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A large, high-contrast, black and white halftone-style image of a woman's face smiling and holding a baby. The image is composed of a dense pattern of small dots, creating a textured effect. The woman's face is the central focus, with her eyes looking down at the baby. The baby's head is visible in the lower right corner, partially obscured by the woman's hand. The overall composition is warm and intimate.

INFANT FEEDING GUIDELINES FOR HEALTH WORKERS

NHMRC

National Health and Medical Research Council

RECOMMENDED

Infant feeding guidelines for health workers

NHMRC

National Health and Medical Research Council

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TERMS OF REFERENCE AND MEMBERSHIP OF THE NHMRC INFANT NUTRITION PANEL

1. To assess and develop educational material on infant nutrition.
2. To develop policies on breastfeeding and infant nutrition and set appropriate national targets for the 1990's.
3. To provide advice on issues related to breastmilk substitutes and infant feeding as referred by the Advisory Panel on the Marketing in Australia of Infant Formulas.
4. To provide advice on breastfeeding research priorities, and other public health and paediatric issues relating to infant feeding, as required.
5. To develop guidelines for health workers so that women breastfeeding and those not breastfeeding are offered support.
6. To report to the Public Health and Health Care Committees of NHMRC.

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PREFACE

These guidelines have been developed to assist health workers to promote breastfeeding. Promoting, encouraging and supporting breastfeeding in Australia is a primary aim of nutrition and better health programs. Health workers will find this document useful in helping mothers to breastfeed, as a basis for education programs and, in addition, it will provide information on the appropriate use of infant formula.

Australia has been a strong supporter of the World Health Organisation's International Code of Marketing of Breastmilk Substitutes (the WHO Code) on which these guidelines are based. At a national level the WHO Code is supplemented by the Agreement on the Marketing in Australia of Infant Formula for Manufacturers and Importers (the Australian Agreement).

The guidelines aim to help all health workers understand how the WHO Code and Australian Agreement affect their work in both breastfeeding and using infant formula. The decision to wean arises when there are problems, so the guidelines include a section with advice on how to deal with problems which may face health workers and breastfeeding mothers.

The rates of initiation of breastfeeding in Australia are generally high, but a number of women stop breastfeeding soon after discharge from hospital. Support and continual encouragement from health workers is important for women who are breastfeeding and learning to manage the many adjustments their new role and a young infant bring to a family.

The increasing trend for women to be discharged 'early' from hospital means that assistance during the early days of breastfeeding, previously provided by the midwifery staff, is lessened. Difficulties which previously would have become apparent while the mother was in hospital are now appearing in the early days at home.

Frequently the mother does not know where to go for appropriate assistance, and in many areas home support services are inadequate or non-existent. So these guidelines focus primarily on the situations likely to arise after women are discharged from hospital.

In keeping with the spirit of the WHO Code, which aims to protect the health of all infants, guidance on bottle feeding, including the safe use of infant formula is provided in Section II.

In the text the infant is referred to as 'she' rather than he/she for convenience and readability.

MEETINGS

The panel called widely for submissions before the first meeting in October 1992, and received many responses from health professionals and consumer and industry groups.

A second public consultation on the draft guidelines ensued between November 1994 and March 1995. The panel considered issues raised in the submissions in developing the guidelines.

A summary of the consultations is at Appendix 5.

INTRODUCTION

What is the WHO Code?

The World Health Organisation's International code of marketing of breastmilk substitutes (WHO Code) received endorsement from the World Health Assembly in 1981, from all but four member states. Australia was one of the early supporters of the Code at the World Health Assembly.

The WHO Code aims to protect the nutritional well-being of all infants through two separate but closely related issues: the protection and promotion of breastfeeding, and the appropriate use and marketing of breastmilk substitutes, bottles and teats when these are necessary (1).

Since the WHO Code was adopted, a number of other activities aimed at improving the health of infants through promoting and supporting breastfeeding have been developed. One is the joint WHO/UNICEF Baby Friendly Hospital Initiative announced in 1991, aiming to eliminate hospital practices which may interfere with successfully initiating and maintaining breastfeeding. Hospitals are encouraged to actively adopt the 'Ten Steps to Successful Breastfeeding' (Table 1)

Table 1 Ten steps to successful breastfeeding

Every facility providing maternity services and care for new-born infants should:

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
 2. Train all health care staff in skills necessary to implement this policy.
 3. Inform all pregnant women about the benefits and management of breastfeeding.
 4. Help mothers initiate breastfeeding within half an hour of birth.¹
 5. Show mothers how to breastfeed, and how to maintain lactation even if they are separated from their infants.
 6. Give new-born infants no food or drink other than breastmilk, unless medically indicated.
 7. Practise rooming-in (allow mothers and infants to remain together), 24 hours a day.
 8. Encourage breastfeeding on demand.
 9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.
 10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from hospital or clinic.
-

From: Protecting, promoting and supporting breastfeeding: the special role of maternity services, a joint WHO/UNICEF statement, Geneva, 1989, World Health Organisation.

How is the Commonwealth Government promoting breastfeeding?

The Commonwealth Government is committed to protecting, promoting and supporting exclusive breastfeeding for at least the first four to six months of life. Australia is one of the few developed countries in the world to include a guideline on breastfeeding in its dietary guidelines for adults (2).

Including this guideline in a set of advice for healthy adults recognises the role the whole community plays in encouraging and supporting breastfeeding. In the *Dietary guidelines for children and adolescents*, also developed by the National Health and Medical Research Council (NHMRC), the guideline on breastfeeding is listed first, acknowledging its importance to the health of this age group.

Australia has also included breastfeeding in its national health goals and targets (3). The last national survey of breastfeeding indicated that breastfeeding initiation rates are quite high, 85 per cent in 1983 (4), and the early indicators from a recent study involving births in Melbourne and Perth show initiation rates have not changed since 1983—unlike the United States and Europe where they have declined (5).

However, the incidence of breastfeeding ceasing within the first six weeks is a grave concern. There is general agreement that increasing the duration of breastfeeding would bring additional health and nutritional benefits. The study shows that Asian mothers are among the earliest of the ethnic groups to stop breastfeeding, followed by mothers from the lower socio economic groups (5).

How is the WHO Code being implemented in Australia?

The WHO Code in Australia is being implemented in a number of ways. In addressing the responsibilities of three of the sectors in the Code, manufacturers and importers of infant formula, bottle and teat manufacturers, and retailers, it is intended that self-regulatory agreements specific to each of these sectors, and complying with Australia's Trade Practices laws, will be developed in a sequential manner.

An agreement addressing the responsibilities of infant formula manufacturers and importers was finalised in 1992 (Appendix 1), while one for bottle and teat manufacturers is being developed. The responsibilities of retailers will be addressed after the agreement for bottle and teat manufacturers is finalised.

A monitoring system is important in these agreements and an Advisory Panel on the Marketing in Australia of Infant Formula (APMAIF) has been established for this purpose. The Panel comprises an independent chair, and industry and consumer nominees, with the Federal Bureau of Consumer affairs providing secretariat support.

Australia's health workers also need information about their responsibilities under the WHO Code but similar agreements to those mentioned would not be suitable, given the diverse nature of the sector. Instead these guidelines have been developed after extensive consultation. This is particularly important given that 'About one third of the 39 paragraphs of the WHO International Code are more or less directly addressed to health workers. Health workers play, wittingly or unwittingly, an important role in the promotion of breast milk substitutes or breastfeeding' (6).

The guidelines include a revised version of those developed by NHMRC in 1984 and give health workers information on ways to encourage and support breastfeeding. Information about the safe use of infant formula and bottle feeding is in Section II, and the whole of Section III is devoted to interpreting the WHO code.

Health workers are committed to promoting optimal health and development for all infants. When interpreting these guidelines health workers should accept that mothers who do not breastfeed need appropriate information about infant formula and instruction about its use and preparation. All mothers are entitled to appropriate support and advice so they can adequately feed their infants.

Scope of the WHO Code

The Code applies to the marketing, and related practices, of breastmilk substitutes, including infant formula, other milk products, foods and beverages. It also includes bottle fed complementary foods when these are marketed or otherwise represented as suitable, with or without modification, as a partial or total replacement of breastmilk. Feeding bottles and teats are also covered by the Code, as to their quality and availability, and information about their use.

SECTION I: ENCOURAGING AND SUPPORTING BREASTFEEDING IN THE AUSTRALIAN COMMUNITY

The following section is based on information in the background papers for the chapter on breastfeeding in the *'Dietary guidelines for children and adolescents'*. It was prepared largely by representatives of the Nursing Mothers Association of Australia.

1. Maternal and infant advantages of breastfeeding

There have been numerous studies showing breastfeeding has advantages for both infants and mothers. The epidemiological evidence confirms the protective effects of breastfeeding in both developed and lesser developed countries alike (7).

The benefits of breastfeeding affect the following major areas: nutritional, health and psychological benefits for the infant, and health and fertility control benefits for the mother. In addition, breastfeeding also offers economic advantages to both the family and society.

1.1 Benefits to the infant

1.1.1 Nutritional

It is now clear that the composition of breast milk is uniquely appropriate for the neonate at a time when growth and development are occurring at very high rates, yet when many of the infant's systems—such as the digestive, hepatic, neural, renal, vascular and immune systems—are functionally immature. Breastmilk is not only a high quality food but also contains many components (eg bile salt stimulated lipase, glutamate, certain polyunsaturated long chain fatty acids, low sodium, lysozyme, IgA, growth factors) which facilitate optimal function of the infant's immature systems

Furthermore, the young of various mammals are born at very different stages of maturity and it is not easy to modify the milk of one species so that it optimises the metabolism of the young of another species.

1.1.2 Health

Studies have shown that breastfeeding reduces the risk or severity of a number of disease states including:

- physiological reflux (8);
- pyloric stenosis (9);
- respiratory illness, particularly in households where both parents smoke (10);
- gastrointestinal tract disease (11);
- inflammatory bowel disease (12);
- some childhood cancers (13);
- delayed onset of coeliac disease (14, 15);

- otitis media (16, 17);
- urinary tract infections (18, 19);
- bacteraemia-meningitis (20, 21);
- Sudden Infant Death Syndrome (SIDS) (22, 23); and
- a lower incidence of necrotizing enterocolitis in premature infants (24) .

The development of insulin dependent diabetes mellitus (IDDM) is linked to the age at which cows' milk is introduced to the infant's food intake (25).

These benefits are attributed to the infant's immune system being relatively underdeveloped at birth. Breast milk contains factors which protect the infant from disease while her own immune system develops. Three months of full or even partial breastfeeding will give the infant these benefits (11):

Specific immune factors

IgA is the most abundant antibody in breastmilk. It is manufactured in and excreted by the breast in response to specific bacteria and viruses to which the mother is exposed. This provides protection against pathogens which the infant is most likely to encounter in her local environment (26).

Circulating IgG and IgM antibodies offer further protection against specific pathogens (27).

Non-specific protective factors

- Lactoferrin has a high binding affinity with iron, making it unavailable to micro organisms such as E-coli and *Candida albicans* which require iron for growth. Recently it has been observed that a peptide with bactericidal properties is released from lactoferrin and it is possible that this peptide is responsible for much of the antibacterial action attributed to lactoferrin (28);
- Lysozyme, which is bactericidal against certain gram negative rods and gram positive bacteria;
- Cellular components such as macrophages and monocytes, neutrophils and B- and T- lymphocytes, the functions of which are not yet entirely understood but include the inhibition and/or destruction of micro-organisms such as bacteria and viruses (27);
- Oligosaccharides form the third most abundant class of compounds in breastmilk (12–24 g/litre). Over 130 different oligosaccharides have been isolated from human milk (29) and most are resistant to digestion in the small intestine. They function to provide specific growth factors for the desirable bifido bacteria of the large intestine. They inhibit pathogenic bacteria attaching to the mucosal surfaces of the intestinal and urinary tracts and may provide important precursors for the development of the brain in early infancy;
- Fatty acids are released from milk fat by the hydrolytic action between milk and infant lipases. Some of these free fatty acids have antimicrobial actions (30); and

The concentration of most of these protective factors is highest in colostrum, decreasing as lactation is established. While breastfeeding is of particular value in the first four to six months, when the infant's own immune system is immature, it continues to offer some protection throughout the entire course of lactation (31).

Breastfeeding and allergy

The literature on breastfeeding and its role in preventing allergic disease is inconclusive. While some studies have indicated a protective effect of breastfeeding in the development of allergy, others have found no link. However, the balance of evidence suggests that, in atopic families, it can protect against allergic rhinitis, wheezing, asthma and eczema (2). The results of some studies are confounded by the failure to control for the introduction of cows' milk formula in hospital in the new-born period. The mother's own feeding history and intake of dietary allergens may also be significant (32).

1.1.3 Psychological

Breastfeeding advocates have for many years described breastfeeding as a factor in the bonding of mother and infant. The mutual interdependence between the breastfeeding mother and infant, the regular close interaction and skin-to-skin contact during breastfeeds encourages mutual responsiveness and attachment.

Recent studies have demonstrated that preterm infants given breastmilk for at least one month had enhanced cognitive development (~7IQ units) at seven to eight years of age compared with formula fed preterm infants (15, 33, 34, 35). This research has been extended to term infants with similar results in the enhancement of both cognitive and visual development. These responses may be related to the higher concentration of a particular polyunsaturated long chain fatty acid in breastmilk (ie, DHA, docosahexaenoic acid) (36).

1.2 Benefits to the mother

There are also benefits for women who breastfeed.

1.2.1 Health

Breastfeeding shows some protection against:

- premenopausal breast cancer (37, 38, 39);
- ovarian cancer (40, 41); and
- osteoporosis (42).

In addition breastfeeding hastens uterine involution after birth and helps the mother to regain her pre-pregnancy body weight (providing breastfeeding continues for more than seven months) (43).

1.2.2 Contraceptive effect

While breast feeding is not regarded as a reliable method of contraception for individual women in Australia, it provides useful benefits on a population wide basis. If all women in the world stopped breastfeeding, 30 to 50 per cent more children would be born in the following 12 months. The risk of pregnancy during periods of lactational amenorrhoea is as low as 1.7 per cent in the first six months (44), and even in developed countries that compares favourably with barrier methods of contraception, as long as the woman remains amenorrhoeic (45, 46, 47).

2. Initiating and establishing breastfeeding

Health professionals and voluntary health workers can provide invaluable assistance to new mothers when they start breastfeeding. Factual information, sympathetic support, demonstration of practical skills and strategies for problem solving can create a positive environment for breastfeeding. However, it is important to view this role as one of encouragement and support between the mother and the worker, always having regard for the mother's suggestions, concerns and cultural background.

2.1 Breastfeeding education for parents

All women should be informed about the benefits and the management of breastfeeding by health professionals. They should be encouraged to use the services available for antenatal education. The antenatal discussion should cover the importance of exclusive breastfeeding for the first four to six months, including the nutritional and protective benefits of breastfeeding. Education about basic breastfeeding management and coping with minor problems is also important.

In many cultures the support of the grandmother or other female relatives is most important. With changes in the nuclear and extended family structures in modern society, the role of the father has become more important. Education programs should involve fathers and encourage their understanding of the advantages of breastfeeding.

If a mother makes an informed choice to formula feed during the antenatal period, her decision should be documented so that it is respected during the postnatal period. A policy using standard informed consent procedures should be considered.

A range of useful, easy to read, literature on pregnancy and breastfeeding is available through antenatal programs, outpatient services, early childhood centres, community health centres and medical practitioners. Hospitals and other agencies should offer information about the Nursing Mothers Association of Australia (NMAA) and local support group contact points. The reading list on Page 85 includes books for reference and education.

In hospital during the postnatal period, midwives give support, help and advice as mothers begin breastfeeding.

A lactation consultant is generally available when there are difficulties and specialist advice is required.

Women whose babies are in special care for any reason should be encouraged and supported to initiate and maintain an adequate milk supply with both practical demonstration and written information.

Following discharge from hospital appropriate support, particularly from home support midwives and/or lactation consultants should still be available. Mothers are also encouraged to seek assistance from other resource people such as maternal and child health nurses and NMAA counsellors.

2.2 Antenatal advice

The initial antenatal interview between a woman and her doctor or midwife should include a careful assessment of her (and her partner's) attitudes, beliefs, expectations, knowledge and experience in relation to infant feeding.

During antenatal examinations the following breast characteristics should be noted:

- scars indicating previous surgery;
- extra large breasts which may sometimes cause initial difficulties with attaching the baby;
- nipple/areola eczema or dermatitis;
- minimal or absent development of the mammary tissue (very rare); and
- any other breast pathology.

It is not advisable to make a predictive judgement about breastfeeding at this time. Antenatal treatment of inverted or non-protractile nipples is not recommended. The practice has been found to be ineffective and associated with a negative impact on breastfeeding (48).

Various antenatal practices of nipple preparation, including some form of nipple friction, applications of cream and the antenatal expression of colostrum have been evaluated by a number of researchers. No evidence has been found to support these practices (49). Nor is there evidence to support the commonly-held belief that fair skinned women are more likely to experience nipple problems (50, 51).

2.3 Physiology of breastmilk and breastfeeding

2.3.1 Breastmilk composition

Milk is a very complex secretion consisting of thousands of different compounds (29). Furthermore, the composition of milk varies greatly between different species and mature human milk (breastmilk) tends to fall at one extreme (Table 2) with very low concentrations of protein and sodium chloride, and high concentrations of lactose and oligosaccharides (52). The very low concentration of casein in human milk results in skim milk (milk with the fat removed) having a very pale bluish appearance.

The whiteness of breastmilk is mainly due to its fat content and, therefore, hind milk which usually has a higher fat content than fore milk has a whiter appearance. It is incorrect to refer to breastmilk as thin or watery. It contains the same energy and total solids content as cows' milk. Precipitation of the casein curd from milk produces whey which contains soluble proteins, lactose and many water soluble minor components.

Table 2 Comparative composition of milk (g/litre) from selected species (3)

Species	Lactose	Protein	Fat
Human	70	8	41
Horse	62	19	13
Pig	55	56	83
Cow	48	32	37
Goat	41	29	38
Rabbit	22	103	151
Harp Seal	1	87	422

The increase in the fat content as milk is withdrawn from the breast is a highly conserved feature of mammalian lactation. Much emphasis has been given to the significance of this change in fat in relation to the infant's energy intake, but without a full appreciation of the physiology of milk synthesis, secretion and removal.

The only way a breastfed baby will obtain a higher energy intake over a 24 hour period is if the mother either produces more milk or produces the same volume of milk with a higher fat content. Since animal studies demonstrate that it is indeed very difficult to alter the average daily composition of milk, it is not surprising that research has shown that variations in the intervals between breastfeeds, and in the amount of milk withdrawn during a breastfeed, only explain a small proportion (20 per cent) of the variation in the fat content of breastmilk.

Recent studies have shown that the major determinant of the fat content of breastmilk is the fullness of the breast. The first milk withdrawn from a full breast has a low fat content and the fat content begins to rise more rapidly after the removal of about 40 per cent of the breast's storage capacity. So, depending on both the fullness and storage capacity of the mother's breasts, the fat content at the end of one breastfeed (hind milk) may be either lower or higher than that at the beginning (fore milk) of a subsequent breastfeed (53).

It is difficult to reconcile these observations with the notion that the daily energy intake of a baby will be increased if the mother encourages her baby to consume more hind milk. In the light of current knowledge it is possible that this advice may reduce local inhibition within the breast and so increase the daily milk production.

Colostrum, which is produced in the breast during late pregnancy and for the first 30 to 40 hours after birth, is yellow in colour and thicker than mature milk due to its high concentration of immunoglobulins.

2.3.2 Control of the initiation of lactation after birth.

Copious milk production is inhibited during late pregnancy by the high concentrations of blood progesterone. In the presence of permissive hormones (prolactin, cortisol, insulin), the withdrawal of progesterone following the delivery of the placenta triggers a rapid increase in milk production approximately 30 to 40 hours after birth (54).

The withdrawal of progesterone and the changes in milk composition following delivery by Caesarian section are similar to those following normal delivery (55). Where possible, the management of breastfeeding after a Caesarean birth should be similar to that for a normal birth. The initiation of lactation is delayed a further 24 hours in women who have insulin dependent diabetes mellitus (56), and inhibited completely if there is a retained placental fragment (57).

Milk 'coming in' occurs about 48 to 72 hours after birth (55), and is perceived by the mother as the start of lactation. However, milk 'coming in' does not mean a sudden increase in the infant's milk intake and the aetiology of associated engorgement is poorly understood.

2.3.3 Regulation of milk production

It has long been known that one of the most important factors in successful lactation is removing milk from the breasts. Recent research shows that the lactating mammary gland exercises a local feedback inhibitory control over milk synthesis, referred to as autocrine control (58).

A small protein (FIL) in the whey fraction of breast milk inhibits milk synthesis as milk is withdrawn. FIL slows milk secretion as the breast fills with milk. Its action results in the rate of milk production being regulated to match the amount of milk removed from each breast at each breastfeed.

It is important to realise that the anatomy of the breast varies greatly between women. Some women can store up to six times more milk in their breasts than other women (59). Thus women with large storage capacities have great flexibility in their frequency of breastfeeding, while women with smaller storage capacity need to feed more frequently to maintain similar levels of milk production. It is important for these women to spread their breastfeeds fairly evenly over the 24 hour day.

These findings highlight the importance of infant-led feeding, allowing her to regulate intake according to her needs. It also shows the value of letting the infant 'finish' the feed in her own time and not according to the clock.

Prolactin is secreted by the anterior pituitary gland in response to sucking and the consequent stimulation of the nerve endings in the nipple and areola. The release of prolactin is greatest in early lactation and declines to only a small response six months after birth. There does not appear to be any relationship between the release of prolactin and milk yield. It is thought that hormonal influences regulate the maximum potential for milk production in women, and that autocrine control down regulates milk synthesis to match the supply of milk by the mother to the infant's appetite.

In contrast to fat, the concentration of prolactin is high in fore milk but low in hind milk. However, the physiological significance of these changes is unknown.

2.3.4 Milk ejection (let-down)

Within seconds of a baby stimulating the sensory nerve endings around the nipple by sucking the breast, a pulse of oxytocin is released from the posterior pituitary gland. Oxytocin stimulates the contraction of myoepithelial cells surrounding the alveoli and milk is forced into the ducts and milk sinuses towards the nipple. This process is known as milk ejection or milk let-down. Multiple releases of oxytocin can occur during a breastfeed (or during breast expression). Milk ejection can be blocked by stress, but it rarely seems to be a problem in breastfeeding mothers. On the other hand, eliciting milk ejection, at times, can be a problem for mothers expressing breastmilk.

2.3.5 Individual variability

Mothers and babies vary considerably on a range of breastfeeding matters (60). There is considerable variability in the:

- storage capacity of the mother's breasts;
- volume of milk intake;
- rate of milk transfer flow;
- nature of mouth/breast positioning; and
- changes in milk composition during a feed.

Advice should be tailored to each mother and her infant's circumstances, rather than imposing arbitrary rules on timing and positioning (61).

The sucking process

The 'milking' of the breast by the baby's sucking action is dependent on:

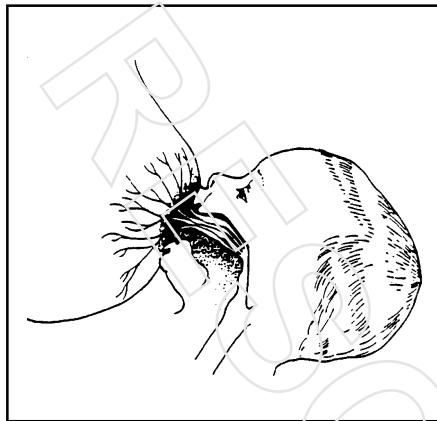
- the infant 'latching-on' to adequate breast tissue which contains the lactiferous sinuses or milk glands; and
- the infant's correct sucking or milking action with her tongue (see illustration 1).

Correct positioning at the breast, and correct 'latching on' and milking action are vital for the efficient removal of milk from the breast without nipple pain or trauma.

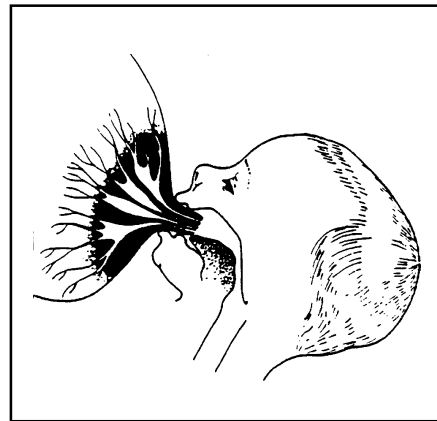
Illustration 1

GOOD AND POOR ATTACHMENT

Good attachment

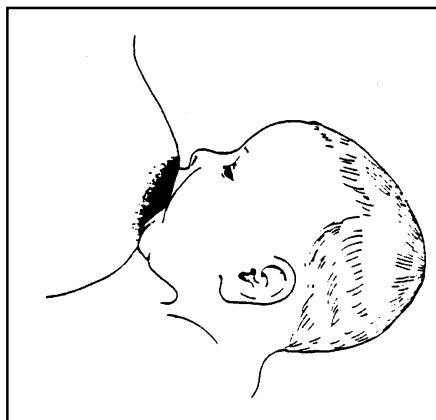


Poor attachment



ATTACHMENT – OUTSIDE APPEARANCE

Good attachment



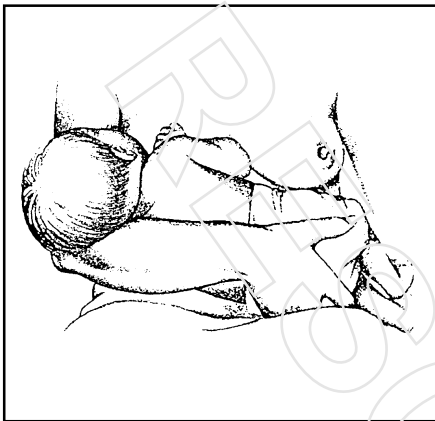
Poor attachment



Source: World Health Organisation 'Breastfeeding counselling a training course' 1993 UNICEF New York.

Illustration 2

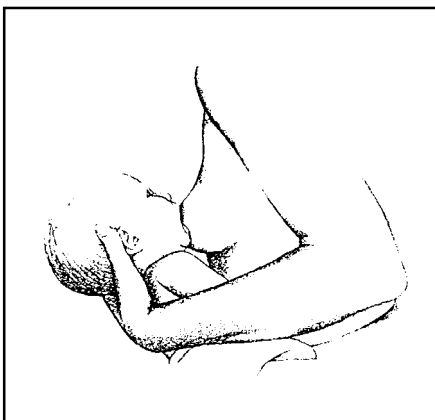
Cradle position



Transitional position



Underarm position



Side-lying position

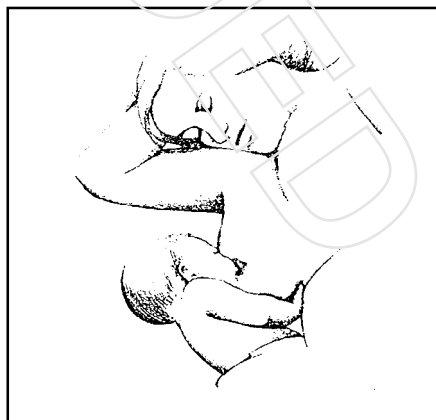


Illustration 3



Front V position



Parallel position



Double underarm position

Illustration 4



Diagram depicting the 'C' hold From Riordan J, Auerbach K. 'Breastfeeding and Human Lactation' Jones and Bartlett, Boston 1993.

2.4 Attaching and positioning at the breast – the key to successful breastfeeding

- The mother should be seated comfortably in an upright position so that her breasts fall naturally. She should have good back support as well as adequate support for her arms and feet (see illustration 2).
- The infant should be unwrapped to allow easy handling and avoid overheating. If the nipple is erect, support the outer area of the breast with a 'C' hold, being careful not to alter the breast position. If the nipple is flat or inverted move the 'C' hold under the breast and shape the breast between the thumb and index finger, well back from the areola (see illustration 3).
- The infant should be supported behind the shoulders and facing the mother with her body flexed around the mother's body. The feeding position must be a comfortable drinking position for the infant.
- The infant's top lip should be level with the mother's nipple and a wide gape encouraged by teasing the infant's mouth with the nipple.
- When the infant gapes widely bring her quickly onto the breast. So that she will take a good mouthful of breast it is always advisable to bring the infant to the breast, not the breast to the infant.
- The chin should be tucked well into the breast, and the infant's mouth will be wide open with the bottom lip curled back. More areola will be evident above the infant's top lip than below her bottom lip. When positioning is correct it is not necessary to hold the breast away from the infant's nose.
- After an initial short burst of sucking, the rhythm will be slow and even with deep jaw movements which should not cause the mother any discomfort. Pauses are a normal part of the feed and they become more frequent as the feed continues.
- If the cheeks are being sucked in or there is audible 'clicking', the infant is not latched on correctly.
- The infant should stop feeding of her own accord by coming off the breast spontaneously. The nipple will appear slightly elongated but there should be no evidence of trauma.

Women normally experience heightened nipple sensitivity and tenderness in the first few days after birth but that subsides as breastfeeding is established. If nipples are already sore or cracked, and even if positioning and attaching errors are corrected, the nipples may continue to be tender at the start and end of feeds for some time. The mother should be reassured that the discomfort will reduce as the nipple heals and feeding continues.

If the baby is correctly positioned and attached and is sucking correctly there should be no nipple pain.

2.5 Signs of a functioning let-down reflex

Some mothers report no noticeable sign of the 'let-down' reflex, however many other mothers do notice one or more of the following signs:

Mother

Sensations in the breast which are described as:

- tingling or prickling- 'pins and needles' (these may take several weeks to develop);
- sudden feeling of fullness;
- increase in skin temperature;
- feeling of well-being or relaxation;
- dripping, leaking or spurting from the unsucked breast;
- some women describe an intense thirst; and
- uterine contractions accompanied by a gush of lochia in the immediate postpartum period, more common in multiparas.

Infant

- Noticeable changes in the infant's sucking/swallowing pattern

This sign is more consistent than any of the others but it may take the mother several days of observation after 'the milk comes in' to recognise the changes.

Notes on sucking

Non-nutritive sucking

Occurs in short sharp bursts at the rate of up to two per second

Nutritive sucking

Occurs at a slower rate of about one per second. Once the milk has started to flow the sucking continues at a regular rate. As the feed progresses sucking becomes fragmented into bursts, usually separated by pauses of longer duration than are seen in the non-nutritive phase. At the start of each burst there may be two to three fast sucks typical of non-nutritive sucking-termed 'restart sucking'.

At all times the aim of the health professional should be to assist the mother to achieve independence in breast feeding and caring for her infant. Where mothers are managing well, and particularly those who have previously breastfed successfully, advice from midwives and others may be inappropriate unless it is asked for.

3.2 The sleepy infant

After the initial alert period following birth some infants become very sleepy for the next 24 hours or so. This may be due to the birth experience and/or maternal analgesia during labour.

If the infant has fed well, at least once, in the first day since birth there is no cause for concern. During the daytime if she does not 'ask' for a feed after about five hours, she can be roused and put to the breast. If she has not been to the breast at least once every effort should be made to encourage her to breastfeed.

3.3 Strategies for sleepy infants

- changing the nappy often wakes her;
- expressing a little colostrum and giving it by teaspoon, syringe or cup can give the infant the 'taste' and she will start seeking the breast;
- unwrapping her, talking to her and gently stroking the legs and abdomen may stimulate her to wake and start seeking the breast;
- sometimes getting the infant to suck on a finger will stimulate the sucking reflex—stroking the lip and cheek will stimulate the rooting reflex;
- the mother can cuddle her as often as she likes, and holding the infant against her breast may stimulate seeking; and
- if the infant does not take the breast in spite of all efforts, and is otherwise well, it is essential to express the colostrum and give it to her by teaspoon, syringe or cup.

Most infants soon recover from the initial sleepy period and begin to seek feeds frequently. This can be very tiring but the midwife can prepare the mother for this likelihood and reassure her about the benefits of early frequent feeding. This gives the infant colostrum, stimulates full milk production and reduces the chance of breast engorgement.

3.4 Persistent sleepiness

Occasionally sleepiness may persist beyond the first day. The infant may be one of the few who do not wake for feeds and so fail to thrive as well as expected. It is important that any medical causes are excluded before she is regarded as a 'sleepy' baby. This will be apparent after several days. If all other causes are excluded (particularly incorrect attaching and sucking at the breast) the mother will need to make sure she feeds the infant at least six times every 24 hours.

Usually these infants start feeding more frequently as they grow bigger and older. Before going home the mother should be alerted to the possible need to offer more frequent feeds for some time to come.

3.5 The unsettled infant

Most infants have unsettled periods which can be distressing for parents even though the causes (when they can be found) are usually minor. The midwife and mother may need to evaluate the feeding progress, and strategies to help settle the infant can be suggested. Health professionals and parents should be aware that the use of bottles and/or dummies is usually inappropriate at this early stage of breast feeding.

Unsettled periods may occur before the milk 'comes in'.

It is common for infants to want to feed frequently before the milk coming in, particularly in the second 24 hours. The mother may need reassuring that this is normal and that frequent feeds help stimulate the milk supply and reduce the likelihood of engorgement. Frequent feeds can present a problem for tired mothers during the night. Feeding while dozing or sleeping can help reduce sleep loss. Sometimes it is appropriate for the midwife to offer the mother time away from the infant, with the midwife caring for her between feeds while the mother sleeps or rests.

After the milk 'comes in' the following factors should be assessed:

- is the infant attached properly and getting the milk?
- is the mother leaving the infant on the breast until she comes off naturally?
- is the baby sucking properly?

A few infants take several days to establish a good sucking technique. Until that happens the breastmilk may need to be expressed and given to the baby after the breastfeed by spoon, cup or syringe.

- does the mother have unrealistic expectations about the feeding pattern of her infant?

Because of entrenched social attitudes about sleeping and eating schedules, many people think infants sleep three to four hours in regular patterns around the clock. The individuality of infants and variations in their appetites should be carefully explained to new mothers.

- is the infant needing attention other than for breastfeeding?

Infants need contact for comfort in addition to food. The mother and the health professional should jointly consider strategies and options for helping restless or crying infants (see 4.14 The crying infant).

3.6 Exclusive breastfeeding

Exclusive breastfeeding without the use of breastmilk substitutes or artificial sucking objects ensures the infant has the full nutritional and protective benefits of colostrum and breast milk.

Detrimental effects of bottle and dummy use

The early use of bottles and dummies, especially before the first breastfeed, can interfere with the natural processes of breastfeeding, reducing the infant's sucking capacity and stimulation of the breasts. The likely result is delayed or poor establishment of lactation (64).

Detrimental effects of giving breast milk substitutes

Offering complementary feeds, whether water, glucose or milk formula when there is no medical reason, has been shown to adversely effect the establishment and maintenance of successful breastfeeding (65, 66, 67).

Complementary feeds

If the infant is unable to take all the feeds directly at the breast, the complementary feeds should be expressed breastmilk (see 5.1).

Midwifery staff should seek the informed consent of the mother before complementing or supplementing infant feeding with fluids other than breast milk. Sample consent forms for complementary feeds are in Appendix 2.

If lactation is not fully established, the mother should be helped to understand the processes of lactation and breastfeeding techniques. She should be encouraged to call on support people or groups when in need. They can include home care, home midwifery services, early childhood nurses. And the NMAA offers counselling and mother-to-mother support 24 hours a day.

Breastfeeding of premature infants is occasionally complemented by formula feeding while in hospital. If these feeds are to be continued after discharge, the mother's competence in formula preparation and bottle feeding should be ensured and appropriate follow-up care organised.

In particular, the mother will benefit from information about how she can establish full breastfeeding by:

- gradually increasing her milk supply by expressing after feeds; or
- by increasing the number of breastfeeds per day; or
- by gradually reducing the amount of bottle complements (by putting slightly less in the bottle each time, by cutting down the complement one feed at a time daily or on alternate days, or more slowly if appropriate).

Even if the mother should need to continue to give complementary feeds indefinitely, it should not be suggested that the infant might be totally formula fed. The mother should be encouraged to continue breastfeeding before offering the complementary feed.

3.7 Rooming in

Rooming-in, 24 hours a day, is the usual practice in many hospitals. This means the infant is with the mother from birth.

Rooming-in:

- facilitates unrestricted breastfeeding;
- promotes mother-infant bonding;
- helps prevent cross infection; and
- allows the new mother and infant contact with the father and family members, and helps the mother learn about her infant's patterns of behaviour and feeding so she learns to manage and care for the infant more quickly.

After delivery the infant should remain with her mother so they are transferred to the postnatal ward together. The infant's cot remains beside the mother's bed.

Contrary to popular opinion, mothers who have their infants with them at night do not lose sleep when compared with mothers whose infants are in a nursery (68).

The occasional use of the nursery or staff care during the day or night is an option for the mother. If the mother chooses to place her infant with staff at night, the infant should be taken to her for breast feeds, or the mother should be encouraged and assisted to express her breastmilk.

After delivery by Caesarean section the infant may be placed in the nursery. When the mother returns to the postnatal ward, the infant should be in her room. Initially, rooming-in after Caesarean Section requires extra support from the midwife.

3.8 Monitoring the infant's progress

To ensure the infant is well and to allay any concerns of the mother, it is important both mother and health professional have means for assessing her progress. Observations of the infant and her behaviour, and documenting her feeding and output, all contribute to this assessment.

A healthy infant is alert and responsive when awake and has bright eyes and firm skin with good elasticity. The adequacy of breastfeeding (with no breastmilk substitutes) can be assessed by the following signs:

Infant's behaviour

The infant is generally content after feeds, although most have one unsettled period each day when they want to feed frequently and will not settle (see 4.14 The Crying Infant). This is often in the evening and should not be interpreted as 'running out of milk at the end of the day'. Milk production is continuous over a 24 hour period, although the rate of production varies depending on the fullness of the breast (69).

Feeding patterns

Young infants usually breastfeed eight to 10 times during a 24 hour period. Some mothers expect their infant to feed four hourly. They need reassurance that four hourly feeding is not a common pattern of feeding. The length of each feed is very variable and during the early neonatal period ~ feeds may take about an hour. However, if an infant is spending long periods on the first breast there is a good chance there is a feeding problem and perhaps she is not attached properly and cannot milk the lactiferous sinuses effectively. The positioning and attachment of the infant needs careful monitoring in the early days.

Urine output

Until the milk 'comes in' the infant will not pass urine frequently. As long as she voids one or more times every 24 hours there is no cause for concern. As the milk volume increases her urine output will also increase and a cloth nappy will be soaked with pale or colourless urine six or more times every 24 hours. Disposable nappies tend to mask wetness and may need close inspection to detect if the infant has urinated. If the urine becomes scanty and strongly yellow in colour, suggesting the development of dehydration, feeding frequency and milk transfer should be evaluated.

Bowel actions

The first bowel actions are meconium which are greenish-black in colour. After 24 to 48 hours the meconium changes; first to brownish 'transitional' stools and then by the third or fourth day to typical breastfed infant's stools-loose mustard yellow, sometimes with milk curds. It can occasionally be green or orange. None of these changes are significant in a healthy breastfed infant. Frequent, runny stools do not mean a breastfed infant has diarrhoea or lactose intolerance. They should be viewed positively as evidence of sufficient milk.

Infants who are having formula for most of their feeds tend to pass fewer motions than a breastfed infant – once a day or every second day, often khaki coloured with a plasticine type consistency. Mothers need to be aware of the potential change in their infant's motions when they are weaning.

Exclusively breastfed infants are rarely constipated. Constipation refers to the hard, dry consistency of the stools, not how often the infant passes bowel motions. It has been observed that this type of bowel motion is more likely to occur after formula or solids have been introduced.

Many breastfed infants may show signs of discomfort or distress before passing a motion. These are normal responses of infants to body sensations they are not used to, and do not indicate pain or constipation.

The number of bowel motions of breastfed infants tends to decrease between six weeks and three months of age. Intervals of several days or more between stools are common. If the infant is receiving breastmilk only and no other food or fluid, there is no cause for concern.

Infant's weight

The new-born infant adapts to the small amounts of colostrum available. With the passage of meconium and loss of water by evaporation, an initial weight loss of up to 10 per cent of the birth weight is normal. Between four and six days old the infant starts to regain weight. If she appears contented and healthy there should be no immediate cause for concern about minor fluctuations in weight which can result from factors as simple as passing a stool, urinating or a recent feed.

Static weight or suspected weight loss over several days should be carefully examined. Further investigation to exclude disease should include evaluating feeding frequency and milk transfer.

Percentile charts

Percentile charts are used to assess growth. They are derived from measuring hundreds of children (breastfed and bottle fed) at different ages. Fifty per cent of children will fall between the 25th and 75th percentile. However, three per cent of normal children will be above the 97th percentile and three per cent below the 3rd percentile. Most percentile charts are cross sectional, that is, they are derived from the measurement of different children at different ages (70).

Weights of individual infants often cross percentiles in the first few months after birth. Birth weight is influenced more by nutritional conditions in utero and maternal health (eg, mothers who smoke or have pregnancy induced hypertension have smaller babies) than by genetic considerations.

One study (71) which followed 66 full term babies showed that only 12 per cent stayed on the same weight percentile they were born with, while 60 per cent showed upward crossing and 28 per cent showed downward crossing.

The weight percentiles of breastfed infants differ from those who are bottle fed. In general, breastfed infants tend to grow rapidly in the first two to three months, but then grow at a slower rate than the current percentile charts. Because of the slower growth velocity of breastfed infants they may appear to be faltering after two to three months when they are plotted on current growth charts even when they are healthy and thriving (72). Health professionals may mistakenly believe that the mother's milk production is inadequate and suggest starting complementary formula.

The WHO is currently investigating whether new growth charts based on exclusively breastfed infants would be of value in monitoring this group (73).

The extent to which serial data for an infant can deviate from a given percentile range before concern is warranted depends on the age of the infant, the infant's position in the percentile range, and the length of time for which the rate of growth deviates from the norm.

In general, the more pronounced the change in growth rate, the younger the infant and the more extreme the percentile, the greater the cause for concern. Some slowing in the infant's rate of growth is expected after three months of age. Many normal infants will cross percentiles to attain their genetic potential, so percentile charts should be used as guides only.

4. Common problems which arise when breastfeeding, and their management

Much of the advice contained in this section is based on 'Promoting Breastfeeding', the Victorian Breastfeeding Guidelines produced by the Victorian Department of Health and Community Services. It has been modified to give guidance to health workers who have contact with infants and families after discharge from hospital.

4.1 Hygiene

Good basic hygiene is important in caring for infants. The mother should be advised to practise careful hand washing with soap and water, after changing a nappy and before handling her breasts.

4.2 Nipple pain and trauma

While nipple sensitivity in the early days after birth is to be expected, nipple pain is not normal and it indicates that something may be wrong (74). Nipple pain is the second most common reason stated for abandoning breastfeeding (75, 76).

Causes of nipple pain:

- incorrect positioning and attachment;
- engorgement;
- infant causes
 - incorrect sucking action;
 - mouth or palatal abnormalities;
- nipple causes
 - nipple variations, eg, flatness or inversion;
- thrush; and
- eczema or dermatitis.

Prevention

Incorrect attachment and positioning is the most common cause of nipple pain and trauma. This may lead to the vicious cycle of engorgement and more difficulty in attachment, leading to further nipple trauma, and ultimately may even cause premature weaning.

Nipple care

- avoid the use of shampoos or soaps;
- air dry after a feed;
- applying hindmilk or colostrum to the nipples after a feed may be useful;
- if nursing pads are used, replace damp pads frequently; and
- avoid applying ointments, sprays, tinctures and powders – neither the efficacy nor the safety of these agents has been proven

Management

- correct positioning and attachment;
- treat any underlying cause;
- continue breastfeeding unless:
 - the mother cannot tolerate the pain;
 - in spite of every effort, the trauma worsens;
- except in rare circumstances, where the infant has been removed from the breast she should be fed on expressed breast milk and returned to the breast as soon as possible—skilled and experienced support is usually required.

4.3 Nipple variations

Most women's nipples are perfectly adequate for breastfeeding, in spite of variations in shape and size. However, for a small number of women, nipple variations such as non-protractile or inverted nipples can present some difficulties when initiating breastfeeding. Previous breast or nipple surgery may cause some difficulties, but each case should be individually assessed.

If some degree of flatness or retraction is present the following will assist:

- beginning breastfeeding early is the ideal, preferably within the first hour, when the infant is alert and eager to suckle; teaching correct attachment and encouraging correct suckling action at this time may reduce the likelihood of subsequent problems;
- expressing until the infant successfully attaches; if she cannot latch on to the breast, the colostrum needs to be expressed and given to her; expression should be frequent and thorough to keep the breasts well drained and to stimulate the milk supply; and

- avoiding nipple confusion – the sucking action used by an infant on the breast appears to be different from that used on teats and dummies (77); the theory of 'nipple confusion' refers to an infant who has difficulties breastfeeding because she has first learnt to 'bottle suck' on teats or dummies in the early postnatal period (78,79); it has been suggested that bottle teats and dummies should be avoided in the early postnatal period and if an alternative to breastfeeding is required, consideration should be given to feeding the infant expressed breastmilk with a cup and spoon (80) or gavage.

4.4 The use of nipple shields

Using nipple shields may be associated with a decreasing milk supply (77, 81, 82, 83). Their use should be limited to problems after all other avenues of treatment have failed.

If a nipple shield is needed, the woman should be referred to a qualified person, such as a lactation consultant, midwife, maternal and child health nurse or NMAA counsellor.

4.5 Other nipple problems

Candida (thrush)

A lactating woman suffering from candida infection of the nipples and breast may have any or all of the following symptoms: breast pain, nipple pain, rash (84, 85, 86).

Breast pain: this pain is often described as 'shooting, burning' pain like 'red-hot needles' which radiates from the nipple posteriorly into the breast. The pain may occur during and between breastfeeds.

Nipple pain: the nipples may be painful during and between breastfeeds.

Rash: the nipples may look normal or perhaps just a brighter pink than usual. Alternatively they may be covered with an erythematous rash and may be itchy.

In association with these maternal symptoms the infant may have oral and perianal thrush.

Treatment:

Miconazole or Nystatin are suitable antifungal agents for topical application to the nipples while simultaneously the infant is treated with an oral preparation. Treatment should continue until mother and infant have been symptom free for several days.

Dummies if used, should be boiled several times throughout the day and replaced after one week.

4.6 Eczema and dermatitis

Eczema and dermatitis are conditions which can affect the nipples and breasts of breastfeeding women. There are three main types:

- atopic eczema, where the nipples are affected by more widespread skin disease;
- irritant contact dermatitis occurring in response to an agent being applied to the nipples; and
- allergic contact dermatitis which is a delayed hypersensitivity reaction to an allergen in contact with the nipple, for example in nipple cream or even food in the baby's mouth (87).

Management

- avoid the use of soap and nipple creams;
- if the nipple cream being used for the management of thrush and hypersensitivity is suspected, change to another antifungal agent may be possible;
- breastfeed before offering solids to the infant and/or rinse her mouth with water to avoid food allergens in the mouth; and
- topical corticosteroids are used only as a last resort to reduce the infant's exposure to them; when topical corticosteroids are necessary, use the minimum effective strength of preparation for the shortest period of time, and apply sparingly to the nipples after a feed.

4.7 Too much milk

When the infant is not removing the milk effectively, there might be a perceived 'over supply' of milk (see 4.9 Engorgement).

Some women find they initially have so much milk that it causes temporary difficulties. This is more common in the early days of breastfeeding because the breasts have the potential to feed more than one infant. As the infant continues to feed, autocrine or local control of milk production helps to balance the amount of milk produced with the amount she is taking.

Strategies include:

- reassurance that it is usually a temporary problem, and will resolve with time;
- temporary feeding on one breast only, each feed – the infant is put back on the first breast instead of being offered the second breast;
- symptomatic relief – ice packs, analgesia (paracetamol), breast support; and
- expression of milk at the beginning or end of feeds will also help to ease discomfort – expression may prolong excess production for a short while, but it may be a more comfortable approach while the milk supply is settling down, and expressed milk can be saved and stored for future use (see 5 – Expressing and storing breastmilk).

NB: There is no evidence that posture feeding assists, and so it is not recommended.

4.8 Too little milk

It is important to distinguish between genuine low milk supply and perceived low milk supply.

Underlying endocrine and/or metabolic defects

While most problems of under supply can be resolved by improving the management of breastfeeding, a very small proportion of women do not have the metabolic capacity to produce enough breastmilk for their infants. However, there has not been adequate investigation into the underlying causes of these problems. Perceived low milk supply is a cause of much anguish to mothers and the most common cause for stopping breastfeeding early (88).

An infant is getting sufficient milk if:

- she is fully breastfed (no other fluids or solids) and having six to eight very wet nappies of pale, inoffensive smelling urine in a 24 hour period;
- as a young infant she has some greenish/gold bowel motions daily changing to less frequent, soft, pasty or curdy yellow bowel motions as she becomes older;
- she is alert with bright eyes, moist lips, good skin tone;
- she is reasonably content for some time between some feeds;
- she has appropriate weight gain when averaged out over a four week period, bearing in mind that infants lose five to 10 per cent of their birth weight, so using an appropriate growth chart is recommended – after two weeks they should return to their birth weight and should then follow a pattern of weight gain which averages out over a four week period of:
 - birth to three months – 150 g/week
 - three to six months – 100 g/week
 - six to 12 months – 70 g/week
- the infant is fed according to need rather than schedule, although some sleepy infants may need reminding.

Some common reasons why women (and those around them) believe there is insufficient milk include:

- the infant keeps turning her head and opening her mouth as if wanting to suck – this is the rooting reflex, present from birth to three to four months of age; infants do this when they are awake and alert and something touches their cheeks, whether or not they are hungry;
- no sensation of a 'letdown', or the 'letdown' sensation fades or disappears as the infant grows older;
- an unsettled infant – the reasons why infants cry a lot and have trouble sleeping are complex and varied (see 4.14) – when an unsettled infant is taking the breast well, gaining weight and developing normally, the unsettled behaviour is unlikely to have anything to do with breastfeeding;

- the translucent appearance of breastmilk is interpreted as making it look weaker than formula or cows' milk;
- the mother may be unable to express much milk, but the ability to express is not a reflection of how much milk the infant takes;
- the infant starts to suck her fists all the time; between eight and 12 weeks her hands are almost never out of her mouth – this is a normal part of her sensory/motor development and not a sign of hunger;
- between six and 12 weeks after the birth the breasts stop leaking and become softer and smaller – such breast changes are normal and not a sign of insufficient milk;
- the infant's bowel motions decrease at about six to 12 weeks of age;
- the feeds become shorter; and
- well meaning advice to the mother from an assortment of sources which suggests that her milk supply is not 'satisfying the baby'; this type of comment initiates doubts in the mother's mind about the quantity and quality of her milk supply, and similar suggestions that 'the baby would be more content and sleep for longer periods if the milk was satisfying', and 'you'll have greater peace of mind if you can see how much the baby is getting', contribute to the mother's misperception of her milk supply.

Genuine insufficient breastmilk has a number of possible causes:

- inadequate positioning or attachment;
- the infant is not feeding frequently enough or is not given enough time to feed, and the milk is not being removed from the breast – after several days the milk supply will start to diminish;
- using dummies, which reduce sucking time at the breast, may eventually lead to a reduction in milk supply (89); and
- reduction mammoplasty (breast reduction) and other breast surgery, while not precluding breastfeeding, may hinder full lactation – some areas of the glandular tissue which are no longer connected to the nipple ducts will become hard when the milk comes in, but this is temporary because these sections of the breast will gradually cease to make milk, due to the effect of local autocrine control.

Strategies

Low breast milk supply is usually a temporary difficulty and only occasionally becomes an ongoing problem which requires supplementation of the breast milk supply.

Increasing the milk supply:

- check positioning and attachment;
- feed more frequently;
 - offer the breast between the usual feeds
 - offer the breast as a comforter instead of a dummy
 - wake the infant and offer an extra feed before the mother goes to bed

- encourage the mother to allow her baby to finish the first breast before offering the second breast;
- always offer the second breast after finishing the first;
- express between feeds;
- encourage good maternal nutrition and rest;
 - recommend a healthy well balanced diet
 - discourage excessive exercise and weight loss diets
 - ensure adequate fluid intake by drinking when thirsty
 - encourage rest and relaxation
- Metoclopramide induces the release of prolactin and has been shown to increase milk supply (90,91,92); and
- if the infant requires supplementation this can best be achieved by using a supply line or supplementary nursing system available from NMAA; a supply line consists of a plastic container of expressed breast milk or formula hung around the mother's neck with a fine tube leading from it which is taped to the mother's nipple; as the infant sucks on the breast she gets both breast milk from the breast and expressed milk or formula from the supply line.

The supply line avoids the possibility of 'nipple confusion' which can result if a bottle and teat is used, and encourages milk production by ongoing stimulation of the breast.(93). Mothers discharged from hospital using a supply line need specific follow - up and referral to an appropriate health professional.

4.9 Engorgement

This is primarily a problem in the early days of lactation.

If breastmilk is not removed effectively, engorgement will result. Over-distension of the alveoli with milk can also restrict blood flow, leading to further distension and discomfort. Early engorgement can be reduced by appropriate positioning and attachment and unrestricted access to the breast (94).

Management

- unrestricted sucking is the best response to engorgement; dummies and complementary feeds should not be used;
- correct positioning and attachment is vital, and expressing a small amount of milk first may provide relief and assist with attachment;
- relief of the discomfort associated with engorgement can be found in simple analgesia (eg paracetamol), cold packs between feeds and support of the breast, although the bra should not be too tight; some women find it more comfortable not to wear a bra while others prefer light support – such as with a T-shirt tied under the breasts, or a crop top;

- feeding twice on the first breast can be tried as a temporary strategy;
- removing the bra during feeding and allowing the milk from the second breast to flow freely into a towel or cloth during the breastfeed;
- if engorgement persists for more than a day or two, especially in the early days of lactation, the cycle can be broken by completely draining both breasts with an electric pump after a feed, but this is a 'one off' strategy which brings relief and makes it easier for the baby to attach to the breast at the next feed; and
- currently there is no statistically significant scientific evidence to support the use of cabbage leaves to manage engorgement (95), nor is there evidence to support the use of ultrasound for engorgement—although it does supply a degree of comfort by providing warmth (96).

4.10 Inflammatory conditions of the breast

4.10.1 Blocked ducts (non-infective mastitis)

Non-infective mastitis can result from a blocked milk duct. Usually one segment of a breast becomes tender, reddish and hardened. The inflammation occurs because milk in the blocked duct cannot be removed and banks up, causing localised distension and tenderness. If the blockage is not cleared rapidly, milk is forced into the surrounding breast tissue. Initially, a blocked milk duct will not be accompanied by systemic symptoms such as fever and aches and pains, but as the breast becomes more inflamed, 'flu-like' symptoms will probably develop.

Predisposing causes

- poor drainage of the breast due to poor positioning and attachment or incorrect sucking;
- sudden engorgement due to a missed feed, perhaps because the infant has changed her feeding pattern, for example by sleeping through the night – it may also be due to the mother being absent for a feed and not being able to express while away;
- a tight or ill-fitting bra or other clothing may put pressure on one particular segment of the breast, inhibiting drainage;
- consistently lying on one side, or in one position, during sleep, may cause pressure on the breast; and
- pressure on one spot if the mother holds the breast too tightly, particularly close to the nipple, during feeding.

Treatment

- check positioning and attachment;
- vary the feeding positions of the infant;
- frequent feeding, starting with the affected side and pointing the infant's chin towards the blocked duct helps drain the breast and remove the blockage;

- a warm cloth can be applied before and during a feed to assist the let-down;
- the affected area can be gently massaged towards the nipple while feeding or expressing;
- cold packs can be applied for comfort after a feed;
- Paracetamol can be taken as needed (simple analgesia four-hourly); and
- blockage of ducts may frequently recur and mothers need to be advised of this possibility and informed about measures for prevention

When treated promptly, the blocked duct should be cleared in 24 to 48 hours. If the pooling of the milk continues, the inflammation will worsen and provide an ideal environment for bacterial growth, leading to infective mastitis.

4.10.2 Infective mastitis

Infective mastitis generally results from either an immense overgrowth of pathogenic bacteria or conditions that give bacteria access to breast tissue while at the same time preventing the body from destroying the bacteria. Mastitis can have a rapid onset.

Predisposing factors

- nipple trauma;
- poor physical health;
- a blocked milk duct;
- a sudden change in feeding pattern such as abrupt weaning; and
- the use of nipple creams.

The most common form of mastitis is cellulitis due to infection with *Staphylococcus aureus* (97), or less commonly a *Streptococcus*.

Signs and symptoms

The appearance of an infected breast differs from that of a blocked duct only in degree. The breast will usually be red, swollen, hot and painful. The skin may appear tight and shiny and be streaked with red. The woman will feel very unwell with general myalgia (muscle pain) and a fever.

Prevention

- ensure correct positioning of the infant on the breast to avoid nipple trauma and poor breast drainage;
- avoid sudden long periods between feeds;
- handle breasts gently to avoid bruising;
- treat blocked milk ducts promptly;
- wear loose, comfortable clothing;
- avoid localised obstruction of the breast, such as a tight bra;

- avoid nipple creams and ointments; and
- avoid prolonged use of nipple pads, especially plastic-backed pads.

Treatment

- early detection is very important and health workers need to be aware of the initial signs -- a medical practitioner should be consulted without delay;
- most importantly breastfeeding should continue; ***this is not the time to wean*** because abrupt weaning at this time may increase the risk of developing a breast abscess (97) – the breast should be kept as well drained as possible;
- feed frequently;
- express after feeds;
- feed from the affected breast first (but not all the time as the other breast may become engorged); and
- varying the feeding position may assist in draining the affected area – for example, if the outer area is affected the underarm position may assist drainage of that area.

If, after trying these measures, the symptoms persist then antibiotics should be started early and continue for ten days; suitable antibiotics include Cephalexin, Erythromycin and Flucloxacillin.

On completion of the course of antibiotics the woman may need to be reassessed by her GP to ensure that the mastitis has resolved completely (98).

If severe cellulitis has developed, hospitalisation and intravenous antibiotics may be required. Adequate analgesia should be provided, and bed rest and an adequate fluid intake encouraged.

4.10.3 Breast abscess

A breast abscess is a serious and painful condition which is usually the result of untreated or inadequately treated mastitis and requires urgent medical attention.

The abscess may be managed with needle aspiration (99) or surgical incision but, unless the position of the incision makes it impossible, breastfeeding should continue.

4.11 Blood in the breastmilk

Blood in the breastmilk occurs uncommonly in late pregnancy or in the first few days after delivery. Its cause is unclear although it is thought to be due to duct hyperplasia. When excess duct cells are dislodged, during feeding or expressing, bleeding may result. As only a small amount of blood is involved, it will not upset the baby and breastfeeding can continue as normal.

However, if bleeding persists beyond a few days, medical referral is required to exclude the presence of a duct papilloma or other breast pathology. If a baby vomits milk containing blood the most common cause is bleeding from traumatised nipples.

4.12 Postnatal depression and mood disorders.

The 'Blues' is a mild transient disorder occurring in the first week after delivery with a peak on the third to fifth day. It affects up to 70 per cent of all mothers (100). Symptoms include mood swings from tearfulness to elation with irritability or increased sensitivity. Empathy, support and encouragement are all the treatment that is necessary.

Postpartum Psychosis is a severe psychiatric illness which begins acutely within the first three weeks of delivery. It affects two women per 1000 deliveries and is characterised by confusion and indecisiveness. The mother may have hallucinations or delusions with a mixture of affective (manic, depressive or manic-depressive) or schizophrenic symptoms. Hospitalisation, ideally in a specialised mother-baby unit, and appropriate medication is necessary (101). Antipsychotics are often needed in the first few days of treatment. Breastfeeding will need to be stopped temporarily if antipsychotics are used. Health professionals can help mothers to maintain their supply by helping them express by hand or with a breast pump, discarding the milk.

Tricyclic antidepressants eg dothiepin, amitriptyline are considered safe for the breastfeeding infant (102).

Lithium is not considered safe for the infant and it is recommended that breastfeeding is discontinued if this drug is prescribed (102).

The risk of recurrence of postpartum psychosis with subsequent deliveries is high and the use of lithium prophylaxis has proved beneficial (103).

Postnatal depression (PND) is an episode of major depression which arises within the first three to six months after the birth (104). It is important to distinguish between PND and the common mood changes experienced by many postnatal women brought on by sleep deprivation and the struggle to come to terms with their new role. The common mood changes are probably better termed an 'adjustment disorder with depressed (or anxious) mood'. These women need counselling, encouragement and support from their families and health professionals.

Depression as an illness is distinguished from an adjustment disorder by a persistence of the depressed mood and the presence of other symptoms, especially the disturbance of sleep and appetite and the loss of self-esteem, lethargy and poor concentration. Anxiety and irritability are also common. Australian studies have shown prevalence rates from nine per cent at six weeks after birth (105), 14 per cent at four months (106), and 15.4 per cent at eight months (107).

It is generally accepted that the aetiology of PND is multifactorial, and includes psychological factors, hormonal changes and social variables. Recent Australian studies (108, 109) show that PND was associated with lack of support (being single, divorced or separated), not breastfeeding, having a caesarean or forceps delivery, feeling dissatisfied with various aspects of maternity care, and being a non-English speaking immigrant.

In some States and Territories in Australia the Edinburgh Postnatal Depression Scale (Appendix 4) has been used to screen women as part of their postnatal care. The questionnaire has been validated for use in Australia (110).

If symptoms are marked, especially loss of appetite, insomnia, constantly lowered mood and feelings of worthlessness, medication and sometimes hospitalisation may be required. Antidepressant medication is not always necessary, but where it is appropriate women find that it quickly reduces their anxiety and helps with sleeping problems. The full antidepressant effect takes two to three weeks after the full dosage is reached. A tricyclic antidepressant that is not too sedating (eg, dothiepin (Prothiaden™) should be chosen.

Breastfeeding can continue while the mother is on a tricyclic antidepressant. Enabling her to continue breastfeeding may help the depressed postnatal woman feel more positive about her mothering ability.

The new selective serotonin reuptake inhibitors (fluoxetine, sertraline, paroxetine) can be used if the mother is bottle feeding. Medication is usually continued for four to six months then reduced slowly. Counselling/psychotherapy from a skilled health professional is essential for both the woman and her partner. Referral to a support group can also be valuable.

4.13 Breast refusal

The causes of breast refusal are numerous, varying with the infant's age, and often a cause cannot be found.

The infant-related causes include an unwell baby, commonly from:

- gastro-oesophageal reflux with oesophagitis;
- infectious illness eg respiratory illness causing a blocked nose and /or sore ears;
- thrush; and
- distractions (10 weeks onwards) – some babies are easily distracted and need a quiet environment to feed.

The mother-related causes can be:

- a change in perfume or talcum powder;
- mastitis, which leads to salty tasting milk the infant may refuse;
- unwell mother;
- illness may decrease supply or inhibit let down;

- medication may alter the taste of milk;
- hormonal changes, which may affect both the taste and supply of the milk;
- ovulation – three or four days before ovulation there appears to be a relationship between hormonal changes and changes in milk composition;
- menstruation; and
- pregnancy.

Milk supply causes include:

- low supply;
- slow 'let down'; and
- fast flow.

Appropriate management will mean

- reassurance, encouraging mothers to relax and not to perceive breast refusal as a personal rejection; they need to be re-assured that this is usually a temporary situation, and support from their health professional or NMAA counsellor is extremely important;
- stopping the feed when the infant cries and refuses the breast;
- feeding the infant when she is drowsy, either just as she is waking up or just going to sleep;
- encouraging the infant to suck on a finger and then slipping the nipple in;
- calming the infant by singing, rocking or massaging her before feeding;
- trying alternate feeding positions;
- expressing milk into the infant's mouth; and
- if she will not feed then express the milk and feed her with a cup or bottle.

4.14 The crying infant

Our society encourages the perception that if an infant is loved, cared for and fed she will not cry. So parents are bewildered when in spite of all the care in the world their infant continues to cry. It is for this reason that, in the first three months, they frequently come to health professionals seeking advice. Crying is an essential part of human development; it is a complex subject and there are many different approaches and ideas surrounding the managing of a crying infant.

It is easy to respond to crying caused by hunger, heat, cold, noise or a clearly defined medical problem. Less easy, but usually manageable, are reasons such as over-tiredness or over-stimulation. Crying that goes on after all these needs are met is the crying that can cause deep distress and frustration for the infant and the parents, especially the parents.

The age and times of day infants cry tends to fall into identifiable patterns.

From birth to three weeks of age many infants sleep a lot. The crying periods do not last long and are easy to resolve.

From three weeks to three months the scene changes dramatically with infants being more wakeful and active.

The crying, unsettled behaviour can be loosely classified into three groups:

- explained crying is 'expected crying' with an obvious cause and the infant can usually be calmed and settled by simple measures such as feeding, rocking or patting, and sometimes a bath or a walk is enough; occasionally the crying is caused by a clearly defined medical problem such as a urinary tract infection which can be treated;
- unexplained crying for short periods is 'unexpected' crying for a reason which is hard to find. Unexplained crying for short periods every 24 hours is normal for about 80 per cent of all healthy babies (111). Parents find their baby cries for one to four hours every 24 hours in spite of prompt attention to her needs. The crying is usually in the evening, rarely in the morning before lunch, but may occur at any time during the 24 hour period; and
- unexplained crying for long periods. It is estimated by researchers in the field that about 10 to 35 per cent of healthy babies seem to cry for long periods of the day and night (112). This sort of crying in healthy, well-cared for babies is difficult to resolve as no-one really knows what the cause is, the baby can't tell us and there is no single solution which suits every baby.

What can be done?

- rule out hunger with care. Breastfed babies often have times when they feed frequently and that does not necessarily indicate a low milk supply. Unexplained crying in healthy babies is usually not due to breastfeeding problems. Weighing the baby remains the most reliable way of checking the likelihood of hunger, by assessing continuing growth. This is subject to a one-off weight measurement. Once hunger has been ruled out, the baby's crying and sleeping patterns should be seen as separate issues to breastfeeding;
- exclude medical causes;
- parent counselling emphasising safe options rather than solutions. Advice needs to be tailored to individual mothers and babies; and
- mothers may find that a return to their antenatal relaxation techniques may help.

The following suggestions and strategies all work some of the time and parents should be encouraged to be flexible and try whatever they think is reasonable at the time. They should be reassured that they will not 'spoil' their baby by picking her up all the time, nor will they 'damage' her by allowing her to cry for short periods.

- rocking and patting;
- wrapping the baby firmly in a flexed position;
- carrying the baby in a sling;

- taking her for a walk, or some other gentle rhythmic activity;
- playing music, rhythmic sounds; and
- give the mother permission to let the baby cry for short periods when there is nothing else she can do—well fed tired babies sometimes sleep after crying for 20 to 30 minutes.

In general there are no easy answers and research suggests that parent counselling, support and practical help are more effective remedies than medical diagnoses and medications (113, 114, 115).

4.15 Lactose intolerance in breastfed babies

The incidence of lactose intolerance is very low in breastfed infants. Lactose intolerance is rarely severe enough to warrant a breastfed infant being weaned onto a low lactose formula.

Irrespective of ethnic background, lactase deficiency is rare before the age of three years, unless there is some injury to the small intestine eg gastroenteritis, inflammatory bowel disease, coeliac disease (116).

However, in the case of aboriginal infants, studies of diarrhoeal disease and malnutrition in Western NSW and Alice Springs have found that lactose intolerance developed in the first six weeks after the infant was weaned (117, 118).

Causes of lactose intolerance may be divided into the following groups:

- congenital alactasia or hypolactasia (rare);
- primary acquired lactase non-persistence; this is an age-related condition and usually occurs after weaning – its incidence varies between cultures, but is considered to be common in the Australian community; and
- secondary acquired lactase non-persistence occurs as a result of damage to the small intestine (eg gastroenteritis, protein energy malnutrition, inflammatory bowel disease, coeliac disease and cows' milk protein intolerance).

Breastfed babies presenting with true lactose intolerance may very rarely have congenital alactasia or, more commonly, may have secondary lactose intolerance following small bowel injury, most commonly due to gastroenteritis.

Babies with true lactose intolerance do not gain weight and are often dehydrated and sick.

Incomplete absorption of lactose in normal infants in response to usual feeding patterns (functional lactase insufficiency) has been shown to be common in the first week of life (119, 120, 121). Persistence of this phenomenon up to five months of age has been supported by one study (122). A more recent study performed in Adelaide (123) showed that the frequency of positive breath hydrogen tests in normal infants was 66 per cent at six weeks and 60 per cent at three months. The results were similar

after human milk and lactose containing formula (66 per cent versus 72 per cent at six weeks, 61 per cent versus 78 per cent at three months). Researchers in Sydney (124) found that breath hydrogen excretion in breastfed infants varied significantly within the same day and on different days and they questioned the usefulness of breath hydrogen testing as a clinical tool for the diagnosis of lactose intolerance.

Thriving breastfed infants will often have multiple loose watery stools positive for reducing substances. This is not lactose intolerance. It is functional lactase insufficiency. The key to management of the infant, providing the infant is thriving, is not to remove the infant from the breast, but to reassure the parents of the benign nature of the condition.

Management

In functional lactase insufficiency a change in breastfeeding management may improve the situation. The positioning and attachment of the infant should ensure she can drain the breast effectively. She should be encouraged to finish suckling from the first breast, before being offered the second. A study from the United Kingdom (125) showed that this management strategy resulted in partial or complete resolution of symptoms in 79 per cent of infants with this problem.

During the feed the protein and lactose concentrations in breastmilk remain fairly constant, whereas the fat concentration increases progressively. The undue emphasis given to the belief that most milk transfer takes place early in the feed tends to undervalue the later stage of the feed which may make a substantial contribution to calorie intake. It has been hypothesised that low fat feeds result in rapid gastric emptying (126), fat being a potent inhibitor of gastric emptying. Rapid gastric emptying will cause a high lactose load to be presented in a short time to the small bowel.

In a proportion of infants this load may be more than can be handled by the lactase available in the intestinal brush border, leading to symptoms of lactase insufficiency. Allowing the infant to finish the first breast before offering the second, will maximise fat intake, thus slowing gastric emptying and limiting the rate at which lactose is presented to the brush border.

Lactaid™ drops are often recommended in Australia to treat this problem, however, when given directly to the infant with feeds, her gastric acid inactivates them and they are of no proven scientific benefit. Adding Lactaid drops to expressed breast milk in a bottle which is refrigerated overnight will hydrolyze lactose and presumably alleviate symptomatology, but this is impractical for a breast feeding mother. The timing and temperature for lactaid digestion of breastmilk is critical for efficacy and safety and to date the correct protocol has not been established.

True lactose intolerance

True lactose intolerance is treated by introducing a lactose-free formula to the infant's diet. Depending upon the severity of the condition, partial breastfeeding may still be possible. If the infant has recently had gastroenteritis, the average recovery time for the brush border lactase enzymes is four weeks (up to eight weeks in the first three months of life and as little as one to two weeks in children over 18 months of age). Weekly rechallenges with full breastfeeding may be attempted until it is tolerated.

4.16 Gastro-oesophageal reflux & oesophagitis

Gastro-oesophageal reflux (GOR) and oesophagitis are a common occurrence and may show in approximately 40 per cent of infants less than three months. Recurrent regurgitation or vomiting is the most often reported symptom and may be accompanied by failure to thrive and recurrent aspiration, which may be associated with apnoeic episodes and pneumonia (127).

Oesophagitis is characterised by the following symptoms:

- excessive crying;
- irritability (especially when lying flat);
- back arching;
- breast refusal;
- haematemesis; and
- failure to thrive, which may relate to both GOR and oesophagitis.

Reflux is usually diagnosed from the history and by observing the infant. It is important to exclude other causes of vomiting in infants, such as pyloric stenosis, infections, central nervous system abnormality, chronic renal disease, allergic gastroenteropathies and achalasia (128).

Most infants with reflux remain healthy and thrive, and the symptoms settle down between eight and 10 months of age when the infant begins to spend more of the day in an upright posture.

A recent Australian study (8) showed that physiological GOR was significantly less in breast fed infants than in those fed formula (this finding was independent of the volume of the milk feed).

Management

Management begins with posture. When awake, infants are best kept upright. When feeding it can be helpful to sit the infant up or feed with her prone on the mother's body with her back reclining at a 30 degree angle. The infant should be kept upright while winding and for 30 minutes after a feed. A baby sling can be useful in keeping a wakeful infant upright.

When asleep, the position producing the least GOR is the prone position with the head elevated 30 degrees (129). This is still recommended by the European Society of Pediatric Gastroenterology and Nutrition (130). In Australia, because of the strong association between prone sleeping and SIDS, this is not recommended.

Then there are milk thickening agents—food thickeners, for example Instant Carobel™ or Karicare Food Thickener™ can be mixed with boiled water or expressed breast milk and given by spoon or syringe with each feed. Cereals or rice extracts are not appropriate food thickeners as their thickening properties are rapidly modified by hydrolyzation in the stomach.

Antacids, for example Mylanta™, and other medications for the treatment of GOR should only be used after full medical assessment of the individual situation, and then only under medical supervision.

Infant Gaviscon™ can be mixed with sufficient boiled water or expressed breast milk to form a paste and given by spoon or syringe with a feed. Mothers should be advised it causes faeces to look 'sandy' and may cause constipation.

Other possibilities include prokinetic agents. Cisapride (Prepulsid™ Liquid) increases oesophageal clearance and gastric emptying. Few side effects have been reported apart from occasional abdominal pain and diarrhoea (128). It does not need to be given 15 minutes before a feed but can be spread evenly over the 24 hours. Examples of other prokinetic agents which are sometimes used are Bethanechol and Domperidone (128).

There are also H₂ receptor antagonists. Both Cimetidine (Tagamet™) and Ranitidine (Zantac™) (128) are available in soluble form and can be prescribed in appropriate doses for infants. They have effectively treated oesophagitis in controlled trials but should not be used long term without a definite diagnosis and review by a paediatrician. Omeprazole (Losec™) is also used by some paediatricians but is not yet approved for use in children.

Investigations are only necessary when an infant is not settling with the suggested simple measures (posture, thickening agents and antacids), or if there is aspiration, haematemesis or failure to thrive.

If investigations are indicated they are:

- intra-oesophageal pH monitoring, when the frequency and duration of reflux in relation to sleeping, waking, feeding and in some centres to symptoms, is monitored over 24 hours; normal infants have significant episodes of reflux up to 15 per cent of the time (128);
- upper gastrointestinal endoscopy with oesophageal biopsy is valuable for diagnosing oesophagitis, but the infant needs to be given a general anaesthetic for the procedure to be done;

Surgical intervention is restricted to infants for whom medical management has failed and/or who have potentially life threatening complications, for instance apnoea, aspiration (128).

A study looking at the natural history of the disease (128) showed that active medical management produces control of symptoms such that approximately 50 per cent of cases need no further therapy beyond eight to ten months of age, and 30 per cent beyond 18 months of age. However 17 per cent of patients have ongoing symptoms or complications requiring anti-reflux surgery.

4.17 Physiological jaundice (early-onset jaundice)

Some degree of physiological jaundice occurs in almost half of all infants and shows up after 24 hours of age, peaks on the third or fourth day of life and declines steadily through the first week. An early first breastfeed (within an hour or so of birth) and frequent breastfeeds with no restrictions will have a positive effect in preventing or reducing jaundice. Frequent stimulation of the infant's gut speeds up the elimination of meconium which contains jaundice causing bilirubin (131).

If the infant requires phototherapy, breastfeeding should continue. The infant should be removed from under the lights to be breastfed. Intermittent phototherapy is as effective as continuous therapy. (132).

If the infant becomes sleepy or requires extra fluids while under phototherapy the mother can express breastmilk to be given in addition to breastfeeds.

Breastmilk jaundice (late-onset jaundice).

A small percentage of infants have prolonged jaundice which cannot be distinguished from early-onset jaundice in the first week. It manifests itself in the second week of life with a rising serum bilirubin concentration. The exact cause is unknown and appears to be a syndrome associated with the milk of a particular mother. Varying degrees of the syndrome are likely to occur with subsequent pregnancies. (133). Usually the infant is thriving, healthy and gaining weight with normal bowel motions.

Once other causes of prolonged or excessive jaundice (such as haemolytic disease, hypothyroidism, G6PD deficiency and intestinal obstruction) are ruled out, late-onset jaundice requires no intervention. No known cases of kernicterus caused by breastmilk jaundice have been reported (133).

5. Expressing and storing breastmilk

5.1 Expressing breastmilk

There are many reasons why mothers may need to express their breast milk, including:

- the infant may be sick or premature;
- the mother and baby may be temporarily separated;
- the mother may be returning to work;

- the milk supply may need increasing; and
- the mother's breasts are uncomfortably full.

The mother's need to express will vary according to her situation. Midwives, lactation consultants, early childhood nurses and NMAA counsellors are available for this advice both in hospital and in the community.

There are three methods of expressing from which the mother may choose, depending on the reason for expressing and/or personal choice. They are hand expressing; hand pump expressing; electric pump expressing. The following general hints apply, regardless of the method chosen.

- express in a comfortable private place;
- take the telephone off the hook;
- have a glass of water nearby;
- have all expressing equipment ready; and
- relax! music may help.

Hand expressing

Every mother should be shown how to hand express as it has many advantages. No equipment is required, it is convenient and the skin to skin contact stimulates milk production. In spite of initial reservations, many women find hand expressing becomes easier with practice.

Here are the steps for the mother to follow:

- wash hands with soap and warm water;
- gently massage the breast, starting from the top of the breast stroking towards the nipple, and massaging the underside too; do this several times to ensure the whole breast is massaged;
- hold a clean plastic dish under the breast to collect the milk; this may be difficult for some women to manage when they are learning so, alternatively, a wide bowl can be held between the legs or on a low table, leaving both hands free – a towel may be needed to catch any spills;
- the thumb and finger are placed diagonally opposite on the edge of the areola;
- gently press inward towards the centre of the breast, squeezing the finger and thumb together;
- repeat with a rhythmic rolling movement, feeling for the milk sinuses; the fingers should not slide over or pinch the skin;
- once the milk flow has stopped, move the fingers around the nipple and express again; this helps express more milk and empty all sectors of the breast;
- if no milk is coming express for at least 10 minutes to help stimulate the breast to make more milk;

- repeat on the other breast; and
- if more milk is required the mother can change from breast to breast until she has the amount of milk needed.

Hand pumps

Hand pumps are portable and relatively inexpensive. They are recommended when a woman is breastfeeding and needs to express regularly once or twice a day when away from her baby. Many types are available and should be used according to the manufacturers instructions.

The following steps relate to piston hand pumps:

- wash hands with soap and warm water;
- have a clean, sterilised pump ready;
- gently massage the entire breast, both top and underside, starting from the top and stroking towards the nipple; do this several times so the whole breast is massaged;
- place the flat rim of the breast cup on the breast, centering the nipple;
- gently work the pump with a smooth action, pulling the piston and releasing the suction rhythmically; by releasing the suction the blood circulation to the areola and the nipple can be maintained;
- continue working the pump until the breast is soft and the mother has about half the required milk;
- swap to the other breast and repeat, starting with the gentle massage;
- if more milk is required the mother can change from breast to breast until she has the amount needed; and
- pour the collected milk into a storage container and put it in the refrigerator (see storage guidelines for expressed breastmilk).

Electric breast pump expression

Electric breast pumps are recommended when:

- the baby is sick or premature;
- mothers are separated from their babies for long periods of time;
- mothers are not getting enough milk by other expression methods; and
- babies cannot attach well at the breast.

Here are the steps for a mother to follow when using an electric pump:

- wash hands with soap and warm water;
- have the sterilised pump equipment ready;
- gently massage the breast, starting from the top stroking towards the nipple—do this several times so the whole breast is massaged;
- place the breast cup on the areola, centering the nipple;
- start the suction strength on low, turning the pump on, and relax;

- gradually increase the suction strength as long as there is no discomfort; the suction should not be increased above the recommended level for the type of pump being used;
- continue until the breast is soft and about half the required milk is collected;
- swap the cup to the other breast turning the suction to low and repeat, beginning with the gentle breast massage;
- if there is not enough milk, keep changing from breast to breast until the required amount of milk is obtained;
- pour the milk into a storage container and put in the refrigerator.

Electric breast pumps can be hired from many pharmacies or the NMAA-priority is given to sick or premature babies.

5.2 Storage of breastmilk

Guidelines for collecting and storing breastmilk are more stringent for sick or premature babies in hospital than for healthy babies at home.

Hospital

Mothers and health workers assisting with expressing should wash their hands thoroughly with soap and water before expressing or handling breastmilk.

- breastmilk is best used when fresh and the mother should try to provide fresh breast milk daily for her baby; if this is not possible the breast milk can be stored in a refrigerator or freezer in sterilised plastic containers;
- breast milk can be refrigerated at four degrees Celsius for 48 hours with little loss of nutrients or immunological properties and the bacterial count is actually reduced (134);
- freshly expressed milk should be chilled in the refrigerator before adding to frozen milk in the freezer;
- see the chart on page 38 for the recommended times for storing breastmilk in the freezer;
- thaw breastmilk by placing it in either cool or warm water shake milk gently before using it if it has separated;
- warmed milk should be given straight away and any left over discarded;
- thawed milk should be used within 24 hours;
- never refreeze or rewarm breastmilk;
- label container with surname, date, and time of expression; and
- do not thaw or warm breastmilk in the microwave.

Sterilising equipment

There are three recommended methods of sterilisation:

- boiling;
- steaming; and
- cold water chemical sterilisation.

Mothers should be given advice about cleaning, storing and sterilising equipment (see bottle feeding for information about sterilisation).

Transporting breast milk

- transport milk in an insulated container (an esky with a freezer brick);
- if some milk has thawed it should be used within 24 hours of thawing. Do not refreeze; and
- put in the refrigerator or freezer immediately upon arrival.

5.3 Guidelines for collecting and storing breast milk for healthy infants at home

Very little special handling of a mother's milk is required. It is important not to make the instructions for collecting and storage sound intimidating, or to cause anxiety by implying that there is risk of harming the infant (15).

Breast milk can be stored in either glass or plastic containers, including sealable plastic bags.

Freshly expressed milk can be chilled in the refrigerator and added to frozen milk in the freezer.

The following is a simple guide for mothers storing expressed breast milk at home (135).

- wash hands thoroughly with soap and water;
- refrigerate or freeze milk after expressing;
- use fresh milk whenever possible;
- freeze milk that will not be used within two days; and
- use the oldest milk first; date the container at the time of collection.

Table 3 Storage of breast milk for home use

Breast milk	Room temperature	Refrigerator	Freezer
Freshly expressed	6-8 hr (26°C or lower)	3-5 days (4°C or lower)	2 weeks in freezer
into closed container refrigerator.	If refrigeration is	Store in back available store milk there where it is coldest	compartment inside of refrigerator 3 months in freezer section of refrigerator with separate door 6-12 months in deep freeze (-18°C or lower)
Previously frozen -thawed in refrigerator but not warmed	4 hours or less (ie the next feeding)	Store in refrigerator 24 hours	Do not refreeze
Thawed outside refrigerator in warm water	For completion of feeding	Hold for 4 hours or until next feeding	Do not refreeze
Infant has begun feeding	Only for completion of feeding then	Discard	Discard

Developed from Recommendations of the Milk Banking Association of North America, Inc, in *Breastfeeding: A guide for the medical profession 4th Edition (Lawrence, R.A, 1994: 807)*, and current literature (135, 136, 137).

6. Breastfeeding in specific situations

6.1 Absolute contraindications to breastfeeding

There are very few situations where breastfeeding is contraindicated. These may include:

- active tuberculosis which has not yet been treated. Any contact with the infant, including breastfeeding, is not permitted until the mother has finished two weeks of appropriate treatment. The infant is usually prescribed prophylactic treatment. Lactation is initiated and maintained by expressing breastmilk until contact is approved;
- Brucellosis (undulant fever) can also pass from the mother's blood to the breastmilk;
- recently acquired maternal syphilis with an unaffected infant. Mother/infant contact and breastfeeding can begin after 24 hours of appropriate therapy, provided there are no lesions around the breasts or nipples. In such cases, feeding may begin or continue once treatment is complete and the lesions are healed;

- HIV positive mothers. In Australia these women are advised not to breastfeed;
- rare metabolic disorders of infants such as galactosaemia, and maple syrup urine disease which severely limit or render impossible the infant's use of certain milk components. In cases of phenylketonuria (PKU), partial breastfeeding may be possible, with careful monitoring by a paediatrician and a dietitian expert in metabolic disease; and
- with Hepatitis B, breastfeeding may continue once the infant has been immunised.

6.2 Relative contraindications to breastfeeding

Certain other conditions may need to be considered on their merits before use of infant formula is advised. These include:

- Maternal medications.

Most drugs are excreted into the breast milk but seldom more than one to two per cent of the maternal dose, which rarely poses a danger to the infant (138). Some drugs may be contraindicated during breastfeeding, but this is a complex subject and advice given may depend on the dosage of the drug, duration of treatment, nature of the illness etc. The advice of the pharmacist at the nearest Women's or Children's hospital should be sought if any doubt exists.

- Hepatitis C

Evidence to date does not suggest that Hepatitis C is transmitted through breastmilk;

- specific illnesses in the infant;
- maternal illness and malignancy; and
- maternal psychiatric illness—if there is definite danger to the infant or if the psychiatrist advises.

6.3 Smoking and alcohol

Smoking

Cigarette smoking can affect the milk supply and may cause gastrointestinal upsets in the infant so mothers are advised to give up smoking. If this is not possible, they should reduce their smoking to as low as possible and should not smoke in the hour before feeding, or during feeding, to reduce harmful effects. No one should smoke in the same room as the infant because of the dangers of passive smoking. Women who smoke are less likely to breastfeed, but should be encouraged to do so because of the modifying effect that breastfeeding has on the negative effects of smoking.

Alcohol

When the mother takes even one standard alcoholic drink a small quantity of ethanol passes into her milk and is subsequently taken by the suckling infant so lactating women are advised not to drink alcohol (2). If taken, it should be limited to a maximum of one or two drinks a day and after breastfeeding. The level of alcohol in the breastmilk is the same as the level in the mother's blood. Larger amounts of alcohol inhibit the let-down reflex.

6.4 Women and work

The International Labour Organisation Convention 103 on Maternity Protection of 1952 called on member nations to provide, by national legislation, an entitlement of at least 12 weeks' maternity leave. During the maternity leave period the woman is to be entitled to cash benefits provided by a compulsory social insurance scheme or from public funds. It also calls for nursing breaks for women at work.

Australia has not ratified this Convention for a number of reasons, including that it assumes a European style social insurance system which is out of step with the system operating in this country. The availability of maternity benefits varies greatly in Australia. In some areas of the public sector, a period of maternity leave is paid, while in the private sector maternity leave is generally unpaid (139).

As part of Accord Mark 8, 'Sustaining Growth, Low Inflation and Fairness', the Commonwealth Government and the ACTU have supported the Safety Net Adjustments, based on a broad consideration of economic and social issues, including maternity leave payment.

Regardless of their eligibility for paid maternity leave, many women for economic or personal reasons return to paid work before they want to stop breastfeeding. They commonly find that their workplace lacks the flexibility and facilities which would allow them to combine breastfeeding and paid work, such as work-based child care or time and a suitable place to express and store milk. Because of this, some women who intend to return to work may feel discouraged from initiating breastfeeding and others may feel that breastfeeding has to stop once paid work starts.

This is usually not the case. Health workers need to be well informed and positive in their advice to parents about combining breastfeeding and paid work. Several options are available when it is not possible for the mother to go to her baby during working hours:

- replacing breastfeeds during work hours with expressed breastmilk from a cup or a bottle;
- replacing breastfeeds during work hours with food from a spoon and a cup (for babies six months and over); and
- replacing breastfeeding during work hours with infant formula from a cup or a bottle.

Health workers need to be aware that breastfeeding and formula feeding can be combined. Using formula does not mean the mother has to wean. When formula is used during working hours breastfeeding can still continue before and after work and during weekends. A combination of both expressed breast milk and formula can be given to the baby when there is not enough expressed breastmilk.

It is important for health workers to give women every assistance in the first six weeks to three months of the baby's life to get breastfeeding well established because that will give mothers greater flexibility in considering their options. Correct advice on expressing, storing and using frozen breastmilk, as well as guidelines for bottle feeding and using formula, are also necessary.

Health workers should become advocates for workplaces to adopt policies to enable women to breastfeed on returning to work. Such policies mean flexible working hours, work-based child care, providing rooms to express breast milk or breastfeed and refrigerators to store expressed breast milk.

7. Informed use of complementary feeds in hospital

Complementary feeding does not help the early establishment of successful breastfeeding. If complementary feeds are used, the mother should give her informed consent. A consent form which tells the mother about the advantages of breastfeeding, and the implications of complementary feeding to establishing successful breastfeeding, should be discussed between a health worker and the mother. Examples of suitable consent forms are at Appendix 2.

Additionally, it is important that women are informed of their options for feeding before they are admitted to hospital, preferably during the antenatal education period.

The decision to breastfeed or not should be an informed one. To assist in this decision-making, all pregnant women and their partners should have the opportunity to discuss feeding methods with their midwife or doctor. They should be encouraged to read the wide selection of material available on infant feeding, and they should be told about community groups which offer information and support to women who intend to breastfeed. A sample information booklet is at Appendix 3.

SECTION II: GUIDELINES FOR SAFE BOTTLE FEEDING

The primary objective of the WHO Code is to provide safe and adequate nutrition for infants by protecting and promoting breastfeeding, and by ensuring the proper use of infant formula, when it is necessary, on the basis of adequate information and through appropriate marketing and distribution.

The WHO Code also states that feeding with infant formula should be demonstrated only by health workers or other community workers, and only to the mothers or family members who need to use it. In giving this information health workers should inform parents and others of the hazards of improper use of infant formula (WHO Code Article 6.5).

It is important that health workers know how to demonstrate the reconstitution of infant formula and the way in which to feed infants with a bottle. Bottles may also be used to feed infants with expressed breast milk.

Infant formulas

All modern formulas have reduced protein and reduced electrolytes compared with cows' milk, and have added iron, vitamins A, B group, C, D, E and K. The protein in the formula is either casein dominated or whey dominated and, since its amino acid content is not the same as human milk, a slightly higher content of protein is required in formula compared with human milk. The fat in formula is either butterfats or mixtures of vegetable oils. The mixtures of vegetable oils are closer to the pattern of saturated fatty acids in human milk but the actual fatty acids' composition remains very different (59).

Although modern formulas have a superficial resemblance to human milk, they still lack many factors which are present in human milk, including carnitine, cholesterol, nucleotides, polyamines, long chain polyunsaturated fatty acids, urea, free amino acids, glycosamine and bile salt stimulated lipase. Furthermore, the sterilisation (pasteurisation) processes used in manufacturing the formula slightly modify the structure of the cows' milk proteins with a resultant loss of any cross species protection against infection. Although modifying formulas is continuing, it is unlikely that it will provide the variety of nutrient and active factors present in human milk in the foreseeable future (59).

However, when a baby is not breastfed, an infant formula is a more appropriate way of meeting the major nutritional needs than using modified raw cows' milk.

Requirements for the quality, composition and labelling for infant formulas sold in Australia are regulated through Standard R7-Infant Formula of the Australian Food Standards Code (140). For the purposes of the standard, an infant is defined as being a person aged up to 12 months.

Cows' milk based formula is suitable for most normal term infants and recommended. Formulas made from soy beans, goats milk, modified lactose formula or specialised formula designed for babies with nutritional problems,

should only be used for medically diagnosed conditions. Changing the type of formula because of irritability and infant/parent distress or minor rashes is illogical and should be resisted. There is no evidence that soy formula provides protection from allergy. (141).

Many infants who are allergic to cows' milk are also allergic to goats' milk and soy milk (142). Although there is a range of cows' milk based formulas on the market there is little evidence that one is better than another for normal term infants(59).

The prices of different infant formulas and types of retail outlets which sell them are not related to quality or nutritional value. All infant formulas sold in Australia meet the relevant nutritional and quality control standards. The use of a particular formula by a hospital does not mean it is the 'best' formula. Interchange between formulas within the same generic group is optional and can be determined on cost advantage.

Standard formulas labelled 'suitable from birth' are for infants from birth to 12 months. 'Follow on' formulas labelled 'suitable only for babies over six months' are for infants aged from six to 12 months but their use is not considered necessary for most and has no advantages over the milk they are already having. By 12 months of age infants should be eating a wide variety of family foods, including cows' milk.

Preparation of formula

Safe bottle feeding depends on a safe water supply, adequate family income to meet the costs, refrigeration, clean surroundings and satisfactory arrangements for sterilising and storing equipment. Health workers need to be aware that parents without literacy skills or from non-English speaking background need extra help to make sure bottle feeding is done safely.

Equipment

- two to six large bottles:
A large variety are available. Bottles are made of glass or polycarbonate (rigid plastic). Many bottle manufacturers offer differently shaped bottles and bottles with 'anti-colic' devices. Decorations and odd shapes make bottles hard to clean and there is no evidence that a particular shape of bottle prevents wind or colic;
- several teats:
Teats are made from rubber, also called latex (brown coloured) or silicone (clear coloured). Shape variations have no particular advantages (as in orthodontic teats) unless the infant prefers that shape;
- a knife for levelling the powder;
- a bottle brush to clean the bottles; and
- sterilising equipment.

All equipment should be rinsed in cold water after use, washed in detergent and hot water using a bottle brush to thoroughly clean bottles and teats, then rinsed again before sterilising. Careful cleaning and safe storage of equipment should continue for as long as bottles and teats are used.

The value of continuing to sterilise equipment beyond six months is debatable when conditions in the home allow for thorough cleaning and safe storage of equipment which includes using a dishwasher with a final high temperature rinse program.

Sterilisation options

Boiling:

- place utensils in a large saucepan;
- cover with water, eliminating all air bubbles;
- bring to the boil and boil for five minutes;
- care needs to be taken when boiling equipment to avoid scalds—allow the equipment to cool in the saucepan until it is hand hot before removing it;
- store equipment not being used straight away in a clean container in the fridge; and
- boil equipment every 24 hours whether used or unused.

Sterilising using chemicals

A chemical sterilant is an anti-bacterial solution which comes in liquid or tablet form.

Follow the manufacturer's instructions carefully when making up the solution to ensure the correct dilution. After 24 hours discard the used solution, thoroughly scrub the container and equipment in warm, soapy water and renew the solution. Make sure all equipment is plastic or glass, not metal as metal corrodes when left in chemical sterilant.

Completely submerge everything, making sure that there are no air bubbles, and leave it in the solution for the recommended time before using. Equipment may be left in the solution until it is required for use. Store the concentrate and solution well out of the reach of children.

Steam sterilisers

Steam sterilisers are automatic units which raise the temperature quickly to the range which kills harmful bacteria. To use, place clean equipment into the unit, add water according to the manufacturer's instructions and switch on. The unit switches itself off when sterilisation is completed.

Microwave steam sterilisers

Sterilising units for use in a microwave oven have recently appeared on the market and are suitable to use as long as the manufacturer's instructions are followed.

Using formula

Manufacturers' information about formula compositions is based on accurately made up mixtures but, in practice, accuracy is not always achieved (143). A survey of 274 Sydney mothers who were bottle feeding showed 30 per cent made mistakes in reconstituting feeds. In 52 cases there were potentially serious errors (144). A study by Bennett and Gibson (145) suggests there is an inherent limitation in accuracy in measuring powdered formula with scoops. Health professionals need to make sure parents understand all the steps in reconstituting formula.

Important points for formula feeding

- the strength of formula is designed to remain constant so the mixture never has to be strengthened or weakened; as the infant grows it is the amount of formula that increases, not the strength;
- always use the scoop provided with the particular brand of formula being used. Scoops are not interchangeable between brands, and never use half scoops of powder;
- if using concentrated liquid formula, use equal proportions of formula and water unless otherwise stated; and
- if the brand of powdered formula is changed, remind the parent to check the number of scoops per mls of boiled water. The proportions vary between brands.

When in doubt, parents should check with an early childhood nurse, pharmacist or doctor.

Making the feeds

Prolonged boiling of water is unnecessary when making up formula. To prepare water for making up formula the kettle or electric jug should be emptied, refilled with tap water and brought to the boil. Kettles and jugs with no automatic cut-off should be switched off within 30 seconds of boiling (146). Always allow the water to cool before adding the powder or liquid.

The preferred and safest method for making formula at home is 'in the bottle', one at a time because it:

- reduces contamination;
- reduces the amount of equipment needed; and
- reduces the possibility of mistakes when mixing the water and scoops of formula.

To prepare the bottles:

- measure the amount of cooled, boiled water required into individual bottles;
- using the scoop from the formula tin measure the required number of scoops into the bottles, using a knife to level off each scoop, and do not pack down the formula in the scoop;
- seal the bottle with a cap and disc and shake it gently to mix it; note that the total volume will be greater than the measured water due to displacement;
- store all made up formula in the centre back of the fridge where it is coldest, not in the door where it is warmer; and
- throw out any unused formula after 24 hours.

Safety points

- always wash hands and work surfaces before preparing formula;
- put formula straight into the refrigerator as soon as it is made;
- throw away the contents of partially used bottles after an hour—re-using half-empty bottles is risky once they have been heated and sucked on;
- check the expiry date on tins of formula and discard them if they are out of date, and discard any opened tin of formula after one month; in very hot climates formulas may deteriorate before the expiry date;
- the safest way to transport formula is to take the cooled, boiled water and the powdered formula in separate containers and mix them when needed; if transporting prepared formula or expressed breastmilk, it must be icy cold when leaving home and carried in an insulated baby bottle pack to keep it cold, and if necessary it can be given cold to the infant; and
- the time taken to warm the bottle should not exceed ten minutes; bacteria multiply rapidly in warm formula and extended warming time has the potential to create this environment and then to cause diarrhoea.

Formula feeding

Feeding babies cold formula is not harmful but formula warmed to room temperature flows faster and generally babies seem to prefer it warm. Standing the bottle in warm to hot water is the traditional method and remains the safest way of heating bottles.

Bottle warmers are convenient and safe as long as they have a thermostat control but bottles should not be left to warm in them longer than ten minutes. Microwaves are not recommended for safety reasons. They do not heat the milk evenly and the temperature of the milk can be misjudged. Because of 'hot spots' in milk, an infant can receive burns to the mouth.

Teats and flow rates

It can be difficult to get the milk to flow at just the right rate. Several types of teat may have to be tried until a suitable one is found. To test the flow, hold the bottle upside down when it is filled with the milk mixture at room temperature and the milk should drip steadily.

If the bottle has to be shaken vigorously it is too slow and the infant may go to sleep before she drinks what she needs. The milk should drip easily at a steady rate without pouring out in a great stream. A little leakage at the corners of the mouth while she feeds is nothing to worry about and stops as she gets older. When the ideal teat cannot be found a faster teat is usually preferable to a slower teat.

Safety points

Before giving the bottle always check the temperature of the feed by shaking a little from the teat onto the inside of the wrist to check if it is too hot.

It is dangerous for parents to 'prop' a bottle and walk away, leaving the infant to manage on her own. The milk may flow too quickly and cause the baby to splutter or even choke. As well as this, infants who feed a lot on their own are at greater risk of ear infections (147) and tooth decay. Infants need to be held, cuddled and talked to when they are fed.

How much milk?

As with breastfed infants, demand feeding is appropriate. Bottle fed young infants need about 150ml/kg/day of formula to meet their nutrient needs before introducing solids. Some will require more (up to 200ml/kg), others less. It is important for parents to be aware that there are many individual variations between babies regarding the amount of formula and number of bottles consumed each 24 hours. Information on formula tins which recommend certain amounts for various ages is a guide only and does not necessarily suit every infant. Plenty of wet nappies, consistent weight gains which are not excessive, and a thriving active infant indicate that all is well.

SECTION III: INTERPRETATION OF THE WHO CODE FOR HEALTH WORKERS IN AUSTRALIA

Definitions taken from the WHO code and explanatory notes relating to these guidelines (Article 3)

Breastmilk substitute

- any food being marketed or otherwise represented as a partial or total replacement for breastmilk, whether or not suitable for that purpose.

Complementary food

- any food, whether manufactured or locally prepared, suitable as a complement to breastmilk or to infant formula, when either becomes insufficient to satisfy the nutritional requirements of the infant. Such food is also commonly called 'weaning food' or 'breastmilk supplement'.

Container

- any form of packaging of products for sale as a normal retail unit, including wrappers.

Distributor

- a person, corporation or any other entity in the public or private sector engaged in the business (whether directly or indirectly) of marketing at the wholesale or retail level a product within the scope of this Code. A 'primary distributor' is a manufacturer's sales agent, representative, national distributor or broker.

Health care system

- governmental, nongovernmental or private institutions or organisations engaged, directly or indirectly, in health care for mothers, infants and pregnant women; and nurseries or child care institutions. It also includes health workers in private practice. For the purposes of this Code, the health care system does not include pharmacies or other established sales outlets.

Health worker

- a person working in a component of such a health care system, whether professional or non-professional, including voluntary unpaid workers.

Infant formula

- a breastmilk substitute formulated industrially in accordance with applicable Codex Alimentarius standards, to satisfy the normal nutritional requirements of infants up to between four and six months of age, and adapted to their physiological characteristics. Infant formula may also be prepared at home, in which case it is described as 'home prepared'.

Label

- any tag, brand, mark, pictorial or other descriptive matter written, printed, stencilled, marked, embossed or impressed on, or attached to, a container of any products within the scope of this Code.

Manufacturer

- a corporation or other entity in the public or private sector engaged in the business or function (whether directly or through an agent or through an entity controlled by or under contract with it) of manufacturing a product within the scope of this Code.

Marketing

- product promotion, distribution, selling, advertising, product public relations, and information services.

Marketing personnel

- any persons whose functions involve the marketing of a product or products coming within the scope of this Code.

Samples

- single or small quantities of a product provided without cost.

Supplies

- quantities of a product provided for use over an extended period, free or at a low price, for social purposes, including those provided to families in need.

Additional definitions commonly used in Australia

Complementary feed

- fluids or foods dissolved in fluids given in addition to the normal breastfeed.

Supplementary feed

- fluids or foods dissolved in fluids given to completely replace a breastfeed.

The distinction between 'complementary feeds' and 'supplementary feeds' is important because there seems to be a great deal of confusion among health professionals.

For the purposes of this document and in consideration of the Australian context

Free or *subsidised* samples or supplies of infant formula are those given by manufacturers to health care facilities at no cost, or at a cost which is substantially less than the normal retail or wholesale cost.

Breastmilk substitute – it has been suggested that in Australia this term is not appropriate to use as it implies an equivalence to breastmilk. The term 'infant formula' appears throughout this document although it is acknowledged that other foods and fluids are used in place of breastmilk; this is the term used in the Australian Food Standards Code R7 and for the purpose of this document is the term of reference.

Infant formula is any food described or sold as an alternative for human milk for the feeding of infants up to the age of 12 months and formulated in accordance with Australian Food Standard R7-Infant formula.

The terms used for nursing staff associated with infant care change from time to time and also within different localities. This document is meant to encompass all involved with infant and maternal care, regardless of their current or former titles.

INTERPRETATION OF THE WHO CODE FOR HEALTH WORKERS IN AUSTRALIA

This section outlines those aspects of the WHO Code and subsequent World Health Assembly resolutions which are relevant to health workers. While some aspects are actually the responsibility of others, such as governments or industry, it is considered to be important that health workers are aware of these responsibilities.

WHO Code

Article 1: Aim of the code

The aim of this code is to contribute to the provision of safe and adequate nutrition for infants, by the protection and promotion of breastfeeding, and by ensuring the proper use of breastmilk substitutes, when these are necessary, on the basis of adequate information and through appropriate marketing and distribution.

Interpretation of health workers responsibilities

The whole purpose of these Guidelines, and of the WHO Code, is to protect the nutritional well-being of infants. Breastfeeding is to be encouraged and should be protected from practices which undermine it. Health workers are seen by the public as the source of advice on infant feeding. This advice is to be available to all mothers, regardless of the feeding option which they have chosen for their infant. When mothers do not breastfeed, or do so only partially, they should use a suitable infant formula until the infant is 12 months of age. They should be fully informed about the health implications, the projected cost and the hazards of improper use.

APMAIF'S interpretation of the Australian agreement (148)

WHO Code

Article 2: Scope of the code

The code applies to the marketing, and practices related to that, of the following products:

- breastmilk substitutes, including infant formula;
- other milk products, foods and beverages, including bottled complementary foods, when marketed or otherwise represented to be suitable, with or without modification, for use as a partial or total replacement of breastmilk;
- feeding bottles and teats.

It also applies to their quality and availability, and to information concerning their use.

Article 3: Definitions

This article is at the beginning of Section III

Interpretation of health workers responsibilities

Not just infant formula is included

Standard R7 - Infant formula of the Australian Food Standards Code defines an infant as 'a person aged up to **12 months**'.

The term 'infant formula' includes 'follow-on formula'.

Milk products such as powdered, evaporated or sweetened condensed milk are covered by the WHO Code if they are represented as suitable for infant feeding or used as a breast milk substitute. Food or drink products are covered only if they are represented to be suitable for feeding to infants under four months of age, or to be used as a substitute for the milk component of an infant's diet. This might include herbal teas, syrup drinks, fruit juices, or cereal-based products marketed for feeding by bottle. Feeding bottles, teats and dummies are included because their use is not supportive of breastfeeding, particularly in the establishment phase. Health workers should develop skills to use and teach spoon and cup feeding.

APMAIF'S interpretation of the Australian agreement

WHO Code

**Article 4.1:
Information and education**

Governments should have the responsibility to ensure that objective and consistent information is provided on infant and young child feeding for use by families and those involved in the field of infant and young child nutrition. This responsibility should cover either the planning, provision, design and dissemination of information, or their control.

Article 4.2

Informational and educational materials, whether written, audio, or visual, dealing with the feeding of infants and young children, should include clear information on all the following points:

- (a) the benefits and superiority of breastfeeding;
- (b) maternal nutrition, and the preparation for and maintenance of breastfeeding;
- (c) the negative effect on breastfeeding of introducing partial bottlefeeding;
- (d) the difficulty of reversing the decision not to breastfeed, and
- (e) where needed, the proper use of infant formula, whether manufactured industrially or home-prepared.

Interpretation of health workers responsibilities

Unbiased and consistent information

Both health workers and the general public need access to accurate information on infant feeding and protection from biased or misleading information. Health workers should scrutinise all materials carefully and only use those which are objective, consistent with current knowledge, comply with the WHO Code and the Australian Agreement, and would be perceived positively by the target audience. Information must be comprehensive, balanced and without bias.

Include all the facts and all the hazards

To ensure that both parents and health professionals are informed and reminded of the important aspects related to infant feeding, clear information should be included on specified points.

Information on maternal nutrition, and the preparation for and maintenance of breastfeeding should reflect current knowledge. Breastfeeding should not be portrayed as advisable only if the mother is prepared to eat well, or create the impression that diet is related to milk quantity or quality.

APMAIF'S interpretation of the Australian agreement

Clause 4(a) & 4(b)

The print size of this information should be the same size as the majority of the main text or at least eight point. For videos, the information should be included in the main body of the video in the same type of presentation as the rest of the material, and at a level suitable for the target audience.

Inclusion of information:

- the information required by Clauses 4(a) and 4(b) must be included in any video or written material which refers to infant formula that is produced or sponsored by an infant formula manufacturer. (Dec 1993)
- The print size of the information required by Clauses 4(a) and 4(b) should be the same size as the majority of the main text or at least eight point. (Sept 1993) written material which refers to infant formula that is produced or sponsored by an infant formula manufacturer. (Dec 1993)

WHO Code

When such materials contain information about the use of infant formula, they should include the social and financial implications of its use, the health hazards of inappropriate foods or feeding methods and, in particular, the health hazards of unnecessary or improper use of infant formula and other breastmilk substitutes. Such materials should not use any pictures or text which may idealise the use of breastmilk substitutes.

Interpretation of health workers responsibilities

Information on the negative effect on breastfeeding of introducing partial bottle feeding should reflect current knowledge on the relationship between milk production and frequent breast emptying.

Information on the difficulty of reversing the decision not to breastfeed should acknowledge that relactation is possible, but difficult. The 'proper use of infant formula' is for feeding any infant who is not breastfed. It ensures adequate nutrition in these circumstances.

APMAIF'S interpretation of the Australian agreement

- The Panel sees the social and financial implications as inter-related. They may include the following points:
 - cost will be (about kg/ week) (at least one can/ week) [each company should insert the most appropriate quantity]
 - infant formula will need to be purchased until the baby is 12 months of age
 - the costs affect the family budget. (Mar 1994)
- Certain pictures may be acceptable on materials for health professionals.
- The Panel considered that cartoons and pictures of animals and toys do not necessarily idealise the use of infant formulas and therefore may be acceptable. They should not depict an animal or toy being fed, whether by breast or bottle, nor should they depict animal or toy 'mothers' because the Panel considers that these would idealise the use of infant formula.

WHO Code

Interpretation of health workers responsibilities

APMAIF'S interpretation of the Australian agreement

- The Panel considers that real infants depicted in a normal context do not necessarily idealise the use of infant formula, and may legitimately draw a health professional's attention to information about an infant formula. However:
 - babies (with or without bottles) in fantasy situations (eg stars, heavens, clouds, sitting up in school) are unacceptable because they suggest formula-fed babies are in some way 'ahead' of breastfed babies.
 - infants with slogans over or adjacent to the pictures (such as 'Every baby deserves the best' or 'A little extra something') are unacceptable. The Panel believes this implies that the product is better than breastmilk and idealises the use of infant formula. (Mar 1994)
- The Panel considers that a picture of a woman breastfeeding is never acceptable because:
 - it creates an impression that their product is equivalent to breast-feeding;
 - it appropriates the image of breastfeeding for the purpose of promoting a product
 - it is a misleading way of gaining attention.

WHO Code

Article 4.3

Donations of informational or educational equipment or materials by manufacturers or distributors should be made only at the request and with the written approval of the appropriate government authority or within guidelines given by governments for this purpose. Such equipment or materials may bear the donating company's name or logo, but should not refer to a proprietary product that is within the scope of this code, and should be distributed only through the health care system.

Interpretation of health workers responsibilities

Restrictions on donated materials

There are restrictions on the donation, the content and the distribution of informational and educational equipment and materials from manufacturers and distributors.

Distribution of appropriate materials may be made only through the health care system, not pharmacies and retail outlets. Distribution should be made only to selected parents who need the information, and not through 'help yourself' displays.

It may be appropriate for parents to be given special instructional materials for the use of a particular product. Such materials should only be given to parents who are using that product. Any other educational materials which contain a picture of a named product should not be accepted from manufacturers, or distributed or shown (videos) to parents.

APMAIF'S interpretation of the Australian agreement

Clause 4(c)

- The Panel has determined that the distribution at conferences of pens and monogrammed paper which bear a brand name and not just a logo is unacceptable.
- The Panel considers that a slogan is different to a logo. For example, 'Every baby deserves the best' and 'A little extra something' are slogans. When used in conjunction with the brand name of a product, it is implied that feeding the baby the product would be better than breastfeeding.
- Inexpensive materials likely to be used only in the process of professional duty (provided that they are not readily given to mothers, for example, small 'tear-off' note pads) may be acceptable. However, materials of a personal nature, such as coffee mugs, are not considered acceptable. Any such materials should bear only the company name and logo, and not a product brand name. The use of slogans on these materials is unacceptable. The provision of ordinary food (morning/afternoon tea/lunch) is acceptable provided that it is in association with a presentation that coincides with a mealtime and that it is not of a lavish nature.
- The Panel agreed that manufacturers should keep in mind Clause 7 which prohibits any donations, or activities which can be construed as a material inducement.

WHO Code

***Article 5:
The general public
and mothers***

Article 5.1

There should be no advertising or other form of promotion to the general public of products within the scope of this code.

Interpretation of health workers responsibilities

No product promotion to the public

A key feature of the WHO Code is the restriction on product promotion and sampling to the general public.

In Australia, the Trade Practices Commission is concerned that there should be no restrictions which might have an anti-competitive effect and increase retail prices. For this reason, some carefully defined price promotion is permitted. Product promotion is not permitted.

APMAIF'S interpretation of the Australian agreement

Clause 5(a)

- The Panel is aware of its obligations under both the Australian Agreement and the Trade Practices Act. We wish to minimise harm to breastfeeding while allowing consumers to obtain formula at a competitive price.
- The Panel feels that parents have a right to information about the availability of infant formula. However:
 - Announcements regarding changes to availability of infant formulas (for example, in supermarkets) are acceptable but only on a one-off basis. Advertisements may appear only once in any one publication over a maximum three month period (to allow for inclusion in quarterly publications).

2.6 The first breastfeed

There is evidence that starting to breastfeed within the first hour or so of birth is good for mothers, infants and for ongoing breastfeeding (62, 63). A successful first breastfeed has a number of positive effects:

- it builds the mothers confidence in her ability to breastfeed
- the infant starts to receive the immunological benefits of colostrum
- her digestion and bowel function are stimulated
- correct sucking at the breast at this early time may avert later sucking difficulties
- the bonding and attachment of mother and infant are enhanced.

Ideally, uninterrupted skin to skin contact should be maintained following birth. Common practices such as early weighing, bathing the infant or passing her around should be delayed until later. Good antenatal education will help with parents' expectations in this regard.

When the infant indicates that she is interested in sucking, the midwife can guide the mother into a comfortable position so the infant will be able to 'latch on' correctly.

Unless there is a medical reason, such as prematurity, mother and infant should remain together so that breastfeeding begins and proceeds according to the infant's needs, without restriction on the number or length of feeds.

However, it should also be emphasised that while early contact between them is the ideal, where this is not possible it does not preclude successful breast feeding. In many other cultures, the mother may not have contact with her infant for many hours, and yet successful breastfeeding is almost universal.

3. Breastfeeding: early days

3.1 The Natural pattern of breastfeeding

Unrestricted feeding, both day and night, is an important factor in successfully establishing breast feeding and results in optimum milk production. The infant will vary her feeds according to her needs and the rate of milk transfer.

The mother should be encouraged to allow her to finish the first breast before offering the second breast. Both breasts should be offered at each feed. The infant may or may not feed from the second breast according to her appetite.

With correct positioning and unrestricted feeding, breast engorgement is unlikely to occur or will only occur briefly.

Who code

Article 5.2

Manufacturers and distributors should not provide, directly or indirectly, to pregnant women, mothers or members of their families, samples of products within the scope of this code.

Article 5.3

In conformity with paragraphs 1 and 2 of this Article, there should be no point-of-sale advertising, giving of samples, or any other promotion device to induce sales directly to the consumer at the retail level, such as special displays, discount coupons, premiums, special sales, loss-leaders and tie-in sales, for products within the scope of this code. This provision should not restrict the establishment of pricing policies and practices intended to provide products at lower prices on a long-term basis.

Interpretation of health workers responsibilities

No samples to the public

Manufacturers and distributors should not provide samples of products such as infant formula, bottles, teats or dummies, directly or indirectly, to the general public.

Nor should health workers do this distribution for them. Clause 7.4 clearly states that health workers should not give samples of infant formula to pregnant women, parents of infants and young children, or members of their families.

APMAIF'S interpretation of the Australian agreement

Clause 5(b)

- The Panel considered that the provision of free samples by manufacturers through pharmacies breaches the Agreement. However, small packs can be made available in retail outlets for purchase at commercial competitive rates (Feb, 1993)

There is no clause in the Australian Agreement which addresses Article 5.3 of the WHO code. This is because the Australian Trade Practices Act cannot endorse 'anti-competitive activities'. 'A voluntary agreement fully implementing the WHO code would be in breach of the Trade Practices Act and the pricing restrictions involved would be per se breaches of the Act'. (Trade Practices Commission Report - May 1990).

This means that Australian Infant Formula Importers and Manufacturers may independently offer discount prices to the public.

WHO Code

Interpretation of health workers responsibilities

APMAIF'S interpretation of the Australian agreement

Article 5.4

Manufacturers and distributors should not distribute to pregnant women or mothers of infants and young children any gifts of articles or utensils which may promote the use of breast-milk substitutes or bottle feeding.

No company gifts for mothers

Parents should not be given gifts of products used for formula feeding, or items (such as cuddly toys, nappy bags, coffee cups, etc) which bear the brand name of a product, or the name or logo of a company which markets products within the scope of the WHO Code.

Article 5.5

Marketing personnel, in their business capacity, should not seek direct or indirect contact of any kind with pregnant women or with mothers of infants and young children.

No contact between parents and marketing personnel

Hospital open days, morning teas for mothers, etc should not include company representatives, even if they are health professionals.

Company representatives cannot address mothers

Companies sometimes employ health professionals in a marketing capacity. These people may not perform any educational functions for the general public such as addressing antenatal classes, teaching the preparation of infant formula, or meeting with baby club members.

WHO Code

Article 6: Health care systems

Article 6.1

The health authorities in Member States should take appropriate measures to encourage and protect breastfeeding and promote the principles of this code and should give appropriate information and advice to health workers in regard to their responsibilities, including the information specified in Article 4.2.

Article 6.2

No facility of a health care system should be used for the purpose of promoting infant formula or other products within the scope of this code. This code does not, however, preclude the dissemination of information to health professionals as provided in Article 7.2.

Interpretation of health workers responsibilities

Health workers should be informed

Health care systems and health workers play an essential role in guiding infant feeding practices, encouraging and facilitating breastfeeding, and providing objective and consistent advice to mothers and families about the superior value of breastfeeding, or, where needed, on the proper use of infant formula.

Health facilities should promote health

Health workers should not be involved in the promotion of products used for infant feeding. Companies may not use health facilities to promote their products, although they may provide responsible scientific and factual information to health workers as covered in Clause 7.2.

Health workers may meet, individually or collectively, with company representatives to keep themselves informed about products.

APMAIF'S interpretation of the Australian agreement

WHO Code

Interpretation of health workers responsibilities

APMAIF'S interpretation of the Australian agreement

Article 6.3

Facilities of health care systems should not be used for the display of products within the scope of this code, for placards or posters concerning such products, or for the distribution of material provided by a manufacturer or distributor other than that specified in Article 4.3.

No product displays or posters

Health workers should consider the message about infant feeding that their facility gives to mothers.

There should be no displays of infant formula, bottles or teats. Nor should there be posters, growth charts, calendars, formula preparation charts, which refer to any product within the scope of the WHO Code.

Article 6.4

The use by the health care system of 'professional service representatives', 'mothercraft nurses' or similar personnel, provided or paid for by manufacturers or distributors, should not be permitted.

Discharge packs, including sample magazines, should not contain material concerning these products.

Material provided by companies should not be distributed, other than educational materials which comply with Article 4.3.

No company-provided health workers

Health workers or assistants paid for by companies may not be provided to the health care system.

WHO Code

Article 6.5

Feeding with infant formula, whether manufactured or home prepared, should be demonstrated only by health workers, or other community workers if necessary; and only to the mothers or family members who need to use it; and the information given should include a clear explanation of the hazards of improper use.

Interpretation of health workers responsibilities

No routine formula preparation classes

Mothers or family members who will be feeding with infant formula need responsible instruction on cleaning, sterilisation, preparation, safe storage, and feeding techniques which decrease risks.

Full explanations should be given on the potential hazards associated with not following correct procedures for any of these steps. For example, gastroenteritis; dangers of understrength and overstrength formula; nursing bottle caries; problems arising from using products other than infant formula; risks associated with the early introduction of solids.

Instruction should be given only to parents or family members who need to use it, ideally on a one-to-one basis, incorporating adult learning techniques and hands-on experience.

APMAIF'S interpretation of the Australian agreement

WHO Code

Article 6.6

Donations or low-price sales to institutions or organisations of supplies of infant formula or other products within the scope of this code, whether for use in the institutions or for distribution outside them, may be made. Such supplies should only be used or distributed for infants who have to be fed on breast-milk substitutes. If these supplies are distributed for use outside the institutions, this should be done only by the institutions or organisations concerned. Such donations or low-price sales should not be used by manufacturers or distributors as a sales inducement.

In May 1994 the 47th World health Assembly adopted Resolution 47.5 on infant and young child nutrition. Subparagraph 2(2), of the resolution urges Member States to ensure that there are no donations of free or subsidised supplies of breastmilk substitutes and other products covered by the WHO code in any part of the health care system. This supersedes the previous resolution of the Assembly on this issue from 1986, which related to ceasing free and subsidised supplies of breastmilk substitutes in maternity wards and hospitals only. (WHA, 1994).

Australia supports this WHA resolution.

Interpretation of health workers responsibilities

Donations of formula not acceptable

The acceptance of donations of infant formula by the health care system, and its subsequent use and distribution to parents, is an endorsement of commercial promotion. This is not the message about optimal infant feeding that the health care system should be giving to parents.

Formula companies have requested that health workers do not request free supplies unless it is for the specific situation of provision to a disadvantaged formula fed baby at risk of malnourishment.

APMAIF'S interpretation of the Australian agreement

WHO Code

Interpretation of health workers responsibilities

AMPAIF'S interpretation of the Australian agreement

Article 6.7

Where donated supplies of infant formula or other products within the scope of this code are distributed outside an institution, the institution or organisation should take steps to ensure that supplies can be continued as long as the infants concerned need them. Donors, as well as institutions or organisations concerned, should bear in mind this responsibility.

Meeting welfare needs

Families unable to afford formula may have other problems that require attention by health and/or welfare agencies. They should be referred to welfare agencies for comprehensive assessment, counselling and support.

A baby who is not breastfed is at greater risk, and attendance at a health care facility provides an opportunity for the health needs of the infant to be assessed and monitored. It is not appropriate for community welfare agencies to keep stocks of, or distribute infant formula. They may provide financial assistance for its purchase if necessary.

Documentation will enable review and monitoring. It should facilitate better management of families with genuine hardship and discourage distribution of infant formula outside the guidelines.

Conditions for providing free formula

It is not the intention of the WHO Code or these Guidelines to further disadvantage infants whose families cannot afford to purchase infant formula. When an infant is not breastfed, infant formula is the only suitable alternative.

WHO Code

Article 6.8

Equipment and materials, in addition to those referred to in Article 4.3, donated to a health care system may bear a company's name or logo, but should not refer to any proprietary product within the scope of this code.

Interpretation of health workers responsibilities

No product names on equipment or materials

The code allows health care facilities to accept donations of equipment or materials from companies, but they should not bear names or pictures of products. Educational materials for mothers should meet the requirements outlined in Clause 4.

AMPAIF'S interpretation of the Australian agreement

Purchased infant formula may be distributed to needy families as supplies *under specified conditions*. In particular, the infants must already be formula fed and the supplies should be continued for as long as the infants concerned need them. Physiological needs may be up to the age of 12 months. Socio-economic needs may be a similar period, or until a defined situation has resolved. (Recommendations from the combined APMAIF and NHMRC Infant Nutrition Panel meeting – January 1995).

WHO Code

Article 7: Health workers

Article 7.1

Health workers should encourage and protect breastfeeding; and those who are concerned in particular with maternal and infant nutrition should make themselves familiar with their responsibilities under this code, including the information specified in Article 4.2.

Article 7.2

Information provided by manufacturers and distributors to health professionals regarding products within the scope of this code should be restricted to scientific and factual matters, and such information should not imply or create a belief that bottlefeeding is equivalent or superior to breastfeeding. It should also include the information specified in Article 4.2.

Interpretation of health workers responsibilities

Health workers have a responsibility to protect and promote breastfeeding. Health workers should provide objective and consistent advice to mothers and families about the superior value of breastfeeding. For parents to make an informed choice, health workers need to be informed. They should be familiar with the information concerning the points in Clause 4.2.

Scientific and factual information only

Companies may provide written, audio or visual information to health workers on their products, within restrictions. This material is not to be distributed to members of the general public. The information specified in Clause 4.2 should be included for balance and to raise awareness of the problems associated with formula feeding. Health workers should inform themselves about infant feeding from non-commercial sources; scrutinise company materials.

AMPAIF'S interpretation of the Australian agreement

Clause 7(a)

Interpretation of the term 'scientific':

- By 'scientific', it is meant that current scientific knowledge is reflected in total, not simply selective parts which can be used in a misleading way. (Feb, 1993)

Use of the terms 'resembles', 'is close to' and 'is similar to':

- The Panel does not consider that it is scientific or factual to claim that a product resembles, or is similar to, or is close to breastmilk unless the component that the company claims is similar to that in breastmilk is specified, and evidence is provided which satisfies the Panel that this specific claim is valid.

Where these terms are used without a specific claim, the Panel considers that the manufacturer is implying equivalence with breastmilk and is therefore in breach of the Agreement.

- In informational material for health professionals, a manufacturer sometimes wishes to point out that mothers who cannot breastfeed should be advised that they should use an infant formula that resembles breastmilk more closely than cow's milk. The Panel considers that the use of the phrase resembles breastmilk is acceptable only in this context of the comparison with cow's milk. (Dec 1993)

WHO Code

Article 7.3

No financial or material inducements to promote products within the scope of this code should be offered by manufacturers or distributors to health workers or members of their families, nor should these be accepted by health workers or members of their families.

Interpretation of health workers responsibilities

No benefits or gifts

Health workers should not accept gifts or benefits offered by companies because it may influence their product recommendations to parents or to their facility.

AMPAIF'S interpretation of the Australian agreement

Clause 7(c)

- The Panel considers that anything intended or likely to be taken home is an inducement.
- The Panel considers it is acceptable to hand out gifts such as pens and papers (with the company name or logo only) designed for personal use at a conference. However, if the gifts were designed to be taken home, this would be classed as an inducement. It is considered unacceptable for these material to be left in a hospital ward. (Sept 1993)

WHO Code

Article 7.4

Samples of infant formula or other products within the scope of this code, or of equipment or utensils for their preparation or use, should not be provided to health workers except when necessary for the purpose of professional evaluation or research at the institutional level. Health workers should not give samples of infant formula to pregnant women, mothers of infants and young children, or members of their families.

Interpretation of health workers responsibilities

No samples to parents

Companies may provide samples to health workers only when they are necessary for professional evaluation or formal research (eg constituent analysis or ease of reconstitution). However, samples may not be passed on by health workers to parents or included in discharge packs.

Samples are defined as 'Single or small quantities provided without cost'. Larger quantities of a product provided free to a facility and distributed in small amounts to many mothers (eg in a child health clinic) or to many babies (eg in a maternity unit) are still considered to be samples.

Some health workers like to give samples to appear helpful or generous, or so a baby can try a different product. These 'benefits' are outweighed by the negative effect that the ready availability of samples can have on breastfeeding.

APMAIF'S interpretation of the Australian agreement

WHO Code

Article 7.5

Manufacturers and distributors of products within the scope of this code should disclose to the institution with which a recipient health worker is affiliated any contribution made to him or on his behalf for fellowships, study tours, research grants, attendance at professional conferences, or the like. Similar disclosures should be made by the recipient.

**Article 8:
Persons employed by
manufacturers and
distributors**

Article 8.1

In systems of sales incentives for marketing personnel, the volume of sales of products within the scope of this code should not be included in the calculation of bonuses, nor should quotas be set specifically for sales of these products. This should not be understood to prevent the payment of bonuses based on the overall sales by a company of other products marketed by it.

**Interpretation of health
workers responsibilities**

*Disclose grants for research or
travel*

Grants may be accepted for research or educational purposes, but both the recipient and the company must disclose them. Before accepting a grant, the health worker should be aware of the potential for conflict of interest and discuss possible implications with his/her employers, professional associations, etc.

For example, International Board Certified Lactation Consultants cannot receive credit for continuing education sessions offered by recipients of such grants.

**APMAIF'S interpretation of
the Australian agreement**

WHO Code

Article 9: Quality and labelling

Article 9.1

Labels should be designed to provide the necessary information about the appropriate use of the product, and so as not to discourage breastfeeding.

Article 9.2

Manufacturers and distributors of infant formula should ensure that each container has a clear, conspicuous, and easily readable and understandable message printed on it, or on a label which cannot readily become separated from it, in an appropriate language, which includes all the following points:

- a) the words 'Important Notice' or their equivalent;
- b) a statement of the superiority of breastfeeding;
- c) a statement that the product should be used only on the advice of a health worker as to the need for its use and the proper method of use;
- d) instructions for appropriate preparation, and a warning against the health hazards of inappropriate preparation. Neither the container nor the label should have pictures of infants, nor should they have other pictures or text which may idealise the use of infant formula. They may, however, have graphics for easy identification of the product as a breastmilk substitute and for illustrating methods of preparation. The terms 'humanised', 'maternalised' or similar terms should not be used. Inserts giving additional information

Interpretation of health workers responsibilities

All formula must meet standards

All infant formula sold in Australia must conform with strict standards for quality, composition and labelling.

Any of the standard infant formulas sold in Australia are suitable for infant feeding when an infant is not breastfed, or is breastfed only partially.

Modified or specialised formula should only be used on the advice of an expert in infant nutrition or as part of the management of a specific medically diagnosed condition.

APMAIF'S interpretation of the Australian agreement

WHO Code	Interpretation of health workers responsibilities	APMAIF'S interpretation of the Australian agreement
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about the product and its proper use, subject to the above conditions, may be included in the package or retail unit. When labels give instructions for modifying a product into infant formula, the above should apply.

Article 9.3

Food products within the scope of this code, marketed for infant feeding, which do not meet all the requirements of an infant formula, but which can be modified to do so, should carry on the label a warning that the unmodified product should not be the sole source of nourishment of an infant. Since sweetened condensed milk is not suitable for infant feeding, nor for use as a main ingredient of infant formula, its label should not contain purported instructions on how to modify it for that purpose.

WHO Code

Article 9.4

The label of food products within the scope of this code should also state all the following points: a) the ingredients used, b) the composition/analysis of the product, c) the storage conditions required, d) the batch number and the date before which the product is to be consumed, taking into account the climatic and storage conditions of the country concerned.

Article 10: Quality

Article 10.1

The quality of products is an essential element for the protection of the health of infants and therefore should be of a high recognised standard.

Article 10.2

Food products within the scope of this code should, when sold or otherwise distributed, meet applicable standards recommended by the Codex Alimentarius Commission and also the code of Hygienic Practice for Foods for Infants and Children.

Interpretation of health workers responsibilities

Health workers should both comply with and monitor

As well as being familiar with and complying with these guidelines, health workers should monitor the practices of manufacturers and distributors and be familiar with the other Agreements and Guidelines which give effect to the WHO code in Australia.

APMAIF'S interpretation of the Australian agreement

WHO Code

Interpretation of health workers responsibilities

APMAIF'S interpretation of the Australian agreement

***Article 11:
Implementation and monitoring***

Article 11.1

Governments should take action to give effect to the principles and aim of this code, as appropriate to their social and legislative framework, including the adoption of national legislation, regulations or other suitable measures. For this purpose, governments should seek, when necessary, the cooperation of WHO, UNICEF and other agencies of the United Nations system. National policies and measures, including laws and regulations, which are adopted to give effect to the principles and aim of this code should be publicly stated, and should apply on the same basis to all those involved in the manufacture and marketing of products within the scope of this code.

Article 11.2

Monitoring the application of this code lies with governments acting individually, and collectively through the World Health Organisation as provided in paragraphs 6 and 7 of this Article. The manufacturers and distributors of products within the scope of this code, and appropriate non-governmental organisations, professional groups, and consumer organisations should collaborate with governments to this end.

WHO Code

Interpretation of health workers responsibilities

APMAIF'S interpretation of the Australian agreement

Article 11.3

Independently of any other measures taken for implementation of this code, manufacturers and distributors of products within the scope of this code should regard themselves as responsible for monitoring their marketing practices according to the principles and aim of this code, and for taking steps to ensure that their conduct at every level conforms to them.

Article 11.4

Non-governmental organisations, professional groups, institutions, and individuals concerned should have the responsibility of drawing the attention of manufacturers or distributors to activities which are incompatible with the principles and aim of this code, so that appropriate action can be taken. The appropriate governmental authority should also be informed.

Article 11.5

Manufacturers and primary distributors of products within the scope of this code should apprise each member of their marketing personnel of the code and of their responsibilities under it.

WHO Code

Interpretation of health workers responsibilities

APMAIF'S interpretation of the Australian agreement

Article 11.6

In accordance with Article 62 of the Constitution of the World Health Organisation, Member States shall communicate annually to the Director General information on action taken to give effect to the principles and aim of this code.

Article 11.7

The Director-General shall report in even years to the World Health Assembly on the status of implementation of the code; and shall, on request, provide technical support to Member States preparing national legislation or regulations, or taking other appropriate measures in implementation and furtherance of the principles and aim of this code.

How to make a complaint to APMAIF

If you consider that an infant formula manufacturer or importer has breached the agreement, address all complaints in writing to:

The Secretary
APMAIF
Federal Bureau of
Consumer Affairs
50 Blackall St
Barton ACT 2600

It would help the panel consider the complaint if the complainant:

- Provides the name of the manufacturer (and product if known);
- explains the alleged breach as clearly as possible;
- (if applicable) identifies the name and date of the publication in which the advertisement/article appeared;
- provides copies of any correspondence, and details of any telephone conversations, between the complainant and the complaint alleged breach;
- provides any other information considered relevant; and
- puts each new complaint on a separate page.

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SECTION I: THE ENCOURAGEMENT AND SUPPORT OF BREASTFEEDING IN THE AUSTRALIAN COMMUNITY

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APPENDIX 1

The Australian Agreement

**MARKETING IN AUSTRALIA OF
INFANT FORMULAS**

Manufacturers and importers

May 1992

THE MARKETING IN AUSTRALIA OF INFANT FORMULAS: MANUFACTURERS AND IMPORTERS

Preamble

This document sets out the obligations of manufacturers in, and importers into, Australia of infant formulas and gives effect in Australia to the principles of the World Health Organisation's International Code of Marketing of Breast Milk Substitutes (the 'WHO Code').¹

Clause 1: Aim

The aim is to contribute to the provision of safe and adequate nutrition for infants, by the protection and promotion of breast feeding and by ensuring the proper use of breast milk substitutes, when they are necessary², on the basis of adequate information and through appropriate marketing and distribution. (*WHO Code Article 1*)

Clause 2: Scope

This document applies to the marketing in Australia of infant formulas when such products are marketed or otherwise represented to be suitable, with or without modification, for use as a partial or total replacement of breast milk. It also applies to their quality and availability, and to information concerning their use. (*WHO Code Article 2*)

Clause 3: Definitions

'Breast milk substitute' means any food marketed or otherwise represented as a partial or total replacement for breast milk, whether or not suitable for that purpose.

'Container' means any form of packaging of infant formulas for sale as a normal retail unit, including wrappers.

'Health care system' means governmental, non-governmental or private institutions engaged, directly or indirectly, in health care for mothers, infants and pregnant women; and nurseries or childcare institutions. It also includes health workers in private practice. For the purposes of this document, the health system does not include pharmacies or other retail outlets.

'Health care professional' means a professional or other appropriately trained person working in a component of the health care system, including pharmacists and voluntary workers.

'Infant formula' means any food described or sold as an alternative for human milk for the feeding of infants up to the age of 12 months and formulated in accordance with Australian Food Standard R7 – Infant Formula.

1 Where applicable, Clauses in this document are cross referenced to the relevant Articles from the WHO Code.

2 For the purposes of the Aim, 'necessary' includes mothers who make an informed choice to use breastmilk substitutes.

'Label' means any tag, brand, mark, pictorial or other descriptive matter written, printed, stencilled, marked, embossed or impressed on, or attached to, a container of infant formulas.

'Marketing' includes the promotion, distribution, selling, advertising, public relations and information services related to infant formulas.

'Marketing personnel' means any persons whose functions include the marketing of infant formulas.

'Samples' means single or small quantities of an infant formula provided without cost.

(WHO Code Article 3)

Clause 4: Information and Education

4(a) Manufacturers and importers of infant formulas in Australia agree that informational and educational materials, whether written, audio or visual, dealing with the feeding of infants and intended to reach pregnant women and parents of infants and young children, should always include clear information on all the following points:

- (i) the benefits and superiority of breastfeeding;
- (ii) maternal nutrition, and the preparation for and maintenance of breastfeeding;
- (iii) the negative effect on breastfeeding of introducing partial bottle feeding;
- (iv) the difficulty of reversing the decision not to breastfeed; and
- (v) where needed, the proper use of infant formula, whether manufactured industrially or home prepared.

(WHO Code Article 4.2)

4(b) When such materials contain information about the use of infant formulas, they should include the social and financial implications of its use; the health hazards of inappropriate foods or feeding methods; and, in particular, the health hazards of unnecessary or improper use of infant formulas. Such materials should not use any pictures or text which may idealise the use of infant formulas. *(WHO Code Article 4.2)*

4(c) Manufacturers and importers of infant formulas should not donate informational or educational equipment or materials unless it is at the request of, and with the written approval of, the appropriate government authority or within guidelines given by the Commonwealth, State or Territory governments for this purpose. Such equipment or materials may bear the donating company's name or logo, but should not refer to a proprietary infant formula, and should be distributed only through the health care system. *(WHO Code Article 4.3)*

Clause 5: The general public and mothers

5(a) Manufacturers and importers of infant formulas should not advertise or in any other way promote infant formulas to the general public. (*WHO Code Article 5.1*)

5(b) Manufacturers and importers of infant formulas should not provide samples of infant formulas to the general public, pregnant women, parents or members of their families. (*WHO Code Article 5.2*)

5(c) Manufacturers and importers of infant formulas should not distribute to pregnant women, or parents of infants and young children, any gifts of articles or utensils which may promote the use of breast milk substitutes or bottle feeding. (*WHO Code Article 5.4*)

5(d) Marketing personnel, in their business capacity, should not seek direct or indirect contact with pregnant women or with parents of infants and young children. This does not prevent appropriately qualified personnel from responding to complaints or unsolicited requests for information. For these requests, parents should be referred to a health care professional whenever health advice is required. (*WHO Code Article 5.5*)

Clause 6: Health care system

6(a) Manufacturers and importers of infant formulas should not use any facility of the health care system for the purpose of promoting infant formulas. This does not, however, preclude the dissemination of information to health care professionals as provided in Clause 7(a). (*WHO Code Article 6.2*)

6(b) Manufacturers and importers of infant formulas should be aware that facilities of health care systems should not be used for the display of products within the scope of this document, for placards or posters concerning such products, or for the distribution of material provided by a manufacturer or distributor other than that specified in Clause 4(c) above. (*WHO Code Article 6.3*)

6(c) The use by health care system of pharmacies or retail outlets, 'professional service representatives', 'mothercraft nurses', or similar personnel, provided or paid for by manufacturers or importers of infant formulas is not permitted. (*WHO Code Article 6.4*)

6(d) Manufacturers and importers of infant formulas should be aware that feeding with infant formulas, whether manufactured or home prepared, should be demonstrated only by health care professionals. Such demonstrations should be made only to the parents or other persons who need to use it, and the information given should include a clear explanation of the hazards of improper use. (*WHO Code Article 6.5*)

6(e) Manufacturers and importers of infant formulas may make donations, or low-priced sales, of infant formulas to institutions or organisations, whether for use in the institutions or for distribution outside them. Such provisions should only be used or distributed for infants who have to be fed on breast milk substitutes. If these provisions are distributed for use outside the institutions, this should be done only by the institutions or organisations concerned. Such donations or low-price sales should not be used by manufacturers or importers as a sales inducement. (*WHO Code Article 6.6*)

6(f) Manufacturers and importers of infant formulas should note that, where donated infant formulas are distributed outside an institution, the institution or organisation should take steps to ensure that these provisions can be continued as long as the infants concerned need them. Donors, as well as the institutions or organisations concerned, should bear in mind this responsibility. (*WHO Code Article 6.7*)

6(g) Equipment and materials, in addition to those referred to in Clause 4(c), donated to a health care system may bear a company's name or logo, but should not refer to any proprietary infant formulas. (*WHO Code Article 6.8*)

Clause 7: Health Care Professionals

7(a) Manufacturers and importers of infant formulas providing information about the formulas to health care professionals should restrict the information to scientific and factual matters. Such information should not imply or create a belief that bottle feeding is equivalent or superior to breastfeeding. It should also include the information specified in Clause 4 (a) above. (*WHO Code Article 7.2*)

7(b) Manufacturers and importers of infant formulas should provide members of the medical profession and related health care professionals with information about the products, and this information should accurately reflect current knowledge and responsible opinion. Such material should be clearly identified with the name of the manufacturer or importer, the brand names of the infant formulas, and the date of publication.

7(c) Manufacturers and importers of infant formulas should not offer any financial or material inducement to health care professionals or members of their families to promote infant formulas, nor should such inducements be accepted by health care professionals or members of their families. (*WHO Code Article 7.3*)

7(d) Manufacturers and importers of infant formulas should not provide samples of infant formulas, or of equipment or utensils for their preparation or use, to health care professionals except when necessary for the purpose of professional evaluation or research at the institutional level. (*WHO Code Article 7.4*)

7(e) Manufacturers and importers of infant formulas should disclose to institutions, to which a recipient health care professional is affiliated, any contribution made to him/her, or on his/her behalf, for fellowships, study tours, research grants, attendance at professional conferences, or the like. (*WHO Code Article 7.5*)

Clause 8: Persons employed by manufacturers and importers

8(a) In systems of sales incentives for marketing personnel, the volume of sales of infant formulas should not be included in the calculation of bonuses, nor should quotas be set specifically for sales of these products. This should not be understood to prevent the payment of bonuses based on the overall sales by a company of other products marketed by it. (*WHO Code Article 8.1*)

8(b) Personnel employed in marketing infant formulas should not, as part of their job responsibilities, perform educational functions in relation to pregnant women or parents of infants and young children. This does not prevent such personnel from being used for other functions by the health care system. (*WHO Code Article 8.2*)

Clause 9: Quality and Labelling

9(a) Manufacturers and importers of infant formulas must ensure that infant formulas sold in Australia conform with Australian Food Standard R7 - Infant Formula. (*WHO Code Articles 9.2; 9.4; 10.1; and 10.2*)

9(b) Manufacturers and importers of infant formulas must ensure that labels provide the information required to be provided by the Australian Food Code's Standard A1 - Labelling and Advertising and Standard R7 - Infant Formula and also provide the necessary information about the appropriate use of infant formulas and should not discourage breastfeeding. (*WHO Code Article 9.1*)

Clause 10: Implementation and Monitoring

10(a) Independently of any other measures taken to implement their obligation under this document, each manufacturer and importer of infant formulas should regard itself as responsible for monitoring its marketing practices according to the principles and aims of this document, and for taking steps to ensure that its conduct at every level conforms to those principles and aims. (*WHO Code Article 11.3*)

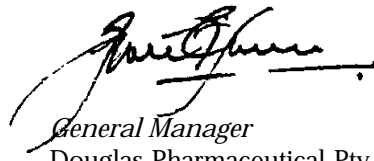
10(b) Manufacturers and importers of infant formulas agree to be represented on the Advisory Panel on the Marketing in Australia of Infant Formula and to participate fully in the work of the Advisory Panel.

10(c) Each manufacturer and importer of infant formulas should apprise its personnel of the existence of this document and of their responsibilities under it. (*WHO Code Article 11.5*)

Dated 21 May 1992



Managing Director
Abbott Australasia Pty Limited



General Manager
Douglas Pharmaceutical Pty Ltd



General Manager
Mead Johnson Australia



Managing Director
Nestle Australia Limited



Managing Director
Sharpe Laboratories



Managing Director
Wyeth Pharmaceutical Pty Ltd

I, **Brian Leslie Howe**, Deputy Prime Minister and Minister of State for Health, Housing and Community Services.

AND

I, **Michael Carter Tate**, Minister of State for Justice and Consumer Affairs

ACKNOWLEDGE AND SUPPORT

the adoption under the attached document of the Aims and Principles of the World Health Organisation's International Code of Marketing of Breast Milk Substitutes (the 'WHO Code') insofar as adoption of the WHO Code is possible within the Australian legal context

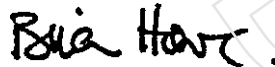
BY

the Australian manufacturers and importers of infant formulas

WHOSE

Managing Directors or General Managers, in signing the attached document, have indicated acceptance, on behalf of their respective companies, of the obligations arising under it, subjects to authorisation of the attached document being granted by the Trade Practices Commission.

21 May 1992



BRIAN LESLIE HOWE
*Deputy Prime Minister and
Minister of State for Health,
Housing and Community Services*



MICHAEL CARTER TATE
*Minister of State for Justice
and Consumer Affairs*

APPENDIX 2

Four samples of appropriate consent forms for the use of complementary feeds.

SAMPLE 1: CONSENT FORM FOR THE USE OF COMPLEMENTARY FEEDS

At _____ (name of hospital), we believe that breastmilk is the best food for infants and want to support you in your choice to breastfeed. We believe that it is important for you to know the likely effects of giving your baby complementary feeds, so that you can make an informed decision.

What are complementary feeds?

Complementary feeds are any fluid other than breastmilk given to your baby, such as water, glucose water or infant formula in addition to the normal breast feed.

The effects of complementary feeds

Introducing complementary feeds may have the following effects:

1. Breastfeeding works on a demand/supply basis. The more milk your baby takes, the more milk your breasts make. When your baby is given complementary feeds your breasts have less stimulation. This in turn means less milk will be made.
2. It is important that your breasts are suckled frequently. If feeds are missed or replaced by a complement your breasts can become too full and painful. This is known as engorgement. Your body will stop making milk if you breasts are too full.
3. There is also evidence to suggest that approximately 1 to 3 per cent of infants who are given infant formula will develop an allergy to cows' milk protein.

These effects of giving complements or supplements may make it difficult for you to continue breastfeeding. However, you should be assured that we will undertake to make every effort to help you re-establish breastfeeding once the reason for requiring the complementary feed has been overcome, should you wish to do so.

In the event of complementary feeding, the potential for the these problems can be minimised by:

- Expressing regularly to maintain supply and to prevent engorgement.
- Using expressed breastmilk where available to minimise the potential for cows' milk protein allergy.

This information sheet was issued to _____
on _____ and discussed with me by _____

Consent to complement new-born infants

I, _____, wish/have been advised to give the following complementary feed to my baby.

Name of complement _____

I have read and understand the information sheet for mothers.

Date _____ Time _____ Reason _____

Signed by Mother: _____

Health Worker _____

The above consent applies only for complementary feed(s) necessary for the above stated reason. Each time the reason for a complement changes, a new consent form should be filled out.

Based on a consent form produced by the New Zealand College of Midwives Inc.

SAMPLE 2: CONSENT FOR COMPLEMENTARY/SUPPLEMENTARY FEEDING

The National Health and Medical Research Council of Australia and the NSW State Breastfeeding Policy states that the routine use of Complementary feedings of any kind should be excluded for full-term breastfed infants, and mothers should be aware of the importance of frequent feeds and the negative effects of complements/supplements of any kind on breastmilk supply.

The Postnatal wards do not routinely give formula or boiled water to breastfeeding babies for the following reasons:

- 1 The baby's suck on a bottle teat is different from the baby's suck on the breast. A breast fed baby can become "nipple confused" and may then have difficulty latching onto the breast.
- 2 Even one formula/water feed in the newborn period can interfere with the protection against infection that colostrum/breastmilk is creating in the baby's gut.
- 3 Formula is more slowly digested than breastmilk which increases the time between feedings. Less stimulation of the breast will lead to a reduced breastmilk supply.
- 4 Frequent food drainage of the breast prevents engorgement. Formula or water complements can interfere with breast drainage and thus contribute to engorgement.
- 5 Both soy and cows' milk formula can create a potential allergic response.
- 6 Studies have shown that breastfeeding a healthy newborn on demand, without giving formula/water:
 - Encourages early milk production (within 24-48 hours)
 - Decreases the likelihood of jaundice
 - Supports better weight gain in infants
 - Is associated with a longer and more successful lactation

Each individual complementary/supplementary feed must have the consent of the mother

Date _____ Time _____

I _____ authorise my baby to be given a

(mother's name)

complementary/supplementary feed of _____

(circle appropriate response)

(type of formula/water)

by _____

(bottle/cup)

Signature of mother _____

Date _____ Time _____

I _____ authorise my baby to be given a

(mother's name)

complementary/supplementary feed of _____

(circle appropriate response)

(type of formula/water)

by _____

(bottle/cup)

Signature of mother _____

Date _____ Time _____

I _____ authorise my baby to be given a

(mother's name)

complementary/supplementary feed of _____

(circle appropriate response)

(type of formula/water)

by _____

(bottle/cup)

Signature of mother _____

INFANT FEEDING GUIDELINES FOR HEALTH WORKERS

Date _____ Time _____
I _____ authorise my baby to be given a
(mother's name)
complementary/supplementary feed of _____
(circle appropriate response) (type of formula/water)
by _____
(bottle/cup)
Signature of mother _____

Date _____ Time _____
I _____ authorise my baby to be given a
(mother's name)
complementary/supplementary feed of _____
(circle appropriate response) (type of formula/water)
by _____
(bottle/cup)
Signature of mother _____

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SAMPLE 3: ROYAL HOBART HOSPITAL CONSENT FOR COMPLEMENTARY FLUIDS

The Paediatricians attending the Queen Alexandra Hospital have agreed that it is undesirable and unnecessary for babies who are to be breast fed to have any complementary feeds of cows' milk or derivatives.

The post-natal ward at Queen Alexandra Hospital will not routinely supplement babies with water or formula for the following reasons:

1. Cows' milk formula can create a potential allergic response.
2. The baby's suck on a breast is different from on the bottle teat. A breast fed baby can become nipple confused and may then have difficulty latching onto the breast.
3. Formula is more slowly digested than human milk, which increases the time between feeds.
4. Studies have shown that feeding a health term newborn on demand without supplement encourages:
 - early milk production, (within 24-43 hours)
 - decreases the likelihood of jaundice
 - supports better weight gain in infants

Date _____ Time _____

I _____ authorise the midwives to supplement
(mother's name)

(baby's name)

with _____
(milk formula, water or glucose)

(signature)

Reprinted with permission of Royal Hobart Hospital

**SAMPLE 4: KING GEORGE V MEMORIAL HOSPITAL
FOR MOTHERS AND BABIES**

Consent to complement or supplement newborn babies

The staff of KGV are committed to supporting mothers to breastfeed. Breastmilk is the ideal food for babies.

As breastfeeding works on a supply/demand basis, the more milk your baby takes the more milk your breasts will make. It is important that your baby feed to need. If feeds are missed or replaced by a supplementary or complementary feed such as formula or water, your breasts may make less milk. If the milk that is in the breasts is not removed your breasts may become very full and painful and this will signal your body to stop making milk and may lead to an inability to breastfeed successfully.

I have read and understand the above information and wish to give my baby a complementary/supplementary feed.

Date _____ Time _____

Type of complement/supplement _____

Mother _____ Witness _____

Consent to Complement or Supplement Newborn Babies

This form is to be signed if the mother requests a complement/supplementary feed for her baby and there is no medical indication. A separate form must be signed each time formula is given.

A Division of Royal Prince Alfred Hospital

Reprinted with permission of King George V Memorial Hospital for Mothers and babies

APPENDIX 3

SAMPLE OF A SUITABLE DRAFT FOR AN INFORMATION BOOKLET FOR PARENTS

Preparing for the birth of your child includes giving consideration to the best way to feed. In order to make an informed decision, it is important for you and your partner to gain some knowledge of breastfeeding by reading a wide selection of material available. Your health professional can assist with your decision by discussing with you and your partner the variety of factors associated with breastfeeding and your individual needs. Community groups such as the Nursing Mothers Association of Australia offer information and support to women who intend to breastfeed.

Options for feeding

Breastfeeding is recommended by health authorities as the best method of infant feeding for at least the first four to six months of life. Solid foods should gradually be introduced from approximately four to six months of age, but breastmilk remains the preferred milk for infants up to the age of 12 months. Breastfeeding should continue into the second year of life.

If breastfeeding is not possible, for whatever reason, standard commercial infant formula should be used until the baby is 12 months old. Home prepared formulas, cows' milk, powdered, condensed or other types of milk are not suitable and may cause your baby to become ill.

Breastmilk will meet all your infant's nutritional needs for the first four to six months of age. No other foods or fluids are required.

Advantages of breastfeeding for mother and infant

Breastfeeding offers numerous advantages for both you and your infant.

For your infant

- breastmilk is a complete food for the baby's growth;
- breastmilk is easier to digest than infant formula or cows' milk;
- breastfeeding reduces the risk or severity of the following disease states:
 - physiological reflux;
 - pyloric stenosis;
 - inflammatory bowel disease;
 - some childhood cancers;
 - delayed onset of coeliac disease;
 - gastrointestinal tract disease;
 - respiratory disease;
 - insulin dependent diabetes mellitus;
 - middle ear infections; and
 - urinary tract infections;

- bacteraemia - meningitis;
- sudden infant death syndrome (SIDS - also known as “cot death”);
- a lower incidence of necrotizing enterocolitis in premature infants.
- breastfeeding promotes good jaw and tooth development through the sucking exercise
- breastfeeding encourages the infant to satisfy appetite without overeating
- breastfeeding creates a special closeness between mother and baby

For you

Breastfeeding shows some protection against:

- premenopausal breast cancer
- ovarian cancer
- osteoporosis
- it is the least expensive way to feed your baby
- it is the easiest way to feed your baby
- breastfeeding for longer than seven months facilitates the return to prepregnancy body weight and body shape

When is infant formula necessary?

There are a few instances when infant formula is necessary:

- when a mother makes an informed decision not to breastfeed
- when a mother is HIV positive
- in rare cases of metabolic disorders of the infant, such as galactosaemia and maple syrup urine disease; in cases of phenylketonuria partial breastfeeding may be possible with careful monitoring by your health professional
- in some cases of maternal illness

The decision to use an infant formula should always be discussed with a health worker who can advise you on which type of formula to use and how it should be made up.

What to expect in the first few hours after birth and during hospital stay

When you are in hospital, you will probably find that your baby will be placed on your breasts soon after delivery. This will help initiate breastfeeding.

It is common practice for many hospitals to practice ‘rooming in’, where your baby will stay in the same room with you 24 hours a day. This makes it easier for you to get to know your baby.

While every effort will be made to help you to breastfeed, you should be aware that there are some rare circumstances where it may be recommended that you give your baby a complementary feed. Complementary feeds are any fluid other than breastmilk given to your baby, such as water, glucose water or infant formula.

When are complementary feeds necessary?

Complementary feeds may be necessary in cases of illness in the mother or the baby. The hospital staff will only give your baby a complementary feed after seeking your permission.

The effects of complementary feeds

- Breastfeeding works on a demand/supply basis. The more milk your baby takes, the more milk your breasts make. When your baby is given a complementary feed your breasts have less stimulation. This in turn means that your baby will take less.
- It is important that your breasts are suckled frequently. If fluids are missed or replaced by a complement your breasts can become too full and painful. This is known as engorgement. Your body will stop making milk if your breasts are too full.

These effects of giving complements or supplements may ultimately make it difficult for you to continue breastfeeding. However, you should be assured that the hospital staff will undertake to make every effort to help you re-establish breastfeeding once the reason for requiring the complementary feed has been overcome, if you wish to do so.

In the event of complementary feeding, the potential for these problems can be reduced by:

- expressing regularly to maintain supply and to prevent engorgement.
- using expressed breastmilk where available to minimise the potential for cow or soy milk protein allergy.

What if I want to return to work soon after birth?

Many women continue to successfully breastfeed after returning to work. Your health professional will be available to discuss with you and your partner the options which are best suited to your individual situation. Partial breastfeeding is one option to be considered. Many mothers breastfeed before and after working hours and at weekends. Breastmilk can be expressed so that a carer can feed the baby during the day, or infant formula can be given for one or two feeds a day.

If you are expressing breastmilk at work, be sure to label it carefully. It has been known to finish up in more than one cup of morning tea!

APPENDIX 4

EDINBURGH POSTNATAL DEPRESSION SCALE (E.P.D.S)

Today's date _____ Baby's age _____ Mother's age _____

How are you feeling?

As you have recently had a baby, we would like to know how you are feeling now. Please tick the answer which comes closest to how you have felt in the past seven days, not just how you feel today.

Here is an example, already completed:-

I have felt happy:

- yes, most of the time
- yes, some of the time
- no, not very often
- no, not at all

This would mean: "I have felt happy some of the time" during the past week. Please complete the other questions in the same way.

In the past seven days

1 I have been able to laugh and see the funny side of things:

- as much as I always could
- not quite so much now
- definitely not so much now
- not at all

2. I have looked forward with the enjoyment to things:

- as much as I ever did
- rather less than I used to
- definitely not so much now
- hardly at all

3. I have blamed myself unnecessarily when things went wrong:

- yes, most of the time
- yes, some of the time
- not very often
- no, never

4. I have felt worried and anxious for no very good reason:

- no, not at all
- hardly ever
- yes, sometimes
- yes, very often

5. I have felt scared or panicky for no very good reason:

- yes, quite a lot
- yes, sometimes
- no, not much
- no, not at all

6. Things have been getting on top of me:

- yes, most of the time I haven't been able to cope at all
- yes, sometimes I haven't been coping as well as usual
- no, most of the time I have coped quite well
- no, I have been coping as well as ever

7. I have been so unhappy that I have had difficulty sleeping:

- yes, most of the time
- yes, sometimes
- not very often
- no, not at all

8. I have felt sad or miserable:

- yes, most of the time
- yes, quite often
- not very often
- no, not at all

9. I have been so unhappy that I have been crying:

- yes, most of the time
- yes, quite often
- only occasionally
- no, never

10. The thought of harming myself has occurred to me:

- yes, quite often
- sometimes
- hardly ever
- never

Scoring:

Response categories are scored 0, 1, 2 and 3 according to increased severity of the symptom.

Items marked with an asterisk * are reverse scored (ie 3, 2, 1 and 0). The total score is calculated by adding together the scores of each of the 10 items.

Mothers who score above 12 are likely to be suffering from a depressive illness of varying severity. The EPDS should not override clinical judgement. A careful clinical assessment should be carried out to confirm the diagnosis. The scale indicates how the mother has felt during the previous week and in doubtful cases it may be usually repeated after two weeks. The scale will not detect mothers with anxiety neuroses, phobias or personality disorders.

Instructions for users:

- The mother is asked to underline the response which comes closest to how she has been feeling in the previous seven days.
- All 10 items must be completed.
- Care should be taken to avoid the possibility of the mother discussing her answers with others.
- The mother should complete the scale herself unless she has limited English or has difficulty with reading.

(EPNDS is from Cox,J.L, Holden,J.M, Sagovsky,R., Detection of Postnatal Depression Development of the 10 item Edinburgh Postnatal Depression Scale. British Journal of Psychiatry (1987), 150: 782-786).

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APPENDIX 5

SUMMARY OF CONSULTATIONS UNDERTAKEN IN THE DEVELOPMENT OF THE INFANT FEEDING GUIDELINES FOR HEALTHWORKERS

The National Health and Medical Research Council Act 1993 provides for the Council to adopt a policy of public consultation.

A general obligation to consult is imposed by subsection 3(2) of the Act which states:

“It is the intention of the Parliament that, to the extent that it is practicable to do so, the Council should adopt a policy of public consultation in relation to individual and public health matters being considered by it from time to time”.

There were two public consultations in 1993 and 1994 in developing the “Infant feeding Guidelines for Health Workers”.

Nature of the Consultations

The first consultation, February to April 1993, and the second consultation, December 1994 to March 1995, in accordance with the Act, comprised:

- publishing a notice in the Commonwealth Gazette inviting submissions on the draft document
- sending a copy of the draft document and a covering letter to identified interested individuals and organisations, and
- national advertising in the Weekend Australian announcing the availability of the draft document and inviting submissions

Approximately 85 submissions were received in the first round of consultations.

Approximately 3000 copies of the draft document were distributed for the second consultation and approximately 165 submissions were received.

Summary of issues raised in the two consultations

First consultation - 1993

The development of the guidelines was welcomed because:

- health workers play a vital role in implementing the WHO Code and Australian Agreement
- consistency in the approach to infant nutrition and feeding practices in Australia is needed
- health workers’ ignorance on issues related to breastfeeding can lead to the inappropriate and unnecessary use of complementary feeds

It was felt that the guidelines should not be too restrictive and should allow for groups of health workers to form their own policies on breastfeeding. Also, they should not be framed in such a way as to influence health workers to make women who do not breastfeed feel guilty.

The guidelines should assist health workers against giving women inappropriate advice and/or inadequate support which could result in their deciding to formula feed.

The importance of gaining support from relevant professional bodies and employers of health workers was raised; the guidelines should be aimed at the whole of the health sector, not only health workers.

Framing the guidelines in terms of the National Health Goals and Targets, and expressing them in terms of measurable performance indicators were also considered important, along with establishing a monitoring mechanism for the guidelines.

Several issues were raised about free and subsidised supplies of infant formula to hospitals and child health centres:

- Health workers agreed hospitals should no longer accept free supplies of infant formula. The practice was considered to indicate that the particular brand a mother is given is “best”. It also provides subtle negative messages to mothers about breastfeeding, and an easy solution to hospital workers for problems that new mothers may encounter with breastfeeding.

Mothers who wish to formula feed their infants should provide the formula and all the other associated equipment, enabling them to realise the cost and time involved.

When it is necessary for a hospital to stock and use formula, it was suggested that hospitals put out tenders to obtain formula at competitive rates and that the formula should be provided unbranded.

- The situation of free samples in child health centres was less clear. There was some suggestion that this practice should also cease and that those mothers in need should be referred to welfare agencies for supplies. However, it was also felt that limited supplies should be kept for those times when mothers need samples. The distribution of samples should be done carefully so as not to encourage formula feeding among women who would otherwise continue to breastfeed.
- Generally, there was no support for eliminating these supplies in the submissions from government organisations. The need to carry supplies for those women who have already made the decision to use an infant formula was seen to be necessary, although breastfeeding should be encouraged wherever possible.

Issues raised about the informed use of complementary feeds in hospitals were:

- A consent form should be available to be signed by both the mother and health worker when discussing the decision to formula feed. An information sheet on the advantages of breastfeeding and disadvantages of formula feeding should be part of the consent form.

Health workers need to be aware of the instances in which complementary feeds are indicated (low birth weight, prematurity etc).

On the causes and management of common problems that may arise for both mother and infant when breastfeeding, the following issues were raised:

- Health workers should know how to prevent some of these problems arising, including appreciating different cultural practices and beliefs in relation to breastfeeding.
- Simple, easy to read pamphlets should be available to parents on breastfeeding, common problems they may encounter, and where to go for help.
- Consistent advice should be given by health workers about managing problems.
- The need to establish greater environmental and policy supports to encourage, protect and promote breastfeeding.
- The need to ensure women have access to trained health workers after leaving hospital.

There was general support for the guidelines to address the maternal and infant advantages of breastfeeding. This should include a discussion of the changes in the composition of breast milk during lactation and its advantages over infant formula. There was also a call to educate the wider general public, including schoolchildren, about these advantages.

Issues raised in relation to breastfeeding in special situations were:

- Health workers need access to regular up-to-date information on drugs and lactation.
- Research is needed into the effects of drugs on breast milk.
- Health workers should be able to advise women on their maternity leave entitlements and ways to continue breastfeeding when returning to work, and workplaces should enable women to continue breastfeeding with flexible work hours, breaks during work hours and appropriate facilities.
- The issue of maternal diet was also raised, in terms of inappropriate advice given by health workers to mothers about foods to avoid when breastfeeding, and ensuring women consume enough food to meet their energy requirements when breastfeeding.
- Women should be encouraged to initiate and maintain breastfeeding when their infants are ill and need hospitalisation.

A number of issues arose about the education of health workers:

- All health workers who deal with pregnant and lactating women should receive instruction on lactation and the management of breastfeeding. This should provide health workers with the skills to encourage women to initiate and maintain breastfeeding, and to dispel any false beliefs that they may have about breastfeeding.
- Some respondents suggested that health workers should all be encouraged to complete the lactation consultant's course, while others felt the educational institutions which train health workers should include breastfeeding and the WHO Code etc in the curricula.
- Recognising the important role of the GP in encouraging breastfeeding.
- The need to keep health workers up-to-date about infant feeding issues - through inservice training, newsletters etc.

Issues relating to hospitals and hospital workers in particular were:

- The need to address hospital practices which may interfere with breastfeeding such as rigidity in not allowing sufficient time in the delivery room for the infant to have contact with the mother.
- Hospitals should discourage the use of infant formula by mothers establishing lactation unless there are medical grounds for doing so.
- The increasing trend towards early discharge from hospital may mean that many women will not have fully established lactation. Follow-up mechanisms are needed to ensure these women have access to information and support services.
- The need for lactation expertise among hospital staff.

Issues raised in relation to pharmacists were:

- Only qualified pharmacists should oversee the supply and storage of infant formula, have contact with infant formula representatives, and advise customers on using infant formula.
- Community pharmacists have a vital role in advising new mothers, whatever feeding method they choose.
- Pharmacists should advise a breastfeeding woman where to seek appropriate assistance and information for any problems she experiences.

Health workers raised a number of other general issues relating to the WHO Code and the Australian Agreement:

- Health workers in community and early childhood centres need advice on how to deal with infant formula representatives.
- Advice should be provided about using or allowing infant formula manufacturers to support education and sponsorship of health workers.

- Advice should also be provided on Article 4.3/Clause 4(c) about donations of equipment or materials to health workers by infant formula companies. It was felt that “educational materials” could encompass coffee mugs, notepads, pens etc bearing the name of the company.
- Advice about advertising by the infant formula industry in professional journals is needed.
- The need to go beyond voluntary guidelines and to establish a monitoring system for them was raised.
- Health workers should be aware of the needs of special groups - those from low socio-economic backgrounds, non-English speaking backgrounds, Aboriginal and Torres Strait Islander groups, and lactating women who need to lose weight.

Second consultation — 1994

On the issue of free and subsidised supplies of infant formula to hospitals and child health centres, there was general support for stopping free and subsidised supplies to hospitals, however the budgetary impact, particularly for neonatal intensive care units, was acknowledged.

Issues relating to the informed use of complementary feeds in hospitals were:

- Informed use of complementary feeds and consent forms should be explained during ante natal classes. This is a less emotional time for rational discussion and decision making than after delivery.
- The medical indications for complementary feeds should be included in consent forms.
- Each feeding situation should be assessed individually.
- A range of suitable ‘consent forms’ would assist hospitals to draft their own style of form.
- The wording in any material going to parents should avoid health jargon.

On the causes and management of common problems that may arise for both mother and infant when breastfeeding, the following matters were raised:

- The temporary nature of these problems.
- Drug dosages are outside the realm of this document
- Using cabbage leaves to treat engorgement.
- The need to teach cup feeding technique to all staff.
- The differences between post natal distress and post natal depression.

- Weight gains should be averaged over a period of time.
- Information relating to the storage of breastmilk must be clear and concise.

Issues relating to maternal and infant advantages of breastfeeding were:

- Recognise the role of the partner and supporting family.
- The benefits for society in general.
- Clear distinction between the benefits for the infant and the mother.
- The need for mothers to be able to get reliable information.

Issues relating to breastfeeding in special situations were:

- Acknowledging that the drug information centre at a major women's hospital is the best source of current information about the interaction of drugs and breastmilk.
- Recognise alternate supplies of breastmilk eg wet nursing
- Disseminating information about the accessibility of breast pumps for hire.
- Information to mothers of multiple births needs to be positive, and they should be encouraged to express.

A specific issue was raised in relation to hospitals and hospital workers in particular: the need to include explanations about 'consent forms' and 'complementary feeds' during ante natal education classes.

No specific issues were raised about pharmacists.

Other general issues relating to the WHO Code/Australian Agreement and health workers were:

- The need for information about the composition of breastmilk.
- The need for information about establishing breastfeeding.
- The value of including illustrations showing attachment and positioning of the infant.
- The need for information about expression of breastmilk, particularly instructions on hand expressing techniques.
- Recognising the value of community support services.
- Recognising and appreciating the cultural differences which may affect breastfeeding.
- Recognising and taking account of the socio-economic factors which may be a factor in a woman's choice of feeding method.

LIST OF SUBMISSIONS TO THE PUBLIC CONSULTATIONS

(1) denotes a submission to the first consultation

(2) denotes a submission to the second consultation

(1, 2) denotes a submission to both consultations

Aboriginal and Islander Community Health Services (1)
Advisory Panel On The Marketing In Australia Of Infant Formula (1, 2)
Albany Regional Hospital - WA (G Pitman) (2)
Albury Community Health Centre - NSW (2)
Armadale Helmscott Health Services - WA (M Smith) (2)
Ashfield Early Childhood Health Centre - NSW (2)
Associates In Childbirth Education (1)
Association Of Neonatal Nurses (NSW) (1, 2)
Association Of Paediatric And Child Health Nurses (WA) (1)
Attwood E, SA (2)
Australian Coalition For Optimal Infant Feeding (2)
Australian College Of Midwives (2)
Australian College Of Midwives Inc - WA Branch (2)
Australian College Of Paediatrics (1)
Australian Council Of Community Nursing Services (1, 2)
Australian Council Of Trade Unions (2)
Australian Lactation Consultants' Association (1, 2)
Australian Lactation Consultants' Association - NSW (2)
Australian Lactation Consultants' Association - WA (1, 2)
Australian Medical Association (1, 2)
Australian Nursing Council (2)
Australian Nursing Federation (1)
Australian Nursing Federation - SA Branch (1)
Australian Nursing Federation - WA Branch (2)
Australian Nutrition Foundation - Qld Division (1, 2)
Baby Food Action Group (1, 2)
Ballarat Community Health Centre - Vic (J Morrison) (2)
Ballina Hospital Health Service (1)
Balnaves J (2)
Baltuham M Qld (2)
Basmadjian C Qld (2)
Billings J NSW (2)
Blackwater Child Health Clinic - Qld (S Fanning) (2)
Blake J, Balranald NSW (2)

Boyd M, SA (2)
Cairns Base Hospital (2)
Central Queensland University Faculty Of Health Science (2)
Child And Adolescent Family Health Service - SA (2)
Child And Family Health Services - SA (N Davies) (2)
Child And Family Health Nurses' Association - NSW (1)
Clark Roban-Lynne (1)
Clarke G, WA (2)
Community Health - NSW (2)
Community And Health Services - Tas (1, 2)
Cook C, (2)
Cooma Community Health - NSW (2)
Cowra District Hospital (J Eutery) (2)
Cox John (Paediatrician) (1)
Crossley P, ACT (2)
Curtin University School Of Nursing - WA (2)
Cuthbert M, Barker-Vile A, Mckimm C, Vic (2)
Dalby Health Services (2)
Deakin University - School Of Nursing (1, 2)
Delegate District Hospital (1)
Dickinson N, NSW (2)
Dietitians Association Of Australia (1, 2)
Douglas Pharmaceuticals (2)
Early Childhood Centre - Coffs Harbour NSW (M. Kesker) (2)
Eastern Sydney Area Health Service (1, 2)
Family And Child Health Services - Tas (2)
Far West Health Service - Broken Hill NSW (2)
Fardy S, NSW (2)
Federal Bureau Of Consumer Affairs (1)
Fewings K, Qld (2)
Fitzche SD, Vic (2)
Flinders Medical Centre, (K Simmer) (2)
Foundation SA (K Puels) (2)
Gallagher Susan Lactation Consultant (1, 2)
Gatton Health Services (2)
Geelong Hospital (1)
Glenside Hospital - SA (Dr A Sved-Williams) (1)
Goulburn Health Service (1)

Griffith University School Of Nursing (2)
Health And Community Services - NT (1)
Health And Community Services - Vic (1)
Health Dept. Of Western Australia (1, 2)
Health Dept. Of Western Australia - Community Nursing (1)
Health Dept. Of Western Australia - Health Promotion (1)
Health Dept. Of Western Australia - Health Workforce Branch (2)
Hervey Bay - Maryborough Health Service - Qld (2)
Home Economics Association Of Queensland (1)
Hornsby Child Health Centre (1)
Hynd D, WA (2)
Illawarra Area Health Service - Community Health Service (1)
Illawarra Regional Hospital (1)
John Hunter Hospital, NSW (2)
Johnston C, NSW (2)
Jurigs D, Qld (2)
Kearns T, SA (2)
Kempsey District Hospital - NSW (R Mcilwain) (2)
King George V Memorial Hospital For Mothers And Babies - NSW
(H Jeffery) (1, 2)
King Edward Memorial Hospital For Women - WA (S Faulkner, G
Milner) (2)
Kinlay J, NSW (2)
Lantry M, NSW (2)
La Trobe University School Of Nursing (2)
Lesh K, SA (2)
Linda N, Vic (2)
Mcburney L (1)
Mcintyre E, SA (2)
Mckay D, NSW (2)
Mckeogh E, WA (2)
Mcmaster J, WA (2)
Maternity Alliance (D Horey, J Townsend) (2)
Mead Johnson / Bristol Myers (2)
Mildura Aboriginal Health Corporation - Vic (2)
Minchin M, Vic (1, 2)
Mona Vale Hospital - NSW (S Wiggins, B Delgato, C Innes) (2)
Monash Medical Centre (1)

Monash University Victorian College Of Pharmacy (2)
Morningside Peninsula Hospital (J Linklater) (1, 2)
Moruya Community Health Centre (1)
Mount Eliza Centre (1)
National Heart Foundation (1)
Nestle Australia (1, 2)
Newman S, Vic (2)
Norseman Hospital - WA (S Lawrie) (2)
NSW College Of Nursing (2)
NSW Health Department (E Macoun) (1, 2)
NSW Health Department - Aboriginal Health Branch (2)
NSW Midwives Association (1)
NSW Nurses Association (2)
Nursing Mothers' Association Of Australia (1, 2)
Olive K, NSW (2)
Parks M, Vic (2)
Parmeter-Hartney G, Qld (2)
Patterson J, SA (2)
Pearson T, SA (2)
Pharmacy Guild Of Australia (1, 2)
Port Augusta Breastfeeding Support Group - SA (J Vnuk) (2)
Pozzi M, Biloela Qld (2)
Princess Margaret Hospital For Children - WA (1)
Professional Infant Care Services (1)
Purcell P, NSW (2)
Queanbeyan District Hospital And Health Service (1)
Queen Elizabeth Centre (1)
Queensland Dairy Industry Authority (1)
Queensland Health - Brisbane North Region (1)
Queensland Health - Central Office (1)
Queensland Health - Central Region (1)
Queensland Health - Darling Downs Region (1)
Queensland Health - Mackay Region (1)
Queensland Health - Peninsula And Torres Strait Region (1)
Queensland Health - West Moreton Region (1)
Queensland Health - Wide Bay Region (1)
Queensland Health Advancement (2)
Queensland Health - Youth Health Policy Unit (2)

Renton E, ACT (2)
Richardson R, Vic (2)
Riverina Health Services - NSW (M Reardon) (2)
Riverton Child Health Centre - WA (P Adams) (2)
Robinson J, NSW (2)
Rockhampton Base Hospital (K Tansley) (2)
Royal Alexandra Hospital For Children - NSW (J Allen) (2)
Royal Australian College Of General Practitioners (2)
Royal Brisbane Hospital (Dr D Mackerras) (2)
Royal Children's Hospital - Vic (E Volders) (1, 2)
Royal College Of Nursing, Australia (1, 2)
Royal College Of Nursing, Australia - SA Chapter (1)
Royal Hobart Hospital (S Cox) (2)
Royal Hospital For Women - NSW (J Heads) (2)
Royal Melbourne Institute Of Technology (2)
Royal North Shore Hospital (1)
Royal Prince Alfred Hospital - Nsw (W Hodge) (2)
Royal Women's Hospital - Melb Vic (1)
Royal Women's Hospital - Herston Qld (2)
Ryan L. Bundaberg Qld (2)
Ryde Hospital - NSW (J Stephens) (2)
Salt L, ACT (2)
Saunders S (1)
School Of Public Health, Curtin University (J Scott) (2)
South Australian Health Commission (1, 2)
South Western Sydney Area Health Service (1, 2)
Southern Cross University Centre For Nursing (C Pursche) (2)
Southport Child Health - Qld (V Attenborough, S Anderson) (2)
St George Hospital (1)
St Vincent's Hospital - Qld (B Roache, J Fraser, D Jurets) (2)
Stedman V, Qld (2)
Stevens J, Qld (2)
Thompson L, Qld (2)
Thorley-Phillips V, Lactation Consultation (1, 2)
Tonissin V (2)
Toowoomba Health Services (R Hughes) (2)
Tresillian (B. Gillard) (2)
Tresillian Family Care Centres (1)

Tresillian - Willoughby NSW (2)
Tuppling Hilary Consulting Services (1)
Unicef (1)
University Of Melbourne Dept Of Paediatrics (D Francis (1, 2)
University Of New England (C Pursche) (1)
University Of Notre Dame Australia - Broome WA (I Mensik) (2)
University Of Queensland - Nutrition Program (1)
University Of South Australia (2)
University Of Southern Queensland Dept Of Nursing (2)
University Of Sydney - Dept Of Family And Community Health
In Nursing (1)
University Of Sydney - School Of Nursing (2)
University Of Tasmania - School Of Nursing (1)
University Of Tasmania - Dept Of Biochemistry (1)
University Of Western Sydney - Nepean, Faculty Of Health Studies (1, 2)
University Of Western Sydney - Hawkesbury, School Of Nursing
And Health Studies (1)
Viney T, Vic (2)
Warwick Health Services - Qld (2)
Warwick Child Health Services - Qld (2)
Wentworth Area Health Services - NSW (2)
Westcourt Community Health - Qld (C Doonan) (2)
Westmead And Parramatta Hospitals And Community Health Services (1, 2)
Williams J, Qld (2)
Williamson S. Lactation Consultant (1, 2)
Women's And Children's Hospital - SA (G. Davidson, J. Miller) (2)
Woodside Hospital - WA (2)
World Health Organisation (J Akre) (1, 2)
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Yeppoon Community Health Centre - Qld (N Mcgerchin) (2)

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