FP nurses, doctors at casualties, private practitioners and pharmacists. Another study involving young women and some young men is reported on in chapter 10, which has a sexology aspect - the first study in this field in Zimbabwe known to the author - and furthermore, discusses the HIV risks of student nurses and midwives under the title: *"Self reported sexual and reproductive behaviour of male and female student nurses and midwives in Bulawayo"*.

The next seven chapters are the result of qualitative studies, observations and discussions and describe the situation in relation to FP, sexual education and the HIV/AIDS epidemic. Chapter 11 describes the FP situation comprehensively. It helps to understand

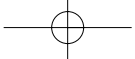
the situation as it was 10 years ago in Zimbabwe. It was written in order to take stock of the FP situation, to start a discussion and to give an indication about the way forward and it is called *“Family planning in Zimbabwe in the nineties”*. The daily experience in relation to the current FP situation was recorded but also for example relevant discussions in Parliament. The author’s main conclusion was that Zimbabwe should stop depending on the pill only and un-ban injectables, and should enter the next stage in FP provision with more choice for the clients. The relevance of the HIV/AIDS epidemic for the FP methods used is also discussed in this chapter. At that stage there was no literature about this subject and studies relating FP and HIV infection would not have been allowed, but some guidance for doctors was needed.

Religion and FP is discussed in chapter 12 and called: *“Viewpoint; Two world religions and family planning”*. Another force sabotaging proper FP use, with completely different motives but similar effects, consists of well meaning higher class Western persons, mainly women, who are determined to protect their sisters in developing countries against population controllers, profit seeking pharmaceutical companies and employers who give their “domestics” contraceptive injections without the latter knowing what they are given, because a pregnant employee is inconvenient. A gardener of the neighbours will often try to do the opposite also before the domestic knows what is happening. An article written in the British Medical Journal prompted this reaction in chapter 13: *“Provider-dependent contraception giving Third World women more power to achieve their reproductive goals”*.

The HIV/AIDS pandemic is introduced properly, including the FP facets of this disease, in chapter 14 called: *“Practising obstetrics and gynaecology in areas with a high prevalence of HIV infection”* followed by chapter 15: *“A guest editorial: consequences, cultural factors, detection and prevention of HIV/AIDS in sub-Saharan Africa, which deals with different aspects of the same epidemic”*. Both papers were at that time the first gynaecological descriptions of the implications of HIV/AIDS based on experience with hundreds of infected women.

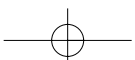
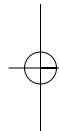
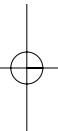
The writing of chapter 16: *“Youth, sex, taboos and condoms”*, was prompted by the actions of religious and traditional leaders spreading untrue or incomplete information about the effectiveness of condoms in relation to HIV prevention, and who were sabotaging the sex education of teenagers. Chapter 17 is very short and called: *“Where women cry when they are HIV negative”* and meant to give an unexpected insight in the priorities women can have.

The next chapter, no 18, is called: *“General discussion and conclusions”*, and in a few pages, the author tries to make up the balance of all that has been learned from the studies performed and by perusing the literature.



This is followed by a list of “*Findings and Recommendations*”, chapter 19 with suggestions to improve the circumstances for women/couples who want to plan their families and stay HIV free.

The set up of this thesis, mainly consisting of some papers already published and some papers to be published, makes it unavoidable that certain information is repeated several times.



Selected Facts

More than 150 million women throughout the world want to limit or space their pregnancies but do not have the means to do so.

- *Saving Lives*

Each year, more than 585.000 women die at least one woman every minute of every day due to pregnancy-related causes.

Family planning alone can reduce maternal mortality by 25 percent by reducing the number of high-risk pregnancies, those that are spaced too closely or occur too early or too late in a woman's life.

By spacing births at least two years apart, family planning can reduce infant mortality by one-fourth and promote child survival by reducing the risks associated with childhood malnutrition and disease.

The situation prevailing in the West not yet 100 years ago as recorded by Margaret Sanger for the USA , illustrating the infant death rate in 1920:

Deaths During First Year

1st born children 23%,	5th born children 26%,	9th born children 35%
2nd born children 20%,	6th born children 29%,	10th born children 41%
3rd born children 21%,	7th born children 31%,	11th born children 51%
4th born children 23%,	8th born children 33%,	12th born children 60%

- *Protecting Public Health*

Worldwide, there are 42 million people living with HIV/AIDS and about 333 million new cases of sexually transmitted infections (STIs) each year.

Barrier forms of contraceptives like condoms are critical to prevent the spread of STIs, including HIV/AIDS.

In Thailand, for example, an expanded HIV/AIDS Prevention and Control Program led to a 90 percent decrease, from 1988, in the number of men attending government clinics for STI treatment.

- *Reducing the Need for Abortion*

Helping people meet their contraceptive needs helps them to plan the number and spacing of their children and to avoid unintended pregnancies that result in abortion.

In Russia, because of limited contraceptive availability, abortion has been used as the major method of birth control. However, the recent increased availability of modern family planning methods has already resulted in a greater than one-third drop in the abortion rate.

The introduction of modern contraception in Hungary coincided with a 60 percent reduction in abortions. Similar results can be seen in Chile, Colombia, Mexico, South Korea, Kazakhstan, and Ukraine.

Worldwide, there are nearly 80 million unintended pregnancies annually, and more than half of these result in abortion. Almost 20 million abortions are performed under unsafe conditions, and an estimated 78.000 result in death.

- *Empowering Women and Girls*

Many women and girls in developing countries do not receive the same level of education as men, and they marry at a very young age. Postponing childbirth among young women increases their chances of receiving a good education, which is vital to social, political, and economic empowerment.

Across nearly every culture, class, and region of the world, well-educated women are more likely to use family planning than are women with little or no education.

Family planning is crucial to women achieving higher status, health care and nutrition equal to men, and full participation in their country's economic and political institutions.

- *Protecting the Environment*

Slowing population growth and consumption can help rich and poor countries alike address the problems of water scarcity, disappearing farmland, the depletion of the ozone layer, and the deterioration of wildlife habitats.

Some countries are already so short of water that underground reserves are being depleted. In 2003, the number of people without access to safe water is 2.2 billion. Kenya has four cubic metres of water in storage for each of its citizens compared to 6500 cubic metres per capita in the USA.

- *Stabilising World Population*

Slowing population growth helps poorer countries develop politically and economically, which reduces human suffering due to poverty, malnutrition, and disease.

Extreme scarcities of non-renewable natural resources such as water, farmland, fisheries, and forests leave societies vulnerable to civil conflict. Slowing population growth helps relieve the underlying pressures on these resources and can therefore reduce the likelihood of civil conflicts and tension among groups.

Re: Planned Parenthood Federation of America, 2003, World Water Forum, Kyoto 2003.

2

Family Planning in Zimbabwe and sub-Saharan Africa, including the HIV/AIDS aspects

AN OVERVIEW WITH BACKGROUND INFORMATION AND RESEARCH FINDINGS
REPORTED IN THIS THESIS COMBINED WITH A STUDY OF THE RELEVANT
LITERATURE. "STATE OF THE ART".

FAMILY PLANNING IN ZIMBABWE AND SUB-SAHARAN AFRICA, INCLUDING THE HIV/AIDS ASPECTS.

An overview with background information and research findings reported in this thesis combined with a study of the relevant literature. "State of the art".

INTRODUCTION

The demographic setting and economic considerations

History family planning organisation

Traditional Child Spacing

Current family planning services

Abortion law

Future services

The reproductive needs

- Phase 1. Sexually active but no pregnancy is wanted yet.
Contraceptive needs before the first pregnancy.
HIV risk for females becoming sexually active
What can be done to prevent HIV infection
- Phase 2. Reproduction has started and is (probably) not yet completed and spacing between pregnancies is required.
HIV/AIDS
Post partum contraception
Post-abortal contraception
- Phase 3. There are enough children and further procreation is likely/definitely not wanted.

Risk benefit balance of contraceptive methods

Men

Abortion

Changing the abortion law

Emergency Contraception

Rape

Sexually Transmitted Infections

Infertility

References

Table 1

	Life expectancy		Maternal Mortality Ratio	% Birth with skilled attendants		% > 15 years illiterate M/F		Births /1000 women aged 15-19	Contracept. Prevalence Method		HIV prevalence Rate (%) age 15-24 M/F
	M/F					Any/ Modern					
World	63.9/68.1	400	77			50	61	54	0.8/1.4		
Zimbabwe	43.3/42.4	610	73	6/14	105	54	50	12.4/33.0			
South Africa	46.5/48.3	340	84	13/15	73	56	55	10.7/25.7			
Lesotho	40.9/39.6	530	60	26/6	67	30	30	17.4/38.1			
Botswana	36.5/35.6	480	99	24/18	63	40	39	16.1/37.5			
Mozambique	37.3/38.6	980	44	38/69	129	6	5	6.1/14.7			
Zambia	42.6/41.7	870	47	14/26	92	25	14	8.1/21.0			
Kenya	48.7/49.9	1300	44	10/21	90	39	32	6.0/15.6			
Nigeria	52.0/52.2	1100	42	25/41	104	15	9	3.0/5.8			
Mali	51.1/53.0	630	24	48/62	195	8	6	1.4/2.1			
Bangladesh	60.6/60.8	600	12	47/69	125	54	43	0.01/0.01			
Thailand	67.9/73.8	44	85	3/6	51	72	70	1.1/1.7			
Brazil	64.7/72.6	260	88	14/14	71	77	70	0.6/0.5			
USA	74.6/80.4	12	99		49	76	71	0.5/0.2			
Netherlands	75.6/81.0	10	100		4	79	76	0.2/0.1			

Source: UNFPA, State of the World Population 2002

Table 2

	Population x 10 ⁶	Expected population 2050	Pop. % growth 2000-2005	Total Fert. Rate	GNP (2000) in US\$	Energy use in kg oil equiv.	Access Safe water % (1999)	< 5 Mortality
World	6.211.1	9.322.3	1.2	2.7				79
Zimbabwe	13.1	23.5	1.7	4.5	2.550	821	85	108
South Africa	44.2	47.3	0.8	2.9	9.160	2.597	86	101
Lesotho	2.1	2.5	0.7	4.5	2.590	?	91	181
Botswana	1.6	2.1	0.5	3.9	7.170	?	?	141
Mozambique	19.0	38.8	1.8	5.9	800	404	60	224
Zambia	10.9	29.3	2.1	5.7	750	626	64	143
Kenya	31.9	55.4	1.9	4.2	1.010	499	49	103
Nigeria	120.0	278.8	2.6	5.4	800	705	57	130
Mali	12.0	41.7	2.9	7.0	780	?	65	236
Thailand	64.3	82.5	1.1	2.0	6.320	1.169	80	25
Bangladesh	143.4	265.4	2.1	3.6	1.590	139	97	93
Brazil	174.7	247.2	1.2	2.2	7.300	1.068	87	44
USA	288.5	397.1	0.9	1.9	34.100	8.159	100	8
Netherlands	16.0	15.8	0.3	1.5	25.850	3.738	100	6

Source: UNFPA, State of the World Population 2002

INTRODUCTION

It is perhaps, somewhat superfluous to discuss in this thesis the family planning aspects of reproductive health in Zimbabwe, for a large part also applicable to all countries in southern Africa, while there are so many, more serious, problems affecting the country and the region. To mention a few:

- 33.7% of the adult (15-49) population in Zimbabwe is infected in 2002 with the Human Immunodeficiency Virus (HIV) according to the WHO and there are an estimated 700.000 AIDS orphans.
- Lack of political leadership to tackle the HIV epidemic head on.
- A famine is affecting at least half the population of around 12 million, and before the famine, already in 1995, 45% of the population was living below the national Food Poverty Line and 23% of the children under the age of three were stunted (chronically malnourished) ¹. This was before the white farmers were thrown off their farms.
- Stunted growth will result in obstructed labours later.
- An evaporating industrial, mining and agro-industrial basis of the economy.
- Severe political polarisation, serious corruption.
- Continuously declining Gross National Product, and according to the IMF, an expected inflation in 2003 of 520%.
- Accelerating environmental degradation.
- Loss of international goodwill and investment.
- Loss of motivation to build a country together.
- Economy ruined by new global economic order with loss of protection for small national industries.
- Loss of the professional classes as a result of emigration and HIV/AIDS mortality.
- Happiness, nutrition, education and health of the population subordinated to political symbolism and nationalist pride.
- Politicians in power affecting Africa's image negatively for years to come.

The demographic setting and economic considerations

At the first political conference on population in Bucharest in 1974 nearly all African countries had had an anti family planning (FP) position. By 1984 in Arusha, Tanzania, in preparation for the Mexico City conference, most accepted FP as legitimate and showed even mild anti-natalist preferences.

Surveys show that Zimbabwe, like Botswana, Lesotho and South Africa, has passed through a fairly steep decline in fertility over the last 20 years ². In the early 1980s reproduction was such in Zimbabwe that the average woman could expect to have had somewhat more than 6 children (8.0 in Kenya and 8.5 Rwanda in the 1970s) at the end of her

Table 3 Selected global figures

	Crude birth rate	Wanted total fertility rate	Total fertility rate
Sub-Saharan Africa			
Benin 2001	40.7	4.6	5.6
Botswana 1988	-	3.9	4.9
Burkina Faso 1998/99	42.5	5.7	6.4
Cameroon 1998	35.2	4.3	4.8
CAR 1994/95	38.0	4.7	5.1
Chad 1996/97	46.0	6.1	6.4
Cote d'Ivoire 1998/99	39.3	4.5	5.2
Ethiopia 2000	38.6	4.7	5.5
Gabon 2000	32.9	3.5	4.2
Ghana 1998	32.3	3.6	4.4
Kenya 1998	34.6	3.5	4.7
Malawi 2000	44.9	5.2	6.3
Mali 1995/1996	45.1	6.0	6.7
Mauritania 2000/01	30.9	4.1	4.5
Mozambique 1997	38.7	4.7	5.2
Namibia 1992	38.1	4.8	5.4
Niger 1998	51.2	7.0	7.2
Nigeria 1999	34.7	4.4	4.7
Senegal 1997	38.7	4.6	5.7
South Africa 1998			2.9
Sudan 1990	-	4.2	4.7
Tanzania 1999	41.4	4.8	5.6
Togo 1998	34.4	4.2	5.2
Uganda 2000/01	46.8	5.3	6.9
Zambia 1996	45.2	5.2	6.1
Zimbabwe 1999	30.8	3.4	4.0
North Africa/West Asia/Europe			
Egypt 2000	27.8	2.9	3.5
Jordan 1997	33.1	2.9	4.4
Turkey 1998	23.4	1.9	2.6
Yemen 1997	-	4.6	6.5
South & Southeast Asia			
Bangladesh 1999/2000	30.2	2.2	3.3
Cambodia 2000	25.8	3.0	3.8
India 1998/1999	24.8	2.1	2.8
Indonesia 1997	-	2.4	2.8
Philippines 1998	28.0	2.7	3.7
Sri Lanka 1987	-	2.2	2.7
Thailand 1987	-	1.8	2.2
Vietnam 1997	19.2	1.9	2.3
Latin America & Caribbean			
Brazil 1996	21.5	1.8	2.5
Peru 2000	21.5	1.8	2.8

Source: DHS

reproductive life. This is the total fertility rate (TFR) defined as the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the currently observed age-specific rates. The Zimbabwean TFR had declined to 4.0 in 1999³. The TFR of the early 1980s with an annual population growth rate of 3.1%, if continued, would have seen a doubling of the population every 23 years, resulting in an unsustainable struggle to provide for education, nutrition and health care. In fact, that is probably what happened anyway to free health care and free education. The economy could no longer generate the necessary funds not so noticeable the first years after independence because of the redistribution of assets and employment that took place. The recent dramatic changes in land holding pattern and the preceding economic collapse could be completely, if somewhat simplified, explained by the population pressure, and it would not be the first time either.

Zimbabwe is named after Great Zimbabwe the capital of a great civilisation now a ruin. Great Zimbabwe was probably abandoned (in the 16th century) because of, and I quote: “environmental deterioration brought on by the large population. Certainly the large number of people that is now thought to have lived in Great Zimbabwe must have placed a tremendous demand on the available natural resources of the surrounding area. Firewood would soon have become locally scarce, necessitating its transport from ever-increasing distances, wildlife to serve as a supplement to the human diet would have become virtually unobtainable, and the relatively limited areas of better soils must have been gradually exhausted by too frequent a cultivation and by overgrazing”⁴.

South African sources⁵ claim that there are now 8 million illegal immigrants in that country from Mozambique, Lesotho, Malawi, Zimbabwe, Zambia even Nigeria. The progress made in South Africa in reducing population growth (1998 TFR 2.9 SADHS, 3.1 black women) might have given the economy a chance but the economic collapse of its neighbours, initiated by unsustainable growth of populations in the region plus economic mismanagement and accelerated by the HIV epidemic, might set the country back for a very long time. The Europeans in South Africa used to blame the indigenous population for unbridled growth making it increasingly difficult for the latter to live a life with some level of luxury without the former surrendering much of their wealth. South Africa had an estimated population of 5.2 million 100 years ago and currently 46 million. The population of the Netherlands was also somewhat more than 5 million in 1900 and 16 million 100 years later.

In Zimbabwe something was done about the surrendering mentioned above and in the process the goose that was laying the silver eggs was killed. Something similar might still happen easily inside South Africa, and on a global scale, it might happen to the West.

Table 4 HIV/AIDS projections of Actuarial Society of South Africa if there is no change in sexual behaviour

AD	2000	2005	2010	2015
Total population	45 078 805	47 485 369	47 392 059	46 599 840
Total HIV infections	5 263 841 (11.7%)	7 594 403 (16.0%)	7 252 801 (15.3%)	6 297 502 (13.5%)
Non-AIDS deaths	387 667	404 749	406 095	404 846
AIDS deaths	139 009	510 079	779 098	695 041
Life expectancy	55.8 years	45.3 years	40.6 years	41.8 years
Adults, ages 20-65 infected	20.1%	27.0%	25.7%	22.4%

The situation in Zimbabwe is in such a flux that reliable demographic figures are not available. To give an idea, figures from South Africa are shown (Projections of South Africa) with the caveat that 10.5% of its population is similar to that of Western Europe in relation to TFR and HIV prevalence. The best projections for South Africa show a small decline in the population because of the HIV epidemic. In Zimbabwe, people of European descent make up currently less than 0.3% of the population.

The population size in itself does not reveal the ratio of the dependent part of the population to the productive part. For example, in many countries with a rapid population growth and a reasonable health care, half the population is younger than 17 years, the situation in Zimbabwe 1940-1992. The WHO uses the dependency ratio to express this relationship: the population aged 0-14 and over 65 years as a percentage of the population aged 15-64. According to the WHO, the dependency ratio was in Zimbabwe in 1978, 104, and in 1998, 82. The 1998 figure is the lowest in continental sub-Saharan Africa apart from those of South Africa where the dependency ratio was 64, Lesotho 79 and the Gambia 77. The figures from 1998 of all WHO member states combined, were 59, Africa as a whole 90, Singapore 40, Slovenia 43, Cuba 45, Japan 45, Netherlands 47, USA 54, Latin America 59, Malawi 100, Zambia 100, Somalia 101, Yemen 102, Angola 102, Zaire 103, Uganda 108, Kenya 114.

When there is a rapid decline in fertility, this can result, like it did in successful Asian countries, the "Asian Tigers", in the so-called "demographic gift" ^{6,7}. The sudden change in fertility rate results in far fewer dependent children with as yet not many old people, probably a never-to-be-repeated situation. A large fraction of the population will

then be in the productive phase of their lives. If properly channelled this gift can kick-start an economy. This has not happened in Zimbabwe and the HIV/AIDS epidemic has increased the dependency ratio enormously with 4-5 adults dying of AIDS for every AIDS child death at this stage of the epidemic. It is a vicious demographic cycle. The peak of HIV infection occurs among young adults. They have children, of whom some become infected and die, but most live on as AIDS orphans and are exposed to the same risks as their parents when they become adolescents.

The Zimbabwean economic growth rate, before it went into free fall (minus 12% according to official government figures in 2002), averaged 2.1% per annum between 1980-1996. The annual population growth rate was estimated to be 3.1% between 1982 and 1992 and 2.5% between 1992-1997. There are other calculations, from the WHO and UN, with different results, but they all agree that the population grew faster than the Gross National Product. Rapid population growth is not always the cause of poor economic performance. It can also be the other way round. But rapid population growth tends to exacerbate bad economic politics and slower growth may buy some time for better politics to take an effect.

The demographic transition can be accompanied by a health transition with a shift of morbidity from infection and under-nutrition to over-nutrition, diabetes and cardiovascular disease.

Zimbabwe, Kenya and South Africa have large income disparities as great as a country like Brazil, much more so than India or the USA, for example. In Zimbabwe the bottom fifth of the population received 4% of the national income and the top fifth 62% in 1991 and the inequality is probably increasing⁸.

The 1999 Zimbabwe Health and Demographic Survey (DHS)³ found that in general urban women tended to have fewer children than rural families with a TFR of 3.0 and 4.6 children respectively. Women who had no formal education, rare in Zimbabwe, had on average more than 5 children, while women with higher than secondary education had fewer than 2. In 1999 the mean ideal number of children was 3.9 (2.9 in South Africa, 3.8 Kenya 1998, Ghana 4.3, Nigeria 6.2) for all women. This in answer to the questions: "If you could choose exactly the number of children to have in your whole life, how many would that be?" or: "If you could go back to the time when you did not have any children if you could choose exactly the number of children to have in your whole life, how many would that be?", for those who already had children. Women who have fewer or more children than wanted will together create a mean ideal number of children near the actual TFR of 4. It is better to use information on whether births occurring in the five years before the 1999 DHS survey were wanted or not, a total "wanted" fertility rate can then be calculated. This is the TFR minus the unwanted births. It can then be worked out that Zimbabwean women are currently having an average of 0.6

children more (Kenya 1.2) than they actually want and on top of that there are an estimated 60.000 clandestine abortions.

The preliminary results of the 2002 census showed an increase in the de facto population of only 0.8 million to 11.6 million over the ten years since the last census (0.7% per annum increase), with South Africa and Botswana together claiming to “look after” at least 2 million Zimbabwean economic refugees and Britain after 0.6 million, according to the Zimbabwean opposition party Movement for Democratic Change. An estimated 180.000 of the de jure population die of AIDS each year.

History family planning organisation

Family planning services were first available in what is now Zimbabwe in 1953⁹ (1878 first FP clinic in the world in the Netherlands, 1916 first clinic in the USA and Margaret Sanger imprisoned). The Rhodesian Family Planning Association (RFPA) was established formally in 1965. The RFPA distributed contraceptives in 1966 and trained “field educators” for the first time in 1967. The first community-based distributors (CBD) were trained in 1972. The RFPA was very taken by the convenience of giving three-monthly injections and did even research a double dose given six-monthly.

The Ministry of Health, after independence in 1980, integrated the RFPA into its department in 1981. The liberation movements had before independence, opposed family planning, which was seen, or at least presented in propaganda, as a colonial control instrument. After independence, proposals to do away with FP met with strong successful opposition from the women branches of the liberation movements. The family planning association became a parastatal in 1985 and was renamed the Zimbabwe National Family Planning Council (ZNFPC).

Zimbabweans form essentially a conformist community in which FP is at first more difficult to introduce than in a non-conformist society, but once the practice gets a foothold it will spread faster than in a “deviant” community as described by Crook¹⁰.

Traditional Child Spacing

Traditional methods are and were used for child spacing. These included universal methods like coitus interruptus and abstinence, especially post partum. There are also more localised methods like jumping over a certain type of bush from East to West to stop fertility and to jump from West to East if a new pregnancy is wanted. Charms can be worn around the waist for contraception and the placenta can be buried mixed with herbs in an anthill and retrieved when a next pregnancy is wanted. Many regions and traditional doctors have their own methods¹¹. Only 3% of married couples still use these traditional methods.

Breastfeeding was and is of course a very important element in child spacing, albeit that the users of this “method” are often not aware of that, like Queen Victoria. It would have been a disaster if many women in Africa were to have adopted the European breastfeeding habits, even more so if not accompanied by the simultaneous introduction of modern contraceptives. Post partum abstinence was and is an important element in child spacing. In theory this is quite feasible in polygynous relationships with rotating pregnancies, although no accounts are known to the author whether women enjoy this abstinence. In practice of course the pregnancy roster was not that easy to synchronise. Abstinence combined with extra marital relationships is extremely dangerous (vide infra under post partum contraception).

Reports from Southern Africa indicate that induced abortions are not new. A history of abortion in South Africa shows that in the middle of the 19th century, shocked Victorian officials in the Transkei said that: “abortion was almost universally practised by all classes of families” in African society¹². I am not aware of historical sources in Zimbabwe describing the prevalence of induced abortions but cannot imagine that traditional doctors did not get involved in unwanted pregnancies. I have seen a woman given Periwinkle (Vinca, maagdenpalm) by a traditional doctor resulting in a severe motor weakness, alopecia and a miscarriage.

Current family planning services

Aside from the CBD programme, the ZNFPC also runs some (urban and mobile) clinics, but it is currently mainly a policy-making, public opinion influencing, training and coordinating body¹³. The distribution of contraceptives includes intrauterine contraceptive devices (IUCD), condoms, pills, implants and injectables. Harare and Bulawayo centres receive referrals and sometimes perform(ed) tubal ligations (TL), vasectomies, implants and provided infertility counselling. These centres are not very busy according to recent surveys¹⁴. 700 CBDs educate about oral contraceptives, encourage their use, and screen clients for high blood pressure and side effects of oral contraceptives. Most visits are revisits⁹. CBDs use bicycles to make home visits and used to also have access to motorcycles. Each CBD averages around 100 clients per month, although this figure seems somewhat optimistic if compared to Tanzania where the best paid, supervised and organised CBD program in urban areas sees 425 visits per year per agent¹⁵. In the 1988 DHS survey, 24.5% of the respondents indicated the CBD workers as their source of FP supply this was 18.4% in 1994 and 3.4% in 1999.

The ZNFPC organises imports and donations of FP ordinance, workshops, national and male education programmes, school education programmes and training courses. They used to have many donor funds with beautiful headquarters, 4x4 drives, luxury

workshops and international travel. Donor funds have dried up recently and even the distribution of tablets and injectables is under threat. In the 1999 DHS survey, a total of 9% of FP users indicated the ZNFPC as their source of supply (37.6% 1988), 23% the private sector and 68% the public sector.

The four government referral hospitals in Bulawayo and Harare have trained FP sisters (by the ZNFPC) who counsel, distribute pills and injections, place IUCDs sometimes and organise insertions and removals of implants and sterilisations if they can motivate a doctor, see chapters 5 & 8. Two of the hospitals are supposed to have a FP walk-in-clinic but during the last seven years, all the above services were only available all the time at the United Bulawayo Hospitals (UBH).

Every rural, city, mission and government clinic or hospital is expected to render integrated FP and sexually transmitted infections (STI)/HIV prevention services. Some church related hospitals are very active in FP, others do not provide those services even not - a clear moral obligation - training in a fertility awareness method (Billing's or vaginal mucus method or -contradiction in terms -"natural FP"), see chapter 12.

All private general practitioners and gynaecologists provide contraceptive services. The same applies to most private hospitals. Some private FP clinics have been established with the help of overseas donor organisations. These clinics are very popular, but unaffordable and inaccessible for many. Donors are also active in developing distribution networks for condoms and pills mainly via existing traders for (little) profit, so called social marketing. At the same time these donors assist with marketing by advertising on a national/regional level. Pharmacists are also prepared to provide FP methods without a doctor's involvement, see chapter 9.

Zimbabwe trains its own doctors, around 80 annually. Many disappear to greener pastures e.g., private practice, abroad, international organisations. Senior gynaecologists have been trained overseas but there is currently a localised training programme that produces 2-3 gynaecologists annually. Cuban doctors are replacing to some extent gynaecologists and other doctors leaving for greener pastures. Most non-private deliveries took place in the presence of scarce, well-trained midwives (who are also welcome in the UK, explaining the past tense), and doctors, let alone gynaecologists, become only involved if indicated, this often means transport over long distances.

Abortion law

The Termination of Pregnancy Act, 1977, governs legal termination of pregnancy
Subject to the provisions of this Act, a pregnancy may be terminated-

- A Where the continuation of the pregnancy so endangers the life of the woman concerned or so constitutes a serious threat of permanent impairment of her physical health that the termination of the pregnancy is necessary to ensure her life or physical health, as the case may be; or
- B Where there is a serious risk that the child to be born will suffer from a physical or mental defect of such a nature that he will permanently be seriously handicapped; or
- C Where there is a reasonable possibility that the foetus is conceived as a result of unlawful intercourse.

Paragraph c refers to incest and rape but not statutory rape [intercourse with a consenting girl 13, 14 or 15 years old]. Sexual intercourse with a girl under 13 years old is always rape, consenting or not.

According to the Act: The Minister may by regulation provide for all matters, which by this Act are required or are permitted to be prescribed or which in his opinion are necessary or convenient to be provided for in order to carry out or give effect to the provisions of this Act.

The above may include HIV infection as falling under the provisions of the act although the Minister has never indicated this in writing, but is rumoured to have said so in parliament. In practice, it depends on the superintendent of a hospital if terminations of pregnancy are allowed for women with a proven HIV infection. It is unlikely that a woman will be prepared to be part of a legal test case.

Around 100 legal abortions are performed annually (while there are around 100.000 HIV + women pregnant) and 60.000 illegal ones (guesstimate by the previous minister of health) with one or two criminal convictions annually. In Poland, in 2001, with a population of 38 million there were 124 legal and between 80.000 and 200.000 clandestine abortions¹⁶.

Future services

Better times could be ahead and there might be political commitment and resources to spare for reproductive services. Furthermore, much of what is discussed in this thesis will be applicable to many countries in sub-Saharan Africa that trail behind Zimbabwe in the fertility transition process, but might have the political stability and vision to support and implement the essential agreement of the International Conference on Population and Development (ICPD, 1994) in Cairo. This agrees that in order to solve population problems, it is best to start with couples/individuals who have to be free and able to make choices about family size and child spacing, as is the position of the Dutch government

17. This approach regards access to information and to reproductive health services a basic human right.

While doubts about the morality of limiting family size may cause a profound obstacle to fertility decline, the accumulation of a critical mass in changed opinions might go virtually unnoticed until the view that contraceptives are immoral disappears almost overnight with a dramatic effect, if proper contraceptive services are available. This has happened in the nineteen fifties in Japan, in the sixties in the Netherlands for the not too orthodox Christians, in the eighties in Botswana, Zimbabwe, Kenya and Vietnam and in the nineties in Pakistan¹⁸ and might well be happening in West Africa, although Ghana is hovering on the edge of a TFR decline for the last 25 years. When the fertility transition happens in sub-Saharan Africa, if not already, as chapters 3, 4, 5 & 7 show for Zimbabwe, the organisational capacity of family planning providers and the method mix on offer will be the bottleneck. A recent report in the British Medical Journal shows that health services in sub-Saharan Africa are already not able to provide the minimal number of caesarean sections estimated to be absolutely necessary for a reasonable “safe motherhood”, let alone provide enough FP¹⁹.

For years to come, outside support will be needed for FP services in sub-Saharan Africa, with the advantage for the donor that it is relatively easy to keep an eye on expenditure and that unexpected negative effects on for example the environment or the status of women are very unlikely.

The reproductive needs

In order to discuss the family planning aspect of reproductive health services it seems best to follow the reproductive lifespan of women and divide it in three phases.

- PHASE 1 Sexually active but no pregnancy is wanted yet.
- PHASE 2 Reproduction has started and is (probably) not yet completed and spacing between pregnancies is required.
- PHASE 3 There are enough children and further procreation is likely/definitely not wanted.

It is understood that education about sex should start long before sexual activity but this subject does not need to be addressed in depth in this thesis, which is focused on the task of health workers.

PHASE I

- Sexually active but no pregnancy is wanted yet.
- Contraceptive needs before the first pregnancy.

The length of time between first intercourse and first (wanted?) pregnancy is much shorter in Zimbabwe and indeed in Africa than in the industrialised world, with a median age for women at first intercourse of 18.7, at first marriage 19.3 and first childbirth at 19.9 years, it is 5.7 months³. If the questions resulting in these figures were answered truthfully and it takes a median time of 5.7 months to become pregnant if no methods are used (especially because intercourse at first is infrequent in this age group if not yet married) then no contraceptives seem to have been used. This fits with our observation that, especially consistent, contraceptive use in a somewhat stable relationship is rare before the first baby. The 1999 DHS interviewed only 28 professed sexually active unmarried girls aged 15-19 of whom 8 used condoms and 1 the pill. Of the 4270 ever-married women in the DHS survey, 4.4% had first used contraceptives before they had a child and 55.1% had started after the first child. These figures were in the 15-19 age group (n=329) 8.3% and 41.7% (p < 0.001 for use before first baby 15-19/20-49 age groups) with an obvious correlation overall, between the younger age group and starting contraceptives after fewer children. So, there seems to be some change mainly related to condom use.

In South Africa, teenagers do not use contraceptives much until after the first child, then injectables are used a lot. Not the “non cool” Depot Medroxy Progesterone Acetate (DMPA) but norethindrone enanthate (NET-EN) two-monthly injections²⁰⁻². Other reports are more optimistic about the knowledge and use of modern contraceptives in sub-Saharan Africa by young women²³.

We studied sexual behaviour with self-administrated questionnaires in 1992 at a large boarding school 50 km from Bulawayo with unlikely results, e.g. many (30% of) 12-year-old boys claimed to be sexually active. Somewhat similar results were reported from a study of 1689 adolescents from rural, urban, coeducational, single sex, boarding, and day secondary schools in Zimbabwe²⁴. In that study 789 pupils were aged 10-14 years, 872 were aged 15-19. 48.4% of the participants were male. The reported results were that first coitus occurred at the mean ages of 12 years for boys and 13.6 years for girls of the 17% reportedly being sexually experienced. Our study was not presented for publication because we were advised that so many of the younger students would not be able to understand English well enough and that pupils were very much used to giving those answers they thought teachers would prefer. But, the writers of the report mentioned are experienced investigators and it could be that there is a substantial subgroup of teenagers sexually active at a very early age although this was not found in the DHS of 1999 and in our study of nurses, chapter 10. This has of course implications for the timing of sex education.

Median age at first childbirth is in Western Europe currently higher than 25 years²⁵, with sexual activity probably starting earlier than in Zimbabwe (vide infra) this means 7-9 years of mostly successful contraception before the first birth.

The reasons why there is so little contraceptive use in Southern Africa before the first baby, apart from the increasing initial use of condoms in perceived risky contacts, are difficult to quantify with existing research data. In South Africa, there is even a bimodal pattern discernable in reproduction with teenage pregnancies and then, only years later, the second child²⁶⁻⁷. It is a mixture of (perceived) unavailability of hormonal contraceptives, no reason to postpone a pregnancy because prospects for further schooling or training are limited, attempts to force a marriage, irresponsibility, lack of sex education, coerced intercourse, wanting presents and money, testing fertility, peer pressure, unfriendliness of (government) health staff, denial, reluctance to admit to oneself that one is really sexually active, believing lies that one will be taken care of if pregnant, wanting to leave the parental home, having a mother or other relative who will do most of the child caring, fear that later one might not be able to have a child, collapsing networks of social control (political situation, migration, urbanisation, teenage or granny headed households because of AIDS mortality) and it being easier to learn quickly how to have sex than how to use contraceptives²⁸. Certainly, not all girls are passive victims, they also work on their own downfall and they have libidos²⁹⁻³³.

Afro-American teenagers are often accused of becoming pregnant in order to enjoy welfare payments but, of course, this mechanism plays no role in Southern Africa where even child support from the "owner" is rarely enforceable.

A review³⁴ of published and unpublished papers, reports and dissertations from South Africa dated between 1990 and 2000 and addressing sexual behaviour of youth between the ages of 14 and 35 years, finds that at least 50% of young people are sexually active by the age of 16 years and between 50% and 60% of sexually active youth report never to use condoms. It concludes that: personal factors interact to encourage HIV risk behaviour in ways that are "not fully captured by social-cognitive models" and recognises the "pervasive effect of poverty and social norms that perpetuate women's subordination within sexual relationships". A more recent paper³⁵ concludes that: "with-in the constraints of limited and problematic statistical data, a complex interaction of material, social, cultural and behavioural factors shape the nature, process and outcome of the epidemic in South Africa".

It is difficult to give a recommendation, other than that more practical research has to be done, into whether making hormonal contraceptives more accessible, like in Europe, will result in an increased uptake and if it will in - or decrease unwanted pregnancies, induced abortions and HIV prevalence. It might be that this is a field, which will never be understood properly.

DMPA is rarely used for teenagers (even after an abortion for example) and for young mothers in Zimbabwe, while this is quite a reasonable option also approved by the FDA, since it registered DMPA in the USA in 1992³⁶. Implants would probably be easier for a sub-group of girls if financially possible.

HIV risk for females becoming sexually active

The overriding imperative at this stage of a girl's/woman's life in Southern Africa is not to catch HIV. An unplanned pregnancy is of secondary concern although, the concurrent change in social status might in itself substantially increase the chance to become HIV infected. Many fail, HIV prevalence figures in the 21-25 year age group of more than 40% have been recorded³⁷ from townships in South Africa, and the figures for the 15-24 age group in general are 23.3-25.8% for females in Zimbabwe, 32.6-36.1% in Botswana, 22.5-27.1 in South Africa and between 13.4% and 31.2 % in Mozambique, Malawi, Zambia, Namibia, Lesotho and Swaziland³⁸. The HIV prevalence is for the majority of the above countries, more than 100 times the prevalence in Switzerland, USA, Portugal, Spain and France, the most affected countries of the Western World. While the latter countries have many more infected males than females, this is not the case in the younger age groups in sub-Saharan Africa, where 2/3 of the infected are females. In chapter 15 the conclusion is reached on theoretical grounds, that the large age difference in sexual partners is a major factor in the higher risks, which females run. This has now been confirmed by a study from Zimbabwe³⁹. A large gender effect remains (odds ratio 6.04; 95% CI 1.49-24.47) after controlling for exposure to infected partners very likely

Table 5 Global summary of the HIV/AIDS epidemic december 2002

Number of people living with HIV/AIDS	Total	42 million
	Adults	38.6 million
	Women	19.2 million
Children under 15 years	3.2 million	
People newly infected with HIV in 2002	Total	5 million
	Adults	4.2 million
	Women	2 million
	Children under 15 years	800 000
AIDS deaths in 2002	Total	3.1 million
	Adults	2.5 million
	Women	1.2 million
	Children under 15 years	610 000

Source: WHO

caused by the anatomical differences of men and women, even in an area where few men are circumcised. In the Netherlands and USA, STIs, other than caused by HIV also have a high relative prevalence among girls 15-19 years old⁴⁰⁻¹.

The Zimbabwean National Youth Reproductive Health Survey (NYRHS) of 1997 showed that 96% of males and 66% of females have had sex before marriage and 46% and 53% of sexually active, unmarried, males and females respectively had not used anything to protect themselves against STI and pregnancy, the last time they had sex. Pre-exposure HIV testing in this age group is virtually unheard of.

In the Netherlands in 1995⁴² virtually everybody has had sex before marriage, but, of course, marriage takes place at a much older age, related to having babies later in life (median age 29.2 years at first delivery, oldest in the world)⁴³, and 49% of boys of 18 years have had sexual intercourse and 60% of the girls. These percentages are increasing.

In Zimbabwe these percentages are 30 and 35 according to the 1999 DHS and decreasing, but different surveys show quite different figures.

42% of the secondary school pupils in Holland in 1995 had used a condom, the Pill (63%) both (18%) and some the withdrawal or a calendar method with their last partner, and 15% had used nothing at all with their first intercourse (34% in USA)⁴⁴. In the Netherlands, in 2001, Double Dutch use with first intercourse had not increased but condom use had⁴⁰. In surveys in the Netherlands a clear correlation is found between contraceptive use the first time and later contraceptive use in teenagers. An argument in favour of education before sex has started.

The major reason given (23 percentage points) in Zimbabwe for not using a contraceptive, was that the intercourse was unplanned/ just happened. An important reason for this is that parents and educators are mentally not equipped to discuss sex with their wards and also because they would rather let sleeping dogs lie. This results in 73% of young females who have menstruated and 81% of young males who have had wet dreams, saying that they were surprised by this biological event, according to the NYRHS. This percentage of 73 was 24 in the Netherlands in 1963⁴⁵, but proper sexual education by parents was also infrequent at that time⁴⁶.

In Zimbabwe, a shocking proportion of 7% of "safe day" method users correctly identified safe days in relation to pregnancy prevention, while the "safe day" method was the second most used method for unmarried youth after condoms, the NYRHS found.

Zimbabwean youth in their turn, are also unable to communicate about sex and condoms amongst themselves. There seems, for example, to be much confusion in Zimbabwe and Southern Africa as to whether a girl is prepared to have sex. It is believed that a girl should always say no and struggle, even if she agrees to sexual intercourse, because that is what proper girls ought to do. This makes it difficult for a boy/man to

judge if he is engaged in coercion/rape or making love and to discuss and apply a condom⁴⁷. This situation is certainly not unique for Southern Africa.

In the novel, *The Catcher in the Rye*, published in the USA in 1951⁴⁶, the author formulates it as follows:

“The trouble with me is, I stop. Most guys don’t. I can’t help it. You never know whether they really want you to stop, or whether they’re just scared as hell, or whether they’re just telling you to stop so that if you do go through with it, the blame’ll be on you, not them. Anyway I keep stopping. The trouble is I get to feeling sorry for them. I mean most girls are so dumb and all. After you neck them for a while, you can really watch them losing their brains. You take a girl when she really gets passionate, she just hasn’t any brains. I don’t know. They tell me to stop, so I stop. I always wish I hadn’t after I take them home, but I keep doing it anyway”.

There are more similarities, given the at least 850.000 unplanned teenage pregnancies in the USA every year⁴⁹. A recent update from the WHO⁵⁰ estimates that in Zimbabwe 6% of the boys between 20-24 has had sex before 15 years of age and 3% of the girls. These figures are for the USA 38% for both boys and girls, in the Netherlands 12% and 17%. It is irresistible to document here that these figures are 30% and 13% respectively for Poland. Is this proof of a double moral in Poland and a reversed double morale in the Netherlands?

Traditionally aunts and grandmothers were supposed to give sexual education to young girls and boys, although one wonders what facts were taught. For example, in many parts of Africa young women believe that using contraceptives causes infertility⁵¹. A rumour not likely to be contradicted or even encouraged by parents or religious leaders, hoping to prevent premarital sex. The result, well documented from Nigeria, is that sexually active teenagers use no contraception, become pregnant, have unsafe abortions and then become infertile or even die. One author has estimated Nigeria to have 20.000 abortion related deaths every year⁵². This was 6 per year in the Netherlands at the end of the nineteen-fifties and early sixties⁴⁶ before modern contraceptives, apart from diaphragms and condoms, were available and when abortions were induced in the “backstreets”. The Dutch population totalled a little more than 10% of the population of the current Nigerian one. A factor 350 in abortion deaths, and a factor 17 Nigeria compared to South Africa before its new law (*vide infra*). Another study from Nigeria⁵³ estimates the maternal mortality rate at 1% and postulates that one eighth of that mortality is due to induced abortion. The calculation results in 6500 abortion related deaths but a study from Ivory Coast found that a much larger proportion of the maternal deaths were abortion related⁵⁴. If that is also true for Nigeria then the astonishing figure of 20.000 might

be realistic.

Another deadly belief reported from Zimbabwe, Botswana, Uganda, Malawi, Mozambique and South Africa, but not well quantified, is that sex with a virgin will “cleanse” a man, also of HIV^{33, 55-6}. A recent report showed that there is a widespread (29%) conviction among sexually active young men in South Africa’s most HIV infected province of KwaZulu-Natal, that circumcised men cannot catch, and therefore also not spread, HIV⁵⁷. Many teenage girls use no contraceptives because they are told and believe that they cannot get pregnant the first time they have sex⁵⁸. The author has seen girls who were surprised to be pregnant because their boyfriends had assured them that they were using the pill.

With modernisation of society, formal schooling, “nuclearisation” of the family and urbanisation, parents would be the right persons to make sure that the essential, correct knowledge about sex, HIV and pregnancy was present in their children but apparently talking about sex to one’s children was, and to a large extent still is, taboo⁵⁹. One wonders how large a disaster has to be before taboos are adapted: cannibalism was practiced during the siege of Stalingrad. Conversely, a thesis from 1965 also speculates about the taboo factor in lack of parental sex education in Amsterdam⁴⁶.

Sociological studies from South Africa⁶⁰ claim that young men are expected to engage in multiple sexual relationships and have “internalised” negative attitudes towards condoms. The Zimbabwean NYRHS found that by age 24 men claim to have had 3.7 sexual partners and women 1.4, fewer partners than studies from the West (and from much of Africa) show but with far more risk. Essentially the same results are reported in this thesis from a study among student nurses and midwives in Bulawayo (chapter 10). The difference in results compared to the NYRHS is caused by the different social and educational background of student nurses as opposed to a random national population sample of 5449 young people aged between 10 and 24 years. Studies from Cameroon and the USA also show that young women from poor family environments were more likely than women from a better (like our nurses) family background, to have had sexual experience^{61, 41}. Studies from South African townships demonstrate that adolescent sexuality develops essentially along the same lines as in industrialised countries. It is much easier in the West to obtain (dual)⁶² contraceptive methods, male violence and coercion are less a factor in sexual relationships and non-use of condoms, and masculine ideals about flesh to flesh contact with many women are more dominant in Southern Africa³⁷.

A recent study of a large group of Zimbabwean teenagers showed that “misconceptions on transmission of HIV abounded”⁶³.

There are also some ideas that it is dangerous and unnatural for a man not to have sex for more than a few days^{57, 64}.

Compared to developed countries circumstances are, of course, fundamentally different in relation to poverty, educational opportunities and unemployment although, in Africa, on the national level, income is currently positively correlated to HIV prevalence. It quite easy to imagine that large differences in income within a country feed the HIV fire with the poorest the most vulnerable, after an initial stage, with rich men most at risk⁶⁵.

The biological problems are obvious, the biological solutions also, but the social engineering involved to implement the solutions will be enormous, even impossible.

What can be done to prevent HIV infection

The obvious solutions are: no sex before and outside marriage, HIV testing before unprotected sex/marriage by an incorruptible, professional organisation with disclosure of results to both partners and, if there happens to be sex outside marriage, condoms should always be used with morning-after pill back up or the dual use of condoms plus hormonal methods: Double Dutch or Belt and Braces approach⁶⁶. The barriers to implement this policy are discussed in this thesis (chapter 10, 15 & 16). Whether legalisation of abortion is to have a positive influence on the reproductive health of teenagers also as backup for condom failure, or a negative one because it will undermine motivation for condom use and abstinence is unclear, and probably unknowable.

It is possible that new vaginal microbicides will offer protection against pregnancy, HIV and other STIs but research results are not yet very promising and even if they were, with over 50 of such products at various stages of testing⁶⁷, it will take at least the period of the second World War (vide infra) before there will be a marketable product in which time another 6 million young people between 15 and 24 will become infected in sub-Saharan Africa. The study of one microbicide, nonoxynol -9, when used by prostitutes showed that the chemical so much irritated the vaginal wall during frequent use that HIV transmission was increased⁶⁷⁻⁸. Whether it protected the clients is not known.

To chart the way forward out of the HIV/AIDS disaster in sub-Saharan countries, top-level national executive AIDS conferences are needed as mentioned elsewhere (chapter 15). Two different scenarios would have to be discussed by them (see also chapter 16):

- A system of repression like inside Saudi Arabia where there is a rigid separation of the sexes and severe punishment for transgressors and including the removal of the risk magnifying alcohol from the equation. This option might work as it does in times of war when people are willing to sacrifice freedom and pleasure for national survival.

- An alternative would be complete openness in education, radio, TV and newspapers, also of course presenting the abstinence option. Furthermore making condoms available in schools and churches, and combining this with systematic HIV testing before anyone enters a relationship with unprotected intercourse.

Both approaches seem extreme and ridiculous and would meet with strong resistance. The present situation, with people dying and suffering on a larger scale per unit of population and for much longer than in the Second World War, begs for drastic solutions.

The current president of the USA is using his influence nationally and internationally to move to the worst of two worlds⁶⁹: no instruments to prevent the libido-ed, often alcohol-ed and sometimes ston-ed from seeking sexual pleasure, while not equipping those at risk with enough mental tools to prevent the miserable often deadly consequences of same⁷⁰. The US government is spending more than \$ 100 million annually on abstinence-only sex-education programmes while a recent Anti-Choice survey shows that parents and medical organisations support factual, age-appropriate, medically accurate, sex education⁷¹.

In Zimbabwe, there is little sexual education at mission and government schools. They favour the “let sleeping dogs lie” approach. The Dutch embassy supported the designing, printing and “workshopping” of sex education books for all schools in Zimbabwe, but the evaluation of the project showed an abysmal failure because of lack of political will and non-cooperation of teaching staff. A pilot study had suggested that sex education helped and that it needed to be offered when pupils were still young⁷².

In the USA, students do not change their sexual behaviour and use of contraceptives for the better, unless they are provided with specific, practical information on how to resist sexual pressures and how to prevent pregnancy and disease ⁴⁹. This wakes the dogs for sure, if not already awake, and this is exactly what the Roman Catholic Church (RCC) does not want. It might be true that in low HIV risk societies in the long run the non censorious, open approach to sex needed to counsel about it and needed for the availability of contraceptives, has probably increased premarital and perhaps extramarital sex, the number of life time partners and a younger age at first intercourse, although studies do not prove a direct link between sex education and more and earlier “indulgence” ^{49,40}.

Full honest information might on the other hand reduce sexual exposure in high-risk societies and at least make sexual relations less dangerous. This seems obvious for countries with a certain educational level, probably already reached in South Africa, Zimbabwe, Botswana, Namibia, Lesotho, Zambia and the USA. Good candid counselling

of teenagers will decrease the misery caused by unwanted pregnancies, abortions, teenage motherhood and HIV infections: the sexual carnage. A prime example of relative success is the Netherlands and a prime example of relative failure is the USA, with more risky and earlier sexual activity than in the Netherlands, but less availability of unbiased information, contraceptives, abortions and sexual education. This results in far higher percentages of teenage mothers (9 times), teenage abortions (also 9 times) and HIV infections in girls of 15-19 years of age⁴⁹. It is not at all clear what will happen in less educated populations, but it is not impossible that the traditional, mainly rural, sexual restraints based on authority, taboo, close supervision and disinformation will not be replaced by behaviour based on knowledge, insight, mutual respect and access, and that the sexual carnage will increase. One can understand the Vatican's perspective - if one allows one condom one ends up with millions of HIV infected 15 year olds wanting late abortions. But its attitude vis-à-vis use of contraceptives even within marriage or use of emergency contraception in rape cases has disqualified it in the eyes of many of being taken seriously as a partner in discussing reproductive health. One could also argue that saturation sex education and method availability have just not been tried in not well-educated populations. With the sex out of the urbanised Pandora box in most African countries, putting it back in, Saudi Arabian style, is probably not an option, with widespread sex education left as the only alternative. It is essentially the same discussion as the one about needle exchange programmes for intra venous drug users with strong arguments/feelings on both sides and claims that sterile needles prevent many primary, secondary and tertiary HIV infections and the other side claiming that removing the fear for the needle will increase the number of addicts and hence the pool of potentially infectious people. While the basic feeling is of the group with the latter opinion, that one is not allowed to facilitate a sin whatever the beneficial effects are.

Computer models show that: "If in only 80% of risky sex encounters the condom was used, the epidemic would diminish by 95%"⁶⁵. The fact that condom use is the norm in potential risky situations in Western Europe and not in Africa, makes a difference that can be counted in millions of miserable deaths according to Kok⁷³.

If in Africa, rational movements are unable to influence the revolutionary liberation movements, many countries will become evolutionary Darwinian laboratories.

Perhaps it is not that difficult. A subject like sex will capture the imagination of the educated-to-be, much more so than, for example, mathematics or English or French literature, at least as much as sophisticated cell phone operation instructions, which were mastered overnight by those with access to them in Zimbabwe. A certain mixture of both approaches is already evolving in Uganda where HIV figures are declining, mainly because many of those with the riskiest behaviour are dead, but there are also condoms available, used by (only or already) 50% of all premarital sexual contacts of girls, while

at the same time communities chase away men posting at secondary schools to prevent “defilement of school girls”, and many church communities play a constructive role.

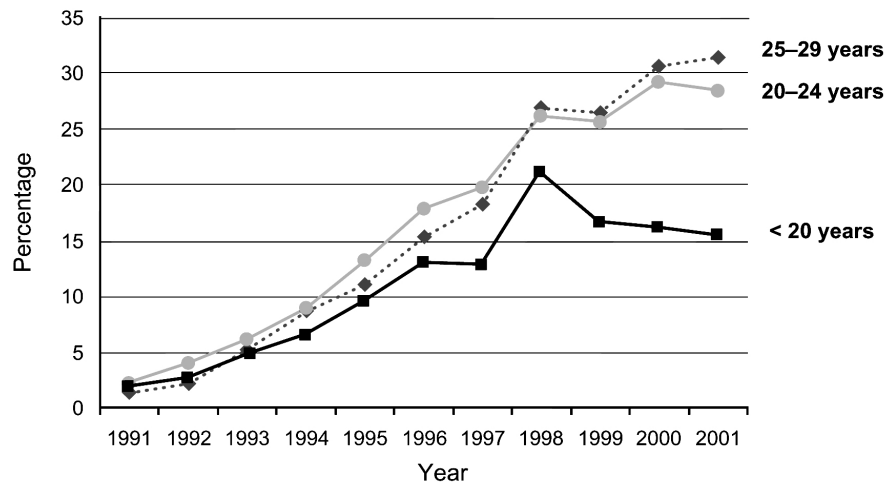
A recent December 2002 AIDS update of the WHO⁷⁴ reveals the above figures from Uganda and also that HIV prevalence is declining among pregnant young women in South Africa, see Figure 1

It is unlikely that the above-mentioned conferences will become a reality. South Africa is not fulfilling its regional leader role, and in the mean time things are continuing as they were with projections for Uganda, Kenya, Zambia, South Africa, Zimbabwe and Botswana of children now 15 years old having respectively a chance of 48, 49, 61, 65, 70 and 88% ending up dying of AIDS³⁸.

The HIV/AIDS epidemic should be redefined as a public health and an infectious disease emergency, instead of as a moral crisis⁷⁵. Human- rights based approaches to HIV/AIDS prevention have reduced the role of public health and social justice, which offer a more practical approach to prevention.

The public should receive factual information via all possible channels. Cause of death and disease should be discussed openly. Death announcements in the papers should include the cause of death. Well-known personalities should go for HIV tests pub-

Figure 1 HIV prevalence by age, South African antenatal clinics: 1991-2001



Source: Summary Report, National HIV and Syphilis Sero-Prevalence Survey of women Attending Public Antenatal Clinics in South Africa, 2001. Department of Health, South Africa, 2002

licly. There should be a clear message from leaders emphasising that HIV/AIDS is a disease, not a sin. The message should also include that: sickness and death are not mostly determined by chance and certainly not by witchcraft but by individual determination to protect one's own and one's relatives health; sex is enjoyable but not enough to die for; condoms are not evil, and using them is far safer than using nothing; non-spousal partners, no matter how affectionate, probably have other partners, and condom use is not insulting; having an HIV test result before unprotected sex is common sense; having sex with somebody who is not known HIV positive in the knowledge that one is HIV positive is amoral.

According to Kok⁷³: *“The cultural dimensions of disease concepts are instrumental in denying the epidemic realities even at the highest level of government [in Africa]. The basis for a consensus for preventive behaviour is therefore lacking”*. He continues with: *“The rational model of risk assessment and decision making on the basis of cause and effect relationships projected into the future, does not fit the historical and social determinism of the traditional African culture. For many traditionalists, time has a different meaning and diseases are sent by exterior forces: the gods, the spirits, or as a punishment resulting from trespassing cultural and ancestral norms and therefore cannot be negotiated or influenced by the self.”*

An informal poll by email of people living in Africa often with one partner from Europe showed that most agree with Kok, seeing risky behaviour in traffic as another example of the same fatalistic approach to life.

My experience is different. The cell phone mentioned above is an argument and also all those tens of thousands of women I have seen who had enough insight in cause and effect that they let themselves be operated on (full of confidence in Western or better Universal logic) for fertility, infertility, fibroids, miscarriages, and obstructed labour. The experience in Western culture is that (very illogical) religion how deeply felt, often does not affect rational health decisions. Very few really only pray for the healing of a broken leg or for relief of an obstructed labour. Many in the West profess to believe the weirdest health related theories, but most start acting logically when there is a serious problem. The way the West describes the illogical behaviour of the African in relation to the HIV epidemic is similar to the way the upper class described the activities of the poor in the past. How misguided is smoking? The European Commission claims that annually 500.000 people in Europe die too early because of tobacco use. Is getting HIV from having sex not one or two grades less stupid than getting killed storming a machinegun in World War I?

I imagine that if it were announced that a proper vaccine against HIV infection was obtainable at a specified place and date, crowd control would be a very difficult problem especially because the army and police would fight each other for a place at the head of the queue.

This is the opinion of the indigenous Zimbabwean gynaecologist Dr F. Majoko, after studying Kok's opinion:

"The strongest support of Africa's inability or unwillingness to learn from past experiences is found in the political administrations. There was a number of countries that gained independence around the same time in the early '60s who made similar mistakes. Julius Nyerere accepted the mistakes and tried to warn others that the socialist route was a bad idea. Mozambique gained independence and pursued a socialist route despite Tanzania's problems. It is said that Samora Machel, prior to his death, had admitted that he had made mistakes and hence his willingness to establish a peaceful co-existence with South Africa. Most of the leadership in Zimbabwe were in Zambia in the 60-70s and witness to the decline of the economy due to mismanagement. One would have thought that they would have identified problems that they needed to avoid upon independence. One gets the impression that if they gained anything at all, it was how to make even worse mistakes in a shorter time. You may recall that Mugabe was trying to declare a one-party state in the week that the Romanian dictator was deposed.

There are many examples of Africa failing to learn from previous situations but I do not think they are influenced by beliefs in spirits and the unknown.

The slow uptake of condoms has several factors. There was an initial reluctance in educating people about the use of condoms in prevention of STIs since they were not openly discussed. It was politically convenient to ignore the problem in some settings. The church meddled in initial attempts at sex education in the mistaken belief that equipping people, mostly youngsters would encourage immorality. I think even at this late stage, most churches still oppose distributing condoms through their facilities. Access to condoms was also limited. They were not available in places where people could access them discreetly. The messages about condom use were much stronger in Europe and condoms were available either free or at a low cost."

According to Kok: *"the cultural dimensions of disease concepts are instrumental in denying the epidemic realities even at the highest level of government. The bases for a consensus for preventive behaviour is therefore lacking."*

Dr F. Majoko: *“Unfortunately I think this is an inaccurate statement. The concept of witchcraft in disease causation has been declining over years. The acceptance of immunisation for childhood diseases is an important example. The inaction associated with the start of the HIV epidemic seems to be based on political unwillingness to tackle the problem. There was an initial period where African governments were arguing about the existence of the virus and its origin. This was followed by a period where the statistics were suppressed in the false belief that admitting the problem would scare away tourists and therefore adversely affect the economy. During this period, an important opportunity of limiting the epidemic through public health education for disease prevention was missed”.*

Kok: *“[...] trespassing cultural and ancestral norms and therefore cannot be negotiated or influenced by the self.”*

Dr F. Majoko: *“The African practice of appeasing the spirits through sacrifices completely negates this statement. People believe that they can intervene in preventing misfortunes by pleasing the spirits.*

Although not affected in equal proportions, there are lots of Asians and Whites in South Africa affected by HIV. The failure in addressing the epidemic had a lot to do with how openly sex is discussed in society. There was an initial reluctance to address sexual activity, which is the main mode of transmission in Africa. The association with homosexuality in the early stages of the epidemic also contributed to a relaxed approach as people assumed that it was a problem of homosexuality and since there was no major drug or homosexuality problem in sub-Saharan Africa, time was lost before the problem could be addressed.

The Indian sub-continent and South East Asia will experience the next major HIV epidemic. Do they also hold the same beliefs about disease causation as the Africans? There is evidence in the UK that new HIV infections are rising especially among young adults. Could that also be due to belief in spirits and exterior forces?

I have no wish to defend the attitude taken by several countries in Southern Africa in failing to address the epidemic front-on but I think the view expressed by this epidemiologist is too simplistic.

There is no doubt that Africa has been disappointing in her failure to learn from previous mistakes but this failure has not been restricted to areas of health only. The frequent coups are evidence that we are yet to accept that the best way of changing a government is through an electoral process. But if you are optimistic, you could believe that we are slowly coming to accept that fact, as the number of coups in the past 10 years is less than the number of coups that occurred in one year in the '70s.”

Health workers are often forced into an impossible position. What does one do if a 16 year-old girl requests condoms, the pill or an injectable contraceptive from a nurse in a clinic? In the Netherlands or Scandinavia, such a girl will get a pat on the back because she is so sensible. In Southern Africa a sister does not know what to do. She knows very well that this girl is probably already sexual active. In the sub-Saharan African culture parenting is more a community responsibility than in the West. She would hope that if her own daughter went to a colleague, that that nurse would be able to put the fear of HIV, pregnancy and hell into her daughter in such a way that that daughter would abstain until officially married and concentrate in the mean time on her school work. In fact, sending the police to arrest the around 21-year-old boyfriend would probably be her instinct. The alternative would be a long discussion about how serious the man was likely to be, condoms, morning-after pill, HIV testing etc, backed by, in the future hopefully, the "National Aids Salvation Executive Conference" (NASEC) decisions.

An evaluation of the quality of care given in the three youth centres of the ZNFPC⁷⁶ and indeed in sub-Saharan Africa⁷⁷ showed disappointing results in relation to quality of service, as we found out once when we asked a girl of 16 years old to go there and ask for condoms to see what happened. In this thesis, there is a contribution about the attitude of nursing sisters (including in the above clinic) and health workers in general to young sexually active girls (chapter 9). The same happens in South Africa where FP nurses were found to be judgemental and even openly abusive to unmarried women⁷⁸. The traditional system of paying for the bride (lobola) should also become the subject of social engineering because it has become commercialised, sometimes with large sums having to be paid to the bride's parents. This is one of the reasons that men marry when they are 5-6 years older than women, see chapter 15, inviting risky sexual behaviour before marriage. Many men have little hope of being able to raise the money in the foreseeable future and are, cynically speaking, financially much better off, if they engage in sex with commercial sex workers (CSW)^{79, 59}. The definition of a CSW is vague in Southern Africa. CSWs can oblige for money but also for a present, even a cool drink. They often receive groceries or housing for sex, to provide for their children and frequently have partners who are so well known to them that they think that they cannot insist on condom use. It is quite likely that serious pressure by the government for 100% condom use with real prostitutes would be welcomed by the latter⁸⁰, and it might work as it has done in Thailand.

Nearly 10% of married men are in a polygynous union in Zimbabwe, the existence of which gives more choice to (unmarried) women but decreases the chance that poor men find a wife, this means more business for prostitutes.

According to D. Wilson⁸¹, the 70.000 or so prostitutes in Zimbabwe and the men using their services play(ed) an important role in spreading HIV. Much effort has gone in making them use (free) condoms with success but they do not all use them (10% not) and those who do, not all the time (52% not). Sexual relations between commercial sex workers and schoolboys happened on a large scale in the past⁸² and might even have increased with the economic decline, increased migration, an enormous increase in number of widows, and the understandable tendency of families to supervise their daughters closer in order to postpone their HIV infection until they are married.

Men in need of money for the lobola will also often become migrant labourers, a group at high risk of becoming HIV infected.

Boys and men are of the opinion that girls are responsible for contraception¹⁸ to stimulate the sharing of this responsibility also needs social engineering.

It would be "natural" for the median age at first marriage, currently 19.3 for women and 24.5 for men, to increase with the decline of preferred ideal family size by women of 15-49, to 3.9 (men 4.1) in Zimbabwe (2.2 in the Netherlands 1993)²⁵. At the same time, one can easily imagine pressure to marry as early as possible to reduce the chance of marrying a non-virgin male/female. With the financial inability of the government to continue providing free schooling, an enormous early post independence achievement, and massive unemployment, poor girls have no good reason to postpone sex/marriage. There has been a precipitous drop in school attendance especially of girls in the last two years, according to press reports.

A tendency to have an HIV test before marriage is perhaps just developing in the upper social-economic-educational classes, see also chapter 10. If it became routine to have an HIV test before unprotected intercourse, it would easily balance the extra HIV risk created by the expected increase in premarital relationships, if there was an age increase at first marriage. How the many young people found positive by a pre-marriage HIV test are going to behave is a mystery and the care they would need should also be discussed at the "NASEC".

It would be better if there were less of an age difference between marriage partners. This would probably improve communication and gender related power imbalances, making it more possible for a woman to confront the husband if he has extramarital relations, and make for shorter widowhood, naturally.

Of course, a social security system preventing starvation of a woman and her children after divorce on the grounds of the husband's unfaithfulness, or making it possible for a teenage mother to survive without having sexual partners, or at least induce those partners to use condoms, could prevent many HIV deaths. A serious attempt to set up a very basic social security system, not including divorced women or teenagers mothers, by

the Zimbabwean government has failed because of the economic collapse. Even state pensions have become valueless.

An HIV test certificate as (part of the) lobola seems a nice combination of tradition and modern adaptation.

Much has to be done to improve accessibility to hormonal contraception and condoms, see chapter 15, to unmarried women or even married women without children to make dual protection feasible. The 1999 Zimbabwe DHS revealed that one-half of girls and one-third of boys in the 15-19 age group did not know where to get a condom. Overall, since 1994 knowledge of where to obtain condoms had improved, except for this age group within which, not knowing increased from 40 to 50% (girls) and 24 to 32% (boys). This illustrates that educating teenagers is an ongoing exercise, as this group is continuously refreshed. A similar underestimation of the “continually refreshing” teenager groups is probably happening in the Netherlands where after a nadir in teenage pregnancies and abortions, around 1996, the figures are increasing again⁴⁰. The positive signs from South Africa and Uganda mentioned above can easily disappear if the message about HIV prevention is not relentlessly repeated. To demonstrate the risks: the preliminary Dutch figures of the National Institute for Public Health and Environment (RIVM) show a 45% increase in diagnosed HIV infections in 2001⁸³.

PHASE 2

- Reproduction has started and is (probably) not yet completed and spacing between pregnancies is required.

Prolonging the time between pregnancies has been the main success of the Zimbabwean (and before that the Rhodesian) family planning organisation and of course spacing will result in a lower total fertility rate (TFR). That success has also resulted in a “path dependent” development. The choice of a contraceptive method by a few active innovators in one country can “lock in” the population to future dependence, primarily on this method, even if other methods would be safer, cheaper or more convenient for (part of) the population⁸⁴. With an over-reliance on oral contraceptives and especially, but now diminishing, the Progestagen only pill (POP) resulting in many failures (see chapters 4 & 11) in Zimbabwe. POP is still prescribed a lot (10-15%) in Harare⁸⁵ for post-abort women a group in which this method is rarely indicated.

South Africa is over-dependent on injectables with 60% use (SADHS 1998) among female African contraceptive acceptors. Such high percentages would probably also have occurred in Zimbabwe if injectables had not been banned for a long time, as described in chapter 11.

The limited choice results in many discontinuations of contraception⁸⁶. The lack of alternatives for hormonal contraception for spacers is related to the above mentioned "path dependence", for example in Egypt and Vietnam IUCDs are used extensively and the pill was illegal until recently in Japan⁸⁷, but also to a lack of (motivated) providers. Even in the best years for Zimbabwean health care, when (unrelated to the qualification "the best") DMPA was banned, condom use was rare and HIV was not yet a factor, IUCDs were rarely used only the pill was available in practice for spacers and even for most women with a completed family. A recent situation analysis report comparing African countries shows that although 92% of new FP clients in service delivery points (hospitals, municipal, ZNFPC and government clinics) are offered injectables only 8% are offered IUCDs in Zimbabwe, the lowest percentage by far in the 12 countries examined¹³. Offering does not guarantee availability. It generally means that the possibility exists to refer the client to another centre for an IUCD. For Depo-Provera, it means generally available.

An unpublished but partly described⁸⁸ well conducted study by M. Bonduelle et al. from the large government hospital in Harare comparing women with planned and unplanned pregnancies showed that despite the high awareness of contraception and a high reported previous use, unprotected sex was the cause of 73% of the unplanned pregnancies. The remaining 27% were attributed to contraceptive failure, mainly of the oral contraceptives. A study in an antenatal clinic in Esigodini near Bulawayo in 1992, showed that of the 353 women ⁸² (23.2%) were using, or were supposed to use the pill when they realised that they were pregnant, while another 56 (15.9%) were unhappy about the pregnancy⁸⁹.

The FP nurses in the two government Bulawayo hospitals interviewed 504 women with 4 or more children after delivery in 1997. 188 (37.3%) mean age 37.0, median 37 years, of them had hoped that their family was completed before they became pregnant this last time. Another 133 (26.4%), mean age 33.3, median 33 years, had hoped to postpone the index pregnancy longer. This is not unique for Zimbabwe. In the USA in 1987-88, 57% of all the pregnancies and 43% of the births were unintended⁹⁰. A country where 1 in 15 or so deliveries are combined with a postpartum TL.

Westoff & Bankole ⁹¹ showed that there is little correlation between contraceptive prevalence and fertility in Africa at the beginning of the demographic transition, especially with traditional methods but also with modern methods. The difficulty of taking a pill in not 100%-motivated women subjected to anti-pill propaganda is an important fac-

tor. The banning of DMPA in Zimbabwe during this crucial demographic period might have done enormous harm. 70% of the women who are contracepting in Zimbabwe are using oral contraception, the highest rate in the world. See pill use as a fraction of contraceptive use in Addendum Table 1. Pill use prevalence is 4 times the world average. Figures⁹² show Zimbabwe to have a low unmet need for FP (9% of married women), this figure is the lowest in the region even nearly the lowest for all developing countries, a tremendous achievement, but because nearly all of the need is met by the pill, and this method is so failure prone under the prevailing circumstances, those figures do not show the complete picture. A successful FP program depends on a mixture of methods and normally the part played by the pill is highest at the lowest level of method availability. The dominance of the pill will normally disappear if FP provision matures in a country⁹³. A change overdue in Zimbabwe.

Other African countries at this demographic stage should have little dependency on the pill (just like nearly all, none First World countries with effective FP programmes are) and should depend on injectables (like South Africa, Thailand, Indonesia) and IUCDs (Vietnam, Egypt, Turkey, Jordan, China) or both (Egypt) and sterilisation (Brazil, India, Thailand, Sri Lanka, Philippines, China, Taiwan) and if the donors can be found, also implants. The more options the more satisfied customers. See current use of contraception in Addendum table 2. This is further discussed in chapter 11.

HIV/AIDS

In the mean time (1997), a large study under health workers in Zimbabwe showed that they regarded IUCDs, sterilisations and DMPA as better for the clients, even in relation to the HIV exposure, than the pill but as more dangerous for the providers in relation to HIV risks⁹⁴. This is discussed in chapters 8, 11 & 14.

The question is whether the HIV epidemic should in general affect - not if there is a known HIV infection in a partnership - the methods used for spacing/limiting within marriage? Use of male condoms is not a realistic proposition. There have been optimistic attempts to introduce the female condom for less dependence on the male partner, again consistent use seems unlikely in marriage, and there is no good study yet to address its value in preventing HIV transmission, while its effectiveness in preventing pregnancy seems to be somewhat less than that of the male condom⁶⁶. Studies show, that in case of discordance in HIV infection within a marriage the sole method of preventing infection to the non-infected partner, is a "religious" adherence to condom use⁹⁵⁻⁶. Studies from Africa show that consistent condom use in these situations can reach 70%, with better compliance when the female partner is positive than the male⁵⁵. It also happens that men dislike the condom use at home so much that they have extra marital sexual relations to escape it.

Few discordant couples in Zimbabwe (want to) know that they are discordant. If an infant dies of AIDS, the father is rarely tested and the mother in general does not need to be tested. This makes denial very possible and it is risky for a woman who has ever had another sexual partner to insist on her husband being tested. It will make her position impossible if only she is found positive. The husband can, as long as he is not tested, try with more success to deny the problem. In private practice HIV testing was done, according to a survey, mostly for insurance reasons and rarely because of a child with AIDS⁹⁷.

Therefore, scrupulous use of condoms is exceptional within marriage. Although it is known that marriage is for females the main risk factor for becoming HIV infected⁹⁸. Only specific knowledge, not statistical knowledge, will encourage condom use within marriage. Even with specific knowledge, marriage is culturally a contract for producing children and facilities to wash sperms⁹⁹ to prevent male to female HIV transmission should be made available for support in such relationships, otherwise they are doomed and the man is likely, if he insists on a child, to infect somebody. Perhaps HIV testing before marriage is only possible on a large scale if the above technique is available. If the female partner is HIV positive, conception can easily be organised without extra risk to her man.

Studying the relative risks of HIV transmission from man to woman and vice versa during use of IUCDs, injectables, implants, POP or combined oral contraceptives (COC), will be very difficult because of the ethical imperative that condom use should be advised (also) anyway in discordant relationships. Even studying the effect of microbicides against placebo can only be done ethically by encouraging both groups to use condoms consistently and hoping they do not. With the possible exception of the use of new microbicides, which can be combined with any other method, the results of such studies are more or less irrelevant. Discordance within in marriage will most likely lead anyway to HIV transmission sooner or later without consistent condom use. Therefore finding out whether the use of IUCDs, COC or DMPA, increases or decreases slightly the rate of HIV transmission through recruitment of white blood cells, ectopy, change in bleeding pattern or hypotrophy of the vaginal wall is difficult and has no practical use¹⁰⁰⁻², although it is discussed in chapters 11 & 14. The key to avoiding HIV infection in marriage is changing pre and extra marital sexual behaviour and HIV testing.

The need to use reliable contraception has of course very much been affected by the HIV/AIDS epidemic. Women who know they are infected - and about 40.000 women in Zimbabwe annually could be aware of that because of losing a child to AIDS - would like to stop having children especially if they have already 1-2 children. Similarly, women who or whose partners have signs related to HIV infection e.g.: genital ulcers, warts or

fistulae, Herpes Zoster, swollen lymph glands, Kaposi sarcoma, TB, weight loss and typical skin changes.

Many others have inherited the children of their relatives and can't afford to have many children of their own.

Women who lose their last child are not protected from pregnancy by breast feeding. The same applies to women who do not breastfeed because they want to prevent a vertical transmission. Drugs often used for HIV related infections, especially Rifampicin but other antibiotics also, affect the reliability of oral contraceptives and in such a case taking two tablets a day is advised. HIV associated gastroenteritis can affect the absorption of hormones taken by mouth and the AIDS dementia syndrome interferes with compliance (chapter 14).

Post partum contraception

How best to space children starting soon after delivery is discussed in chapter 11. The situation is still as it was then and suggestions for improvement (less dependence on oral contraceptives and certainly POP, use of DMPA, risks of IUCDs, integrating family planning services into child vaccination services) are still generally valid, although Depo-Provera has been un-banned and one study from Kenya¹⁰³ suggested that IUCDs were safe for HIV positive women. Our worry as detailed in chapter 11, was not so much the possible increase of HIV transmission but the complications of having a foreign body in the uterus when immune compromised, because orthopaedic surgeons were seeing reportedly often infected osteo-synthesis material in the HIV infected.

Another study, since performed, comparing the use of prophylactic antibiotics with fitting an IUCD with no antibiotics, showed no difference in removals for infections in low risk women in developing countries¹⁰⁴.

Oral contraceptives are still used a lot in Zimbabwe, during the long phase women are protected against pregnancy by breastfeeding, boosting the contraceptive prevalence figures¹⁰⁵. There has also been in the mean time a Cochrane¹⁰⁶ meta analysis review of education during pregnancy for contraceptive use by women after childbirth, with essentially as conclusion, that this education has some short-term effect but that the long-term effects have been insufficiently studied. A publication from Cape Town showed no effect of antepartum FP education compared with a control group¹⁰⁷.

The operative word in the above is education not provision. This is clearly shown for methods like intra partum and post partum sterilisation or IUCD insertion. This thesis contains enough evidence to show that provision of sterilisations makes a difference in chapters 7 & 8. While another Cochrane review concluded that the post partum insertion of IUCDs appears safe and effective and feasible and popular in countries like China, Mexico and Egypt with the copper devices, especially Copper T, doing best¹⁰⁸. The

advantages are strong motivation, convenience and certain knowledge that there is no pregnancy. The disadvantage is that there is an increased expulsion rate. IUCDs can also be placed during CSs. Post partum insertion is not done, but is quite feasible in Zimbabwe. Women can then be asked to check for the strings some time post partum and to return if the threads are absent.

A recent paper from El Salvador describing the experiences of simulated clients, demonstrated barriers for IUCD use similar to those in Zimbabwe: rumours and myths about the method; insufficient attention to the method during counselling sessions; and insufficient practical provider experience¹⁰⁹. The lack of experience was due to limited confidence and the limited confidence to lack of experience.

The traditional post partum sexual (partial) abstinence can be extremely dangerous because husbands can become restless. A study from Malawi¹¹⁰ showed that 20 sero-conversions took place per 100 postpartum years in 1990 in the early explosive phase of the HIV epidemic. A similar non-published study from Harare showed 6/100 (M. Mbivzo, personal communication). Rural Nigerian men and West African men, in general, also have more (unprotected) extramarital sex if their wives are pregnant or have just delivered¹¹¹⁻².

If all the research in vaginal microbicides results in a reliable product then its application in breastfeeding women within marriage, who and whose partners are not HIV tested, might be useful because it just might postpone sero-conversion in lactating mothers long enough to prevent sero-conversion of the baby.

For women who have a completed family after delivery, the advantages and disadvantages of post/durante partum sterilisations are discussed extensively in chapters 7 & 8 and *vide infra*.

Post-abortion contraception

Women reporting with an (in) complete, perhaps septic, perhaps missed, perhaps induced abortion to hospital can belong to the group of women who are not yet ready to have a child, to the spacers and to the group of women with a complete family. They may of course also have lost a wanted pregnancy. Studies from Urban Tanzania, South Africa, West Africa, Ethiopia and Zambia, ^{30,12,113-5} suggest that the group of women between 15-25 are mostly seen with induced abortions, while that is not the impression in Zimbabwe (yet) if the age of those admitted for abortion is compared to the age of the obstetrical population, see chapter 4. Girls in Zimbabwe become sexually active later than in most of Africa, chapter 10, and they do not know especially in the rural areas where 70% of the population of Zimbabwe lives, how to organise themselves an abortion and have no access to any money. The largest group to have an abortion are women with a completed family.

Rutgers found 14.9% of abortion admissions to be of girls of less than 20 years old in rural Matabeleland in 2000¹¹⁶. In Amsterdam 40 years ago, with an estimated 2000 induced illegal abortions, most women were also married⁴⁶. To find out what the situation is in Zimbabwe, is not as simple as it apparently was in Amsterdam in the sixties of the last century⁴⁶, not in the last place because uniformed policemen came in UBH to check on suspicious miscarriages in the female ward until as recently as 1997, and staff in many hospitals have been known to tip them off. Later, teenage abortions involved a larger percentage of the induced abortions in the Netherlands but this rise arrested in the following years with abortions in the under 20 girls at its lowest in 1994, 10.3% of those aborted, and since rising to 14.2% (n=3900) of all induced abortions in 2000³⁸. In the USA this percentage was 20 (CDC, 1999) and it is declining.

A longitudinal study⁸⁵ on postabortion family planning was conducted in 1996-97, by the University of Zimbabwe, Department of Obstetrics and Gynaecology and Ipas, an international non-government organisation that works to reduce abortion-related deaths and injuries. The study conducted in Harare (Harare Central Hospital, intervention) and Bulawayo (Mpilo Hospital, control), examined the effectiveness of providing free, ward-based contraceptive services to 2228 women treated for incomplete abortion. The study cohort included 982 women (524 at the intervention side and 458 at the control side) who wanted to delay future pregnancies for two or more years or had completed families. 527 of these women were followed-up quarterly for 12 months following treatment for incomplete abortion. Participants in the intervention group experienced half the number of repeat pregnancies as those in the control group. 15% in the intervention group and 34% in the control group. The study intervention included the provision of counselling and free methods that were currently available in the hospital, e.g., oral contraceptives, DMPA, and condoms; other methods (IUCDs, implants and TLs) were available through referral only and were ultimately used by a very small percentage of women. The reported use of what the authors called “highly effective methods of contraception”, (i.e. pills and injections) at the first follow-up visit 3 months postabortal, in the intervention side included, 54.3% COC, 16.8% POP, and 19.4% injectables. The other methods used were condoms (3.5%) and implants, diaphragms or TLs (combined 1.7%) and “natural” FP, abstinence, traditional method or no method (combined 4.3%). At the first follow-up, women in the control group used, pills (32.8%), injectables (14.5%), condoms (7.0%), implant, diaphragm or TL, combined (1.1%) and “natural” FP, abstinence, traditional method or no method, combined (44.6%). IUCDs were not used by any of the women in either group.

The results showed a significant difference in the number of unplanned pregnancies between the two cohorts. Given the low number of repeat abortions, the difference was not significant, however, there were twice as many reported in the control group. It is

clear that the intervention had a positive effect. The paper confirms however, our opinion about the large failure rate associated with the, for the staff easiest, methods of contraception, and the disappointing consequences: 140 unplanned pregnancies.

Interestingly, the study investigators reported that 28 (20%) of the study participants who were found (with a urine test) pregnant at follow-up, said they had been using highly effective methods of contraception and had no reason to suspect that they were pregnant. The study also found that nearly 5% of the women in the study cohort died within a year of the index abortion, probably of AIDS but confirmatory blood tests were not part of the study.

A Cochrane meta-analysis showed that placing an IUCD after an (induced) abortion is quite safe¹¹⁷. Chapter 8 shows that attending to an incomplete abortion can be the right opportunity to discuss a sterilisation in higher parity women. Chapter 4 shows how many women reporting with an incomplete abortion had become pregnant whilst using oral contraceptives. Essentially the same was found in the above mentioned more recent Ipas study. A recent baseline study showed in Kenya, that only 22% of women reporting with incomplete abortion were counselled about FP by the health workers¹¹⁸.

While in Harare Central Hospital, Zimbabwe, most of the more than 4000 patients reporting annually with an incomplete abortion are not admitted, facilitating a fast turnover, that system does not make it easy to give proper family planning counselling (see chapter 4). In UBH patients with incomplete abortions were admitted. This is more expensive but provides also more time and privacy to attend to the FP needs of the women. With the opening of our Walk-In-Clinic we had the best of two worlds with out-patient care, privacy, a resident FP sister with IUCDs, injectables, condoms and pills available on the spot and the option to provide a sterilisation under local anaesthesia. To combine the evacuation of an incomplete abortion under general anaesthesia with an unscheduled sterilisation, involved begging the theatre sisters and anaesthetist, and favours done had to be repaid one way or the other. A modest reward in the future would help. Private doctors had, of course, no problems because incentives are present. There is no guarantee that legalising abortion would greatly increase access to improve family planning for those who have an abortion. For example, in India abortions are still done on a large scale outside health facilities and in South Africa, where abortion has been legally and freely available upon demand through the first 12 weeks, and in some cases up to 20 weeks, since early 1997, clandestine back street procedures are still common¹¹⁹. The author of a dissertation⁴⁶ from the Netherlands published in 1965 advised against legalising abortion on request because: "In all likelihood, the total number of abortions increases through such a legalisation while the number of criminal abortions does not decrease". That prophesy based on developments in Eastern Europe and Japan has not been realised for the Netherlands and the rest of the Western World but might

still be the future for Africa. Clear signs are visible in Mozambique, Zambia, South Africa and Tunisia.

PHASE 3

- There are enough children and further procreation is likely/definitely not wanted.

Women in Zimbabwe have a completed family at an average age of 32 years. This can be concluded from the 1999 DHS survey and also from our figures considering age at sterilisation combined with the number of women who have had more children than they wanted, and the age and regret expressed by women not sterilised in the study, chapter 8. Unplanned and unwanted pregnancies were also significantly related to being older than 35 or younger than 19 years in a large study from Harare Central Hospital⁸⁸.

According to the 1999 DHS survey, only half of the women above 39 years at risk of an unintended pregnancy were using contraceptives. The older women between 37 and 49 years became, the less they wanted more children and the less they used contraceptives. In this age group there is a large drop in use of hormonal contraception and a small increase in use of coitus interruptus and sterilisation. Women have several options, if indeed they have a completed family. The withdrawal method might be a choice under some circumstances; perhaps with a mature husband and/or infrequent intercourse. It is used by 5% of the couples with the wife between 40-50 years of age.

The RCC has no clear policy against this method but propagating it is also not allowed¹²⁰. 18th century confessors used to refer to this method as “conjugal onanism”. So it was not a sin of the female partner within marriage and also not a real sin for females outside marriage because it did not count as intercourse¹²¹. Onanism is of course, a sin for the man. A survey in 1955 showed that 13% of RC couples were using this method in the USA and 71% of the French men in general in 1962¹²². In Islam, different opinions are apparent, from not being allowed (or only when having sex with a slave girl¹²³) to being encouraged. The failure rate is around 17 per 100 women years, somewhat higher than with condom use depending very much on experience and motivation, while there are many reports that this method interferes with sexual pleasure even perhaps causing psychological abnormalities. In Amsterdam⁴⁶, the method was used on the same scale 40 years ago, as in France and the failure rate seemed much higher than 17/100 making the Pill and IUCD, introduced a few years later, very welcome.

It has been mentioned earlier that condoms within marriage are an unlikely option in Zimbabwe, which does not exclude the use by some couples of course. In fact 1% in the 40-50 age group relies on this method (DHS)⁵. Oral contraceptives were used in

1999 by 38.5% of women between 30-34 years 19.0% in the 40-44 age group and 9.1% in the 45-49 age group. These figures are 12.0%, 9.2% and 7.8% for DMPA, suggesting the greater use of a method if less user dedication is needed. Still, a study from the USA of 200 women of mixed races and ages showed that only 23% of DMPA starters were still using the method after a year. This was not related to age, race or payment method but mostly to side effects¹²⁴. In a large follow up study in Kenya, this method was found to be somewhat more successful¹²⁵ after calculating cumulative life table discontinuation rates by method for a 12-month period. Discontinuation rates were highest for OC users (80%), lowest for IUD users (20%), and intermediate for Depo-Provera users (39%).

This brings us to another option, the IUCD, probably acceptable to 30-40% of women with a completed family - if the 2000 DHS figures from Egypt¹²⁶ (mean ideal number of children 2.9) are anything to go by - but used by 1.7% of women with a completed family in Zimbabwe and even less by the spacers. Around 25% of all the contraceptive women in the world¹²⁷ are using IUCDs, the second most used method after male and female sterilisation combined (44%), followed by the Pill (12%) and injectables (3%). In Zimbabwe sterilisation figures are 0.2% for husbands of married women with completed families and 7.0% for the women. An implant is used by 0.6% of women.

Zimbabwe is at the stage that more has to be done for the group of women with completed families by offering more access to long-term methods. In this age-group seroconversion has become relatively rare so perhaps IUCDs should be seriously tried. If donors could be found, the Levonorgestrel medicated IUCDs would probably be the best option, although Copper T-380As also have a very low failure rate comparable to female sterilisation. IUCDs are not popular in Zimbabwe but a properly introduced new IUCD like the medicated one might gain a positive reputation just like the implant did, because it was associated with luxury.

An 8-year retrospective review conducted of 9.768 FP clients from a university family planning clinic in Enugu, Eastern Nigeria showed that two-thirds of contraceptive use, among women aged 25-39 years old, involved copper T-380A (TCU-380A) with only 2.3% removal for bleeding problems. It was concluded that the long-lasting effectiveness, acceptability, and low morbidity associated with TCU-380A made it a suitable alternative to tubal sterilisation¹²⁸.

It is quite likely that the medicated IUCDs will not have the problems with fibroids¹²⁹ as is seen when sterilisation is used as noted in chapter 8. We saw several women whose well-documented fibroid uterus dramatically decreased in size with the use of LNG-IUD.

For the group of women with a complete family, DMPA as the only long time reversible method on offer seems not enough.

This thesis contains three studies on female sterilisation. We can conclude from those studies that there is no reason not to perform a sterilisation when a patient is operated on anyway, when there is a medical indication to stop having children, or when there clearly is a completed family. Typical examples are the fourth caesarean section and an incomplete abortion or an ectopic pregnancy involving a woman with 4 or more children. It would be quite reasonable to offer something similar to a man coming for an inguinal hernia operation who has 4 children. The studies in chapter 7 & 8 show that even in an emergency situation when there are quite some children, many more women are satisfied if they are given the option of sterilisation than when the option is not given.

An informal enquiry at a South - South Safe Motherhood Conference in Harare in 1998 about the ethics of emergency TLs, resulted in diverse reactions from participants representing two thirds of the world population: "even if she asks herself for a TL, we will not do it because she is in pain and/or it is not her decision but her husband's"; (un)ethical (not) to ask, all four options; doing a TL anyway, consent or not; refusing to do the CS if the patient does not agree to TL".

Most CSs on underprivileged women are not planned: e.g. 7% of CSs are elective in urban Maputo let alone in rural Mozambique¹³⁰ and the women involved are seldom seen earlier.

Regret rates are still very low for sterilisations, because it is so difficult to obtain such an operation, chapter 7 & 8. Chapter 6 shows that it helps to improve FP services if FP is integrated in the obstetrical services and when sterilisations can be done under local anaesthesia. Women do not remember the pain from an operation under local anaesthesia as worse than the pain suffered after the same operation under general anaesthesia.

The question is: is there enough personnel and motivation to perform sterilisations if a patient does not need an operation anyway? This is already a serious problem with post partum sterilisations when the client is admitted and the operation technically easy. There are hospitals with more than a thousand deliveries every month in Zimbabwe where no post partum sterilisations are done; the reasons for this are detailed in chapters 5-8. Something similar happened in Chris Hani Baragwanath Hospital near Soweto, a township with one million inhabitants, in South Africa where the air-conditioning system broke down in the theatre used for post partum sterilisations. Operations were stopped and never resumed after repairs were made, also because the senior staff spends most of its time doing high profile HIV/AIDS studies and has no time for (supervising) the boring routine operations (Dr McIntyre JA, personal communication).

Interval sterilisations are rare in Zimbabwe outside private practice. This is understandable if there is a waiting period of 4-6 weeks for large operations to be performed on the same government operation list. Again, it would be much easier to provide sterilisation services in small theatres available in all large hospitals under local anaesthesia. As is explained in chapter 6, this will probably not work with indigenous doctors as long as there are no incentives, because they need much extra time to earn a reasonable income from private practice on the side. A study presented on 12-2-2003 in the Anthonius Hospital in Utrecht about FP in Cambodia by the gynaecologist M. Reyners, showed that the productivity of doctors in relation to male and female sterilisation was strongly correlated to the provision of small incentives.

Sterilisation camps like in India are not needed in Zimbabwe, with the excellent infrastructure available and to have them in other African countries would need quite a cultural change.

Risk benefit balance of contraceptive methods

There is no good reason to discuss FP methods in detail here because their advantages and disadvantages and side effects are well known and the details are easily available in the literature. Dangerous side effects of oral contraceptives are venous thrombosis, arterial thrombosis including cardiac infarcts and cerebral vascular accidents, increase in breast, cervix and liver cancer. The cancer mortality is offset, certainly if there is also a well-organised exfoliative cervical cytology programme, discussed by Rutgers and Verkuyl¹³¹, by a decrease of uterine and (impossible to successfully screen for at the moment) ovarian malignancies.

All studies of progestagen only contraceptives (pills, injections, medicated IUCDs, implants) show negligible serious side effects in relation to cancer¹³²⁻⁶ and the cardiovascular system¹³⁷. The conclusion can be reached for the West, that the mortality rate is higher when no hormonal contraceptives are used, compared to use of hormonal contraceptives because of the risks inherent in pregnancy, somewhere between 7-20 maternal deaths per 100.000 live births. Risk for use of combined oral contraceptives compared to no use and becoming pregnant is about equal to that run by heavy smokers on the pill¹³⁸. In countries with higher maternal mortality figures like in Eastern Europe, hormones are definitely less risky even for heavy smokers than non use, although, from a pure medical point of view dedicated use of condoms combined with early abortions in case of failure is best, even when not considering the protective effect of condoms in relation to STI, HIV and perhaps carcinoma of the cervix. If the HIV protection is taken into account then this Japanese approach is very sensible.

It might even be true that (non-smoking) nuns would on average live somewhat longer if they used Depo-Provera because it would certainly not increase the mortality from ovarian¹³⁹⁻⁴¹ cancer and decrease endometrial cancer and mortality from operations for large fibroids and probably not increase their breast cancer risk¹³²⁻⁶. This is a hypothesis difficult to prove but important to mention when anti “non-natural” FP campaigners are scaring the public again. This happened recently again in the USA where “pro-life” groups correlated induced abortion to breast cancer¹⁴³ while being a nun creates a much greater risk for breast cancer. Life expectancy in nuns would also increase if all nuns were sterilised, because sterilisation decreases the chance of developing ovarian cancer significantly¹⁴⁴ and nuns are in a high-risk group for that disease.

In developing countries the risk benefit balance is spectacular in favour of using (hormonal) contraceptives, although the medical screening taking place in some countries for prospective pill users, would falsely suggest that the pill is quite dangerous¹⁴⁵. If there is an oral contraceptive related annual mortality of 20 per 100.000 (0.02%) for smoking pill users including the 40-50 year age group, then the risk of not using the pill and becoming pregnant and dying because of that pregnancy, is as mentioned, of a similar magnitude in the Western World. In African countries, where the pill probably has the same mortality risk, if not less because known inherited tendencies to thrombosis, like an increase in factor VII or having factor V Leiden¹⁴⁶⁻⁴⁷, have a much lower or no prevalence in African people, and complications of the arterial side of the circulation interact strongly with smoking, rare for African women, prevention of pregnancies saves far more lives. There are areas in Africa where a pregnant woman has a chance of dying from that pregnancy, of more than 1 per 100 pregnancies. If such a woman was in the position, with the proper use of the pill, to reduce her pregnancies from 8 to 3, her chance of dying from the pill and a pregnancy combined would be reduced from 8% to 3.1% over her reproductive lifespan. This would mean 90.000 fewer deaths of women between 15-45 annually in sub-Saharan Africa, all other things being equal. Roughly the same calculations are possible in relation to other contraceptives with different risk profiles but generally the same results. If in the risk benefit calculations, the compliance and failure rates are included then the pill would easily be trumped by DMPA, implants, IUCDs and male/female sterilisation, as far as saving lives is concerned. With the reservation that the side-effects of having an IUCD in immune compromised women have not been sufficiently studied but are probably small¹⁰³, if availability and motivation of health personal is put into the balance, sterilisation will, for the time being, be a realistic option only for women who have to be operated on anyway and for private patients. Of course there will always be some enthusiastic doctors who are prepared to provide this service.

Microbiocides are an option possibly on the horizon. The science fiction view would be a green product protecting against pregnancy and all STIs, a blue product with folic acid added protecting against STIs and female babies, a pink product with folic acid added protecting against STIs and male babies and a purple product with folic acid added protecting against STIs. Possibly a different formula is needed for Southern Africa because men reportedly prefer “dry sex”¹⁴⁸.

If all women always depended on the condom, with the exception of the time they would like to become pregnant, then the calculation would become more complicated because it would be difficult to predict the decline in HIV infection and the mortality related to possible (clandestine) induced abortions related to condom failure. Consistent condom use would make an enormous dent in the 2.5 million annual AIDS deaths now occurring in sub-Saharan Africa, more than half of them women. In other words, consistent use of condoms could prevent 3 million new infections every year, a much larger benefit than dependable use of the pill.

Men

DHS surveys show in general, that men want somewhat more children than women. In 1999 the ideal number of children in Zimbabwe for married women was 4.3, for married men 4.5. This difference tends to be somewhat larger in countries with a higher TFR and in Muslim countries. For example in Zambia these figures were in 1996, 5.7 and 6.6 respectively and in Tanzania in 1966, 5.7 and 6.3, in Nigeria in 1999 for married women 6.7, and 8.7 for monogamous, and 11.3 for polygynous men. Surveys in Africa agree that men think FP is mainly the remit of women. In countries with little difference between men and women in number of children wanted like in Zimbabwe much work has often been done in male education¹⁴⁹⁻⁵¹. Contraceptive use of women without their husbands' knowledge is discussed in chapter 8. Attempts to make women less dependent on men in relation to STI/HIV protection by introducing the female condom have been successful in the research setting, but not in daily sex on any large scale¹⁵²⁻³. Use of female condoms still needs male cooperation and these condoms have a higher failure rate than the male condom as discussed, but there is certainly a niche for its use. Vasectomies are rare in Africa for the indigenous population and also for Afro-Americans. Some years will pass before vasectomies are a major method in Africa but again, they do have a niche. We succeeded in performing 2 of these operations compared to 2500 female sterilisations over the same period, but in private practice this ratio is larger. Studies show that support from the husband for FP will improve compliance of his wife.

Many studies¹¹⁵ of teenage abortions show that the crucial factor in sub-Saharan Africa is: “does the man involved, or his family, take responsibility?”. There is no doubt that female education will in general in sub-Saharan Africa postpone female sexual initiation, male education seems to have the opposite effect¹⁵⁴.

Abortion

An estimated 10.000 - 70.000 abortions are induced in Zimbabwe every year with a negligible fraction being legal. The role of the health services is mostly to “finish the job”. In South Africa there were before the new legislation, implemented in 1997, according to various sources 6.000-400.000 induced abortions (1000 legal)¹⁵⁵, with, more reliable as estimates, at least 425 annual deaths and 45.000 admissions for incomplete abortions of which, judged by the complications, 13.000 were probably induced¹⁵⁶. Under the 1975 South African law, it was legal to perform an abortion when continuation of a pregnancy posed a serious threat to the woman’s life and/or her mental or general health, when there was a risk that the child would be irreparably seriously handicapped, in the case of alleged rape or incest, or in the case of unlawful carnal intercourse with a woman who had a permanent mental handicap or defect. The situation at the moment is that South Africa’s Choice on Termination of Pregnancy Act 92 of 1996 permits abortion on demand in the first 12 weeks, mandates certain conditions (e.g., risk of injury to a woman’s physical or mental health, risk of severe physical or mental foetal anomaly, adverse socio-economic factors, and rape or incest) for termination of pregnancies at weeks 13-20, and stipulates strict criteria (threat to the woman’s life, severe foetal malformation) and requires a second medical opinion for terminations after the 20th week of pregnancy.

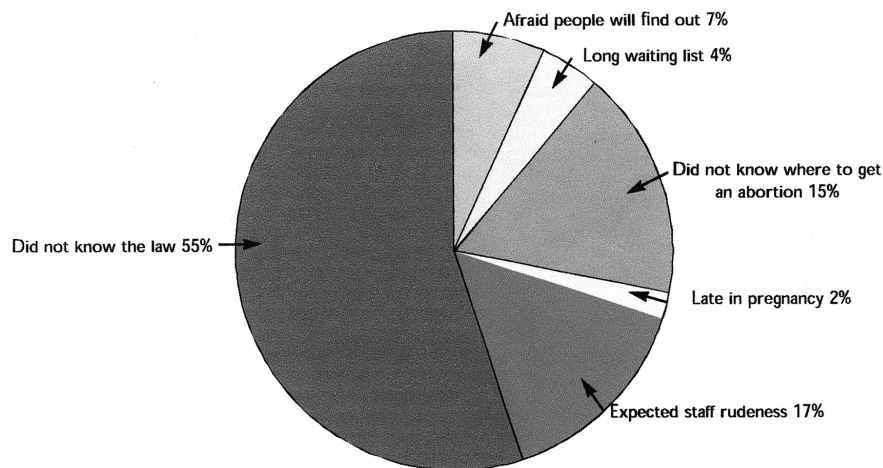
Estimates of the number of clandestine induced abortions are influenced by the ideology of the estimator. If there are many induced abortions then making them legal is unlikely to increase them, it only may make them less dangerous. It might even reduce induced abortions because good peri-abortal FP counselling and provision of methods can prevent repeat abortions⁸⁵. If there are not so many abortions, legalising them or making them easily obtainable may encourage people to indulge in sex before and outside marriage and to be careless with contraceptives, because there is always a way out. There are examples of one (Rumania, previous Soviet republics) or the other (UK, Scandinavia, Cuba, Tanzania³¹, Ivory Coast⁵⁴) effect dominating and what has happened in South Africa is not clear, but there are still a large unknown number of clandestine unsafe abortions^{119, 157}. It is also possible that there will be a (large) group of young women in the future, who would like to test their fertility or their boyfriend’s reaction to a pregnancy, but would not yet like to have a child. Legal abortion makes that nearly risk free possible, a mechanism seen in some cultural minorities in the Netherlands⁴⁰ and South Africa¹⁵⁸.

It was and is so difficult to get reliable figures because there were and still are an estimated 120.000 spontaneous abortions in South Africa every year while 45.000 women only were seen in the government health institutions with induced or spontaneous abortions. Many have their induced abortion/spontaneous miscarriage at home.

Despite implementation challenges, for example, many health workers refused to cooperate, approximately 30.000 women obtained a legal abortion in the first year of the new Act, and the number of women experiencing complications or death in the country from incomplete abortions decreased apparently significantly¹⁵⁹. The minister of health revealed in parliament in answer to questions that there had been 45.449 registered legal abortions in 2001.

Unsafe induced abortions were and still are a serious health problem in South Africa¹¹⁹, see Figure 2, certainly Nigeria¹⁶⁰ and Tanzania³¹ and Zimbabwe¹¹⁶, in fact, in most developing countries¹⁶¹⁻³. That significantly strains overstretched health services and budgets and kills around 78.000 women globally¹⁶³. Most countries in sub-Saharan Africa had laws created by the colonial rulers prohibiting pregnancy termination. These acts were in general, somewhat more liberal in English than in French speaking Africa. Most Commonwealth countries' abortion law is derived from the English Offences Against the Person Act 1861. When the laws were changed in Europe they were not in Africa, because, of the power of the churches and the conservatism and the patriarchal

Figure 2 Pie chart of reasons why women in Gauteng Province in South Africa did not abort in a legal facility, study Ministry of Health, 2000



culture of the indigenous and settler populations. The new elites have and had in general no motivation to change the law. There is always enough money to have a safe induced abortion (or other medical treatment) for relatives or girlfriends, even overseas. Why make enemies in the “anti-choice” lobby without personal benefits? Doctors who do abortions can be used as sources of income or blackmailed if they criticise the government. Medical personnel may oppose a change of the law because it will reduce their income (see chapter 12).

The situation in South Africa was unique with the ANC party having no realistic opposition when coming into power in 1994 and later threatening its members with disciplinary action if they did not vote for the 1996 bill. The bill passed, 209 to 89. New governments in Lesotho, Malawi, Kenya, Nigeria and Zaire have not repeated this feat, although there was the beginning of an attempt in Kenya¹⁶⁴, after it was found that 50% of maternal deaths were related to unsafe abortions. Another approach is the road followed by the Belgium⁷ and the Netherlands⁸ government: not changing the law at first, but exerting little interference in what actually happens, other than for profiteering and malpractice, and even encouraging and financing safe abortions until there was enough support in parliament to codify reality. Mozambique¹⁶⁵, maybe Kenya have that approach and it might even happen in Zimbabwe but the RCC is well connected with the present government and also with the official opposition.

Technical developments make it even more difficult to police the existing law and make legislation perhaps irrelevant. No operation theatre is needed to do a “menstruation regulation” or even a termination up to 8-10 weeks with a large syringe with a valve connected to a suction curette under no or only local anaesthesia. This is known as MVA (manual vacuum aspiration). The stomach lining protector and synthetic prostaglandin E1 analogue, misoprostol (Cytotec[®]) is widely available for starting a “miscarriage” or completing it or both (since 1988 used as such in Brazil) with little risk of infection, rupture and perforation¹⁶⁶⁻⁹. There are some risks e.g., a strong association between unsupervised unsuccessful use of misoprostol for attempted abortion and Mobius syndrome: uni or bilateral facial pareses plus or minus limb reduction in the infant¹⁷⁰⁻². Availability of misoprostol on the black market can also result in terminations of pregnancies with the births of (very) pre-term infants¹⁷³. Using the procedures for legal safe termination of pregnancy employed elsewhere would have resulted in severe lack of capacity to implement the 1996 act in South Africa. It was therefore decided to give many women Misoprostol the evening before the procedure which had the effect that the further the pregnancy was the more women arrived in hospital with a complete or nearly complete abortion requiring little time and no general anaesthesia to finish. Midwives were also successfully trained to perform part of the abortions¹⁷⁴. The present act in Zimbabwe is similar to the old South African law, although before independence the mental health of

the woman involved had been removed as a consideration, after a government investigation committee found that that clause was being “misused” by upper class white women in collusion with a private gynaecologist and psychiatrist. In Botswana since 1991 and certainly in Zambia the law has become somewhat more liberal but a legal abortion is difficult to procure in practice, especially for teenagers¹⁷⁵⁻⁶.

This thesis contains two contributions about abortions. The first chapter 4 is about the socio-economic backgrounds of the patients seen with incomplete abortions. Many similar (and larger) studies have been published since from the region, with essentially the same results, although it seems that patients were, in recent studies, more open about what had happened. This was probably related to the active and effective police force in Zimbabwe at the time of our study and a recent shift in public opinion about legalising abortions in Africa. The second and very short story illustrates how desperate women can be (chapter 17). Another study¹⁷⁷ not reproduced in this thesis, was about the best way to treat incomplete abortion: suction versus conventional curettage. This was the first randomised study of its sort and the main bases for the Cochrane Review¹⁷⁸ and advise on this procedure. The conclusions drawn from our studies mainly that suction is superior to scraping the uterus with a metal curette have since been confirmed by another study from Harare¹⁷⁹. Suction is faster, needs less anaesthesia and saves blood because of the procedure itself but also because one does not need to wait for a fully equipped theatre with an anaesthetist. This will often prevent blood transfusions.

Changing the abortion law

In South Africa, extensive media coverage prior to passage of the law ensured almost universal awareness of the Act, but little public education took place at the same time¹⁸⁰.

As and when the termination of pregnancy provisions in Zimbabwe legislation and in the laws of the other countries in the region will be liberalised, proper preparations need to be made. They include streamlining administrative regulations to avoid delays resulting in procedures becoming illegal because of legal time limitations and procedures becoming more dangerous; allocating funds for new abortion services; developing protocols, and guidelines for abortion care services and for conscientious objectors¹⁸¹; ensuring provision of adequately trained staff willing to provide abortions in a client friendly and a not judgemental way; establishing regulations and mechanisms for drug and equipment supply and distribution, to prevent the current situation in which, for example, the ministry of health in Zimbabwe encourages suction curettage for the treatment for incomplete abortion but the plastic curettes are not available. In addition, health professionals will require training in abortion provision, staff will need information updates about aspects of the legislation. Researchers should document the effect of the new law on women’s health, the provision of reproductive health services, and the com-

munity. IEC (information, education, communication) activities will be required to inform the public about the new law and services, mobilise family planning organizations and establish programs to help reduce the incidence of repeat abortions, sex education programs in schools and health facilities¹⁸². It would be a good idea to document the existing situation on a national level to assist future deliberations in parliament (as had happened in South Africa) and to be able to study the impact of a possible new law^{156, 183}.

There is not much reason to be optimistic about the ability of countries in sub-Saharan Africa to change the abortion acts and at the same time provide facilities in such a way that decent, safe and low cost services are universally available, combined with good family planning services to prevent (repeat) abortion. On the other hand, the existing laws have probably failed to prevent (most, some, a few?) unsafe abortions and an enormous amount of physical and mental misery, and financial exploitation is the result. An induced abortion ends in a maternal death nearly 200 times as often in Africa than in the USA according to the WHO¹⁸⁴. Perhaps it is a mistake to make the public sector in a major way responsible for providing the facilities if a liberal abortion act is implemented. Non-governmental organisations provide “menstruation regulation” and abortion services legally (South Africa) and illegally (Kenya, Zimbabwe) but in practice, many women have no access to them mainly because of financial barriers (this happens also in the USA, even for contraceptives¹⁸⁵). Many women in Africa cannot raise the money to travel to a government facility even if the services were available and free. If South Africa cannot prevent the many unsafe abortions still taking place, which country in Africa can? A by the South African ministry of health commissioned study, available via its web-site concludes:

- *This study has shown that many women are still inducing abortions outside designated facilities. The most substantial barrier to using legal services is lack of knowledge of the law and of facilities performing terminations of pregnancy (TOP). Among those who knew of their entitlement, perceptions of the quality of care of services was the most substantial barrier to their use and points to the need to improve services and eliminate harassment by staff of patients seeking TOP. Many women visited nurses and doctors in the search for abortions and some chose the latter over designated services. This points to the need to build the role of GPs in the TOP service provision through training in safe prescription of Misoprostol with referral for uterine evacuation, medical methods of abortion, designation of facilities and manual vacuum aspiration training. Many women self-induce and it seems likely that this is an inevitable part of women’s health-seeking practice when faced with unwanted pregnancy.*

So many girls and women still go through terrifying experience of taking dangerous overdoses of Chloroquine for example or by going to traditional healers and untrained or half-trained abortion providers in the community. If the aim of legalising abortion is to prevent misery, then nobody can tell if legalisation will not increase pre and extra marital sexual intercourse and therefore HIV prevalence and therefore misery, although it is somewhat difficult for a non-teenager to understand, why the fear of an unwanted pregnancy would be a better sex repellent than the fear of HIV.

There are solid examples, which show that better provision of contraceptive methods results in fewer induced abortions. On the other hand, in many places, the introduction of modern contraceptives coincides with an increase in induced abortions⁵⁴. It is very difficult and might take a long time before the induced abortion figures become “reasonable” again. Not introducing contraceptives is not a feasible alternative.

If there is an established desire to limit the family size then couples/women will often use contraception or abortion to reach their reproductive targets. The best way to reduce the number of abortions at a given TFR is to make more and, more reliable contraceptive methods available.

Emergency Contraception

This thesis includes chapter 9 about emergency contraception (EC), the morning-after pill (MAP), post-coital contraception (PCC). The findings are self-explanatory and not much has changed since. Several articles were placed in the local newspaper without any noticeable increase in EC prescriptions, but perhaps clients reported to private doctors. The authors attempted whilst on holiday in Mauritius, to see what the reactions of pharmacists there were. Nobody knew what the MAP/EC was, but we were offered Misoprostol tablets, illustrating that the law has become irrelevant. Article 235 of the Penal Code of Mauritius made performing or obtaining an abortion an offence punishable by penal servitude not exceeding 10 years. This also illustrates that the slippery slope so feared by the Vatican is a reality. The first conference in Africa on EC was held end November 1998 in Malawi, for 14 Southern African countries and resulted in all participants adopting the idea of PCC and committing themselves to making the method more widely known to the public and health providers and more available¹⁸⁶. The discussions in the Western Countries about the advantages and disadvantages of over the counter provision of EC are more or less irrelevant because pharmacists in Africa already tend to dispense many drugs including OCs and anti-malarials without prescription. There have been studies in Zambia, Kenya, South Africa and Nigeria all concluding that EC is not well known and that something should be done. Essentially, this is the same discussion as took place in Europe and the USA with similar conclusions.

The RCC is very much against the use of EC. Recently the Vatican stopped (symbolic) funding of the UN International Children's Emergency Fund (UNICEF) following publication of its refugee manual because of the inclusion of EC. The Vatican stated that the provision of EC to refugees is a deliberate attempt to "introduce young men and women to an individualistic and irresponsible use of sexual pleasure", that could also "increase the risk of the spread of AIDS." The Vatican's letter also decried the UN's "non-judgmental approach" to extra-marital sex and homosexuality¹⁸⁷. Writing in the Canadian, *Globe and Mail*, Joanna Manning of Catholics for a Free Choice Canada said, "*Somehow, I do not envisage the refugee-camp environment as conducive to hedonism; nor do I imagine that women fleeing war zones will remember to pack the thermometer and monthly charts needed to practice the rhythm method*"¹⁸⁸.

The Irish Medicines Board on the other hand reversed its decision to classify EC as an abortifacient and declared it to be a contraceptive¹⁸⁹. The Argentinean Supreme Court, for the opposite reason, declared EC illegal in 2002¹⁹⁰.

The state of the art in EC¹⁹¹ is using Levonorgestrel 1.5 mg or (p=0.88) Mifepristone 10 mg up to 5 days after unprotected intercourse, this results in the fewest pregnancies. Both medications have mild side effects. Because of the correct association with real abortion of Mifepristone if used after nidation¹⁹², the former regimen seems best also because it tends to result in an early period rather than a postponed one, reducing anxiety and the chance of repeated unprotected intercourse before a regular contraceptive is started. Africa's own contribution to EC, Krest® bitter lemon, has found little official recognition¹⁹³.

It is important that the Yuzpe regimen (2 doses of 0.1 mg Ethinyl Oestradiol and 0.5mg Levonorgestrel) will still be described in the national essential drug lists because a dedicated product is unlikely to be widely available and will be expensive.

For the same reason the Progestagen only pill available (POP) (donated) in Zimbabwe should contain Levonorgestrel (normally 1 packet is 35 pills x 30mcg), not as at the moment Norgestrel (35x75mcg) or Norethisterone (28x350mcg), so that a start dose of 50 tablets can be given as EC. It is the author's experience that women become very suspicious if asked to take 50 tablets, perhaps 2 x 25 with some time, max 12 hours, in between is better. The non-Levonorgestrel POP will probably also work using 50 tablets but one cannot be absolutely sure, even of Norgestrel, because progestagens are difficult to compare¹⁹⁴.

We still support our recommendation that the option of EC in case of a condom mishap should be described on a condom packet. The discussion whether EC is a type of abortion is heated and depends on the definition of a pregnancy. If fertilisation means a pregnancy then EC can cause an early abortion, if nidation is the criterion then probably not. Apparently, often an ovulation is suppressed or postponed in EC and no abortion

takes place according to both definitions. If availability of EC will increase or decrease “real” abortions is difficult to predict, also because the effect will still be there in the next generation. Teenage mothers often have children who have teenage pregnancies and when a girl gets a second chance to finish schooling because of the availability of EC, that may prevent abortions in the next generation¹⁹⁵. What effect EC use, unlikely to be widespread unless perhaps it is advertised on condom packets, will have on HIV prevalence is also difficult to predict. A study from New York¹⁹⁶ suggests that provision of EC may not have an adverse effect on condom use, and may prompt teens to think seriously about their contraceptive behaviour. But who knows what happens in other cultures?

Chapter 9 shows that health workers still have to learn about how to prescribe the morning-after pill and how to handle clients who report after unprotected intercourse. This also includes rape, which is important in the region.

In chapters 9 & 11 the option of using an IUCD as EC is discussed.

Rape

A survey on sexual violence among more than 27.000 men and women in South Africa showed a high prevalence of rape. One in four men said they had raped by the age of 18, while 80% said women were responsible for causing sexual violence, 30% said they thought women who were raped “asked for it”, 20% thought women enjoyed being raped, and 10% thought gang-rapes were “cool”. The survey was conducted in Johannesburg, Soweto and a number of informal settlements by the Southern Metropolitan Local Council and the non-governmental organization CIETAfrica¹⁹⁷. The survey found that more than 50% of young women thought they were partly responsible for causing sexual violence and over 10% said they had no right to avoid sexual abuse. South Africa has the highest rape figures in the world for a country not at war, with one rape taking place every 35 seconds¹⁹⁸ (one every 6 minutes in the USA, which is 3 times the rate of Sweden per unit of population, which has the highest rate in Europe)¹⁹⁹, and 10% of first “intercourse” of girls in KwaZulu-Natal is rape²⁰⁰. Buga et al.²⁰¹ found “forced sex” to be the reason for first sexual intercourse most mentioned by adolescent girls in the Transkei. Rape figures seem to be increasing in Zimbabwe, also in relation to political unrest and the emergence of political militia like youth brigades. There is a disturbing incidence of rape of very young girls, like in South Africa, probably related to the belief that HIV can be cured this way²⁰². In Kenya 40% of sexually active female adolescents said they had been tricked or forced into sexual intercourse²⁰³. The magnitude was also given as being 40% for first intercourse in a paper from Cameroon²⁰⁴. A study²⁰⁵ from Tanzania showed that girls sometimes did not resist advances because they might then end up being raped anyway. There are encouraging signs in Zimbabwe in relation to the care of rape victims with dedicated counselling and victim friendly courts²⁰⁶.

It should go without saying, that EC should be available for any presumed fertile woman who has been raped. In practice, things go wrong because of delays. The police and health personnel often miss the opportunity and it is quite difficult to find the right hormones in a hospital during weekends. Staff from some health institutions refuses to provide EC. There is a second chance of having a legal abortion for rape, which can mean much travelling. Post exposure HIV prophylaxis is often not available or the victim comes too late. It seems humane to make mandatory HIV testing of the rapist legally possible.

Sexually Transmitted Infections.

Ideally STI/HIV diagnosis, treatment and prevention should be integrated in the reproductive health services. Nearly all professionals agree²⁰⁷⁻⁸ with that position, at least it was the consensus reflected in the ICPD programme of action. It was part of the logic of thinking in broader terms than contraception and to address the reproductive health needs of women. We must be careful that FP is not associated too obviously in the mind of the public with HIV/STI. A large problem is that men are rarely seen in the dedicated FP clinics and so is the highest risk group: girls before they have their first baby. They also do not often use FP and if they do they are likely to be using condoms, not collected at a FP clinic. Males are the main targets for HIV prevention because they control condom use. A woman diagnosed as having a STI in a FP clinic will probably be happy to be treated but reluctant to help with contact tracing. Her partner might not allow her to revisit the clinic. FP programmes and HIV/AIDS programmes have different structures, employ different kinds of staff, have different target groups and have different histories and motivations. It might be dangerous⁸⁰ to integrate them in the African context and trials have to be carried out to test and compare new strategies on population level indicators of contraception, STI and HIV prevalence. Apparently, some extra work would not strain the capacity of FP clinics¹⁴ in Zimbabwe, some staff would be more fruitfully employed if they joined a paediatric outpatient clinic in the nearest hospital.

Diagnostic facilities, even microscopes, are not available in the Third World FP clinic setting and expensive antibiotics, needed with the high resistance profiles seen for the cheap routine antibiotics, are not currently within reach and will not be in the foreseeable future²⁰⁹⁻¹². Diagnosing gonorrhoea or chlamydia requires sophisticated and /or expensive laboratory techniques not available other than for occasional research studies. In one such study from Harare²¹³ *Trichomonas vaginalis* was identified in 19%, Chlamydial antigen in 13% and *Neisseria gonorrhoea* in 7% of women in labour. A study from South Africa had essentially the same outcome²¹⁴ and so had many studies from the rest of sub-Saharan Africa²¹¹. A survey of adolescents from the Transkei found that 48% of the boys, of whom 19 percentage points had had a genital ulcer, and 25% of the girls

thought they had had an STI²⁰¹. Even syphilis screening in pregnancy for which there is a simple test available often fails, with one study from Zimbabwe showing that only 24% of the couples with syphilis had adequate treatment²¹⁵. Screening for precursors of cervix carcinoma, also a STI, could be integrated in FP but the age group normally seen for FP is mostly too young to take part in a cost effective screening programme as documented by Rutgers & Verkuyl¹³¹. It would be a good service to check cervical cytology in women who come for an interval sterilisation as long as it does not create another barrier. A vaccine²¹⁶ against Human Papilloma Virus (HPV) with the right subtype antigens, also for Africa, is eagerly awaited by those who have seen the suffering of women with Morbus Miseriae, as cervical cancer was called in the 19th century. This cancer is similar to rectal cancer, in the younger women, often combined with an HIV infection. An estimated 231.000 women die globally of cervical cancer annually, four-fifths of whom live in developing countries²¹⁷. The new vaccine should also protect against HPV types 6 and 11 probably responsible for the horrible disfiguring and smelly condylomata acuminata we see in Zimbabwe, mainly in young girls.

Periodic presumptive treatment (PPT) with the appropriate antibiotics, azithromycin for example, of the whole sexually active population has been tried in high-risk groups²¹⁸. This might seem risible but could make a large dent in STI prevalence perhaps including HIV, depending perhaps on the maturity of the epidemic, as a study from Tanzania seemed to prove, but which 2 studies from Uganda could not confirm²¹⁹. The WHO has some hope²²⁰ of being able to eradicate chancroid or, more correctly, Hemophilus Ducreyi, a micro-organism whose prevalence is intimately related to HIV prevalence and therefore also to non-circumcision. The Herpes Simplex virus type 2 also intimately related to the HIV epidemic is, of course, not affected by antibiotics.

For the time being, the syndromic approach advocated by the WHO is the only realistic option for STI treatment in the not dedicated STI clinics in the public sector in Africa²²¹. Recent evaluations of said approach are not favourable²²². Most STI causing organisms will only be at risk of extermination if the relevant vaccines are developed.

The author of this thesis would like to integrate much more FP in the normal health services than integrating health services in dedicated FP clinics. Accordingly, checking for FP needs if a patient consults a health worker for a STI, seems more important than checking for a STI if a client comes for FP.

Infertility

A doctor known to be active in relation to unwanted fertility should also be involved in the treatment of infertility²²³

Infertility represents a major public health problem in sub-Saharan Africa. In the “infertility belt” parts of Cameroon, Gabon, Zaire, and the Central African Republic, 20-40% of women aged 50 years and over are reportedly childless²²⁴. Close to 2% of married women aged 45-49 (of whom less than 1% never married) in Zimbabwe has never had a child⁵. Under the presumption that desire for children is universal in Zimbabwe, this percentage would give a good indication of primary infertility. Having children is a very important part of marriage and to some a relationship becomes meaningless without²²⁵. It is not frequently seen that a man who has children becomes infertile, so when a woman says she is convinced her partner has children with someone else then it is likely that there is something wrong with her fertility. On the other hand, in-laws often create a myth in which the man involved has already a child somewhere, to prove that the infertility must be the fault of the woman. There are also traditional ways to by-pass male infertility. A woman is allowed to try discretely to become pregnant from her husband's younger (extended family) brother. Men often divorce women who do not deliver children, after that women will try to get pregnant from another man. There are candidates enough. She “needs” a child because who will look after her when she is old? The result in the Zimbabwean situation is that by the time a woman is seen by a gynaecologist for infertility, female infertility is often diagnosed, also because the changing of partners by her, but also by her partners, in the hope of producing a child, might easily cause salpingitis. Adoption is limited by the totem/ancestor culture. There are, on the other hand, many possibilities for looking after the children of relatives. These are often considered to be children of the whole family anyway, but they can always be recalled. It is estimated that there are 700.000 AIDS orphans alone in Zimbabwe, making it easy for a woman with an oversupply of love to find a subject to benefit. Women often move socially downwards when they do not become pregnant and can become second or third wife of a rich man with enough children not to worry about her fertility.

By the time women are seen with infertility in a hospital they have often visited traditional doctors or more conventional colleagues. Often much money has been spent on scans, hysterosalpingography (HSG), laparoscopies or even HIV tests, the results of which are only shown when directly asked for. In Southern Africa the doctor is expected to know what is wrong with his/her patient. The patient is not supposed to help. Many studies show that blocked tubes is the main reason for infertility²²⁶⁻⁷ if the male factor is excluded.

HIV prevalence is correlated to infertility because the same women who have salpingitis also are at risk of getting HIV. This is also aided by the changing of partners: something like a 33% risk per new partner²²⁸. Another reason for not getting pregnant is having infrequent intercourse by having a partner who is only at home a few times a

year. Again, migratory labour is related to salpingitis and HIV. We always advise to stay legally or illegally as near as possible to the partner.

Black women have more fibroids²²⁹ and many women with infertility will get myomata. This results often, when operated on, in a myomectomy and tubal surgery at the same time. In other words, fibroids can cause infertility and infertility can cause fibroids. There are no good studies in this field, for example comparing tubal surgery plus or minus myomectomy for infertility.

It is disputable whether a couple should be assisted to become pregnant if HIV positive. The least one would expect is use of drugs to reduce vertical transmission, resources to buy humanised milk powder and a convincing plan in relation to the care of a child in the absence of the parents. Having said that, one has probably no idea about the misery one can cause by insisting on an HIV test before any further investigations or treatments are instigated. At UBH patients were seen from hospitals hundreds of kilometres away for infertility, while it was obvious at first sight that the women were HIV +. It was easier for the referring doctor to let the patient travel over such a distance than to discuss her obvious HIV infection. It is difficult to decide if one should invest scarce resources in women who already have 1-4 children. But what if they are in a new relationship, which can only be cemented by a child? What was the reason for the new relationship? Did the previous partner die of HIV or was he promiscuous?

Secondary infertility can be caused by hysterectomies or sterilisations because of uterine ruptures or classical caesarean sections, not explained properly to the patient.

One should probably not believe a story of secondary infertility with one or more abortions if the woman has not seen an embryo/foetus.

Not to seem too chauvinistic, doctors often insist on physical examination of the man and a semen analysis in an infertility workup. This appears woman friendly, but if her partner refuses to cooperate or is far away, the woman is in a very difficult position, because, she is anyway, guilty until proven otherwise. A post-coital test might help.

A regular (painful) period with a cycle of less than 6 weeks or so makes it quite likely (95%) that there is ovulation in the absence of the possibility to test for FSH/Oestradiol/Progesterone and Prolactin. A basal temperature curve is often difficult to organise certainly in circumstances where there are often simultaneous infections caused by plasmodium or when there is other co-morbidity.

Very obese and very thin women are unlikely to have regular ovulations. Having facial hair does not often indicate a problem with ovulation when not combined with obesity. Galactorrhoea might indicate hyperprolactinaemia but often does not and vice versa. Women with no uterus or an aplastic vagina or ovaria will often claim that they sometimes have a period.

It is not possible for many women to return regularly to hospital (sometimes 50-100 times in Europe before a pregnancy or before the couple gives up). Shortcuts are demanded and doing a careful mini-laparotomy to inspect the tubes and, if needed, an attempt to open them and remove adhesions is probably the best approach when the history makes tubal blockage likely. We performed on average more than one such operation every week for the last ten years. Success figures are impossible to give because of the poor follow up, but we came regularly across women in labour who had been operated on by the department.

Many women in Zimbabwe could not have a HSG because they had to pay for the expensive contrast medium. An alternative is perturbation with carbon dioxide (available from a coca cola bottle) while listening with a stethoscope, or with a mixture of normal saline, corticosteroids and procaine penicillin observing the pressure used. It seems that these diagnostic procedures can also be therapeutic. If no facilities for diagnosing STIs are available, operations and testing of tubes need to be done under antibiotic cover. If the tubes seem open as diagnosed during an operation or with HSG or perturbation, the next possible step is to try clomiphene, very rarely a wedge excision, and that is probably the end of the therapeutic possibilities in non-private infertility care in Africa. It would be a good idea to have one gynaecologist in a country with extra expertise in tubal surgery, who will operate on women who regret a sterilisation, a small group as is explained in chapter 8.

Women/couples who are sub-fertile and have succeeded in having a completed family are often candidates for reliable contraception. This is often forgotten in Europe where a woman of say 38 years of age with 2-3 children, conceived with the help of medication or even in-vitro-fertilisation, who is delivered by a caesarean section is not offered a sterilisation. She often cannot be certain that she will not become pregnant spontaneously but will because of her history often have little motivation to take tablets for the next 12 years.

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- The treatment and care I received whilst in hospital was excellent except for the resources which were limited or not available.
- Secondly I feel the pain killer was not adequate after the operation. I only got Petlidine once at night even on Day One post operation.

3

Integration of Family Planning into Maternal and Child Health and other services at Harare Central Hospital

Together with Fawcus S, Willis JA and Mutasa H.

The Central African Journal of Medicine 1990; 36: 311-5

INTRODUCTION

Family Planning (FP) is promoted in Zimbabwe as an essential strategy to promote better maternal and child health. However, in Zimbabwe, as in many other developing countries, it appears that many more couples are interested in family planning than actually use contraceptive methods¹⁻⁹. One of the reasons for this discrepancy is the lack of accessible services available at the time of need for potential family planning clients.

Harare Central Hospital (HCH) is a busy national referral hospital, which caters for high-risk maternities, as well as gynaecological, surgical, medical, paediatric and psychiatric referrals. There is, therefore, an enormous potential family planning clientele who until the initiation of the project to be described, had to make another visit elsewhere for their contraceptive needs, and often failed to do so. It was the view of the Obstetrics & Gynaecology department at HCH, that by making a service, providing contraceptive facilities and counselling available for fertile women at the same time as their or their children's hospital admission or visit, would increase the uptake of FP. Patients selected included: ante- and post-natal women, post-abortal women and patients with chronic medical and psychiatric problems. Mothers of malnourished children were also visited. Thus with the logistical and financial support of the United Nations Fund for Population Activities (UNFPA), and the support of the University of Zimbabwe (UZ) and the Ministry of Health (MOH), a programme was started to integrate family planning into maternal and child health and other services at HCH.

Family planning provision at Harare Central Hospital before commencement of the project

- *Pharmacy:*

Previously, the pharmacy did not stock contraceptives for the understandable reason that it would exceed its drug budget, which was under pressure any way, and patients could get free contraceptives elsewhere. The effect of this policy was that no one at HCH could prescribe contraceptives, not even the Professor of Obstetrics & Gynaecology.

Junior staff-members were not taught the medical and technical aspects of contraception outside the lecture room and were not prepared psychologically for the fact that FP should be an integral part of the service they provided for every woman attending for health care.

- *Gynae-casualty (Emergency Gynaecology Unit):*

As reported in this Journal before¹⁰, a study carried out on the 4000 patients presenting annually with incomplete abortion in HCH showed that at least 23% had interfered with their pregnancy. In the same study only 33% of the patients stated, when asked, that they definitely had wanted the index pregnancy.

Patients with incomplete abortions usually did not get any FP advice. This was because the staff were busy before the evacuation of the uterus with clerical duties, organising for surgery and blood transfusions and because they did not think about the necessity for FP counselling. After evacuation under pethidine/diazepam, the patients were too sleepy to be receptive and they were discharged as soon as possible because of the extreme lack of room and privacy in Gynae-casualty.

Patients seen with Pelvic Inflammatory Disease (PID) and hence sexually active were seldom given contraceptive advice even though they form a sub-group of patients in which the use of contraceptives is often advisable. As well as preventing unwanted pregnancies, condom and hormonal contraceptive usage decreases the incidence of PID with nearly 100% and 50% respectively¹¹⁻², and of course condoms protect against HIV transmission.

- *Out Patient Department (OPD):*

An estimated 80 new gynaecological patients were seen at the OPD every week and many more follow-up visits were made there. Although many patients were interested in contraception, doctors did not often ask them about this; if contraceptives were suggested, then patients could only collect them at another time and at another institution. Patients seen for rape could not even be prescribed post-coital contraception. (Morning-after pill, for the instructions read Appendix).

- *Antenatal Clinic (ANC):*

During the ante-natal period there was very little discussion of post-partum contraception. Very often prime candidates for tubal ligation (TL) did not have sterilisations although they did want them. For example: a mother of 5 with diabetes and hypertension and 2 previous caesarean sections had no sterilisation performed during her third CS, although she had wanted that very much, because the paperwork was not in order and the husband was not available to give a signature on the consent form, even though she said that he agreed. Similar cases occurred frequently in the past and are still seen to a certain extent.

- *Postpartum Care:*

Patients in the post natal wards were fortunate if anybody discussed contraception with them. If contraception was discussed and the patients wanted supplies, then they had to be referred to another institution. Even those women requesting post-partum TL often did not have these operations done. They were given a low priority on the maternity unit theatre list having to compete with emergency CSs, and were often cancelled for petty administrative reasons. Often patients left the hospital embittered after having been starved day after day and their TL repeatedly postponed. Although agreeing to come back in 6 weeks, they hardly ever did and if they did, the operation had to be performed

in the main operating theatre where there was a waiting time of many months. Not surprisingly, some of these patients were seen again in the ANC!

- *The Postnatal Clinic (PNC):*

This was the one place where a rudimentary family planning service was provided. Staff members of the Zimbabwe National Family Planning Council (ZNFPC) visited the PNC. Only a small portion of patients who delivered at HCH, however, does attend for the postnatal visit. Progestagen-only pill (POP) was the main contraceptive given to breast-feeding mothers. Those requesting TL or an intrauterine contraceptive device (IUCD) had to be referred to the Spilhaus FP clinic, a separate institution. Follow-up of postnatal women on POP was inadequate with the result that many women continued with this method after weaning, when its failure rate increases¹⁰ and a combined pill would have been more effective.

- *General Hospital:*

The hospital admits various patients with an excellent motivation or indication for contraception, e.g., mothers with babies with malnutrition in the Paediatrics Ward or the Malnutrition Rehabilitation Unit and women with psychiatric and serious medical conditions.

Female patients were treated for hypertension, diabetes and cardiac disease but contraception was not even discussed, although it should be viewed as an integral part of their management.

The Family Planning Project - The current situation at Harare Central Hospital

Since October 1986 there are, thanks to the Ministry of Health, UNFPA, ZNFPC and UZ, two nurse-midwives with extra training in FP who are released from normal nursing duties and who spend their days providing FP counselling and services. They visit in- and outpatients to advise about and to prescribe contraceptives and a final year medical student is attached to them. The pharmacy has contraceptives in stock donated by ZNFPC and Gynae-casualty has a stock of contraceptives for after hours dispensing and for post-coital contraception. There is a Tuesday afternoon contraception clinic where a specialist sees women with complicated FP problems, where IUCD's are inserted and where students and junior doctors are taught. There is also a lunch-hour staff contraception clinic. Unfortunately, due to lack of theatre space and time the situation concerning sterilisations did not change significantly.

RESULTS

After a year of the project's operation with two sisters working full-time and two gynaecologists assisting on a part-time basis, there were 3822 new acceptors and 5423 return visits or visits of previous acceptors (Table 1). The figures for the first half of 1988 show a 25% increase in the above two groups of acceptors.

Table 1 Statistics Harare Central Hospital Family Planning Programme from October 1986 until October 1987.

New acceptors	3822
Return visits/previous acceptors	5423
Total visits	9245
Breakdown of visits:	
<i>Post vaginal delivery</i>	1381
<i>Post Caesarean Section</i>	513
<i>Post natal visit</i>	5177
<i>Mothers in nutrition rehabilitation programme</i>	57
<i>Mothers of admitted babies/infants</i>	459
<i>Post abortal women</i>	378
<i>Post delivery with hypertension</i>	117
<i>P.I.D./Puerperal sepsis</i>	110
<i>Mental disorders</i>	23
<i>Menstrual disturbances</i>	27
<i>Various diagnoses</i>	56
<i>HIV positive</i>	2
Methods	
A Pill strips	
<i>Progestagen only pill</i>	21044
<i>Combined pill 30 mcg oestrogen</i>	2604
<i>Combined pill 50 mcg oestrogen</i>	83
B Tubal Ligation	68
C Intra Uterine Devices, Cu T.	80
D Depot medroxy-progesterone acetate	170
E Diaphragm/Cream	2
F Condoms	36621
Calculated Couple Years Protection (CYP)	3114

If the same calculation technique used by ZNFPC in their 1986 Annual Report¹³ is utilised, it can be worked out that the two sisters provided 3114 Couple Years Protection (CYP). CYP's are calculated by dividing the total strips of pills dispensed by 13, the condoms by 100, IUCD'S by 0.4, injectables by 4 and sterilisations by 0.1.

This figure of 3114 CYP is a considerable number. It is 5.1 % of the total CYP generated by all 35 ZNFPC clinics, including Spilhaus. These clinics employ 998 people.

- *Plans For The Future:*

Although good, these results could be improved still further if the original plans of the project were to be implemented. These plans include:

- 1 Five (rather than 2) sisters so that there would be 24-hour and full weekend contraception cover. This arrangement would also allow staff to perform more research and also provide a community outreach service.
- 2 Provision for transport so that sisters could follow-up clients to see whether they were continuing with methods provided. Research would be possible into side-effects, beliefs around those, and best ways to present contraceptives. Also, with adequate transport, the sisters would be able to contact husbands or partners more often.
- 3 Funding for the building of a Women's Clinic. Here all gynaecological patients would be seen: there would be a theatre to insert IUCD's and to perform mini-laparotomies and laparoscopic TLs and to carry out investigations for infertility and sexually transmitted infections. The extra room would also provide working space for the nurses and privacy for the patients.
- 4 Education and entertainment of patients in the post/antenatal ward and, while waiting, in Gynae-casualty with a locally made video film about child spacing.
- 5 Follow-up of patients and collection of relevant data and processing them with the help of a secretary and a computer.

- *Areas not covered in the project and problems still to be solved.*

- 1 A weakness of this study is that no follow-up of patients was carried out after provision of contraception. The continuation rate in non-TL patients was not known although clients are advised to visit a FP clinic before their supplies run out. We have tried to follow-up patients in an earlier study mentioned above¹⁰ and it was found that many patients could not be traced and did not want to be traced. Especially, those whose behaviour suggested that they needed contraception most.
- 2 Design and printing of a new sterilisation consent-form. There are at the moment at least 6 different forms in circulation. Some to be signed in duplicate, some by the husband, and a doctor and a specialist and the hospital superintendent. We favour one of the three forms used by the ZNFPC with space for the patient to sign and for this signature to be witnessed by somebody, preferably but not compulsory, the husband. The

only other signatory is the surgeon. The legal position vis-à-vis sterilisation including age, consent of spouse and hospital superintendent etc. should be explained on the back of the forms.

3. Large hospitals should have staff FP clinics and after-hour FP services. In the two large Bulawayo hospitals, the situation is exactly the same as it was in HCH in the past: no contraceptives are stocked in the pharmacy. Even Parirenyatwa Hospital, the MOH's flagship, sends patients home during office hours after evacuation of incomplete abortions without contraceptive assessment and counselling.
4. FP nurses are very efficient but fill a gap that should not exist in the first place. They let the doctors off the hook. This could prevent those doctors from giving attention to FP when they start working in other hospitals or units because they have not acquired the habit of providing FP themselves.
5. The ZNFPC is trying very hard to integrate FP training into the training of all the health workers. Senior doctors and senior nurses, with encouragement from the MOH need to make sure that this extra training is implemented and that all doctors and nurses in every speciality think about FP as part of comprehensive care.

The impression is gained that staff in clinics and district hospitals is better informed about and motivated for a comprehensive approach to health than the staff in the Central Hospitals. The excellent work done by the Provincial Medical Directorates in the continuing education of health workers is probably responsible. These developments, however, are little noticed by middle-grade doctors directly involved in patients care in the Central Hospitals. They are seldom invited to the relevant workshops.

CONCLUSION

This programme shows how, with a few resources and a lot of motivation, family planning was integrated into all services at Harare Central Hospital. The result was a very high acceptance of family planning with much less inconvenience to the patients concerned. This example could and, we hope will, be replicated in other central, provincial and district hospitals.

APPENDIX

Prescribe either; **A** four tablets of low dose (30 mcg oestrogen) combined contraceptives and to be repeated after 12 hours; or, **B** two higher dose (50 mcg oestrogen) containing combined pills and repeat after 12 hours. One of the two above regimens should be started maximally 72 hours after unprotected intercourse, preferably sooner. After 72 hours, but before 7 days an IUCD could be used if not contra-indicated.

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4

Characteristics of patients attending Harare Hospital with incomplete abortion

Together with Crowther CA.

The Central African Journal of Medicine 1985; 31: 67-70

INTRODUCTION

Abortion is a common problem in Zimbabwe. The complications of abortion have immediate and long term sequelae, and post abortal sepsis remains one of the leading causes of maternal mortality¹. In any given population at least 15% of all recognised pregnancies result in spontaneous abortion². The percentage of induced abortion is not often known.

At Harare Hospital over 4.000 patients are treated each year for incomplete abortion. It is not known if there is a high incidence of spontaneous abortion in the population associated with genetic or environmental factors, or whether there is high incidence of induced abortions. The characteristics of patients attending Harare Hospital with incomplete abortions have not previously been documented. This study was therefore undertaken to assess such patients, to determine their knowledge and previous use of contraceptive methods, and to find out their contraceptive intentions following the abortion.

MATERIALS AND METHODS

Ninety-nine patients requiring evacuation for an incomplete abortion and who were suitable for the procedure to be performed in casualty were entered in the study³. Basic data were collected including patient's age, parity, marital status. Information was also collected about the husband's age, occupation and monthly income. The patient was asked whether the pregnancy was wanted or unwanted, if family planning methods had previously been used and whether the patient conceived whilst using contraception.

At operation clinical assessment was made as to whether there had been any interference with the pregnancy. The patient was asked directly whether the abortion was spontaneous or induced.

All patients were asked to return for a follow-up visit two weeks after evacuation. They were then asked what form of family planning, if any, they intended to use.

RESULTS

The results from the 99 patients are presented. The average age of the patients was 26 years. The age distribution is given in Table 1 where a comparison is made to the general Harare obstetric population using information from the minimum data collection survey⁴. There was an increased percentage of older patients in the abortion group. The age distribution of the husbands is also given in Table 1. The average age of husbands was 35 years, significantly older than their wives.

Table 1 Age Distribution of Patients, Husbände and General Obstetric Population

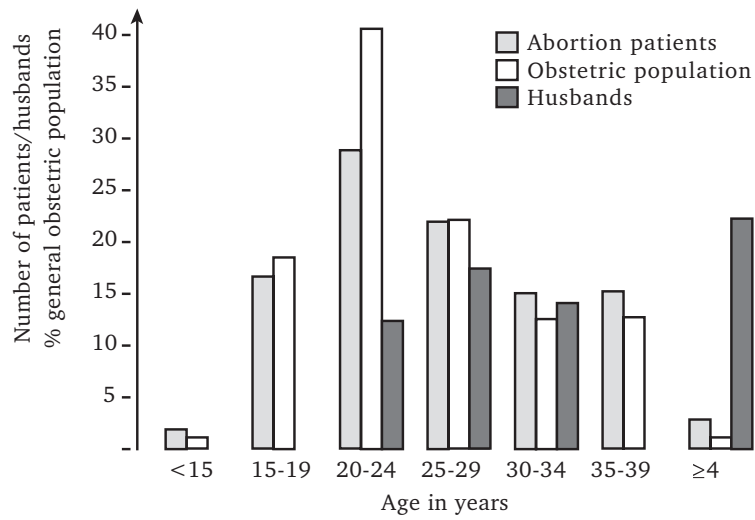


Table 2 Parity Distribution of Patients, Compared to the General Obstetric Population

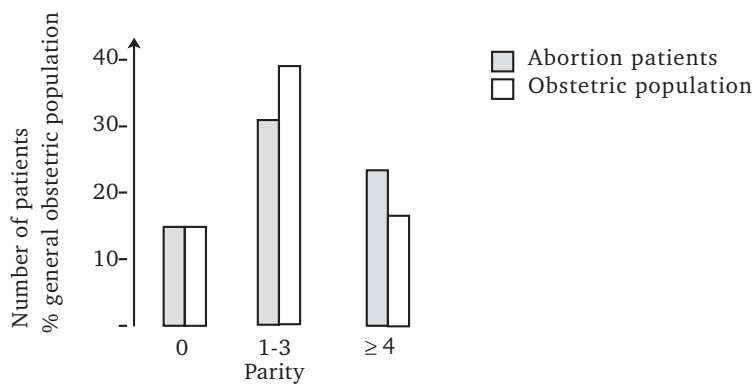


Table 3 Marital status of patients compared to general obstetrical population

	Single	Married	Divorced	Separated	Unknown	Total
No of Patients	6	76	6	1	11	99
% of Patients	6.1	75.7	6.1	1.0	11.1	
% Obstetric Population	5	94	0.5	1	-	

Table 4 Family planning methods previously used by patients

Contraceptive Method	Number of Patients	%
No Method	58	58.6
Injectables	3	3.0
Oral Contraceptives	38	38.4

Table 5 Contraceptive preference post-evacuation

Contraceptive Method	Number of Patients	%
No Method	35	46.7
Intrauterine Device	1	1.3
Oral Contraceptives	19	25.3
Traditional Methods	2	2.7
Uncertain	18	24.0
Total	75	100.0

The average parity of the patients was 2.7. Table 2 shows the parity distribution compared to the general obstetric population.

Marital status is shown in Table 3. The average age at marriage was 18.5 years. Compared to the general obstetric population there was a higher percentage of divorced patients in the abortion group.

The abortion patients had an average of 7 years of education. The unmarried and younger patients had a better level of education than the married patients.

Patients were, in general poorly informed about their family income, and many were uncertain as to their husband's occupation.

Thirty-three patients (33.3%) had a wanted pregnancy. Nineteen of these patients had never used family planning and 12 had been using oral contraceptives but had stopped in order to conceive. Twenty-six patients (26.6%) stated that the pregnancy was unwanted. These patients tended to be older and of higher parity. Forty patients (40.4%) did not say whether the pregnancy was wanted or unwanted.

Table 4 shows the number of patients who had used contraceptive measure previously, and the methods used.

Eighteen patients (18.2%) conceived whilst taking oral contraceptives. Ten patients had been taking the progesterone only pill micronovum and 6 patients, the combined oral contraceptive, ovral. No patient was breast feeding at the time of conception.

Interference was suspected in 21 patients, usually on the basis of an unwanted pregnancy associated with pyrexia, uterine tenderness or infected products of conception.

Only one patient admitted to interference. She had taken medicine to procure an abortion. One other patient had clinical evidence of interference with a twig found in the uterus at operation, congenital in origin according to the patient. The interference rate was therefore deduced to be 23.2%.

Seventy-five patients (75.8%) attended for follow-up. One third of the patients who failed to attend for follow-up were in the known unwanted pregnancy group.

No patient at follow-up had started any method of contraception or attended a clinic for contraceptive advice. Thirty-three patients (44%) stated an interest in using contraception and Table 5 shows the method, if any, preferred.

DISCUSSION

This study provides important data on the characteristics of patients with incomplete abortions attending Harare Hospital. Patients tend to be older and of greater parity compared to the general obstetric population.

Twenty-six point four percent of the pregnancies were admitted to being unwanted. With the 40.4% no response to this question it is likely the actual percentage of unwanted pregnancies is much higher. Contraceptive failure had occurred in 18.2% of the cases. Disturbingly 44% of the failure occurred in patients taking a 50 microgram oestrogen preparation combined oral contraceptive.

True failure of this method of contraception is rare, the failure rate being 0.36 per 100 women/years⁵. Fifty-six percent of the contraceptive failure occurred in patients taking a progestagen only pill, which has a true method failure rate of 2-4%. Patient failure due to irregular pill taking is the usual reason for oral contraceptive failure. Patient edu-

cation as to the necessity of regular pill taking and the procedure to follow if pills are missed could assist in preventing such contraceptive failures.

The progestagen only pill is usually recommended for use in patients with a medical disorder in whom oestrogen containing oral contraceptives are contraindicated, or for a patient needing contraceptive cover whilst breast feeding. None of the patients in the study were breast feeding or had medical indications requiring the use of progestagen only pill. Education of patients and clinic staff as to the indications for the use of different pill-types, and in particular the need to change to a combined oestrogen - progestagen contraceptive when discontinuing breast feeding might also help prevent contraceptive failures.

The older, high parity patients often admitted to the pregnancy being unwanted. Catering for the contraceptive needs of these patients is difficult but in older women, with a completed family, tubal ligation offers the best solution.

The interference rate was considered to be 23.2%. This is likely to be a conservative estimate. Collection of meaningful data on interference rates is difficult in view of the patients' reluctance to disclose such information. Other studies have found similar problems. Interference rates quoted vary considerably between 5%-33%⁶⁻⁷.

Forty-four percent of patients at follow-up expressed an interest in contraceptive measures, compared to only 18% of patients who were using contraception immediately prior to the abortion. Post abortal patients, especially after an unwanted pregnancy, need ready access to family planning education, and contraceptive services. In this study 24.2% of patients failed to attend for follow-up and 1 in 3 of these patients had a known unwanted pregnancy. Clearly it seems important to be able to offer contraceptive counselling immediately after evacuation to such patients. It is hoped to be able to perform a further study providing an active contraceptive counselling programme to patients attending Harare Hospital with incomplete abortion.

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**Tubal ligation
candidates who did not get
their operation**

The Central African Journal of Medicine 1996; 42: 150-2

ABSTRACT

Objectives

To identify bottlenecks in the delivery of comprehensive family planning to women in contact with the health services and to find ways to reduce unmet demand for contraception.

Design

Exploratory descriptive study.

Setting

Large Bulawayo referral hospital and the high-density areas in the same city.

Subjects

Case notes of 284 women who indicated together with their partners that they had completed families and who had their tubal ligation forms duly signed but who never had their operation. Follow-up of a sample of patients.

Interventions

Non intervention study.

Main outcome measures

Are reproductive rights taken seriously? Is there service related unmet demand for family planning?

Results

Even those who had all their paperwork in order for a durante or post partum sterilisation did not have any guarantee that this service would be given. The main reason was found to be lack of well-motivated health staff.

Conclusion

Much can be improved in contraceptive service delivery. Reproductive rights are not respected.

INTRODUCTION

In June 1994 family planning (FP) staff were interviewed in a Bulawayo hospital in order to identify bottlenecks in providing good contraceptive service. During these talks a file was produced with 284 used tubal ligation (TL) forms covering the period September 1989 till June 1994. This involved on average 60 patients per year quite equally divided over those years.

These were forms signed by a woman, her partner (or guardian), two witnesses, a junior doctor, a consultant in obstetrics and gynaecology, the superintendent or sometimes his deputy. But the TLs had never taken place.

On these forms all the above signed, in a rigid sequence and the superintendent also rubber-stamped the papers. All this signing and stamping was done to satisfy the conditions of those in charge so that the 283 women involved could be sterilised. One woman had twice a form filled in, with three years in between. The forms were filled in during or (partly) just after a pregnancy in order to perform a durante or post partum sterilisation. The initiative to approach the patient about a possible wish to be sterilised was often taken by the FP sisters at the Antenatal clinic (ANC) and sometimes in the Ante/Post Natal Ward (ANW/PNW). Some patients would have brought filled in forms from the referring hospital when transferred but these were often not honoured (although completely legal and proper) because the Mpilo consultant and superintendent had not signed and stamped them and there was and is confusion about the regulations.

The rigid sequence mentioned above is of importance because this makes it impossible to go to the superintendent on say a Friday at 1500 hours for a stamp and a signature for a Para six who is not progressing but otherwise stable, whose husband is likely to sign at 1700 hours for a TL, if she happens to need a caesarean section at 1800 hours. The superintendent will only sign after the husband has signed, on Monday morning, long after the caesarean section has been done.

MATERIALS AND METHODS

The forms found in the file were analysed. The particulars of the relevant deliveries were studied in the delivery books. In order to receive some insights into the reasons why these post partum sterilisations had not taken place a convenience sample was taken of 50 women who lived not too far away in the High Density areas of Bulawayo. Elective medical students were given a car to drive an experienced female outpatient translator to interview the women in a semi-structured way, after getting permission. They succeeded with difficulty (because of the illogical house numbering) in finding 34 women often after repeat visits.

RESULTS

Particulars of the women involved

The 284 women were on average 35.5 years with a median of 36 and a range of 22-50. The woman of 50 years had before the index delivery 8 living children. The woman of 22 had had already two caesarean sections and had wanted a TL during her third. Several of the younger women had had repeated problems with (pre) eclampsia. One woman with 2 living children had had 4 caesarean sections and later had her fifth without a TL because the paperwork was not 100% completed. See Table 1 for the relation surviving children and number of women involved.

At the proposed time of sterilisation most women would have one more child, some two. One woman appears twice in this table: once in 1989 with 5 children and once in 1992 with 6 children when she is 33 years. She left the hospital with 7 children without her TL. Of the women (both 23 years old) with one child one had had severe disabling polio the other suffered from rheumatic heart disease.

Three of the 34 interviewed women had become pregnant after being discharged from the hospital. Of these three, one admitted having procured an abortion, one delivered and had afterwards a sterilisation in another hospital, and one was still undelivered from an unwanted pregnancy.

The reasons (non exclusive) given by the 34 interviewed women why they thought they were not sterilised were as follows:

- The husband changed his mind (1).
- The doctors or nurses were on strike (4).
- There was no time because the hospital was too busy and patients' appointments were postponed all the time including often over a whole weekend (12).
- They were often worried about their children at home when they spent such a long time in hospital (2).
- Patients became fed up (sic) because they were starved for hours, sometimes 2-3 days in a row, before their operations were cancelled (5).
- The baby was not so healthy (1).
- They were postponed and believed that postponement was no accident but a message from the ancestors to show them that they were not amused with the proposed TL (3).
- While waiting one patient was told by her hospital roommate that God did not approve of TLs (lady who later induced an abortion).
- Anaesthetist cancelled the operation because a blood test was not done (2), (probably Hb test) or the blood pressure too high (3).

- The patient needed an emergency caesarean section but not all the people, of whom it was erroneously thought that they had to sign, had done so (3).
- Patient booked for an elective caesarean section with TL went into labour some time before the operation was planned and all the signatures were not in place yet (1).
- Forms got lost (2) (including that of a patient who was delivered with her fifth caesarean section).
- Patients became scared or hesitant (5).
- Loss of income while waiting in Hospital (2).

On discharge from the hospital without the wanted sterilisation patients were often advised to come to the outpatient department or to the postnatal clinic to arrange for a sterilisation.

Nine patients tried this. They said they were sent from pillar to post. They were advised to come back another time or to another doctor. They were booked, rebooked, cancelled and treated impolitely.

Some could not afford all this travelling to the hospital. Because this was in relation to geography certainly not a representative sample, travelling costs would be even more important for the average woman, than suggested by this sub group.

Table 1 Number of women & number of children alive during index pregnancy.
N=284

- No. of women	2	11	22	38	57	59	44	25	12	4	2	8
- Children alive	1	2	3	4	5	6	7	8	9	10	11	unknown
- Average no of living children before intended sterilisation:	5.6 Median no: 6.											

DISCUSSION

Apart from finding women who were the victim of the policy of insisting on 7 signatures and a stamp, similar study results could be discovered in other central and provincial hospitals. These latter studies would not be so easy because centralised files of unperformed TLs are rare. If the wanted (by women) average completed family size in Bulawayo is like that of Zimbabwe as a whole it includes 4.3 children¹. These 284 women had on average 2.3 children more (see Table 1) when they left the hospital without their TL. The hospital here discussed has together with the relevant clinics about 20.000 deliveries per year. If female sterilisation was the only way to stop having children one would expect one TL per 4.3 deliveries. One has to adjust this figure for child

mortality, multiple pregnancies and the shape of the population pyramid. It can be estimated that there are thus 2000 candidates for TL annually, ignoring the backlog. The last few years there were less than 300 TLs done in this hospital, about half during caesarean sections and the other half post partum and at interval. An excellent time and place to discuss FP is during visiting hours in the ANW/PNW because there is a concentration of patients with medical and personal indications for a TL and often one can find the partner there. Unfortunately visiting hours coincide with tea time, and in the early morning and evening and weekends, when husbands are most likely to visit, the FP staff is off. Combining sterilisations of multipara with evacuations after (clandestine) abortions is impossible if seven signatures are needed even if the theatre staff would "allow" it.

The patients discussed here are only those who were pregnant and failed to take the last hurdle to have a TL. There are of course hundreds of pregnant patients admitted after hours and in the weekends or referred from outlying hospitals or un-booked or delivered in the city clinics who are never asked if they want a TL. Then there are all the fertile women with completed families who visit the hospital for hypertension, incisional hernias, eye problems, incomplete abortions or have their children treated for malnutrition. Women who are losing their children or husbands to AIDS are another group. Most of the above are not counselled about their FP options let alone their partners.

Increasing the awareness and motivation of patients for TLs is senseless, if the system cannot provide the service. The FP sisters must lose motivation, because all the work done in coaxing the forms past all the signing authorities was for nought. The women, in the income group provided for in this hospital, have no access, mostly for financial reasons, to the other reliable very long acting method, Norplant. Many women will not succeed in abandoning their procreative career without a TL. If they try to do it with oral contraceptives they will often fail^{2,3}. A Saturday morning TL list for patients who just delivered or aborted would be an excellent service but would be impossible without an incentive (100 pounds in the U.K. in 1995).

Because it is so difficult to organise a postpartum or interval TL every effort should be made to sterilise those patients who want a TL and who are going to have a caesarean section, elective or not, during that operation. Insisting on forms with 7 signatures does not help this effort. If the opportunity is missed and the last signature is obtained the day after the caesarean section then these patients at first more likely to have a desired TL because of their operation are now at a disadvantage because most doctors would not like to do a post partum TL in the next few weeks.

The simple forms issued by the Ministry of Health (MOH) and the ZNFPC in 1992 and distributed to (but not used by) all hospitals make it also possible to fill in new forms if it is realised five minutes before the caesarean section that the earlier forms got lost.

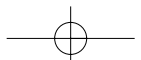
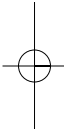
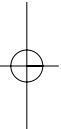
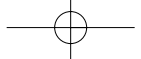
Access to a permanent method of family planning is difficult in a busy hospital which looks after non paying patients and where elective operation time is limited because of a "collusion" of anaesthetists, unmotivated doctors, active doctors with private practice on the side and theatre sisters³. Sterilisation under local anaesthesia removes one bottleneck but introduces two new ones: training and turnover of surgeons and reluctance of many members of the nursing staff to cooperate with this procedure.

In hospitals with a mixed private/non-private patient population claims on beds and theatre time, by those who after years of investments want to harvest the fruits, are so powerful that an elective sterilisation of a non-paying patient has to be fought for. A paying patient is more likely to get a haemorrhoidectomy than a poor Para 8 a TL.

It is generally assumed that on average a TL prevents 2 unwanted pregnancies. In this case 566 pregnancies could have been prevented including about 50 vertical HIV infections⁴. Small improvements in hospital organisation and following the MOH directions about the right TL forms, possibly combined with incentives for hospital staff and reimbursement of patient's costs, will improve the FP delivery system. The introduction of an intrauterine Quinacrine sterilisation method on an outpatient basis might remove some of the pressure on elective theatre lists⁵. In those patients who are known to have an HIV infection and who have already children TL is the only reliable option for most and the facilities must become more accessible⁴.

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2/27 L A K

Lic Anzals

Obs Gyn Dep., UBH P.O. Box 958 Bulawayo. Tel 72111. Ext 2222

You had an operation after delivery on *8/10/01*
Can I please ask some questions to improve our services? Please fill in this form and return inside enclosed stamped envelop. Your answers are of course highly confidential

- 1 How many children do you have now? *6*
How many boys *5*... How many girls *1*.....
- 2 How many children do you want to have in total..... *6*.....
- 3 Did you lose any child after the operation ? No
Yes
- 4 Would you like to have more children Yes\ No.
- 5 Are you satisfied with the operation you had Yes\ No.
- 6 Did you get any problems after the operation ? No/Yes
If yes, what problems did you get ? *no problems*.....

- 7 Do you have any of the following problems these days?
more headache Yes No
- loss of appetite Yes No
- pain in the abdomen Yes No
- getting fatter Yes No *but I want to be fat*
- feelings of sadness Yes No
- less desire in sex Yes No
- 8 Did you want to have more children after your operation? No Yes

9 Your last pregnancy was it: Planned
Too early
You had hoped before that pregnancy
that you would not become pregnant
anymore

Please tick right answer

10 Do you have any complaints about your periods? Yes/No ✓

What complaints? ... No... complaints

11 If you have period complaints did they start:
before operation

after operation

12 Would you recommend this operation to your friends Yes/No ✓

Why.. Because it never gave me any problems..

13 Do you wish you did not have the operation? No / Yes ✓

14 Do you have any other comments on the treatment and care you received while in hospital? Please feel free to comment on anything.

At hospital I was looked after very kindly. The nurses and sisters were very nice to me and they had much love for me. I was reliable, punctual and obedient. I also thank the doctor who operated on me. He was full of love and very nice. Keep it up. I thank you. God bless you all.

15 What church do you belong to... Jehovah's witness

16 Was the operation very painful? Yes/No ✓

Was it more painful than having a baby? Yes/No ✓

Thank you very much for your time.
If you still want some advise, please visit the women-walk-in-clinic at UBH every Tuesday 2 Pm or phone my secretary 72111 extension 2222.

Dr D.A.A. Verkuyt FRCOG, Consultant and Head of Department Obstetrics and Gynaecology
Residence Tel 67650

6

Study from Zimbabwe on Client Perception of Sterilisation Under Local - Compared to General Anaesthesia

to be submitted

ABSTRACT

Objectives

To follow-up a cohort of women who were sterilised under local anaesthesia and compare them with a control group of women sterilised under general anaesthesia.

Design

Cohort follow-up study.

Setting

Obstetrics and gynaecology department of a referral hospital in Bulawayo, Zimbabwe.

Subjects

601 sterilised women who could have been sterilised either under local or general anaesthesia.

Methods

A postal questionnaire and visits to the participants.

Main outcome measures

Recollection of the pain suffered from the operation. Personal health assessment.

Results

498 (82.7%) women, mean number of living children 5.3, were successfully contacted on average 15 months after the operation. 289 women who were operated under general anaesthesia (GA) and 209 women after being operated under local anaesthesia (LA). 44.9% of the women recollected it as being a very painful operation if performed under LA and 42.0% if performed under GA. 25.1% found the operation more painful than having a baby after LA and 26.0% after GA. There were no differences in physical and mental complaints between both groups.

Conclusion

Sterilisation under local anaesthesia is an attractive option in situations where fully equipped theatres and anaesthetists are in short supply.

INTRODUCTION

While there are no places in the world with unlimited health resources the situation becomes extremely difficult in some developing countries. In government health facilities, the only scientific health care option for many, this can result not only in lack of equipment and consumables like halothane or intravenous catheters but also of staff and motivation. The non-acute non-life saving services are the first to suffer. In other words it is easier to get full attention for an obstructed labour than for the treatment of chronic asthma or diabetes. It is even more difficult to receive the proper attention if there is no disease, but family planning services are needed/wanted, especially if these services are not delivered via a vertical programme, but integrated. While a visit to a health facility often provides the rare opportunity to look (also) after reproductive needs, staff often miss it and patients do not often take the initiative. This has been documented time and again virtually all over the world even when high parity married women from the First, Second or Third World, between 37 and 50 years of age report to hospitals for, or with the results of induced abortions, contraception is often not discussed^{1,2}, let alone if the same women report not with an abortion but with a malnourished child, diabetes, hypertension, arthritis, TB or with probably HIV related Herpes Zoster. Even if a staff member discussed a patient's reproductive needs and they together came to the conclusion that in her case a sterilisation would be the best option, this operation is in practice very difficult to organise in the near or distant future^{3,4}. One does not need to leave one's chair to prescribe oral contraceptives or injections. Implants and intra uterine contraceptive devices (IUCD) are frequently too expensive and also need quite some provider motivation. Tablets and injections require a continuous supply and (presumed) side effects or assumed age related infertility or adverse press reports, political or religious opposition can easily undermine consistent use, just as there was an increase in, in this case, safe abortions in Europe related to pill scares in 1983 and 1995. The paradox observed by the author is that some Catholic religious hospitals perform better in the family planning field because the staff are better motivated and can afford more compassion than demoralised staff in public hospitals, notwithstanding the official position of the supervising bishop.

The large differences observed in uptake of sterilisations between the rich and the poor and urban and rural classes is mostly explained away by the dissimilarity in mentality in these socio-economic groups. It is true, the better-educated women envisage on average a smaller ideal family size but they also start reproduction later in life. The result is that both the rich and the poor frequently have a completed family at roughly the same, depending on the country/region, age. Worldwide, most women would like to stop getting pregnant after the age of 38 anyway.

The more time, paperwork, equipment and staff are required for a procedure the less likely a service will be supplied if there is no relation between work done and provider income⁴. The indication for a gastroscopy is not obviously related to social class or residence. Still the provision of this procedure shows the same social pattern as that of laparoscopic sterilisations⁴. General practitioners in Europe, who have from the African point of view absolutely no reason to be demoralised, still need government incentives for quick procedures like cervical smears or influenza vaccinations. Their North American counterparts apparently need the fear of litigation to encourage them.

If staff members like theatre nurses and anaesthetists do not have any relationship with a patient until she is moved from the stretcher to the theatre table, motivation for an elective not medically indicated operation like a sterilisation can become imperceptible. An excuse for cancellation can always be found: a car accident has been announced, the laboratory has no reagents for Hb tests, taps not working, blood pressure somewhat high (without premedication), elevator not working, down to our last few batteries for laryngoscopes, junior doctors/nurses strike, linen not back from the laundry, drip system stocks low, maternity lacks staff to collect the patient from recovery, half past twelve, have to queue at bank, petrol station, supermarket, patient had tea 5 hours ago, etc. It is difficult to quantify to what extent the fear of HIV infections among our patients is related to the reluctance to assist with a sterilisation, but a study of health workers in Zimbabwe⁵ showed that they perceive sterilisations as not without risk to themselves. A fully equipped theatre plus an anaesthetist is a condition for operations under general anaesthesia (GA) in Central Hospitals. Increased flexibility in service delivery and cost savings are possible if sterilisations can be performed under local anaesthesia (LA).

Several doctors and nurses from Zimbabwe and teams from many other countries⁶ have been trained in the female sterilisation under LA technique in Kenya with the help of the International Association for Voluntary Surgical Contraception, now called EngenderHealth. They have since become trainers in their own right. The programme has worked with some success in Zimbabwe, handicapped by a number of the factors mentioned above and the high turnover of trained staff.

The all-costs-paid visits to Kenya to see how sterilisation under LA worked in practice were necessary to overcome a reluctance related to the feeling that this was an attempt (by non-African external sponsors) to introduce lower standards, bordering on torture and veterinary medicine. In order to evaluate the programme from the patients' point of view a follow-up was instigated.

METHODS

As part of a larger, referral hospital based follow-up study of sterilised patients and a control group, of which the methodology and setting were described elsewhere⁷, we tried to contact all women who were sterilised via a laparotomy whose procedure could have been performed under either LA or GA. This excluded sterilisations combined with caesarean sections, large hernia repairs, exconisations, old third degree tears, removal of huge condylomata, ectopic pregnancies, manual removals of placenta or myomectomies etc, but includes post partum and interval sterilisations (plus or minus small procedures like a cervix biopsy) and those combined with suction evacuation of the uterus for (incomplete) abortion or dysfunctional uterine bleeding. Operations under LA were performed in general theatre, maternity theatre or the small basic theatre part of the "Women-Walk-In-Clinic". Operations under GA were all performed in the former two locations. Women were given closed questions about the pain they remembered in relation to the sterilisation and about the psychological and physical complaints they suffered around the time of follow-up.

It would have been impossible to perform a randomised study, even if that had been ethical. Patients would be encouraged to have a sterilisation under LA when the twice a week elective gynaecological lists or, for post partum patients, the Friday elective caesarean section list, were full or still some days away and if they were not too obese. Some patients had medical reasons for the staff to prefer LA, like a low Hb or cardiac or pulmonary abnormalities. Some patients were bounced from the elective lists because our time was up (half past twelve for one o'clock, no elective patients in the afternoon). They were then given the choice of trying their luck again later or having an operation under LA the same day. Another group consisted of clients who just dropped in (or were dropped by district hospital ambulances) and could only stay for a few hours for financial or relational reasons. If there was no organisational or medical basis to choose LA or GA we let the patients decide. They often had reasonable strong preferences being more afraid of either pain or of being made unconscious. The results of the larger follow-up study mentioned above included also 175 private patients operated in the same hospital (of whom 163 (92.6%) filled in the questionnaire), who could have been sterilised under either LA or GA. They were always operated on by a non-government employed consultant gynaecologist, but because only three of them were operated under LA they were not included in the cross tabulations. This to remove confounders related to social class and proficiency of the operator and the (also paid per performance) consultant anaesthetist. Patients who were operated under spinal anaesthesia or with a laparoscope, and those 47 patients followed up with success who had an operation under GA combined with infiltration of the innervation of the salpinges with lignocaine, are also not considered

here. Three women were given Ketamine i.v. in an operation started under LA. They were classified in Results as having had LA and as having had a very painful operation, more painful than having a baby to make up for the drug related amnesia.

Women who had a minilaparotomy under LA would have the relevant area of the abdominal wall infiltrated with 2% lignocaine without adrenaline a depot would also be injected in the mesosalpings and near the relevant part of the tube under the visceral peritoneum⁶. Some surgeons would give 100 mg pethidine as a matter of routine before the procedure resulting in around 25% of the women receiving this drug. Women who left a few hours after the operation received 4-8 tablets paracetamol 500 mg, to be used by them when needed. Women operated under GA would have a fast induction agent and around half of them would be paralysed and intubated and maintained with Halothane and Nitrous Oxide. The other half would not be paralysed and be ventilated via an anaesthetic mask. All would receive pethidine or fentanyl during the operation and postoperatively, if needed, pethidine and/or paracetamol.

Statistical Methods

Statistical analysis was performed using WHO's Epi-Info version 6.0. Continuous variables were compared using Student's t-test for normally distributed variables and the Kruskal-Wallis test for variables not normally distributed. Categorical variables were compared using the chi-square test or Fisher's exact test as appropriate. Stratified analysis was done with the help of Mantel-Haenszel weighted relative risk with Greenland/Robins confidence limits.

RESULTS

We contacted with success 498 of the 601 (82.9%) of the non-private patients. We found out that at least another seven government patients had died, one of rheumatic heart disease, the others most likely of AIDS. Tables 1 and 2 show that the differences regarding type of sterilisation and patient characteristics between responders and non-responders, are not significant apart from the presence of a much higher proportion of very poor women in the non-responders group. Most of the latter lived as squatters or far away and we did not succeed in having them visited. Some would deliberately have given a wrong address for financial or relational reasons and others, with an estimated 25-30% prevalence of HIV infection in the relevant age group, would have become untraceable because they or their partners had died of AIDS.

If we consider Table 3 it is obvious that the group of women operated under GA is different sub-dividable in relation to the timing of the sterilisations than the group operated under LA. These groups are further compared in Table 4. This table shows a very

significant difference in follow-up time caused by the fact that the introduction of a facility for sterilisation under LA, the “Walk-In-Clinic”, was in the second half of a follow-up study, running over 7 years, and involving women seen in our hospital over a period of 10 years. This difference in follow-up time could influence the data in Table 5 where the result of the questions: ‘was the operation very painful?’ and, ‘was the operation more painful than having a baby?’ are recorded as showing no significant difference between the LA and GA group. Table 7 shows that, if anything, the shorter follow-up time in the LA group should have resulted in more women complaining about pain in that group, hence, there is no difference between the groups, not even when stratified according to the three types of sterilisation (postpartum, interval, combined with evacuation of the uterus). Having pethidine before the operation under LA made no difference in pain recollection.

Table 6 shows the results of eight closed affirmative/ negative questions on the questionnaires. Table 7 shows that there is a tendency for these answers to be answered more often in the affirmative with a longer follow-up time. If the follow-up time is a factor then the differences between the two groups become even smaller.

The data shown in Table 6 were also analysed stratified according to the three types of sterilisations. This resulted in inconsequential shifts in p values apart from the answer to the question: ‘are you getting fatter these days? Yes/No’. With this question the marginal non-significant result ($p=0.051$) became significant ($p=0.035$, RR 1.21, 95% CI 1.03 –1.41) when the stratification method mentioned in Methods was used. This is not surprising because obesity was an important factor, other things being equal, in the decision whether or not to proceed with LA and women found to be obese by the prospective operator would be more likely to answer the above question with yes.

Stratification according to type of sterilisation seems necessary if one considers the results presented in Table 8 where recollection of the pain suffered around the time of sterilisation is around 1.5 times greater with an interval than with a post partum sterilisation. This stratification has also been done for the results in Table 5 with only marginal shifts in the Relative Risks (RR) and p values.

Table 9 is added to show that the large amount of suffering shown in Table 6 is not typical for women who have been sterilised, be it under LA or GA. This control group of 275 non-sterilised, non-private patients who delivered vaginally in our hospital is not completely comparable because it consist of by its nature, younger women, who have fewer children. These women also use hormonal contraception frequently. They have no fewer disorders than the women in our study who were sterilised post partum with either form of anaesthesia. In fact they complain more often of less desire in sex and feeling sad.

If we consider for a moment all 1107 women, private patients or not, who answered our questionnaire and who delivered vaginally in our hospital or one of its referring clinics and who were sterilised (529) with either form of anaesthesia or not sterilised (578) and compare again the answers to questions represented in Table 9, we obtain similar results (RR with (95% CI) 1.31(1.13-1.51) $p=0.0003$) in relation to less desire in sex and 1.49 (1.21-1.84) $p=0.0002$ in relation to feeling sad these days. No additional aspects become significant. Sadness and loss of libido are not related to use of hormonal contraception, parity or age, but to having a completed family and not using any contraceptive.

Private patients complain somewhat more often of pain if sterilised postpartum than government patients. The explanation is possibly that private patients are more sensitive (and/or more obese) or more used to expressing dissatisfaction. Another theory is that doctors practised in sterilisations under LA are more careful when doing a sterilisation under GA: certainly the wounds are smaller. We looked at our results but we found a non-significant ($p=0.123$) tendency for operations to be remembered as being more painful if performed under GA by a doctor not trained for mini laparotomy under LA.

Women were also asked if they would recommend this operation to their friends, 17/209 of the government patients who were operated under LA said no, 6 because of the pain; 20/289 who were operated under GA said no, 3 because of the pain. Twelve of the 37 said no because they wanted to keep the operation a secret. Women were also invited to give comments and space was provided for this in the questionnaire. 424/498 (85.1%) made use of this opportunity. Sometimes extra paper was used for long, mostly enthusiastic, comments. Two women indicated that they would have preferred GA and one that she would have preferred LA. There were no complaints about pain not already recorded by the earlier questions. The complaints were mostly related to food, hygiene, lack of blankets or privacy, administrative problems, transport problems, non-attendance to the baby while operations took place, no warm water, rude sisters etc.

There were no serious complications in all the operations, apart from a few near accidents with GA. One private patient operated under GA had her bladder perforated but this was noticed and repaired at once. A year before the study started one government patient who had a laparoscopic interval sterilisation died, very regrettably, in the recovery room because of lack of supervision after GA. She was very obese and would not have been a good candidate for LA.

We saw no evidence that the high prevalence of HIV disease resulted in more post-operative infections.

Table 1 Type of sterilisation: responders/non-responders

	responders	non-responders	% responded
Interval (+/- small procedure)	164 (32.9%)	39 (37.9%)	80.8%
Post Partum	234 (47.0%)	38 (36.9%)	86.0%
Plus evacuation uterus	100 (20.1%)	26 (25.2%)	79.4%
Total	498 (100%)	103 (100%)	82.7%
			(p=0.164)

Table 2 Characteristics of responders and non-responders(n=601)

	responders	non-responders	p value
	n=498	n=103	
- Mean age at time of sterilisation	36.7 years	37.0 years	0.517
- Mean number of children at follow-up.	5.3	5.6	0.154
- Percentage under LA	42.0%	51.5%	0.077
- Very low income patients	38.2%	62.1%	<0.001
- Percentage post partum sterilisations	47.0%	36.9%	0.06

Table 3 Successfully followed-up clients (n=498)

	LA	GA
Type of sterilisation		
Interval (+/- small procedure)	63(38.4%)	101
Post Partum	121(51.7%)	113
Plus evacuation uterus	25(25.0%)	75
Total	209(42.0%)	289
		p<0.001

Table 4 Successfully followed-up clients (n=498)

	LA (n=209)	GA (n=289)	p value
- Mean time follow-up	10.7 months	18.5 months	<0.001
- Mean age at operation	37.0 years	36.4 years	0.120
- Mean age at successful follow-up	37.9 years	37.9 years	0.965
- Mean number of children at follow-up	5.8	5.0	<0.001
- Very low income patients	41.1%	36.0%	0.242
- Percentage post partum sterilisations	57.9%	39.1%	<0.001
- Percentage of operations performed by specialist gynaecologist	31.9%	36.6%	0.279

Table 5 Recollection of pain suffered from operation (n=498)

	LA	GA	p value	p stratified/type sterilisation e.g. (postpartum/interval/interval plus evacuation procedure)
- The operation was very painful	44.9%	42.0%	0.524	0.337
- The operation was more painful than having a baby	25.1%	26.0%	0.823	0.893

Table 6 Complaints present at follow-up after sterilisation (n=498)

	LA	GA	p value
- Having period complaints	25.7%	32.3%	0.119
- Having headaches	32.7%	35.3%	0.556
- Less appetite	14.1%	15.2%	0.727
- Abdominal pains	35.0%	41.1%	0.179
- Becoming fat	21.6%	29.6%	0.051
- Sad	20.4%	24.0%	0.352
- Less desire in sex	29.2%	35.4%	0.154
- Physical problems after operation other than mentioned above	20.7%	25.2%	0.241
- Average number complaints per woman excluding becoming fat	1.8	2.1	

Table 7 Mean time intervals between operation, LA and GA combined, and follow-up

	Yes	No	p value
- Operation very painful	13.4 months	16.4 months	0.110
- Operation more painful as having a baby	13.4 months	15.7 months	0.249
- All complaints as shown in Table 6	17.4 months	14.7 months	<0.01

Table 8 Variation in pain recollection LA and GA combined according to type of sterilisation

Type of sterilisation		Very painful	More pain than having a baby
Interval	n=164	51.3%	30.8%
Post Partum	n=234	36.9%	20.0%
Plus evacuation of uterus	n=100	45.3%	30.5%

Table 9 Complaints of government patients (n=275) who delivered vaginally in our institution and had no sterilisation compared to the 234 women who had a tubal ligation postpartum either under GA or LA

	275	234	
	No Post	Post	P value
	Partum TL	Partum TL	
- Having period complaints	22.5%	23.0%	0.885
- Having headaches	36.7%	37.1%	0.920
- Less appetite	18.9%	14.8%	0.252
- Abdominal pains	40.8%	37.5%	0.474
- Becoming fat	36.6%	29.5%	0.105
- Sad these days	35.3%	22.8%	0.003
- Less desire in sex	48.0%	34.5%	0.003
- Physical problems after delivery/ sterilisation other than mentioned above	21.9%	22.2%	0.938
- Mean age at index delivery	33.7 years	36.6 years	<0.001
- Mean number of children alive at follow-up	5.1	5.9	<0.001
- Wants no more children	77.8%	97.9%	
- Using hormonal contraception	59.1%	None	
- Using IUCD or Norplant	1.8%	None	
- Using condoms	10.2%	Not known	

DISCUSSION

To have the ability to perform sterilisations under LA makes it possible to operate on more women and sooner. This prevents unwanted pregnancies of women on waiting lists and quite often women can be operated on who otherwise would not again be able to marshal enough money, childminders, male cooperation, transport and courage. It is an every day occurrence at thousands of health facilities in the third world countries, that women who have just delivered their 4th-12th baby are not asked if they want to stop reproducing. This is partly so because it is extra work if the woman chooses to be sterilised.

It is less work, cheaper and less dangerous for the client⁸ if postpartum sterilisations are performed under LA. This minilaparotomy and LA service would be counterproductive if stories about torture started to circulate in the community, hence this study

because no such evaluation of minilaparotomies under GA compared to LA could be found in the literature.

Private gynaecologists in our setting rarely perform sterilisations under LA because they have no problem getting anaesthesia. In fact, anaesthetists can change from a bottleneck position into a lobbyist in a strategic position in the theatre, as soon as private patients are involved. Nevertheless, private gynaecologists are dependant on being popular for their income and the study was also needed to see if perhaps they had a good reason for not using LA.

In many studies about pain related to sterilisation visual analogue charts are used soon after the operation. It is obvious that such a study would reflect a large difference in operations performed under GA and LA because the latter group would have felt probably nothing during the actual operation. Our study tried to capture the feelings about the whole package related to the sterilisation, including intra venous needles, catheters, starving, pre-medication, fear of pain or GA, postoperative pain including pain related to intubation, pain related to early discharge from hospital, wound healing etc. There are studies⁹, which show that infiltrating the nerve supply to the Fallopian tubes with LA during a laparoscopic tubal ligation under GA decreases postoperative pain. We could not show infiltration, with 2% lignocaine without adrenaline, to be of influence on the long-term recollection, not even a tendency, in 47 (extra) women operated with a mini laparotomy under GA. It is hence unlikely that the lingering LA in the tissues makes up for the intra operative pain to equalise pain recollection in our LA and GA patients, although we had not infiltrated, in the 47 patients that is, the abdominal wall. Some studies only show a difference in postoperative pain if longer acting LA is used, which was not available in our circumstances. The answers to our question if the women thought that the operation was very painful, are difficult to interpret. It is hard to remember pain and easier to recollect our reaction to pain. Perhaps the operations were painful under LA but not as painful as the patient had feared, while the operations under GA were not that painful, but, all in all, there was more pain than expected. Perhaps the relief after LA and the disappointment after GA resulted in equal pain recollections. To compare the pain suffered from this with the pain of the last vaginal delivery might be more appropriate but even then, pain related to deliveries is often confounded by the happiness with the baby. In our study group of 498 only 23.1% characterised the last pregnancy as planned, 13.0% as having come too early and 63.9% ticked "had hoped before that pregnancy not to become pregnant anymore". Many women in the LA and the GA group were probably so pleased with their sterilisation that the pain was quickly forgotten. Other women might have seen the operation under LA as a test of their character and denying much pain was part of their self imposed trial, this mechanism is often observed after deliveries.

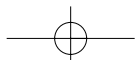
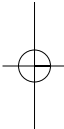
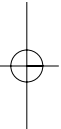
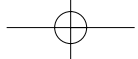
Having the ability to do sterilisations under LA is no panacea. It still needs constant motivation from the staff involved. It is still easier for the surgeon to postpone a sterilisation to a non-guaranteed place on a scheduled list next week, or even to 6 weeks post partum, than to motivate all involved including him/herself to operate on a Friday afternoon on a high parity woman who delivered that morning. The reality in much of Africa¹⁰ and indeed other parts of the world is that women postponed to six weeks post pregnancy are next seen with the complications of an unwanted pregnancy. A recent intervention study of post-abortal contraception in Zimbabwe, demonstrated that 34% of the patients recruited in the non-intervention arm, who had a completed family or who wanted to wait for more than 2 years with the next pregnancy, was pregnant within a year¹¹.

Some form of incentive for health staff will be unavoidable, like in the UK, to see a little more balance in supply and need, in hospital integrated sterilisation services^{4,7}. The fact is that time spent in government service often decreases income from parallel private work. Many think it is dangerous to give these incentives but nobody ever claims that private doctors, not as a group known to be adverse to money, sterilise too enthusiastically because they receive a reward.

Although a randomised study would have been much better, we have shown to our own satisfaction that there is not much difference in pain recollection and other complaints in women sterilised under LA or GA taking into account the described selection process.

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2455 1625

Obs Gyn Dep., UBH P.O. Box 958 Bulawayo. Tel 72111. Ext 2222

You had an operation after delivery on 15-11-79
Can I please ask some questions to improve our services? Please fill in this form and return inside enclosed stamped envelop. Your answers are of course highly confidential

- 1 How many children do you have now? FOUR
How many boys THREE How many girls ONE
- 2 How many children do you want to have in total WE WANT FIVE
- 3 Did you lose any child after the operation ? No
Yes
- 4 Would you like to have more children Yes\ No
- 5 Are you satisfied with the operation you had Yes\ No
- 6 Did you get any problems after the operation ? No\ Yes
If yes, what problems did you get ?
NO PROBLEMS... DISCHARGING... SCRAMISH..

- 7 Do you have any of the following problems these days?
more headache Yes No
loss of appetite Yes No
pain in the abdomen Yes No
getting fatter Yes No
feelings of sadness Yes No
less desire in sex Yes No
- 8 Did you want to have more children after your operation? No Yes

9 Your last pregnancy was it: Planned
Too early
You had hoped before that pregnancy
that you would not become pregnant
anymore

Please tick right answer

10 Do you have any complaints about your periods? Yes/No

what complaints? No...RIGHT...MONTHS...IN DIFFERENT DAYS

11 If you have period complaints did they start:
before operation

after operation

12 Would you recommend this operation to your friends Yes/No

why...BECAUSE...I HAVEN'T...FEEL...ANY...PROBLEMS.

13 Do you wish you did not have the operation? No/Yes

14 Do you have any other comments on the treatment and care you received while in hospital? Please feel free to comment on anything.

YES, IT WAS FINE AND I HAD A
NICE TREATMENT. I WAS WELL CARED.
.....
.....
.....

15 What church do you belong to. NEW APOSTOLIC CHURCH.

16 Was the operation very painful? Yes/No

Was it more painful than having a baby? Yes/No

Thank you very much for your time.
If you still want some advise, please visit the women-
walk-in-clinic at UBH every Tuesday 2 Pm or phone my
secretary 72111 extension 2222.

Dr D.A.A. Verkuyl FRCOG, Consultant and Head of
Department Obstetrics and Gynaecology
Residence Tel 67650

7

Sterilisations during unplanned caesarean sections for women likely to have a completed family - should they be offered? Experience in a country with limited health resources

ETHICS OF STERILISATION AT SHORT NOTICE UNDER STRESS

British Journal of Obstetrics and Gynaecology 2002; 109: 900-904

ABSTRACT

Objectives To determine if it is proper to give a woman of higher parity who needs at short notice a caesarean section the option of a tubal ligation.

Design Retrospective study.

Setting Maternity unit of a tertiary hospital in Bulawayo, Zimbabwe.

Participants Women of higher parity who were delivered by an emergency caesarean section, by an elective caesarean section or vaginally and who had been asked or not asked whether they wanted a tubal ligation.

Methods A postal questionnaire and visits to the participants.

Results In the women who had an emergency caesarean section and who were successfully followed up 301/418 (72.0%) women had been offered a tubal ligation and 241/301(80.1%) accepted. 269/301 (89.4%) were happy with the outcome. 32 women were unhappy (of whom six had a tubal ligation, 24 had declined a sterilisation and in two cases the doctor forgot to do the sterilisation). Of the 117/418 women not offered a tubal ligation, 75/117(64.1%) regretted not having had one. The relative risk of being unhappy with the consequences of not being offered tubal ligation compared to been given this option was 6.0 (95% confidence interval (CI): 4.2 - 8.6; $p < 0.001$). Tubal ligations performed during emergency caesarean sections had no higher regret rate (2.5%) in this setting than those performed during elective caesarean sections (3.2%) and not much higher than post-partum sterilisations (0.5%). Women who did not have a tubal ligation during an emergency caesarean section regretted this (56.4%) significantly more often than women who did not have a tubal ligation with an elective caesarean section (34.6%) or after vaginal delivery (45.0%) ($p < 0.01$ and $p < 0.02$ respectively).

Conclusions We found no evidence that the need to take an urgent decision resulted in more regret following tubal ligations. Women were far more likely to regret declining a tubal ligation (40%) than regret accepting one (2.5%). In this setting some women are more likely to die of the next pregnancy than to regret an emergency tubal ligation.

INTRODUCTION

In our practice in Africa we noticed over the years in the late seventies and eighties that women of higher parity were often sad and sometimes angry after an emergency caesarean section if this had not been combined with a tubal ligation. They perceived this as a missed opportunity. The prevailing wisdom in the Western World is that it is undesirable for doctors to offer a tubal ligation at the time of an emergency caesarean section, because of the increased risk of regret, the higher perinatal mortality associated with the emergency caesarean section and the easy access the women involved will have later to a safe, insurance-paid sterilisation for themselves or their partner. In our setting some doctors even refuse a direct plea from a woman of high parity for a tubal ligation before an unplanned caesarean section on the grounds that she is not in a position to make a rational request. We have seen women, sometimes with their last three pregnancies unwanted, who lost the baby involved in the emergency caesarean section and who indicated to us after the operation that some good would have come from their operation if they would at least have had a sterilisation. In the local situation the husband is seldom present at delivery to be consulted. The national maternal mortality ratio is 695 per 100.000 live births¹.

A study from Tanzania² of 502 women on the waiting list for an interval sterilisation found that 213 had one or two and 68 had three or more induced abortions while waiting for the procedure. Of these, 167 women of the 281 who became pregnant had used a contraceptive method that failed, gave problems or was just stopped.

The 1999 Zimbabwe Demographic and Health Survey¹ showed that 69.4% of women between 35-39 years and at least 52% of the men of corresponding age do not want anymore children. Zimbabwean women need more support to reach their ideal reproductive goal (first child at age 19 - 22; 2 - 4 well spaced children¹), especially because, on average, women have reached their desired family size before age 32, leaving them with 18 years of potential fertility. Most women only have access to hormonal modern contraceptive methods and are often subjected to anti-contraceptive propaganda (cancer, thrombosis, poisonous blood retention, abnormal children, hell³). The result is often unwanted children or unsafe abortions. Female sterilisation is therefore an attractive and effective contraceptive option, with the disadvantages that it is more or less irreversible and requires two doctors, unless performed under local anaesthesia.

The southern half of Zimbabwe is about two-thirds the size of the UK and has 4 million inhabitants. It has two part-time and one full-time gynaecologists for the 90% of the population who cannot afford private care. This can be compared to Scotland, which has 470 fellows and members of the Royal College of Obstetricians & Gynaecologists for a population of 5 million⁴. The local junior doctors spend only 4 months in the department

for their pre-registration requirements, on a one-in-three rota, and earning, after tax, the equivalent of US\$300 a month. As a result, the junior doctors do some (clandestine) private practice and are hurried and tired and not in the mood (without extra incentives) to increase their workload and their exposure to the human immunodeficiency virus (HIV) by offering interval and post partum ligations to the poor. Senior doctors concentrate their efforts on the few patients who can afford private care. Increasingly, elective operations are cancelled because of lack of staff, motivation, equipment, linen, oxygen or anaesthetic drugs. One central hospital in Zimbabwe performed no post partum sterilisations in the first six months of 1999 while there were more than 6000 vaginal deliveries in that hospital, more than 800 of the women involved had post partum four or more living children. There were another 7000 vaginal deliveries in the city clinics for which that hospital is supposed to perform the tubal ligations. In the USA in 1972, 19.3% of the women who had just delivered and who had four or more children had a post-partum tubal ligation⁵. At that time the ideal family size in the USA was similar to Zimbabwe's in 1999. In Zimbabwe the lack of staff and equipment is compounded by the long distances women may have to travel, as much as 500 km, for an interval tubal ligation. Because of the serious obstetric complications that can occur in women of high parity in this setting, especially if they have a scar in the uterus, we felt that our policy of offering tubal ligation to women delivered by emergency caesarean section was justified. The purpose of this study was to compare the prevalence of regret in women of high parity who had been offered tubal ligation during emergency caesarean section, to regret in women who had not been offered tubal ligation. We also studied the prevalence of these two different types of regret in women of high parity who had an elective caesarean and in those who delivered vaginally.

METHODS

When, at the end of 1990, the Ministry of Health in Zimbabwe allowed tubal ligation without the signature of the husband or guardian, we started offering tubal ligations with unplanned caesarean sections to women likely to have four or more viable children after the operation, or three children if the woman was 30 years or older. At first, this policy was not universally followed, especially by senior medical staff and older midwives who often had strong views against it. Sometimes tubal ligations were not offered with an emergency caesarean section because it was forgotten in the rush to organise an operation at short notice. Most doctors would just mention the option of a tubal ligation with the caesarean section. If a patient would jump at the opportunity, clearly understanding what was involved then she was further counselled. If a patient would hesitate or not understand what it entailed the subject was dropped, unless of course there was a

good medical indication for the sterilisation. All women sterilised were counselled and signed a consent form.

The emergency caesarean sections were done for many different indications (hypertension, vaginal bleeding, malpresentations, prolapse of the umbilical cord, one or more previous caesarean sections in labour, failure to progress, fetal distress and failed vacuum extraction, see List 1). Sometimes the consent for tubal ligation would be a factor in, but not the sole reason for, deciding on an emergency caesarean section. For example, if the staff was in doubt whether to induce labour or do a caesarean section on a 38 years old mother of four suffering from a serious pregnancy induced hypertension. A caesarean section would expose her to extra risks in the next pregnancy. This would not happen, if she were sterilised during the operation. Classically in our situation, if she would not be sterilised, she would start using oral contraceptives. At the next visit to her clinic the nurse would stop the tablets because of an elevated blood pressure without organising an alternative contraceptive. The next time we would see her perhaps is while she had an induced abortion or with eclampsia.

List 1 **Indications for caesarean sections for those women who were candidates for an emergency sterilisation (n=609)**

High blood pressure ± diabetes	19.4%
Abruption/Placenta praevia/Other bleeding	16.4%
For 3rd or 4th CS in labour or ruptured membranes	13.1%
Malpresentations (breech, shoulder, cord, hand)	12.5%
Failure to progress/Cephalo-pelvic disproportion	9.5%
Failed trial of scar	8.4%
Fetal distress	7.6%
Failed induction	2.6%
Impending rupture or ruptured uterus	2.6%
Financial and/or sleep considerations (private doctors)	2.5%
Eclampsia	2.3%
Failed vacuum extraction	1.3%
Retained second of twin	1.0%
Obvious HIV+, able to give artificial feeding	0.5%
Life, term, extra-uterine pregnancy	0.2%
Carcinoma of the cervix	0.2%

This study comes from the smallest of the four central maternity units in Zimbabwe, which delivered 25.132 women during the period under study, from 1-12-1990 to 1-7-2000. One third of the delivered women were lower middle class and urbanised (often private patients), one third were semi-urbanised and the remaining were referred via district hospitals. Full time private gynaecologists share responsibilities with gynaecologists employed by the Government; their results are included.

Eligible women who had a tubal ligation (Table 1) in the maternity unit were sent a postal questionnaire with a stamped and addressed return envelope. There were four reminders. Women who returned questionnaires with illogical or incomplete answers were written to or visited. The forms and reminders were sent in batches and follow up visits were made when staff and fuel were available, with the result that the mean time of follow up since the index delivery was 31.8 months.

Questions were asked about: regret in relation to sterilisation; physical and mental complaints; survival of the child; marital status; the completeness of the family before the index pregnancy; satisfaction or not with the treatment in the hospital; memory of the pain related to post partum tubal ligation (to compare general and local anaesthesia) and the number and gender of the surviving children.

Women who regretted to be sterilised were written again and offered re-anastomosis with all costs paid, including travelling expenses.

A similar effort was made to contact all the women of high parity who had no tubal ligation during a caesarean section (Table 1). Most questions were similar but we enquired about regret at not having had a tubal ligation and if this procedure had been offered. The reasons for not having a tubal ligation were asked. A sample of 20% of women of high parity who had delivered vaginally and had had no post-partum tubal ligation was sent the questionnaire and 45 of the non-responders were visited. Less effort was spent to contact the above women because there were so many (5146) of them. Overall more than 400 women's addresses were visited to verify answers, to inquire about moving house or deaths and to check the reliability of the answers to the questionnaire. In short women with the defined number of children who had a tubal ligation were followed up very actively, those without a tubal ligation and who had delivered by caesarean section with somewhat less effort and of those who delivered vaginally with less effort still.

Regret after a tubal ligation means wanting more children and blaming the tubal ligation and not the possibly underlying diabetes, HIV, extensively scarred uterus, heart abnormality or hypertension for (better) not having more. Two women who had regrets because they became pregnant after a tubal ligation are not considered. Regret after not having had a tubal ligation signifies that women were bothered by the inconvenience or

Table 1 Regret concerning having had a tubal ligation (TL) or not during an emergency caesarean section, elective caesarean section or after a vaginal delivery. All women described here seemed to have, at the time they had or could have had a TL, either four or more viable children or three if the women were at least 30 years old.

	Emergency Caesarean Section		Elective Caesarean Section		Vaginal Delivery	
	TL	No TL	TL	No TL	TL	No TL
- n	288	321	412	142	521	5146
(%)	(47%)	(53%)	(74%)	(26%)	(9%)	(91%)
Total	609		554		5667	
- Attempted follow-up	all	all	all	all	all	20% = 1029
- Responders of those	239	179	314	52	420	329
	(83.0%)	(55.8%)	(76.2%)	(36.6%)	(80.6%)	(32.0%)
- Regret TL/	6	101	10	18	2	148
Regret no TL	(2.5%)	(56.4%)	(3.2%)	(34.6%)	(0.5%)	(45.0%)
- Relative risk regret no TL/ TL (95% CI)	22.48		10.87		94.47	
	(10.09-50.04)		(5.32-22.22)		(23.58-378.43)	
- Want more children	6(2.5%)	41(22.9%)	10(3.2%)	13(25.0%)	2(0.5%)	43(13.1%)
- Mean age [SD] at index delivery	36.5[4.4]	33.6[3.8]	34.0[4.2]	32.4[3.8]	36.7[4.1]	34.4[4.4]
- Mean children [SD] at follow-up	5.7[2.0]	4.5[1.5]	4.4[1.4]	4.0[0.8]	6.0[2.0]	5.4[1.6]
- No male children	2.5%	9.5%	7.3%	11.5%	2.1%	6.1%
- No female children	5.9%	6.1%	7.6%	9.6%	3.8%	3.3%
- Last pregnancy "unwanted" at least	59%	25%	33%	9%	64%	30%
- Lost child (regret TL or not having TL)	33(1)	14(10)	18(2)	2(1)	41(2)	34(8)

side effects of other contraceptive methods or by the fear of becoming pregnant or because of an unwanted pregnancy.

Statistical Methods

Statistical analysis was performed using Epi-Info version 6.0. Continuous variables were compared using Student's *t*-test for normally distributed variables and the Kruskal-Wallis test for variables not normally distributed. Categorical variables were compared using the chi-square test or Fisher's exact test as appropriate.

RESULTS

In the first three months of the study period of nearly ten years 32% of all the women left the maternity hospital having four or more living children while in the last three months this had reduced to 17% ($p=0.001$). The number of deliveries and size of the area that refers to us did not change.

Six hundred and nine women with the defined number of children were delivered by emergency caesarean section (Table 1). Information was obtained from 418 of these women (68.8%). Three hundred and one of these 418 women (72.0%) had been offered sterilisation (Table 2) and 241 women (80.1%) had accepted. Thirty-two of the 301 women (10.6%) regretted, 6 after a tubal ligation, 24 after declining a tubal ligation and 2 because the surgeon forgot to do the tubal ligation. One hundred and seventeen of the 418 women (28.0%) had not been offered sterilisation; of these, 75 women (64.1%) regretted not being sterilised. The relative risk of regret if not offered sterilisation was 6.03 (95% confidence interval, CI 4.23 - 8.60).

Five hundred and fifty four women of high parity had an elective caesarean section, of whom information was available for 366 women (66.1%). Three hundred and forty-six had been offered a tubal ligation, of whom 314 (90.8%) accepted. Ten of these 314 women (3.2%) expressed regret, as did five of the 32 who declined the offer. Twenty women were not offered tubal ligation; of these 13 regretted not being sterilised. The relative risk of regret if not offered sterilisation was 14.99 (95% CI 8.31 - 27.06). Five thousand, six hundred and sixty-seven women of high parity delivered vaginally. We presented questionnaires to all 521 of them who were sterilised and received 420 replies (80.6%). A 20% sample of those 5146 women who were not sterilised were followed-up resulting in 329 answers (32.0%). Five hundred and ninety of the 749 women (78.8%) had been offered a post-partum sterilisation; of these, 64 (10.9%) regretted declining and two (0.3%) regretted accepting. One hundred and fifty-nine women were not offered a sterilisation; of these, 84 (52.8%) regretted not being sterilised. The relative risk of regret if not offered sterilisation was 4.72 (95% CI 3.60 - 6.19).

Table 2 Regret focusing on having been offered a TL or not before an emergency caesarean section, elective caesarean section or after a vaginal delivery. All women described here seemed to have, at the time they had or could have had a TL, either four or more viable children or three if they were at least 30 years old.

	Emergency Caesarean Section		Elective Caesarean Section		Vaginal Delivery	
	Offered	Not offered	Offered	Not offered	Offered	Not offered
- Responders	418		366		749	
- Sterilisation	301 (72%)	117 (28%)	346 (95%)	20 (5%)	590 (79%)	159 (21%)
- Unhappy with result	32 (10.6%)	75 (64.1%)	15 (4.3%)	13 (65.0%)	66 (11.2%)	84 (52.8%)
of those						
• Regret accepting TL	6/301 (2.0%)		10/346(2.9%)		2/590(0.3%)	
• Regret declining TL	24/301 (8.0%)		5/346(1.4%)		64/590(10.9%)	
• Forgotten to do TL	2/301 (0.6%)					
- Declined TL	60/301(19.9%)		32/346(9.2%)		170/590(28.8%)	
- Regret declining TL	24/ 60(40.0%)		5/32(15.6%)		64/170(37.6%)	
- Relative Risk regret	6.03		14.99		4.72	
if no TL offered/ TL offered (95% CI)	(4.23-8.60)		(8.31-27.06)		(3.60-6.19)	

The rates of regret in women being sterilised was 6/241 (2.5%) in women with an emergency caesarean section, 10/341 (3.2%) in those with an elective caesarean section and 2/420 (0.5%) after vaginal delivery (Table 2). Regret rates for not being sterilised were respectively 101/179 (56.4%), 18/52 (34.6%) and 148/329 (45.0%) in the three groups. Sterilisations were declined in 60/301 (19.9%), 32/346 (9.2%) and 170/590 (28.8%). Regret rates for declining tubal ligation were respectively 24/60 (40.0%), 5/32 (15.6%) and 64/170 (37.6%). Women who were not sterilised had not been offered a sterilisation in 117/179 (65.4%), 20/52 (38.5%) and 159/329 (48.3%), respectively.

Two of the six women who regretted having been sterilised with an emergency caesarean section took up our offer for re-anastomosis with all costs paid but both changed their mind when a pre-operative HIV test turned out to be positive.

DISCUSSION

I acknowledge the limitations of this study. Obviously, a randomised trial to investigate regret following offering a sterilisation or not is out of the question, and one has to rely on an observational study with its possibility of bias.

Some of us would have found it, in a randomised trial, unethical to deny half of the women the chance of having a sterilisation, others would often have found it unethical to ask the other half of the women if they wanted a sterilisation. Soliciting informed consent would be absurd in this case.

The lack of randomisation resulted in those women with the most children and with at least one viable son and with a first and stable marriage and with a likely to recur medical problem and of older age, being offered more often a sterilisation (Table 1), so that the regret rate of acceptors is low. *Mutatis mutandis* there would have been more women who regretted not having had a sterilisation among those who were not offered a choice if it would have been a randomised study. Randomisation would probably have neutralised many confounding factors like education, speaking a common language with the patient, social class, opinion of the midwives and doctor present and level of distress.

Another limitation is that while every effort was made to find the women who had a sterilisation, we did not go all out, because of lack of resources, to find the members of the control groups, especially those who delivered vaginally. This might have resulted, although we found no evidence of that from 45 home visits to the latter, in satisfied women being underrepresented.

Nevertheless the results of this study are astounding, and even allowing for its limitations important; thus 64.1% of women with the specified number of children who had not been offered a sterilisation with an emergency caesarean section would have liked a sterilisation, compared with 65.0% who had an elective caesarean section and 52.8% of the women who had a vaginal delivery.

Furthermore, it can be calculated from Table 1, assuming that we have answers from representative samples of women in the six different groups, that 76% of all the 609 high parity women who had an emergency caesarean section are, or would have been, happy to have had a tubal ligation, compared with 81% of those who had an elective caesarean delivery and 50% of those women who had a vaginal delivery. Only 47%, 74% and 9%, respectively, actually had a tubal ligation, with the smallest difference between wanted and performed tubal ligations in the group of women with an elective

caesarean section. These latter women had the opportunity because nearly all were offered a sterilisation and they did not have to overcome the fear of an extra operation for sterilisation like women after a vaginal delivery. They shared with the women who had an emergency caesarean section the high risk of a future pregnancy with at least one scar in the uterus and possible recurrence of the factor, which prompted the caesarean section in the first place, like hypertension, cephalo-pelvic disproportion or haemorrhage.

The main ethical argument against offering a sterilisation with an emergency caesarean section is that such an important decision should not be taken at such short notice, ignoring the fact that months of pregnancy have preceded the final decision and that women would remember how welcome the pregnancy was and their thoughts about a future one. Nevertheless the pressure under which a decision has to be taken exists and is probably responsible for the high regret rate (40%) after declining a tubal ligation.

The higher regret rate found after a sterilisation with an emergency caesarean section than after a vaginal delivery has little to do with women being rushed into a sterilisation, but more with the very low regret rate after post partum tubal ligation, because the fear for that operation and other obstacles select only the most determined.

I feel after this study that it is unethical *not* to offer tubal ligation in women of high parity at the time of an emergency caesarean section. I invite colleagues to perform a similar study to confirm or reject our conclusions. I anticipate litigation in which gynaecologists are accused of not counselling women about the option of a sterilization, exposing the woman to another operation.

It is obviously much better to discuss tubal ligation at a possible emergency caesarean section early during the antenatal period, to obtain consent then and to confirm that consent at the time of the emergency section. I strongly encourage health workers to raise the hypothetical questions when seeing multipara pregnant women: "If you need an unexpected caesarean section would you like a tubal ligation and would that decision be altered if the baby is not alive or not very strong when it has been delivered?"

These questions should also be printed on antenatal forms.

This policy however will not prevent decisions having to be taken under stress because many multipara pregnant women who need an emergency caesarean section are not booked and if they are, then not often booked at the place where they will be operated on. In addition, the overwhelming majority of caesarean sections in Africa, for non-private patients, are not elective but emergencies⁶.

I believe that the results of this study will apply to other countries taking into account what the ideal number of children is for that specific community. This number is 3.9 for women in Zimbabwe¹. We also think that there are multipara from cultural minorities in developed countries who would benefit from a policy of offering a tubal ligation with an emergency caesarean section. This is especially true if there are religious or

cultural objections to contraception. The objections often disappear, to many a woman's relief, if a caesarean section provides a medical "excuse" for ending her reproductive career. This happens frequently, but then mostly in combination with a non-indicated elective caesarean section in Latin America, and in Roman Catholic hospitals in Africa.

Finally the occasion to perform a tubal ligation on women who otherwise do not have the opportunity, resources or courage to have an interval sterilisation does not present itself only during caesarean sections. We think that other operations performed upon multipara by gynaecologists or even surgeons should prompt counselling for the opportunity of a tubal ligation. Presently we are following up such a group of women. Recently we saw a mother of five boys and five girls (five children would have been enough she said later), 43 years old in shock after transport over 110 km with an ectopic pregnancy. After resuscitation just before induction we asked her whether she would like "to be closed". She was very relieved to hear the next day she had indeed been sterilised. The recurrence rate of ectopic pregnancies is about 20%. An obvious example of a woman more likely to die in the next pregnancy than regretting a sterilisation.

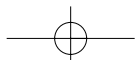
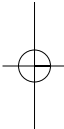
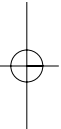
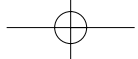
POSTSCRIPTUM

To illustrate the need to discuss a possible caesarean section with the option of a sterilisation in the antenatal period, the following case history:

Para 3, Gravida 4. First two deliveries in the Netherlands with the help of caesarean sections. On holiday at home in Somalia the patient delivered her third baby vaginally during transport en route to a hospital. It is decided with the couple, in view of the last delivery, to try a vaginal birth of her fourth baby, in a Dutch hospital, in 2002. In order to prevent another delivery en route, labour is induced at term by rupturing the membranes. Three minutes later, fetal distress is noted and some vaginal blood loss. Ten minutes later she is delivered of a healthy baby after a laparotomy, under general anaesthesia, for a ruptured uterus. The Muslim husband is present in the operation theatre and is asked whether he agrees to the sterilisation of his wife, in view of the poor quality of the anterior lower uterine segment. He indicates that it is completely his wife's decision and because she can't be asked and because this scenario had not been discussed during antenatal visits (with the help of a translator), the sterilisation did not take place.

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1057 *Dear Madam,*

2 rows

-Obs Gyn Dep., United Bulawayo Hospitals (UBH) P.O. Box 958
Bulawayo. Tel 72111. Ext 2222

You had a delivery in ~~Pelandaba Clinic~~ ^{UBH} on... *09.10.01*
Can I ask some questions to plan future services and know more about patients? Please donate some of your time and fill in this form and return inside enclosed stamped envelop. The results are of course completely confidential.

- 1 How many children do you have now? *(3) Three*
- How many boys. *(2) two* How many girls. *(1) one.*
- 2 How many children do you want to have in total *Three (3)*
- 3 Did you lose any child after this delivery? No Yes
- 4 Any pregnancies after *(9)* Yes No
- 5 If Yes Delivered, where..... Date.....
Miscarriage, where..... Date.....
- 6 Are you now: Married have a boyfriend, single, divorced, Widowed.
Since when... *1990*...
- 7 Did you get any problems after last delivery? No Yes
If yes, what problems did you get after last delivery?
..... *N/A*

*2937
~SV*

- 8 Do you have any of the following problems these days?
more headache Yes No *30 29*
- loss of appetite Yes No *STOS 9/11/01*
- pain in the abdomen Yes No *VE 9/11*
- getting fatter Yes No *NAN*
- feelings of sadness Yes No
- less desire in sex Yes No *19-5'01 ♀*
- 9 Did you want to have more children after that...*(9)* delivery?
No Yes
- 10 Would you have wanted your tubes tied (sterilisation) after that delivery, if possible in the clinic? Yes/No *undecided*
- 11 Did the doctor/sister while you were pregnant ever ask you if you wanted your tubes closed Yes/~~No~~
- 12 Did the doctor/sister after delivery ever ask you if you wanted your tubes closed Yes/~~No~~
- 13 Do you have any complaints about your periods? Yes/No
What complaints? *NONE*

Wass
Carver

14 If you have period complaints did they start after you had your last baby Yes/No None

15 What Family Planning Method do you use now? N/A

Injection, yellow Pills, other Pills, Norplant, Condom, Loop, natural, traditional, calender, you had your tubes closed, you think you cannot become pregnant any more, no partner, you take risks (please tick right one)

When was last tablet, or injection, or implant... N/A

16 If you would not have wanted a sterilisation after delivery, why not? Because:

You wanted to have more children Yes No

Religious reasons Yes No

You had (nearly) only boys or only girls Yes No

Because your partner wanted more children Yes No

You wanted to use another method of family planning Yes No

You thought you were too old to get pregnant again? Yes No

You needed more children because of a new relationship Yes No

The opportunity was not there Yes No

You are too afraid of such an operation Yes No

UNDECIDED

Other reasons... N/A

- 17 Your last pregnancy:
 1. You wanted it then
 2. It came too early
 3. You had hoped that you would not become pregnant any more before that pregnancy

18 Do you wish you did have your tubes tied just after your last delivery? No / Yes undecided

19 What church do you belong to? N/A

20 Do you have any other comments on the treatment and care you received in the clinic? Please feel free to comment on anything. The doctor who attended me during delivery was just to excellent to mention

he was a white guy. The doctor just did a miracle I delivered my two boys in 1991 and 1993 through a scissors (scissors) but now it was a diagram or what a relief thanks doctor I wish one would emulate you.

If you still want to have some advise or action on family planning, or sterilisation, please visit the walk-in-clinic at UBH in front of maternity or your nearest municipal clinic.

Thank you, Dr D.A.A. Verkuy! FRCOG, Head Department UBH

Satisfaction, complaints and regrets of 1954 sterilised women compared to a control group

to be submitted (in abridged form)

ABSTRACT

- Objectives** To study satisfaction, complaints and regrets in women who were sterilised in comparison to a control group.
- Design** Cohort follow-up study of 1954 women sterilised compared to 932 women not sterilised.
- Setting** Obstetrics and gynaecology department of a referral hospital in Bulawayo, Zimbabwe.
- Subjects** Women sterilised in relation to a caesarean section, after vaginal delivery or independent of a delivery and for the control group women of similar parity who delivered abdominally or vaginally.
- Methods** A postal questionnaire and visits to the participants.
- Main outcome measures** Prevalence of physical and mental complaints, regrets and incidence of unwanted pregnancies.
- Results** The control group complained significantly more often of depression and loss of libido. There was no difference in abdominal pains, menstrual problems, headache, loss of appetite, obesity or other complaints in the two groups. The overall regret rate defined as wanting (the option of) more children was 2.1% for all the sterilised women, 3.4% for women with a medical indication for sterilisation and 1.7% for those without such an indication. Women of higher parity (1317) without medical indication for a sterilisation had a regret rate of 1.1% while 43.9% of similar women in the control group regretted not having been sterilised. There were no women without a contraindication for further pregnancies who were prepared to undergo a, free of charge, refertilisation operation. The failed sterilisation rate was less than 1% over a period of 5 years. Women in the control group who said they had a completed family had 41 (6%) unwanted pregnancies over an average period of 28 months.
- Conclusion** Sterilisation should be an important ingredient of the family planning method mix available to women in Zimbabwe.

INTRODUCTION

Surgical contraception is in many developed and most developing countries, an important element in the method mix on offer in successful family planning programs. By 'successful' is meant that they help to shape and attain aspirations on the personal, family, national and global level. Unwanted pregnancies and unwanted infertility are seen as failures in the complex interactions between attitude, education, emancipation, motivation, provision and quality. It is important to state that unwanted pregnancies are a nearly universal problem, certainly not confined to Africa and even in the best of circumstances at least 20% of all conceptions can be so defined. In fact, unwanted pregnancies within marriage are probably largely a new development in Africa, related to the awareness and acceptance of the option of planning families and economic change.

Surgical contraception is the commonest contraceptive method used in the world with an estimated prevalence of 270 million in 2003 as compared to 99 million in 1980¹. Around a sixth of the sterilisations performed are vasectomies as compared to a quarter in 1990. Only in New Zealand, the Netherlands, the United Kingdom and Bhutan¹ are there more sterilisations of males than females. In continental sub-Saharan Africa sterilisations are not frequently performed, and vasectomies are very rare (but more frequent than in France)². In the non-Muslim areas and probably even in Muslim areas³, the low incidence of female sterilisation seems mainly a service provision problem. Initiatives in Zaire⁴, an area in Nigeria⁵, Kenya, South Africa, Lesotho⁶, Senegal⁷ and Zimbabwe have been well received by women but are often dependent on a few enthusiastic providers.

The populations of East, Central and Southern Africa have started the demographic transition as defined by the Princeton rule (10% decrease from the previous plateau in Total Fertility Rate (TFR)⁸), to smaller families with Zimbabwe, Botswana, Lesotho and South Africa in the vanguard. Was there 15-25 years ago in sub-Saharan Africa an attempt to make family planning palatable for husbands, political, traditional and religious leaders by calling it spacing - already functioning very well because of the tradition of extended breast feeding and post partum abstinence⁹ - limiting the size of ones family is now becoming widely acceptable. In Zimbabwe, the fertility decline had already started before independence in 1980 although the indigenous nationalistic elites regarded any attempt by the colonial government to introduce family planning with deep suspicion. In the countries with gained independence at an earlier date family planning programmes were not possible before independence¹⁰ for the same reasons. Conversely in South Africa the transition of power 15-45 years later made the legalisation of abortion possible.

Couples in developing countries have in theory many more contraceptive tools available than couples in the European countries had during the demographic transition, but they lack the access to “new” territories without which Europe would have had twice as many inhabitants, all other things being equal.

Current use of modern contraception has increased in Zimbabwe¹¹ from 26.6% of married women in 1984 to 50.4% in 1999. Sterilisation increased from 1.7 to 2.7% in married couples (0.1% male, 2.6% female), use of oral contraception from 22.6 to 35.5%, condom use from 0.7% to 1.8% and dependence on injectables (Depo-Provera®) from 0.8% to 8.1%. 49.6% was not using modern contraceptives at the time of the 1999 DHS survey. See Addendum Table 2, to compare contraceptive prevalence in different countries.

Therefore, contraceptive users in Zimbabwe depend for more than 70% on the pill. Depot medroxy progesterone acetate (DMPA) was banned, by the then minister of health in 1981¹², hence the limited use in 1984.

The ideal number of children in Zimbabwe according to the 5907 women interviewed for the 1999 DHS¹¹ household survey is 3.9, and 4.2 for those who are married. Seventy-one percent of married women would like to have a total of four or fewer children. Median age at first birth has gone up very little over the last 20 years from 19.7 years to 20.3. To limit a family under those circumstances to four children by spacing only, would require 7- 8 years between births. In the US, it is estimated that 6% of typical pill users become pregnant in the first year of use¹³, in China¹⁴ 11%. It is estimated that use, misuse, or discontinuation of the pill are associated with 1.045.000 unintended pregnancies in the US each year¹⁵.

Forty-eight percent of the 5907 women interviewed for the Zimbabwean DHS survey had stopped contraception in the preceding 5 years; 35.4% of those 2835 women because they wanted to become pregnant, 18.2% because of side effects or health concerns, 6.7% because of the costs or non-availability of contraceptives and 11.7% because they became pregnant, most, by far in absolute terms, while using the pill. This is an underestimation of the real failure rate because so much of pill use is by women who are protected anyway by breastfeeding¹². Furthermore, women who had an induced abortion after pill failure would not admit this to an unknown interviewer. See Addendum Table 3

The average woman in Zimbabwe would have these days a completed family, with the youngest child out of the high mortality age range, at around 32 years of age and it would not be far off to estimate her chance of becoming pregnant in the remaining years of her fertile life at at least 50%, if she depended on oral contraceptives with only sub-50 mcg oestrogen tablets available. Use of surgical contraception would reduce the cumula-

tive failure rate with a factor 50 - 75. Other long time methods like intra uterine contraceptive devices (IUCD), implants and injectables have their own advantages and disadvantages. For example those who stopped injectables in the above survey did this in 27% of the cases because of side effects. IUCD use and high prevalence of HIV is an insufficiently studied field¹⁶⁻⁷ and implants are in practice only available for the well to do (US\$ 300 in the private sector in the USA and \$ 23 for developing countries)¹⁸.

Women in Zimbabwe who are sterilised have according to the DHS survey the following characteristics: they have at the time of sterilisation a median age of 33.8 years comparable with other countries in Africa (India 25.7, Bangladesh 26.7, USA 28.8, Brazil 28.9, Thailand 29.0, Sri Lanka 30.0, Indonesia 31.8, Peru 32.0, Vietnam 32.5, Tanzania 34.8)¹. Women sterilised in Zimbabwe have for more than 50% five or more children like in the rest of Africa unlike the USA and China where more than 50% have 1-2 children, and Latin America and Asia (except China and Muslim Countries) 3-4 children. Trends in number of children at the time of sterilisation show that in Asia and Latin America the numbers are going down but not in Africa, including Zimbabwe. The level of education and place of residence (rural or urban) in sterilised women is similar to women in general in Zimbabwe.

In order to make it easier for couples to succeed in planning their family and to lower the TFR further in Africa, to make it possible for governments to spend more per capita on education, nutrition and health, it seems unavoidable that surgical contraception becomes a more important element in the method mix easily available. Important factors in improving access to female sterilisation are surgical capacity and political commitment. The latter could influence the former if studies showed whether women were satisfied with this method. A follow-up study to check satisfaction of clients had never been done before in Zimbabwe and that was the rationale for the study described here.

Methodology

The methodology of the obstetrical arm of this study based in the United Bulawayo Hospitals (UBH) has been described elsewhere¹⁹. In short, women sterilised in the defined periods were followed-up by writing, rewriting, writing via a clinic and visits in order to have a questionnaire filled in. A potential control group of women not sterilised was identified with the help of the same delivery registers, matching the parity and the modes of delivery of the sterilised group. They were followed-up similarly but less fanatically. For this paper the study period was merely extended by a year to a total of 127 months, from 1 December 1990 till 1 July 2001, in which time 27.825 deliveries took place in UBH. All women who were sterilised, not only those of higher parity, during those 127 months were included.

Higher parity in this study means having at the time of sterilisation and/or after the index delivery at least 4 apparently viable children, or 3 if the woman is 30 years or older. This is the group seen by the author as containing the Likely Sterilisation Acceptors, Regret UNlikely (LISARUN). If a woman has exactly the number of children mentioned above she is LISARUN, she can have one child more, LISARUN + 1 or one less LISARUN - 1, etc. All women who are at least LISARUN are referred to as \geq LISARUN.

Emergency caesarean section (CS) refers in this paper not so much to the haste in which the operation was performed, but to counselling time (potentially) utilisable to discuss the option of a tubal ligation TL. Hence, a woman delivered in the middle of the night by CS because of bleeding due to a placenta praevia after 2 weeks bed rest in our hospital had her operation defined as an elective CS, while a woman with a term pregnancy referred from a district hospital for her fourth CS and added the same day to an elective CS list to prevent her going into labour at night or in the weekend, was categorised as having had an emergency CS, if she had not been asked and made up her mind earlier about having a TL or not. Some women delivered elsewhere and were transported to us for a post partum sterilisation. They are included in some Tables and not in others, as appropriate. A cohort of women was randomly selected from the to us referring City clinics to be part of the control group for women who were sterilised in UBH after a vaginal delivery. Everything possible was done to find the women who were sterilised and nearly everything for those of the control group who delivered by CS. Women suitable for the control group who delivered vaginally (20% randomly selected from UBH records and 200 from the City clinics) and who did not return our questionnaires were only sent 2 reminders and then visited only if they lived in the City or near a TL patient who needed to be visited. The City clinic patients were only written once for logistical reasons and not visited. We had 1286 (76.8%) successful follow-ups of the delivery related sterilisations.

In addition to the above, 988 women sterilised but not in relation to a delivery over a 6-year period from 1-7-1995 until 1-7-2001, were identified in annual batches from the theatre registers and an attempt was made to find the hospital files. Because the filing department was understaffed and cramped and because the files were shared with other specialities, not all files and hence addresses could be traced. This resulted in 833 (84.3%) women who could be written to and in the end, after many reminders and personal visits, in 668 filled-in questionnaires (80.2%) and probably an under-representation of ill women because their files were elsewhere. Because obstetrical patients need a birth certificate, record keeping was meticulous in maternity and all women had at least one recorded address, thrice written down.

There was no attempt to create a control group for women who had an interval sterilisation. It could be argued with success that women who delivered vaginally without TL could form also an adequate control group for most women who had a non delivery related sterilisation, except perhaps for those who were admitted with an (incomplete) abortion. Around 10% of the \geq LISARUN women admitted with an incomplete abortion (between 772 to 1019 annually, all parities) were sterilised. No attempt was made to contact women seen for an abortion, who were not sterilised. It was thought that some women might get seriously embarrassed if letters were sent to their addresses (often deliberately incorrect).

The results given in the next section can be somewhat confusing unless one realises that there are many sub-groups: medically indicated TLs, maternity related TLs, delivered elsewhere or not, still alive at follow-up or not, \geq LISARUN or not, in control and TL groups and not all questions were answered by all women.

Statistical Methods

Statistical analysis was performed using WHO's Epi-Info version 6.0. Continuous variables were compared using Student's t-test for normally distributed variables and the Kruskal-Wallis test for variables not normally distributed. Categorical variables were compared using the chi-square test or Fisher's exact test as appropriate. Stratified analysis was done with the help of Mantel-Haenszel weighted relative risk with Greenland/Robins confidence limits.

RESULTS

We succeeded in following up a total of 1954 women who were sterilised (1286 delivery related, 668 not) and 932 for a control group not sterilised, of whom 98 delivered vaginally in two of the city clinics which refer to us.

Most questions were answered by most respondents, even a sensitive question about libido was answered by 94.9% in the TL group and 86.6% in the non TL group (Table 8). The most sensitive question was apparently about the last pregnancy: being planned, too early, or whether the patient had hoped before the last pregnancy that she would not become pregnant anymore. It was answered by 87.1% of the TL group and 81.7% of the control group (Table 7).

There were many unavoidable differences between TL and control group, see Tables 1 and 2.

Table 2 shows the subdivisions of the TL groups and control groups and shows the subdivisions in relation to women who wanted (no) more children. If we compare the maternity related sterilised women who responded, to those who did not respond (not

shown) we found the non-responders to have a similar number of children (difference 0.06, $p=0.60$), to be 0.8 years younger ($p=0.006$) and to emanate more often from the very low-income group (40.0% versus 30.5%, $p<0.001$). The non-responders from the non-maternity related sterilisations (not shown) had more children (0.6 child, $p<0.001$), were older (1.2 years, $p<0.001$) and were more often very poor (65.9% versus 31.8%, $p<0.001$) than the responders. These responders were at sterilisation on average 36.4 years of age and had 4.9 children at follow-up. Responding women in the UBH control group who had delivered vaginally had more children (5.2 versus 4.8, $p<0.001$) were older (34.5 versus 34.0 years, $p=0.029$) and were less often paying government patients (35.1 and 40.7%, $p=0.076$) than non-responders and women who were not written to. Non-responders for the control group who delivered by CS were of similar age ($p=0.676$), and parity ($p=0.765$) and response was significantly positively correlated to income.

Tables 3 and 4 show the complete data from the delivery records for higher parity women. This includes women who were not followed-up (80% of the not sterilised vaginal deliveries) or followed-up without success. They exclude women from the control group who delivered elsewhere (City clinics) and those who were referred post partum for a sterilisation. Table 5 shows data of the 802 women above 39 years of the 6045 \geq LISARUN who delivered during the study period in our maternity unit (802/6045 = 13.3% [2.9% of total deliveries]) of whom 272/802 (33.9%) had a sterilisation.

The marital status of women is described in Table 6. The results are self explanatory, but it should be realised that divorce, widowhood and death made follow-up much less successful. Therefore, these categories are under-represented amongst the successfully followed-up women, especially in the vaginal delivery control group because they had less home visits. Seven of the women who were widows at the time they entered the study had deceased at follow-up; HIV infection seems likely.

There is an indication in Table 7 of the planning of higher parity pregnancies in our community. Around half of the last pregnancies in women who were sterilised were not wanted until they were actually there, which also can be said for a third of those in \geq LISARUN control patients. This is no doubt an underestimation, because women who would because of age and/or parity, be most likely to have had an unplanned pregnancy, were the ones who often did not answer that particular question or they filled in that the pregnancy had come too early, which is virtually the same as unwanted in a woman of over 40 years of age.

Physical and mental complaints

Table 8 shows that there is no evidence in this study that women who were sterilised have more complaints afterwards than the control group. Having concluded that, one has to consider if the groups are comparable (see Tables 1,2,3,4). It is obvious that there are large basic differences between the two groups. To these differences has to be added the fact that women who were sterilised did not only have more often a CS with their index delivery, but they more often had repeat CSs with increasing evidence of poor scarring and adhesions. The mean number of CSs in total in women sterilised with an elective caesarean section was 3.0, and 1.7 if not sterilised; these figures were 1.8 and 1.4, and 0.1 and 0.1 for emergency CSs and for vaginal deliveries, respectively.

There might be a tendency to more menstrual problems in the TL group, which almost disappears if the control patients using hormonal contraception are excluded from the comparison. Still, the not delivery related sterilisations (Table 10) show also high rates of menstrual problems at follow-up. Many of these women already had problems, otherwise we would not have seen them in the first place, and many also stopped hormonal contraception around the time of the sterilisation, probably reverting to their natural cycle or continuing an unnatural one for up to a year if they had been using DMPA. No obvious post TL menstrual syndrome could be distilled from the results. Complaints were about longer or shorter, less or more frequent periods and more or less blood, and dysmenorrhoea.

TL patients were older than the controls at follow-up (few post menopausal) but complaints were not age related apart from the clinically irrelevant younger mean age (0.6 years, $p=0.006$) of women with an increase in headache at follow-up in both groups combined.

The TL and control group become much more comparable if we examine only those women who delivered vaginally and had a post partum sterilisation or not, see Table 9. No difference in menstrual complaints is obvious. However, considering the answers to the follow-up question: "if you have period complaints, did they start before or after your last delivery/operation?", then women with a TL answered that question significantly more often with "after" than the control group, even if we focus only on those 217 women who did not deliver by CS and were not using hormonal contraceptives, 86.4% and 62.9% respectively ($p < 0.0001$, RR 1.37, 95% CI 1.14-1.66).

It is difficult to interpret the very significant but clinically perhaps marginally relevant lower levels of sadness and loss of libido in the sterilised groups. Probably, a large part of it is that women who are brave enough to have an operation to be sterilised are different, a priori, or feel good because they have passed a "test", in their own eyes. They might also be the better communicators in different situations with their partners²⁰.

Nevertheless, there are 11 women who comment spontaneously in writing on the questionnaire that they feel so relaxed while having sex, because the fear of a pregnancy has disappeared or words to that effect. There was no libido diminishing or enhancing effect of hormonal contraceptives detectable in our data. Although members of the higher income groups complain more about loss of libido and the control group contains more women from that class, stratified analyses still shows the same relation between TL or not and libido, so it seems a real difference. “Rich” women are a little less often sad in our data and therefore compensating for social class keeps the control group significantly more often sad. It should be mentioned that women complaining about less libido are also the women who have become fatter ($p < 0.0000005$, RR 1.28, 95% CI 1.17-1.41), an enormous potential market for chocolate producers. The p value is even smaller for 2x2 tables relating headache and libido loss (RR 1.51, 95% CI 1.65-1.80), another cliché confirmed or refuted if one adopts the presumption that the headache in the stereotype is pretended. We did not find a relation ($p = 0.11$) between sadness and becoming fatter.

Together with a hospital employee who did a Masters in laboratory science, we also followed-up 40 women above thirty-nine who were sterilised and 40 who were not. No difference could be detected in age at menopause and FSH, LH, Oestradiol, Progestagen and Testosterone blood levels. Similar results can be found in the literature²¹.

Regret

There were 61/1954 (3.1%) women who regretted being sterilised, see Tables 2, 8, 10, & 13 and List of Case Histories (LCH). These 61 include women who became pregnant despite the sterilisation, or stayed pregnant (LCH no 18), who blamed the sterilisation for physical or mental complaints they had afterwards, and those who did not really want another child, but whose partners did. One woman who was prepared to deceive her husband into believing that she was fertile again (LCH no 63) is not classified as having regret.

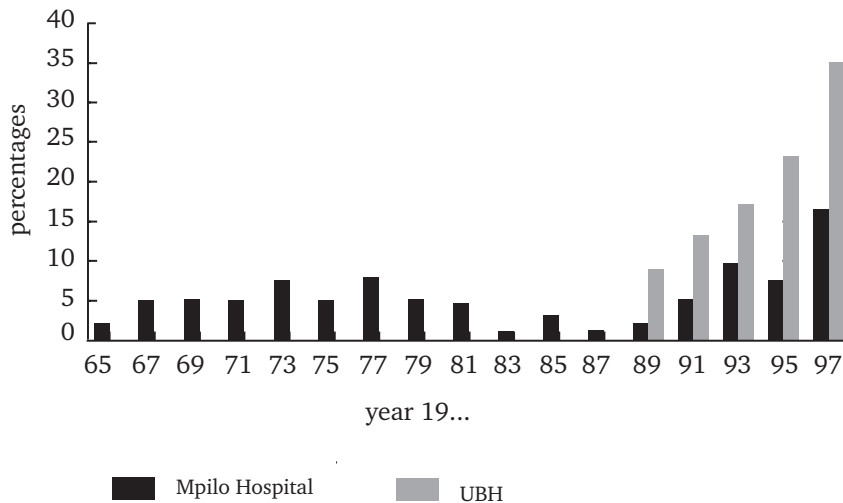
We counted 42 (2.1%) women who wanted more children or had serious doubts about being sterilised because they might want more children later. Sixteen of these 42 women had an (arbitrary) medical indication for their sterilisation like having had four or more caesarean sections with at least four living children, poor quality uterine scars, severe hypertension, eclampsia late in reproductive life, diabetes, HIV infection.

This leaves 26 with a really regrettable sterilisation, 16 of whom were \geq LISARUN, as defined in Methods and two (LCH 36 and 42) of the 16 had lost a child after sterilisation and had become LISARUN-1 post hoc, leaving 14 women with regret, although they had 4 children alive at follow-up or 3 children if they had been at the time of sterilisation 30 years or older.

There are of course gradations in severity of regret. Only three women (LCH no 1, 6 and 48) were brave/motivated enough to opt for an, all costs paid by us, reanastomosis. All three were HIV positive when tested before operation (not known at the time of sterilisation) but one of them did not want to know the result of the test and was operated regardless in an attempt to reopen her tubes. Some women might not have had regrets when contacted but perhaps later or earlier. Similarly, women who stated to regret the sterilisation at some point might change their minds. We saw six of those.

During fourteen years in the gynaecological department of UBH, while the policy was to welcome all patients with unwanted (in)fertility and do whatever we could to assist them, we operated one other woman who regretted having been sterilised (in a hospital more than 600 km away) and advised one woman to have her operation elsewhere (LCH no 71). Over the ten-year period encompassing 1991-2000, exactly 530 tubal operations and/or removals of myomata were performed for infertility not related to earlier sterilisations. This shows the commitment to assist with infertility and the preparedness of women to be operated on if a child is wanted and the minor part surgical sterilisation played in unwanted infertility.

Figure 1 % not medically indicated TLs of women with more than four children after delivery, during CS or postpartum



In the much larger Mpilo Hospital in Bulawayo (10.000 deliveries annually) no re-fertilisation-after-sterilisation operations were performed during the same period but they also performed far fewer non-medically indicated TLs²². See Figure 1. In (qualitative) discussions with private gynaecologists in Bulawayo, we were often told that in the only (Roman Catholic) private hospital, re-anastomoses of Fallopian tubes were performed. Sterilisations were allowed in that hospital only with written permission from the religious authorities and then only during CSs with a medical indication for stopping reproduction. Hence, all other private sterilisations were done in United Bulawayo Hospitals and in two private minor case surgeries (with no facilities for reconstructive tubal surgery) resulting in a total of around 200 private sterilisations in Bulawayo and surrounding provinces annually, until an acute shortage of gynaecologists due to the politico-economical situation, ensued. Medical insurance companies did not pay for re-fertilisation and very few indigenous women would be able to pay for such an operation if carried out in the very expensive private hospital. We can conclude that there seems to be little regret of such a serious nature that (certainly non-private) indigenous women in Southern Zimbabwe are prepared to be re-operated. This while according to the 1999 national DHS¹¹ survey the prevalence in Bulawayo and Matabeleland South of married women being sterilised is by far the highest (9.8% and 3.7%) in the country, in Bulawayo 4.3 times higher than in Harare.

Regret, in the narrower sense of wanting (possibly) more children, used for the 42 women mentioned above is, like in the overwhelming majority of sterilisation follow-up studies²³, significantly related to having a medical indication (1.7%/ 3.5%, $p < 0.03$), being younger (35.6/31.5 years, $p < 0.001$), having fewer surviving children (4.9/3.2, $p < 0.001$), losing the index or another child just before or after sterilisation (1.8%/7.0%, $p < 0.001$), being not (still) married, both at the time of sterilisation and follow-up (1.5%/4.4% , $p < 0.001$) and having a sterilisation together with a legal termination of pregnancy (2.0%/10.0%, 2-tailed Fischer exact $p = 0.025$). Combining the above 6 risk factors (taking less than 4 children and younger than 30 years as cut off points) reveals that having one or more risk factors is related to 3.4% regret, having none with 0.4% ($p < 0.001$). There is no significant relation between being poor or lower middle-class or a private patient and the frequency of regret (2.7%, 1.4%, 2.3% respectively, $p = 0.228$).

Having only children of one gender is more common in women with regret, 38.1% as opposed to 11.3%, but since these women have also fewer children these figures have to be corrected, taking into account the sex ratio of 104 in the children of the successfully followed-up sterilised women. Women with regret have for 19.0% no boys and for 19.0% no girls. Put differently 8/135 (5.9%) women who have no daughter at follow-up regret their sterilisation and 8/96 (8.3%) women who have no son do this. Women who need a CS deliver more often sons²⁴. Of the regret group of 42, slightly more than

expected have offspring of a single sex (no sons: 8, expected 6.8; no daughters: 8, expected 7.4), however, these numbers fall well within confidence limits. Based on this data, it cannot be determined whether there is a relation between having regret and having no sons (or no daughters), because of the relatively small sample size.

Having a sterilisation with a CS as opposed to post partum is a risk factor for regret ($p=0.03$). This significance disappears ($p=0.06$) if women with a medical indication for sterilisation are removed from the 2x2 table. The significance reappears (Fisher exact, $p < 0.02$) if on top of that the comparison is restricted to \geq LISARUN women. One should, however, bear in mind that the regret rate in the non medical indication \geq LISARUN post partum TL group is very low, 1/448 (0.2%), so that it would be very difficult for women who had a TL with a CS not to have a somewhat higher proportion of regret also because they had fewer living children on average (6.1 and 5.0 respectively). We found no evidence that post partum sterilisations more often result in regret than interval sterilisations as seen in the literature, but in our case, as opposed to the situations in the literature²³, women had on average more viable children 6.1 and 4.8 respectively, at the time of follow-up.

Of the 1286 delivery related sterilisations 911 were not medically indicated; 820 of those women had been \geq LISARUN and 106/820 (2 with twins) were at risk of becoming LISARUN - 1, if they lost one child. They were at the time of TL, LISARUN + 0. This loss happened to 12 of the 106 women, 2/12 regretted the sterilisation (16.7%).

See also Table 13 comparing regrets about TL to regrets about not being sterilised. Note that women with (arbitrary) medical indications for TL are excluded from this table so are women of lower parity. This table is not corrected for the difference in the mean number of children in TL and control group, but if it were the results would be essentially the same.

If one regards Table 2, it seems that it is not a good idea to sterilise a patient together with an operation for a legal abortion or for an ectopic pregnancy. If one removes the medical indications for TL and women who were $<$ LISARUN then there are 6/513 (1.2%) women with regrets in the non-obstetrical group, see Table 13. Three (2.0%) are related to 151 women who had a sterilisation combined with evacuation of the uterus for incomplete abortion. One other lady is described as Case History 23. Two (0.7%) were members of the purely interval TL group of 282 women. We have also followed-up 18 \geq LISARUN women who were not sterilised with an operation for an ectopic pregnancy and 14 saw this as a missed opportunity. They are not part of the control group, because this was not a random sample.

Religion

If we look at religion and 2500 digitalised records of sterilised and not sterilised higher parity women from the maternity registers (1990-1996), we found that being a member of the Roman Catholic Church (RCC) makes a small difference. Stratified according to income class, Catholics have less (RR=0.8) sterilisations than members of other religions ($p < 0.05$, Mantel-Haenszel RR 0.80, and Greenland/Robins confidence limits, 0.65-0.99). There is no difference in number of children in women admitted in maternity being RCC or not, but those who are sterilised have 0.4 children more at that time if they are RCC ($p = 0.02$). This effect is even more obvious if allowances are made for economic class.

Apart from this, the effects of religions are very much economic class related and members of the other religions behave as expected with a lower income and with rural women having more children.

Failed sterilisation

There are several patients who became pregnant after sterilisation. Two delivered a term baby within 8 months after sterilisation, performed during an operation for an ectopic pregnancy. We do not consider them failed sterilisations. We saw 4 pregnant women who had been sterilised elsewhere (South Africa, Malawi and two in Zimbabwe). Four patients were seen pregnant during the last 6 years who had been sterilised (3 with a laparoscope, 1 together with the evacuation of a miscarriage) by our department, but they were not part of the planned follow-up cohort. Of the 2507 TL patients that we actively tried to follow-up, we know of 5 patients who delivered after a sterilisation. This includes one lady who delivered after two sterilisations. She had a re-sterilisation after a symphysiotomy by the author. Three years later we delivered her with an elective CS and she had again a (third) sterilisation (a salpingectomy). Five patients had pregnancies after sterilisation that ended in induced abortions. Altogether this comes to a failure rate of 10/2506 (0.4%) or better 11/2507 (0.4%) counting the woman who had three sterilisations, during a mean follow-up period of 5 years. We have no idea if some of our patients were seen elsewhere after a failed sterilisation. It seems likely to us that if these pregnancies were seriously unwanted, patients would have come to us for help. It might be that others became pregnant and delivered elsewhere without us getting any feedback.

Mortality

Child mortality

The obstetric sterilisation and control group, together involving 2218 successfully followed-up women, was associated with 220 (9.9%) deaths of at least one child. 3.2 % (70) of this mortality was known or could have been expected to happen at the time of delivery (case histories 4, 29,37,62, 65, 69, 70) and 6.8% (150) happened more or less unexpected (case histories 5,7,8,26,30,36, 42,46,54,67). Mortality in both groups is strongly related to HIV infection. For example, because of an increase in premature delivery in the HIV infected²⁵. In the control group, regrets about not having been sterilised decreased (RR 0.56) from 43% to 24% if a child died, and it made no difference if this death was known or expected after delivery or happened unexpectedly later.

Women who were sterilised and lost a child were, if we regard all females, medical indication or not and higher parity or not, 4.3 times as likely to regret their sterilisation (1.6% and 6.9%, Fisher exact test, $p = 0.001$). Again it did not make a difference if the death was known or anticipated or not at the time of sterilisation. Women with a medical indication for sterilisation did not more often lose a child during follow-up, but more often had a child who had already died or who was born so premature that it could easily die. In the non-obstetrical TL group 10/ 668 (1.5%), lost a child unexpectedly. One of those 10 mothers regretted her sterilisation (10.0%) and 2.0% of all those who lost no child, medical indication or not.

If women had already 1-2 children more than they originally wanted, they were less likely to regret a TL. Women who said that their last pregnancy was planned and who lost a child were 6.24 times as likely to regret their TL as women who did not lose a child ($p=0.001$). Women who had not wanted their last pregnancy were less likely to regret their TL if they lost a child than all women who were sterilised who did not lose a baby.

Adult mortality

Adult mortality was $40/2886 = 1.4\%$ of all the women enrolled in this study and 121(4.2%) were or became widows. Both rates are no doubt underestimations because of the difficult follow-up in these circumstances. At least 30% of the women were HIV infected²⁶ and one can assume that, in a "mature" epidemic without specific treatment, around 10% of the infected will die annually²⁷⁻⁸. This would be 86 women. Most women are infected by their (prospective) husbands who by virtue of that fact and the positive correlation between age and progression of HIV infection would be expected to have a higher mortality rate²⁹. Something around two hundred widows would be expected.

Gender

There is nearly no evidence in our figures that women have a preference for sons. As shown above the figures relating regret to gender are too small to draw conclusions. There is also no imbalance in male/female last baby ratio in sterilised women, unlike clearly in Nepal, India, Korea, China, Vietnam and a few other countries³⁰⁻³. Looking at the composition of families in this study comparing TL and control group one can conclude that couples prefer children of both sexes above only children of one gender and that sterilised women compared to the controls have very marginally less often no son than no daughter if all known confounders are controlled for³⁴⁻⁵.

DISCUSSION

It should be emphasised that this study was performed in an unusual window of opportunity for Africa. The demographic transition had started in Zimbabwe a few years before independence in 1980. Zimbabwe has the highest literacy rate in continental Africa, see Addendum Table 5, had a reliable postal service, good roads, good hospital records, well-structured health care and the powers that were had enough confidence in an expatriate to allow the study.

Much has changed. The fabric of society is coming apart at the seams because of the economy, hunger, land redistributions, internal migration, decreasing school enrolment and quality, AIDS, lack of fuel, distrust, emigration of trained (health) personnel and it is dangerous (especially for conspicuous expatriates) to move around and ask questions³⁶⁻⁷. It is easy to imagine that even the production of sterilisation consent forms will become a problem and furthermore, the few remaining doctors will have little time to do TLs let alone do studies. This makes it also unlikely that recommendations resulting from this study can be carried out without outside help.

Another important consideration is that studies like this should not be done often because the study risked exposing women who had themselves sterilised without their partner's knowledge. If we knew this, we did not sent letters and only city dwellers were visited, discretely by non-uniformed student nurses with a good story in case the husband happened to be around. We also did not explicitly mention sterilisation if possible in our letters to sterilised women so that they could pretend that we studied episiotomies, ectopic pregnancies or CSs. Nevertheless, sometimes things went wrong, see case history No 1 and 63. "Clandestine use" of contraceptives in sub-Saharan Africa has been estimated to occur in between 6 and 31% of users²⁰. We still thought the study important enough to do because it had not been done before in Zimbabwe and sterilisation studies with a control group are rare in any case. This previous lack of a good study made it possible for health workers, religious officials and important persons to air opin-

ions, which could only be addressed by impressions of the actual situation. Now there are facts. Perhaps future, evidenced based policies will counterbalance the distress of the poor women who were “caught” by their husbands.

Methodological problems are obvious in this study because allocations to TL and control group were not random. It is unlikely that a proper randomised study of TL compared to another contraceptive will ever be done and one could argue that this study comes nearest to such a study because so many random events were responsible for women being part of either group. Strikes of doctors or nursing staff, broken down autoclaves, no transport to the laundry, time and day of delivery, motivation and experience of doctors who happened to be on call, mood of the anaesthetists, emergency operations limiting access to theatre, oxytocine out of stock resulting in more abdominal deliveries, workshops, holidays, food and mood in post natal ward and character of the nurse in charge of theatre were some of the random factors.

Negative physical and mental consequences of female sterilisation were small or none existent in this study. To the contrary, women seem to feel better. In the literature, menstrual disturbances are often described as happening even years after a sterilisation³⁸. No anatomical explanation has ever been found and the effect can in some studies disappear if there is a proper control group or if women are used as their own controls³⁹. In a large prospective multi centre USA TL follow-up study⁴⁰ menstrual disturbances were also seen but black women reported less irregularity and spotting and fewer days of bleeding than white women. From our results, we can draw the (unhelpful) conclusion that women who were sterilised had as often menstrual complaints as the control group, but less often menstrual problems before the index pregnancy. This might indicate that women who are sterilised feel healthier to begin with and stay healthier after the TL but not in relation to their periods that bother them now as often as the control group. Alternatively, women in the control group accept menstrual problems easier as part of their lives, also because a period is welcome as it is proof of not being pregnant. Another explanation could be that more sterilised women had regular periods earlier because more were using the pill.

Black women have more and larger fibroids⁴¹ and at a younger age. We had the impression that women many years after a sterilisation, reported more often with leiomyomata than women of the same age group who had used hormonal contraception or had had more pregnancies. This would be explainable because pregnancies in general, pregnancies later in life, injectables, implants and probably also the combined pill, protect against fibroids although the relative importance of these factors and their interactions are not known⁴²⁻⁴.

Increased libido after TL is seen in several studies⁴⁵⁻⁷ but not in others⁴⁸. There is no support in the literature of a reduced incidence of depression after TL but large studies with a control group are rare. One large study from China⁴⁹ finds more depression after male and female sterilisation than in a control group; a study from Hong Kong using patients as their own control does not⁵⁰.

There were not many postoperative infections after sterilisations and none serious. This despite the high prevalence of HIV infections in our clients. This can be explained by the fact that HIV infection affects mostly the cell-mediated immunity involved in protection against viruses, fungi, mycobacteria, and protozoa. Wound infections after CSs are also not increased in other studies with HIV positive patients⁵¹.

Service Delivery

Opportunity to have a TL was a much too important factor in selection of patients for TL (Table 5). Fear, lack of knowledge and money (Table 11) were other factors. Less than a quarter of the patients sterilised over the last 12 years in UBH was just seen because they wanted a sterilisation. The others came for delivery, miscarriages, abdominal pain, HIV, bleeding problems etc. Even in the group with only an interval sterilisation, there was often a chance opportunity, such as being referred for the side effects of other contraceptive methods or for removal of an IUCD or Norplant or women happened to be counselled by our family planning sister because a member of the woman's family was admitted to hospital or the woman (or her partner) worked in the hospital or was the wife of a matron's gardener etc.

Pure interval sterilisations were also significantly ($p < 0.02$) more often performed on private patients because private doctors have an incentive, clients are more assertive, and they live more often in town.

We were, time and again, surprised that we saw so few women with HIV infections for contraception. Although most of the 2.2 million (recent 2003, and probably too high estimate by the president of Zimbabwe) HIV positive people in Zimbabwe do not know their HIV status, an estimated 40.000 children die annually of AIDS (30% prevalence in pregnant women x 33% estimated vertical transmission with 19.0 months mean duration of breastfeeding x 400.000 deliveries (crude birth rate around 34.7/1000, 1997)). Nearly all of these children would have been seen at least once by a health worker and in town, often by a doctor working in a paediatric department. Very few of the mothers of these children were referred to our family planning department. Sterilisations of HIV positive women were virtually confined to women identified as HIV positive by our department or referred by the Matabeleland AIDS Council. Other health workers have apparently no time or stomach to counsel patients about their HIV status and options. This is not an academic discussion because women who already have a few children are

very willing to use proper contraception to prevent another child dying in their arms and those without living children are willing to do much to prevent vertical transmission, warranting referral to a gynaecologist. Hormonal contraceptives are problematic for HIV positive women because supply is not guaranteed, they might need transport or money, commodities frequently extra scarce in a family wrought by HIV infection. Furthermore, the pill becomes unreliable if combined with anti tuberculosis medication and to a lesser extent if combined with other antibiotics like tetracycline and penicillin and derivatives. Absorption of oral contraceptives is negatively affected by the frequent attacks of gastroenteritis and the often-diagnosed AIDS dementia syndrome plays havoc with compliance. We found some but not enough evidence in the literature⁵² for us to abandon our recorded¹² concern about the use of IUCD's by immune deficient women and the only conceivable advantage of having HIV is not needing to be afraid of catching HIV, hence motivation to use a condom will be negligible within stable unions.

Annually an estimated 60.000 new women in Zimbabwe, not counting the known HIV infected and those with other medical indications for TL, will have in their own opinion, a completed family. Perhaps a 1000 are sterilised nowadays and there is an enormous backlog. For Kenya, 2.5 times the population of Zimbabwe, in 1984 when only 17% of married women there (40.9% in Zimbabwe in 1999) said they had a completed family, this backlog meant that 300.000 sterilisations had to be performed between 1986-1990 to meet half the demand⁵³. In the USA 700.000 sterilisations take place annually, while the population is 23 times as large. The equivalent would be 30.000 in Zimbabwe. There is no way with the number of doctors per unit of population being 1-3% of the rate in the industrialised world⁵⁴, that so many TLs can be organised. As a result there are more unplanned children and induced abortions straining the government budget. Without a modest incentive to the staff directly involved in sterilisations, also because every operation involves the risk of the surgeon injuring himself and catching HIV, it must be feared that even less women will have the option of a TL in the future.

At medical conferences, it is sometimes argued that sterilisation of women is in Africa not an effective family planning method from de population dynamics point of view, because women are only sterilised when they are already "old" and sub-fertile. Our TL patients were on average 35.8 years at the time of sterilisation and would have enjoyed perhaps 6 years of protection from the operation. But to be really sure, important in a country where legal pregnancy terminations are very rare (maximum 100 annually) and the non-legal dangerous, expensive or both, they should have continued with tablets or injections until age 50 or so. See at age at sterilisation Table 4 Addendum.

Furthermore, studies¹ from other countries show that sterilisation of women of higher age and parity is often an early step in successful programmes.

Religion

Religion seems to become a declining force in family planning behaviour. Roman Catholic countries like Poland, Ireland, Italy and Spain have birth rates among the lowest in the world and Islamic Iran has reintroduced FP. Some Catholic women enrolled in this study seemed to think, without evidence, that pill use is less sinful than a sterilisation. Whilst the Church is very much against IUCD's because it considers this to be a method that causes monthly abortions, using the pill is not declared less wicked than a sterilisation. For practical purposes a TL is much more efficient than injections or the pill because those would in theory need 3 monthly or daily confessions. Besides, the pill can fail especially if proper use is undermined by anti propaganda, resulting in temptation to have a termination of pregnancy (LCH 64). We saw two women who had decided to become Catholic who were not allowed to join the Church before their implants were removed. It is unlikely that the priest would have demanded a reversal operation. Catholics seem to have more (induced?) abortions in our figures. The same is seen in the USA⁵⁵⁻⁶ but there, as in Zimbabwe, many confounding factors are obvious. Catholics for example, might be more inclined to have a planned delivery in an RCC hospital than to report with an (acute) incomplete abortion to such a hospital. Perhaps this was the reason that we saw a higher proportion of Catholics having abortions than having deliveries. The same consideration was operative in a study from Amsterdam⁵⁷. Only some 20% of the women with induced (estimated 60.000)⁵⁸ and spontaneous abortions (estimated 40.000) in Zimbabwe are seen in hospital⁵⁹ so that conclusions about the connection between religion and abortion are difficult to draw. In the USA⁵⁵⁻⁶, Roman Catholics are in general of the lower economic strata and more often "Hispanics". In Zimbabwe, at least in Matabeleland, Catholics are more often private patients and urbanised than members of international churches like the Lutheran, Seven Day Adventist, Dutch Reformed, Presbyterian, Salvation Army, Methodist and Mennonites churches. Some of these denominations actively encourage family planning⁶⁰.

HIV

The subject HIV infection and sterilisation bears some discussion. The small risk related to operating a possibly HIV infected patient is one factor explaining the low number of TLs performed in Southern Africa.

It is very unlikely that systematic antiretroviral drug treatment will be available on a large scale before South Africa has implemented a working policy⁶¹.

Therefore, for the time being, we should assume that highly active anti retroviral therapy (HAART) and even the package of vertical transmission prevention, will not be widely available in Zimbabwe²⁶.

The rational approach would be to test every pregnant woman, or even better, every woman who considers a pregnancy or better still, every woman who is considering a sexual relationship, for HIV. This will not work in the foreseeable future, just like many people in the Netherlands with a 50% risk of Chorea of Huntington will not be tested⁶² and many women do not use folic acid before conception. There are those who advise against TL for nearly any woman who is HIV negative because of the feared “depletion of the Zimbabwean gene pool”. A little overanxious perhaps with an estimated 400.000 Zimbabweans, more than half of the complete population living 100 years ago in the territory now called Zimbabwe, being in Europe. There are those who want to test everybody and sterilise everybody who tests HIV positive to prevent another orphan or vertically infected child⁶³. The HIV epidemic in Southern Africa is so serious that it will no doubt affect the gene pool in the evolutionary sense. There must be a selection in favour of those clever enough and able to prevent infection. Perhaps a selection against a strong libido or being attractive will also be seen.

Failed sterilisation

Failed sterilisation occurred as expected in the light of a large follow-up study from the USA⁶⁴. Our best estimate would be a cumulative 5 years failure rate of 0.4-0.8%. Our patients were relatively old, meaning less chance of failure but on the other hand, in the USA, black women have significantly higher failure rates. The USA CREST study⁶⁴ showed a 10 year cumulative overall 18.5/1000 failure rate with most failures in laparoscopic procedures and the least (7.5/1000) in post partum partial salpingectomies.

Regret

It is difficult to decide what our sterilisation regret rate is, because we do not know how to define regret. For example, a woman who became pregnant after a sterilisation indicated that she regretted the operation (patient 3) and is labelled as such. Four others, whose operation also failed, did not regret having had a TL. Does case history 12 indicate regret and if so, should the rules change regarding suggesting a TL to women having their fourth CS and turning out to have single sex children? If youngish patients/couples insist on a TL and the staff tries to discourage them without success, should they be included in the hospital TL regret rate? If there is a medical indication for sterilisation should regret in this case be included in the overall regret rate. Does regret in a woman, as described in case history 9 mean that she regrets the sterilisation or the indication for the sterilisation. What is a medical indication for a sterilisation: the third, fourth or fifth CS? Also in circumstances where the mortality related to CS is 1%, 3% or even 10% (LCH 72)? What if a woman with 2 previous CSs deliberately delays coming to the hospital until it is nearly too late? What will she do next time? What about a woman

with a scar in the uterus who lives in an area where there is very likely no doctor (LCH 65 and 67) or no functioning transport system for the next few years? What is the survival rate of under-fives if the mother dies of the next CS in a country where according to the United Nations half the population is on the point of starvation and where there are already 700.000 AIDS orphans?

Regret can be profound and ruin somebody's life. It can also be a fleeting feeling if one sees a cute toddler. Some might think it very unethical to even ask a woman in certain circumstances, see LCH 65, if she wants a sterilisation. The same doubt exists about regretting not being sterilised. What does it mean? Is it just a minor inconvenience? Is it serious stress? Will women die of an induced abortion or a ruptured uterus because they were not sterilised? Might some women die after a sterilisation because around 15-20% of the failed sterilisations (with the age structure of our patients and the operation technique we used) become ectopic pregnancies⁶⁴.

How does one compare regret being sterilised to regret being not sterilised? Are they comparable or is the former much worse than the latter? In our arbitrary table 13, arbitrary because we left out the lower parities (see later) and the medical indications for reliable contraception, there are 8 regretted maternity related TLs (not so serious that the patients had a reversal) and 300 regrets for not having a TL (not so serious that many came for a TL later).

We can argue that we did not have such seriously regretted TLs that a reversal operation was necessary, because the one operation we did was on an HIV positive patient. Other studies show higher regret rates for example, 3.2% in Hong Kong⁵⁰ up to 12.7% (5.9% if women were over 30 years of age at the time of TL) in the USA⁶⁵ or in another study from the USA⁶⁶ 14% of the followed-up women report having "second thoughts". High regret rates of around 5% are seen in Brazil⁶⁷ where young age and a complex network of interests and misunderstandings shape the nature of choice of female sterilisation under low-income young women during not indicated CSs. A study from Zaire⁴ showed 2% regret with 1% reversal operations, one from Senegal⁶⁸ 98% no regret, one from Kenya⁶⁹ "virtually no regret" at first follow-up visit. We could have had very high rates in this study if we would have asked, for example: "do you sometimes wonder if your decision to be sterilised was correct?" This question combined with the question: "do you sometimes have complaints caused, you think, by the operation closing the tubes" would have made it probably possible to claim a "second thoughts" rate of over 25%. In reality, most of the literature⁷⁰ indicates that 10% of sterilised women have some degree of regret about having undergone the procedure; 0.1-0.3% of sterilized women in developing countries (except Brazil) and 1-3% of sterilized women in developed countries ask about surgery to restore their fertility, with about one-third of the

women in developed countries who consult a doctor eventually proceeding to have reversal surgery.

The combination of age and parity seen in the average patient sterilised in UBH would of course be rare in TL patients outside Africa and the Middle East, and would seldom be associated with regret in studies from China, USA, Korea, Brazil or Europe.

We suggest that regret should be defined as being prepared to undergo a reversal operation or IVF if a medical aid society or the health department would bear the costs and there would be no serious contra indications to a pregnancy and the patient is not much older than 40 years old. Defined as above, we had no regrets that we know of over a period of 13 years when around 3200 sterilisations were performed. With the age distribution of the sterilised women, around half of the 3200 was past the point of realistically wanting more children at the end of this study.

There is frequently in reported studies a very strong negative correlation between age at sterilisation and regret, more than regret and the number of children is (negatively) correlated. This is because much can still change in the marital relationship of a young woman. The relative risk of requesting reversal for women sterilised before age 25 was in one study⁷¹ 18 times that of women sterilised after age 29. In our study (excluding those with a medical indication) that factor was in relation to regret 6.3 but there were only 19 women in the under 25 group and 1317 in the above 29 years group. The decision being strongly pushed by others (doctor, partner, friend, mother) is often also a factor in regret⁷². Less information about the procedure, and fewer contraceptive methods known before sterilisation seem to have a strong influence on the degree of regret⁷⁴. A study of reversal operations in India showed that 70% of the women involved was Para 2 or less and more than 80% had lost at least one child⁷³. This type of patients were not sterilised in UBH, unless there was an obvious medical indication or strong pressure exerted by the patient.

Having written all the above we believe that regret prevention should be approached from a practical point of view. What does this study contribute in guidance to health personal in similar circumstances? The overall regret rate was (related to maternity or not) $61/1954 = 3.1\%$ (incl. 30 women who died later in the denominator). This figure does not help much because it includes failed TLs and women who did not want more children but had complaints possibly related to the TL. These situations are not predictable. It is difficult to blame abdominal pain on a TL if a woman also has had a CS for example, and other contraceptive methods also give problems, but there is the (in practice) unique irreversibility of sterilisation. Therefore we will focus on wanting more children. Women who died do of course not regret being sterilised. Their family can, but that is only relevant if the TL caused the mortality, none in these series, but see LCH 28, 72 & 74. Wanting another child or the option of another child is an indication of the care

taken in selection of TL patients and the stability of the patients' opinion. This calculation results in a 2.1% (42/1954) regret rate. A medical indication for a sterilisation should strictly speaking not figure in the regret rate. A doctor looking for guidance in this paper will in general propose a TL to a patient of whom s/he thinks that she has a medical indication for sterilisation; no guidance necessary. He/she can if the situations are comparable expect a regret rate of 3.4% (16/465) in the medically indicated sterilisations.

What is left are 26 regrets relating to 1489 TLs i.e. a 1.7% regret rate. There must be women in this group who were sterilised because pressure was exerted on the hospital staff, or on the women by partners, mothers (in law), nurses or doctors. In order to compensate for that we remove women from this equation who did not meet our definition of higher parity at the time of sterilisation, 152 women of whom 10 (6.6%) regret their TL. What is left are 1337 women of whom 16 (1.2%) wanted more children. This includes 4 women who lost a child after the index delivery; two of those women became LISARUN - 1. Our figures give a good indication of the best policy for a hospital in southern Africa depending on the acceptability of different forms of regret. With a small reduction in sterilisations by, for example, adhering better to our policy of offering only non-medical indicated TLs to the group of women defined as \geq LISARUN (or even LISARUN + 1 in maternity), the regret rate for sterilised women without a medical indication for sterilisation can be very low as opposed to situations in other countries where younger age and fewer children at the time of TL make a change in circumstances resulting in wanting another child, more likely. It goes without saying that the reduction mentioned above goes hand in hand with an increase of women who regret not being sterilised.

Young women and unmarried women and women with an unstable marriage are also at risk of regret. Widows often have an extra indication for TL but that indication should be confirmed with an HIV test. Divorced women are also in an HIV high-risk group because they often divorce because of extra marital relationships of either or both partners. A new relationship (mostly with another divorcee or widower) entails a new risk of at least 30% of HIV infection.

Care should be taken with the sterilisation of women who have just delivered a dead or pre-term child if they have not many surviving children already. "Not many" depends on the local definition and there is difference between for example Mali and Botswana. If sterilisations take place during CS, unavoidable in Southern Africa with the resources available but also quite normal in the USA and routine in Brazil, a reliable person should examine the baby properly to assess viability (case history 5). If possible, the "what if" scenario should have been discussed with the woman/couple involved. In another paper¹⁹, using data of this study satisfaction with sterilisation is plotted against being given the option of a sterilisation or not in higher parity women who need a CS

electively or at short notice. The results of that study showed that it is much better to give higher parity women that option even if she needs an emergency CS as defined under Methods. Studies about regretted TLs normally have no non-sterilised control group showing how many regrets there can be in non-sterilised women.

CONCLUSION

This study demonstrated that mental and physical problems after sterilisations were rare and easily counterbalanced by positive effects. Most sterilised women indicated that they were very happy. Failed sterilisations were not seen in a higher than expected frequency.

Regret was rare: 2.1% overall, 1.7% for sterilisations without medical indications and 1.2% for sterilisations without medical indications in women with four or more children or three children if they were 30 years or older at the time of sterilisation. More than 40% of the latter sub-group of women in the control group were unhappy not having been sterilised.

3.4% of the women with a medical reason to stop having children regretted their sterilisation. Of some concern is the regret related to the unpredictable death of a child after sterilisation, especially if not caused by AIDS, and to a lesser extent, regret related to a new relationship, which needs cementing with a few extra children. The bereavements happen of course more with delivery related sterilisations than with interval sterilisations. The best solution to this problem would be to wait until a year or so post partum with the sterilisation in those women who just have the number of children wanted. This is a small group of women because many who are sterilised have already one or two children more than originally planned. If the resources are not there to organise a proper interval sterilisation service and/or the women involved rarely have the opportunity to return, then one has to accept some more regret or reduce the hospital TL rate by around 10 % - the women with no medical indication for a delivery associated sterilisation, who have less than 6 children after delivery or are have less than 5 children if they are at least 30 years old - in hospitals with a similar case load, depending on how much importance is given to regret related to not being sterilised and the complications thereof. This study does not provide evidence that non-medically indicated TLs should not be performed in relation to deliveries in the prevailing circumstances. The situation might change if women are in the future more successful in having just the (small) number of children they want before sterilisation and at a younger age, in which case the death of a child or a divorce might more often result in a request for reversal.

There were no women in this study without a medical contra indication for a pregnancy nor any woman that we know of among women sterilised over a period of 13 years in non-private practice in Bulawayo, who regretted their TL so much that they were prepared to have an all costs paid reversal operation.

The institutional capacity to perform the sterilisations women would be very happy to have, is not available in Africa and some form of incentive for staff would be a step in the right direction.

If sterilisation is indicated anywhere in the world, then the most suitable circumstances for its success, in terms of low regret rates, and low failure rates compared to alternatives like the pill, are present in sub-Saharan Africa.

Table 1 Characteristics of sterilisation group (1286 delivery related, patients who died later included) and control group (delivery related) in successfully followed-up women.

	Sterilised = 1286	Control group = 932	p value
- Mean age at index delivery in years	35.0	32.9	<0.001
- Mean number living children at follow-up	5.1	4.5	<0.001
- Delivered by caesarean section	58.8%	40.7%	<0.001
- Using hormonal contraceptives	0.3%	54.1%	<0.001
- Having an (arbitrary) medical indication for very effective contraception	29.0%	15.7%	<0.001
- Very poor patients	36.7%	24.8%	<0.001
- Private patients	33.3%	37.2%	0.061
- Want more children	2.2%	25.1%	<0.001
- Use of unreliable method of contraception (not sterilisation, IUCD, implant or injectables) or none, by those women who do not want more children	0.0%	70.3%	
- Patient had died at follow-up or later	25 (2 after response)	8	
- Period of follow-up	27.2 months	28.3 months	<0.001

Table 2 Composition of successfully followed-up sterilised women (including those who died) and women in the control groups in eight subgroups with data in relation to use of contraceptives and completeness of families and regret.

Sub-groupings	n (% of TL group)	TL Group n Want more children (% of previous column)	N (% of control group)	n Want no more children (% of previous column)	Control group n Regret not sterilised of those who do not want more children	Percentage of higher parity women in subgroups sterilised
- TL + legal. abortion	30(1.6%)	3(10.0%)				Estimated 85% (mostly HIV positive)
- TL + ectopic pregnancy	41(2.1%)	3(7.3%)				Estimated 15%
- TL + incompl. abortion	181(9.3%)	4(2.2%)				Estimated 10%
- Interval TL	311(15.9%)	2(0.6%)				Estimated 1-2% of new women who want to stop reproduction annually in area covered
- TL + other elective gynaecological operation	105(5.4%)	2(1.9%)				Estimated 50%
- TL with an elective CS + control group	439(22.4%)	13(3.0%)	97(10.4%)	64(66.0%)	43(67.2%)	75.0%
- TL with an emergency CS + control group	317(16.2%)	9(2.8%)	282(30.3%)	187(66.3%)	136(72.8%)	53.8%
- Post partum TL + control group	530(27.1%)	6 (1.1%)	553(59.3%)	421(76.1%)	225(53.4%)	12.5%, or around 6% if deliveries in referring clinics are included
- Total	1954(100%)	42(2.1%)	932(100%)	672(72.1%)	404 (60.1%)	

Table 3 Sterilised group, age and parity (living viable children at time of sterilisation) from UBH maternity (whether followed-up with success or not).

	Number of higher parity women in sub-group sterilised	Mean age 25, median and 75 quartiles of women sterilised	Mean parity 25, median and 75 quartiles of women sterilised
Vaginal delivery <i>n</i> = 4774	595(12.5%)	36.2, 33.5-36.0-39.0	5.9, 5.0-6.0-7.0
Elective CS <i>n</i> = 609	457(75.0%)	33.7, 31.0-33.0-37.0	4.5, 4.0-4.0-5.0
Emergency CS <i>n</i> = 662	356(53.8%)	35.8, 32.0-36.0-39.0	5.2, 4.0-5.0-6.0

Table 4 Potential (whether followed-up with success or not) control group, age and parity (living viable children after index delivery) from UBH maternity.

	Number of higher parity women in sub-group not sterilised	Mean age 25, median and 75 quartiles of women not sterilised	Mean parity 25, median and 75 quartiles of women not sterilised
Vaginal delivery <i>n</i> = 4774	4179(87.5%)	34.1, 31.0-34.0-37.0	4.9, 4.0-5.0-6.0
Elective CS <i>n</i> = 609	152 (25.0%)	32.9, 30.0-33.0-35.0	4.0, 3.0-4.0-4.0
Emergency CS <i>n</i> = 662	306 (46.2%)	33.7, 31.0-34.0-36.0	4.5, 3.0-4.0-5.0

Table 5 Mode of delivery of those 802 women who were older than 39 years in the 6045 \geq LISARUN women.

Mode of delivery of those above 39 years	Fraction sterilised
Vaginal delivery n=644	139/644 = 21.6%
Emergency CS n=101	82/101 = 81.2%
Elective CS n=57	51/ 57= 89.5%

Table 6 Marital status and loss of a child after sterilisation or after or around index delivery of sterilised patients and control group.

	All followed-up sterilised women (n=1954)	Control group (n=932)
- Died	32(1.6%)	8(0.9%)
- Divorced during follow-up time	22(1.1%)	13(1.4%)
- Already divorced at index visit	37(1.9%)	17(1.8%)
- Became widow during follow-up time	28(1.4%)	29(3.1%)
- Already widow at index visit	49(2.5%)	15(1.6%)
- Married both at follow-up and before	1549(79.3%)	769(82.5%)
- Single, boyfriend, remarried	249 (12.7%)	87(9.1%)
- Lost child after TL or around or after index delivery	150	94

Table 7 Whether last pregnancy was planned.

	Group sterilised and alive (n=1926)	Higher parity control group (\geq LISARUN) (n=821)
- Question not answered	12.9%	18.3%
- Last pregnancy timely	29.3%	37.0%
- Last pregnancy too early	11.6%	14.7%
- Had hoped before last pregnancy not to become pregnant anymore	46.2%	30.0 %

Table 8 Situation at follow-up after sterilisation related to delivery (n=1263) compared to control group (n=924).

	Sterilised	Control group	p value
- Complaints about periods at follow-up	31.9%	27.8%	0.047
- Complaints about periods women using hormonal contraceptives excluded	31.9%	30.8%	0.717
- Less appetite at follow-up	15.5%	15.7%	0.902
- Abdominal pains at follow-up	42.9%	39.7%	0.152
- Becoming fat at follow-up (not necessarily a complaint especially these days)	30.6%	34.5%	0.068
- Sad at follow-up	25.8%	31.4%	0.007
- Less desire in sex at follow-up	41.8%	48.5%	0.003
- Headaches at follow-up	35.3%	36.8%	0.480
- Physical problems just after delivery or sterilisation other than mentioned above	27.1%	23.2%	0.040
- Regret being sterilised (n=1263)/ not sterilised(n=924)	42 (3.3%)	404 (43.7%)	
- Regret because wants more children or at least have that option (n=1263)/ wants more children (n=924)	28 (2.1%)	234 (25.3%)	
- Wants more children and having no medical indication for sterilisation (n=902)/same for no TL (n=766)	15 (1.7%)	206(26.9%)	
- Wants more children and have no medical indication for sterilisation and are of higher parity (n=804)/ same for no TL (n=672)	8 (1.0%)	161(24.0%)	
- Wants no more children	1235	690	
- Re-anastomosis operation/ unwanted pregnancies within on average 28.3 months of follow-up	0	41/690 (5.9%)	

Table 9 Complaints present at follow-up after sterilisation post partum (n=520) compared to controls who also delivered vaginally (n=548).

	Sterilised	Control group	p value
- Complaints about periods at follow-up	30.6%	29.0%	0.573
- Complaints about periods excluding women using hormonal contraceptives	30.0%	33.1%	0.443
- Less appetite at follow-up	15.6%	15.2%	0.863
- Abdominal pains at follow-up	38.3%	39.9%	0.610
- Becoming fat at follow-up (not necessarily a complaint, especially these days)	29.3%	35.3%	0.049
- Sad at follow-up	21.8%	33.0%	<0.001
- Less desire in sex at follow-up	37.4%	48.7%	<0.001
- Headaches at follow-up	32.4%	35.2%	0.363
- Physical problems just after sterilisation and/or delivery other than mentioned above	21.4%	21.4%	0.996

Table 10 Complaints present at follow-up after sterilisation not related to delivery (n=661).

- Complaints about periods at follow-up	37.6%
- Less appetite at follow-up	12.5%
- Abdominal pains at follow-up	40.0%
- Becoming fat at follow-up (not necessarily a complaint, especially these days)	32.6%
- Sad at follow-up	23.5%
- Less desire in sex at follow-up	31.8%
- Headaches at follow-up	29.7%
- Physical problems just after sterilisation and/or delivery other than mentioned above	19.9%
- Regret overall	19(2.9%)
- Regret because wants more children or at least have that option	14(2.1%)
- Regrets sterilisation and there was no medical indication for sterilisation (n=576)	7(1.2%)
- Regret sterilisation and there was no medical indication for sterilisation and being of higher parity at follow-up (n=513)	6(1.2%)
- Re-anastomosis operation (39 years, 5 children, divorced, HIV +) Case 48	1(0.2%)

Table 11 Reasons for not having a sterilisation in 672 surviving members of the control group who did not want any more children after index delivery; unplanned pregnancies.

- Wanted to use an other contraceptive method	158 (22.9%)
- Thought herself to be too old to become pregnant again	77(11.2%) of whom 44 (after lac- tation)younger than 38 years and 15 above 40 years
- Not discussed with partner, partner could get angry if she would decide without him, knew or suspected he was against sterilisation	110 (16.0%)
- Afraid of operation or side-effects later	132 (19.2%)
- Thought religion is against sterilisation as a form of contraception	36 (5.2%)
- Operation not offered or blames herself for not asking (11)	196 (28.4%)
- What happened in hospital (doctors or nurses strike, great hurry, stress)	47 (6.8%)
- No time to wait in hospital keen to go home to run household	76 (11.3%)
- Doctor or midwife refused a request for sterilisation	9 (1.3%)
- Doctor forgot the sterilisation during caesarean section including in one woman who was pregnant because of a failed sterilisation	8 (1.2%)
- (Fear of) extra payment needed for longer stay in hospital only 3 as only reason	81(11.7%)
- The new relation (probably) wanted another child, woman not really	11 (1.6%).
- Had had an (induced?) miscarriage at follow-up including one ectopic pregnancy	8 (1.2%)
- Was pregnant or had delivered an unplanned pregnancy at follow-up	33 (4.8%)

Table 12 Reasons why some of the 234 women in the control group of 932 who wanted more children wanted more children after the index delivery

- Too few girls, or too few boys	14 (6.0%), 12(5.1%)
- Started new relationship	32 (13.7%)
- Wants more children because partner wants more children	17 (7.3%)
- Because religion does not allow people to limit their fertility	30 (12.8%)

Table 13 Higher parity at time of follow-up (\geq LISARUN) women stratified according to mode of delivery plus interval TL. Regret TL (wants more children) and regret no TL (missed opportunity, unwanted pregnancy or problems with other contraceptives). Excluding women with a medical indication for a TL and women who died

	Regret TL	Regret no TL	RR with 95% CI, p value
- "Emergency" CS n= 377	3/196 (1.5%)	90/181 (49.7%)	1 0 - 32 - 100, <0.001
- "Elective " CS n= 221	4/160 (2.5%)	27/ 61 (44.3%)	6 - 18 - 49, <0.001
- Vaginal Del. n= 890	1/448 (0.2%)	183/442 (41.4%)	26-185-1318, <0.001
- Interval TL n= 955	6/513 (1.2%)	183/442 (41.4%)	16- 35 - 80, <0.001
+ Vaginal Del. as Control			

LIST OF CASE HISTORIES

- 1 Patient was 33 years at the time of sterilisation performed during an emergency caesarean section at 3 am after transport by ambulance over 420 km for impending eclampsia. The daughter of 1725 gram at 32 weeks survived. The patient was then the mother of 2 sons and 4 daughters. We saw her again 5 years later with her daughter of 22 requesting reversal of sterilisation claiming to have had 3 daughters only. It turned out that one of her daughters and her 2 sons were from an earlier relationship. Her husband (2 daughters elsewhere) saw our questionnaire and found out that she had been sterilised. He was not happy. Her blood pressure was 170/110 and she was at the time 38 years. She insisted on an operation but allowed an HIV test first. She was prepared to abandon her quest when the test turned out to be positive.
- 2 Patient was 33 years at the time of sterilisation and had 2 sons and 1 daughter. She is the only female patient found in the theatre records sterilised by a (junior) surgeon. The sterilisation was performed while her incisional hernia, after 3 previous caesarean sections, was (unsuccessfully) repaired. She does not want more children and has developed breast cancer since but thinks her scar is so ugly because of the sterilisation.
- 3 Patient was 30 years at the time of the interval sterilisation and had 3 sons and 2 daughters. She is not happy with the sterilisation because she became pregnant and has now 3 daughters.
- 4 She, 30 years, poor, unmarried, mother of one son, pushed the doctors into sterilising her after the delivery at 28 weeks of an unplanned stillborn foetus at 28 weeks. She has at follow-up second thoughts, no stable partner but if she had one, she would like to be able to have a baby.
- 5 Patient was 37 years at the time of sterilisation performed during a planned caesarean section, her third operation and fourth baby. The baby had an Apgar score of 10 after 5 minutes but died after a few days because of a congenital heart problem. For both partners in the marriage it is the second marriage. Her husband has two sons from an earlier marriage and so has she. They have 1 surviving son together. Her comment was that a man says, "yes one day no another" and that she "will go for a test tube baby". She was invited for a re-anastomosis but declined because she cannot face the prospect of 2 more operations.

- 6 Patient was 28 years at the time of the sterilisation during an emergency caesarean section for hypertension and two previous caesarean sections. She had 3 sons and 2 daughters. She then started a new relationship and wanted to seal the bond with a child. She was booked for re-anastomosis but a preoperative HIV test turned out to be positive.
- 7 Patient was 26 years, a married domestic worker at the time of sterilisation performed during her fourth, planned, caesarean section. The operation was very difficult because of enormous keloid formations at the lower abdomen. There was also a large hole in the lower anterior wall of the uterus covered by peritoneum. We saw her again a few months later when she came for help after her baby had died. We deduced from the baby's hospital outpatient card that she died of HIV. The mother claimed not to know that. She very much wants a re-anastomosis but we refused. She has one son and one daughter.
- 8 She had her 4th vaginal delivery at age 35, a breech. The child died a few months later. At follow-up she regretted the post partum sterilisation. We invited her for an all costs paid visit, but she never turned up. We checked again and were informed that she had died, probably from AIDS.
- 9 Patient was 27 years at the time of the sterilisation during a caesarean section performed earlier than planned because she went into labour at 37 weeks. This time it was her third operation and third boy. The lower segment of the uterus is very thin on the point of rupturing and the consultant decides that there is a medical indication for sterilisation. A few days later she develops a "platzbauch" and needs re-operation. She indicates on the questionnaire that she is unhappy with her sterilisation but does not follow this up with action.
- 10 Patient was a 25 years old married student at the time of the sterilisation performed during a planned caesarean section, her third, performed by a private doctor. She had lost a child earlier. At follow-up she had a boy and a girl and wanted one or two more children but undertook no action after our offer of an all costs paid re-anastomosis. She wrote "will regret" behind the question if she would recommend a sterilisation to her friends.

- 11 Patient was 32 years poor and married at the time of the sterilisation performed during her sixth, planned, caesarean section. She has 5 sons and 1 daughter (the youngest). No action from our side was undertaken after she indicated that she wanted more children.
- 12 She was 30 years, married to a mineworker while she had her fourth caesarean section combined with a sterilisation, and has then 4 sons. She wrote: "would like a daughter but this is best".
- 13 The private patient was 32 years at the time of the interval sterilisation and had 3 sons and 2 daughters. Thirty-four months later she indicates on our questionnaire that her husband is unhappy because he lost a son he had with another woman. The husband has only one son with our index case.
- 14 The private patient was 25 years at the time of the sterilisation combined with a legal abortion. She had then atrium fibrillation and cardiac failure caused by rheumatic heart disease. She had 1 son and 1 daughter. At the time of follow-up she had received a heart valve implant, was no longer married but had a boyfriend and worked in the sales department of a large supermarket. She indicated that she regretted the sterilisation. She was then contacted by telephone and said she had no time for another operation.
- 15 The private patient was 37 years at the time of the sterilisation combined with a legal abortion for an abnormal baby. She had at follow-up two boys and saw the sterilisation as a "hasty decision". She was not disappointed enough to contemplate a re-anastomosis.
- 16 The patient was 28 years, Roman Catholic and married at the time of the sterilisation, which was combined with a legal abortion for her HIV infection. She had at follow-up only one daughter after she lost a child after the sterilisation. She wrote that everything had not been explained well and that she would like four children.
- 17 The private patient was a 30 years old teacher at the time of the sterilisation during an emergency operation for an ectopic pregnancy. The sterilisation was discussed before the operation at her initiative. At follow-up 34 months later she is the single mother of one boy and regrets her decision but not so seriously that she wants to be operated on.

- 18 The patient was a 36 years old wife of a gardener admitted for an ectopic pregnancy. She wanted a sterilisation when offered and we contacted him via his employer's telephone. He was, we were told, keen not to have children anymore. At the operation she had 1 litre of blood auto-transfused. At follow-up the employer told us she lived in the rural areas and was rather disappointed because she had lost faith in us. She had delivered, 32 weeks after the sterilisation, a daughter of 3100 gram and was afraid that she was still fertile. The gardener and his employer were much happier after the explanation.
- 19 The patient was a 37 years old wife of a mineworker admitted with an incomplete abortion. The evacuation of the uterus was combined with a sterilisation. At follow-up she wanted one more child having 2 boys and 3 girls, but not enough to have an operation.
- 20 The patient was a 32 years old divorcee mother of a boy and a girl, admitted with an incomplete abortion. The evacuation of the uterus was combined with a sterilisation, completely at her initiative being fed up with pregnancies after three deliveries an ectopic and now an (clandestine) induced abortion. At follow-up, now married she wanted to be fertile again but turned out to be HIV positive.
- 21 The patient was a 29 years old girlfriend of a mineworker admitted with an incomplete abortion. The evacuation of the uterus by a private gynaecologist was combined with a sterilisation. At follow-up she wanted one more child having 2 boys and 2 girls. She felt guilty because her partner did not know about her sterilisation and he had expressed surprise repeatedly about her failure to become pregnant. She blames herself.
- 22 The patient was a 35 years old wife of a policeman admitted with an incomplete abortion. She became pregnant while using DMPA but not every 3 months. The evacuation of the uterus was combined with a sterilisation; the husband does not know this. At follow-up she wanted one more child having a boy and three girls.
- 23 The married private patient was 35 years at the time of the sterilisation performed during the removal of an ovarian cyst. She had at follow-up 7 years later two boys and four girls and felt around that time a sudden urge to have another baby.

- 24 The patient was a 37 years old single unemployed woman with two sons admitted for an ectopic pregnancy. She wanted a sterilisation but at follow-up 4 years later she wanted another child.
- 25 The patient was a 36 years old wife of a prison warden admitted with an incomplete abortion. She had four sons and four daughters. She shared the husband with another woman, she being his second wife. The evacuation of the uterus was combined with a sterilisation. Since the operation, at follow-up nearly 4 years ago, she suffers pain when having sex. She does not want more children and complains that there was lack of hygienic tissues in the hospital.
- 26 She, 34 years and a private patient, develops Herpes Zoster in her fourth pregnancy. A test confirms that she is HIV infected. Zidovudine is given to try to prevent vertical transmission. After the delivery of her daughter with a good Apgar score she is sterilised. At follow-up 2 years later that daughter has died she is losing weight and still has two sons and a daughter. Her comment is that she regrets the sterilisation because if a miracle drug was invented and she was cured then she would not be able to become pregnant.
- 27 She had, as a teenager, a serious handicapping car accident and still suffers from the consequent epilepsy. After two pregnancies resulting in a daughter and a son her parents who are financially responsible for her talk her and a private gynaecologist into a sterilisation. She is then 21 years old. She writes that she has a new boyfriend and if he turns out to be okay, she will come for reversal.
- 28 She is 31 years and it is clinically obvious during her second pregnancy that she is HIV positive bordering on AIDS. The laboratory confirms this suspicion and she had, after the delivery of her son, a sterilisation. She was not a candidate for Zidovudine. A repeat follow-up questionnaire is filled in by the husband who informs us that she has died and that his in-laws blame him for her death because he allowed the sterilisation. They demand 5 cows in compensation. No information about the son is available.
- 29 She was 40 years old, a domestic worker, the single mother of a boy and a girl when her pregnancy complicated by serious hypertension resulted in the intra uterine death of a male foetus. She had a post partum sterilisation. Fate decided that her "madam" delivered around the same time and she spends much of her time with the son who is now just over 3 years old. That hurts her. She still has an erratically treated hypertension.

- 30 She is 28 years unmarried and referred from Plumtree District Hospital, at that time without a doctor. She had 3 previous caesarean sections, but only one son has survived. Her fourth operation is combined with a sterilisation. This is what the patient wanted. It is not clear why her other children died, she refused an HIV test, but at follow-up two years later she regrets her sterilisation because her daughter died. We planned to visit her but that never happened.
- 31 Patient was 34 years, poor and married at the time of the sterilisation performed during her fourth, planned, caesarean section. She has 3 sons and 1 daughter. She was very ill postoperatively, discharged and readmitted with a serious wound infection. At follow-up 9 months later, she is fine and blames her complications on the sterilisation because the previous operations were uncomplicated.
- 32 Patient was a 32 years old, unmarried, teacher at the time of the sterilisation performed during her third, planned, caesarean section. She has 1 son and 2 daughters. At follow-up 40 months later, she is ambivalent about the wisdom of performing the sterilisation. There are developments in her love life.
- 33 Patient was referred from a district hospital, no income, married, and was 30 years at the time of the sterilisation during an emergency caesarean section at 5 am after three previous caesarean sections in labour. After the operation she had 2 sons and 1 daughter. At follow-up 1 year later she regrets her sterilisation and expresses her satisfaction with the excellent services rendered.
- 34 Patient was 38 years at the time of the sterilisation during an emergency caesarean section for a failed induction indicated by hypertension, she had already 1 son. The girl is 1745 gram and has a good Apgar score. The woman is a state registered nurse and midwife employed 100 km from Bulawayo, her husband is in the police force. At follow-up nearly 3 years later, the girl is 13 kg and doing very well. She has not told the husband about the sterilisation and because of that, she is rather ambivalent about it. She was then 41 years old and the ambivalence might very well be academic.
- 35 Patient, 30 years old and married mother of 2 daughters is referred for severe pregnancy induced hypertension. After 11 days in hospital we decide that it is not longer safe for mother and child to continue the pregnancy. This decision was pending for at least a week and we had discussed the option of a sterilisation during a likely caesarean section. She is sterilised the new daughter weighed 1375 gram and had an Apgar score of

9-10 and survived. At follow-up 39 months later patient wants to “loosen the tubes for a boy”.

- 36 Patient 31 years old, is referred from a district hospital in labour for her third caesarean section. She has a signed “TL form”, dated a week earlier, with her. She is unmarried, and has no income and 2 daughters. With the help of a caesarean section a son of 2575 gram is delivered with in the delivery records the Apgar score recorded as “7-3-8-6/10”. The baby dies a few days later. At follow-up 41 months later she is very unhappy and invited for an all costs paid re-anastomosis. She never reacts.
- 37 She was 37 years, married and her husband worked in South Africa and she was admitted from a district hospital with vaginal bleeding. On arrival, the foetus had died and she was not bleeding much. Induction of labour was attempted, but failed and she was then delivered abdominally from a dead male baby and sterilised. At follow-up 14 months later and the mother of 2 sons and 3 daughters, she regretted her sterilisation. When we contacted her again six months later she indicated that she had now reconciled herself with her situation.
- 38 She was 24 and had her third, elective, caesarean resulting for her third son combined with a sterilisation. She is employed as a daily worker and her boyfriend shares only the last child with her. She indicates on the questionnaire 28 months later that she regrets the sterilisation but on visiting her, it becomes clear that she does not want more children but her informal husband does and he does not know about the TL.
- 39 The patient is 22 years, single and referred from a district hospital for her third caesarean section. She has a signed “TL form”. She has 2 daughters. She delivers her third child abdominally and is sterilised. Twenty-six months later she indicates to be unhappy for her new boyfriend who wants a child.
- 40 She signs at 25 years a TL form in early labour 160 km away in a hospital without a doctor and is then put in an ambulance. At arrival her fourth caesarean plus sterilisation is performed promptly. In the notes is recorded that the uterus was on the verge of a rupture. She is then the mother of three boys and one daughter. When she does not answer our questionnaire 20 months later we sent a reminder. A few days later the first questionnaire is returned: she is happy. Three months later the reminder comes back, she wants two more children.

- 41 Patient was 35 years old, married and had no monetary income to speak of at the time of the sterilisation performed during her third, planned, caesarean section. She has then 2 sons and 1 daughter. At follow-up 21 months later she indicates that she is wants more children and is happy with the operation without further comment. Subsequent inquiries are not answered. She could have ticked the wrong box.
- 42 Patient was a 33 years old single and had very little income at he time of the sterilisation performed during her fourth, planned, caesarean section. Her first caesarean was for very prolonged labour and the baby died soon after. She had after the fourth operation 1 son and 2 daughters. The son, born with a good Apgar score, died six days later for unknown reasons. We discussed a re-anastomosis one month after delivery and agreed that we would see her again in 6 months and would then operate her provided she had a negative HIV test. We had not seen her nearly 2 years after delivery.
- 43 This married, private patient was 35 years at the time of sterilisation performed during a planned caesarean section, her second operation and seventh baby. She has 5 daughters and lost one son of 2 years and one at age 3. Her husband used to beat her a lot she writes 44 months later, not lately though, they have no sex anymore but he wants a boy. She suspects he is HIV positive. She wants to be tested but her husband should go for a test first.
- 44 Patient was 33 years old married and had no monetary income to speak of at the time of the sterilisation performed during her second, planned, caesarean section. She has then 3 sons and 1 daughter. At follow-up 18 months later, she has become a widow and indicates that she is not sure if she wants more children but does not follow it up.
- 45 As we perform her third caesarean plus sterilisation in the middle of the night when she turns up in labour, she is 36, the mother of 2 boys and 1 daughter. Three months later she indicates on the questionnaire that she was happy with the service but that she would like another child. She does not follow that up although invited to do so.
- 46 She delivered in another government hospital and had then 4 children and was 35 years old and divorced and had a job as a secretary. She had pregnancy-induced hypertension and the baby of 2.2 kg died soon after delivery. Thirteen days after delivery she is admitted in United Bulawayo Hospitals by a private gynaecologist for sterilisation. At follow-up 39 months later she has a new partner her blood pressure is fine. She wants to come for tubal surgery but seems not to be able to make it.

- 47 She had her first caesarean plus sterilisation for pregnancy-induced hypertension by a private gynaecologist. She is then 30, a teacher and married to a teacher and the mother of 2 boys and 1 daughter. Later the youngest, a daughter, dies it turns out at follow-up 2 years later, and she regrets her sterilisation. No further details available.
- 48 She is now 39 years and had a laparoscopic sterilisation 11 years ago, her youngest is 13 years and she has divorced her husband, a soldier. She has 4 daughters and 1 son. She claims to have no partner but wants to be "ready" when one turns up. The laparoscopy scar is a large keloid tumour and she is informed about the likelihood of a large keloid after a laparotomy. She refuses an HIV test but later allows a test as long as she is not told the result. The test is positive and she has her re-anastomosis. She was not part of the planned follow-up cohort but is included anyway because members of the cohort might come long after the study is finished with regret.
- 49 The patient was a 35 years old married teacher with two sons admitted for an ectopic pregnancy. She wanted a sterilisation but at follow-up 1 year later after she had been written to 3 times, she wanted another child. The two boys she has are 5-year-old twins.
- 50 The patient was a 33 years old single domestic worker with 3 daughters each with a different father. She came with an incomplete induced abortion (her second) and she had a sterilisation with the evacuation of the uterus. Ten months later, she indicates on the questionnaire that she has a new boyfriend and wants a child.
- 51 She was a 39 years old, married mother of 2 daughters after her last pregnancy which was complicated by severe hypertension (210/140). She had a post partum sterilisation by a private gynaecologist complicated by a wound in the bladder noticed in time, and a postoperative wound infection. Three years later at follow-up she is unhappy and wants another child.
- 52 She is 28 and the wife of a civil servant when she is sterilised with her third caesarean section having then a boy and two daughters. Two years later, she becomes pregnant. Her private gynaecologist in the government hospital terminates her pregnancy, although this situation does certainly not give her an indication for a legal abortion within Zimbabwean law. Her husband subsequently has a vasectomy.

- 53 She has her second elective caesarean section for her 6th child when she is 41 years old. She is unhappy with the simultaneous sterilisation because of the backaches and stomach cramps she develops later. She did not want to have more children she says at follow-up, 11 years after the operation when she is still married with the same railway man.
- 54 Had her first caesarean section for her tenth delivery for bleeding when she was 33. At follow-up more than 10 years later she has lost 2 boys one at 9 and one at 20 years of age both of "headache". The girl of 11 is doing well. Being a grandmother and having 4 sons and 4 daughters is not enough, she is bored and wants another child.
- 55 The patient suffered from rheumatic heart disease with mi/ms and she had a post partum sterilisation under local anaesthesia when she had 2 sons at age 29. We sent her a questionnaire 4 months after delivery, she filled it in but died soon after. Her husband found it 5 months after that and sent it to us
- 56 Patient was 33 years and married to a civil servant at the time of sterilisation performed during her fourth, planned, caesarean section. She had then 1 son and 2 daughters having lost a child earlier. At follow-up 15 months later she wanted more children but did not visit us.
- 57 Patient was 33 years and married at the time of sterilisation performed during her third, planned, caesarean section. She had then 1 son and 2 daughters. At follow-up 6 months later she wanted more children but did not visit us.
- 58 She is 38 years old and severely handicapped because of a previous poliomyelitis infection. It is so serious that one cannot imagine how this woman became pregnant without medical assistance. She had the second elective caesarean for a severely deformed pelvis combined with a sterilisation. She has now 2 sons. Her comment is that she regrets the necessity of the sterilisation but that she is happy not to become pregnant anymore.
- 59 Delivered for the eighth time and had a post partum sterilisation in June 1990. She had and has 4 sons and 4 daughters. Eleven years later, now 55, she blames many of her numerous complaints on the sterilisation.

- 60 This patient had at age 33 a post partum sterilisation under local anaesthesia and a stable marriage. She had at that time 5 sons and 4 daughters. At follow-up 14 months later, she indicates that she really would like to have had 12 children. She probably meant that she regrets the 3 miscarriages she had during her reproductive life.
- 61 She was 36 when after the delivery of her second set of twins, the proud mother of 4 daughters, she was sterilised. She answered to the question 7 months later if she would recommend this operation to her friends, "If they have both sexes". She does not say outright that she wants more children and further discussion is not feasible because she starts working in the UK. She seems in two minds.
- 62 With her 4th caesarean for an intrauterine death she is sterilised. She is then only 24 years old, married and both partners are unemployed. This mother of 1 boy and 2 girls is at least ambivalent about her inability to have more children. She does not visit us after our invitation to do so.
- 63 Mother of five had written to us that she regretted her sterilisation, (interval under local anaesthesia) but had not answered when we requested more information. She came 7 months later to the hospital "under guard" of her husband's brother who was instructed by the husband to have her sterilisation untied. The husband had found out about the sterilisation when he had seen the questionnaire, we had not known this was "a secret TL". She was adamant that she did not want any more children. After discussing her options (the brother in law not present), we took her to the Walk-In-Clinic and made an incision under local anaesthesia in the old scar and closed it again with non-resorbable sutures to be removed in her local clinic.
- 64 A 29-year-old RC, poor, married woman delivered a twin, a boy and a girl, and had after that event 2 boys and 3 girls. She refused a TL on religious grounds but added a separate letter to our questionnaire at follow-up for the control group asking us for an illegal termination of pregnancy because she was pregnant again.
- 65 A woman 35 years, mother of 3 boys and 2 girls, in her ninth pregnancy tries to deliver in a mission hospital and fails during the second stage. No doctor has worked in that particular hospital for years. There used to be Dutch doctors working there. The clinical officer tries a vacuum extraction and fails. She is then transported to the provincial hospital for a CS. The nurse anaesthetist fails to intubate the patient and she nearly dies. After resuscitation, the patient is put again in an ambulance and transported over 130 kilometres to our hospital where the doctor on call is not comfortable with a sym-

physiotomy, and a CS plus TL is performed. The son dies a few hours later. At follow-up 40 months later she is happy to have been sterilised.

- 66 Patient 32, Para 3 presented with a term life extra-uterine gravidity (EUG) and was successfully delivered thereof (6 of these patients in 13 years). During the operation the R adnex had to be removed with the placenta. The left adnex was covered with adhesions, as was the rest of the abdomen. A ligation of the L tube was performed without prior consent. The patient was quite happy with this approach when counselled afterwards. Her husband died 1 year or so later of AIDS the patient followed a few months later. The four children were taken over by her sister, who had 4 children of her own. The husband of the sister died a few months later of AIDS. The sister was often seen with the "EUG" organising financial support and food. The child seems not infected.
- 67 A married woman of 32 years whose husband worked in South Africa was supposed to have an emergency CS in a district hospital. They failed to intubate and she aspirated and nearly died on the spot. Was then transported over 80 km to UBH where a senior anaesthetists succeeded. The woman had indicated earlier that she wanted a TL, which was duly performed, but her son died leaving her with a son and a daughter. She spent a week in our ICU with pneumonitis but survived. On follow-up she said she never wanted to get pregnant again because she did not want that fear of death again, besides the other children needed her.
- 68 A patient's (white) husband had had a vasectomy. After that she became pregnant and delivered a daughter. A few years later she was referred to us by a private general practitioner, with proof of a negative pregnancy test, for sterilisation. At mini-laparotomy 2 days later it was very obvious that she was pregnant but the sterilisation took place anyway. The subsequent developments ended with her having a miscarriage and with a doctor very nearly being thrown in prison where a relative of the patient's husband threatened that she would make sure his throat was cut.
- 69 She is 35 years, married and has 2 boys and 2 girls. She is using Depo-Provera and wonders if she will ever get her periods back. In order to find out, she stops the injections and becomes pregnant before she has her period. The pregnancy ends in an intra uterine death, is induced and the placenta stays behind. With the evacuation of the uterus a TL is done. At follow-up she is happy with that decision.

- 70 Mother of a son and a daughter, 33 years old, and diagnosed as having a baby with a very large hydrocephalus at 27 weeks of pregnancy. Induction of labour is successful with Misoprostol and the foetus does not survive the delivery. She has had three miscarriages in the past and does not want to try again Her husband works in South Africa and she takes it upon herself to decide for a sterilisation. At follow-up she is fine. No regrets, and answers the question about recommending a TL to her friends or not with: It is my secret.
- 71 European professional woman, 33 years of age, with no living children now married to an indigenous Zimbabwean and keen to become pregnant. Had had on a holiday in Southern France 10 years ago, long before she knew her present husband, an abruptio placentae with a dead foetus. She was so depressed and was so sure that she never wanted to live through something similar again that she asked to be sterilised post partum in the private hospital. In a country where the legal status of sterilisation was uncertain, this was done. Since a change of law in France, in 2001, female sterilisation for contraceptive reasons is legal after a waiting period of four months. We advised her, if she could afford it at all, to have her reversal operation in a specialised centre abroad.
- 72 Mother of three came for her fourth CS in labour to the hospital where an inexperienced doctor too proud to ask for help operated on her including a TL. The nursing sisters called the consultant a few hours later because the patient was bleeding a lot in the postnatal ward. The consultant was just in time to express an estimated 1 litre of partly clotted blood from the uterus and to order group O blood before the patient died. A post mortem revealed a not well- sutured lateral part of the uterine incision. Sutures of the TL were OK
- 73 On a Tuesday morning in 1998 a patient with a newborn was “dumped” by ambulance at UBH from a district hospital for a TL. During the operation in our new Women-Walk-In-Clinic under local anaesthesia she told her story. She had now nine living children. She planned to have 4 or 5. In 1989, she was referred from her district with an ectopic pregnancy she had then 5 children. She was operated and although she said she had a completed family, her husband’s signature was still needed at that time to have a TL. The theatre sisters then would have refused to assist the author if he had tried without the husband’s signature. So he removed one tube. In 1990 she was admitted from the same place for an emergency CS. Still, a completed family but no signature from the husband, CS no TL. Three days later the husband came. Signed the form but we could not reopen the wound so early. She went back to her district tried

the pill developed high blood pressure. Went on Depo-Provera developed continues bleeding. Vaginal delivery in 1993 no TL offered. Vaginal delivery in 1995 no TL on offer. Vaginal delivery April 1998 followed by TL. The signature of the husband is not needed any more in Zimbabwe but many hospitals would still not do a TL during an ectopic operation or emergency CS. Signatures of the husband are needed in many African countries.

- 74 Para 7, referred from a remote hospital where a somewhat inexperienced doctor had performed a post partum TL. During the procedure the tissues in the neighbourhood of the left tube were torn and the doctor could not stop the bleeding, although she had placed numerous small stitches and enlarged the abdominal wall incision substantially. The patient was transported over 500 km to Bulawayo where one large suture encompassing the whole bleeding area solved the problem.

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- 35 Lunter GA calculations Results:

Expectation and variance in the number of women without sons (or without daughters), under the null-hypothesis of no preference for boys (resp. girls), i.e. no dependence on either opting for sterilisation or regret afterwards, was computed by determining the sex ratio in the group, then stratifying according to family size. The expectation and variance of the relevant binomial distribution per stratum were then summed over all strata. P values were computed using a one-sided test assuming the measured numbers in the respective groups were normally distributed with expectation and variance as determined, which is legitimate in view of the large sample size. Under the hypothesis of no gender preference, expectations for the various sub-groups, measured values and P-values are as follows:

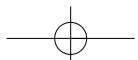
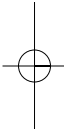
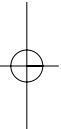
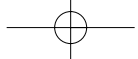
Group:	No regret	Regret	All	Group:	No regret	Regret	All
Expected:							
No sons expected	116.7	6.8	123.5	No daughters	132.5	7.4	139.8
found	88	8	96	127	8	135	found
p= 0.002	0.29	0.004	p=	0.30	0.40	0.33	
Either no sons or no daughters	249.0	14.2	263.3 expected				
p= 0.005	0.24	0.008	231 found				

In the group without regret after sterilisation, which is by far the largest subgroup, there are significantly fewer families without sons than expected in the absence of a gender preference (88, expected 116.7, $p=0.002$). The number of families without daughters is also lower than expected (127, expected 132.5), but not significantly so ($p=0.30$).

Discussion: there is clearly a correlation between being sterilised and having at least one son. A reasonable hypothesis that would explain this data is that women tend to postpone sterilisation until they have one or more sons. Of the regret group of 42, slightly more than expected have offspring of a single sex (no sons: 8, expected 6.8; no daughters: 8, expected 7.4), however these numbers fall well within confidence limits. Based on this data, it cannot be determined whether there is a relation between having regret and having no sons (or no daughters), because of the relatively small sample size.

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227

Dear madam

TL +CS
200

Obs Gyn Dep., UBH P.O. Box 958 Bulawayo. Tel 72111. Ext 2222

Dear Madam,

You had a delivery by operation in Central Hospital on *25-01-01*
Can I ask some questions to improve the services to our patients?
Please fill in this form and return inside enclosed stamped
envelop. Your answers are of course completely confidential.

- 1 How many children do you have now? *Seven.*
How many boys *4*... How many girls *3*.....
- 2 Would you like to deliver more children *Yes/No*
- 3 Did you lose any child after that delivery? No
Yes
- 4 Are you: Married , have a boyfriend, single, divorced,
widowed, (since when *21.12.01*)
- 5 Did you get any problems after your last delivery? No Yes
If yes, what problems did you get?
.....
- 6 Do you have any of the following problems these days?

more headache	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<i>So,</i>	
loss of appetite	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		
pain in the abdomen	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
getting fatter	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<i>from</i>	<i>the</i>
feelings of sadness	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		<i>been</i>
less desire in sex	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		<i>9mm.</i>
- 7 Do you think you were able to take a proper decision
(although you were under pressure) about stopping to have
children? No Yes
- 8 Do you regret the decision to stop?
having babies No Yes
- 9 This last pregnancy was it: Planned
Too early Yes
You hoped that you would not
become pregnant any more Yes
- 10 Do you have any complaints about your periods? Yes/No
What complaints?

198
2560
1006

~

- 11. If you have period complaints, did they start:
before last delivery
or after last delivery No
- 12. Do you regret having your tubes tied during the time of your last delivery? No / Yes
- 13. Before the doctor asked you if you wanted your tubes tied had you ever heard about this operation to make you stop having babies? Yes / No
- 14. Before the doctor asked you if you wanted your tubes tied had you ever considered having this operation yourself Yes / No
- 15. Do you have any other comments on the treatment and care you received while in hospital? Please feel free to comment on anything.

Your care and treatment was very good. Thank you very much for your services.
God bless you.

If you still want to have some advise or service please visit the Walk-in-clinic at UBH in front of the building where you delivered.

Thank you very much for your time and attention,
Dr D.A.A. Verkuyt FRCOG, Tel 67650 Residence

SUMMARY

To identify bottlenecks in the delivery of comprehensive reproductive health care in Bulawayo, Zimbabwe's second city, a study was performed utilising volunteers pretending to be in need of emergency contraception (EC). A total of 55 private, Zimbabwe National Family Planning Council (ZNFPC), municipal and government health facilities were visited. These consultations resulted in 9(16%) correct, 1 possibly correct and 15 wrong prescriptions for the morning after pill (MAP) and in no treatment in 30 instances. Public sector health personnel was very judgemental in its attitude to sexually active teenagers. Although the Essential Drug List of Zimbabwe (EDLIZ) is quite clear about the MAP many health providers are not aware of this, others do not even have/use this book.

INTRODUCTION

The MAP has been called the best-kept contraceptive secret. The public does not know about it and many pharmacists, nurses and doctors have forgotten what it is exactly and which reference book to check. Rape is reported to be on the increase and the use of condoms (which can tear and slip) should be. We see patients who refuse any other contraceptive than the condom, because they fear that concurrent use of, for example, the pill might undermine their resolve, to use the former if exclusively for HIV prevention. These women need EC if they have an accident with this barrier method. Knowledge and accessibility of EC to especially teenagers who often have unplanned sexual intercourse could substantially reduce the numbers of (clandestine) abortions¹ and/or ruined lives². The contact with the health services for EC should then be used as an opportunity for discussion of more structural use of contraception and of protection against sexually transmitted infections (STI).

This study was performed in Bulawayo in December 1995 to assess the attitudes and practices with regards to EC in order to plan appropriate educational interventions.

Some health workers might have felt betrayed by the methods used in this study, but a feed back meeting for all of them held in April 1996 was conducted in a very friendly atmosphere and nobody was angry. Shock effects tend to improve memory.

METHODS

Six ladies, ages ranging from 16 to 26, were trained with the help of role plays to present themselves convincingly with a fake problem to pharmacies, general practitioners (GP) surgeries and clinics (Municipality, Central Hospitals, ZNFPC and one private Mother

and Child Health (MCH) clinic). 22 of the 23 pharmacies, one doctor of most surgeries, 6 of 17 municipal clinics and the outpatient departments of both government hospitals were visited as well as the three ZNFPC clinics including the Youth Advisory Service. The study was terminated when no new insights emerged for some time and detection of the "fraud" through health networks seemed imminent. The two youngest fake clients made nearly all their visits together for moral support.

The ladies would pretend to have been involved in an accident with a condom the previous night. They would stress that they were not keen to be pregnant. They would reveal, if asked, that their last period was a fortnight ago and that they had a cycle of four weeks. If no solution was offered they would say that they had heard about "the morning after pill". After their visits they were debriefed using a checklist.

RESULTS

Attitudes

As Table I shows the ladies were treated politely and with enough privacy in most private surgeries. Some receptionists were very keen to know the reason for the visit. One proved to be an insurmountable barrier. One doctor was so nice that she gave her home telephone number to use, even at night, for instant support. In one surgery they had to wait so long before the doctor could escape from his government duties that they gave up.

Most pharmacists were nice and supportive, but some would communicate loudly to a colleague so that other clients could hear: "this girl comes for the morning after pill". In the municipal clinics the young teenagers were lectured extensively by the sis-

Table I Attitude of the provider as reported by the clients

Attitude	GP's n=21	Pharmacies n=22	Staff in clinics & hospitals n=12
- concerned/friendly/ helpful/(very) nice/serious	16	13	3
- in a hurry/not interested	1	1	4
- amused/shocked/nervous	1	4	-
- condescending/condemning/ angry/ too much lecturing	3	1	4
- asked advice others/ unsure what to do	-	3	1

ters, sometimes in a room without much privacy. In one clinic the other patients laughed loudly when she, this time unaccompanied, girl of 16 left the building, without drugs but after a loud angry lecture. She was crying when she entered the car collecting her.

The eighteen-year-old girl was told in the municipal clinics that she was old enough and that it was about time she had a baby anyway. ZNFPC clinic staff showed no concern and was not helpful.

Table II shows the feelings of the clients during consultations.

Table II Feelings of the clients during the consultation

Feelings of the client	in the GP's rooms n=21	in the Pharmacies n=22	in the clinics & hospitals n=12
- at ease/comfortable/ not bad	17	12	2
- not at ease/ not taken seriously	4	5	4
- bad to horrible	-	5	6

Table III Questions asked by the providers

Questions asked	GPs n=21	Pharmacy staff n=22	Staff in clinics/ hospitals n=12
- age?	8	1	9
- do parents know about visit?	4	-	-
- last menstrual period?	19	4	10
- regularity of period?	14	1	1
- ever used contraceptives?	8	3	2
- could you be pregnant now?	7	1	1
- any chance you have an STI?	3	-	1
- offered pregnancy test	1	3	2

Management of the problem

Table III shows questions asked by the different groups of health workers. No doctor requested to do a vaginal examination. Some palpated the abdomen and some wanted to do a pregnancy test.

Eleven of the 22 pharmacists gave drugs, only in six cases the correct ones. The corresponding figures for doctors were fourteen of twenty-one, correct three (see Table IV). Some remarks from health providers were peculiar. They are summarised in Table V. Just one doctor tried to look in the Essential Drug List of Zimbabwe (EDLIZ) but could only find the old 1989 edition. Not the 1994 one which has a description of the MAP. Of the eleven doctors who wrote an incorrect prescription a few had it nearly right. One of the doctors prescribed: MAP 2 stat PO. The client would have had 27% chance to visit a pharmacy with the right information.

One ZNFPC clinic sister told our client that the MAP meant just that and since it was now afternoon she could not be helped. In the municipal clinics the girls were advised to marry before the “stomach showed” or, that they were not only pregnant but must have acquired AIDS also. Municipal clinics had the right EDLIZ and used it but sisters, often discussing the problem among themselves in the presence of the fake patient,

Table IV Overview of the different prescriptions

Type of prescription, correct dosage ()	21 GPs	22 Pharmacies
- Lo-femenal	8 (3)	5 (4)
- Nordette		3 (1)
- Demulen		1 (1)
- “MAP”	1	
“injection to make the lining of the uterus loose” (Z\$200)	1	
- Ovrette	1	
- Provera	1	
- Norethisterone	1	
- Trinovum	1	
- Obecalp		1
- Premarin		1
Total	14 (3)	11 (6)

Table V Reasons for not providing the MAP/general comments given

Reasons given for not providing the MAP	number of responses
- not yet available in the country/Bulawayo/ still to go through parliament	4
- illegal in Zimbabwe/we are not allowed to prescribe	3
- should have come in the MORNING/ within 8 hours, it is now too late	2
- very expensive	1
- very dangerous	1
- this pill is for nausea in pregnancy	1
- the pill you take when you forget your regular FP tabs	1
- not efficient	1
- MAP is still in experimental phase	1
General comments	
- have the baby/get married	4
- don't worry, this is not your fertile period	2
- sex is a crime at your age	1
- he not only gave you a baby, but also AIDS	1
- you should always shower after sex	1
- buy spermicide to kill the remaining sperms	1
- go to the UK for an abortion	1
- only a hysterectomy can help you now	1

felt not authorised to dispense EC. A government hospital OPD referred to the ZNFPC clinic on its grounds and vice versa.

Side-effects

Few prescribers explained about possible side-effects and what to do. Some prescribed anti-emetics. Few explained that the MAP could either cause early or late periods.

Future contraception

Even without the MAP the chance of becoming pregnant after one act of unprotected intercourse around ovulation is only 20-30%, reduced to 5-7% with the MAP³. Few clients were counselled about future contraceptive options, although private doctors might have intended to initiate this discussion at a suggested follow-up visit. Municipal

and even ZNFPC Clinics did not raise this subject. The mother and child health clinic sister wanted, but did finally not, prescribe the pill because our client refused vaginal examination.

Sexually Transmitted Infections

Only three doctors asked if it could be possible that STI treatment was necessary after the condom mishap. Another doctor wanted to give a series of penicillin injections regardless. HIV screening of both partners was never suggested.

DISCUSSION

Probably few members of the public know about EC, but apparently the medical, nursing and pharmaceutical professionals are not at all ready for requests for the MAP.

An article about condoms in The Chronicle of Bulawayo of 1-11-1995 and in the Matabeleland AIDS Council Newsletter of January 1996 specifically mentioned the MAP in relation to ruptured condoms. This should have induced some research by health workers in the city. With 30% of the ANC patients HIV positive in Bulawayo one would expect increased use of condoms and hence more demand for the MAP in the future. Any random (un) wanted pregnancy has a 12% chance of ending in a vertical HIV-infected child and 18% of resulting in an orphan to be⁴. So it seems quite reasonable to prevent unwanted pregnancies.

Nobody offered to insert an Intra Uterine Contraceptive Device (IUCD), which is more effective and longer after the mishap than the MAP. Combined with antibiotics this would be the best option in countries where access to safe, affordable abortions is restricted and RU 486 used as EC unavailable.

The legal situation worried some personnel, but because the mechanism of action (delaying ovulation, interfering with the corpus luteum and preventing nidation³) is at worst similar to the action of a (legal) IUCD this should be of no concern. Even The Vatican has recently agreed with the use of the MAP in the case of rape⁵. One pharmacist, worried about the law, prescribed tablets recognisable as Trinovum in the wrong dose and labelled them Obecalp, which can be understood if read backwards.

It was disappointing to see that the EDLIZ, a product of the best medical and pharmaceutical minds in Zimbabwe, was used so little by everybody apart from the municipal nursing sisters. Among local doctors this book has the image to be just for sisters.

CONCLUSION AND RECOMMENDATIONS

This study found that most health providers know little about EC but municipal nursing sisters can find the information. Staff in the public sector tends to be very unfriendly to sexually active girls even when specially recruited to advise the youth. Private doctors were found to be friendly and understanding but should consider perusing EDLIZ or the relevant equivalent.

All opportunities should be used to educate health providers and the public about the MAP. Posters and discussions in health facilities and schools and inserts in, or better, print on the combined oral contraceptive packet itself (together with instructions about what to do when pills are forgotten) should spread the word about the MAP. It could even be argued that condom manufacturers should legally be obliged to suggest the MAP in case of failure of their product. The MAP should be available without prescription as suggested for the UK⁶ so that clinic sisters feel confident to dispense it. Police personnel should be informed about the EC option after rape and should be urged to present the victim in time to a health facility. Readers should please check if EC is available, even after hours and in the weekends, in their facility for, for example, a case of rape.

IUCDs have lost some ground in Zimbabwe since the (re) introduction of injectables and Norplant and since the advent of HIV, but they still have a place in emergency situations particularly as long as menstruation regulation and induced abortion are illegal and mifepristone unobtainable.

Discussions at the World Health Assembly in May 1995 indicate that the message on preventing teenage pregnancy is at long last getting across. The education in and provision of EC should be an integral part of that effort⁷. Thousands of unwanted pregnancies ending in ruined lives happen everyday because so few teenagers in this part of the world protect themselves with their first sexual intercourse. EC can give them a second chance.

ACKNOWLEDGEMENTS

Thanks to Kelly, Nelly, Thembi, Natalie, Varda and Nienke who were so brave.

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Please help! our condom tore last night

A REPORT ON VISITS OF FAKE CLIENTS, PRETENDING TO BE IN NEED OF
EMERGENCY CONTRACEPTION, TO HEALTH FACILITIES IN BULAWAYO, ZIMBABWE

Together with Rutgers RAK.

South African Medical Journal 1998; 88: 43-5

SUMMARY

To identify bottlenecks in the delivery of comprehensive reproductive health care in Bulawayo, Zimbabwe's second city, a study was performed utilising volunteers pretending to be in need of emergency contraception (EC). A total of 55 private, Zimbabwe National Family Planning Council (ZNFPC), municipal and government health facilities were visited. These consultations resulted in 9(16%) correct, 1 possibly correct and 15 wrong prescriptions for the morning after pill (MAP) and in no treatment in 30 instances. Public sector health personnel was very judgemental in its attitude to sexually active teenagers. Although the Essential Drug List of Zimbabwe (EDLIZ) is quite clear about the MAP many health providers are not aware of this, others do not even have/use this book.

INTRODUCTION

The MAP has been called the best-kept contraceptive secret. The public does not know about it and many pharmacists, nurses and doctors have forgotten what it is exactly and which reference book to check. Rape is reported to be on the increase and the use of condoms (which can tear and slip) should be. We see patients who refuse any other contraceptive than the condom, because they fear that concurrent use of, for example, the pill might undermine their resolve, to use the former if exclusively for HIV prevention. These women need EC if they have an accident with this barrier method. Knowledge and accessibility of EC to especially teenagers who often have unplanned sexual intercourse could substantially reduce the numbers of (clandestine) abortions¹ and/or ruined lives². The contact with the health services for EC should then be used as an opportunity for discussion of more structural use of contraception and of protection against sexually transmitted infections (STI).

This study was performed in Bulawayo in December 1995 to assess the attitudes and practices with regards to EC in order to plan appropriate educational interventions.

Some health workers might have felt betrayed by the methods used in this study, but a feed back meeting for all of them held in April 1996 was conducted in a very friendly atmosphere and nobody was angry. Shock effects tend to improve memory.

METHODS

Six ladies, ages ranging from 16 to 26, were trained with the help of role plays to present themselves convincingly with a fake problem to pharmacies, general practitioners (GP) surgeries and clinics (Municipality, Central Hospitals, ZNFPC and one private Mother

and Child Health (MCH) clinic). 22 of the 23 pharmacies, one doctor of most surgeries, 6 of 17 municipal clinics and the outpatient departments of both government hospitals were visited as well as the three ZNFPC clinics including the Youth Advisory Service. The study was terminated when no new insights emerged for some time and detection of the "fraud" through health networks seemed imminent. The two youngest fake clients made nearly all their visits together for moral support.

The ladies would pretend to have been involved in an accident with a condom the previous night. They would stress that they were not keen to be pregnant. They would reveal, if asked, that their last period was a fortnight ago and that they had a cycle of four weeks. If no solution was offered they would say that they had heard about "the morning after pill". After their visits they were debriefed using a checklist.

RESULTS

Attitudes

As Table I shows the ladies were treated politely and with enough privacy in most private surgeries. Some receptionists were very keen to know the reason for the visit. One proved to be an insurmountable barrier. One doctor was so nice that she gave her home telephone number to use, even at night, for instant support. In one surgery they had to wait so long before the doctor could escape from his government duties that they gave up.

Most pharmacists were nice and supportive, but some would communicate loudly to a colleague so that other clients could hear: "this girl comes for the morning after pill". In the municipal clinics the young teenagers were lectured extensively by the sis-

Table I Attitude of the provider as reported by the clients

Attitude	GP's n=21	Pharmacies n=22	Staff in clinics & hospitals n=12
- concerned/friendly/ helpful/(very) nice/serious	16	13	3
- in a hurry/not interested	1	1	4
- amused/shocked/nervous	1	4	-
- condescending/condemning/ angry/ too much lecturing	3	1	4
- asked advice others/ unsure what to do	-	3	1

ters, sometimes in a room without much privacy. In one clinic the other patients laughed loudly when she, this time unaccompanied, girl of 16 left the building, without drugs but after a loud angry lecture. She was crying when she entered the car collecting her.

The eighteen-year-old girl was told in the municipal clinics that she was old enough and that it was about time she had a baby anyway. ZNFPC clinic staff showed no concern and was not helpful.

Table II shows the feelings of the clients during consultations.

Table II Feelings of the clients during the consultation

Feelings of the client	in the GP's rooms n=21	in the Pharmacies n=22	in the clinics & hospitals n=12
- at ease/comfortable/ not bad	17	12	2
- not at ease/ not taken seriously	4	5	4
- bad to horrible	-	5	6

Table III Questions asked by the providers

Questions asked	GPs n=21	Pharmacy staff n=22	Staff in clinics/ hospitals n=12
- age?	8	1	9
- do parents know about visit?	4	-	-
- last menstrual period?	19	4	10
- regularity of period?	14	1	1
- ever used contraceptives?	8	3	2
- could you be pregnant now?	7	1	1
- any chance you have an STI?	3	-	1
- offered pregnancy test	1	3	2

Management of the problem

Table III shows questions asked by the different groups of health workers. No doctor requested to do a vaginal examination. Some palpated the abdomen and some wanted to do a pregnancy test.

Eleven of the 22 pharmacists gave drugs, only in six cases the correct ones. The corresponding figures for doctors were fourteen of twenty-one, correct three (see Table IV). Some remarks from health providers were peculiar. They are summarised in Table V. Just one doctor tried to look in the Essential Drug List of Zimbabwe (EDLIZ) but could only find the old 1989 edition. Not the 1994 one which has a description of the MAP. Of the eleven doctors who wrote an incorrect prescription a few had it nearly right. One of the doctors prescribed: MAP 2 stat PO. The client would have had 27% chance to visit a pharmacy with the right information.

One ZNFPC clinic sister told our client that the MAP meant just that and since it was now afternoon she could not be helped. In the municipal clinics the girls were advised to marry before the "stomach showed" or, that they were not only pregnant but must have acquired AIDS also. Municipal clinics had the right EDLIZ and used it but sisters, often discussing the problem among themselves in the presence of the fake patient,

Table IV Overview of the different prescriptions

Type of prescription, correct dosage ()	21 GPs	22 Pharmacies
- Lo-femenal	8 (3)	5 (4)
- Nordette		3 (1)
- Demulen		1 (1)
- "MAP"	1	
"injection to make the lining of the uterus loose" (Z\$200)	1	
- Ovrette	1	
- Provera	1	
- Norethisterone	1	
- Trinovum	1	
- Obecalp		1
- Premarin		1
Total	14 (3)	11 (6)

Table V Reasons for not providing the MAP/general comments given

Reasons given for not providing the MAP	number of responses
- not yet available in the country/Bulawayo/ still to go through parliament	4
- illegal in Zimbabwe/we are not allowed to prescribe	3
- should have come in the MORNING/ within 8 hours, it is now too late	2
- very expensive	1
- very dangerous	1
- this pill is for nausea in pregnancy	1
- the pill you take when you forget your regular FP tabs	1
- not efficient	1
- MAP is still in experimental phase	1
General comments	
- have the baby/get married	4
- don't worry, this is not your fertile period	2
- sex is a crime at your age	1
- he not only gave you a baby, but also AIDS	1
- you should always shower after sex	1
- buy spermicide to kill the remaining sperms	1
- go to the UK for an abortion	1
- only a hysterectomy can help you now	1

felt not authorised to dispense EC. A government hospital OPD referred to the ZNFPC clinic on its grounds and vice versa.

Side-effects

Few prescribers explained about possible side-effects and what to do. Some prescribed anti-emetics. Few explained that the MAP could either cause early or late periods.

Future contraception

Even without the MAP the chance of becoming pregnant after one act of unprotected intercourse around ovulation is only 20-30%, reduced to 5-7% with the MAP³. Few clients were counselled about future contraceptive options, although private doctors might have intended to initiate this discussion at a suggested follow-up visit. Municipal

and even ZNFPC Clinics did not raise this subject. The mother and child health clinic sister wanted, but did finally not, prescribe the pill because our client refused vaginal examination.

Sexually Transmitted Infections

Only three doctors asked if it could be possible that STI treatment was necessary after the condom mishap. Another doctor wanted to give a series of penicillin injections regardless. HIV screening of both partners was never suggested.

DISCUSSION

Probably few members of the public know about EC, but apparently the medical, nursing and pharmaceutical professionals are not at all ready for requests for the MAP.

An article about condoms in The Chronicle of Bulawayo of 1-11-1995 and in the Matabeleland AIDS Council Newsletter of January 1996 specifically mentioned the MAP in relation to ruptured condoms. This should have induced some research by health workers in the city. With 30% of the ANC patients HIV positive in Bulawayo one would expect increased use of condoms and hence more demand for the MAP in the future. Any random (un) wanted pregnancy has a 12% chance of ending in a vertical HIV-infected child and 18% of resulting in an orphan to be⁴. So it seems quite reasonable to prevent unwanted pregnancies.

Nobody offered to insert an Intra Uterine Contraceptive Device (IUCD), which is more effective and longer after the mishap than the MAP. Combined with antibiotics this would be the best option in countries where access to safe, affordable abortions is restricted and RU 486 used as EC unavailable.

The legal situation worried some personnel, but because the mechanism of action (delaying ovulation, interfering with the corpus luteum and preventing nidation³) is at worst similar to the action of a (legal) IUCD this should be of no concern. Even The Vatican has recently agreed with the use of the MAP in the case of rape⁵. One pharmacist, worried about the law, prescribed tablets recognisable as Trinovum in the wrong dose and labelled them Obecalp, which can be understood if read backwards.

It was disappointing to see that the EDLIZ, a product of the best medical and pharmaceutical minds in Zimbabwe, was used so little by everybody apart from the municipal nursing sisters. Among local doctors this book has the image to be just for sisters.

CONCLUSION AND RECOMMENDATIONS

This study found that most health providers know little about EC but municipal nursing sisters can find the information. Staff in the public sector tends to be very unfriendly to sexually active girls even when specially recruited to advise the youth. Private doctors were found to be friendly and understanding but should consider perusing EDLIZ or the relevant equivalent.

All opportunities should be used to educate health providers and the public about the MAP. Posters and discussions in health facilities and schools and inserts in, or better, print on the combined oral contraceptive packet itself (together with instructions about what to do when pills are forgotten) should spread the word about the MAP. It could even be argued that condom manufacturers should legally be obliged to suggest the MAP in case of failure of their product. The MAP should be available without prescription as suggested for the UK⁶ so that clinic sisters feel confident to dispense it. Police personnel should be informed about the EC option after rape and should be urged to present the victim in time to a health facility. Readers should please check if EC is available, even after hours and in the weekends, in their facility for, for example, a case of rape.

IUCDs have lost some ground in Zimbabwe since the (re) introduction of injectables and Norplant and since the advent of HIV, but they still have a place in emergency situations particularly as long as menstruation regulation and induced abortion are illegal and mifepristone unobtainable.

Discussions at the World Health Assembly in May 1995 indicate that the message on preventing teenage pregnancy is at long last getting across. The education in and provision of EC should be an integral part of that effort⁷. Thousands of unwanted pregnancies ending in ruined lives happen everyday because so few teenagers in this part of the world protect themselves with their first sexual intercourse. EC can give them a second chance.

ACKNOWLEDGEMENTS

Thanks to Kelly, Nelly, Thembi, Natalie, Varda and Nienke who were so brave.

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10

Self reported sexual and reproductive behaviour of male and female student nurses and midwives

The Central African Journal of Medicine 200; 46(12): 325-329

ABSTRACT

Objective

To find out more about sexual and reproductive behaviour in male and female student nurses and midwives in Zimbabwe.

Design

Anonymous self administered questionnaire.

Setting

Schools of Nursing Mpilo and Bulawayo Central Hospital.

Subjects

324, student nurses (99) and student midwives (225).

Main outcome measures

Data in relation to preferred family size, enjoyment and frequency of sexual behaviour, induced abortion, masturbation, pre and extramarital sex and HIV risk.

Results

Males student nurses have far more pre- and extramarital sexual contacts than their female counterparts. The latter group has fewer premarital and extramarital relationships than Zimbabwean women in general and women from the rest of Africa, Latin America and the First World. 67% of the married females had only ever had one sexual partner. This figure was 15% in married males. 33% of the married females suspect or know that their partner has another sexual partner sometimes.

Conclusion

Promiscuity is rare in female student nurses. Their risk factors, if any, related to HIV infection are mainly their partners' pre- and extramarital behaviour. HIV testing of these partners is their only realistic hope to reduce their risk. The enjoyment of heterosexual activity is like in Western Countries although it starts at an older age.

INTRODUCTION

It is not easy to get an idea about sexual behaviour in Zimbabwe. Culturally it is difficult to discuss sex in general, let alone one's own sexual behaviour.

To add some pieces to the puzzle the author made use of his teaching sessions with student nurses and midwives to have a questionnaire filled in.

The disadvantage of this approach is that the results only apply to the middle class. The advantage is that the people filling in the questionnaires are intelligent, well educated and used to answering written questions and they understand that there is a need to collect data in this field. Furthermore the same questions can be set in a similar setting with regular intervals to study changes over time.

MATERIALS AND METHODS

After a few teaching sessions in which a relationship of mutual trust was developed with a class of student nurses or student midwives for which the author happened to be invited by the tutors in 1996-8, the students were asked to fill in an anonymous questionnaire. Every group the author taught cooperated and the selection of the groups was done by the tutors for purely practical reasons. It was emphasised that the students would see the papers shuffled at the end of the session in such a way that it would be impossible to correlate a specific person with a specific questionnaire and that it was also an option to write nothing. Their tutors would have no access to the papers to prevent recognition of particulars like age or handwriting.

The data were analysed in a computer with the help of the statistical WHO shareware program Epi Info version 6. Continuous variables were compared using Student's *t*-test for normally distributed variables reported as means with SD values and the Kruskal-Wallis test for variables not normally distributed and reported as median and Q1, Q3 values. Categorical variables were compared using chi-square test or Fisher's exact test as appropriate.

RESULTS

All students filled in the questionnaires apart from 3 nuns. This resulted in 324 answer sheets by 99 student nurses and 225 student midwives. There are no significant differences between student nurses (mean age 23.6 years) and student midwives (mean age 30.6 years) apart from those which are age related and hence the data are presented for both groups combined.

See tables I to VIII for most of the outcomes.

As shown in table I, men in this social class profess they are sexually active at a younger age and with more partners than women. Only two of the females over 21 years of age were virgins at 28 and 22 years. Those 16 nurses who still were virgins were on average 20.8 years. Of note is that non-virgin nurses (male and female) who acknowledge to masturbate (table II), admit 3.2 times ($p=0.023$) more often to having had (or their partners) an induced abortion. Probably those answering the question about masturbation are more frank. While 93.8% of all respondents answered the question about induced abortions, a similar percentage as to more neutral questions about age, parity and marital status, only 69.8% answered the question about ever masturbating.

Primary infertility does not seem a big problem in the study group. Only three of the 162 married females not using contraceptives above 24 years of age (29, 30 and 33 years) have no children.

DISCUSSION

Although this is a limited sample of a small educational and social class and from a limited geographical area the results are interesting because most answers to the quite intimate questions are likely to be truthful.

Illustrative for the fact that these students are not characteristic for Zimbabweans is a nationwide survey¹ which showed that 44.4% of the females had had sex by age 18. In this study that was only 19.5% ($p<0.001$) and the average ideal number of children wanted by women were 4.3 and 2.6 respectively.

Women in Zimbabwe on average become later sexually active than those in the rest of Sub-Saharan Africa, around the same time as in Latin America and later than in Europe². The sub group under study becomes sexually active even later, much later than girls in low HIV prevalence countries like Sweden where 80% are by age 18 sexually experienced³

Still it is possible to see how HIV could spread in this social group. When the average female student has sexual intercourse for the first time, often with the man she will marry (67% of the married female students had had one sexual partner ever and 15% of the married men), he is on average already for 6.1 years sexually active (4.5 years (older) + 1.6 years (younger sexual debut)), assuming he behaves like the males in this study do (see Table I). Men probably have sexual intercourse before marriage with a group of women who are "easier" than those with the educational/social background of the nurses. The significant shorter courtship duration with the first partner as seen in Table I shows this also. It is likely that there is in this "easier" group a promiscuous subgroup. Those females are at high risk to catch and spread HIV infection⁴. Two of the 14 female virgins who have a boyfriend think that he has at least one other girlfriend. The

14 girls' boyfriends are on average 4.1 years older and hence unlikely to be virgins themselves. It is possible that the longer these 14 nurses defend their virginity the more chance there is that their platonic partner picks up HIV elsewhere⁵.

In the not yet married students 24/61 think their partner has sometimes another sexual partner, 16 of the 24 use condoms, hence 13.1% (8/61) are exposed to a serious HIV risk. Of course, the use of condoms in the not yet married students only makes sense in relation to HIV if they will not eventually marry that boyfriend, either because the relationship does not work out or a premarriage HIV test is positive.

In a study⁶ from Uganda 6.3% of premarital tests were positive. The coordinator of the Matabeleland Aids Council(MAC) is reported in The Sunday News of 27-2-2000 as having said that 24% of 2067 test results from voluntary testing and counselling over 1998 and 1999 were positive.

About one in five Western men and one in ten women admit being unfaithful during marriage⁷ not very different from this study where 25% of the married males admitted to more than one partner in the last six months and 33% of the female married students suspected their partners of the same. In Britain today⁷, 30% of men but only 10% of women in their 30s report having had more than ten sexual partners. In this study the figures were 17% and 0% respectively. There is positive correlation between enjoyment and frequency of sexual intercourse in females (table II and VIII), probably indicating that in this social class women have influence on that frequency. They can initiate or avert it. The positive correlation between enjoying sex and having at least one child is even stronger than with being married. A possible explanation is that it is difficult to organise a relaxed atmosphere to have sex in, when the extended family and the School of Nursing do their utmost to prevent that in unmarried nulliparae. In a 1992 US survey, 40% of women claimed that they usually had an orgasm when making love, less than one in three always experienced an orgasm and another 1/3 lost interest in sex⁷. These findings do not much differ from ours (Table II).

Women who suspect that their partner has other partner(s) enjoy sexual intercourse less (Table VIII). It is clear from other follow up studies in Bulawayo that the fear of AIDS is an important factor in the lack of enjoyment (and perhaps the lack of enjoyment an important factor in their partners going elsewhere and catching HIV?).

The abortion and masturbation figures (tables III and IV) should be seen as the minimum frequency. In studies from the USA, France and Britain 82% of men and 75% of women reported masturbating.⁷

A 1988 US survey showed that women reported only 35% of all abortions known to have been performed during the period and in the area covered by the survey.⁸

Certain conservative religious groups use in defence of their opposition to contraceptives the argument that the use of a (non-“natural”) method promotes casual sex, the spread of HIV and induced abortions. Females using contraceptives in this study, behave if anything, more responsible (table VII) than those not using them. Females who had only one sexual partner in their lives used for 91.8% contraception those with more than one partner for 85.1% ($p=0.120$). Even though there are only 26 female “non-virgins” who use no contraception still non-users have significantly more induced abortions and are less often married. This is like in the US where 53% of the unplanned pregnancies happen in the 7% of women at risk of unintended pregnancy who do not use contraception. The other 47% happens to the 93% of women at risk who are contracepting⁹.

It seems that women using contraceptives trust their partners to be more faithful and/or those partners are actually more faithful. Of the non-virgin women 21% are Roman Catholic, 84% of them use family planning. Non of them were using the “natural” method. If one looks at the 224 persons in this study who are or were married, only one of them does not “sin” on the masturbation, contraception and/or sex before the wedding score. There is also the claim that the need for communication and cooperation between partners, if they use “natural” contraception, improves the relationship. This study suggests that the use of contraception in general is associated with more trust between partners (although it is not clear what is cause and effect) and more enjoyment of sex (Table VII). There is no relationship between enjoying sex and wanting more children (Table VIII), something to be expected if there was really a natural law connecting those entities in human beings. Only one student states the availability of contraceptives as a reason to start with sex (Table VI), another some knowledge about the time of ovulation. Only 2.5% of the females started sex because they wanted a baby.

Female students using contraceptives depend for 47% on an oral method while this is in the general female population 70% ($p<0.001$). Conversely a “non-continuous-motivation” method (IUCD, implant, sterilisation) is used by 18.3% and by 8% of women in general¹⁰. This is very likely the result of better education and access. If the nurses are stratified according to age and weighted for numbers per age group as in the latest DHS report¹⁰ then 32% of the students above 34 years use sterilisation while this is 7.1% in general. The high tubal ligation (TL) figures could be a local effect because Bulawayo has a much higher overall TL rate (9.8%) than any other part of the country. For example this rate is 4.3 times higher than Harare's 2.3% ($p<0.001$).

It would be a good idea to repeat this study to see if behaviour has changed. The study could be expanded by asking more questions, for example about homosexual relationships, sexually transmitted diseases, emergency contraception, domestic violence, HIV testing and sexual techniques and it would be good to relate the answers to anonymous HIV testing.

The sexual behaviour of the female students, as opposed to their male counterparts, does not explain why there is such an enormous difference, a factor 1000, between HIV prevalence in pregnant women in Southern Africa and North Western Europe. It could be that there are very few HIV infections in the group studied because its behaviour is different from the general population. This makes a follow up study which includes HIV testing more desirable.

POSTSCRIPT

One class with 42 first year students has, since the above study was completed, filled in a newly designed questionnaire, 34 were females. 20/34 were sexually active of whom 4 had their partner tested for HIV (none before the first unprotected sexual intercourse). Two virgins also had their partners checked. 28/42 of the students wanted a free HIV test offered after professional group counselling and linked anonymously to the questionnaire. When the day for taking the blood came only 15 remained, 14/15 were females (7/14 had never had sexual intercourse). 2/8 non virgins had collected their results from the Matabeleland Aids Counsel two months later. 1/14 tests was positive.

Table I Marital status, age difference with partner, initiation sexual activity, extra marital affairs of 324 student nurses and midwives in 1996-8

Results shown separately for	N = 324		p value
	57 Males	267 Females	
- Mean age in years [Standard Deviation]	28.9[5.7]	28.4[5.3]	0.534
Student nurses (N= 99)	20	79	
Student midwives (N=225)	37	188	
- Marital Status			
Married	36(63.2%)	172(64.4%)	
Not yet married	19(33.3%)	81(30.3%)	
Divorced/single/partner died	2(3.5%)	14(5.3%)	
- Partners age in years on average[SD]	4.3[2.5]	4.5[2.7]	
	younger	older	
- Sexual Experience	55(96%)	251(94%)	
- Of those who are sexually experienced:			
Youngest age first sexual experience in years	10	5	
- 25% active at age (=Q1)	17	19	
- 50% active at age (=median age)	19	21	
- 75% active at age (=Q3)	21	22	
- Oldest age first sexual experience in years [SD]	30	32	
- Mean age first sexual experience in years [SD]	18.9[3.6]	20.5 [2.8]	<0.001
- Mean time in months from start of courtship to first sexual intercourse [SD]	14.7[19.5]	25.5[20.7]	<0.003
- First courtship less then 6 months	27(49.1%)	65(25.8%)	<0.001
- Had to proof fertility before wedding	13(26.0%)	26(10.9%)	<0.005
- Thinks partner has other partner sometimes	7(13.0%)	91(36.2%)	<0.001
all married M=36,F=172	3(8.3%)	57(32.9)	<0.001
- Had more than one partner last 6 months	11(18.5%)	17(6.5%)	<0.009
all married	9(25.0%)	10(5.9%)	<0.002
- Median number sex partners in life (Q1,Q3)	4, (2, 9)	1, (1, 2)	<0.001
all married	5, (2,10)	1, (1, 2)	<0.001

Table II Sexual behaviour and feelings

Likes sexual intercourse (sexual experienced)	N = 296	
	54 Males	242 Females
- Always	26 (48.1%)	81 (33.5%)
- More than 50% of the times	19 (35.2%)	91 (37.6%)
- Less than 50% of the times	3 (5.6%)	27 (11.2%)
- Seldom	5 (9.3%)	35 (14.5%)
- Never	1 (1.9%)	8 (3.3%)
About orgasms (sexual experienced)	N = 281	
	49 Males	232 Females
- Often an orgasm during sex	36 (73.5%)	130 (56.0%)
- Seldom	8 (16.3%)	55 (23.7%)
- Never	1 (2.0%)	7 (3.0%)
- Don't know	4 (8.2%)	40 (17.2%)
About masturbation (all)	N = 226	
	38 Males	188 Females
- Ever masturbated (all)	20(52.6%)	53(28.2%)
- of those who are		
married	52.0%	24.1%
not yet married	50.0%	32.3%
divorced/widowed/single	100 %	50 %
sexual unexperienced		11.1%
-Never masturbated (all)	18(47.4%)	110(58.5%)
-Don't know what masturbation is (all)	0 %	25(13.3%)
Frequency sexual intercourse	N = 229	
	48 Males	181 Females
Mean sexual acts per month [standard deviation]	8.8 [7.6]	11.8[12.9]
Sexual enjoyment related to/ mean sexual acts per month[SD]	p=0.135	
- Always liking intercourse	8.9 [7.8]	15.2 [18.0]
- More than 50% of the times	8.6 [5.8]	11.8 [8.8]
- Less than 50% of the times	7.7 [10.7]	9.7 [14.8]
- Seldom/Never	10.4 [12.3]	7.5 [6.9]

Table III Past violent/commercial sexual experience

	N = 324	
	57 Males	267 Females
- Ever had sex against her/his will	9/55=16.4%	77/258, 29.8%
		p=0.042
- Those who had, with how many "persons" on average[SD]	1.4[0.5]	1.1[0.5]
- Those who had, how many times, median, Q1, Q3	3, Q1=2.5 Q3=5	2, Q1=1, Q3=3
- Ever had a sugar mamma/daddy	11(19.6%)	9(3.4%) p<0.001
- Ever had sex with commercial sex worker	14(25.0%)	
- Used condoms at above occasions (N=14)	13(92.9%)	

Table IV Reproductive behaviour (CC=contraception)

	N = 324	
	57 Males	267 Females
- Mean number of living children [standard deviation]	1.6 [1.5]	1.4 [1.2] p=0.741
- Mean total number of children wanted [SD]	2.9 [1.3]	2.7 [0.9] p=0.178
Of those who are sexually experienced		
	N = 306	
	55 Males	251 Females
- Using, or partner using CC (<i>n</i> =53,247)	48 (90.6%)	221 (89.5%)
(Of those) Making mistakes with CC (<i>n</i> =50,227)	6 (12.0%)	34 (15.0%)
- Pregnancy (or partner) while using CC (<i>n</i> =35,243)	2 (5.7%)	29 (11.9%)
- Unwanted pregnancy (<i>n</i> =47, 242)	8 (17.0%)	49 (20.2%)
- Self or partner induced abortion (<i>n</i> =48, 244)	2 (4.2%)	13 (5.3%)
- Used CC the first time with sex (<i>n</i> =51, 239)	15 (29.4%)	84 (35.1%)p=0.444
Those who did not use CC at first time sex		
	N = 191	
	36 Males	155 Females
- started using CC		
Within one month	6 (16.7%)	13 (8.4%)
Between one month and 9 months	8 (22.2%)	16 (10.3%)
After Delivery	1 (2.8%)	18 (11.6%)
Later	15 (41.7%)	100(64.5%)
Never	6 (16.7%)	8 (5.2%)

Table IV continue

Occurrence of first pregnancy	N = 213	
	29 Males	184 Females
- After 1-5 times intercourse (first time pregnant)	13(44.8%) (2(6.9%))	91(49.5%) (46(25.0%))
- After 6-15 times intercourse	5(17.2%)	8(4.3%)
- More than 15 times intercourse	6(20.7%)	49(26.6%)
- Does not know	5(17.2%)	36(19.6%)

Table V Type contraceptive used, males and females combined

N=266	Married	Married	Unmarr.	Unmarr
	Compl. Family 71	Incompl. Family 111	Incompl. Family 69	Compl. Family 15
- Condoms	7 (9.8%)	6 (5.4%)	31(44.9%)	2
- Pill + Condoms	0	1 (0.9%)	10(14.4%)	0
- Pill only	27 (38.0%)	62(55.9%) (3+LAM)	18(26.1%)	7
- Injection only	16 (22.5%)	14(12.6%)	3 (4.3%)	2
- Injection + Condoms	1 (1.4%)	2 (1.8%)	1 (1.4%)	0
- IUCD	5 (7.0%)	15(13.5%)	3 (4.3%)	3
- IUCD + Condoms	1 (1.4%)	2 (1.8%)	1 (1.4%)	0
- Implants	2 (2.8%)	2 (1.8%)	0	0
- Sterilisation (female)	10 (14.1%)	0	0	0
- Fertility Awareness/ Calender method	2 (2.8%)	5 (4.5%)	1 (1.4%)	1
- Foam	0	1 (0.9%)	1 (1.4%)	0
- Abstinence	0	1 (0.9%)	0	0

LAM = Lactational amenorrhoea method, IUCD = Intra uterine contraceptive device

Table VI Why first time sexual intercourse

	Males N=41	Females N=200
- Urge, experiment, fun, liked it	23(56.1%)	54(27.0%)
- Against my will	1 (2.4%)	13 (6.5%)
- Was married	1 (2.4%)	54(27.0%)
- Love	3 (7.3%)	27(13.5%)
- Long enough together/postponed	5(12.2%)	13 (6.5%)
- Don't know, forgotten	1 (2.4%)	9 (4.5%)
- I trusted him, convinced, was asked		9 (4.5%)
- Emotional pressure/blackmail, might lose him		10 (5.0%)
- Seduced	4 (9.8%)	2 (1.0%)
- Wanted a baby		5 (2.5%)
- I could because had obtained contraceptives/ just after period		2 (1.0%)
- Peer pressure	3 (7.3%)	2 (1.0%)

Table VII Characteristics of sexually experienced females related to use of contraceptives (CC) or not at the time of interview

N=247	221 Use CC (n)	26 use no CC	p value
- Percentage married	71.9%(159)	38.5%	=0.001
- % of married who waited with sex till wedding	32.1%(51)	20.0%	=0.217
- Average total number of sexual partners[SD]	1.7[1.9]	2.3[2.0]	=0.059
- Mean age at first intercourse[SD]	20.5[2.9]	20.4[2.8]	=0.861
- Mean age at interview[SD]	28.7[4.9]	30.3[5.9]	=0.110
- Mean number of children[SD]	1.5[1.2]	1.3[1.2]	=0.676
- Mean number of children wanted[SD]	2.7[0.9]	2.6[0.8]	=0.542
- Has had unwanted pregnancy	19.0%(42)	29.2%	=0.178
- Has had induced abortion	4.1%(9)	16.7%	=0.029
- Had more than one partner in life	41.6%(92)	58.3%	=0.120
- Thinks partner had other partner in prev. 6/12	34.4%(76)	54.5%	=0.060
- Courtship with first partner in months[SD]	26.2[20.9]	20.1[19.7]	=0.192
- Enjoy sex less than 50% of the time, seldom or never	25.8%(57)	46.2%	=0.031

Table VIII Relation of enjoying sex often ("always" or "more than 50% of the time") or infrequent ("less than 50%", "seldom" or "never") and other data in the 251 sexually experienced females of whom 242 answered the question about enjoying sex

Enjoys sex (N=242)	Often	Infrequent	p value
	N = 172 71.1%	N = 70 28.9%	
- Age in years [standard deviation]	29.3[5.0]	28.5[5.3]	=0.306
- Age first intercourse in years[SD]	20.6[2.8]	20.3[3.0]	=0.589
- Years sexual experience[SD]	8.8[5.1]	8.3[5.3]	=0.590
- Married	124(74.4%)	38(58.6%)	=0.015
- Has often orgasm	121(70.4%)	13(19.7%)	<0.001
- Median frequency sexual intercourse /month, Q1, Q2	10 5,20	5 3,10	<0.001
- Use contraceptives	154(91.8%)	55(82.1%)	=0.031
- Mean number of children[sd]	1.7[1.2]	1.4[1.2]	=0.078
- Mean more children wanted[sd]	1.1[1.1]	1.3[1.1]	=0.066
- Have no children	23(13.4%)	20(28.6%)	=0.005
- Masturbates(N=122,49)	38(31.1%)	12(24.5%)	=0.387
- Wait until wedding with sex	53(32.3%)	19(28.8%)	=0.602
- Lifetime sexual partners[sd]	1.8[1.5]	1.9[1.5]	=0.529
- Duration of having sex in minutes[SD]	24.5[26]	21.1[21]	=0.574
- Months courtship before first sex[SD]	25.4[21]	25.7[21]	=0.915
- Had to proof fertility before wedding	17(10.2%)	9(13.4%)	=0.484
- Has (had) sugar daddy	4(2.3%)	5(7.2%)	=0.124
- Had more than 1 partner last 6 months	12(7.0%)	4(6.0%)	=1.00
- Knows or suspects partner has other partner sometimes	52(32.3%)	31(49.2%)	=0.018

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Family Planning in Zimbabwe in the Nineties

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Perhaps the time is ripe for a frank non-politicised debate about contraception. The aim of this article is to contribute to this discussion. Some general remarks are made before the specific methods are debated.

Historical perspective

Before Independence family planning (FP) was promoted by the usually, but not invariably, well meaning representatives of minority rule and that fact alone was enough to make its aim suspect. This was well recognised by the liberators during the War of Independence and politically exploited. The hold the Roman Catholic Church had and still has over a section of the population undermines the acceptance of contraception. It is difficult for people to understand that the opinions of otherwise rational, caring, respectable members of the Church hierarchy can be completely ignored in the family planning field.

The new decision makers were against FP in the first years after Independence. So much so that patients' human rights were interfered with. I remember a patient with four previous caesarean sections who wanted a tubal ligation (TL) during her fifth operation. The consent form was duly signed by all parties involved, including her husband. Halfway through the operation under general anaesthesia the nurses detected that there was only one consent form in the notes and that the duplicate was missing. Instead of photocopying the form for filing purposes it was decided by the nurses that the TL should not be done. The patient was very disappointed when informed subsequently the TL had not been performed.

Health personnel who promoted contraception actively were suspect and had to fight an uphill battle. Female patients were often keen on some form of FP to lengthen the birth interval or to limit the size of their family, but it was difficult to obtain active cooperation from health workers or husbands.

In recent years the situation has changed. There has been a commitment at the highest political level¹ to the idea that everybody has the right to decide the size of his or her family. The programme to increase motivation of men has had some effect and FP is becoming less suspect.

Reasons for family planning.

I *Personal level*

As mentioned above a husband and wife have, if biologically possible (and in the near future another consideration may be the sustainability of the ecological support system), the fundamental human right to decide the size of their family and the present universal trend is that with material development and better education couples tend to opt for smaller families.

2 *Population policy level*

The arguments about decreasing resources while population, pollution and erosion increase are all too familiar. In Zimbabwe 200.000 to 250.000 people will enter the job market annually during the next decade, while less than 10.000 new positions are presently being created annually². The hottest item during the recent elections was the land question and the lifting of the Lancaster House restraints. The problem has become so much more pressing because the population has increased during the 10 years since Independence by 2.5 million, far more than the most active Government policy can hope to resettle.

One can also defend the position that, considering the fact that the percentage increase in Gross National Product (GNP) is on the whole less than the population increase, Zimbabwe is not a developing country but an underdeveloping one.

Cynics might use the argument that with the AIDS epidemic the population control issue has become obsolete. There is little doubt that in the absence of a future effective cure, the increase in population will cease and absolute numbers might even decrease³. It seems likely that the most productive part of the population will be most seriously affected by AIDS and the GNP may very well decrease dramatically.

In surroundings where many people die of AIDS and where up to a million people might be infected, serious nation building with long-term investments in people and structures will not be a priority for investors and entrepreneurs.

A UNICEF representative estimated recently that there will be 10 million orphans in Africa because of AIDS at the turn of the century⁴.

The tropical part of Africa (excluding the Magreb, Egypt and Azania) had about 100 million inhabitants at the turn of the century. This population has increased fivefold since and will, at the present rate, reach 2 billion (or the equivalent of the whole world population in 1930) in 2035 (when babies born today are only 45 years old).

The (future) situation in Africa is a prime example of the "demographic trap"⁵. A decreased death rate mainly the effect of vertical programmes like: the Extended Programme of Immunisation and the Oral Rehydration Solution Programme, is not quickly accompanied by a falling birth rate. The environment is after some time not able to support the increasing population and the death rate will go up again and the population will not stabilise till desertification, mass starvation, disease and/or war have caused a disaster.

Ominously, UNICEF reports that after a long decrease infant mortality rates have stopped falling in 21 countries and started rising in some⁶. The same seems to be happening in Zimbabwe. The above-mentioned disaster is already taking place in the Sahel.

3 *Health level*

There is no doubt that a small, well-spaced family is less risky for the one who has to deliver the babies⁷. The overall maternal mortality in Zimbabwe is approximately 1 in 800 pregnancies, that is 500 maternal deaths per year⁸. Two hundred of these disasters are preventable by having pregnancies well planned⁹.

It seems very likely that HIV seropositivity will frequently be an indication for contraception. Protection against acquiring and spreading Sexually Transmitted Diseases (STD's) also seems a growing indication for mainly the barrier methods of contraception.

Unrestricted population growth will also affect the health resources available per individual and preventive and curative care will suffer.

Constraints

Much has been achieved by the splendid work of the Zimbabwe National Family Planning Council (ZNFPC) since Independence and many are eagerly awaiting the results of the next census to have objective proof of ZNFPC's impact.

The Government Health Services seem not to have had the same increase in FP assistance provided.

Here lack of manpower and lack of motivation of the existing manpower seems the main problem. The "supermarket" approach should do wonders. Many potential clients are never even asked whether they are interested in contraception during contact with a health worker. One of the problems is government doctors. Doctors have an efficient problem solving approach. They go to work in the morning, attend to the clinical problems that present themselves and when these problems have been faced, the medical staff not on duty goes home. Inquiring about the contraceptive wants and needs of patients will increase the problems to be solved before knocking off and is therefore not popular. Those on duty will feel inclined only to tackle emergencies. Although there are serious potential dangers, a system with financial incentives for health workers might well ensure much better service to potential FP clients as demonstrated in the U.K. This option should at least be discussed at policy makers level. Before a citizen is a productive member of the society thousands of dollars have been invested for health care, education (\$500/pupil/year) and job creation. If the number of unemployed will continue to rise by 200.000 a year this investment will never bear economic fruit and therefore a little money spent to prevent unwanted pregnancies seems a reasonable option.

Health workers should realise that pressure on patients to use contraceptives is unacceptable in Zimbabwe and, on a personal and political level, counterproductive. But the least we can do is give maximum service to interested persons. The children and grandchildren of the doctors mentioned above will not be very thankful to the previous generations if they inherit a population disaster.

Contraceptive methods

At this moment Progestagen only Pills (POP), Combined Oral Contraceptives with 30 micrograms Ethinyloestradiol (COC 30) and Triphasic's, Condoms in different colours, Copper IUCD's, a very limited supply of Depot Medroxyprogesterone acetate (DMPA) and a difficult to organise sterilisation are the only modern options available to low income patients.

POP

An excellent contraceptive in circumstances where there is no good alternative and where method/patient failure is not a disaster or can be, if desired, resolved legally. A study performed in Harare Central Hospital ¹⁰ revealed that 18.2 % of the patients presenting with incomplete abortions were on oral contraceptives, half being POP. As a matter of policy POP is offered as the contraceptive of choice by Zimbabwean health facilities 6 weeks postpartum because COC interferes with a maximum milk production. This approach has several weak points:

- 1 Very few patients visit the Post Natal Clinic and will so be offered a contraceptive.
- 2 It is well known ¹¹ that on demand exclusive breast-feeding makes a pregnancy unlikely. The efficacy has been shown to be comparable to use of other contraceptive methods ¹².
- 3 POP is difficult to use because one should take it every day at the same time. If clients are more than three hours late with taking the POP a backup birth control method should be used.

Family Health International advises: "If you miss three days of the combined pill, use the condom for the rest of the cycle." Users of the mini-pill (POP) are told, "If you miss one day use a condom for the rest of the cycle" ¹³. To decide what the rest of the cycle seems to me a problem in itself when using POP.

- 4 Irregular bleedings, sometimes headaches and nausea are seen as side effects.

The result of the above is that clients suffer the inconveniences of having to take a pill meticulously and accept side effects without the benefits of POP because exclusive or nearly exclusive breastfeeding protects in any case from 6 weeks till 6 months post partum. By the time the baby is introduced to supplementary foods POP will have perhaps run out or the patient is perhaps disappointed in POP. In one series of trials in Latin America and Africa¹³ for example, only 60% of the 4000 women involved were found to be still taking the pills after 6 months. And of these 60% how many have become sloppy in their pill taking routine and how many husbands agree to the use of condoms as a backup method in case of a mistake? So when clients really need protection they use a method with a failure rate of 1.1-9.6 pregnancies per 100 women in the first year of use ¹⁴.

It would be very sensible to start a study to compare the benefits of the existing policy with an alternative approach. The alternative approach would be not to introduce any oral contraceptive till four - five months post partum unless the mother is not breastfeeding on demand as is the case with teachers and (non-) nursing sisters. At that time, when the baby is presented anyway by 90% of the mothers for vaccination COC 30 should be started. This pill has far less failures than POP and because supplementary food has been or will soon be introduced the baby is unlikely to suffer from the somewhat diminished lactation.

Professional women, it is respectfully suggested, should start POP at 6 weeks (or if they do not attend the postnatal clinic, at three months post partum when they report to a clinic for their babies' vaccination). Then at five months, the regularity of their pill taking should be evaluated and should this be in doubt they should be switched to COC 30.

The above regimen is not completely satisfactory but should be compared with the existing situation that has a high failure rate resulting in women sometimes resorting to illegal abortions; a situation also not conducive to maximum lactation.

A very important factor in my opinion is that the failures undermine the confidence in modern medicine. If our pills fail why should patients listen to us if we advise on vaccination or hospital delivery? The failures of POP are so well known that at one stage women in the Chitungwiza area were advised by the alternative health sector to take POP (Micronovum) to cure infertility!

DMPA is of course an excellent alternative for nursing mothers combining reliability, simplicity and non-interference with lactation.

COC

Rumour has it that COC 50 has been completely phased out and the only COC's available will be COC 30 and the triphasic pill. This decision has not been discussed as far as I know outside ZNFPC headquarters. As in so many situations there should be a compromise between effectiveness and side effects. The most feared side effects of COC's are thromboembolic complications, more rare in Africa than in the "First World" anyway¹⁵ and another risk factor, smoking, is also rarely seen in the average female government patient. On the other hand contraceptive potency is less in COC 30 and the triphasics compared to COC 50 preparations. The action of COC 50 is not so easily affected by erratic compliance. Studies comparing COC 50 and COC 30 were done in well-supervised circumstances and it was found that there is little difference in effectiveness between them. But in some developing countries (Philippines, Sri Lanka, Latin America)¹⁶ pill failures because of irregular pill taking are already 13-19 times higher than normal and to lower the oestrogen content under such circumstances seems irresponsible. The triphasics have in developed countries 2-3 times the failure rate of COC¹⁶. The legitimate ques-

tion can now be posed: did the ZNFPC make the right decision in a country where abortion is illegal? The maternal fatality rate due to pregnancy complications is in Zimbabwe 50-300 times greater than the risk of taking the higher dose COC in non-smoking users¹⁷. Because of the slight increase in side effects in COC 50 by comparison with COC 30 we lose in effectiveness and the resulting unwanted pregnancies create far more health risks than the 20 microgram extra oestrogen does.

I have some qualms about HIV infection and COC. Although there is no doubt that hormonal contraception including injectables protects against gonococcal and chlamydial infection of the tubes^{18,19,20}, there was on average a two fold increase in 13 of 15 studies²¹ looking at cervical infections with *Chlamydia Trachomatis* in COC users as compared to controls using no contraception or having been sterilised. The most likely explanation is that the columnar epithelium on the ectocervix is more vulnerable than the tough squamous layer “normally” seen on the cervix. COC more than doubles the incidence of cervical ectopy (“erosion”)²². This effect is the same in COC 30 and 50²³. Could not ectopy also increase the uptake of HIV in a similar way? The increase in vaginal discharge that occurs in clients with ectopy perhaps also increases the risk to the male partner.

Could it be that DMPA used in endometriosis to suppress columnar epithelium protects against HIV infection? A computer search (MEDLINE, 1966 to present) to find data on ectopy and DMPA revealed no published evidence. A study still to be done.

Condoms

Until a possible transition is made to a society in which promiscuity is minimal, the condom should become the mainstay of contraception in Zimbabwe. Condoms are still not easily obtainable at places where they are most urgently required and an acute shortage has been caused by a recent misdirected shipment. Vending machines for condoms should be strategically placed all over the country. The presence of such machines should be conditional on obtaining a liquor licence. An effective acceptable condom for females is being tested and eagerly awaited.

Lack of economic, social, cultural, sexual and technological options combine to lead vulnerable women to concentrate on addressing the more immediate risks in their lives: hunger, poverty, homelessness, male dominance and the disruption of the traditional socio-economic support system. Therefore women do not often have the option to make their partner use a condom or otherwise refuse him²⁴. These circumstances promote the spread of the HIV and unwanted pregnancies while women cannot really be blamed. Many life histories²⁵ have the unavoidability of a Greek drama.

IUCD's

There is at the present time a drive to promote IUCD's in Zimbabwe. The reason behind this is probably that there is no other reversible method that is so little client dependent now that DMPA is virtually banned.

One line of defence for policy makers advocating the DMPA ban was that we would shortly have hormonal implants. I understand from Zimbabwe's donors that availability of this method other than on a limited research basis will be at least 5 years. So we have only IUCD's for the above indication. I have serious reservations. Clients living far from the nearest hospital will often have trouble presenting themselves there in time if, the main side effect of IUCD use, salpingitis occurs. The literature suggests that IUCD'S are very safe in relation to Pelvic Inflammatory Disease (PID) when used in a completely mutually faithful situation. Lately I have been asking hundreds of my patients about this and very few express certainty regarding their partner's faithfulness. There is another worry. Not only my own^{26,27}. Nobody will ever do a randomised study with HIV + women and HIV - partners to see if the increase in discharge and vaginal white blood cells will increase the chance of infecting the partner but it seems quite possible on theoretical grounds.

Also the chance that a woman will pick up the virus because of an "eroded" uterine mucosa or a disrupted cervical mucus plug seems present. We are always telling asymptomatic HIV carriers to avoid infections that are likely to decrease their life expectancy. Would an IUCD in an immuno-compromised carrier not be an extra risk? And would not 10 % of IUCD clients be HIV +?

It was found in a thorough study performed in Mpilo Hospital, Bulawayo that 19% of the perinatal mortality was related to congenital syphilis²⁸. A study from Nigeria found a significant (p less than 0.03) difference in IUCD users (34%) as compared to controls (12%) in prevalence of syphilis²⁹.

DMPA

DMPA has been banned, discouraged, not stocked and out of stock since 1981. The reasons for this ban and subsequent problems are outlined by the then Minister of Health in his speech to The Senate, 6 October 1981³⁰.

He said in this speech that:

- 1 DMPA is poison.
- 2 The drug is not approved as a contraceptive in the US where it is manufactured because it may cause cancer and birth defects.
- 3 The drug causes an increase in malignant and benign breast tumours under experimental conditions. And quote "who tells me now that the African is an experimental animal?"

- 4 The Commissioner of the Family Planning Association had declared: "This could result in an increased number of infants born with serious congenital malformations".
- 5 It may cause damage to the pituitary gland and promote infertility.
- 6 It does not interfere with the lactation process but babies have been shown to absorb huge quantities of the drug via breast milk. The effect of which is unknown.
- 7 In Zimbabwe we have made alternative and safe contraceptive methods available to our women.
- 8 The only time the drug is used in Britain is -one: in cancer of the womb and -two: in the treatment of certain bleeding conditions associated with the reproductive system.
- 9 If women are unable to menstruate cyclically she either assumes the physiological posture of a man or a post-menopausal woman, with the advent of obesity, the eruption of acne or pimples, the depletion of calcium content in the bone and, a frequent occurrence in Zimbabwe, loss of hair.
- 10 It is good publicity for child spacing if DMPA is banned because it underlines the total concern we have for our mothers and children. Products, of which the benefits cannot be shown to outweigh side effects, will be withdrawn.

- *The situation as it is now:*

- 1 Since the above remarks were made in The Senate, millions more women years of experience with DMPA has been obtained. Most of the above claims are not substantiated. Birth control injections are used by more than 6 million women around the world and approved for use in 90 countries^{31,32}. Some countries like New Zealand and Thailand have used DMPA for 21 years.
Congenital abnormalities and tumours in experimental animals have not been confirmed in humans. The situation with any hormonal contraceptive in relation to malignancies is very confusing. There may be effects but so slight that it is very difficult to prove and the effects are positive (protective) in some cancers and negative in others. The impact on malignancies is completely eclipsed by the obvious risks of not using contraceptives when there is an estimated maternal mortality of 1 in 800 in Zimbabwe.
- 2 In most West-European countries DMPA is freely available for contraceptive purposes although used on a small scale. The FDA has not yet revoked its non-recognition of DMPA as a contraceptive (which does not mean that it may not be used for that purpose) mainly for the following reasons.
 - A The manufacturers' patent has expired with makes expensive lobbying not cost-effective.
 - B The manufacturers of alternative contraceptives were financially motivated to lobby against recognition.
 - C The head of the FDA found it politically (not medically) much wiser not to rock the boat.

- 3 There is a small very vocal group of Western middle class women who are against the use of DMPA. These women have no cause to walk for hours to obtain contraceptives, have easy access to abortion services, easy access to transport to restock their pills, condoms or pessaries if forgotten when absent from home. They are speedily and professionally treated if they happen to acquire an STD, they have seldom more than 2-3 children and enough money to feed those children, they have partners who are prepared to take their share of the contraceptive burden in the form of condoms or vasectomies. They tell their (middle class) African sisters who they meet at conferences that it is primitive to use injections. They change very fast their luxury opinion when living among non-privileged African women.

It is true that DMPA has side effects and one of the problems is that it takes at least 3 months for those side effects, if they happen to develop, to abate. DMPA is apart from condoms the reversible contraceptive, which protects best against fertility threatening STD¹⁹.

It has of course positive and negative side effects none of which are fatal. I have not seen (nor has it been documented by anybody) a woman dying of direct adverse effects of DMPA. I have often seen females dying because they had not used DMPA and were now pregnant for the umpteenth time. Because they had no easy access to a for THEM reliable and acceptable contraceptive they died. Their death took place because of the complications of grande-multiparity or of abortions procured in desperation.

DMPA is the most reliable method apart from sterilisation and severe side effects are seen less than in any other method apart from condoms. The latter method has acceptability and reliability problems ²⁴.

DMPA is guaranteed effective for three months but sometimes it works for six month or even a year, and one of its drawbacks is that it becomes difficult to precisely plan the next pregnancy. This property of DMPA is often confused with the drug causing infertility. Another factor is that while clients are using DMPA they are becoming 3 months older with every repeat injection. There is a clear decrease in fertility related to age. The injection is now blamed for the age effect. Of course the fact that DMPA is not approved in the US has touched on the political sensitivities in Africa.

Kenya has gone through a similar process as Zimbabwe banning DMPA use just after Independence. The drug is now freely available in Kenya. DMPA is as a FP official there expressed it to me: "popular as hot cakes". Use has doubled between 1985 and 1987³³.

The four reasons for not approving DMPA for general use in the United States cited by the FDA³⁴ were:

- 1 DMPA produces breast tumours in beagles.
- 2 It may be teratogenic if used in pregnancy.
- 3 Not needed in the US because sterilization is widely available.
- 4 Supplemental estrogens to control irregular bleeding could be hazardous.

- AD 1 No overall increase in breast cancer demonstrated in humans (35,36).
- AD 2. Pregnancy is a contra-indication. The same problem is shared in theory by COC and POP but in practice it is no problem with all three methods.
- AD 3 The situation in Zimbabwe vis-à-vis sterilisation would be an indication for DMPA.
- AD 4 Because oestrogens are somewhat dangerous we prefer to use contraceptives with oestrogens instead of injections with only progestagens. Irritating irregular bleedings often seen in the first few months of DMPA use can also be controlled by giving an extra injection earlier than scheduled.

Finally DMPA has a marketing problem.

In Europe it is often used by psychiatric patients and for pets (like penicillin and vitamins).

This makes its use very controversial in Africa. There was a small country in West-Europe, which produced a small luxury car. It was a perfectly acceptable car. In fact it had a very advanced automatic gear system. This system made driving the car so easy that elderly people favoured driving this car. The car could also easily be driven by the physically handicapped after some adaptation. This car now became associated in the eyes of the general public with age and handicap. Sales collapsed. Even not so very old people and not so severely handicapped persons did not like the image of the car. Reasoning that: “there must be something wrong with the cars if “normal” persons do not buy them” and: “if I buy one, people think I am very old or otherwise abnormal”. In the end only persons over 100 or those with no limbs left, wanted to be seen driving this car. Using DMPA in psychiatric disease and for the mentally handicapped had the same effect.

The Zimbabwe Federation of the Disabled has now complained that the drug is still used for its members ³⁷. “If Depo-Provera cannot be administered to able-bodied women, why use it on the disabled?” they asked. Completing the above process.

The irony of the DMPA history in Zimbabwe is that the well meant, “ban” did more harm than good. Many women became infertile because the protective effect on the tubes of DMPA was not allowed to function or because they were given IUCD's instead. Many thought themselves forced to procure an abortion because they were not able to use a reliable, client-friendly contraceptive and therefore suffered the side effects of back

street operations. Others perhaps became more easily infected by syphilis and produced a dead baby.

Sterilisation

It seems likely that (female) sterilisation will become a very widely used form of contraception in Zimbabwe.

The ideal situation would be for couples to complete their well-spaced families and then one partner to have a ligation. Ignoring the backlog and assuming that this would happen on average at age 35, then there would be an estimated 50.000 ligations annually. A far cry from the estimated 3000 performed in Zimbabwe last year in the private and public sectors. Thirty-five years from today we should be geared to 200.000 ligations per year, full time work for 60 doctors.

At the moment, as mentioned above, the low-income patient finds it difficult to organise a TL. Ways should be found to change this situation and one of the bottle necks, the availability of general anaesthesia, is going to be bypassed if the Ministry of Health's drive for sterilisation under local anaesthesia is successful. The Ministry will need support from all readers.

It is time that the Ministry of Health issues a directive that it is legally in order to have sterilisation consent signed only by the patient concerned. It is preferable for the partner to sign also, but if that cannot be arranged for practical reasons and the patient's request is reasonable and genuine then one signature is enough. Dozens of patients are frustrated because their requests are not met. Some superintendents in large hospitals even insist on a consultant and themselves signing. This is very difficult to organise during workshops and impossible during weekends and at night.

Termination of pregnancy

In countries, which had a well-established FP program before legalisation of abortion (U.K, Scandinavia, The Netherlands), abortion is used as a fail save measure. It is performed regrettably, legally and often free of charge. In other countries where contraception availability was not well organised before legal availability of abortions (USSR, Korea, Japan) abortion became an acceptable FP method. My personal opinion is that we should aim for the former situation in Zimbabwe by supporting FP and for those with influence by lobbying for legalisation of abortion.

The illegal abortions performed in Zimbabwe cause a lot of suffering and death. The abortionists have no reason to provide contraception for their client, which would be bad for their business. Data presented by a representative of the Rumanian Ministry of Health³⁸ at the first congress of the European Society of Contraception in 1990 in Paris showed that even in a police state like Rumania, with very severe punishment for illegal

abortions, it was still possible for one in five of all conceptions to be aborted in the back streets with associated high maternal mortality. In England and Wales where abortions are legal also 20% of all pregnancies end in a termination. This is very tragic but the way to decrease this proportion is not to criminalize it but to educate. I claim that it would be possible to provide legal and competent termination of pregnancy services without increasing the total amount of abortions performed (illegally) at the moment, if at the same time FP services in Zimbabwe were strengthened.

Under the pertaining legislation termination for HIV infection seems likely to increase enormously. In the U.K., a side effect of the increased use of condoms, as opposed to contraceptives less effective against STD's but better in protecting against pregnancy, is an increase in terminations of pregnancy ³⁸.

CONCLUSION

Much of our FP policies in Zimbabwe are ripe for reassessment. I hope that the discussion will be frank and without fear. My preference for DMPA over IUCD's is a relative one. I do not want to promote DMPA by denouncing IUCD's. I fit them often. But it seems to me that on balance there is some advantage at the moment in using DMPA in many situations. Also because it needs less equipment and less training of staff. Besides, a recent nationwide study revealed that many women in Zimbabwe are keener to use it than IUCD's ³⁹.

Many studies are still to be performed to determine the best approach in the face of the evolving HIV pandemic.

The most important single factor for improving the contraceptive services in Zimbabwe is to motivate every health worker to meet the existing demand from the public for family planning.

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my tubes which is a very serious situation to me because the men I'm married to now, he don't have any children, those two children I have listed are of the first marriage. I don't know if its reversable to untie the tubes

12

Viewpoint: Two world religions and family planning

Lancet 1993; 342: 473-5

Apart from mediating between God or Allah and his creation a "horizontal" task exists for the Churches or Mosque: to decrease suffering and increase happiness.

Three conditions must be fulfilled if they are ever to achieve this task:

- 1 All people should have some basic material wealth.
- 2 Religious leaders should not by their teaching be directly responsible for suffering.
- 3 Religious teachings should not be seen as ridiculous and irrelevant.

Let's look at these conditions in more detail.

Material wealth

It is very difficult to "love thy neighbour" if at the same time basic resources like (clean) water, energy, land, work, health care and food are severely limited. These resources become daily more scarce because of the policies of the leaders of the Roman Catholic Church (RCC) and Islam. A huge "underclass" exists on a global scale and is evolving even within the richest nations¹. To organise an equitable distribution of basics world wide seems impossible; and we face a future with even more nationalism, racism, ethnic and religious fanaticism, economic apartheid, (trade) wars and ecological disasters. How to solve these problems nobody knows but one thing seems obvious - the larger the world population, the more difficult it will be to achieve peace and justice on earth.

Suffering

In the Third World and especially in sub-Saharan Africa, Latin America and the Philippines, health care is often provided by the RCC and the Church's powerful position prevents effective access to reliable contraception. Most of the poverty-stricken people concerned do not have the option, unlike the Irish, to nip over the border. In Rwanda one-third of the health facilities are administrated by the RCC. The Bishops refuse to discuss the possibility of promoting condoms for contraceptive or even AIDS prevention purposes², while 40% of the under-five population are malnourished, the population doubles every 19 years and the HIV prevalence in urban areas is more than 20%³⁻⁴.

Take Maria. She is a girl of 17 living in abject poverty in one of the enormous Third World cities. No running water or sanitation. Mary looks after her siblings while her mother can just scavenge enough to prevent starvation. Mary's only chance of escape is to marry someone with a good job. If she finds a candidate, he will most likely blackmail her into having sex before marriage. She assents, out of fear of losing him. There are a dozen other girls who see him as an escape vehicle from terminal poverty; and thus he acts as a transport medium for gonorrhoea, syphilis and HIV between his girlfriends (who can't put all their eggs in one basket). The end result is that his girlfriends experience infertility, ectopic pregnancies, backstreet abortions and AIDS. If they ever gave birth, the baby may die of AIDS or

congenital syphilis⁵ or become an orphan. Maria refuses to have an abortion although she has not been elected to wife. To provide for her child and herself she has to give sexual favours to a dozen men. 5 years later she dies of AIDS lonely, without any dignity, lying in her own diarrhoea covered in flies. Her son is shot as a street urchin⁶.

The rich in the same city have easy access to contraception and safe abortion and will have a beautiful (the bride in white) wedding ceremony, perhaps consecrated by the bishop himself. They will have a maximum of three children who will take their Holy Communion in smart clothes and shining shoes. If I were Maria and not so tired, I would as a last act have burned the Church down.

Tsitsi is 25 years old, married and has one child. Her second child died in her arms recently after months of suffering. Both she and her husband were found HIV positive. The uncertain but terrifying future has brought them much nearer to each other and the RCC. They certainly do not want to have another pregnancy but the RCC forbids them the use of effective contraception. If Tsitsi refuses her husband sex he may infect someone else.

Nthabiseng is a recently qualified nurse. With the economic structural adjustment program she is happy to get a job in a remote RCC hospital even though her husband is to stay in town to look for work. Relatives depend on her having an income; they pitched in in the past when she needed money for schooling. At Christmas her husband visits her; there are no condoms at the mission. At the end of her 6 months' probation the nuns in charge of the hospital will make her have a pregnancy test. If she is positive she will not get the job. 6 weeks before the urine test she misses her period. A traditional doctor in a nearby village tries to help. She dies of a perforated uterus.

Hajira is 12 years old. Her father, a staunch Muslim, thinks that education is not important for girls. She has had her menarche, so a marriage is arranged. She never had sex education, has no idea about antenatal care and what is supposed to happen during a delivery. Her mother can't tell her; she died during her eleventh delivery. After three days' labour at home she is encouraged with hot irons on her back to push harder. In the end she delivers a dead baby. Three months later she is able to walk more or less normally and is rejected by her husband because the huge hole in her bladder causes her to smell and leak. Her family does not want her back.

His name is Karol, he is a Polish gynaecologist and a staunch supporter of the RCC. In public he is a declared opponent of the use of "unnatural" contraception. His official income is not very high, but luckily the termination of many unwanted pregnancies⁷ in wealthy women makes it possible for him to give his two children a decent education.

The policies of the RCC and Islamic leaders cause most suffering where people are poorest. The anti-contraceptive propaganda highlights the side-effects⁴, although these are infinitesimal compared to the risks of pregnancy. For example, in Zaire and in Muslim Northern Nigeria the lifetime risks of death from pregnancy is greater than one in twenty five³⁻⁸; meanwhile in western Europe, near the headquarters of the RCC, the risk is one in five thousand. Support for safe and effective contraception by Church leaders could prevent many of the 100.000 deaths, 98% of them in the Third World, from clandestine abortions. It is all very well to say that if everyone followed the RCC moral code then all these abortions and all the 13 million HIV infections would not have occurred. The fact is that people living in poverty cannot often follow this code. Promiscuity is not more prevalent in Africa than in Europe (where it happens by choice) but poverty makes it punishable by death via AIDS or botched abortions. The RCC is a fervent opponent of induced abortions. What better opportunity to show its commitment than the situation in the former USSR, where there are more abortions than deliveries because the Pill is out of stock⁹. Trucks full of contraceptives from Rome to Moscow would show moral leadership.

Irrelevance

The irrelevance of the RCC's family planning doctrine is obvious in Europe and to some extent this is true for the Islam in Tunisia or Indonesia. The population doubling time in Ireland is 122 years, in Poland 187 years and in Italy 1386 years. In Kenya, the Philippines, Bangladesh and Mexico it is 19, 28, 29 and 30 years respectively¹⁰.

The nearer to the Vatican, the less hungry and the better educated the people and the less seriously the Church leaders are taken.

There is an international RC opposition journal, *Conscience*, with high-level contributions to the "pro-life pro-choice" debate¹¹. In it family planning is discussed very little because it has become a non-issue in developed countries; the dying is done by the poor elsewhere. While euthanasia for incurable suffering is subject for much ethical debate in the First World, it is practised in Brazil as a matter of course, by mothers of many children who distribute food and health care to those of their children most likely to survive¹².

If the Church makes itself irrelevant for the rich and educated, and constitutes a danger for the poor and uneducated, then it is committing a grave breach of responsibility.

The moral authority of the Church, which could be mobilised for much good, is eroded and squandered as a result of its funny position on condoms and pills.

Future generations will not laugh it off like the Galileo Galilei affair.

How do Church and Mosque maintain their influence on contraception?

Third World Governments are afraid to antagonise the powerful religions. The same is seen in Irish and US elections. The religions have via their excellent work in the health sector much opportunity to sabotage the availability of contraception. Education and health facilities and the press are often owned or at least very much influenced by the religions, giving the Churches many opportunities for contra- contraception propaganda.

The RCC sows confusion with its promotion of the Billings method, a family planning method only feasible in very “bourgeois” circumstances. Church and Mosque also exploit fears in the Third World that family planning is an instrument of control in the hands of the rich nations.

One of the effects of the above is that even non-religious health workers do not give the best family planning service. Hundreds of thousands of women with induced abortions admitted to hospitals all over Africa, Latin America and Asia leave hospital without being advised on contraceptives, although there is an almost absolute indication for such counselling¹³⁻⁴. This situation is allowed to continue because the Church or Mosque does not define such omissions as malpractice - though it is like discharging a patient without insulin after treatment for a diabetic coma.

Another effect is that contraceptive providers practise self-censorship. For fear of Church or Mosque they limit the choice of methods and refuse service to the unmarried and to women who cannot prove their husbands' consent. For similar reasons, schools do not offer sex education.

Many believe that the poor are not interested in family planning whatever the religious leaders' position, and that an increase in child survival, material wealth, female education and social security is the only route to increased uptake of contraception. This is of course a vicious circle. These preconditions do not improve, and often deteriorate, because of the rapid population increase. Nevertheless, there is extensive evidence¹⁵⁻⁶ for an enormous unmet demand for family planning, and a concerted effort from all parties might just prevent some countries to be caught in King's demographic trap¹⁷ -high birth rate, high death rate, collapsing environment, and many (wo)man years of human misery.

Why are the religious leaders against contraception?

Humanity is in awe of the mystery of procreation, so religions like to surround the event by prescriptions and prohibitions. Part of this is probably, like the Christmas tree, a leftover from previous more primitive religions where fertility rites played an important part. There is also a feeling that we, mere humans, cannot know God's plans with the

planet: see how the AIDS epidemic might upset all the population projections. Yes, but the doom prophets might be very right if the next new virus was an incurable rice or wheat disease.

Leaders of Islam and the RCC are united in the feeling that women should not take the important decisions. On family planning there is no clear support in Koran or Bible for the clergy's position, and there are many dissenting opinions in Christianity and Islam. There is little doubt that the next Pope or the Pope after him/her will support family planning, but that will be many unwanted pregnancies, backstreet abortions and AIDS patients from today. If the theological foundation for opposition to family planning is so shaky, it should be no reason for adding to the anguish already designated for us in life and by death. The argument that family planning is unnatural should not be used by somebody who flies in an airplane all over the globe and has a natural tumour removed by unnatural surgery under unnatural general anaesthesia. Barring disasters, the natural increase of 5% would see the world population in December 2100 at 1049 billion¹⁸. Not a cockroach would be left of nature. One suspects that the RCC and Islam vaguely expect a rematch for the Crusades and that they do not like family planning because they anticipate to need martyrs/shohada, cannon fodder.

Finally one cannot help thinking that there might be Freudian reasons for the RCC's stand on family planning. Why this obsession with sexual morals while there is so much to improve in morality in general. What about excommunicating manufacturers of anti personnel mines or of cigarettes or people responsible for eradicating God's animal species. Why this obsession with sex for reproduction while it is so important for bonding: to found and to foster the family. The position of Islamic leaders is, apart from the worry about the rematch, that children are a gift from Allah, and who are we to interfere? Lack of information, widespread misinformation and fatalism are important factors¹⁹⁻²². There is an enormous unmet demand in the Islamic world for family planning²³⁻⁵.

Something has to be done.

At a workshop for gynaecologists and midwives from the Third World we realised the harm being done to the standard of living, joy, health and ecology by the RCC and Islam. We decided to start a letter sending action to the Pope and Imam/Maulana/Mullah. Every time we see a severe complication of the unavailability or bad reputation of contraceptives where the religions are implicated we send a letter to the relevant religious leader²⁶. We invite readers to join us. Readers living in areas or economic/ educational circumstances where religious teachings are irrelevant could support us by sending a letter to the Vatican or an Islamic leader requesting them to think again. Either way, we would appreciate a copy at the address above.

We are aware that we lack of detachment because we witness so many complications from unwanted pregnancies. We see children dying of AIDS. Up to 42% of our pregnant women is HIV positive²⁷. We see families with eight malnourished children, no money for family planning and school fees. We struggle exhausted in the middle of the night, deep in the pelvis, to remove necrotic uteri from infected induced abortions, with bad light and a dangerous needle. Central and eastern Africa will see six million live births in 1993. At least one million of the parturients will be HIV positive. It is only "natural" that 300.000 of the babies will be dead because of AIDS by 1995; a further 700.000 will be orphans a few years later. In 1994 nature will repeat this exercise.

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Provider-dependent contraception giving Third World women more power to achieve their reproductive goals

A LETTER WRITTEN TO THE BRITISH MEDICAL JOURNAL IN JANUARY 1997 AS REACTION TO A PAPER ABOUT THE "SERIOUS RISK" THAT WOMEN WITH IMPLANTS IN LATIN AMERICA WOULD NOT HAVE THOSE IMMEDIATELY REMOVED ON REQUEST. REJECTED, SOMEWHAT PARTISAN PERHAPS BUT GOOD FOR GIVING BACKGROUND INFORMATION.

The reaction of M S Thompson¹, anthropology research student, to the editorial in the BMJ about contraceptive implants needs a reaction especially because he/she claims that “we cannot distance ourselves from the problems and misuse of these contraceptives in developing countries”. The thrust of the article was to give mainly unspecified warnings about provider dependent contraceptives suggesting a Big Brother conspiracy to control the fertility of the poor and of women with social problems and about making lots of money on the side. Norplant is then tainted by accusations of the future misuse of fertility vaccines and the “apparent” misuse associated with Depo-Provera, a drug loved by many of my patients, although Depo-Provera has “a legacy of bad press and continuing profitability for its producers”. In the conclusion the World is encouraged to guarantee instant removal of implants on request.

The practical situation in Southern Africa.

We must be living in different Worlds. I have been working in Africa for 20 years first as a district doctor later in an academic hospital and later again as a gynaecologist, exclusively looking after the poorest of the society. I have had very intensive - up to dying in my hands - contact with women suffering from over fertility; never on a population control level but always with the individual, often desperate, patient.

I agree that the more openness and discussion there is, the better it will be in the long run. This is a contribution to that openness.

In many developing countries the maternal mortality is high and many times more women die from not using contraceptives than from using them. Failure rates of consumer-controlled contraceptives are awful and those failures often end in exploitative and/or incompetent provider controlled abortions.

How it should be

There is a serious flaw in the human design. Females become pregnant more or less by default. I foresee that hundred years from now boys and girls are painlessly equipped with electro -magnetic valves plus chip. This chip can be electronically induced to open the valves by a dual smart key system. If people marry or start a permanent partnership he gets her second key and she his. A pregnancy can only start if both partners agree to open both valves. Many unwanted/not-planned pregnancies will be prevented in this way.

This should be combined with a mutual understanding between citizens and governments that citizens will not make babies by mistake or default and the government would undertake to help provide education, health care, protection and employment or unemployment benefits. This same government would create such an economic atmosphere that children are not needed by their parent(s) as labourers, assets to secure wel-

fare, or pension providers. In some countries this situation, apart from the electronic valves, already exists for the majority of the population. In the situation in which I work, the government's side of the bargain is difficult to keep, partly because the country's population increases faster than the Gross National Product and hence everybody is getting poorer every year. There was however, so much attention paid to the education of women that many want to limit the size of their family. Many women have one or two babies more than they would have liked, but they still cherish and nourish their children. Others cannot look after their children and some have dangerous clandestine abortions. It would be much better for everyone involved if the right means to prevent "surplus" pregnancies were available.

Client controlled contraceptives are not very successful

I will try to argue that client controlled contraceptives are not very successful and that the politically incorrect provider dependent ones are, for many, a blessing and an important step on the road towards the real client controlled method of my future vision. In the circumstances under which I work, clients have more control over the required number of pregnancies if they have access to the provider dependent contraception, such as Norplant, Depot medroxyprogesterone acetate (DMPA) a.k.a. Depo-Provera, Tubal ligation (TL), Intra Uterine Contraceptive Devices (IUCD) and perhaps in the future a vaccine, than when they use client controlled methods like oral contraceptives (OC), condoms or "Natural" Family Planning ("N"FP).

THE METHODS USED

- 1 The mainstay of contraception in this country is, for historical and political reasons, the Pill. This is difficult to remember to take every day. I cannot remember to take my anti malaria tablets regularly. The highly educated population of the UK was so confused about the risk calculations around and the use of alternatives for "third generation" pills that it resulted in 3000 extra legal, technically adequate abortions, according to the UK Government². Unfortunate or a disaster one might say, but perhaps 1% of these women who had abortions would have died here in Zimbabwe and many others would have suffered non-fatal complications like chronic pelvic pain or infertility.

Here, where reproduction has stronger associations with (black) magic and superstitions, a few negative words from a priest or traditional doctor will end in many interrupted strips of pills. The same happens in Egypt apparently³. The problems with the third generation pill in the UK were published, of course, in the newspapers here in Zimbabwe. Luckily, we cannot afford it or more correctly it is too expensive for the donors. Any physical and mental symptom a woman on the pill has will be blamed on

the OC because of the anti OC propaganda. Another problem with the pill is when to stop taking it. At 40 years, 45 or 50? Who will take a pill every day from age 40 'till 50 doubting her fertility at the same time? A typical District Hospital has 2-3 % deliveries from women of 40 years and older. I think that 95% of these pregnancies are unwanted and either made possible by faulty pill taking or because the woman took a chance assuming that she was past childbearing age. Most women in Zimbabwe have completed their family i.e. 4 living children in their early thirties. To be safe might involve another 18 years of pill taking. Who will take OCs properly if the partner comes home only twice a year? 20-40% of the pregnancies here are started when the lady involved was supposed to be on a pill, and Zimbabwe is better organised than most countries in Africa. I know of only one patient who died as a side effect of the pill discussed at a meeting of our pathology department where fatal complications seen in a population of around 300.000 pill users would be collected.

- 2 Intra uterine contraceptive devices (IUCD) are not an obvious option for use on a large scale in situations where perhaps 20% of the potential users are HIV positive and even more have other STIs, but they have their niche. I have experienced one death due to an IUCD related pelvic abscess and a few narrow escapes. This situation pertains where perhaps 100 IUCDs are fitted annually among the population I serve.
- 3 Condoms as contraceptives are not really user dependent. They are dependent on the partner, which is quite a different matter. They have a typical failure rate of 12 per 100 women years of use. I have heard the highly respected national chairman of the Catholic Commission for Justice and Peace (CCJP) say twice to an educated public after reminding everybody of the connection between thromboses and the pill: "Condoms have a failure rate of around 13% in relation to pregnancies in all large studies. People using condoms have a 13% chance of condom failure and hence of getting AIDS. It is even worse with AIDS because the virus can be picked up every day and a pregnancy only three days a month." Imagine what sort of rumours are spread about all the non-sanctified methods to unsophisticated audiences by even less informed speakers. He did not know that it was 13% per year not per act.

The condom is in our circumstances the ultimate provider (in a different sense) controlled contraceptive. This method has too high a failure rate to be used as the only defence against pregnancy, unless clients and the law are prepared to accept termination of pregnancy figures like in Japan. I have, of course, never experienced condom related deaths but very many because condoms were not used in risky relationships.

- 4 Depo-Provera is just recovering from a nearly fatal blow delivered by a previous Minister of Health, egged on by the same sort of (bourgeois) groups who are now protesting against Norplant and the development of anti-fertility vaccines. Local women were begging for DMPA. Some travelled over the border to Botswana to obtain it. Tens of thou-

sands of unwanted pregnancies were the result. IUCDs were pushed because it was the only reliable alternative even though it has its own negative side effects. It might be inconvenient to be unable to find somebody to remove an implant; this can be life threatening with an infected IUCD. A study still to be written by an anthropologist before the incriminating evidence is lost could be entitled: "The costs and benefits of the anti DMPA crusade in countries where women are categorically treated as second class". The bourgeois women in the West could not imagine a husband who, when checking his wives purse and finding a strip of contraceptives, would beat her up and throw the pills away. They could not imagine a situation where if the pill were missed by mistake the husband would not refrain from penetrative action or refuse to find a condom, which might mean 5 hours walking through dark and dangerous bush. It turns out DMPA has some unexpected benefits which would never have been detected if the above groups had had their way. DMPA protects against Pelvic Inflammatory Disease and thus infertility⁵ and might even be the ideal contraceptive for black professional women who want to postpone their first pregnancy until they are around thirty by which time fibroids quite often interfere with fertility unless DMPA is used⁶. I admit Depot-Provera like Norplant has side effects but I have never seen mortality from both but I have seen sometimes three maternal deaths in as many days. More objectively, the maternal mortality is 500-700 per 100.000 in this region. Would it not be fantastic if a vaccine was developed which would prevent further pregnancy without an operation and without side-effects in a woman of say 37 years with six children, the last two of whom, due to pill (user) failure?

- 5 Norplant is available here for the equivalent of US\$10 (which is two thirds of the annual per capita health expenditure) and there is no charge for the insertion in Government Institutions. If the manufacturing costs are US\$16 as you state then somebody should be nice to us. US\$10 is still the equivalent of a week's wage for a farm worker and we often have to find well-wishers to make Norplant possible for our poorer patients. Compare this to the gynaecologists in private practice who receive US\$125 for a postpartum or interval TL. The main problem is that there are only two places in this large country where the poor are provided, if desired, with Norplant (a success of the anti-implant lobby means that one has to be a gynaecologist to be trained to be allowed to insert Norplant). Of course, it is the same powers that sabotage the pill and the condom combined with the Western bourgeois influence on the African upper class at international conferences, which undermines their availability. I never hear these bourgeois groups complain about provider controlled airplane maintenance though. If, what happened in Poland ⁷, a NGO called "Pharmacists for Life" starts buying up contraceptives for destruction then it must be a feeling of luxury to have a set of six rods easily palpable under the skin.

It might be that we are sometimes so busy (4 Government Gynaecologists for 4 million people) that “instant removal on request” cannot be guaranteed. We may first have to remove a necrotic or ruptured uterus, the result of failed consumer controlled contraception, or a district doctor might be allowed to first operate a torsion of a testis. A woman who requests removal of a Norplant might have to wait a few hours, sometimes days. So what? There are several countries where abortion although available on demand is not legal without a statutory prescribed reconsideration period of a week or so. IVF programmes have waiting lists, which run into months. In one of the countries mentioned above the law makes it possible to change ones mind within a week on the purchase of a vacuum cleaner or encyclopaedia from a door-to-door salesperson, even if one signed a contract to buy. Why is everybody so concerned that it might take some effort to have an expensive subsidised Norplant removed while the implications of “making” a baby are much greater than buying an encyclopaedia? A woman depending on government health services might have to wait two more pregnancies before she gets the TL she wants⁸. In any case it would soon be known to women if it was difficult to have an implant removed and they would soon stop coming to have them fitted. Would a little bit of verbal coercion be so bad if in the UK the client was a drug addict supporting her habit with prostitution?

- 6 Sterilisations are in general operations done on females here. Men will need some time to accept that they too could be sterilised. This form of contraception goes much further than the above provider dependent methods. Everybody has the opportunity to have an implant or IUCD removed even if it takes involving the press, the CCJP or the court (there are many more lawyers than gynaecologists). But even a High Court order will not ensure the sort of expertise that is needed to reverse a sterilisation. The contribution of Thompson, however, does not talk about sterilisation, even though this method is used by approximately 138 million women⁹ mainly in developing countries, probably because the profit motive of the multinational industry is not so obvious.

My educated guess based on several studies¹⁰ is that 3000 sterilisations for completed families are done annually in Zimbabwe (population 11 million) on the 90% of the population who cannot afford to go private. There are around 35.000 new women every year with a completed family who would like to have a TL but have no access to one and there is a backlog of a few hundred thousand women.

- 7 “Natural” Family Planning (“N”FP) certainly has a place in stable longer standing HIV negative relationships where sex is discussable, failure not a disaster and the partner not a migrant worker. These qualifications exclude many relationships in our situation and, what is perhaps worse, many institutions with a health delivery monopoly in their sometimes huge catchment area, demonise, sabotage or ignore any non “N”FP method without offering any training in “N”FP. The result is that the poor in the said catchment areas

have no reasonable tools to limit their family, even if they are of a completely different religious persuasion and the rich, like the rich everywhere, (including the people in the First World) have all sorts of alternative solutions at their disposal¹¹. Therefore, the influential do not suffer and do not exert pressure for change. One of these institutions had 1037 deliveries last year. 42 women had five babies after delivery, 41 six, 24 seven, 30 eight, 21 nine, 8 ten, 6 eleven and 3 twelve. Most women in Zimbabwe breast-feed for at least 12 months otherwise these parities would be much higher. None was offered a post partum sterilisation or any other FP method for postpartum or later use. There are no “N”FP training courses. The nearest understaffed Government Hospital is 80 km away over a four wheel drive road and going there and organising a booking for a TL is difficult. The mission hospital refuses to refer for FP purposes so there is no lift in the ambulance. To go 80 km for DMPA every three months is too expensive for most. Imagine the blessing if a vaccination could do the job with very few side effects. I have never seen any complications from “N”FP but of course, many from failed “N”FP as from failed OCs.

Misuse of contraceptives

The article that prompted this reaction states that social researchers have documented bad practices in the use of Norplant in developing countries. Maybe this is true, but 20 years as a doctor in countries in Africa have impressed on me the enormous unmet demand for (reliable) contraceptives. The only misuse I often saw was the prescription of too many client dependent methods resulting in many unwanted pregnancies. I saw contraceptives not being given or being stopped for questionable contra indications or side effects, without alternatives being offered. I saw doctors preferring to play tennis at 3 pm instead of performing a TL on a very keen Para 6. I saw patients who had become pregnant whilst on the pill. After aborting themselves with roots, sticks or vinca alkaloids (Periwinkle), they left the hospital again with the same contraceptive they had used in the first place or with nothing. Patients are admitted for a sprained ankle for a few days and nobody inquires if they are using OCs and if they have brought them along. Patients (or their children) are diagnosed as having malnutrition, diabetes, HIV or hypertension but nobody discusses the contraceptive implications. Patients are given anti-TB treatment but the OC dose is not doubled. The only time I worry a little bit about FP providers being too aggressive is when a legal abortion for HIV is provided on condition that it is combined with a TL. I am happy I do not have to take the FP decisions in China, India, Indonesia and Bangladesh. Nobody could do that without getting dirty hands. Some of the governments of these countries might prefer a triple smart key system.

CONCLUSION

In Africa (and I think in most of Latin America) population control is not a preoccupation of the policy makers and the people who work at the grassroots. FP does not need to be advertised. We cannot cope with the demand if we do not want to dish out pills only. Consumer controlled methods tend to go wrong very often with no safe abortion services for the poor on offer. Any discussion in public about the side effects of contraceptives should always stress the mortality risks related to not using contraceptives. Especially in developing countries many more lives are saved by the use of contraceptives than lost. Regrettably, many more lives are saved by more provider-controlled methods than by consumer-controlled methods. Circumstances where "instant removal on request" cannot be guaranteed of implants or where there is little equipment and expertise for reversal of the sterilisation are precisely the places where these FP methods are most useful; not for population control but to enable couples to reach their reproductive goals. Political lobbying to pull the rug out from under implant programmes and the development of vaccines will, if successful, result in more irreversible methods for the well to do and less obtainable reproductive goals for the poor. Traditional and religious forces are able to sabotage the proper use of modern contraceptives, especially the consumer controlled methods, without offering an alternative. Propagandists of "N"FP should put their money where their mouth is and come and give trainings and keep correct statistics at the same time. Members of the anti implant/ fertility vaccine/ DMPA lobby should live in a male dominated society for a few years without their own source of income and no social security to fall back on, to experience what a blessing some methods are.

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Do you have any other comments on the treatment and care you received while in hospital? Please feel free to comment on anything.

I got excellent treatment from the time I arrived at the hospital. The theatre staff were very reassuring although I was weak & had lost too much blood, the nursing staff was wonderful & comforting. What church do you belong to..... Doctor Verdy! You were Salvation Army. supportive, except for your hand! Thank you beccz almost lost my life. You saved my life!

Was the operation very painful? ~~yes~~/No

Was it more painful than having a baby? ~~Yes~~/No

**Practising obstetrics and
Gynaecology in areas with a
high prevalence of
HIV infection**

Lancet 1995; 346: 293-6

What is it like to practice obstetrics gynaecology in a country with a high prevalence of HIV infection? My experience relates especially to Zimbabwe, but the same factors apply equally well to Zambia, Zaire, Uganda, Kenya, Tanzania, Malawi and Mozambique. Within a population of 11 million in Zimbabwe, at least 1 million are HIV positive according to the official figures. AIDS often means “home-based care”; the nearest clinic or hospital, which has very little to offer, may be 3 hours away per wheelbarrow. Many patients who die with chronic diarrhoea lack a piped water supply nearby, an indoor toilet, or even a waterproof sheet.

Every year in Zimbabwe there are 120.000 confinements of HIV-positive women compared with 7000 HIV-positive pregnancies in the USA¹. Transmission of the virus in Africa is mainly heterosexual and vertical, although blood transfusion still plays a part. Intravenous drug use is not a problem but alcohol is, by way of promoting risky behaviour. A secondary epidemic of tuberculosis (TB) (also among HIV-negative persons) adds to the difficulties in sub-Saharan Africa.

Testing

Patients seldom request an HIV test, and many blood donors have stopped volunteering because they do not want to know. Testing is done, in some cases without the patient's knowledge, in cases of severe illness and in specific situations when knowledge of the HIV status influences management or increases understanding of the HIV disease. Although an infected individual might benefit from knowing that the test is positive, most patients have little control over their lives and cannot make plans for the future. Counselling, a magic imported word, does not work well where people are less individual and more defined as part of an extended family, which nevertheless could eject the individual should it come to know about her HIV status. Moreover, the health services could never cope with basic preventive care if it made a serious effort to track down HIV-positive patients. If a patient is tested and found positive should we send for the husband and offer him a test? 12 partners of the 146 women identified as HIV positive in one study from Rwanda refused testing, and 10 (7.5%) of the tested were found to be HIV negative². Within couples, HIV negativity in the man and positivity in the woman occurs especially if both partners are young. Will he abandon his wife and children and tell everybody why? She will need a new provider. Perhaps he will turn to another woman and become infected anyway? I know of “counsellors” who will not tell the husband that he is negative.

There are severe difficulties related to the diagnosis and management of infertility. To be infertile is an existential problem for the woman or couple involved.

Gynaecologists often test for HIV before embarking on any other investigations. But how should we tell a woman that infertility is one of her least problems. Many couples stay

together if found to be HIV positive, but the additional burden of infertility may be intolerable. Culturally it is better to have had a baby even if the child died than never to have had a child. A widely held belief among nursing staff is that patients who are told that they are HIV positive give up and die much faster than those who remain ignorant of their condition.

Should patients be offered a test when HIV infection is suspected but the HIV status has no bearing on management -eg, in cases of herpes zoster, large condylomata acuminata, or Bell's palsy in the third trimester of a pregnancy? Although offering a test sounds fair and democratic, the patient cannot then choose not to know that her herpes is likely to be HIV related. Should she communicate the doctor's suggestion to her relations and risk rejection, even starvation or harbour her fears alone? When I did a survey in the United Bulawayo Hospitals in Zimbabwe, 10% of 250 gynaecological outpatients indicated that did not want the doctor to communicate his or her suspicion that HIV was involved if there were no therapeutic implications. I suggest that all patients at presentation at a health facility should be asked to indicate on a form whether they wish to be tested should the above situation arise.

Gynaecology

In gynaecological practice post-abortals sepsis, severe pelvic inflammatory disease, pelvic lymphadenitis, vulvovaginitis (often ulcerative), and tuberculous peritonitis are increasing. Some patients present with chronic vaginal bleeding and are found to have HIV-related thrombocytopenia³. Amenorrhoea and infertility related to weight loss are more common. Recto-vaginal fistulae in sexually active women⁴, unrelated to labour or trauma, and in under-fives⁴⁻⁶ are new. Conventional repairs of labour-related vesico-vaginal fistulae in HIV-positive patients and of the above mentioned recto-vaginal fistulae are often unsuccessful. There is an increase in the incidence and progression of cervical (pre) malignancies and timely detection and treatment becomes more difficult and time consuming, making much discussed national cervical screening programmes even more remote⁷.

Obstetrics

Pregnant women in Africa are not screened for HIV for financial, psychological and practical reasons. The latest government sentinel surveys of antenatal clinics in Zimbabwe put the average prevalence of HIV infection at 24% in apparently healthy women. About 28% of the babies of infected mothers become infected in utero, 8% before and 20% during labour^{8,9}.

Breastfeeding, according to a meta-analysis, is responsible for another 14% of vertical transmission in established HIV infection¹⁰. Thus about 42% of the babies of infected mothers who breast feed become infected before, during and after labour. 14% (58% of 24%) of all mother/baby pairs will therefore be discordant at the time of weaning. These babies are at risk to become infected over and above the "natural" infection rate. The routine practices of health workers are worrying in this light. Take a typical example of a newborn baby, its face full of blood: although it is crying vigorously, the midwife pushes the blood up the baby's nose with a suction catheter. The dangers are obvious and the practice is unnecessary.

The natural history of vertically acquired HIV infection is not yet clear in the developed world let alone in Africa. One study from Rwanda¹¹ found that 19% of the babies of HIV-positive mothers had died of disease 2 years after delivery; this supports the widespread impression that survival time is shorter in Africa.

How to care for perinatal patients potentially infected with HIV is not made explicit in nurse/midwife training facilities or in medical schools. Moreover, provision of humanised milk for bottle feeding is out of the question. Humanised milk costs 200 Zimbabwe dollars a month (approx US\$25). The minimum wage in Zimbabwe is Z\$150 and the annual health budget Z\$90 per person. If antenatal testing was offered, nearly one third of the Health budget would be needed if all HIV-positive mothers were to be provided with humanised milk for a year. Apart from that, bottle feeding would automatically stigmatise mothers, and there would be many unwanted pregnancies because of the loss of the contraceptive effect of breastfeeding. Every child, infected or not, is a potential responsibility for the community since the extended family - the social security system of Africa - is collapsing under the exponential increase in orphans. Another worthy cause. Even in Western Europe, where people sometimes risk imprisonment in their attempts to find children to adopt, to arrange for adoption of children whose mother died of AIDS is very difficult.

There is also an increase in puerperal sepsis, massive condylomata acuminata, fever related to TB or of unknown origin, often combined with wasting and maternal and perinatal mortality. Most of the infections are the usual type of postpartum or post caesarean complications, only more severe and more frequent. Unusual infections are also encountered -eg, peritonitis after a routine postpartum tubal ligation or a pubic osteomyelitis after spontaneous labour. A new feature is retention of urine caused by HIV-related damage to the nervous system. It is difficult to differentiate clinically between puerperal psychosis, cerebral malaria, and HIV-related cerebral complications such as toxoplasmosis, cytomegalovirus infection, lymphoma, HIV-encephalitis and cryptococcus meningitis, to name a few.

Suggested changes in obstetric practice

Blood transfusions should be given only when thought to be life saving; old habits in this area die very slowly. Protocols developed to prevent exchange of blood from a low-pressure system (the foetus) to a high-pressure system (the mother) in potential rhesus sensitisation are applicable in potential HIV infection up to the moment that the cord is clamped. External cephalic version and amniocentesis should be avoided and the cord should be clamped as early as possible. The longer a baby is protected in labour from direct contact with the mother's blood and secretions the better. Artificial rupture of the membranes and episiotomies should be done at the last moment or better still avoided. Fetal scalp electrodes and blood collection from the baby's head are contraindicated until the technique has been adapted to make it safe. If the membranes have ruptured, exposure time to maternal secretions could be shortened by use of oxytocin. Instrumental deliveries should be done carefully and preferably with rubber cup vacuum extractors to prevent abrasions of the fetal head¹². Washing of the vagina with chlorhexidine before an instrumental delivery or during any labour with ruptured membranes should be studied. Babies should be rinsed immediately after delivery. Extra caution is required for caesarean sections. The scalpel should not be used for the full thickness; instead the last part should be opened bluntly with the tip of the finger in order not to nick the baby. The operative technique should be modified to ensure that the baby has very little contact with the mother's blood. To decrease the vertical transmission rate by doing caesarean sections on all known HIV-positive women is not feasible, and use of zidovudine to prevent vertical infection antepartum and during labour is too expensive. Careful wiping of the baby's face instead of suction should be enough in most situations. The cord clamp should not crush the cord in the presence of maternal blood.

Some treatment protocols will have to be changed. It seems prudent to continue long-acting penicillin injections in a pregnant woman with any evidence of syphilis from the time of diagnosis until delivery, to prevent congenital syphilis, if she is not proven HIV negative. This approach is necessary because definitive treatment of syphilis is difficult in HIV infected individuals¹³ and because there is a strong correlation between the two infections. A study from Malawi¹⁴ showed that 71.7% of male patients with positive syphilis serology were HIV positive. Babies of mothers with syphilis, who have been treated routinely during pregnancy, will still need a course of penicillin after birth. Cervical cerclage seems contra indicated if patient and partner are not known to be HIV negative.

Family Planning

If one partner is potentially HIV positive, use of condoms is sensible. To prevent induced abortions, especially because they are mostly illegal and therefore dangerous, the “double Dutch” method (condom plus hormonal contraception) is advocated. Few women have the power to make their partners use condoms. If a pregnancy is contemplated the logical thing would be for both partners to have themselves tested for HIV first. Such a strategy looks good on paper but only the rich are able to organise testing for themselves.

Availability of good reliable contraceptives and the relevant education is important in countries where there will be many orphans. There is considerable confusion about the effect of different contraceptives on the infectiousness of and susceptibility to the HIV¹⁵⁻⁷. Condoms female as well as male are protective. Use of an intrauterine contraceptive device (IUCD) is irrational if HIV infection has not been excluded in both partners. Severe peritonitis in association with an IUCD is seen more often in patients with HIV infection. Other foreign bodies such as those used for osteosynthesis also become frequently infected³. The situation in relation to hormonal contraception is unclear. Factors such as less bleeding (the combined pill and depot medroxyprogesterone acetate (DMPA), more frequent bleeding (progestagen-only pill and DMPA), more ectropion (combined pill), less ectropion (DMPA, Norplant, progestagen-only pill), prevention of other sexually transmitted diseases, and less motivation to use a barrier method if a hormonal method is already being used are important in varying degrees. There is no evidence for an HIV-related increase in infection of the injection or implantation side of DMPA and Norplant.

Patients known to be HIV positive who want to use contraception need a reliable method. Studies¹⁸⁻⁹ and personal surveys indicate that in Zimbabwe, often mentioned as an example to other African countries in relation to family planning, nearly half the pregnancies are unwanted and or mistakes, and 20-40% of pregnancies are conceived while combined oral contraceptives or progestagen-only pills are being used or have just been stopped (because of side-effects or unavailability). Drugs that affect the reliability of oral contraceptives are commonly used in HIV-positive patients, who often have diarrhoea too. Under these circumstances, sterilisation is probably the method of choice in patients with children. To recommend sterilisation for a man or woman without living children seems very cruel, especially when we do not know for certain that a cure for AIDS will not be available before she or he dies or if even whether the disease might be self-limiting. Injections, or better still implants (because there is no need to worry about contraceptives being out of stock for the next five years) seem the best choice. Unfortunately donors like USAID do not facilitate the procurement of Norplant because of the costs,

and political developments in the USA promise no improvement. By far the majority of patients are too poor to pay US\$12 for Norplant.

Studies on non-barrier contraceptives and HIV show that their potential effect on horizontal transmission is of a far smaller magnitude than that of vertical transmission prevented, if a reliable contraceptive is used. Therefore hormonal contraceptives should lose their market domination for at-risk groups for HIV infection and pill failure. As it happens, these groups are often identical.

What about abortion? In Zimbabwe there is a heated discussion about the legality of pregnancy termination in known HIV-positive women. Most of those who request help - about a hundred a year - have already lost one child and sometimes two to AIDS. Adoption, which is difficult because of cultural beliefs, becomes even more difficult if the parents died of AIDS. The estimate is that five years from now there will be 9 million AIDS orphans in sub-Saharan Africa²⁰. Doctors and nurses involved in the terminal care of HIV-positive babies are often blamed for not having tried to prevent subsequent pregnancies in the mothers. But imagine how hard it is to offer contraceptives to a mother who is losing her child from a vertical infection. Nevertheless, the last illness of her child will probably be the last contact this woman will have for a long time with a health worker who knows about her HIV status.

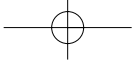
Adolescents have an impossible task to find condoms in the rural areas where 80-90% of them live. Community-based distributors mainly responsible for contraceptive pills and condoms in the areas do not cater for unmarried individuals. A rural or small town boy, let alone girl, could rarely obtain a condom without the whole community talking about it. This problem needs urgent attention since up to 30%²¹ of 15-19-year-old pregnant girls are HIV positive. Possible strategies include provision of condom-dispensing machines in bars, and perhaps in schools and mission and health facilities, and making the selling of condoms at cost price a condition for obtaining a liquor or petrol licence. Community leaders should also ensure that sex can be discussed openly, and exert their influence by example and education.

Doctors have their own problems and private risks like everybody else and they lose colleagues and acquire extra family responsibilities. Professionally it is difficult to keep up morale when there are tragedies all around and to see the improvements in health indicators of a few years ago wiped out. Needle accidents are more than a 100 times riskier than in most of the first world where they are already cause for serious discussion. Tinkering with your car or even playing sports becomes dangerous since a resulting abrasion might be splashed by blood during next breech delivery or soaked via a small puncture in a (re-sterilised) glove.

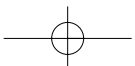
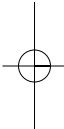
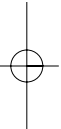
Detecting a fungal infection between your toes, an infected mosquito bite, or an aphthous ulcer in your mouth brings on a cold sweat and - empathy with patients who do not want to be tested.

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I was afraid and not sure of the results
I blamed myself after the 4th operation.
I thought about it late.

**A Guest Editorial:
Consequences, Cultural
factors, Detection and
Prevention of HIV/AIDS in
Sub-Saharan Africa**

Obstetrical & Gynecological Survey 1997; 52: 1-3

There are 11 million inhabitants in Zimbabwe; approximately 25% of the sexually active and 30% of the prenatal patients are HIV positive, amounting to around one million HIV-infected people. Whereas the United States has about 7.000 pregnancies annually complicated by HIV, in Zimbabwe the number is an estimated 130.000. The government budget for health providing for 90% of the population is US\$ 14 per person per year. AIDS often means a miserable death at home with "home-based care" because the Health Services cannot cope. Even marijuana, a traditional local product, is rarely available to diminish suffering because the old colonial laws are extremely strict about it. In addition there are often no drugs to relief pain and chronic diarrhea. Most patients do not even have access to a waterproof sheet, let alone a bathroom. Husbands often die first and are buried by their wives, who stay behind without income and with the future orphans.

It is likely that in two or three years the prevalence will not rise any more; a balance will have been reached between the mortality from and the incidence of HIV infection. Around 150.000 people will become infected annually and the same number will die including 40.000 children. The median age at death of horizontally infected men and women is around 29 and 25, respectively. The population increase will slow down considerably and might even become negative for some time.

The infection is nearly entirely spread by heterosexual relationships and by mother-to-child transmission. Although almost everybody knows about AIDS, a change of attitude and behavior is not evident yet. For many people AIDS is like ageing, malaria, drought, lightning, TB, the IMF, cervix carcinoma and witchcraft; it is there but one cannot do much about it. Is not life after all a fatal sexually transmitted condition? Traditionally, people here are more interested in the supernatural why of a disease than in the Western nuts and bolts. Risky sexual behaviour might be a rite of passage for many adolescents and, like smoking or drug use in the West, kicking the habit later is difficult. Inhabitants of Zimbabwe are not more promiscuous (although we have no local Masters and Johnson to prove it) than can be explained by lack of alternative entertainment and employment giving men time and need to work on their self-esteem.

Women, especially, cannot influence the course of their lives much because of poverty and the deficiency of a social security network outside the extended family. Jobs and agricultural plots for women are very limited, and it is a matter of survival to find and keep a partner with land or a job. Men often exploit this situation. It becomes even more of a "buyers market" because men marry on average when they are 26 and women at 20. The 1992 census shows that there are 70.000 men and 110.000 women of these ages. Men, if they want to protect themselves by having one lifetime sexual partner within marriage, have to stay chaste 6 years longer than women. Many men will not succeed; many women will. Because of that men will have only a small group of women to "do" it with before marriage. These "loose" women, often forced to have contacts for survival,

will often become infected, so will their partners. An estimated 20% of men enter marriage HIV-positive so that those women who have postponed intercourse till they are (engaged to be) married are rewarded with the virus on their honeymoon. Men, who had loose contacts before marriage, tend to fall back on their old habits when their wives are pregnant, breastfeeding and/or in their rural homes while their husbands are in town to find or hold down a job. Women tend to breastfeed for nearly 2 years here. One study in the capital showed 6% sero-conversion during that period. The associated viremia was in a study in Rwanda¹ responsible for a 29% vertical transmission rate. Sex education has become difficult within the culture and is made even more complicated by the negative attitude of certain religions. Adolescents are not equipped to discuss sex, let alone negotiate the use of condoms. It needs endless scheming in a society intolerant for showing public affection to meet each other in private (in town often 15 people live in a two-bedroomed house), hence time pressure will prevent the development of the art of petting. Although many girls do not like penetrative sex because of the risk of pregnancy and the hurried, uneducated fumbling of their partners, they often acquiesce under pressure because of their craving to be loved and need to become married. Because they lack sex education, many adolescents do not know the difference between love and sex. Older male partners are popular because they have a hut, flat or even a car of their own. Their prospects can be surmised easier and they are better able to pay a good lobola (bride's price). At home a girl is at the bottom of the pecking order. This makes her easy prey for a man who gives her attention and is happy to limit, because of her youth, his chance of being exposed to HIV.

Bulawayo is a town of 650.000. Financial and emotional resources are not available to test and counsel all the patients who go through the obstetrics and gynaecology department. If we did we would pick up 800 persons with HIV (PWHIV) monthly including 330 pregnant women who might vertically infect their babies.

Very few PWHIV will be better off actually knowing their HIV status. They cannot, with the resources they have transform their life much. Change is not very feasible without consent of the extended family whose knowledge of the HIV status can, however lead to rejection. In the country there are thousands of women who become pregnant every year who know that they are HIV-positive because they have lost a partner or a baby; only a hundred or so nationally request (often in vain) a legal termination. A husband might assault or abandon a wife² who tells him she was found HIV-positive. The husband often refuses to be tested, and if he is and found negative, everybody will turn against her. Many health workers believe, and there is some scientific evidence for a relation between the mind and the immunological system³, that knowing about being infected will accelerate the disease. Is it fair if patients present with evidence of HIV infection, described elsewhere⁴, to tell them what our suspicions are? Leave the choice to the

patient who must decide if she wants to be tested? Giving her the choice will already inform her that we believe that she might be infected and the fear will be planted, even if she refuses the test. We cannot offer her follow-up counselling, zidovudine, TB or PCP prophylaxis, or competent nursing when her time comes and most cannot afford artificial baby-feeding to prevent vertical infection through breast milk. The annual costs of formula feed are 5 months of a nursing home's nurse aid's salary. Choosing not to breast-feed here will stigmatize the mother and likely bring the next pregnancy forward because of the loss of the contraceptive effect. Many educated patients refuse to be tested because they fear, not without reason, that a positive result will make the doctor lose interest in them both as a psychological mechanism and because she/he has to decide on priorities when resources are limited. The right not to know should be added to the universal declaration of human rights.

Condoms are our only short time hope to slow the epidemic. Could Coca Cola please come and assist with the promotion? In the long run a change of attitudes, even culture, plus the active treatment of conventional sexually transmitted diseases and above all economic development are essential. Empowerment of women through education and access to the now dwindling jobs is vital. I do not know if it is possible to impose Victorian values and practices successfully, and if those were identical. The alternative, an open Dutch model (in which masturbation is discussable by the Minister of Health) with extensive access to information and contraceptives if so desired might be as successful in preventing teenage pregnancies and abortions as HIV infections. This Dutch model was created in a few years in the 1960s from a very conservative hypocritical society. In any case politicians, educationalists, traditional leaders and healers should come together to create our own Manhattan project to address with social engineering the national crisis which threatens to cause proportionally far more suffering than Hitler managed to inflict on Western Europe, and this will not be over in 5 years.

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16

Youth, sex, taboos and condoms

SAfAIDS 1998; 6:10-1

THE HIV AIDS EPIDEMIC

Facts at a glance

- People living with HIV/AIDS, worldwide, end of 2002: 42 million
- People living with HIV/AIDS, U.S., end of 2001: 850.000 to 950.000
- People newly infected with HIV, worldwide, 2002: 5 million
- Cumulative AIDS deaths, worldwide, end of 2002: 28 million
- AIDS deaths, worldwide, in 2002: 3.1 million
- New adult/adolescent HIV infections among women, worldwide, 2002: 48%
- Adults/adolescents living with HIV/AIDS who are women, worldwide, end of 2002: 50%
- People newly infected with HIV who are under age 25, worldwide, 2001: 58%
- Young people living with HIV/AIDS, ages 15-24, worldwide, end of 2001: 12 million
- Children under 15 years who have lost one or both parents due to HIV/AIDS, worldwide, end of 2001: 14 million
- Southern and East Africa is home to 70 % of the people with HIV/AIDS and 4% of the global population

Spending on the HIV/AIDS Epidemic

- Estimated spending on HIV/AIDS prevention, care, and support in low and middle income countries, 2002: \$3 billion
- Estimated dollars needed to address HIV/AIDS prevention, care, and support in low and middle income countries: \$6.5 billion in 2003, \$10.5 billion in 2005, \$15 billion in 2007
- Total pledges to the Global Fund to Fight AIDS, Tuberculosis, and Malaria to date: \$2.1 billion over 5 years

SOURCES: Global Fund to Fight AIDS, Tuberculosis, and Malaria; Kaiser Family Foundation; UNAIDS; U.S. Centers for Disease Control and Prevention; U.S. Bureau of the Census
http://www.kaisernetwork.org/static/spotlight_hivaids_factsataglace.cfmAids epidemic update WHO 2002

There is nothing inherently wrong with sex if nobody gets mentally and physically hurt, and if no undesired pregnancies are caused. In this contribution the philosophy is not, "Is sex itself good or bad?" It is seen as bad if somebody has an unwanted pregnancy, an unwanted infertility, an unsatisfying sex life, is eaten up by jealousy, is prosecuted because of sexual orientation, is sexually misused, gets HIV from a partner or from the mother. It is seen as good if both partners are having an enjoyable sex life, not necessary

always with the same companion or within marriage, and having the wanted number of healthy children.

There are more or less two ways to prevent many of the risks related to sex:

- A We equip people before they are going to have sex with enough knowledge (technical sex education), moral standards (good examples, peer pressure, moral sex education) and materials (Pill, condom, sexually transmitted infection (STI) clinics) to make sex potentially pleasant without too much risk to all involved. It does not mean that sex before marriage is to be encouraged, but if it happens most risks can be prevented. This is somewhat like teaching teenagers how to swim, how to use a boat and telling them how best to avoid crocodiles and bilharzia.
- B We do not believe that it is possible to have sexual relationships outside a formal marriage without doing a lot of damage, so we create taboos and enforce them using tradition, the Bible or the Koran. This often also means presenting people with little information and sometimes misinformation. It is somewhat like refusing to teach teenagers to swim, how to use a boat and warning them about crocodiles, bilharzia and water witches - even in the swimming pool - in the hope of keeping them away from water.

Neither options are to be ridiculed. Approach A is used for example in The Netherlands with some success. There are few teenage pregnancies, abortions and STIs, including HIV. A successful example of approach B does not easily come to mind in the Western World, but there are certain orthodox religious communities where it works and certainly in the Muslim World this works in large subgroups. Many elderly Zimbabweans claim that this system was operative in Zimbabwe in the past. For approach A, one needs a certain educational standard such as Zimbabwe now has. Approach B is difficult to combine with a good educational system because the more education the less likely people will accept taboos and orders without questioning them. More education also means a rift between biological readiness for reproduction and being psychologically, emotionally, and economically ready to start a family. This segregation creates strong sexual tensions. In the past boys and girls were more or less ready to start a family at 16 years. Nowadays, if university education is involved, they might have to wait another 10 years during which the hormones are very active.

In Zimbabwe we pretend to favour approach B but too many have a sexual behaviour as if we lived in system A. A famous example in Bulawayo is that when a parliamentary committee came here a few years ago to study the problem of teenage pregnancies, a MP was, while denouncing sexual activity of young girls in the strongest terms, interrupted by a girl of 15 years claiming that the very same MP tried to seduce her the night before. The pretension of adhering to approach B prevents implementation of the educational requirements of approach A. This results in Roman Catholic (RC) schools refusing to include sex education in the curriculum and other schools not bothering much with it because the attitude of the RC schools makes it impossible to set exam questions related to sexual education. So people are nearly as sexually active as in The Netherlands but there is far less knowledge and access to protection.

Illogical taboos and misinformation

Cultures often “use” taboos to regulate behaviour. For example the generation before me was told not to masturbate otherwise the spinal cord would disintegrate. If you could not restrain yourself there was this terrible anticipation of the decay. When the degradation failed to materialise, you started to regard all taboos/cautions as attempts to manipulate you. See for example the popular acronym in Zimbabwe AIDS: American Ideas for Discouraging Sex.

In Zimbabwe many warnings against sex are not believed by teenagers because other threats turned out to be empty (if you hit your parents you become a mad beggar; if you see somebody naked you get an infection of your eye; if you sit on the street you get pimples on your buttocks; if you sew your dress when dressed you become infertile).

It is time to educate, not with taboos but with knowledge. A good example again is masturbation. One way of relieving sexual tensions before people are ready for the risks of sexual relationships is masturbation. A few years ago the (female) Surgeon General (minister of health) in the USA said this in public. Proponents of approach B started a storm of protests and she lost her job. Suddenly the risks of STIs, (unwanted) pregnancies and HIV did not feature any more as reasons not to have sex. Sex it self was bad. Masturbation is a taboo/sin for no logical reason yet we know that nearly everybody does it. Onan in the Bible was not punished for masturbation as many think, but for refusing to impregnate his brother's widow Tamar by using the withdrawal method (Genesis 38).

Condoms

There is absolutely no doubt that condoms offer good protection against HIV. The protection is however not 100%.

This fits in with those of approach B who think that condoms (or masturbation) are no good. It makes it possible to get away with pleasure without having to face the responsibilities and the repercussions: marriage, pregnancy, HIV. B-s also believe that the mysticism, the sacrament, disappears if people can have sex without a deep commitment.

So far so good; a viewpoint to be respected. But often the next step is that B-s believe that they have a God given dispensation to boycott moves in the direction of sex education and availability of condoms. There is no evidence that sex education will increase sexual activity of teenagers and there are many Christians and Muslims who believe in approach A. Objective evidence in relation to condoms does not suit the B-s so the next step is that some of them start manipulating the facts to fit their ideology. The newspapers are full of articles in which people with a scientific background claim that condoms have microscopically-sized holes large enough for HIV to go through¹. I have heard a very important and otherwise very wise official of a Church supporting approach B saying that the Pill causes thrombosis and the condom was worse than useless for HIV protection. His argument in relation to condoms went more or less as follows:

It is an established scientific fact that condoms have lots of holes large enough for HIV to pass through, you can see them with a microscope. The condom has in relation to pregnancy a 12% failure rate. Zimbabweans are sexually very active, they do it at least 3 times a week (say 150 times a year) so they have $150 \times 12\% = a 1800\%$ chance of picking up HIV if they sleep with a HIV-positive partner. If one sleeps around, then at least 10% of ones partners are HIV positive. Therefore the chance of contracting HIV becomes $1800/10 = 180\%$ a year is 90% over a period of 6 months. Furthermore the chance is even higher because you can only get pregnant 3 days a month (Billing's teachings) but you can contract HIV 30 days a month. So the real chance of getting HIV is $30/3 \times 180\% = 1800\%/year = 100\%$ after only 20 days.

The above was said while addressing secondary school teachers including some mathematic and science teachers many of whom were heathens. I wonder what the same man would say when talking to his own supporters club. The reality is somewhat different: women are more likely to get thrombosis when using the Pill. The Pill as used in Zimbabwe gives a risk of thrombosis of 20 per 100.000 users. One in 20 or so of the women with thrombosis will die from it. The chance of pregnant women suffering from thrombosis is three times as large. Moreover if one does not use reliable contraception there are even larger risks. The Maternal Mortality Rate in Zimbabwe is something like 300 per 100.000 pregnancies at the moment. That means that one in 333 pregnant women will die because of that pregnancy. If women have no access to contraceptives they might have 10 children and a lifetime risk of 1:33 of dying due to pregnancy. Taking into account all the side effects of the Pill, one in 10.000 users per year in Europe will die, mainly because women there smoke. The chance of dying because of a pregnan-

cy in Western Europe is also 1 in 10.000. So the lifetime risk of dying due to pregnancy is around one in 5000 there. It is a great advantage to use the Pill in Zimbabwe, because pregnancy is so much more dangerous than in Europe but the anti-Pill lobby has success in developing countries and is completely ignored in Europe. Normal condoms have no holes: they are impervious to water. HIV is 1000 times larger than a water molecule. Indeed, condoms have in large series a failure rate of up to 12% for pregnancy **per year**; they can tear and slip off. It is a fact that in general a fertile, sexually active woman has a 90% pregnancy chance per year. Condoms will reduce that risk to 12% an eightfold decrease. If the use of condoms offers the same eightfold reduction of infection with HIV, it would mean that consistent use of condoms in potential risky situations would reduce the 90.000 new horizontal infections occurring annually in Zimbabwe to 12.000. Still very bad but much better, 78.000 lives would be saved. Another way of approaching this is: we know for sure that if a fertile woman has intercourse once without protection at a random point in her cycle, she has a 4-6% chance of getting pregnant (4.1% for ease of calculation). If 100 women each have three unprotected sexual encounters in one year about 12 (4.1% + 4% + 3.9% = 12%) will become pregnant. So the condom failure rate of 12% in relation to pregnancy indicates that on average the condom malfunctions 3 times a year. If Zimbabwean have sex indeed 150 times a year then the potential exposure to HIV will also be reduced from 150 to 3 times is $3/150 \times 100\% = 2\%$. In other words if a man has paid sex around 150 times in his life and a third of those partners are HIV positive, he will be exposed to HIV 50 times, but with condoms once. Assuming that there are no other STIs to facilitate transmission this once means perhaps a 1% chance he will pick up HIV. The 50 times exposure would have meant a chance higher than 30%. As seen in the example above HIV is not very infectious. The virus really gets its chance if there is damage to the penis, rectum or vagina. Most of this damage is caused by anal intercourse (homosexuals or girls in Latin America, with no access to the Pill and condoms, afraid of pregnancy), STIs or rape. There is absolutely no doubt that condoms are good protection against most STIs. If now and then the condom breaks in otherwise reliable condom users, then the chances that there are other STIs present to facilitate HIV transmission are slim. It is true that one can become pregnant only a few days a month and catch HIV the whole month. Still, there are 500.000 new pregnancies annually in Zimbabwe and 90.000 new horizontal HIV infections. The above discussion is about proportional reduction and it therefore makes no difference in the calculations if pregnancies can only be started a few days a month. If condoms are used consistently, then the HIV (and syphilis, gonorrhoea, chancroid, and chlamydia) epidemic would more or less fizzle out. In the above example of 12.000 new infections, far more people would die of AIDS every year (around 100.000 at the moment including children who became

infected via their mother) than there would be new infections which would reduce the pool of infectious people over the years.

DISCUSSION

The B approach is not complete nonsense. There are men, and prostitutes with some other sources of income, who are promiscuous because condoms exist. Some of these and their partners and children get infected because the condom slips off. These people would not sleep around if condoms were not available because the fear of AIDS (and unwanted pregnancies) terrifies them too much. So in a sense the availability of condoms promotes AIDS, abortions and promiscuity. On the other hand libido and the need for intimate affection are such strong forces that many will have sex anyway, protection against pregnancy and/or HIV available or not. Prostitutes often have no choice; they need money to look after themselves and their dependents. If one subscribes to the argument that the availability of condoms and other contraceptives causes promiscuity and hence educating people about them and making them easily available provides a passport to the land of sex, then one should also oppose the development of an HIV vaccine. Attacking the development of a vaccine would be a public relations disaster, it is easier to become popular by bringing the reputation of condoms into disrepute.

- If men are told that condoms are useless they will go for very young girls to minimise their HIV risk.
- It is just as (il)logical to believe that condom vending machines promote the AIDS epidemic, as it is to believe that the existence of confession boxes facilitates people going to hell.
- Removal of the brakes from all cars would reduce speeding enormously, but would it save lives?

CONCLUSION

It seems obvious that sex education and the saturation of the sexual active population with condoms will save more lives than it costs, as the situation in Thailand proves. Undermining the use of condoms with lies motivated by ideology will result in serious preventable mortality especially because the instincts of men in Zimbabwe are anti condom anyway and they only need the slightest excuse not to use them. It is high time to take earnest steps to do something about HIV in Zimbabwe. That there are more than 1.3 million infected citizens is obscene. History will condemn our failure. We either try a complete transformation of society along the lines of the approach in Iran and Saudi

Arabia (a rather unrealistic aim). Or we take the open, everybody-to-be-informed, 100%-support-for-condoms-in-possible-risky-relationships route. People are dying.

FOOTNOTE

- 1 Normally condoms have no holes: the diameter of a spermatozoa is 3000 nanometres (0.003 mm); of *Neisseria gonorrhoeae* 800 nm; *Chlamydia Trachomatis* 200 nm; HIV 125 nm; Hepatitis B Virus 40 nm; table sugar molecule 0.7 nm; and table salt (NaCl) 0.3 nm. While the width of a spermatozoa is 25 times the size of HIV, the virus is 200 times larger than a sugar and 400 times larger than a NaCl molecule both of which cannot be tasted through the wall of a condom. An oxygen molecule is half the size of NaCl and condoms are airtight, the standard test is to see if they can contain 14 litres of air. The author has tried without success to make a 220 Volt electrical current go through the wall of a water filled condom while electrons are much smaller than air molecules.

17

Where women cry when they are HIV negative

Lancet 1994; 344:700

On a Tuesday afternoon at the gynaecological clinic (fee per visit for paying patients Z\$34) one of the last patients I see is a woman of 38 years who demanded a termination of pregnancy.

“Why?” Is the logical question in a country where abortion is only allowed for a few indications.

“Because my boyfriend’s wife died two weeks ago from AIDS”. Being HIV positive can be, depending on the personal opinions of the authorities on how to interpret the law and how far the medical superintendent is prepared to stick out his or her neck, a possible indication for termination.

“I have to test you before we can try to organise an abortion”, I say. After some hesitation she agrees. A week later when I am seeing one of the first patients of the clinic the secretary brings me the HIV result: negative. I have already seen the patient in the waiting room, I think she might be very anxious so I rush to the waiting room and whisper the good news in her ear. She starts crying loudly, not of joy but of disappointment. She has lost her indication for a legal abortion.

Later on we discuss things. She divorced in 1991 because her husband married a second wife. Her husband was ordered by the court to pay maintenance for their daughter, now 10 years old. The husband disappeared to South Africa: no maintenance. She is lucky she has a job which pays Z\$450 a month. She pays Z\$200 a month for her house to the city council. She was “forced” to have a boyfriend because she needed a son for all sorts of reasons including her old age pension. She now has that son; he is one and a half years old.

Her boyfriend, now a widower, is allowed to visit their son and her but has to use condoms. Something went wrong, hence this pregnancy which she is convinced will ruin her. She insists that she will have whichever way an abortion. It appears she knows somebody who is prepared to abort her for Z\$160 with a root of a plant in the cervix. I give her prophylactic antibiotics and she promises to return to hospital as soon as she starts bleeding (or has pain or fever) so that we can prevent severe complications.

Two days later she is admitted with an incomplete somewhat septic abortion. The uterus is evacuated and we do a laparoscopic tubal ligation at the same time. The evacuation and the tubal ligation were free of charge although persons earning more than Z\$400 are not entitled to free treatment, but she was able to cheat a little bit and the hospital authorities believed her.

**General discussion
and conclusions**

GENERAL DISCUSSION

This thesis explores the situation in relation to family planning (FP) under the dark shadow of the Human Immunodeficiency Virus (HIV-1) epidemic in sub-Saharan Africa. However, the author would like to stress that most results of the studies in this thesis would be applicable even if there were no HIV epidemic. The findings and opinions are most pertinent to Zimbabwe but are also relevant for the whole region. Chapter 2 discusses in detail most aspects of FP in sub-Saharan Africa.

The author was interested in studying the FP field in Zimbabwe to see if there was a problem and if improvements could be made. The obvious place to start to see if there were problems with FP was the “black Hole of Harare”, gynae-casualty where every year more than 4000 women are seen with incomplete (septic) (induced) abortions with many serious complications (chapter 4).

The results of that simple exploration indicated that much work had to be done if the women in gynae-casualty were a reflection of what was happening with other females. There was too little access to FP especially for women wanting to delay their first pregnancy and those with a completed family, and the only method available then, was the pill, with a huge failure rate.

The pill most often used was the progestagen only pill (POP), which has a higher failure rate than the combined oral contraceptive (COC) pill and should only be used by women who are breast-feeding or have cardiovascular abnormalities. Many women were given this pill without good reason with the idea that POP was less dangerous than COC. The minister of health had banned Depo-Provera in 1981. Women were discharged from gynae-casualty without contraceptive advice or methods. Providing FP information and methods was not seen as a task of the hospital staff. Quite a few women who had come to the hospital with an unsafe induced abortion must have become pregnant again at the next ovulation, a problem still existing to some extent¹. From then on there was a clear objective for the author of this thesis because there was much room for improvement in FP.

That conclusion stands in spite of the fact that the indicators for the FP performance of Zimbabwe were and are only equalled by South Africa and Botswana in sub-Saharan Africa, if expressed in contraceptive prevalence and only bettered by South Africa if expressed in Total Fertility Rate (TFR). Many women/couples have no access to (reliable) contraception in the form of the morning after pill, sterilisation, IUCDs or implants. Depo-provera was reintroduced in 1993. The unmet need for a more reliable contraceptive method is often not noticed by, for example, district doctors because most women in Africa are very undemanding and often wait until the health worker starts the

discussion about stopping or spacing pregnancies. The Total Fertility Rate in South Africa is 2.9 per woman in Zimbabwe 4.0, while current use of modern contraceptives is very similar. This can only be explained by the fact that in South Africa injectables and to a much lesser extent female sterilisation are the main contraceptive methods used and in Zimbabwe the pill.

The most important avenue for improvement was persuading my fellow health workers to see the problem. One of the platforms to reach these colleagues was the *Central African Journal of Medicine*. The first result was a paper (chapter 3) demonstrating that FP was certainly not only the responsibility of the Zimbabwe National Family Planning Council (ZNFPC) but that other health workers had many opportunities to assist women/couples to reach their reproductive goals. In order to educate and motivate my colleagues and start a discussion about FP another paper was written, chapter 11.

Exploring another area in which FP services seemed inadequate resulted in chapter 9. It demonstrated that health workers did not know how to cope with a condom accident in an era in which the condom should be, for the unmarried, the main defence against HIV and pregnancy. Furthermore, health workers turned out to be nasty to this group of women. Much feedback and publicity was given to this paper in Zimbabwe although it was published in South Africa.

The attention shifted, with the ban on Depo-provera being lifted, implants too expensive for most women and IUCDs possibly being too dangerous in view of the huge HIV prevalence, to female sterilisation, because most women were potentially fertile for 10-20 years after they would have hoped to have had a completed family. There was first an explorative study, chapter 5, to identify and document the problems. The results were obvious: demand for sterilisation was not met. The next three studies were meant to contribute to the solution.

The first study, chapter 6, is a reaction to the problems faced with the introduction of sterilisation under local anaesthesia (LA). Nursing staff was reluctant to cooperate with this operation because many thought the procedure was bordering on torture. Senior nursing staff, often trained in Europe, had never seen this abroad and thought that it was an inferior operation introduced in Africa by people who were not allowed to do these experiments at home: more or less like the situation pertaining to symphysiotomies. The study was simple; women who had had this operation either under LA or general A were followed-up and asked if they remembered the operation as being very painful and also asked if they remembered the operation as being more painful than a delivery. No difference was found between the two groups.

The next paper, chapter 7, is the result of studying the following hypothesis: If there is such a lack of (motivated) staff to perform sterilisations, as the figures from Zimbabwe and the whole of sub-Saharan Africa show, would it be morally acceptable to offer such an operation to a woman of higher parity under stress who needs an operation, especially a caesarean section (CS), anyway? A randomised study was out of the question, opinions were very divided. This division was exploited by following-up higher parity women who happened to fall into the hands of doctors (and midwives) with either opinion. The result were obvious: women who had been offered the option of a sterilisation with an unexpected CS were much more frequently satisfied than women not given that opportunity.

The last paper in this series, chapter 8, is the result of studying nearly everything related to sterilisation by following up with success 1954 sterilised women and comparing them with a control group of similar parity not sterilised women who delivered in our maternity or referring clinics. The women were sterilised during a CS, after a delivery, together with another operation or just sterilised. The aim of this study was to have a hospital based documentation of the situation vis-à-vis sterilisation and to provide data to move the discussion about sterilisation from the realm of speculation and casuistry and place it in that of science. The conclusion: if there is a place on the face of this planet where sterilisation is a valuable method of contraception, it would be Southern Africa. Women there have in view of the HIV epidemic often extra reasons to stop reproducing, some methods like IUCDs are because of the same epidemic, questionable. There is a large and rising demand for contraception and there is a long learning curve for the proper use of oral contraceptives. Alternatives like implants or vaginal rings are too expensive and injections are acceptable for many although, quite a few stop with the injections because of side effects or misunderstandings; the injections are not always in stock and patients need attention every three months, and it is often unclear at which age they can be stopped. Furthermore, unlike in India or Brazil sterilisations are required in Africa when there are three or more children and when the women involved are over 30 years of age and therefore for both reasons less likely to regret the operation. Lastly, unwanted pregnancies often result in dangerous illegal abortions. While the above seems obvious, people available to perform these operations are not there.

Advocacy and the struggle against forces sabotaging the human right of having access to a wide choice of contraceptive methods and the right of having some defence against HIV transmission are the themes of the chapters 12, 13 and 16.

In chapter 14 the HIV/AIDS epidemic is discussed, mainly the impact this disease has on the practice of obstetrics and gynaecology, including family planning.

The chapters 10 and 15 attempt to contribute something to the solution of the enigma why there is so much more HIV in southern Africa “while the females often have more right to marry in white than the whites”.

In chapter 17 the perspective of a woman (n=1) confronted with the immediate problem of an unwanted pregnancy compared to the long-term problem of being HIV positive is shown. This outlook might have implications for the motivation to use condoms for HIV protection while hormonal contraceptives are used at the same time.

How successful were the exercises described above and how reliable the results?

- *Reliability*

The results of the studies presented in chapters 3, 5 and 9 can be depended upon. Many chapters (12, 13, 15 and 16) in this thesis are opinion based but reasonably well documented. Chapter 14 is experienced based which is suspicious in an era that desires all actions to be evidence based. I would not have been given permission of course, to push mother’s blood in a randomised manner, up the babies’ noses with a suction device, to study sero-conversion. HIV testing in general was frowned upon. Most of the other studies (chapter 4, 6, 7 and 8) have an element of uncertainty because so many of the results depended on interviews of women from a complete different culture, not all literate, in a third language. The main results can be trusted I think. There is much circumstantial evidence to back them up and they are robust. For example, the main outcome in chapter 7: the difference in satisfaction of women being asked or not asked if they wanted an emergency CS combined with a sterilisation is a factor 6.03 and the confidence intervals are far removed from the number 1. Women not sterilised are 22.48 times as likely to regret that situation as women sterilised regret sterilisation. I would agree with somebody who would point out that the cultural influences, the follow-up rates, the biases and confounders do not warrant results with two decimals. However, the editor of the *British Journal of Obstetrics and Gynaecology* refused to consider results like: about 5 or not far from 20.

The study on sexual behaviour, although based on easy communication with intelligent student nurses used to expressing their thoughts on paper, might be biased by their suspicion that the results might be used to make them look silly abroad. It seems logical that the figures on masturbation, induced abortion, frequency of sexual intercourse and number of sexual partners are underestimates. That is to be expected in a study like this and I wonder how reliable the results would be if a Zimbabwean doctor administered similar questionnaires to Dutch nurses. The conclusions stand I think, the percentages do not.

- *Impact*

The results presented helped to mobilise international donors to assist Bulawayo and Harare in establishing integrated Obstetrics, Gynaecology and FP clinics. Only one of the clinics functions well. Family planning was more integrated in the daily practice of health facilities and the publications in this thesis played a small role in accomplishing that. The FP services in southern Zimbabwe improved and DHS surveillance figures show that there is a significant difference in prevalence of sterilised women between Harare and Bulawayo. All the papers in the national, regional and global medical journals, accessible because of the research performed, have had some, un-quantifiable impact including 141 citations. The management of labour in women who might be HIV positive was acknowledged and copied in an UK obstetrics and gynaecology handbook. The study in chapter 7 might have the largest impact internationally because many high parity women arrive every day without an appointment in Third World hospitals and evidence to support health workers' natural inclination to help such women and prevent them from having to go through the same ordeal again in few years would be welcome.

It is very difficult to change people's thoughts and habits. In Zimbabwe donors spend much money on workshops in 4 star hotels and hefty Per Diems to bring participants in a perceptive mood to be prepared to contemplate alternative medical and nursing protocols. A recent study from Zimbabwe¹ shows that even 16 years after the paper in chapter 11 was published nearly 17% of post-abortion patients in Harare who wanted to prevent the next pregnancy for at least 2 years were given POP. The same study shows that Bulawayo is doing much better on that account.

CONCLUSIONS

- *The economy and population*

Giving much attention to family planning makes economic sense because as long as the population grows faster than production, a country gets poorer and will have less and less resources for nutrition, health, education and family planning.

The population growth rate has, because of the HIV epidemic, declined sharply and might even have become negative in many southern African countries (see South African projections, see page 18). Still the economic argument applies, because of the shift in the ratio between the productive and dependants, as discussed. Zimbabwe is thought to have 700.000 orphans in 2003 as compared to 15.000 in 1990². At this stage of the epidemic, figures indicate that there are 4-5 adult AIDS deaths for every child that dies of a vertical transmission. Zimbabwe's population was 7.1 million at Independence in 1980 and at the moment there are probably twice as many Zimbabweans, not all living in the country. There are no examples of successful countries that have doubled their population

over such a short period and extended the tasks of the state so much at the same time (free schooling, free health, building of many secondary schools, clinics and hospitals, enormous increase in university enrolment and universities, adult literacy programmes, social security system, minimal wage, electrification programme, water reticulation programme, building of roads, war veteran education, etc.).

An opportunity was missed in the eighties as discussed in chapter 11, when there was enough, well-motivated health staff to integrate FP thoroughly in the health services. As is described in chapter 11, the four Central Hospitals that together saw 4000 deliveries monthly, did not stock any contraceptives then. Active political pressure and a leadership role by senior health staff would have made an enormous difference in number of satisfied women/couples and economic prospects. Zimbabwe might have become a success story if couples wanting to plan their families had had maximum service.

The economic collapse in sub-Saharan Africa has and will have a tremendous impact on the quality and quantity of medical care, making doctors having time for, for example, sterilisations a luxury of the past. Norway had in 1998, 413.0 medical practitioners per 100.000 inhabitants, Zimbabwe 13.9. This was before the emigration of doctors and nurses started in earnest. (See Addendum Table 5)

The irony is that all the acrimony generated by for example India and China, because of coercion used for controlling population growth is, as was realised at the Cairo conference, not (anymore) needed, certainly not in Africa. In Africa proper services for the individual couple/woman would do, but these are not available because of poverty partly caused by a too rapid population growth. Donors could not do any better than support Africa in this field.

- *Young women*

This thesis shows that from the health services point of view there is, as yet, not much to be done for women who have not had their first pregnancy: we do not see them. Education for life by parents, the media and schools is needed. In the hospital/clinic setting the first time a young woman is seen is when she reports for antenatal care, an (induced) abortion, sexually transmitted infections and hopefully, sometimes, the morning-after pill. This thesis reveals in chapter 9 that health workers are not well informed about the morning-after pill. Information about it should be integrated in the curricula of the medical and nursing schools and in programmes for continuous medical/nursing education and of course, in the Essential Drugs List. The study in itself, unorthodox as it is, raised much dust and was discussed in a several large meetings with doctors and pharmacists and helped in educating health workers. In the future we hope that (preferably planned) sexual activity before the first pregnancy is a reason to be seen for HIV prevention (a vaccine would be fantastic), screening and treatment for sexually transmitted infections, and contraception. The client friendliness of health workers for the young

sexually active population has to improve as shown in this thesis, also because non-use of contraception can result in many unsafe often deadly abortions as documented in chapter 2 for countries as diverse as Kenya, Nigeria, Tanzania, South Africa, Zimbabwe and Mozambique.

The prevention of HIV infection in this group of women in the absence of a vaccine seems to be beyond everybody's capabilities and a combination of some behavioural change and the demise of those inclined to take the most risks, evolution in practice, will result in an estimated HIV prevalence of perhaps 10% in the sexually active population, as opposed to 25-35% now seen in southern Africa. This if the trajectories of countries with a somewhat older epidemic like Uganda and Tanzania is followed. Chapter 10 shows that even student nurses, intelligent, well educated and, during their in-service training, in daily contact with numerous AIDS patients are, while not promiscuous, on the contrary, not able to prevent HIV transmission to themselves because they are not in a position to demand an HIV test of their partner and to insist on condom use until then. A young woman abstaining from sexual intercourse until marriage can even increase her risk of becoming HIV infected because her future partner might well be actively engaged to increase the size of her future sexual network³.

- *Spacing*

Spacing of pregnancies is not controversial at all in Africa and this thesis shows that much can be done to give women more choice. Implants, vaginal rings, injections, IUCDs can all help besides the pill to create via more choice more satisfied clients. IUCDs can be placed just after delivery and abortions and even during caesarean sections. Enormous failure rates with oral contraception are shown by several studies done in Zimbabwe, as noted in chapters 4 and 11. In the world medical literature failure rates of up to 32% in the first year of pill use have been documented⁴. Better counselling, less hormone free days in a strip, easier instructions about what to do in case pills are missed, helping clients to establish pill taking routines and involving the radio in pill education can all help. These measures might even be easier to implement with the current lack of medical personnel than providing more reliable but health-worker-labour-intensive methods like IUCDs, implants and sterilisations.

With the collapsing health services, traditional methods like coitus interruptus and charms are likely to increase their share of use, just like there are signs of more consultations of traditional doctors for other medical problems. An analysis by Westoff & Bankole⁵ shows that there is very little correlation, prolonged breastfeeding excluded, between the prevalence of traditional methods and the fertility rate as opposed to the use of modern methods.

Every day thousands of opportunities are missed in Zimbabwe alone to attend properly to FP. This has been demonstrated in the chapters 3, 4, 5, 9, and 11. Very few doctors/nurses inquire when a woman comes with an ill, perhaps malnourished, child if there are FP needs. FP is not discussed in paediatric departments where more than half of the admissions are HIV related, at child vaccination sessions, with patients admitted for abortions, in the post natal wards, in TB wards, after rapes. Women found with hypertension have their FP method stopped without being offered an alternative. Dermatologists and general practitioners see Herpes Zoster, often an early sign of HIV infection, and do not discuss FP.

- *Enough children*

Chapter 8 shows that female sterilisation is a very acceptable family planning method with little or no negative side effects, some positive side effects and few regrets. General anaesthesia, the provision of which often constitutes a bottleneck, is not needed and that will help in a more efficient service delivery, albeit that a reasonable strong motivation of the surgeon is still needed, as is demonstrated in chapter 6.

Women who think they have a completed family are at the moment at low risk of regret if they are sterilised, because it is so difficult to organise such an operation for oneself. This results in only very strongly motivated women having a tubal ligation (TL). Others with access are those who have a private insurance as an incentive for the doctor, and women with so many children that health workers are shamed into offering them such an operation (see Case History no 73 in chapter 8). Doctors, who do only a few sterilisations because of the fear that too many women will regret that operation, should study chapter 8. If one thinks that regretting sterilisation is much more serious than regretting not being sterilised, then sterilisations related to maternity should only be done in Zimbabwe - in cases where there is no medical indication for said sterilisation - if a woman has 5 apparently viable children after delivery or 4 if she is over 29 years. This approach will make sure that there is a "buffer child" so that if a child happens to die there is little chance that a woman would regret her TL. This policy will result in around 10% decrease in sterilisations if there is a patient mix comparable to that of the hospital where most of the studies for this thesis were carried out, at the current TFR level in Zimbabwe, with otherwise enthusiastic provision of TLs. Doctors using the above fear as an argument for doing less TLs, end up as is seen in many hospitals in Zimbabwe by doing at most only those TLs, which have a medical indication. This means a reduction if there is a similar patient population of more than 75%, not 10%.

A medical indication for a TL is in general, with the current level of staffing and motivation, only converted if patients need to be operated anyway for the 3rd - 4th CS, or for a uterine rupture. Indications like cardiac abnormalities or HIV infections will in

practice need a motivated doctor. The result is an even more than 75% reduction in sterilisations compared to the situation described in chapter 8. Until staffing situations improve, district doctors, gynaecologists and also general surgeons should always think of the option of combining any operation (also on a man) with a sterilisation in patients with many children. This thesis makes it abundantly clear in chapter 7 that not giving the option of a TL to a woman with already 3-4 children who needs a CS, verges on malpractice in situations where the TL cannot be done with any likelihood later, and where there is quite some mortality related to repeat CSs or arriving in hospital too late for the repeat CS. The same applies to hernia repairs, cystectomies, ectopic pregnancies, induced abortions, vulvulus, shot wounds etc. These are even better opportunities because the youngest children of patients arriving for these reasons in hospital are of course older and therefore less likely to die.

It is claimed in chapter 7 that higher parity women are sometimes more likely to die of the next pregnancy than to regret a sterilisation combined with an emergency caesarean section. Of course, the opportunity for counselling for an emergency TL is by definition limited, but how many women are properly counselled about all the (side-) effects of pregnancy? If sufficient knowledge is the criterion then most women could have an emergency TL following a few minutes of information gathering and only female gynaecologists and midwives might have enough knowledge to embark on a pregnancy. If the emotion related to an emergency caesarean section interferes with a proper decision then proposing an emergency TL just before an emergency CS is as bad timing, as is embarking on a pregnancy with a libido-befuddled mind. At least most of our proposers were 100% sober.

Similarly, informed consent is a farce in drug trials of patients with an acute myocardial infarction⁶, while the obvious benefits of fibrinolytic therapy were revealed with the help of such trials. It follows that in the antenatal clinic the option of having a TL, when a CS is unexpectedly needed, ought to be discussed with higher parity women, also in developed countries, see Postscriptum chapter 7.

Failure to discuss a possible TL with a coming elective CS with women who already have more than 2-3 children as often happens in the Netherlands, but not, for example, in the USA, results in Zimbabwe 15 times more often in regret than counselling about that option, as chapter 7 shows.

In those countries where a signature of the husband (or brother or son) is legally required before a woman can have a sterilisation, the law should be changed and in the meantime the ante-natal card should have a pre-printed text which the partner can sign, for in case his high parity wife would need a CS and want a TL.

It would take some planning to prevent misuse, but it makes obvious economic sense to organise incentives for doctors and nurses involved in elective voluntary sterilisations as discussed in this thesis in chapters 5, 8, and 11. Incentives exist for general practitioners to induce them to vaccinate for influenza and perform cervical smears in developed countries.

An incentive pilot study for implants could easily be conducted to see how it works out while nothing irreversible would have been done.

One reason for women not to have access to FP is when the nearest hospital happens to refuse on religious grounds to cooperate with any non-sanctified FP method use. This is discussed in chapter 12. Such hospitals should at the very least have a programme to teach about “natural” FP. One cannot imagine that a future new administration in the Vatican will persist in an anti FP stance as is argued in chapter 12, and then the dedicated Roman Catholic mission hospital staff all over Africa could really contribute to easing the burden of women.

The population of Zimbabwe was 5.1 million 33 years ago and the birth rate was 4.7%. This combination resulted in a cohort of 120.000 women of whom at least half must still be alive, of whom an estimated 50% would have liked to have had a TL. There is not enough staff in Zimbabwe to sterilise these women, therefore, other reliable methods for this group should be employed.

There is probably some scope to increase Depo-Provera use as the South African figures show (around 60% of FP users there use injections, SADHS 1998), but IUCDs and implants are underused and if there is no transport to a health facility the latter two will have a continual protective effect while those prescribed pills and injections do need regular attention. This is belaboured, albeit in a polemical tone, in chapter 13. It is more sensible at this stage of human development, for positive action to be needed to become pregnant than for fertility to be the default setting. Training for staff, incentives, education of clients and reduction in the price of implants could help. The introduction of a medicated IUCD with professional marketing and a contract between the manufacturer and say the Dutch government to make it possible to provide them with the price of a few litres of petrol will surpass the beneficial effect of all the development aid of said country. Something similar can be said about the new NuvaRing® or new one stick implant, good for 5 years, Jadelle®⁵.

Setting up and sustaining good FP services as vertical organisations, but especially integrating FP in health care as demonstrated in chapter 3, will prevent much misery for the individual woman/couple. It will prevent much more future misery due to the serious “Verelendung” rapid population growth will cause⁷. Most of the above applies to all of sub-Saharan Africa.

- *Patients who present to a hospital with either a spontaneous or induced abortion*

Around 34% of women reporting with an induced or spontaneous abortion to the large hospitals in Zimbabwe, who say that they do not want to become pregnant anymore or say that they do not want another pregnancy within two years, are pregnant within a year¹. This is the result of using no or the wrong (mostly oral) contraceptives (chapters 2, 11). Many of them had the index abortion in the first place because of pill failure as documented in chapter 4. The best way to treat women with an incomplete abortion is to use suction to empty the uterus and as soon as possible⁸⁻⁹. Septic incomplete abortions should be treated without delay as soon as IV antibiotics have been given¹⁰. Omitting FP counselling in these situations borders on negligence. A sterilisation combined with the evacuation of the uterus under LA or GA can be acceptable after good counselling, chapter 8.

- *Legalising abortion*

It is probably too early to judge the effects of the legislation on abortion-on-demand before 12 weeks in South Africa. A thorough evaluation would give a good indication of the best route to be followed to similar countries to the North. The latest reports are that numbers of legal abortions in South Africa are increasing slowly. There are around 45.000 legal terminations annually, a far lower rate per women 15-45 years of age than in Western Europe, less than half the Dutch rate, but a large unknown fraction of the abortions are still induced illegally and often unsafe. In the mean time clandestine abortions will probably become less dangerous for those with money because health professionals are becoming increasingly involved, now that the stigma attached is disappearing, and because initiation of an abortion by a foreign body being inserted into or through the uterus is being replaced by the use of misoprostol. Many of the poor can only be helped properly I am afraid, as again demonstrated by the evaluation of the new South African law, after they have come to a health facility with the complications caused by unsafe abortions. This might not change even if abortion on demand is legalised.

Health workers can help contain the numbers of induced abortions in southern Africa by giving better FP services. When fertility levels in a country are declining there is often a simultaneous increase in contraceptive use and abortion. However, a rise in contraceptive use and/or effectiveness invariably leads to a decline in induced abortions¹¹, when other factors - such as the current wanted fertility rate - are held constant.

- *HIV-1*

The HIV epidemic is having a large impact on FP. Not only should in the ideal situation all sexual intercourse be combined with condom use, apart from the 3 or 4 times a pregnancy is wanted or when both partners are recently proven HIV negative or both are proven positive, but in addition there are many more reasons why on (arguable) medical indication reproduction should be stopped. Moreover, the death of an infant or the use of humanised milk will interfere with the "lactational amenorrhoea method". TB, gastroenteritis, forgetfulness and also the financial consequences of an HIV infection will often make oral contraception unreliable.

The probably small differences in HIV transmission related to the use of different hormones, IUCDs and TL for FP are unquantifiable because ethical research is not possible and in practice irrelevant as argued in chapter 2. There are on theoretical grounds some qualms about HIV positive women having an IUCD, not in relation to transmission, but because all sorts of microorganisms might benefit from this combination. A study from Kenya, hopefully to be repeated elsewhere, could not confirm this suspicion but had the proviso that HIV infected women with an IUCD should have ongoing access to medical services¹². Everybody should.

If leaders in Africa were to take the HIV epidemic half as seriously as the world leaders took the Second World War 60 years ago, there would be far less suffering in Africa, as discussed in chapter 2.

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19

Findings and Recommendations

In most communities in southern Africa limiting the size of the family has become “within the calculus of conscious choice¹”

A smaller, well spaced family is in general good for the individual couple, it gives the children who are born a better chance in life and it is healthier in the long run for planet earth. If no contraception would be used and all children would survive because of good health care and nutrition an annual population increase of 5% would be possible resulting in a population doubling time of 14 years. There would be 400 billion people at the end of the 21st century. This is obviously impossible hence not using contraception is **no option** unless one wants the family planning to be really natural and effected by starvation, fighting and disease. Currently, individual couples in nearly all cultures do not need to be convinced to believe the above, they want to space their children and limit their family size. Experience in most countries shows that if no reliable contraception is available couples will resort to induced abortions. To assist couples in southern Africa in reaching their reproductive goals while limiting the role of abortions as much as possible the following recommendations are made

- **Health care services**

Contraceptive service provision should become much more integrated in routine health care, since health workers have many opportunities to assist couples to reach their reproductive goals. The wider the choice of available contraception methods the more likely that many couples will succeed in having the number of children they want at a time they want them. (chapters 2, 3 & 8)

Extra attention for the family planning needs of the low income group is needed since much of the difference in uptake of contraception between the poor and the rich is related to the availability of proper services². (chapter 5)

Around 34% of women reporting with an induced or spontaneous abortion to the large hospitals in Zimbabwe, who say that they do not want to become pregnant anymore or say that they do not want another pregnancy within two years, are pregnant within a year³. This is the result of using the wrong contraceptives or none at all. Urgent attention should be paid to this group of women. Intensive counselling and much more attention for non-oral contraception are needed

Excess capacity⁴ in dedicated family planning clinics can be better utilised by detachments of staff to hospitals (out-patient clinics, TB wards, children's wards, abortion wards and maternity units especially during visiting hours) than starting sexually transmitted infection related services in family planning clinics. (chapter 2)

A programme of frequent postnatal home visits by female health workers to first time unmarried teenage mothers might prevent rapid repeat pregnancies, which tend really to mess up their lives⁵.

Health staff should be more adolescent-friendly. (chapter 9)

Donor organisations should get much more involved in family planning even in the introduction and marketing of a new method like the medicated IUCD, vaginal rings, or implants. (chapter 2)

The office of an inspector for reproductive health should be created in sub-Saharan African countries to improve the services provided.

Oral (hormonal) contraception

The fraction of women using oral contraception as a method of contraception is the highest worldwide in Zimbabwe. The pill associated failure rate in Zimbabwe is not known, but should be at least 20 pregnancies per 100 years of use. Offering a better-balanced contraceptive method mix would be of benefit. (chapter 2)

There were around 900.000 fertile, married women in Zimbabwe who used oral contraceptives in 1999 during the DHS survey. If there were a failure rate of "only" 5%, this would result in 45.000 unwanted pregnancies annually. Of these an estimated 15.000 would involve HIV-positive women. Of those pregnancies, if carried to term, 5.000 will result in a child dying of AIDS and 10.000 in an AIDS orphan. Offering a better-balanced contraceptive method mix would be of benefit.

Pill failure is so common in Zimbabwe that a study to compare 50 microgram ethinyl oestradiol tablets, with 30 microgram tablets with 7 days interruption, and with 30 microgram tablets with only 5 days interruption seems a good idea. (chapter 11) An alternative would be doubling the number of hormonal active pills per (longer) cycle⁶⁻⁷.

Combined oral contraceptives with 50-microgram ethinyl oestradiol should be available for clients taking rifampicine or phenytoin medication, those suffering from severe acne and those complaining about spotting despite taking sub 50 tablets perfectly, or those with a history of a pregnancy while taking oral contraceptives. As mentioned women with an HIV infection are more at risk of malabsorption, use of antibiotics and forgetfulness and they should also use 50 microgram tablets. (chapters 2 & 11)

Progestagen only contraceptive tablets have a very limited range of indications. Although they have less side effects than the combined pill, the failure rate is so much higher that the complications of unwanted pregnancies clearly outweigh the benefits of the progestagen only pills. Therefore, these tablets should only be used for a few very specific indications. (chapter 11)

Depo-Provera and implants should be available also to sexually active women without children. (chapter 2)

Morning after pill

National Essential Drug Lists should have emergency contraception described with detailed instructions for the Yuzpe regime, for dedicated progesterone tablets and for progesterone only contraceptives with the doses explained for these three options. (chapters 2 & 9)

Packets with condoms should have a text referring to the option of the morning after pill in case of rupture (chapters 2 & 9).

IUCD

Pilot studies should be started to check the feasibility of placing IUCDs directly post partum and during caesarean sections as in Egypt. (chapter 2)

HIV

A woman with a known HIV infection should not be solely dependent on oral contraceptives or on condoms if she does not want to become pregnant. The failure rates are too high. (chapter 2)

Prison authorities should warn the partner if men are released early from prison so that they can organise contraception in time. Men should also receive some condoms and should have the option of an HIV test on release.

Sterilisation

Women with a borderline medical indication for sterilisation, from (sub)cultures where contraception is frowned upon, are at least as happy to end reproduction in an honourable manner before they are 40, as men are to have a borderline medical reason to retire from production before they are 65. Doctors should make a point of discussing these medical indications with the women/couple involved, e.g., elevated blood pressure, gestational diabetes, scar in the uterus, adhesions.

Preprint on antenatal clinic cards: The possibility of the pregnancy ending in a caesarean section has been discussed with the client Yes / No, and partner Yes / No/ Not Applicable. She would like a sterilisation with that operation if the baby seems quite viable Yes/No, even if the baby seems not viable Yes / No. The husband agrees with his wife's decision Yes/ No/ Not Applicable.

In the event that this caesarean section takes place the consent for a sterilisation has to be reconfirmed and the appropriate form still to be signed by the woman.

The client would not like to be sterilised but would like an intra uterine device placed during the operation Yes/No. (chapters 2 & 7)

Until other studies, encouraged by this author, come to a different conclusion, the only proper current evidence shows that in a community where elective sterilisations are difficult to organise, and where the use of client dependent contraceptives often leads to failure or discontinuation because of side effects or non-availability, and where IUCDs are unpopular, difficult to get or dangerous, women with a high parity in relation to the norm of the said community, should be given the option of a sterilisation if they are going to be operated on anyway. In most developing countries, the afore-mentioned conditions prevail for a large part of the population. (chapters 2, 7 & 8)

During their attachment to the obstetrics and gynaecology department junior doctors should be taught to perform sterilisations under local anaesthesia since sterilisations on suitable women under local anaesthesia are feasible, efficient and less dangerous than under general anaesthesia, and not recollected by women as being more painful. (chapter 6)

A capable person should examine the baby properly during a CS planned to be combined with a sterilisation, to check viability of the baby. (chapters 2, 7 & 8)

At least one government doctor in every southern African country should have special proficiency in refertilisation operations for regretted sterilisations. (perhaps combined with expertise in fistula operations)

A directive should go out from the ministries of health in sub-Saharan Africa that caesarean section counselling in higher parity women includes informing them about the option of a sterilisation. (chapters 7 & 8)

Experiments should be started with incentives for staff involved in placing implants in order to see if it is feasible to have a similar system with incentives for sterilisations. (chapters 2 , 8 & 11)

Out of town clients for implants, IUCDs or sterilisations should have their travelling costs reimbursed.

Patients admitted (longer) to hospital because of a sterilisation should not pay (extra).

In order to overcome the negative connotations of family planning as something not quite right, because of the interaction of the teachings of at least one church with the prevailing patriarchal African tradition and the unbalanced emphasis made by groups from the First World on the negative medical side effects of contraception, the following recommendations are made

Church, governments and education

Ministries of health should force Roman Catholic health facilities that refuse to provide modern contraceptive methods, into at least providing training in “natural” family planning (chapters 2 & 12). Governments in developed countries could exert pressure to that effect by withdrawing tax privileges if the church involved does not comply.

A frank ongoing discussion of contraception in all the media should be encouraged.

It should be made clear that reproductive rights include the right to dedicated medical attention for infertility. (chapter 2)

Health workers should enthusiastically encourage church leaders to reassess their opinions related to contraception. (chapter 12)

Upper class persons from the First World should be very careful emphasising the dangers of contraceptive methods, especially because the risk-benefit balance is of a complete different order in circumstances where there is a high maternal mortality and where abortions are dangerous to the woman involved. (chapter 2 & 13)

Roman Catholic health workers and patients do not know what the policy of their Church is. A statement or booklet is needed. Issues to be addressed should be:

Is it true that condoms are never allowed unless (with a small hole in it) for semen collection in an infertility work up? Condoms are not allowed for contraception nor for HIV protection but if a woman is already pregnant and her husband is HIV positive, is condom use then allowed to protect the innocent (sic) baby? Does the prohibition of condoms overrule the prohibition of suicide? Is it true that an operation for an ectopic pregnancy is not allowed as long as the embryo is alive? What should be done in these cases if there is no ultrasound? Is sterilisation with the third or fourth caesarean section allowed? If so, why did so many women in the past in Ireland and Argentine undergo symphysiotomies to prevent many repeat caesarean sections? Have the prohibitions changed? If so, when? Is using the pill as bad as being sterilised? Is there a hierarchy in the sinfulness of using different FP methods and if so is the reliability (and therefore the chance of an induced abortion) a factor? Is HIV discordance a permitted reason for divorce or annulment when condoms are not allowed and the marriage can therefore not be further "consumed" without attempted or successful suicide? Can a priest order a refertilisation operation like he can, in Bulawayo, order a removal of an implant before admission in the Roman Catholic church?

A thorough study should be made of the effects of the new abortion law in South Africa in order to facilitate rational decisions for other countries in the region. (chapter 2)

Containing the HIV/AIDS epidemic has the overwhelming priority in southern Africa; it is therefore recommended that

Containment of the HIV-AIDS epidemic

National Aids Salvation Executive Conferences to be formed to decide on the way forward vis-à-vis sexual education: to choose the Dutch or the Saudi Arabian model. (chapters 2 & 16)

Sex education should start at primary school to prevent it being too late for a group of pupils. All concerned groups should be involved. (chapter 2)

Human- rights based approaches to HIV/AIDS prevention have reduced the role of public health and social justice, which offer a more practical approach to prevention. The HIV/AIDS epidemic should be redefined as a public health and an infectious disease emergency, instead of as a moral crisis⁸.

Vaginal microbicides - if demonstrated to be effective in HIV prevention - could be applied during the lactational period, if partners are not tested for HIV, to try to postpone possible sero-conversion of the woman and hence prevent vertical transmission of the baby. (chapter 2)

An incomplete miscarriage/abortion is best treated, as soon as possible to prevent more blood loss and infection, by suction curettage⁹. Local anaesthesia will often be sufficient and inserting an intra uterine contraceptive device, if wanted, at the same time is good practice. Digital removal of retained products, if there is heavy bleeding and no immediate access to an operation theatre, can save lives and prevent dangerous blood transfusions. (chapter 2)

Facilities to wash sperms of HIV positive discordant couples should be available in large hospitals. This would make pre-marital HIV testing somewhat more palatable. (chapter 2)

A liquor and/or fuel sale licence should be conditional on, inter alia, the sale of condoms for cost price on the premises. (chapter 2 &5)

It should become legal to do compulsory emergency HIV tests on suspected rapists, to provide more selective post exposure prophylaxis for the victims.

It does not make much difference to HIV transmission within a stable relationship which sort of contraceptive is used, if condoms are excluded, (chapter 2). Preexposure HIV testing is far more effective and should be strongly encouraged.

Political leaders, churches and traditional leaders should propagate that the bride's price should include an HIV test result.

Health workers must be very careful in order not to become HIV vectors while attending deliveries. (chapter 14)

Studies reported on in this thesis lead to one more recommendation

Providing some logic behind house numberings in High Density Areas (townships) and in the rural fringes of cities would help enormously with patient follow-up and research.

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I was afraid and not sure of the results.
I blamed myself after the 4th operation.
I thought about it late.

20

Nederlandse samenvatting

Dit proefschrift is een korte weergave van onderzoek verricht en opinies verkregen door onderzoek, observatie en literatuurstudie gedurende een verblijf van 25 jaar in Afrika, waarvan de langste tijd in Zimbabwe. Alleen onderzoek en opinies gerelateerd aan contraceptie, abortus en HIV/AIDS worden in dit proefschrift beschreven en wel vanuit het gezichtspunt van een districtsarts en later vrouwenarts. Het proefschrift bestaat uit verschenen (en twee nog te verschijnen) artikelen over anticonceptie in de ruimste zin. In hoofdstuk 2, wordt de kennis op het terrein van anticonceptie voor zover belangrijk voor de gynaecologische Afrikaanse praktijk en de kennis van de gevolgen van de HIV epidemie voor die praktijk, besproken naar aanleiding van de artikelen in dit proefschrift en de recente relevante literatuur.

Chronologisch gezien gaat HIV/AIDS een steeds belangrijker rol spelen zodat de hoofdstukken 14-17 meer over HIV/AIDS gaan dan over anticonceptie.

De behandeling van AIDS-patiënten en het medicamenteus voorkómen van HIV-infecties van baby's vallen buiten dit kader. Met nadruk wil ik er op wijzen dat vele resultaten ook voor andere landen gelden, ook voor Nederland en dat de meeste resultaten die met anticonceptie te maken hebben ook van toepassing waren geweest zonder de HIV/AIDS epidemie.

De basisgedachten achter dit proefschrift zijn de volgende:

- Informatie over en toegang tot betrouwbare anticonceptie en seksuele voorlichting is een basisrecht
- Professionele dienstverlening volstaat in het algemeen om mensen te enthousiasmeren voor anticonceptie. Geboortebeperving "verkoopt" zichzelf
- Veel, zelfs dodelijke, ellende voor vrouwen kan voorkomen worden als het lukt met betrouwbare voorbehoedsmiddelen niet meer kinderen te krijgen dan gewenst zijn
- Als velen anticonceptie toepassen wordt het wat waarschijnlijker dat er een leefbare aarde blijft bestaan, of eigenlijk ontstaat, met een beetje luxe voor iedereen.

Betrouwbare anticonceptie is bij uitstek nodig in Zimbabwe omdat de meeste vrouwen een compleet gezin hopen te hebben als zij ongeveer 32 jaar zijn. Zij hebben dan voor de rest van hun reproductieve leven (nog ± 15 jaren) meestal alleen de pil of de prikpil om zich tegen zwangerschap te beschermen. Dit gaat vaak fout met een extra kind of een vaak gevaarlijke abortus tot gevolg. Voorts sterven er elk jaar zo'n 40.000 kleine kinderen aan AIDS. De meeste moeders van deze kinderen zouden graag (lang) stoppen met kinderen krijgen, zeker als er nog 1-2 gezonde kinderen in het gezin zijn en als er een goed gesprek over de situatie door een gezondheidswerker geïnitieerd zou worden. Verder stopt, als een zuigeling sterft, de bescherming die borstvoeding tegen zwangerschap geeft abrupt. Deze vrouwen vinden zelden de weg naar betrouwbare anti-

conceptie. Bovendien is het vaak zo dat vele gezinnen indirect door AIDS worden getroffen en een stuk groter zijn dan gewild, door de neefjes en nichtjes die “geërfd” worden.

Om uit te vinden hoe de bovenstaande basisgedachten te verwezenlijken zijn in Zimbabwe was onderzoek nodig om de bestaande situatie in kaart te brengen. De plaats om te beginnen leek het “zwarte gat van Harare”. Dit was de bijnaam van het hokje, met een gordijn gescheiden van de andere patiënten op de eerste hulp, waar soms wel twintig vrouwen bloedend aan een infuus lagen. Zij lagen daar te wachten tot het tijd was om, door de allerjongste dokter, uit hun baarmoeder de resten te laten verwijderen van niet volledig geaborteerde zwangerschappen, zodat het bloeden zou stoppen en een infectie óf niet zou optreden óf meer kans had om te genezen. De resultaten van deze verkenning worden beschreven in hoofdstuk 4.

Het was meteen duidelijk dat er veel werk te doen was. Vrouwen werden zwanger omdat ze geen toegang hadden tot anticonceptie of tot de verkeerde anticonceptiva. Ze ondergingen gevaarlijke abortussen en werden bij opname in het ziekenhuis niet voorgelicht over beter gebruik van anticonceptiva. Sterker nog, die middelen waren niet aanwezig in het ziekenhuis (ook niet voor verkrachte patiënten) en dokters in opleiding en medische studenten leerden daar alleen in theorie over. Verder was buiten het ziekenhuis alleen de pil en dan vaak de minipil de enige optie omdat de prikpil, kort na de onafhankelijkheid in 1980, door de minister in de ban gedaan was. Er waren dus nogal wat hindernissen te overwinnen.

Eén hindernis was het idee dat geboortebeperking de verantwoordelijkheid was van een nationale organisatie, de Zimbabwe National Family Planning Council (ZNFPC). In hoofdstuk 3 wordt echter aangetoond dat er juist in de dagelijkse praktijk van een ziekenhuis veel aanknopingspunten zijn voor anticonceptiedienstverlening.

Andere hindernissen waren het gebrek aan actuele kennis van de gezondheidswerkers en het vaak bij hen ontbreken van motivatie m.b.t. geboortebeperking. Hoofdstuk 11, dat verscheen in het medische tijdschrift van Zimbabwe, werd speciaal geschreven om daar iets aan te doen. In dat artikel wordt de balans opgemaakt over de anticonceptie praktijk in Zimbabwe en worden suggesties gedaan ter verbetering. De factor HIV werd voor het eerst geïntroduceerd in de Zimbabwaanse anticonceptie literatuur.

Ook twee andere onderzoeken, nu in Bulawayo, beschreven in de hoofdstukken 5 en 9 tonen aan dat er nog veel te verbeteren valt in de dienstverlening. Hoofdstuk 9 gaat over meisjes en vrouwen die klinieken, ziekenhuizen, huisartsen, apotheken en zelfs een ZNFPC kliniek voor de jeugd bezochten en net deden alsof een condoom de nacht daarvoor was gescheurd waarbij ze aangaven dat ze zeker niet zwanger wilden worden. De reacties van de gezondheidswerkers werden geobserveerd door deze “toneelspeelsters”

en gedocumenteerd. De 55 bezoeken leverden 10 correcte behandelingen op, 15 verkeerde behandelingen en 30 keer geen behandeling. Opvallend was de onvriendelijkheid waarmee de “patiënten” werden bejegend door gezondheidswerkers die voor de overheid werkten.

Hoofdstuk 5 gaat over 284 patiënten in het Mpilo ziekenhuis in Bulawayo - 20.000 bevallingen per jaar samen met de satellietklinieken - die daar opgenomen waren voor een bevalling en die gemiddeld 6.6 kinderen hadden na deze bevalling. Deze patiënten hadden gesteriliseerd willen worden, tijdens een keizersnede of na een vaginale bevalling, maar hadden het ziekenhuis zonder die operatie moeten verlaten. De directeur en een gynaecoloog van dit ziekenhuis maakten het hun zo moeilijk mogelijk om daadwerkelijk gesteriliseerd te worden. Zij stonden op de aanwezigheid van een formulier getekend door de vrouw, haar man, twee getuigen, een dokter in opleiding, een gynaecoloog en door de directeur, waarna het papier pas gestempeld werd. Dit maakte het vaak onmogelijk om een sterilisatie uit te voeren omdat de papieren nog niet in orde waren en de patiënt te lang moest wachten, of omdat de sterilisatie moest plaats vinden samen met een keizersnede die niet langer kon wachten. Maar zelfs als de papieren in orde waren ging er van alles niet goed en patiënten verlieten het ziekenhuis vaak zonder sterilisatie. Er werd hun dan verteld dat zij over 6 weken terug konden komen voor een afspraak voor een sterilisatie. Dit lukte nooit: lange wachtlijsten, steeds betalen, wisselende doktoren, stakingen, door spoedgevallen van de operatielijst gedrukt, oude formulier kwijt. Deze situatie werkte zeer demotiverend op de, in voorbehoedsmiddelen gespecialiseerde, verpleegkundigen. Hoe meer vrouwen zij motiveerden voor sterilisatie hoe meer vrouwen teleurgesteld raakten.

Om iets te doen aan deze capaciteits- en motivatieproblemen zijn er drie onderzoeken verricht. Daarnaast is er veel publiciteit en feedback gegeven naar aanleiding van het onderzoek over de “morning after pill” zodat gezondheidswerkers beter geïnformeerd werden. De drie bovengenoemde onderzoeken gaan over sterilisatie.

In hoofdstuk 6 wordt een onderzoek beschreven dat gaat over sterilisatie onder lokale anesthesie. Een van de knelpunten in een goede dienstverlening aan patiënten met een compleet gezin, is het gebrek aan (gemotiveerde) anesthesisten in de publieke sector in de grotere ziekenhuizen. In de kleine ziekenhuizen zijn er al helemaal geen anesthesisten. Verpleegkundigen met enige extra opleiding geven daar de narcose. Deze zijn terecht zeer bang dat er iets mis gaat en weigeren vaak mee te werken aan een niet levensreddende operatie als de patiënt bloedarmoede heeft, soms hoest, wat verhoging heeft, of HIV lijkt te hebben. Daarnaast compenseren deze stafleden vaak de nachten die zij gewerkt hebben, of moeten zij in de rij staan bij de bank en zijn zij daardoor niet beschikbaar voor zoiets onbelangrijks als een compleet gezin. Tuba ligaties onder lokale anesthesie zijn routine in vele landen, zoals in Kenia en de VS, maar waren in Zimbabwe

moelijk in te voeren wegens het verzet van, vooral, het verplegend personeel. Patiënten geboekt voor deze operatie na een bevalling werd niet zelden door de nachtdienst verteld, dat hun een slachtpartij te wachten stond, waarna de patiënte de volgende morgen op voor de dokter mysterieuze wijze afzag van de operatie. In hoofdstuk 6 wordt verslag gedaan over de pijnherinnering van vrouwen die, óf onder algehele anesthesie óf onder lokale anesthesie, een sterilisatie doormaakten. Er bleek geen verschil te bestaan tussen de twee groepen als de vraag gesteld werd: “vond u de operatie erg pijnlijk” en “was de operatie pijnlijker dan het krijgen van een baby”. Zo’n operatie is natuurlijk niet geheel pijnloos maar de incisies zijn heel klein en bij algehele anesthesie moet een infuus ingebracht worden, wordt in het algemeen een buis in de luchtpijp ingebracht en gaat de operateur vaak wat ruwer met de weefsels om, wat weer meer postoperatieve pijn geeft. De resultaten van dit onderzoek stelden de verpleging gerust en ook de medische staf, omdat die niet zeker wist of er geen verhalen circuleerden over martelingen rond de kampvuren op het platteland.

Het onderzoek, beschreven in hoofdstuk 7, gaat over de ethiek van het aanbieden van een sterilisatie in een acute spannende situatie aan vrouwen met nogal wat kinderen. Gedacht moet bijvoorbeeld worden aan een vrouw met 5 kinderen die 5 keer normaal beviel maar die nu een keizersnede nodig heeft omdat het hoofd van deze zesde baby te groot blijkt. Zij wordt in een ambulance gestopt een 300 km verderop en bij aankomst in de United Bulawayo Hospitals gevraagd of zij wel of niet gelijk met de spoedkeizersnede ook een sterilisatie wil. Zo’n patiënte is natuurlijk niet in de juiste stemming om een rustige weloverwogen beslissing te nemen en haar partner is bijna nooit aanwezig. Ze weet echter nog wel hoe haar gemoedstoestand was toen ze deze keer ontdekte weer zwanger te zijn en ook wat de invloed van de gierende inflatie is geweest op haar mogelijkheden het schoolgeld voor de andere kinderen te betalen. Zo’n ambulancerit wil ze ook nooit meer meemaken.

Of de optie van een sterilisatie werd besproken hing geheel af van de dokter en verloskundigen die op dat moment aanwezig waren. Sommige dokters vonden het onethisch deze vraag onder deze omstandigheden te stellen en anderen vonden het omgekeerde. 418 patiënten die onder dergelijke omstandigheden al dan geen sterilisatie hadden ondergaan werden gemiddeld twee jaar later opnieuw benaderd. Patiënten die de optie tot sterilisatie hadden gekregen waren zes maal zo vaak tevreden met het resultaat als patiënten die niet een sterilisatie was aangeboden. Het was zelfs zo dat patiënten die de optie tot sterilisatie hadden gekregen, maar daar geen gebruik van hadden gemaakt, vijfmaal zo vaak ontevreden met hun keuze waren als gesteriliseerde vrouwen. Ze hadden dus vaak spijt dat ze nee gezegd hadden. In de hele groep van 418 patiënten hadden degenen die geen sterilisatie hadden gehad 22 keer zo vaak spijt als degenen die wel een sterilisatie hadden ondergaan. Deze resultaten zijn belangrijk voor een land

waar vrouwen gemiddeld 4 kinderen zeggen te willen, waar de meeste vrouwen dat aantal kinderen hebben bereikt als ze begin dertig zijn, waar elke extra niet-spoedoperatie moeilijk te organiseren valt en niet zonder risico is, waar bijna geen alternatieven bestaan voor de pil en prikpil en waar pilgebruik vaak eindigt in een ongewenste zwangerschap en de prikpil nogal eens gestopt wordt wegens bijwerkingen. Bovendien betreft het hier vrouwen die na de keizersnede een litteken in de baarmoeder hebben, dat bij een volgende zwangerschap tot $\pm 2\%$ moedersterfte kan leiden, vooral als de vrouw op het platteland woont. Er blijkt dus een groep vrouwen te bestaan waarvan het waarschijnlijker is dat zij dood gaan aan de volgende zwangerschap dan dat zij spijt zullen krijgen van een sterilisatie, (zie ook voorbeelden in hoofdstuk 8). Het is natuurlijk beter als vroeg in de zwangerschap de mogelijke scenario's worden besproken, ook met de partner en dat de resultaten van deze "stel je voor dat" exercitie gedocumenteerd zouden worden. Dat is dan ook een van de adviezen die uit het onderzoek voortkomen.

Hetzelfde onderzoek liet verder zien dat het ook belangrijk is om vrouwen, die reeds verscheidene kinderen hebben, te vragen of zij een sterilisatie willen gelijktijdig met een keizersnede als de noodzaak van die operatie langer van tevoren bekend is. Dit gebeurt in Nederland¹ vaak niet, maar in de VS bijna altijd. Vrouwen in deze groep bleken in ons onderzoek 15 keer zo vaak ontevreden als zij deze optie niet gekregen hadden.

Het laatste onderzoek over sterilisatie in hoofdstuk 8, beschrijft de "follow-up" van patiënten die gesteriliseerd werden tijdens een keizersnede of na een vaginale bevalling, of een tuba onderbinding hadden ondergaan onafhankelijk van een bevalling. Het lukte om meer dan 80% van deze patiënten opnieuw te benaderen (n=1954). De vrouwen werd gevraagd naar eventuele fysieke en psychische klachten en naar eventuele spijt van de sterilisatie. De gegevens werden vergeleken met die van een controle groep van vergelijkbare patiënten. Een dergelijk onderzoek was nog niet eerder gedaan in zuidelijk Afrika. Besluitvorming t.a.v. sterilisatie was tot nu toe gebaseerd op casuïstiek. Gesteriliseerde vrouwen bleken minder fysieke en psychische klachten te hebben dan de controle groep, m.n. minder last van depressie en meer zin in seks. Ook hadden gesteriliseerde patiënten veel minder vaak spijt dat ze gesteriliseerd waren dan vrouwen uit de controle groep dat ze niet gesteriliseerd waren. In totaal waren er drie patiënten die zo'n spijt hadden van de sterilisatie dat ze een - gratis - operatie wilden doormaken om te proberen de eileiders te openen. Alle drie vrouwen bleken met het HIV virus geïnfecteerd. Dit is waarschijnlijk geen toeval; vrouwen die meer kans maken op spijt over een sterilisatie zijn ook de vrouwen met meer kans op een HIV infectie: ze zijn vaak gescheiden, weduwe, (in)direct betrokken bij overspel of ze hebben een baby aan AIDS verloren. Omdat er geen sociale voorzieningen zijn en het traditionele systeem van familie steun instort onder de druk van AIDS, probeert zo'n vrouw vaak een nieuwe part-

ner te krijgen en een kind is vaak nodig om hem te binden. Traditioneel trouwt een weduwe met de jongere broer van haar echtgenoot.

In 13 jaar Bulawayo is er geen gesteriliseerde - niet privé - patiënte geweest met spijt die een refertilisatie operatie doormaakte, ondanks het feit dat dergelijke patiënten van ons een rode loper behandeling kregen. Over dezelfde periode werden er meer dan 50 patiënten per jaar in ons ziekenhuis geopereerd voor infertiliteit zodat motivatie van dokters en durf van patiënten geen belangrijke belemmerende factoren leken.

Het mislukkingpercentage van de sterilisatie (zwanger na sterilisatie) was laag en vergelijkbaar met dat in een toonaangevende studie uit de VS over dit onderwerp.

De conclusie die getrokken wordt is, dat als ergens in de wereld sterilisatie een belangrijk onderdeel van de anticonceptie methoden moet vormen dan is dat in Afrika. Dit omdat de vrouwen daar voordat ze een sterilisatie ondergaan al flink wat kinderen hebben (vaak een paar meer dan ze gewild hadden) en vaak al wat ouder zijn zodat het niet waarschijnlijk is dat ze gaan scheiden en aan een nieuw gezin met kinderen willen beginnen. Daarnaast is voor de HIV geïnfecteerde vrouwen betrouwbare anticonceptie erg belangrijk, ook omdat medicijnen (voor TBC bijvoorbeeld), diarree en vergeetachtigheid de pil extra onbetrouwbaar maken. Verder is het niet zeker of het spiraaltje wel zo veilig is als men extra vatbaar is voor infecties. Een hormoonimplantaat is voor bijna iedereen te duur.

In het kader van de bestrijding van maatschappelijke krachten die een hindernis zijn voor verantwoorde gezinsvorming werd hoofdstuk 12 geschreven. De belangrijkste overweging is dat niemand in de geïndustrialiseerde wereld het Vaticaan serieus neemt voor wat betreft gezinsvorming. Italië, Polen en Ierland behoren tot de landen met de laagste geboortecijfers in de wereld. In Afrika daarentegen moeten de mensen het Vaticaan wel serieus nemen omdat een groot deel van de ziekenhuizen, met liefde en toewijding dat wel, bestuurd worden door de Rooms Katholieke (RK) Kerk en mensen niet even in hun autootje kunnen stappen om elders een spiraaltje, een injectie of de pil te krijgen. Het gebeurt dan ook relatief vaak dat iemand die misschien Nederduits Gereformeerd is en toevallig in het verzorgingsgebied woont van een RK ziekenhuis, sterft aan de zoveelste zwangerschap omdat het ziekenhuis weigert mee te werken aan geboortebeperking. Wel dood, niet naar de hemel, want niet katholiek. De enige anticonceptie die wel door de RK kerk is toegestaan, natuurlijke geboortebeperking, een *contractio in terminis*, wordt bijna niet in Afrika onderwezen, zeker niet op het platteland, terwijl dat toch het minste is wat die kerk kan doen in de gebieden waar zij het gezondheidszorgmonopolie heeft. (Een onderzoek beschreven in hoofdstuk 2 laat zien dat vele jongeren in Zimbabwe de kalendermethode gebruiken, maar dat slechts 7% van de gebruikers weet wanneer de veilige periode is.)

Verder wordt verbazing geuit over het feit dat de paus een natuurlijke tumor heeft laten verwijderen door een onnatuurlijke operatie onder onnatuurlijke algemene narcose en zich met een onnatuurlijk vliegtuig over de hele wereld verplaatst i.p.v. met een ezel en een vissersboot. Het wordt ook als teleurstellend ervaren dat het potentieel enorme ethisch gezag dat de paus voor belangrijke zaken ten goede zou kunnen aanwenden, verkwanseld wordt door de rare, door zeer weinigen te volgen, fixatie op voorbehoedsmiddelen of beter gezegd op seks. Hij had zijn gezag dan misschien met succes kunnen gebruiken om de niet-Verenigde Naties oorlog tegen Irak te voorkomen.

Een ander artikel in deze sfeer, hoofdstuk 13, gaat over "bourgeois" personen die zich ernstige zorgen maken over voorbehoedsmiddelen voor arme vrouwen. Zij hebben er in het verleden aan meegewerkt dat de prikpil in Zimbabwe en andere landen verboden werd, met vele niet te kwantificeren ongewenste zwangerschappen en dode moeders tot gevolg. Zij hebben druk uitgeoefend om onderzoek van internationale organisaties naar een antizwangerschap vaccin te stoppen en proberen momenteel en niet zonder succes hormoonimplantaten te saboteren. De auteur van het artikel in de *British Medical Journal* waarop hoofdstuk 13 een reactie is, maakt zich zorgen dat een implantaat soms niet ogenblikkelijk op verzoek verwijderd kan worden. Dit terwijl er voor een nieuwe heup, reageerbuiszwangerschap etc. ook wachtlijsten zijn en velen in Afrika zwanger worden in afwachting van een sterilisatie (zie hoofdstuk 7). Verder maakte de auteur zich zorgen over de vrouwelijke autonomie bij gebruik van middelen die afhankelijk zijn van een ander zoals injecties, spiraaltjes en implantaten. In hoofdstuk 13 wordt uitgelegd dat m.n. vrouwen in de geïndustrialiseerde wereld geen idee hebben hoe het is om te leven in omstandigheden waar de partner de verstopte pil kan vinden - er is vaak maar één kamertje - en weggooien. Verder dat er in het Verenigd Koninkrijk een paar jaar geleden 3000 extra abortussen werden verricht als gevolg van de publiciteit rondom de derde generatie pil en dat in een land met een goed opgeleide bevolking. In Zimbabwe gaat er ook vaak iets mis met de pil maar daar zijn de abortussen niet veilig. De conclusie is dat een betrouwbaar anticonceptie middel vrouwen meer autonomie geeft dan een onbetrouwbaar autonoom in te nemen anticonceptivum.

Een derde opiniërend hoofdstuk (16) gaat vooral over HIV/AIDS en over de maatschappelijke krachten die seksuele voorlichting van de jeugd en de verkrijgbaarheid van condooms saboteren. Dit gebeurt bijvoorbeeld doordat RK scholen weigeren mee te werken aan voorlichting in de klas; dit terwijl de Nederlandse ambassade veel geld in de juiste boeken stopte. Het gevolg van deze houding is dat het onderwerp niet geëxamineerd kan worden en dat heeft weer tot gevolg dat ook niet-RK scholen het vak niet serieus nemen. Verder worden en werden er in Zimbabwe allerlei negatieve geruchten verspreid over het condoom. Er wordt bijvoorbeeld gezegd en geschreven dat microscopisch onderzoek had aangetoond dat condooms structureel vol zitten met kleine gaten,

groot genoeg voor het HIV virus. Er wordt ook te goeder trouw beweerd dat condooms, wat zwangerschappen betreft, een mislukkingpercentage van 12-13% hebben. Dit klopt, maar per jaar en niet per keer zoals men denkt. In hoofdstuk 16 wordt de realiteit van het condoom aan de hand van basale wiskunde uitgelegd en wordt een lans gebroken voor betere seksuele voorlichting.

Over HIV/AIDS zijn verder nog drie artikelen gepubliceerd. Hoofdstuk 14 geeft een overzicht van alle aspecten van de verloskunde en gynaecologie, inclusief de anticonceptie, die door de HIV/AIDS epidemie veranderd zijn. Dit artikel is ook in het *Nederlands Tijdschrift van Geneeskunde* verschenen. Aanbevelingen over het voorkómen van een infectie van de baby bij het begeleiden van een bevalling, als de moeder mogelijk met HIV is besmet en de relatie HIV transmissie en specifieke voorbehoedsmiddelen, worden besproken. In hoofdstuk 15 wordt nader ingegaan op de dynamiek van de HIV/AIDS epidemie en op de preventieve aspecten. Het hele korte hoofdstuk 17 laat zien (n=1) dat langere termijn problemen zoals een HIV besmetting minder beangstigend kunnen zijn dan een binnen 9 maanden aanwezige ongewenste baby. Vergelijk dit met longkanker: ook een probleem van de langere termijn, de reden dat er nog veel gerookt wordt. Hoofdstuk 10 geeft een idee hoe seksuele relaties zich bij de beter opgeleiden, in dit geval leerlingverpleegkundigen, ontwikkelen en toont aan dat wachten tot het huwelijk met seks meisjes nauwelijks beschermt tegen HIV. Zelfs deze vrouwen, die elke dag tientallen AIDS patiënten zien, lukt het niet consistent condooms te gebruiken, tot ze een negatieve HIV test van hun partner hebben gezien.

Zijn de doelen nu bereikt?

Veel van het onderzoek beschreven in dit proefschrift is verschenen in het Zimbabwaanse of Zuid Afrikaanse medische tijdschrift en heeft vele collegae de ogen geopend voor de grote leemtes in praktische anticonceptie. Het was vaak moeilijk te besluiten waar een artikel aan te bieden, omdat dokters in Zimbabwe zich natuurlijk zelden een abonnement op de *Lancet* of de *British Journal of Obstetrics and Gynaecology* konden veroorloven en de boodschap vaak het belangrijkste was voor zuidelijk Afrika. Aan de andere kant was het beter voor de carrière af en toe wat te plaatsen in internationale tijdschriften en sommige artikelen waren daar ook beter voor geschikt zoals dat over de paus en de Islam. Internationale artikelen kwamen vaak weer via een andere weg terug naar Afrika zoals via een Engels leerboek dat jonge dokters in Zimbabwe vaak gebruiken, waarin de adviezen over de bevallingsbegeleiding uit hoofdstuk 14 zijn overgenomen. Vele artikelen over anticonceptie komen samengevat terug naar Afrika via de daar gratis te verkrijgen internationale "family planning" (gezinsvorming) bladen². Protocollen gerelateerd aan anticonceptie zijn duidelijk veranderd in zuidelijk Zimbabwe door de onderzoeken

beschreven in dit proefschrift, in het noorden wat minder. De conclusies van de artikelen zijn meestal dat er meer werk van anticonceptie gemaakt moet worden dan alleen het uitdelen van pillen. Helaas proberen dokters uit zuidelijk Afrika te emigreren (Nederland werkt daar aan mee) of veel privé praktijk te doen omdat ze steeds minder van het overheidssalaris kunnen leven en is het mij niet gelukt om een artikel te plaatsen in de *Revista Cubana de Salud Publica*³.

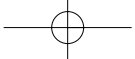
De kwaliteit van de onderzoeken in dit proefschrift moet tenslotte ook nog de revue passeren. Op de studie over de postcoïtale contraceptie valt weinig af te dingen. Alle andere studies hebben een onzeker element omdat ze veelal afhingen van het volgen van patiënten uit een andere cultuur, niet allemaal alfabeten, over een gevoelig onderwerp zonder dat daar (cultureel-) antropologen, niet-westerse sociologen, linguïsten etc bij betrokken waren. Toch heb ik geen moeite om achter de resultaten te staan omdat er ook zoveel indirecte bewijzen aanwezig zijn die de resultaten staven en omdat zoveel patiënten blij waren met de aandacht en vrijmoedig brieven bijvoegden over de onbeschofte verloskundigen, de toegewijde gynaecoloog en het slechte eten in het ziekenhuis om maar een niet geheel willekeurig voorbeeld te noemen. In hoofdstuk 4 wordt het gebruik van onbetrouwbare anticonceptie hoogstens onderschat, aangezien patiënten uit angst verdacht te worden van een criminele abortus geen indicatie wilden geven over de ongewenstheid van de zwangerschap en dus anticonceptie gebruik ontkenden. De belangrijkste resultaten zijn ook overduidelijke en robuust. Zo lijkt het verantwoord om een vrouw met een zeker aantal kinderen in een spannende situatie vlak voor een operatie een sterilisatie aan te bieden. Dat er weinig spijt is en niet veel lichamelijke klachten zijn na een sterilisatie en dat er wel veel spijt en meer klachten zijn als vrouwen of dokters een gelegenheid voor sterilisatie voorbij hebben laten gaan. In de gemeenschap circuleren geen verhalen over marteling in het ziekenhuis naar aanleiding van sterilisaties verricht onder lokale anesthesie. Of de gevonden uitkomsten nu een paar procent fout zijn omdat de vragenlijsten niet genoeg rekening hielden met het feit dat er in Sotho 6 woorden voor verschillende hoofdpijnen zijn, in Sindebele 8, Venda 7, Tonga 12, Shona 4, Setswana 5 en Shangani 1, doet niets af aan de conclusies. Het onderzoek resulterende in hoofdstuk 10 is hier misschien wel een uitzondering op, in die zin dat er tussen deze groep onderzochte leerlingen en de onderzoeker de minste culturele misverstanden konden bestaan. Toch ligt dat onderwerp zo gevoelig dat het heel goed mogelijk is dat leerlingverpleegkundigen het aantal seksuele relaties en abortussen en het masturbatie gedrag niet helemaal eerlijk genoteerd hebben. Dit zou zelfs in Nederland zo zijn en hoe betrouwbaar waren de resultaten van Masters en Johnson en hoe betrouwbaar zouden die geweest zijn als deze onderzoekers hoorbaar en zichtbaar van een ander ras waren geweest? In mijn opinie zijn ook de voornaamste resultaten van dit onderzoek bruikbaar,

maar de percentages zijn in werkelijkheid natuurlijk wat minder exact dan met de cijfers achter de punten wordt gesuggereerd.

REFERENTIES

- 1 Een Nederlandse gynaecoloog schrijft het volgende in de status van een 39 jarige vrouw met twee zonen die twee keer zwanger is geworden na kunstmatige inseminatie met het zaad van de echtgenoot en deze keer via een reageerbuisbevruchting, die verder 2 keer een miskraam doormaakte en een keer een buitenbaarmoederlijke zwangerschap, en nu 40 weken zwanger is: "willen als het een SC wordt sterilisatie deze vraag is regelmatig, weloverwogen en consistent neergelegd! Dus: honoreren!" De huisarts had ook al een brief geschreven om het verzoek te ondersteunen. Conclusie: als patiënte moet je zelf het initiatief nemen en blijven zeuren.
- 2 Digests. Offering a woman sterilization during an emergency Cesarean Section may sometimes be appropriate. International Family Planning Perspectives 2003; 29(1): 52.
- 3 Steeds meer Cubaanse artsen worden ingezet in zuidelijk Afrika en zij beheersen het Engels vaak slecht dus voornoemd blad zou een optie kunnen zijn.

What I am going to say is the truth. I delivered alone on the 13th of April near my bed on the floor, I screamed for help saying help please help me, and it was in the afternoon and all of a sudden it happened that I gave birth to



Addendum

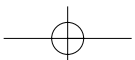
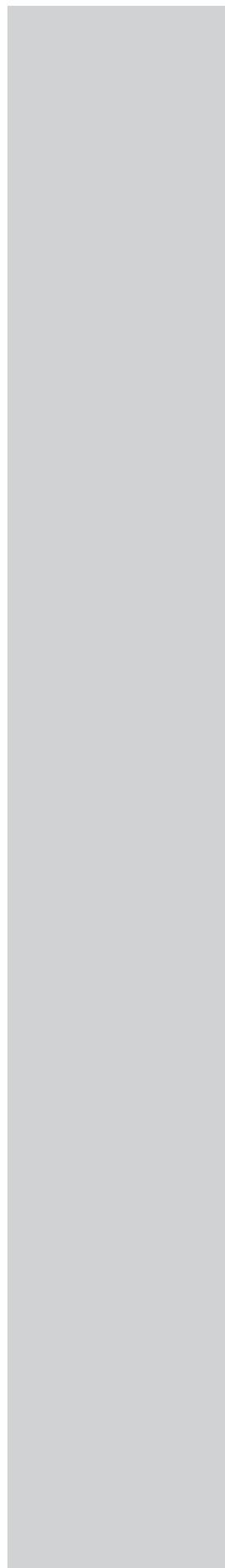
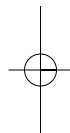
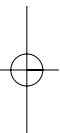


Table 1

Countries	Total Fert. Rate (TFR)		Use of contraception: married		
	Wanted TFR	Actual TFR	Any modern method	Pill	% Of users on the pill
Botswana 1988	3.9	4.9	31.7	14.8	46.7
Chad 1996/97	6.1	6.4	1.2	0.6	50.0
Cote d'Ivoire 1998/99	4.5	5.2	7.3	3.5	48.0
Eritrea 1995	5.7	6.1	6.1	2.0	32.8
Ethiopia 2000	4.7	5.5	6.3	2.5	39.7
Gabon 2000	3.5	4.2	11.7	4.8	41.0
Guinea 1999	5.0	5.5	4.2	2.1	50.0
Kenya 1998	3.5	4.7	31.5	8.5	27.0
Madagascar 1997	5.2	6.0	9.7	2.4	24.7
Malawi 2000	5.2	6.3	26.1	2.7	10.3
Mali 1995/1996	6.0	6.7	4.5	3.1	68.9
Mauritania 2000/01	4.1	4.5	5.1	2.6	51.0
Namibia 1992	4.8	5.4	26.0	8.3	31.9
Niger 1998	6.8	7.0	4.6	2.8	60.9
South Africa 1998		2.9	61.2	13.2	21.6
Indigenous		3.1	57.6	11.5	20.0
White		1.9	74.9	19.6	26.2
Sudan 1990	4.2	4.7	5.5	3.9	70.9
Tanzania 1999	4.8	5.6	16.9	5.3	31.4
Zambia 1996	5.2	6.1	14.4	7.2	50.0
Zimbabwe 1988	4.4	5.4	36.1	31.0	85.9
Zimbabwe 1994	3.5	4.3	42.2	33.1	78.4
Zimbabwe 1999	3.4	4.0	50.4	35.5	70.4
Egypt 2000	2.9	3.5	53.9	9.5	17.6
Jordan 1997	2.9	4.4	37.7	6.5	17.2
Morocco 1992	2.7	4.0	35.5	28.1	79.2
Tunisia 1988	2.9	4.2	40.4	8.8	21.8
Turkey 1998	1.9	2.6	37.7	4.4	11.7
Yemen 1997	4.6	6.5	9.8	3.8	38.8
Kazakhstan 1999	1.9	2.0	52.7	2.4	4.6
Turkmenistan 2000	2.7	2.9	53.1	1.2	2.3
Bangladesh 1999/2000	2.2	3.3	44.0	23.3	53.0
Cambodia 2000	3.0	3.8	18.8	4.5	23.9
India 1998/1999	2.1	2.8	42.8	2.1	4.9
Indonesia 1997	2.4	2.8	54.7	15.4	28.2
Nepal 2001	2.5	4.1	35.4	1.6	4.5
Pakistan 1990/91	4.3	4.9	9.0	0.7	7.8
Philippines 1998	2.7	3.7	28.2	9.9	35.1
Sri Lanka 1987	2.2	2.7	40.6	4.1	10.1
Thailand 1987	1.8	2.2	63.6	18.6	29.2
Vietnam 1997	1.9	2.3	55.8	4.3	7.7
Bolivia 1998	2.5	4.2	25.2	3.8	15.1
Brazil 1996	1.8	2.5	70.3	20.7	29.4
Colombia 2000	1.8	2.6	64.0	11.8	18.4
Dominican Republic 1999	2.0	2.7	64.1	14.5	22.6
Guatemala 1998/99	4.1	5.0	30.9	5.0	16.2
Mexico 1987	2.8	4.0	44.6	9.8	22.0
Nicaragua 1997/98	2.5	3.6	57.4	13.9	24.2
Paraguay 1990	4.0	4.7	35.2	13.6	38.6
Peru 2000	1.8	2.8	50.4	6.7	13.3

Table 2 Percent distribution of currently married women contraceptive method currently used.

	Any method	Any modern method	Pill	IUD	Injections	Condom	♀ sterilisation	♂ sterilisation	Implants	LAM
Sub-Saharan Africa										
Benin 2001	18.6	7.2	1.8	0.8	2.1	1.3	0.3	-	0.3	-
Botswana 1988	33.0	31.7	14.8	5.6	5.4	1.3	4.3	0.3	-	-
Burkina Faso 1998/99	11.9	4.8	1.8	0.4	1.1	1.2	0.1	-	0.2	-
Cameroon 1998	19.3	7.1	2.0	0.6	0.7	2.1	1.5	-	0.0	-
CAR 1994/95	14.8	3.2	1.1	0.1	0.6	1.0	0.4	-	-	-
Chad 1996/97	4.1	1.2	0.6	0.0	0.2	0.2	0.2	0.0	-	-
Cote d'Ivoire 1998/99	15.0	7.3	3.5	0.4	1.4	1.8	0.1	0.0	0.0	0.0
Ethiopia 2000	8.1	6.3	2.5	0.1	3.1	0.3	0.3	-	0.0	-
Gabon 2000	32.7	11.7	4.8	0.2	0.5	5.1	1.0	-	-	-
Ghana 1998	22.0	13.3	3.9	0.7	3.1	2.7	1.3	0.0	0.1	-
Kenya 1998	39.0	31.5	8.5	2.7	11.8	1.3	6.2	-	0.8	-
Malawi 2000	30.6	26.1	2.7	0.1	16.4	1.6	4.7	0.1	0.1	0.4
Mali 1995/1996	6.7	4.5	3.1	0.3	0.2	0.4	0.3	-	0.1	-
Mauritania 2000/01	8.0	5.1	2.6	0.8	0.9	0.8	0.1	-	0.0	-
Mozambique 1997	5.6	5.1	1.4	0.3	2.3	0.3	0.7	-	-	-
Namibia 1992	28.9	26.0	8.3	2.1	7.7	0.3	7.4	-	-	-
Niger 1998	8.2	4.6	2.8	0.1	1.5	0.0	0.1	-	0.0	-
Senegal 1997	12.9	8.1	3.3	1.6	1.7	0.6	0.5	-	0.2	-
South Africa 1998	62.1	61.2	13.2	1.9	30.1	2.3	12.0	1.7	-	-
Indigenous	58.6	57.6	11.5	1.5	35.1	1.8	7.7	0.0	-	-
White	76.2	74.9	19.6	4.2	4.7	4.1	26.9	15.4	-	-
Sudan 1990	8.7	5.5	3.9	0.7	0.1	0.1	0.8	-	-	-
Tanzania 1999	25.4	16.9	5.3	0.4	6.3	2.7	2.0	-	0.1	-
Togo 1998	23.5	7.0	1.2	1.0	2.1	1.5	0.4	-	0.6	-
Uganda 2000/01	22.8	18.2	3.2	0.2	6.4	1.9	2.0	0.0	0.3	-
Zambia 1996	25.9	14.4	7.2	0.4	1.0	3.5	2.0	0.0	-	-
Zimbabwe 1999	53.5	50.4	35.5	0.9	8.1	1.8	2.6	0.1	0.5	0.9

LAM = Lactational amenorrhoea method

Source: DHS

continue Table 2

	Any method	Any modern method	Pill	IUD	Injections	Condom	♀ sterilisation	♂ sterilisation	Implants	LAM
North Africa/West Asia/Europe										
Egypt 2000	56.1	53.9	9.5	35.5	6.1	1.0	1.4	-	0.2	
Jordan 1997	52.6	37.7	6.5	23.1	0.7	2.4	4.2	-	0.1	
Turkey 1998	63.9	37.7	4.4	19.8	0.5	8.2	4.2	0.0	-	
Yemen 1991/92	9.7	6.1	3.2	1.2	0.6	0.1	0.8	0.1	-	
South & Southeast Asia										
Bangladesh 1999/2000	54.3	44.0	23.3	1.3	7.3	4.3	6.8	0.5	0.5	
Cambodia 2000	23.8	18.8	4.5	1.3	7.4	0.9	1.5	0.2	0.1	
India 1998/1999	48.2	42.8	2.1	1.6	-	3.1	34.2	1.9	-	
Indonesia 1997	57.4	54.7	15.4	8.1	21.2	0.7	3.0	0.4	6.0	
Philippines 1998	47.8	28.2	9.9	3.7	2.4	1.6	10.3	0.1	-	
Sri Lanka 1987	61.7	40.6	4.1	2.1	2.7	1.9	24.9	4.9	-	
Thailand 1987	65.5	63.6	18.6	6.9	8.5	1.1	22.8	5.7	0.0	
Vietnam 1997	75.3	55.8	4.3	38.5	0.2	5.9	6.3	0.5	-	
Latin America & Caribbean										
Bolivia 1998	48.3	25.2	3.8	11.1	1.1	2.6	6.5	0.0	0.0	
Brazil 1996	76.7	70.3	20.7	1.1	1.2	4.4	40.1	2.6	-	
Peru 2000	68.9	50.4	6.7	9.1	14.8	5.6	12.3	0.5	0.2	

LAM= Lactational amenorrhoea method
Source: DHS

Table 3

	Age at first birth of age group 45-49 at survey	Pill		IUD		Injection		Implant		All modern methods		Total percentage use modern methods
		Became pregnant	Side effects	Became pregnant	Side effects	Became pregnant	Side effects	Became pregnant	Side effects	Became pregnant	Side effects	
Zimbabwe 1999	19.7	12.7	10.3	7.0	26.1	6.9	27.0	0.0	0.0	11.7	11.3	50.4
Egypt 2000	21.0	14.3	33.4	4.5	38.8	1.8	58.5	0.0	27.7	8.8	35.8	53.9
Jordan 1997	21.1	15.9	31.6	10.5	27.9	2.8	37.3	-	-	26.6	15.9	37.7
Turkey 1998	20.6	12.7	29.5	5.6	24.7	8.8	38.2	-	-	21.2	10.7	37.7
Yemen 1997	21.1	-	-	-	-	-	-	-	-	-	-	9.8
Bangladesh 1999/2000	16.9	8.8	35.3	1.5	55.7	2.6	58.7	0.0	82.7	10.7	29.5	44.0
Cambodia 2000	21.4	-	-	-	-	-	-	-	-	-	-	18.8
India 1998/1999	19.5	-	-	-	-	-	-	-	-	-	-	42.8
Indonesia 1997	20.4	14.4	11.7	12.6	14.6	6.7	19.9	0.9	17.2	11.4	15.0	54.7
Philippines 1998	23.1	13.0	28.1	6.4	36.0	2.4	44.6	-	-	30.6	13.9	28.2
Sri Lanka 1987	21.9	-	-	-	-	-	-	-	-	-	-	40.6
Thailand 1987	21.6	-	-	-	-	-	-	-	-	-	-	63.6
Vietnam 1997	24.0	21.3	16.4	15.1	28.9	0.0	8.6	-	-	26.0	14.7	55.8
Brazil 1996	23.0	11.4	26.2	6.1	26.8	8.2	36.9	-	-	15.3	18.1	70.3
Peru 2000	21.8	8.6	47.3	3.3	44.0	2.6	56.9	2.3	59.4	18.0	26.4	50.4

Source: DHS

Table 4

	Current fertility	Timing of	Wanted fertility rates	
	Crude birth rate	sterilisation Median age	Wanted total fertility rate	Total fertility rate
Sub-Saharan Africa				
Benin 2001	40.7	34.2	4.6	5.6
Botswana 1988	-	34.1	3.9	4.9
Burkina Faso 1998/99	42.5	32.9	5.7	6.4
Cameroon 1998	35.2	34.6	4.3	4.8
CAR 1994/95	38.0	34.1	4.7	5.1
Chad 1996/97	46.0	32.9	6.1	6.4
Cote d'Ivoire 1998/99	39.3	38.0	4.5	5.2
Ethiopia 2000	38.6	-	4.7	5.5
Gabon 2000	32.9	33.7	3.5	4.2
Ghana 1998	32.3	34.9	3.6	4.4
Kenya 1998	34.6	32.3	3.5	4.7
Malawi 2000	44.9	33.2	5.2	6.3
Mali 1995/1996	45.1	30.5	6.0	6.7
Mauritania 2000/01	30.9	29.7	4.1	4.5
Mozambique 1997	38.7	32.9	4.7	5.2
Namibia 1992	38.1	32.5	4.8	5.4
Niger 1998	51.2	29.6	7.0	7.2
Nigeria 1999	34.7	31.8	4.4	4.7
Senegal 1997	38.7	35.0	4.6	5.7
Sudan 1990	-	-	4.2	4.7
Tanzania 1999	41.4	33.1	4.8	5.6
Togo 1998	34.4	31.5	4.2	5.2
Uganda 2000/01	46.8	33.2	5.3	6.9
Zambia 1996	45.2	35.9	5.2	6.1
Zimbabwe 1999	30.8	33.8	3.4	4.0
North Africa/West Asia/Europe				
Egypt 2000	27.8	31.8	2.9	3.5
Jordan 1997	33.1	35.0	2.9	4.4
Turkey 1998	23.4	31.7	1.9	2.6
Yemen 1997	-	34.2	4.6	6.5
South & Southeast Asia				
Bangladesh 1999/2000	30.2	27.1	2.2	3.3
Cambodia 2000	25.8	32.3	3.0	3.8
India 1998/1999	24.8	25.7	2.1	2.8
Indonesia 1997	-	31.8	2.4	2.8
Philippines 1998	28.0	29.6	2.7	3.7
Sri Lanka 1987	-	30.0	2.2	2.7
Thailand 1987	-	29.0	1.8	2.2
Vietnam 1997	19.2	32.5	1.9	2.3
Latin America & Caribbean				
Bolivia 1998	30.4	31.8	2.5	4.2
Brazil 1996	21.5	28.9	1.8	2.5
Peru 2000	21.5	32.1	1.8	2.8

Source: DHS

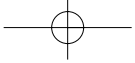
Table 5 Selected recent data from different countries

	Algeria	Botswana	Brazil	Kenya	Lesotho	Norway	South Africa	Thailand	Zimbabwe	Global
Human Development Index Rank	100	114	69	123	120	1	94	66	117	
Adult literacy rate	66.6	76.4	84.9	81.5	82.9	99.0	84.9	95.3	88.0	
HIV 15-49	0.07	35.80	0.57	13.95	23.57	0.07	19.94	2.15	25.06	1.10
Infant mortality	36.0	46.0	34.0	76	93	4	54	26	60	56
Life expectancy	69.3	41.9	67.5	51.3	47.9	78.4	53.9	69.9	42.9	66.7
Doctors/100.000	85	24	127	13	5	413	56	24	14	
Nurses/100.000	298	219	41	90	60	1840	472	87	129	
Population 10 ⁶	31.0	1.6	171.8	29.8	2.2	4.5	43.6	62.4	11.4	6136
TPR	3.3	4.4	2.3	4.6	4.8	1.8	3.1	2.1	4.3	2.8
<5 mortality	41	59	40	118	134	4	69	30	90	80

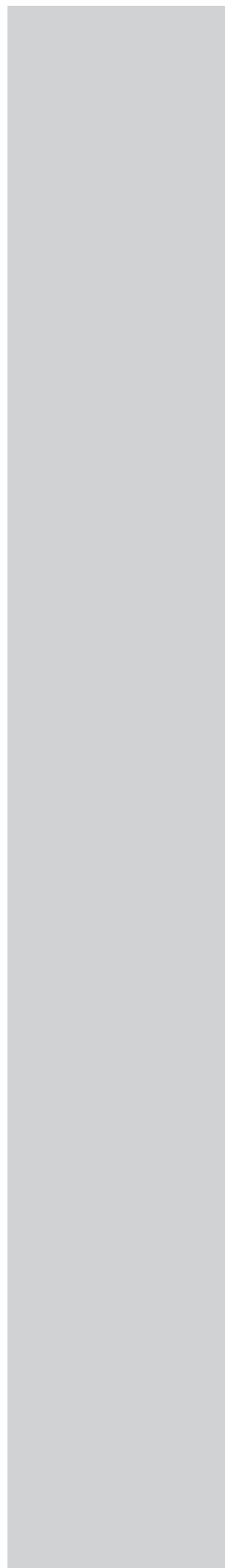
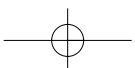
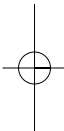
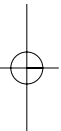
Last year, I was admitted at the hospital on Pre-term Labour. The care and hospitality I received from both the doctors and nurses was really great.

The only thing that did not satisfy me was the shortage of the nursing staff. I felt that those who were on duty were overworked, as one time there were only two sisters attending to about 6 mothers who were in labour and all due to deliver, I sympathised with them as they jumped from one patient to another.

Even on our visits on Anti-Natal clinic we could stay for some time without anyone attending to us on some of the days, because of the shortage. What I do not understand is why the hospital cry of the nursing staff shortage yet a lot of people who qualify to train as nurses just like me, do not get vacancies at the Training School.

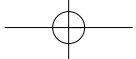


List of abbreviations

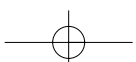
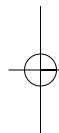
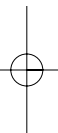


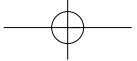
AD	Anno Domini
AIDS	Acquired Immune Deficiency Syndrome
a.k.a.	also known as
ANC	African National Congress/antenatal clinic
ANW/PNW	ante/postnatal ward
BTS	Blood Transfusion Service
CBD	community-based distributors
CBS	Centraal Bureau voor de Statistiek
CC	contraceptives
CCJP	Catholic Commission for Justice and Peace
CDC	Centers for Disease Control
COC	combined oral contraceptives
CS	caesarean section
CSW	commercial sex workers
CYP	couple-years protection
DHS	Demographic and Health Survey (Zimbabwean = Z, South African = SA)
DMPA	depot medroxyprogesterone acetate
EC	emergency contraception
EDLIZ	Essential Drug List of Zimbabwe
FDA	Food and Drug Administration
FSH	follicle-stimulating hormone
FP	family planning
GA	general anaesthesia
GNP	Gross National Product
GP	general practitioner
HAART	highly active antiretroviral treatment
Hb	haemoglobin
HCH	Harare Central Hospital
HIV	human immunodeficiency virus (Type-1 in this Thesis)
HPV	human papilloma virus
HSG	hysterosalpingography/gram
HTA	horse traffic accident
ISBN	International Standard Book Number
ICPD	International Conference on Population and Development (Cairo, 1994)
IEC	information, education, communication
IMF	International Monetary Fund
IUCD	intra-uterine contraceptive device
IUD	intra-uterine device

IVF	in vitro fertilisation
LA	local anaesthesia
LAM	lactational amenorrhoea method
LCH	list of case histories
LH	luteinizing hormone
LISARUN	Likely Sterilisation Acceptors, Regret UNlikely
LNG-IUD/S	levonorgestrel medicated IUD/System
MAC	Matabeleland Aids Council
MAP	morning-after pill
MOH	ministry of health
MP	member of parliament
MVA	manual vacuum aspiration
NASEC	National Aids Salvation Executive Conference
“N”FP	“natural” family planning
NGO	non-governmental organisation
NYRHS	(Zimbabwean) National Youth Reproductive Health Survey
OC	oral contraceptives
OPD	outpatient department
PCC	post-coital contraception
PCP	Pneumocystis Carinii Pneumonia
PID	pelvic inflammatory disease
POP	progestagen only pills
PPT	periodic presumptive treatment
PWHIV	persons with HIV
Q	quartile
RCC	Roman Catholic Church
SD	standard deviation
STD	sexually transmitted disease
STI	sexually transmitted infection
TL	tubal ligation
TB	tuberculosis
TFR	Total Fertility Rate
TOP	termination of pregnancy
UBH	United Bulawayo Hospitals
UN	United Nations
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development

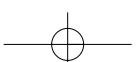
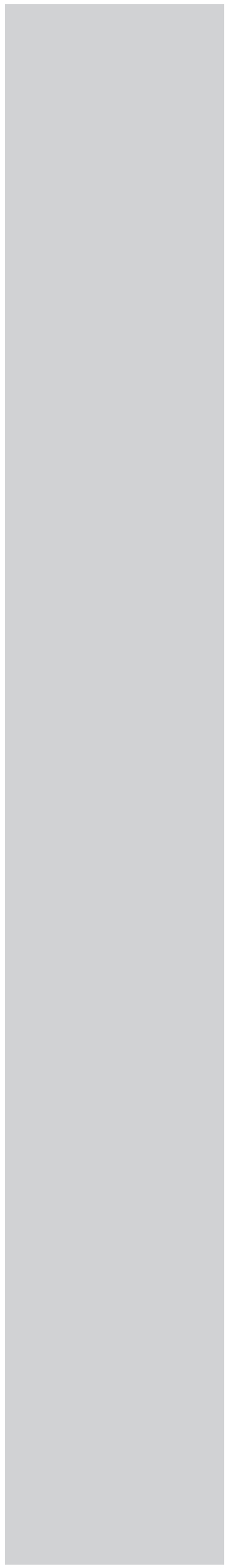
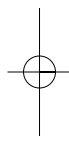
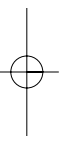


UZ University of Zimbabwe
WHO World Health Organization
ZNFPC Zimbabwe National Family Planning Council

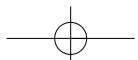
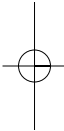
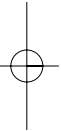
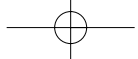




Curriculum Vitae



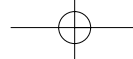
Born in 17-10-1946 in Zwijndrecht, the Netherlands. The pregnancy had been from start to finish a family affair. The Eighty Years War and the Four English (sea) Wars dominated history lessons at the Calvinistic primary school. The teacher used to warn us that the Catholics were conceiving children at a much higher rate than ourselves, and that some simple extrapolation made it quite clear that within 25 years we would be outnumbered, resulting in us being burned at the stake again. This might explain much, although there are neither latent anti Spanish nor anti British feelings. On the other hand my mothers' family resided near Dokkum for centuries. Secondary school was a difficult time, for the parents. The study in Amsterdam resulted in a change of ambition from missionary to development cooperation doctor. A year of surgery and 6 months of obstetrics and gynaecology both in Haarlem, followed by the Amsterdam course in tropical medicine, culminated in a posting in Mafeteng, Lesotho. With little referral opportunities and a fantastic open and direct population, this was the most interesting and satisfying time from a professional point of view. Lack of access to reliable contraception seemed to be the major structural problem doctors could do something about. Instead of taking up a training post for orthopaedic surgery the decision was made to become a gynaecologist although the average Dutch gynaecologist had not exactly been a role model. Training in Harare, Zimbabwe, had the advantage that it helped to alleviate the shortage of manpower there, while the University had an excellent reputation at the same time. The British membership exams were passed in 1985 followed three years later by a posting as consultant in Bulawayo. An article about oral conception merited a fat headline in "The Sun" that same year. Some years in a Zimbabwean prison due to too much dedication were narrowly avoided in 1992. Dutch registration took place after an attachment in Amsterdam in 1994/5. The next six years were spent working again in Bulawayo while being, towards the end, nominally in charge of two departments of obstetrics and gynaecology in that city with a combined number of 20.000 annual deliveries and trying to organise a successor. The first anniversary of a boy delivered by caesarean section with the help of a pocketknife after his mother had died, merited another headline. The emigration to New Zealand of a very good and the only candidate successor coincided with a definite? return to the Netherlands. Quite satisfying locum work followed and adaptation to the destroy-consume-destroy-again culture was effortless.



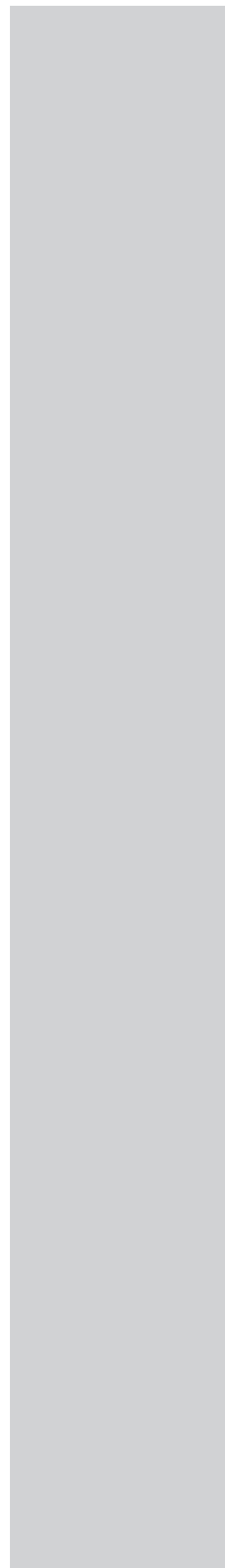
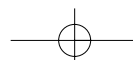
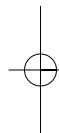
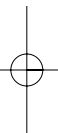
do you have any
you received while in hospital? Please feel free to comment
on anything. After delivery I got a good treatment though a
lot is to be desired on the cleanliness of both the rooms
and the W.C. There was shortage of clothes for the children

19 If you still want to have some advise on family
planning, or sterilization, please visit Walk-in-clinic at
UBH in front of the building where you delivered.
Thank you, Dr D.A.A. Verkuyl

and the person in charge was not friendly
and she made it feel more like a burden to
her though she was supposed to be motherly as she
was old enough.



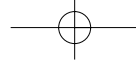
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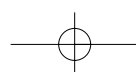
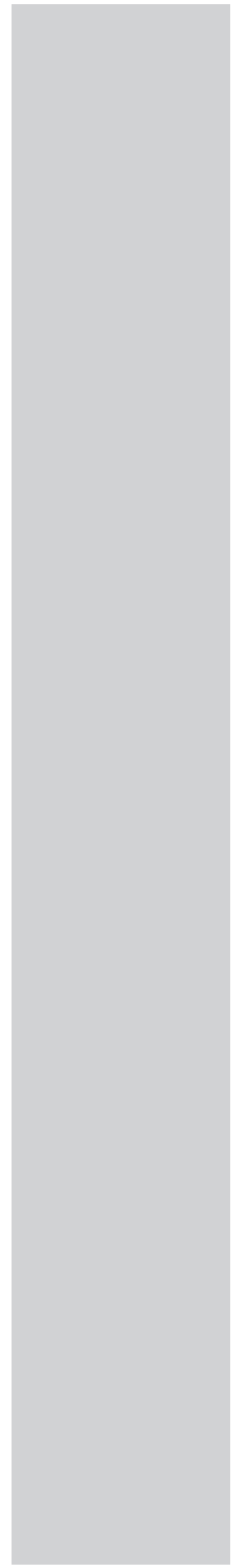
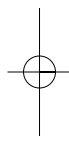
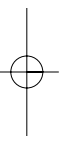
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