CME Article

Common concerns regarding breastfeeding in a family practice setting

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The World Health Organisation recommends exclusive breastfeeding for at least six months of an infant's life. However, the common breastfeeding practice among women in Singapore falls short of this standard. Exclusive breastfeeding offers a multitude of benefits to both mother and child. Family physicians are in an ideal position to influence parents' decisions on infant feeding and should be equipped with practical knowledge to alleviate parental anxieties. This review aims to revisit the evidence and address the common concerns encountered by breastfeeding mothers.

INTRODUCTION

Breastfeeding and the role of a primary physician

Clinicians can influence a woman's decision to breastfeed and can contribute to a successful breastfeeding practice. A physician's affirmation of breastfeeding can significantly increase breastfeeding initiation of women from various backgrounds.[1] When a mother encounters a difficult situation that may jeopardise lactation, her physician should be able to counsel her appropriately and encourage a continued effort to breastfeed, bearing in mind the strong sociocultural influences that encourage a trend towards formula feeding. It is important for the clinician to understand the many short- and long-term benefits of breast milk to prevent premature cessation of breastfeeding (Table I).

Breastfeeding: standards and recommendations

International policies have been published on the recommended breastfeeding practice. The World Health Organisation (WHO) and the United Nations Children's Fund strongly advise exclusive breastfeeding for the first six months of life, followed by the introduction of adequate and safe complementary foods with continued breastfeeding up to two years and beyond.[2] This is also advocated by the American Academy of Pediatrics (AAP),[3] the American College of Obstetricians and Gynecologists,[4] the American Academy of Family Physicians,[5] and the Academy of Breastfeeding Medicine,[6] and is supported by the Ministry of Health, Singapore.[7]

Breastfeeding in Singapore

The 2001 National Breastfeeding Survey found that although 94.5% of Singapore mothers initiated breastfeeding, only 21% continued up to six months. Advice from health professionals, maternal awareness of breastfeeding benefits and maternal regard for bottle-feeding were significant predictors of continued breastfeeding at six months. Over 50% of mothers in the survey did not receive lactation advice from their physicians.[8]

Table I. Recommendations for a breastfeeding-friendly family practice.

1.	Avoid giving the patient samples of formula or literature from a formula company during pregnancy or after delivery.
2.	Educate the patient on the differences between breastfeeding and bottle-feeding.
3.	Avoid telling the patient that formula is better than breast milk.
4.	Avoid promoting one formula over another.
5.	Educate the patient during her pregnancy on the importance and benefits of putting the baby to the breast immediately after birth as this will encourage her and her partner to prepare themselves for this occasion.
6.	Educate the patient about nipple confusion, and how to avoid this problem by not bottle-feeding, and instead using a cup, spoon or syringe.
7.	Reassure the patient that she can and should continue to breastfeed when she is ill or if her baby is ill.
8.	Praise the patient if she is still breastfeeding at six months and encourage her to continue, remembering that she may not be getting adequate support at home and may easily be discouraged.
9.	Remind the patient that breast milk still has nutritional value for the baby who is six months or older.
10.	Suggest to the mother of a sick child warded in hospital that she stays with the child in the ward, so that she can continue to nurse and comfort her child.

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AIMS

This review article will address the common concerns shared by breastfeeding mothers and their doctors with regard to breastfeeding. After reading this article, a general practitioner should be able to:

(1) Review the benefits of breastfeeding with their patients and to reassure mothers about the adequacy of their breastfeeding practice.
(2) Identify the conditions in which breastfeeding may be continued safely and to recognise situations in which it is contraindicated.
(3) Confidently prescribe common medications during breastfeeding.
(4) Confidently advise the mother on continued breastfeeding and weaning upon return to work.
(5) Counsel the patient effectively about postpartum contraception and how the various methods influence breastfeeding.

Fig. 1 Photograph of a mother tandem nursing her infant and toddler.
(Figs. 1–3 Courtesy of the authors' patients)

Is breast milk alone adequate for baby?

Formula milk is not tailor-made for the baby. Human milk is dynamic, remarkable for its complexity and variability, possessing immunological and growth-promoting properties.[9] The composition and volume evolves to meet the specific dietary needs of the infant over time. Differences in nutrient composition have been demonstrated between feeds, and in milk expressed from different breasts.[10] Mothers of preterm infants produce milk of a different composition compared to mothers of term infants.[11] The first milk ingested by the infant (fore milk) has a lower fat content, which steadily increases as the hind milk comes in, and this is thought to promote satiety.[12]

Prospective studies have demonstrated that infants exclusively breastfed by healthy well-nourished mothers receive adequate caloric intake to meet energy and growth requirements without the need for supplementation in the first six months.[13] Breastfed infants receiving complementary foods after four months of age showed no increase in total energy intake, weight or length gain compared to exclusively breastfed infants, indicating that infants self-regulate total energy intake when complementary foods are introduced.[14] Thus, there is little benefit in introducing complementary foods before six months of age (Fig. 1).

How does breastfeeding protect the child from illness?

Human milk provides immunoglobulins and lactoferrin, which protect the host gastrointestinal system from enterotoxigenic *Escherichia coli*, a major cause of infant diarrhoea.[15,16] Secretory immunoglobulin A is an important component of passive immunity in the first weeks before endogenous immunoglobulin production begins.[17] Antibody concentration is even higher for mothers of preterm infants.[18] Antimicrobial milk lipids destabilise the membranes of pathogens and may be particularly important for infants with compromised secretory immune response.[19] The protection afforded by breastfeeding is dose-dependent; infection and hospitalisation rates are lower in infants exclusively breastfed for a longer duration compared to infants who breastfed for a shorter duration.[20-23] Exclusive breastfeeding is associated with decreased rates of lower respiratory illnesses during childhood.[24,25] These benefits continue beyond cessation of breastfeeding.[26] Food allergies in infancy are common; evidence suggests that the antigens and immunosuppressive cytokines in breast milk promote tolerance to dietary antigens.[27]

What are some of the long-term benefits of breastfeeding?

Some evidence suggest a negative correlation between breastfeeding and carotid intima-media thickness, a recognised risk factor for atherosclerosis, but the data is inconclusive.[28,29] An inverse relationship of breastfeeding to certain childhood cancers, including acute lymphoblastic leukaemia, Hodgkin's disease and neuroblastoma, has been suggested.[30,31] Breastfeeding may reduce the risk of types I and II diabetes mellitus,[32] inflammatory bowel disease [33] and obesity.[34-37]

How do we reassure the mother about the adequacy of her milk supply?

The onset of copious milk production, otherwise known as stage II of lactogenesis, occurs within the first four days postpartum. Milk transfer to the nursing infant starts at a relatively low volume of < 100 ml on day one, increasing 36 hours later to reach 500 ml/day by day four.[38] More frequent feeding by day two correlates positively with the milk volume on day five.[39] Breast compression while nursing, sustains milk flow when the baby pauses from active suckling.[40] A baby may not drink enough despite adequate lactogenesis. This may be due to a suboptimal latch where the baby bites at the nipple without suckling well. A poor latch can be corrected with the help of a trained lactation health professional (Table II). Mothers who worry about their babies not receiving enough milk in the first four days should be reassured and supported, encouraged to continue breastfeeding and discouraged from supplementing with formula. An effort should be made to identify the specific difficulties and correct them wherever possible with the assistance of a qualified lactation counsellor.

Table II. Contact information for breastfeeding assistance in Singapore by private organisations and hospitals.

Organisation	Contact	Description/website address
Breastfeeding Mothers' Support Group (Singapore)	6339 3558	www.breastfeeding.org.sg
La Leche League (Singapore)	7000-555-4636 (7000-LLL-INFO)	http://www.lalecheleague.org http://www.lllsg.tripod.com
Joyful Parenting	6488 0286	Run by Family Life Society. Serves any mother in need. Mothers wishing to be supervised may make an appointment.

Hospital (in alphabetical order)	Contact
East Shore Hospital	6340 8681 / 84
Gleneagles Hospital	6470 5852
KK Women's & Children's Hospital	Ask-a-Nurse: 63941 777
(during office hours)	Lactation services: 6394 8232
Mt Alvernia Hospital	6347 6641
Mt Elizabeth Hospital	6731 2180 / 82
National University Hospital	6772 4721
Singapore General Hospital*	6321 4530 / 32
Thomson Medical Centre	Pg 9496 6626
Raffles Hospital	6311 1516

Hospital Lactation Consultant Services: available by appointment at the various restructured and private hospitals that have IBCLCs (International Board Certified Lactation Consultants) on staff. An IBCLC is accredited by the International Board of Lactation Consultants Examiners (USA). This is the gold standard in lactation consultancy and breastfeeding management, and the certification is valid for five years.
* Hospital without IBCLC

IBCLC in private practice	Contact
Doris Fok (First IBCLC in Singapore and Asia)	Hp 9638 7660 (8.30am to 5.30pm Mon–Sat)
Betty Lee (IBCLC)	Hp 9833 0170; Pg 9318 0276
Christina Kwek (IBCLC)	Hp 9367 9293 (Breastfeeding classes available)

How do we know if the baby is sufficiently fed?

Some mothers are concerned that the infant is not getting enough breast milk and feel compelled to supplement with formula. The physician can reassure the anxious mother by bringing her attention to the indicators of adequate nourishment.[40] The baby will show hunger cues to indicate when he requires feeding, such as increased alertness and rooting. A baby with a good latch has a slow rhythmic suck interspersed with pauses when the mouth is opened maximally. This pause corresponds to a mouthful of milk. The baby's demeanour is calm when he has had enough and he comes off the breast satisfied. Feeding times on either breast should not be limited; the baby will dictate when he has had enough. Adequacy of feeds can be assessed by simple observation of the baby's bowel and urinary habits.

Bowel movements change from dark meconium in the first few days to yellow stool; the more breast milk the baby drinks, the lighter the stool becomes. Normal breast milk stool is pasty to watery, has little odour and occasionally contains curds. By day three, the adequately-fed baby has 2–3 substantial yellow stools. Bowel movements increase in frequency thereafter. Small infrequent brown stool may indicate inadequate hydration. A doctor should review the baby who, between five and 21 days of life, does not pass at least one substantial stool in 24 hours. With 2–3 wet diapers in the first three days, and at least six soaking wet diapers per day thereafter, a mother is reassured that her baby is getting enough milk.[41] Adequacy of milk intake is also reflected in the postnatal weight change. A newborn loses between five and seven percent of birth weight within the first week but regains this after the first ten days.[42] A baby who is fed more frequently and on demand has less weight loss.[43]

Can a woman with a chronic illness breastfeed?

Most chronic illnesses are compatible with breastfeeding, unless the medications used by the mother are known to cause harm to the infant. These cases tend to be in the minority. Continued breastfeeding ought to be encouraged to allow a mother on long-term medical therapy uninterrupted bonding with her infant. If advised to stop feeding breast milk temporarily by her doctor on medical grounds, a mother can maintain lactogenesis by regularly expressing her milk, which may be discarded until direct breastfeeding can resume. The baby can be fed a breast milk substitute by cup, spoon or syringe. Bottle-feeding is avoided in the meantime to prevent nipple confusion (when the baby loses the ability to latch and suckle properly at the breast).[44]

Should a mother continue breastfeeding if her infant is ill?

Breastfeeding comforts the ill child. If the baby has a gastrointestinal or respiratory infection, breastfeeding will provide the necessary secretory antibodies and anti-inflammatory agents to hasten recovery, although the child may cope better with smaller and more frequent feeds. If the infant is able to feed orally, breast milk is the best product as it is the most easily digested food.[45] Milk substitutes do not add nutritional value and do not contain antibodies. The WHO recommends continued and increased breastfeeding during an episode of diarrhoea. Mothers should not be advised to stop breastfeeding altogether, as it is often difficult to reinstate lactogenesis after a period of temporary weaning.[46] If the baby is hospitalised or is unable to feed directly from the breast, the mother can provide expressed breast milk to be fed by cup or spoon. Mothers should seek medical attention if the infant is dehydrated.

What infections are contraindications to breastfeeding?

Women infected with the human immunodeficiency virus (HIV) or with human T-lymphotropic virus-I or II (HTLV-I or II) should not breastfeed because of the risk of viral transmission, if there are safe and suitable breast milk substitutes.[47] There is little evidence that breastfeeding increases transmission of hepatitis C and this is not a contraindication to breastfeeding, although mothers may be advised to abstain if their nipples are cracked or bleeding.[48,49] Likewise, chronic maternal carriage of hepatitis B is not a contraindication and breastfeeding need not be delayed while waiting for the baby to receive hepatitis B immunoglobulin and vaccination.[50,51] Certain contraindications include maternal infection with varicella zoster or herpes simplex when lesions are present, and maternal cytomegalovirus (CMV), which can be transmitted to preterm infants.[51,52]

Should a mother with breast pain continue breastfeeding?

Breast pain and swelling can have several causes. A blocked duct causes a painful breast lump with erythema of the overlying skin. Mastitis presents similarly, is more often associated with fever, and may occasionally progress to an abscess. These common complaints are, in many cases, related to poor latch or disruption of the feeding schedule that predisposes to poor drainage of the breast. Blocked ducts resolve spontaneously within 48 hours of onset; this and mastitis can be relieved by ensuring proper latch, continued breastfeeding on the affected side, breast compression and the use of a warm compress to encourage milk flow. Oral antibiotics effective against *Staphylococcus aureus*, anti-pyretics and analgesia are additionally useful for mastitis. An abscess can be drained by needle aspiration rather than through an incision, so that the mother can comfortably continue breastfeeding. Weaning the child off the affected breast is rarely necessary.[46]

Fig. 2 Photograph shows mammary candidiasis.

Fig. 3 Photograph shows an infant with oral candidiasis.

Candida infections of the nipple or breast produce burning or shooting pains that begin after a period of pain-free nursing and may continue even after the feed is over (Fig. 2). The baby may or may not have oral thrush (Fig. 3). Oral

fluconazole can treat both mother and baby without interrupting breastfeeding.[53] Raynaud's phenomenon of the nipples causes symptoms often mistaken for mammary candidiasis. Vasospasm is precipitated by cold temperatures and causes blanching, then cyanosis, of the nipple. The affected woman experiences severe pain while breastfeeding. Treatment options include avoidance of precipitating factors, such as cold exposure and vasoconstrictive drugs. Nifedipine has been used successfully to relieve symptoms.[54]

What medications are safe for use by a nursing mother?

Many drugs may be used after considering the risk of infant drug exposure against the effects of early weaning. Often it is possible to continue breastfeeding during treatment, to modify the medication regime, to find an acceptable alternative or to maintain lactogenesis, even if a milk substitute is temporarily required. It is often difficult to restart breastfeeding if the infant has been prematurely weaned onto other foods. The AAP Committee on Drugs publishes statements on the safety of drug use during nursing.[55] Several textbooks[56,57] and reviews[58] are especially useful for the family physician. A paediatrician's opinion should be sought when prescribing drugs to nursing mothers of preterm or unwell infants.

To reduce the risk of drug exposure to the baby, nursing mothers can take their medication immediately after breastfeeding, several hours before the next feed or as a single daily dose at bedtime.[58] For example, if the mother is given a single dose of oral metronidazole, an *in vitro* mutagen,[57] the AAP recommends withholding breast milk from the infant for 12–24 hours to allow maternal drug excretion. The mother can discard any breast milk expressed during this time. Medications commonly prescribed for infants, such as penicillins, are safe for use by a nursing mother. Many topical agents, analgesics, anti-hypertensives, anti-epileptics, anxiolytics and anti-depressant drugs are categorised by the AAP as "Maternal Medication usually compatible with Breastfeeding". If there is a need to prescribe a medication reported to have significant effects on some nursing infants, the baby must be carefully monitored by a paediatrician.[55,58]

Radiation and cytotoxic chemotherapy require cessation of breastfeeding for the duration of treatment. Recreational drugs, nicotine and alcohol are harmful to the nursing infant and must be avoided.[55] Alcohol in breast milk may have a detrimental effect on infant cognitive development[59] and nicotine may decrease the quality and volume of milk.[60] Breastfeeding is still encouraged for women who are unable to stop smoking, as the benefits of breast milk outweigh the risks to the baby from nicotine exposure.

How does a working mother maintain her milk supply?

A working mother can maintain her milk supply with regular and frequent expression. The expressed milk may be frozen for use when the mother is at work, and should be fed with a cup or spoon. At home, she can continue to breastfeed. The following issues should be considered in preparation for a woman's return to work:

(1) Expression of breast milk—whether by manual or electric pump.
(2) Proper milk storage and suitable containers.
(3) Selecting a breastfeeding-friendly daycare facility or caregiver.
(4) Planning to take the baby to work, or to work from home.
(5) Sleeping with the baby so that the need for rest, food and warmth can be met concurrently.
(6) Initiating a cultural change at work: enlightening the employer about breastfeeding and lactation rooms.

Should a mother wean her child early in preparation for her return to work?

Weaning is the process of gradually taking an infant off breast milk and establishing a solid diet in order to fulfill the child's nutritional needs. It begins when semi-solid foods are introduced alongside milk feeds. Early weaning is common in urbanised societies. Many women begin weaning their babies between four and six months of age, and earlier still if they need to resume work. The weaning age should be directed by the child rather than the parent, when the child shows dissatisfaction with milk alone, and obvious interest in other foods.[61] In traditional societies where prolonged breastfeeding is the norm, most children are weaned between two and four years of age. By comparison, almost all children in modern societies are weaned well before their first birthday.[62-64] Following the WHO recommendation of starting complementary foods only after six months of breastfeeding will help to encourage child-led, rather than mother-led, weaning.[2]

Weaning foods vary according to cultures and customs. It is common to introduce grains first, then fruits, vegetables, and last of all, meat. Each food should be introduced slowly to check for tolerance. The consistency will need to be quite liquid initially. By the first year, the infant can progress to adult foods and textures. The basic considerations when weaning are variety, moderation, safe water and adequate provision of energy for the infant. When weaning is initiated, mothers should endeavour to breastfeed first, and well before offering other foods to avoid spoiling the infant's appetite.[42]

What contraception is suitable for the breastfeeding mother?

A discussion of contraception is an important part of postpartum care. Choices for nursing women may be limited because of the concerns about the hormonal effect on milk quality and infant growth. When to begin contraception is also an issue as resumption of ovulation may be unpredictable. Women who breastfeed exclusively and have not yet resumed menstruation enjoy a 98% rate of protection from pregnancy with the lactational amenorrhoea method for the first six months postpartum.[65] Once menstruation returns, other forms of contraception are necessary.[66]

The use of combined oral contraception is discouraged as oestradiol may decrease milk production. However, no deleterious effect on the infant has been reported.[67] Progesterone-only contraception is considered reliable and appropriate for use once lactation is established. Again, no negative effect on infant development has been described.[68,69] However, given that the trigger for lactogenesis II is progesterone withdrawal, early introduction of progesterone pills, injectables or implants, may interfere with this. Their use should ideally be avoided in the first three days, and better still for six weeks, to allow establishment of lactation.[70] Barrier contraception is preferable during the puerperium as there is no interference with lactatogenesis. Nursing mothers can safely use non-medicated intrauterine devices or the levonorgestrel-releasing intrauterine system.[71] The latter has minimal effect on breastfeeding.

CONCLUSION

Much of breastfeeding success attests to a mother's motivation to provide the best for her baby and, along the way, achieve the best for herself as well. A clinician's duty extends to educating the mother about the wealth of benefits that come with breastfeeding, helping her to differentiate fact from myth, and encouraging her to persist with a practice that can bring much joy and satisfaction to all involved. But above all, a physician's duty is to his patient, to be understanding and supportive of any decision she makes regarding infant feeding.

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EDITOR'S NOTE

This article, "Common concerns regarding breastfeeding in a family practice setting" concludes the "Tips from the Expert" series of the Singapore Medical Journal (SMJ). The SMJ wishes to thank our Associate Editor, Dr Eugene HC Liu, for coordinating this well-received series over the past three years.

Professor Wilfred CT Peh
Editor

SINGAPORE MEDICAL COUNCIL CATEGORY 3B CME PROGRAMME
Multiple Choice Questions (Code SMJ 200804A)

	True	False
Question 1. Regarding the use of medication and breastfeeding:		
(a) Oral metronidazole can be used safely and in multiple doses while breastfeeding.	☐	☐
(b) Oral penicillins can be used safely and in multiple doses while breastfeeding.	☐	☐
(c) Certain chemotherapy regimes will require early cessation of breastfeeding during treatment.	☐	☐
(d) A woman on enalapril for pregestational hypertension should withhold breastfeeding and substitute with formula.	☐	☐
Question 2. With regard to infections and lactation:		
(a) A woman who is a carrier of hepatitis B antigen may start breastfeeding only after her baby has received active and passive immunisation.	☐	☐
(b) A policy recommending abstinence from breastfeeding in the case of a seropositive mother further reduces the incidence of perinatal transmission of human immunodeficiency virus.	☐	☐
(c) An infant who is vomiting (but is well hydrated) as a result of gastroenteritis requires oral rehydration salts and a breast milk substitute for the duration of the illness.	☐	☐
(d) Exclusively breastfed babies have a lower incidence of hospitalisation for lower respiratory tract disease compared to infants who are partially breastfed.	☐	☐
Question 3. A 28-year-old woman had a normal delivery one month ago and breastfeeds exclusively. She presents with right breast tenderness and swelling. There is a low-grade fever. There is no nipple discharge and the milk appears normal. What would your management be?		
(a) To stop feeding from the affected breast and to use breast milk substitutes if the baby is still hungry.	☐	☐
(b) To start antibiotics in view of the fever and temporarily cease feeding from either breast.	☐	☐
(c) To express the milk completely from the affected breast if the baby is not emptying sufficiently.	☐	☐
(d) To drain the pus by needle aspiration if an abscess is suspected and continue breastfeeding from the affected breast.	☐	☐
Question 4. A woman wishes to exclusively breastfeed her newborn, but on day three postpartum, she has yet to experience the milk "coming in". She wants advice on reliable contraception for the next few years. Your recommendations would include:		
(a) Starting on the "mini-pill" (progesterone-only pill) once the milk flow is established.	☐	☐
(b) Consideration of intramuscular Depot progestogen even before establishing milk flow.	☐	☐
(c) A recommendation to use non-hormonal methods, such as barriers or an intrauterine device.	☐	☐
(d) Starting on the combined oral contraceptive pill once milk flow is established.	☐	☐
Question 5. Regarding infant nutrition:		
(a) Babies must be given supplemental water regularly in our tropical climate.	☐	☐
(b) Baby-led weaning means waiting for the infant to develop an interest in other foods before introducing these into the diet.	☐	☐
(c) While weaning an infant onto solid foods, a mother should stop breastfeeding as this can interfere with weaning.	☐	☐
(d) The various types of weaning foods should be introduced one at a time in order to determine if the infant has any food allergies.	☐	☐

Doctor's particulars:

Name in full: _____

MCR number: _____ Specialty: _____

Email address: _____

SUBMISSION INSTRUCTIONS:
(1) Log on at the SMJ website: http://www.sma.org.sg/cme/smj and select the appropriate set of questions. (2) Select your answers and provide your name, email address and MCR number. Click on "Submit answers" to submit.

RESULTS:
(1) Answers will be published in the SMJ June 2008 issue. (2) The MCR numbers of successful candidates will be posted online at www.sma.org.sg/cme/smj by 15 June 2008. (3) All online submissions will receive an automatic email acknowledgment. (4) Passing mark is 60%. No mark will be deducted for incorrect answers. (5) The SMJ editorial office will submit the list of successful candidates to the Singapore Medical Council.

Deadline for submission: (April 2008 SMJ 3B CME programme): 12 noon, 25 May 2008