

thetia, either light sedation or general anaesthesia should be given.

Vasectomy

This can be done with the no-scalped technique. With this procedure a very sharp "artery" forceps is used to pierce the skin and to take hold of the vas deferens. Both sides are done through one wound and under local anaesthesia.

Results

The following table shows the number of tubal ligations done at Nkhoma Hospital from January 1991 - September 1992.

Table

1. Total number of tubal ligations done:	707	
2. Approach and Timing:		
Procedure	Timing	Number
Minilaparotomy	0 - 48 hours postpartum	376
Minilaparotomy	3 - 7 days postpartum	42
Minilaparotomy	8 - 27 days postpartum	22
Minilaparotomy	28 days postpartum	132
With caesarean section		122
3. Type of Anaesthesia:		
Local without sedation	493	
Local with light sedation	30	
Local with heavy sedation	38	
General anaesthesia	12	
Spinal anaesthesia	134	
4. Number of living children (at time of procedure):		
0	0	
1	3	
2	27	
3	71	
4	103	
5	130	
6 or more	373	
5. Age of patients (in years):		
19 or less	0	
20-24 yrs	3	
25-29 yrs	70	
30-34 yrs	338	
35-39 yrs	223	
40-44 yrs	23	

To run a successful surgical contraception programme, attention should be given to the following:

1. Good counsellors. They should be well trained and well informed.
2. The hospital should be patient-friendly. Do the procedure when it suits your patient. At Nkhoma we do Tubal Ligations on every week day as well as on Saturdays if needed. If the patient must wait 3 days for the next theatre list, many of them will abscond.
3. The procedure must be as pain free as possible. Remember that the best advocates of this procedure will be satisfied clients.
4. It should be offered together with other methods of child spacing as a free service.

We have been very satisfied with this new technique. Over half our patients come from areas other than Nkhoma which shows that there is a big need for this programme at other hospitals.

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Breast Feeding as a Family Planning Method

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Mothers have breast fed their babies from time immemorial. Breast feeding is a natural process that is recognised by all societies regardless of their level of sophistication as beneficial to the health of both the mother and child. Many taboos for its protection exist. With the introduction of Western concepts and mass media commercial advertising this harmonious consensus on the importance of breast feeding has been somewhat eroded. Socio-economic and cultural changes have had their impact on the practice. In the developed world immediately after World War II in 1946, bottle feeding with artificial formula replaced breast feeding as the in-thing. Developing countries in their effort to keep up with the Joneses adopted the practice also. The advertising media had a field day promoting the virtues of bottle feeding and won many followers. The myth was widely spread and believed that breast feeding would ruin the configuration of the breasts and reduce the attractiveness of the mother. Breast milk substitutes became popular in both the developed and developing world. Their use has caused many deaths in the latter countries.

In the early 1980s WHO and UNICEF launched a counter offensive to curtail this campaign of advertising breast milk substitutes in developing countries. Many babies in these countries died as a result of poor hygiene, ignorance of the optimal concentration, inadequate funds to maintain regular supply and lack of clean water. In the developed countries there is a trend back to breast feeding, but many mothers in the developing world, particularly those in the urban areas, continue to use artificial feeds. This sets an example that the poor rural mothers copy.

Lactational Amenorrhoea

Traditional societies recognised that prolonged breast feeding imparted infertility as evidenced by lactational amenorrhoea. Many taboos prevailed which aimed at protecting this practice.

Within a few hours of delivery the sensitivity of the nipple increases markedly, and sucking results in afferent nervous stimuli which pass to the hypothalamus and on to the pituitary gland. The result of suckling is, initially, a profound suppression of ovarian activity with no evidence of either follicle development or ovulation.

The mechanism through which breast feeding causes lactational amenorrhoea and anovulation is complex and ill-understood. However, it is known that breast feeding causes profound suppression of ovarian activity.

Direct effects of Breast Feeding on Birth Interval

Breast feeding can prolong the length of the birth interval directly through its ability to cause lactational amenorrhoea and anovulation. The hyperprolactinaemic state of lactating mothers is thought to be responsible for the postpartum amenorrhoea and anovulation. Prolactin is produced from the anterior pituitary when the nipple is stimulated manually or by suckling through a neuroendocrine reflex. Prolactin is the hormone responsible for the synthesis and secretion of milk.

In the postpartum period the basal levels of prolactin are higher than in the non-pregnant state. The neuroendocrine reflex is very much heightened during lactation. Therefore, stimulation of the nipple either manually or by suckling results in markedly elevated plasma prolactin levels. However, if lactation is not established the basal prolactin levels return to the non-pregnant levels within the first six weeks postpartum and the prolactin producing reflex becomes blunted. Therefore, continued breast feeding is necessary in order to maintain high plasma prolactin levels.

Breast feeding causes profound suppression of ovarian activity. When breast feeding is not established fertility returns quickly after delivery and ovulation can occur as early as the thirty-sixth day postpartum. The return of the ovarian cycle in women who are breast feeding is variable and in 2-10% of the women conception occurs before return of menstruation. It is also known that the early menstrual cycles in the postpartum period may be anovulatory and that even when ovulation occurs the corpus luteum function may be defective.

It has been postulated that breast feeding causes amenorrhoea and anovulation at two separate levels;

- (1) The hypothalamic-pituitary axis becomes less sensitive to the positive feedback during lactation. As a result the secretion of follicle stimulating hormone (FSH) and luteinizing hormone (LH) is less efficient or inappropriate. For this reason the ovarian activity is absent or reduced.
- (2) The ovarian response to gonadotrophin becomes impaired during lactation. This is evidenced by the fact that the ovary remains unresponsive even when the gonadotrophin are within the lower limits of normal.

Prolactin is the hormone considered responsible for these inhibitory mechanisms and is a prerequisite for full lactation. Its levels rise ten fold during pregnancy.

Breast feeding is effective in causing lactational amenorrhoea only if it is continued for a long time and at frequent intervals of high intensity. The baby should be breast fed at least six times every day and breast feeding should be spread throughout the day and night. Intensity of breast feeding refers to the period of time the baby is kept on the breast each time it breast feeds. A minimum period of 15 minutes is required on each breast in order for breast feeding to cause lactational amenorrhoea.

Studies in some countries have shown that the length of postpartum amenorrhoea is related to the working status of the mother. In urban areas the mother may work away from the baby for long hours.

Table 1 shows the percentage of mothers breast feeding by duration and area of residence. Although it appears that the patterns of breast feeding are the same, the figures hide the fact that breast feeding is often only partial or decreasing in duration.

Table 1 The Duration of Breast feeding by Mother's Residence

Child's Age (Years)	Rural (%)	Urban (%)
1	96	96
1 - 2	66	47
2 - 3	13	3

Source: Family Formation Survey, Ministry of Health, Republic of Malawi, 1984.

In Kenya by six months postpartum 69% of women who are housewives remain amenorrhoeic compared to only 49% who are employed outside the home. This is a reflection of the effect of the frequency of breast feeding on the length of postpartum amenorrhoea. The housewives are likely to breast feed their babies more frequently during the day and night and breast feeding is more likely to be of high intensity.

Breast feeding by itself is an unreliable contraceptive particularly beyond the sixth month postpartum. All mothers should be given full information on contraceptive methods available during the antenatal and postpartum period so that they are in a position to make a rational decision on the method of their choice.

Breast feeding and infant survival

Breast feeding may encourage spacing of births through enhancing child survival, encouraging postpartum abstinence and mother-child bonding.

Breast feeding enhances infant survival through providing good nutrition and protection from infection. Breast milk con-

tains a better mix of nutrients compared with cow's milk and formula feeds and is more easily digestible. Human milk is the best food for the infant.

Breast milk contains secretory Immunoglobulin A antibodies, lactoferrin, enzyme lysozyme, interferon and macrophages and neutrophils which protect the baby against infection. Breast feeding markedly reduces the incidence of diarrhoeal diseases.

Bottle feeding is expensive, particularly for the rural woman. The feeds are often prepared under unhygienic conditions, especially when clean tap water is not available. This, coupled with a low literacy level, predispose the babies to malnutrition, infections and high mortality. Breast fed babies have higher survival rates.

Polygamous marriages enable women to abstain from coitus and to continue breast feeding for a long period and thus achieve an optimal interval between births. As a result of the increased prevalence of Christian marriages, education and economic constraints, polygamous marriages are becoming less and the tendency is to resume coital activity relatively early in the postpartum period and consequently shortening the birth interval and endangering the survival of the infant.

There is evidence that in Kenya only 33% of married women remain abstinent for 3 months. In an area of Malawi women are asking for a cycle of oral contraceptive pills which they have learnt can reduce the postpartum amenorrhoea and thus facilitate resumption of sexual intercourse before the husband is tempted to engage in extra-marital affairs. The low dose oral pills are safe for the mother and have no known injurious effect on the breast feeding baby and do not reduce the breast milk production or affect its quality.

Some traditional societies considered it a taboo to have sexual intercourse when breast feeding was still going on. Some communities still believe that the semen would be secreted in the breast milk and poison the baby and that sexual intercourse with lactating mother would "weaken" the man. Similar beliefs are found in Indonesia, South America and many other parts of the developing world. These taboos and beliefs should be seen as measures that the traditional societies took to ensure prolonged breast feeding and to space births because they knew that pregnancies should not be too close and that women should not conceive when they were still breast feeding. However, these practices are slowly dying out.

Breast Feeding Differentials

Three of the most important factors associated with differentials in breast feeding are place of residence (urban/rural), education, and income.

As shown above in Kenya and Malawi urban residence has the most consistent effect and has been found to be an important determinant of breast feeding behaviour. Authors cited in Huffman's review have speculated that urban residence maybe negatively associated with breast feeding, because bottle is considered to be more modern and sophisticated (especially as portrayed by the modern mass media), more convenient (especially if the woman is working outside the home), and because there are fewer breast feeding role models for young urban women to emulate.

Education of the mother is also an important predictor of breast feeding, but with opposite effects in developed and developing countries. In many Westernized countries, educated women are more likely to breast feed and for the longest; in many developing countries, education is negatively associated with both initiation and the length of breast feeding. It is possible nevertheless, that this negative association is due to a simple confounding of mother's education with other explanatory factors such as urban residence.

Socio-economic status (often measured by husband's education or occupation), has similar negative effects on breast feeding in developing countries. Of course, the woman's education, urban residence, and socio-economic status are all highly related. Other variables that are frequently studied include the mother's age and parity, use of contraceptives, and employment status. Age is often

used to control for cohort (breast feeding may be declining in a society overtime), fecundity (older women may breast feed longer because they are less likely to become pregnant), or other normative aspects of age (it may be considered inappropriate for an older woman to breast feed). High-parity women have demonstrated high fecundity, and high parity may signal attachment to more traditional values and behaviour.

The use of modern contraceptives is consistently associated with a reduced likelihood of initiating and shorter durations of breast feeding. Work by Gomes de Leon and Potter has demonstrated clearly that the timing of initiation of contraception and weaning are closely related, either because women think that breast feeding and contraceptive use are incompatible, or because they view contraception as a substitute for lactational sub-fecundity. Millman has interpreted her analysis of Taiwanese data as providing support for the notion that women substitute contraception for breast feeding to avoid pregnancy. She argues further that the physiological effect of oestrogen in oral contraceptives on the quantity of breast milk is not a major determinant of weaning.

ACTION PLAN

The World Health Organisation and UNICEF along with other organisations committed to the support, protection and promotion of breast feeding have appealed to health services personnel to establish an environment in health facilities where positive breast feeding practices are encouraged.

Changes in maternity services improve rates of exclusive breast feeding in the first weeks of life. Ways to foster breast feeding include:-

- Informing all pregnant women how and why to breast feed.
- Helping mothers to initiate breast feeding within half hour after normal delivery.
- Allowing rooming-in 24 hours a day.
- Encouraging breast feeding on demand and
- Giving the infant no food or drink other than breast milk, unless it is medically indicated, until the age of 4 to 6 months.

Other measures will, nevertheless, be important to ensure that exclusive breast feeding is maintained during the first four to six months of life. These measures include:-

- Protecting the right of working women to breast feed. Malawi has done very well here by providing three months paid maternity leave for all Government employees every three years.
- Continuing to encourage and support breast feeding through groups and the health services.

Health practitioners have an important part to play in promoting and supporting exclusive breast feeding. However Burgess (1977) suggested that "The education of health workers, especially doctors, about managing breast feeding problems, has been sadly neglected. Sometimes health workers do not practice what they preach, this leads them to be less confident to counsel women to breast feed. Health workers often set bad examples by bottle feeding their own children.

The health and fertility implications of breast feeding patterns in developing countries have received much attention in recent years. Prompted in part by the perceived increasing popularity of artificial feeding during the 1970s and by reported declines in average durations and proportions of women initially breast feeding in several developing countries, health organisations such as WHO and UNICEF have placed breast feeding promotion high on their health-policy agendas. Given the clear health advantages of breast milk for the infant and lactation's suppressive effect on fecundity, a decline in the extent of breast feeding is unwelcome news in any country in which attempts are made to improve the health of its children or for those countries with modest contraceptive use in which it is desired to reduce the population growth rate, such as Malawi. The time for action is now.

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Progesterone Only Contraception

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In 1960 the first contraceptive pill became available. By today's standards it contained extremely high doses of both estrogen and progesterone. It soon became evident that the estrogen component of the pill was causing cardiovascular complications in some women.

Research into using progesterone alone as a safer form of contraception was intensified. The first progesterone only pill was introduced in 1969 and The International Planned Parenthood Federation recommended the use of depo-provera as a safe, effective contraceptive in 1975.

Meanwhile the dose of hormones used in the combined pill was drastically reduced, which has made the risk of cardiovascular complications almost disappear. So we are now in the fortunate position of having both safe estrogen containing pills, together with a variety of safe progesterone only methods.

The majority of women using hormonal methods of contraception are healthy and fit. However there are a tiny minority who are best advised not to use an estrogen containing pill, but even these women would be safer using such a method than becoming pregnant.

Progesterone only contraception does not have any of the side effects associated with estrogen usage. In particular it does not:

1. Interfere with lactation
2. Cause an elevation of blood pressure
3. Change the blood clotting factors
4. Interfere significantly with liver, carbohydrate, or fat metabolism

Thus, these methods can safely be used by women with the following medical problems, whose disease is not so severe as to warrant sterilisation.

1. High blood pressure, even if this is high enough to require medication
2. A past history of venous thrombosis
3. Heart disease
4. Diabetes
5. Sickle cell disease

Progesterone alone is often advised for women who develop unacceptable estrogen related side effects while on a combined pill. These are rare, but the commonest is a rise in blood pressure to over 140/90. Many women stop their pills because they wrongly attribute a symptom, such as palpitations, headache or fever, to the new pills they are taking. Reassurance is what they require, not confirmation of their fears by being told to stop the pills.

How does progesterone alone work as a contraceptive?