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Managing common breastfeeding problems in the community

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Breast feeding is universally acknowledged as the first step in the promotion of health and wellbeing of children and their families. The World Health Organization recommends breast feeding for two years or beyond,¹ with solids introduced around 6 months of age. Since WHO and Unicef established the baby friendly hospital initiative in 1991, maternity services around the world have been improving support within hospitals for breastfeeding initiation. Support for breast feeding in the community has not received the same attention, however, and women often cease breast feeding in the early weeks when they encounter or perceive problems. Medical practitioners may not receive education in managing breastfeeding problems and at times may provide advice that is inappropriate or unhelpful.

The two most common problems faced by breastfeeding women are nipple and breast pain and low (or perceived low) milk supply. About 30% of women experience at least one breastfeeding problem at two weeks post partum,² and many will seek help from their general practitioner or other health professional. This article provides medical practitioners with up to date evidence on how to manage common problems associated with breast feeding.

What are the common causes of breast and nipple pain?

Mastitis

Mastitis means inflammation of the breast. Although the term has been used by some authors for painful breast conditions, it should be reserved for conditions that involve breast inflammation as well as systemic symptoms.³ It is generally agreed that a continuum exists from a blocked duct or engorgement to mastitis to breast abscess.⁴ In mastitis an area of the breast, typically a wedge-shaped section, becomes red, firm, and tender. In addition, affected women have systemic symptoms such as fever, rigors, lethargy, muscle aching, depression, nau-

SOURCES AND SELECTION CRITERIA

I searched the Cochrane database of systematic reviews, guidelines of the UK National Institute for Health and Care Excellence and US Academy of Breastfeeding Medicine, and my own EndNote library. I also searched PubMed using the terms "breastfeeding management", "mastitis", "abscess", "nipple pain", "sore nipples", "low milk supply", and "insufficient milk".

sea, or headache.⁵ In the past, mastitis was referred to as "milk fever," which captures the notion that the symptoms are not confined to the breast. Milk or products in the milk get into the bloodstream, leading to symptoms similar to those of an incompatible blood transfusion.^{4, 6}

Mastitis can be infectious or non-infectious. There is no easy way to determine whether an infection is present, but it is more likely to occur in the early weeks post partum in the presence of obvious nipple damage, which allows entry of bacteria into the breast. Mastitis occurring in the absence of nipple damage and secondary to poor drainage of the breast is likely to be non-infectious; common examples are external pressure on the breast from clothing or car seat belts, or extended periods between feeds when a child first sleeps through the night. Although textbooks have stated that each breast contains 15-20 ducts, recent ultrasound studies indicate that the average number may be around 10 (range 4-18).⁷ Thus one blocked duct can affect 25% of the breast.

Management of mastitis

The WHO review of mastitis recommends first line treatments for 24 hours before antibiotics are started.³ Research evidence on the management of mastitis, including the use of antibiotics,⁸ is lacking; the management strategies described here are based on expert opinion.⁹

First line management involves improved drainage of the breast. This might be achieved by increasing frequency of feeds, improving the attachment of infants to the breast, and positioning infants at the breast with their chin pointed towards the blockage, as the tongue applies a wave-like movement to the underside of the breast. Heat is often applied before the feed (shower, warm face cloth, or heat pack) to improve the mother's relaxation and milk flow.

If infants are not feeding effectively, expressing milk by hand or pump, focusing on the affected area, can help. Breast massage should not be rough; oil on the fingers avoids breast skin becoming grazed. Physiotherapists use therapeutic ultrasound as another modality to apply heat to the affected area; anecdotally this can be useful but has not been confirmed by randomised trials.¹⁰

SUMMARY POINTS

Breastfeeding rates are lowest in groups most at risk of ill health: preterm infants, low socioeconomic status, and mothers who are young, overweight, or obese
General practitioners play a key role in managing breastfeeding problems in the community
Women experiencing nipple pain should be referred to a local infant feeding expert to ensure optimal attachment of the infant to the breast
In addition to nipple pain and damage from poor attachment, pain may be caused by anatomical problems, such as infant tongue-tie, maternal infection (bacterial, thrush, herpes), dermatitis, or nipple vasospasm
There is a continuum from engorgement or blocked duct (swollen area of breast with redness or systemic symptoms) to mastitis (red, painful, firm area of breast with fever or systemic symptoms) to breast abscess
Ongoing maternal milk supply is under local (autocrine) control: removal of milk stimulates the breast to produce more milk

Drugs used for common breastfeeding problems

Indication*	Drug treatment	Breastfeeding recommendation
Mastitis	Flucloxacillin 500 mg every six hours for 10-14 days; if allergic to penicillin, cephalexin 500 mg four times daily; if highly allergic to penicillin, clindamycin 450 mg three times daily ⁹	Small amounts in breast milk not known to be harmful to infants (<i>British National Formulary</i> 2014). Compatible with breastfeeding ^{12,13}
Nipple bacterial infection	Mupirocin ointment three times a day after feeds for up to 10 days	Topical treatments should be applied sparingly after breast feeding. Topical preparation is unlikely to cause adverse effects in breastfed infants, as systemic absorption is expected to be minimal ¹³
Nipple/breast Candida infection	Mother: miconazole gel or cream for nipples; fluconazole 150 mg every 2nd day×3, or 100 mg daily×10 (depending on pain). <i>British National Formulary</i> 50 mg daily. Infant: miconazole gel or nystatin oral drops	Compatible with breastfeeding. ^{12,13} Fluconazole is used safely in infants, and amounts present in breast milk are unlikely to be harmful
Nipple vasospasm	Nifedipine 20 mg sustained release daily, increase gradually up to 60 mg daily	Compatible with breastfeeding
Nipple/areola dermatitis	Moderately strong steroid (for example, mometasone) ointment once/daily for up to 10 days, after a feed	May be used at recommended dose. Topical application is probably safe but any excess cream or ointment should be wiped from nipple areas before feeding ¹⁴
Low milk supply	Domperidone 10 mg or 20 mg three times daily ¹²	Compatible with breastfeeding ^{12,13}

*See Amir et al¹⁴ for guidelines on other commonly used medicines for breastfeeding women.

Antibiotics and mastitis

A Cochrane review on antibiotics for mastitis in breastfeeding women concluded that there is little evidence for the effectiveness of antibiotics and that high quality randomised controlled trials are urgently needed to establish the role of antibiotics in mastitis.⁸ The review included one small trial (25 participants) comparing amoxicillin with cephadrine. The study found no difference between the antibiotics, and an older study comparing breast emptying alone as “supportive therapy,” antibiotic therapy plus supportive therapy, and no therapy, which suggested faster clearance of symptoms for women who used antibiotics. Given the paucity of data, the Academy of Breastfeeding Medicine has based recommendations on expert opinion⁹ and has not changed the WHO recommendations of attempting first line measures for 24 hours before starting antibiotics. However, antibiotics are recommended immediately for women who are acutely ill, or in the early postpartum period when nipple damage is present.⁹

Staphylococcus aureus is the most common pathogen in the milk of women with mastitis.¹¹ The table summarises antibiotic treatments, which are based on the antibiotic guidelines prepared in Australia by an expert writing group, representing independent consensus opinion, based on the best evidence available at the time of publication.¹⁵ Usual treatment is with a penicillinase resistant antibiotic, such as flucloxacillin; initially 500 mg four times a day for five days, continuing for another five days if inflammation is not resolved, with cephalexin or clindamycin used for women who are allergic to penicillin.¹⁵ Local guidelines may vary.



Fig 1 | Infant with poor attachment to breast: small mouth, “prissy lips”

Milk samples are not collected routinely, but WHO guidelines recommend that a clean catch specimen should be sent for culture if the mastitis does not resolve within 48 hours or appears to be severe or unusual.³ If the affected area of the breast remains firm after feeds, a diagnostic ultrasound may be necessary to exclude a deep abscess.⁹

Postpartum women and infants are at increased risk of community acquired methicillin resistant *S aureus* (CA-MRSA).¹⁶ In recent years, MRSA has been isolated from the milk of women with mastitis and from aspirates of breast abscesses.¹⁷ Clinicians should be aware of the likelihood of CA-MRSA in their area and increase microbiological testing of milk if the risk of MRSA is high. If CA-MRSA is suspected or isolated, local protocols or advice should be sought from local infectious disease experts.

Non-mastitis causes of nipple and breast pain

Nipple pain is common in the early weeks post partum: over half (56%, 183/326) of the first time mothers in our recent cohort study reported nipple pain at three weeks post partum.¹⁸ New mothers should be encouraged to seek help to resolve breastfeeding associated pain.

Feeding problems

Poor infant attachment is the most common cause of nipple pain and damage. Health professionals can help new mothers optimise attachment of the infant to the breast (figs 1 and 2 and box 1). Maternal and infant anatomy can negatively affect attachment—for example, if the nipples are inverted or hard to grasp, or the infant’s jaw is reced-



Fig 2 | Infant with good attachment to breast: wide mouth, chin touching breast, body close to mother

Box 1 | Tips for good attachment

Mother

- Body should be supported; leaning back reduces tension in the shoulders and allows the infant's body to be supported by the mother's body
- Mother holds the infant with the arm on the side of breast feeding (cradle hold); the side of the infant's head rests on the forearm and the mother's hand supports the infant's back

Infant position

- Infant's body faces the mother; head, neck, and back in a straight line
- Infant lies diagonally: body under other breast, legs supported on hip
- Chest close against mother's chest
- Nose is in line with mother's nipple
- Chin should be close into the breast (touching)—this stimulates the infant to open his or her mouth wide for latching

Infant latch

- Wait for infant's mouth to be wide open before latching
- The angle of the infant's mouth should be >100° to take the nipple and areola deep into the mouth, allowing the tongue to move in a wave-like manner along the underside of the breast to effectively drain the breast tissue
- Chin should be deep into the breast; nose should be resting on the breast or clear of the breast
- Jaw moves fast initially, but then in a slow, regular motion once the milk has let-down
- Swallowing should be heard
- Cheeks should not be sucked in (indicates "straw sucking movement")

Common pitfalls

- Mother's body leaning over infant
- Infant lying on back (as if bottle feeding)
- Infant's body too far from mother's body, unsupported
- Mother lifting up breast (she can support the breast, but it shouldn't move if she lets go)
- Mother holding the back of the infant's head
- Infant attaching to nipple, rather than to breast

ing or tongue movement is restricted. Figure 1 shows an infant with a poor attachment (the mouth is almost closed and gums will be compressing the nipple rather than the breast) and figure 2 an infant well attached.

Although the importance of infant tongue-tie has been controversial, evidence is mounting from several small trials and several case series that infants who cannot extend their tongue over the lip or successfully cup the breast using wave-like peristalsis may contribute to maternal nipple pain and damage or low milk transfer, or both.^{19 20} Where tongue-tie is evident and breastfeeding difficulties are present, release of the lingual frenulum can be effective. After reviewing the trials and observational studies

and consulting with experts, the National Institute for Health and Care Excellence concluded that division of the thin membrane with a small pair of sterile scissors is a safe procedure, causing little distress for the infant.²⁰

Nipple damage

When the skin of the nipple is disrupted, the damaged area is usually rapidly colonised with *S aureus*.²¹ The nipples should be washed daily²²; evidence from five randomised controlled trials suggests that application of purified lanolin helps to heal damaged nipples.²³ Although evidence is lacking for the management of nipple damage when skin disruption is major or not resolving, practitioners have found that a topical antibiotic such as mupirocin aids in healing and can be applied after feeds (no need to wash off if used sparingly).^{21 24}

Herpes simplex

Herpes simplex is a rare cause of painful, discrete sores around the nipple or areola (fig 3); if infection with *H simplex* is suspected, newborn infants should not be allowed to breast feed until the sores have resolved, and mothers should express milk and discard to maintain milk supply until lesions have healed.²⁵

Dermatitis

The nipple and areola can also be affected by skin conditions such as eczema, dermatitis, and psoriasis.²⁶ Eczema or dermatitis is diagnosed when women describe an itchy, painful condition and erythema is visible, often clearly demarcated, sometimes with flaking or crusting (fig 4). The condition may be atopic in susceptible women, or may be secondary to topical creams or devices such as breast pumps. Psoriasis should be considered when flaking is prominent. Treatment includes application of a moderately strong corticosteroid, such as mometasone, once daily and sparingly after a feed (no need to be washed off) for up to 10 days. When crusting is a feature, the dermatitis is likely to be colonised with *S aureus*, and mupirocin ointment can be added. Eczema or dermatitis usually responds quickly to appropriate treatment, so women with a rash on one nipple or areola who do not respond to a moderate steroid should be referred to a surgeon for assessment for the rare condition of Paget's disease.²⁶



Fig 3 | Sores typical of *Herpes simplex* infection of nipple or areola: discrete lesions



Fig 4 | Dermatitis of nipple and areola: well demarcated moist rash

QUESTIONS FOR FUTURE RESEARCH

How can we best assess mothers' milk supply?
 How can we best treat mastitis?
 Does subclinical mastitis occur in humans?
 How can we best evaluate infant tongue-tie?
 What role does the labial frenulum play in breast feeding?
 How can we best evaluate the safety of medicines during lactation and present this information to women and health professionals?



Fig 5 | Nipple vasospasm (Raynaud's phenomenon) leading to blanching of nipple

Fungal infection

“Thrush” or *Candida* infection of nipple and breast presents as a persistent burning pain in the nipple, with pain occurring during and after feeds. It may also be associated with pain radiating into the breast, particularly after feeds. Infants may have the characteristic white lesions on the buccal mucosae, but signs of thrush in infants are often not present (a coated tongue is non-specific and not diagnostic of oral thrush). Typically, the onset follows antibiotic treatment of the mother or infant. Isolation of *Candida* from nipple swabs or milk samples has been difficult, leading some authors to conclude that *Candida* is not associated with radiating breast pain.^{27 28} However, our recently completed cohort study of 346 first time mothers showed that women with burning nipple pain and radiating breast pain were more likely to have *Candida* isolated from nipple or milk (54%) than women without this pain combination (36%, $P=0.014$).²⁹ The proportion of women with a clinical diagnosis of nipple or breast thrush cannot be estimated from this study, but we can confirm that *Candida* is not just a commensal organism or contaminant.²⁹ In practice, the diagnosis of *Candida* infection needs to be made after considering potential differential diagnoses. Treatment includes topical antifungal treatment for the mother's nipples and infant's mouth and oral antifungal treatment for the mother (see table).³⁰ Topical treatments should always be applied after feeding (or expressing milk); the treatment should be rubbed into the skin of the nipple and areola like hand cream—excess cream, ointment, or gel indicates that too much has been applied. The oral antifungal fluconazole is well absorbed and is compatible with breast feeding.¹² Although not licensed for use in breastfeeding mothers, fluconazole is licensed for use in neonates at higher doses than are likely to be transferred in breast milk.³¹

Nipple vasospasm

Nipple vasospasm (or Raynaud's phenomenon) is the condition where blood flow to the nipples is reduced, abruptly leading to blanching of the nipple (fig 5), and

possible nipple colour changes to purple or blue. The only prevalence study is our recent cohort study of 346 primiparous women, which found that about 20% of women noticed these colour changes to the nipple¹⁸ but the pain seemed to be milder than the case studies in the literature.^{32 33} When vasospasm associated pain is problematic it is typically acute and can radiate into the breast and so may be misdiagnosed as *Candida* infection.^{32 33} Vasospasm tends to occur in thin women with poor circulation,³⁴ who may have a personal or family history of Raynaud's phenomenon in fingers. Primary nipple vasospasm may be present before breast feeding, but secondary vasospasm is more common, usually developing after nipple pain, damage, or infection.³⁵ As the pain is worsened by exposure to cold, the most effective first step is avoidance of cold temperatures: nipples should be covered immediately after feeds, heat applied, and warm clothing worn.³⁶ If these measures are not enough, the calcium channel blocker nifedipine has been used, as this is the most commonly used drug for Raynaud's phenomenon.³⁷ Nifedipine is compatible with breast feeding, and little of the drug is found in breast milk.¹² Management of nipple vasospasm has not been the subject of trials, but we generally start nifedipine at a low dose and increase slowly to minimise headache, a common side effect. We recommend starting nifedipine 20 mg slow release once a day and increase as needed by 10 mg a week to a maximum of 60 mg slow release daily. Most women respond to 20 to 30 mg slow release.^{24 38} Treatment can be gradually reduced once the pain has resolved, but personal experience suggests that this may need to be maintained over winter months in cold climates.

Why do women have low milk supply?

An adequate milk supply needs sufficient mammary tissue, normal hormone levels, and regular removal of milk.³⁹ A small proportion of women have hypoplastic breasts: usually widely spaced breasts with apparently prominent areolae, owing to the lack of glandular tissue. Breast reduction or surgery that interferes with normal nipple sensation can compromise milk supply; other breast surgery is usually not a problem. In pregnancy, high levels of oestrogen and progesterone, along with human placental lactogen and prolactin, stimulate the growth of mammary alveoli and ducts. The delivery of the placenta results in a sudden drop in progesterone, which is the hormonal stimulus for the onset of lactation.

TIPS FOR NON-SPECIALISTS

It is the responsibility of all health professionals to support women during the breastfeeding period

Women often stop breast feeding because of perceived low milk supply; support from family, friends, and health professionals can prevent unnecessary cessation of breast feeding

Most mothers can achieve successful breast feeding by mastering attachment at the breast and feeding according to the infant's need

Health professionals can help women overcome most breastfeeding challenges without the need to stop breast feeding

Therefore retained placental fragments may interfere with lactogenesis. Normal thyroid function is also required, so women with postpartum thyroiditis or other thyroid conditions may experience difficulties with lactation. Women who experience a large postpartum haemorrhage may have insufficient milk supply, possibly from a transient lack of blood supply to the pituitary gland affecting prolactin in the important early postpartum period. Ongoing maternal milk supply is under local (autocrine) control: removal of milk stimulates the breast to produce more milk. This is an important concept for clinicians to understand, it means that in certain circumstances women can reduce supply on one side and feed entirely from one breast.

Management of low milk supply

Not producing enough milk is the most common reason women give for ceasing breast feeding. However, it is often the woman's perception that her milk supply is low or a lack of confidence in her ability to produce an adequate milk supply. Many new mothers are not aware that it is normal for their breasts to feel softer and feeds to become shorter as breast feeding becomes established. However, breastfed babies may continue to feed as often as 10 times a day. Monitoring infant weight gain is the best way to assess milk supply. Support for new mothers, from health professionals, family, and peers, is vital.

A systematic review of 30 studies confirmed that early skin-to-skin contact between mother and infant is optimal for establishing milk supply and increasing duration of exclusive breast feeding.⁴⁰ If mothers and infants are separated or unwell, early and regular milk expression by hand should be started. Manual compression of the breast while expressing milk maximises milk production.⁴¹

Box 2 | Guidelines for safe drug use during lactation¹²

- Avoid drugs where possible
- When needed, evaluate the dose for the infant and assess risk
- Select drugs with breastfeeding data
- Select drugs with a short half life, high protein binding, low oral bioavailability, high molecular weight
- Use caution with preterm and low birthweight infants
- A few drugs need to be avoided: radioactive compounds and anticancer drugs¹³
- With radioactive compounds: 4-5 half lives should be waited before breast feeding (98% of drug is eliminated after 5 half lives)

Most medicines are compatible with breast feeding; safety can be checked on dedicated websites

Colostrum is produced for the first two or three days, so infants only require small volumes (7 to 20 mL) initially.

To increase milk supply, better breast drainage is necessary by ensuring effective attachment of the infant at the breast, offering both breasts at each feed or switch feeding (switch sides frequently for sleepy babies), increasing frequency of feeds, or expressing after feeds, as appropriate.

If the above measures are not enough, clinicians may consider prescribing a galactagogue (drug to increase milk supply). In many countries domperidone is used as it increases prolactin levels and is considered compatible with breast feeding.¹² However, a review by the Academy of Breastfeeding Medicine concluded that the evidence for the effectiveness of galactagogues is not strong and further research is needed.⁴²

Can women take medicines while breast feeding?

Health professionals and the general public are well aware of the potential risks of using medicines during pregnancy. However, understanding that the risks of medicine use during lactation are significantly reduced compared with pregnancy is poor: the risk of teratogenesis has passed and the breastfed infant receives significantly less drug than the fetus during pregnancy. Few drugs are contraindicated: the latest update from the American Academy of Pediatrics mentions radioactive compounds and anticancer drugs.¹³ Most drugs used in children are compatible with breast feeding.¹⁴ Transfer of drugs can be reduced by avoiding systemic medicines where possible: topical applications, sprays, or drops may be available. Clinicians can consult experts or websites, such as LactMed, for evidence based advice. Recommendations are based on knowledge of pharmacokinetics to select drugs with the lowest transfer into milk—for example, high protein binding in maternal plasma means less free drug to transfer; and drugs with short half lives (box 2). In most clinical scenarios involving drug use in breastfeeding women, the benefits for the mother's health outweighs the potential risk for the child.¹³

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References are in the version on bmj.com.

ADDITIONAL EDUCATIONAL RESOURCES

Resources for healthcare professionals

Drugs and Lactation Database (<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>)—LactMed is a searchable database providing evidence based information on medicines and breast feeding

Academy of Breastfeeding Medicine (www.bfmed.org/Resources/Protocols.aspx)—25 protocol guidelines for the care of breastfeeding mothers and infants

Royal Women's Hospital, Melbourne (www.thewomens.org.au/BreastfeedingClinicalPracticeGuidelines)—clinical guidelines for common breastfeeding problems

Infant Risk Center, Texas Tech University (www.infantrisk.com/)—evidence based information on the use of drugs during pregnancy and breast feeding

Motherisk (www.motherisk.org/women/index.jsp)—evidence based information on the use of drugs during pregnancy and breast feeding

Resources for patients

Healthtalkonline (www.healthtalkonline.org/Pregnancy_children/Breastfeeding)—personal stories of breast feeding told on film

The Breastfeeding Network (www.breastfeedingnetwork.org.uk/breastfeeding.html)—an independent source of support on breast feeding, UK based with links to illustrations of good attachment/latching

Australian Breastfeeding Association (www.breastfeeding.asn.au/)—breastfeeding information and videos, including link to video of expressing of milk by hand

Dr Jack Newman's website (www.breastfeedinginc.ca/index.php)—videos and information on breast feeding

Division of ankyloglossia (tongue tie) for breast feeding (www.nice.org.uk/guidance/IPG149/publicinfo)—information for the public on infant tongue-tie

These websites are all free, with no registration required