

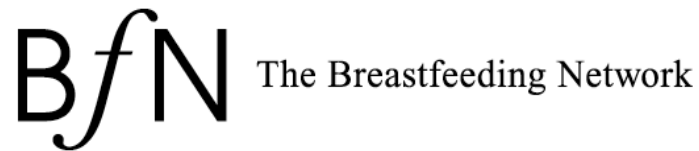
Breastfeeding and Mastitis

Training Material on Diagnosis,
Support and Treatment

September 2006

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Breastfeeding and

Mastitis

Slide 1

Breastfeeding and Mastitis

Dr Wendy Jones

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BfN Registered Breastfeeding
Supporter and Trainer

Wendy Jones is a primary care pharmacist working with GP practices to assess the evidence for interventions. Wendy is also a Supplementary Prescriber running clinics in coronary heart disease, diabetes, smoking cessation and obesity.

She has run the BfN Drugs in Breastmilk Helpline since 1998 on a voluntary basis over and above her work commitment. Drugline normally defaults to an ansaphone during the day and calls are returned as soon as possible. BfN are developing the service by involving, under Wendy's supervision, other Registered Breastfeeding Supporters and Helpers trained to answer queries to Drugline.

Wendy's interest in the treatment of mastitis during breastfeeding began in 1998 when the first leaflet was written with Dr Magda Sachs, who is also a BfN Registered Supporter and Trainer. This presentation is based on the training sessions run by Wendy and Magda.

Wendy and Magda have been acutely aware of the absence of data on the incidence of mastitis, which is perhaps the best-known condition to affect the lactating breast but is often poorly managed.

Aim

The aim of this pack is to provide background information to be used in conjunction with the powerpoint presentation BfN: "Breastfeeding and Mastitis". It is aimed at those people working with breastfeeding women be they volunteers or healthcare professionals in order to provide a basic consistent treatment regime for breastfeeding women presenting with symptoms of mastitis.

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Incidence of mastitis

Mastitis is an inflammatory condition of the breast which may/may not be accompanied by infection

Reported incidence is up to 33% of lactating women - generally <10%

Commonest in second to third week post partum (74-95% of cases in the first 12 weeks)

Wendy Jones PhD MRPharmS August 2006

The World Health Organisation (WHO) document is a valuable source of information on the incidence and treatment of mastitis. It can be downloaded from the WHO website free of charge.

It is important to note that mastitis is defined as "inflammation" which may or may not be accompanied by infection. The implication is therefore that antibiotics are not always necessary. They are, however, very commonly prescribed. Inch suggests that the therapeutic action of antibiotics in mastitis may in fact be by their lesser-known anti-inflammatory action.

Mastitis can be incorrectly diagnosed in the first few days post partum, when it is more likely that symptoms relate to primary engorgement. The peak incidence is in the second to third week after delivery. Later episodes may be related to abrupt changes in feeding pattern or sudden cessation of breastfeeding.

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Symptoms of mastitis

- Red area on the breast - often upper, outer area
- Lumpy breast - may be hot to touch
- Whole breast may ache - may be painful to touch
- 'Flu-like symptoms - aching, temperature raised, mother may feel tearful and tired

SYMPTOMS MAY START VERY SUDDENLY WITHOUT WARNING

The symptoms of mastitis are characterised by a red area visible on the breast. This can appear anywhere but is most often on the upper outer quadrant. It suggests that the breast most likely to be affected is that opposite the shoulder to which the mother naturally holds the baby to wind or comfort him/her.

The area may feel hot and lumpy to the touch and the whole breast may ache generally. At this stage milk is leaking into the tissue of the breast which are being invaded by white cells so treating the milk as a foreign protein - hence the redness and heat reaction. Subsequently the temperature may rise until the mother is pyrexial and may ache and feel fluey. This does not mean that she has an infection, just that the body is reacting to invading organisms as it perceives the milk.

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Factors which make mastitis more likely

- Poor positioning and attachment
- Inadequate drainage of the breast
- sore nipples
- Pressure on the breast
- Blocked duct
- Stress and tiredness
- Sudden changes in baby's feeding pattern

Wendy Jones PhD MRPharmS August 2006

The most frequent cause of mastitis is less than perfect positioning and attachment of the baby leading to inadequate drainage of milk. Mastitis may be preceded by sore nipples and poor weight gain or extended, frequent feeds. If the baby is unable to drain the breast effectively he/she will feed for longer in an attempt to satisfy hunger or will want to feed frequently but still appear unsatisfied or restless. The baby may also have symptoms of "frothy" bowel motions due to excess foremilk. Our attempts to "manage" breastfeeding – eg. by imposing schedules - may precipitate difficulties such as mastitis.

Another cause of mastitis is pressure on an area of the breast which is already full of milk; this may be clothing, eg an incorrectly fitted bra, a knock from a toddler or may arise from domestic violence. Repeated episodes of mastitis may need to be explored for these areas.

Stress and tiredness is also believed to be a precipitating factor in the development of mastitis. Unfortunately this is all too common for new mums and may not be possible to avoid.

In later weeks a sudden change in the baby's feeding pattern may precipitate mastitis - the baby who suddenly sleeps through the night or misses a feed, mum who goes away from the baby for a few hours and delays or misses a feed without expressing. The symptoms may arise suddenly and with little warning. If a mother is aware of the symptoms of mastitis she can act quickly to drain the breast and forestall further complications.

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Breast engorgement

Photographs available in The Breastfeeding Atlas. Barbara Wilson Clay and Kay Hoover. AP Publishers 2002. Copyright restrictions do not permit us to reproduce images here.

Engorgement and mastitis are often confused by mothers. Some report that they developed mastitis on day 3 postpartum and were prescribed antibiotics at this stage. Engorgement is a "normal" stage of lactation as increased blood supply to the breast and increased milk production happen at the same time. The areola may become oedematous, the breast hard and hot and the baby may find it increasingly difficult to feed. Unrestricted breastfeeding should limit the duration and severity of this condition. It is relieved by the use of hot and cold compresses before and after feeding. It is essential to ensure that the baby is well positioned on the breast at this stage.

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Unilateral Mastitis

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The symptoms of mastitis may be very clear - a red area on the breast usually away from the areola. The area is red, hot and painful. Frequent feeding and improved drainage may resolve the symptoms rapidly.

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Course of non-infectious inflammation of the mammary gland with/without treatment

Treatment	Number of cases	Duration of symptoms (mean days)	Results (no. of cases)	
			Normal bf	Weaning
None	24	7.9	5	19
Emptying of breast	24	3.2	23	1
* 13 cases of infectious mastitis				

Thomsen conducted a study examining the outcomes for mothers suffering from mastitis who were advised to how empty their breasts frequently (active group) and a placebo group who were given no treatment.

In the active group the average duration of symptoms was 3.2 days and 23 of the 24 women went on to continue to breastfeed normally. However in the group who were given no treatment the average duration of symptoms was 7.9 days and 19 of the 24 women gave up breastfeeding.

This small study demonstrates that simply emptying the breasts decreases the time during which symptoms are perceived and increases the likelihood of the mother being able to carry on breastfeeding.

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Course of infectious mastitis with/without treatment

Treatment	No of cases	Duration of symptoms (mean days)	Result (no. of cases)	
			Normal bf	Weaning
None	55	6.7	8	47
Emptying of breast	55	4.2	28	27
Antibiotics and emptying of breast	55	2.1	53	2

Thomsen et al Course and treatment of milk stasis, non-infectious inflammation of the breast and infectious mastitis. Am J. Obstet. Gynecol 1984; 149(5) 492-5

In a further study Thomsen et al looked at the progress of women with infectious mastitis. This time the women were divided into three groups - one had no treatment, one group was advised to empty the breast and a third was prescribed antibiotics and helped to drain the breasts.

The duration of symptoms decreased with the more active therapies. In this case the women had infectious mastitis and withholding antibiotics resulted in almost 50% of women stopping breastfeeding compared to those who expressed and received therapy - only 2 of whom stopped feeding.

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Leukocyte and bacteria counts in women with clinical mastitis

	Leukocytes <10 ⁶ /ml milk	Leukocytes >10 ⁶ /ml milk
Bacterial <10 ³ /ml milk	Milk stasis	Non infectious mastitis
Bacterial >10 ³ /ml milk		infectious mastitis

Thomsen et al. Course and treatment of milk stasis, noninfectious inflammation of the breast and infectious mastitis in nursing wome. Am J. Obstet Gyn; 1984:149(5);492-5

One way in which Thomsen et al managed to differentiate between infectious and non-infectious mastitis was to measure leukocyte and bacterial counts. As the table above shows, low leucocytes and low bacteria suggested a diagnosis of milk stasis. High leucocytes but low bacterial count demonstrated non-infectious mastitis but raised leucocytes and raise bacterial count confirmed a diagnosis of infectious mastitis.

In clinical practice it takes too long to wait for the results of blood tests and cultures and treatment is more empirical.

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Thomsen et al's conclusions

- Milk stasis improved with continued breastfeeding alone
- Non-infectious mastitis required additional expression of milk after a feed
- Infectious mastitis was treated effectively only with both removal of milk and systemic antibiotics
- Without effective removal of milk, non-infectious mastitis was likely to progress to infectious mastitis and infectious mastitis to the formation of an abscess
- They related cell and bacterial counts to clinical findings and showed it was impossible to be certain from clinical signs whether infection was present or not

Having conducted considerable research into the symptoms and treatment of mastitis, Thomsen et al came to the conclusions listed here.

The most important of these findings is that regardless of the diagnosis, all conditions benefited from continued breastfeeding and improved drainage. Unfortunately in the UK common practice is the prescription of antibiotics without additional advice and support to improve milk extraction. In some cases women are still being told that they should stop breastfeeding while they have mastitis - advice that can only make the condition worse and increases the likelihood of abscess formation.

Some patient information leaflets provided with antibiotics recommend that women do not breastfeed whilst taking the drug. This leads to confusion and uncertainty. Antibiotics are generally safe to take during breastfeeding (see BfN information sheet on antibiotics and breastfeeding) and in cases of mastitis it is imperative that breastfeeding continues with additional expression/drainage until symptoms improve.

Prospective study

946 women followed to three months

- Strongest risk factors:
 - Previous history mastitis
 - Cracks and nipple sores in same week
 - Using an anti-fungal nipple cream
 - Pattern of frequent short feeding
 - Using a manual pump (for women with no history)
- Characteristics of the different possible bacterial agents involved not well understood.

[Foxman, B et al \(2002\) American Journal of Epidemiology](#)

Foxman et al carried out a prospective study following 946 women for the first three months after delivery to ascertain factors which increased the risk of developing mastitis.

They concluded that a previous history of mastitis or cracked nipples in that week were most likely to increase the risk in any future lactation. These both suggest less than perfect positioning and attachment. Interestingly they found a link with use of an anti-fungal nipple cream. The explanation for this is unclear but was a significant finding. Frequent short feeds may also suggest difficulties with drainage of the breast due to positional problems. Finally they found that the use of a manual breast pump was associated with an increased risk in the first three months.

Their conclusion on the different bacterial agents associated add to the less well understood parts of this common condition, confirming that we know very little about the aetiology.

Osterman and Rahm

41 episodes of mastitis studied – bacterial cultures taken

- Group A = 25 cases (61%) – cultured normal skin bacteria
- Group B = 16 cases (34%) – cultured potentially pathogenic bacteria

Lactational mastitis; bacterial cultivation of breastmilk, symptoms, treatment and outcome. 2000 Journal of Human Lactation 16(4):297-302

Osterman and Rahm studied 41 cases of mastitis and cultures of skin bacteria. In 61% of cases, normal skin bacteria only were grown. Bacteria are a commensal organism and in general exist on our skin without causing difficulties. It is only when the skin is breached by damage that they invade the body and may produce clinical signs and symptoms.

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Continued

- Group A
 - 93% episode finished within a week
 - Rest and frequent breast emptying curative
 - 12% sore nipples
- Group B
 - 81% longer than a week
 - Outcomes included weaning, abscess, septic fever
 - 75% sore nipples
 - Leukocytes higher than in group A

Wendy Jones PhD MRPharmS August 2006

Of the 25 women in group A who had cultured normal skin bacteria - 93% resolved within a week, generally with rest and improved drainage, and just 12% reported sore nipples.

In contrast the 16 women who cultured pathogenic bacteria, 81% had symptoms for longer than a week with poor outcomes and 75% reported sore nipples. In line with Thomsen's findings, these women had raised leucocytes which confirmed that they had infective mastitis.

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Treatment of mastitis

- Supportive counselling
- effective milk removal - an essential part of treatment
- antibiotics when appropriate
- symptomatic treatment

One of the most important aspects of the treatment of mastitis is supportive counselling. Many women report feeling ill and may ask if it is better not to continue breastfeeding. They may be told by other members of the family perhaps that their milk is "polluted", not good for the baby or will pass on an infection - none of which is true but will undermine the confidence of any woman.

Effective milk removal is essential during symptoms. Discussion of stopping breastfeeding can and must be delayed until symptoms have resolved.

Antibiotics may be appropriate if symptoms do not resolve with improved drainage or if the mother's condition deteriorates further. There are no firm guidelines for the time to delay; this varies between women.

Symptomatic treatment of temperature and pain with analgesics will help.

Supportive counselling

To empower mother to get through mastitis
and prevent reoccurrence

- **Reassure** about value of breastmilk and that it is safe to continue - milk from affected breast will not harm baby- though it may taste salty
- **Encourage** her that it is worth the effort to overcome current difficulties
- **Counter** any conflicting information
- **Help** her find the underlying cause and understand self-treatment and prevention

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Supportive counselling has an important role to play in the treatment of mastitis. Women need to be given the opportunity to discuss what is happening emotionally as well as physically. Conflicting advice from healthcare professionals, friends and family can cause confusion and should be counteracted by evidence-based information.

It is also important to consider what the mother can do for herself, not just in the current situation but to prevent further episodes.

Effective milk removal

The most essential part of treatment

- help her to improve the efficiency of milk removal by improving positioning and latch
- position baby with chin close to the sore part encourage frequent feeding
- massage affected part towards nipple during the feed
- mother may also need to express her milk after feeds

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Improved positioning and latch will help effective milk drainage. Small adjustments to the way the baby is held, the way the mother sits, and the way the baby is brought to the breast may be possible if a full breastfeed is watched. It is difficult to optimise this situation if you are not face to face with the mother, although unfortunately this is not always possible.

Frequent feeding with gentle massage across the affected area towards the nipple will help. It is important that the area is not squeezed as that may lead to bruising and further damage to the ducts. Stroking with fingernails or a wide toothed comb are generally more helpful.

The mother may also need to express between feeds. It is useful if she has been shown how to hand express, but can be achieved by allowing the milk to flow freely in a hot bath or shower, or by using a manual pump gently.

Many women fear that if they express they will further increase their supply, adding to the problem, but the milk needs to be flowing freely to relieve symptoms.

Symptomatic treatment

- **Pain can be treated with analgesics**
- **Rest is essential - in bed if possible,**
- Being in bed with child may also increase frequency of breastfeeding and therefore help milk removal
- Warm packs on the breast help relieve pain and help milk to flow.
- Ensure mother drinks sufficient fluids

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Simple analgesics can be used to help to ease the pain and temperature associated with mastitis - infective or non-infective.

Some sources suggest that the mother needs to rest, if possible in bed. This may be totally unrealistic if she has other children or a paid job. Some women find that arm swinging exercises help; window cleaning has been suggested in the past! Whatever the mother feels is realistic and helpful will be right for her.

Warm packs or baths may improve milk flow whilst cold packs will relieve swelling and bruising.

In view of her raised temperature the mother may feel more thirsty. She needs to drink sufficient fluids - ideally water - according to thirst.

Milk produced during an episode of mastitis contains a higher sodium content. Toddlers have reported it tastes salty but this is not harmful to the baby.

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Drug treatment for mastitis

- **Ibuprofen** - 400mg three times a day after food (if no contra-indication for mother)
- **Paracetamol** - Two x 500mg four times a day (no anti-inflammatory action)
- **Aspirin** - should not be used in lactation as analgesic/anti-inflammatory at 2.4g/day dose
- **Antibiotics** - (most safe in lactation, loose nappies, colic etc possible but not clinically important. May cause static weight gain. BEWARE THRUSH!)

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Ibuprofen is the ideal analgesic to be taken during mastitis as it has anti-pyretic properties (reduces temperature), relieves pain and reduces inflammation. If the mother has no contra-indications (asthma, stomach ulcer or allergy to ibuprofen) she can take 400mg three times a day with food. This will produce very low levels of ibuprofen in breastmilk which is not harmful to the baby.

If the mother is unable to tolerate ibuprofen, paracetamol is an alternative although it has no anti-inflammatory properties. Two tablets four times a day is the normal dose with a maximum of 8 tablets per 24 hours.

Aspirin should not be used as an analgesic in lactation because of the remote possibility of a link with Reyes' syndrome. However, if taken by accident, aspirin is unlikely to be harmful as it passes in very small quantities into breastmilk

Antibiotics should be reserved for use if symptoms do not improve. Use of antibiotics should be minimised from a public health viewpoint although their use in lactation is not harmful per se.

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Inappropriate treatment

- **IT IS VITAL THAT BREASTFEEDING IS NOT INTERRUPTED** as this prevents drainage of the breast and may worsen symptoms
- Use of drugs to suppress lactation (bromocriptine and cabergoline) is inappropriate, particularly during an episode of mastitis, due to side effects associated with their use

Interruption of breastfeeding is likely to make symptoms worse with an increased possibility of abscess formation. The use of the recommended antibiotics is no reason to stop breastfeeding. Frequent and continued emptying of the affected breast by feeding and pumping or hand expressing if necessary will speed resolution of symptoms.

The use of drugs to suppress lactation should not be undertaken routinely. Bromocriptine is no longer recommended due to maternal fatalities reported in the US. Cabergoline is licensed for the inhibition of lactation immediately post partum and for suppression of already established lactation **It should not be recommended for routine suppression of lactation that can adequately be treated by simple analgesia and support.** Cabergoline has been associated with somnolence and episodes of sudden sleep onset. It should be given with caution to subjects with cardiovascular disease, Raynaud's syndrome, renal insufficiency, peptic ulcer, gastrointestinal bleeding, or a history of serious, particularly psychotic, mental disease. Side effects include Nausea, constipation, headaches, drowsiness, dyspepsia, epigastric and abdominal pain, breast pain, palpitation, angina, peripheral oedema, postural hypotension, nasal congestion, hot flushes, depression.

Antibiotics

- Flucloxacillin 250mg four times a day
- Amoxycillin 250-500mg three times a day

If allergic to penicillin;

Erythromycin 250-500mg four times a day

Cephalexin 250-500mg four times a day

Mastitis, causes and management WHO 2000

If antibiotics are required the WHO recommendation is flucloxacillin 250mg-500mg four times a day or Amoxycillin 250-500mg three times a day.

If the mother is allergic to penicillins, this regime should be substituted by erythromycin 250-500mg four times a day with food, or cephalexin 250-500mg four times a day.

Once started, the full course of antibiotics should be taken. The amount passing through breastmilk is small, but some babies will exhibit symptoms of diarrhoea or colic during the mother's treatment. Breastmilk plus antibiotic is, of course, superior to formula without antibiotic.

Key Points

- Mastitis is not always due to an an infection
- Infectious mastitis requires medical treatment. Obstructive mastitis can be self- treated
- The quality of attachment of the baby to the breast is important in both prevention and treatment of mastitis.
- Thrush and mastitis may be connected
- Supportive counselling can help mothers understand the causes of mastitis and prevent re-occurrence

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It is important to remember that mastitis is an inflammation but not necessarily an infection and should be treated accordingly. The most important intervention is improved positioning and attachment of the baby at the breast leading to optimal drainage.

Thrush and mastitis can be connected, particularly if the mother is prescribed antibiotics which disrupt her natural gut flora. Anecdotally, we understand that use of prophylactic acidophyllis may be beneficial during antibiotic treatment and for at least 48 hours afterwards.

The mother may need additional support and encouragement as well as information, which should be evidence-,based and agreed across the whole primary care team.

Until we know a little more about this condition, which appears to affect many lactating women, treatment should be kept to a minimum with breastfeeding maximised.

Enabling Women to Breastfeed; Renfrew, Woolridge
and Ross McGill (areas for future research)

- There is a need to determine incidence and prevalence of mastitis
- Need to develop simple differential diagnosis - infectious and non-infectious mastitis
- Other causes of mastitis - illness, stress, blocked ducts?
- Ways to prevent nipple trauma?
- Trial to compare antibiotic therapy vs antibiotic and expressing.

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It should perhaps be a cause of concern for all involved in the support of breastfeeding women that we have no clear idea of the incidence of mastitis. Is it caused by well-intentioned interventions in breastfeeding with respect to timing, switching breasts, pressures to achieve routines etc? Is it caused by the decrease in familiarity with breastfeeding as the norm over the past 30 years? Is it due to lack of early support early in achieving optimal positioning and attachment? We need research to determine these facts.

We need criteria to help us to differentiate infective and non-infective mastitis and therefore appropriate therapy.

We need to find a way to minimise the number of women who develop trauma to the nipples in the early days of breastfeeding which lead not just to sore nipples, thrush and mastitis but to poor weight gain and lengthy feeds, all of which may result in cessation of breastfeeding.

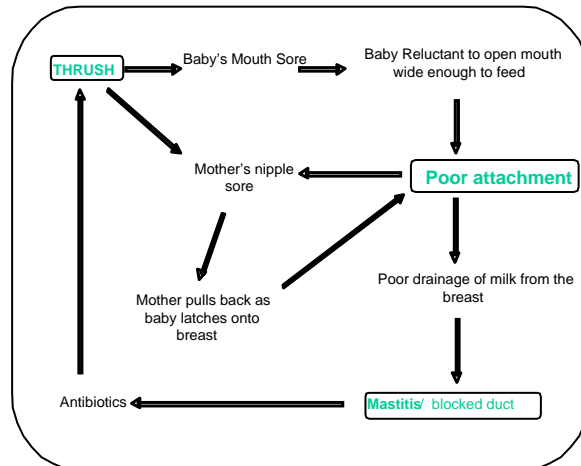
One trial missing from Thomsen et al's work was the value of prescribing antibiotics alone compared to the use of antibiotics and expressing.

There remain many areas of infant feeding which are poorly researched and therefore understood. Until we increase our knowledge our well-intentioned interventions may in fact be harmful

Breastfeeding is a normal physiological function; unfortunately we have medicalised it, sometimes to the detriment of mother and baby.

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Thrush and Mastitis - the painful web



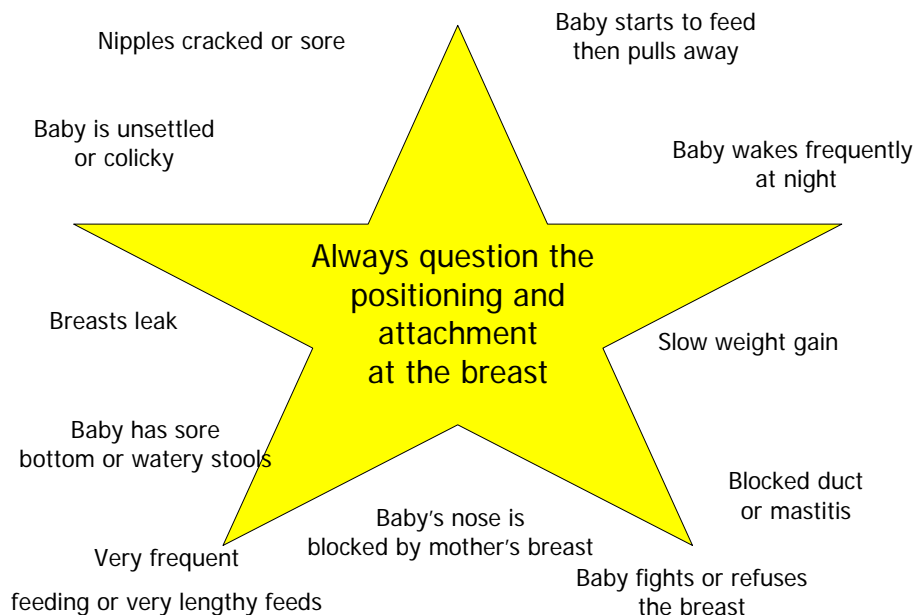
Fairly early in our work on thrush we recognised that there was a frequent link with mastitis - hence the development of the two leaflets.

Healthcare professionals and volunteers may first see mothers at any stage of the web.

A woman may have mastitis and be prescribed antibiotics leading to thrush, or another may have thrush and therefore pull back from the baby because feeding hurts, leading to a poor latch and damage to the nipple, or a mother may first present with poor attachment which if unresolved may lead to either mastitis or thrush.

The central issue is to deal with effective milk transfer and optimal attachment, a skill which seems to have been lost of late.

The Importance of Positioning and attachment



It cannot be stressed frequently enough that inadequate positioning and attachment of the baby at the breast should be considered as the main cause of many "problems" reported by breastfeeding women from refusal to feed to lengthy feeds and all reported discomfort.

If this is optimised at the very earliest opportunity the success of the mother achieving pain free and simple breastfeeding for as long as she and the baby choose, is increased considerably.

Determining the effectiveness of the latch is a learned skill and can only be achieved by watching a full feed to assess how the mother brings the baby to the breast, how the baby opens his mouth, the appearance of the nipple after the feed and how the baby removes himself from the breast. It cannot be assessed by a quick glance nor should any discomfort, other than very transitory, be accepted as normal.

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Summary of best practice

- Supportive counselling
- Effective milk removal is an essential part of treatment
- Ibuprofen for pain relief and anti-inflammatory action if not contra indicated, paracetamol as analgesic if ibuprofen contra-indicated
- Antibiotics if appropriate
 - symptoms have deteriorated or failed to improve with frequent and effective breast drainage

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Women with mastitis may feel ill and tearful. Their immediate reaction may be to stop breastfeeding to make the symptoms go away. Hence the need for supportive counselling to explain the symptoms and how to resolve them.

Effective milk removal is essential but symptoms can be improved as well by the administration of ibuprofen 400mg three times a day. Contra indications to non -steroidal anti-inflammatories include stomach ulcer, severe indigestion or asthma which is made worse by ibuprofen. In such cases paracetamol which has analgesic (pain killing)and anti pyretic activity (reduces temperature) but no anti-inflammatory action is an adequate substitute to help the mother feel better.

Antibiotics may be necessary if symptoms continue to deteriorate or do not improve with continued and frequent breast drainage. The appropriate antibiotic from the WHO list should be commenced and continued for 7-10 days according to the prescribed directions.

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Effective milk removal

- Involves
 - optimising positioning and attachment
 - helping the mother to achieve correct latch herself
 - frequent feeding from the affected side
 - additional expression from the affected side, if necessary
 - helping the mother to recognise early symptoms for prevention of future problems

It cannot be stressed too strongly that attention to positioning and attachment of the baby at the breast underlies the resolution of many cases of mastitis by enhanced drainage. Thomsen's work showed clearly that with or without antibiotics symptoms improved with frequent, improved drainage.

Mother's may also be helped to recognise early symptoms of mastitis or blocked ducts in order to take immediate action and prevent clinical manifestations.

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The dilemma of prescribing

“ Recommendations for a lactating mother are probably over-cautious and mothers who need treatment should not be prevented from breastfeeding if the drug is likely to be safe”

Wendy Jones PhD MRPharmS August 2006

A major part of work on Drugline consists of reassuring healthcare professionals and mothers that drugs passing to babies through breastmilk are generally safe. I am able to do this as I have access to reference sources not usually available in primary care.

Recommendations in the NSF for Children and NICE guidelines recommend that mothers needing medication may need specialist advice and may inadvertently receive the message that they should stop breastfeeding in order to take medication. Rarely is this necessary.

I also utilise my knowledge of pharmacokinetics and case study reports to inform those decisions.

But this is against a background belief that breastmilk is the most valuable thing we can give to babies.

In a busy GP surgery or community pharmacy other healthcare professionals do not have the luxury of time to research the safety. It appears that over several generations we have come to believe that formula is as good as breastmilk, or at least good enough. It has saved the lives of many babies whose mothers chose not to breastfeed or were forced to stop for whatever

personal reason. We should not make these women feel guilty for doing their best with the knowledge

available at that time. Nor can we blame busy practitioners for relying on the best reference source available to them, the British National Formulary (BNF).

However as a pharmacist and breastfeeding supporter with the Breastfeeding Network I will strive to continue to provide information on safety of drugs to those who request it, in as evidence based manner as possible, give the limited studies available.

Acknowledgements

With thanks to Claire Davis and Phyll Buchannan (BfN Registered Tutors) for help in developing this pack and the ongoing support of Magda Sachs (BfN Registered Supporter).

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Multiple Choice Questions for Self-Assessment

Please indicate whether the answers are true or false. There may be more than one right answer in a section

1. Mastitis can be caused by;

a) Less than perfect positioning and attachment	True/False
b) Feeding too frequently	True/False
c) Poor fitting bra	True/False
d) Exercising too much	True/False

2. The first symptom of mastitis is normally;

a) Pain in both breasts	True/False
b) A red area on one breast	True/False
c) A high temperature	True/False
d) Feeling thirsty	True/False

3. Antibiotics are required to treat mastitis;

a) Always	True/False
b) Sometimes	True/False
c) Never	True/False
d) Usually	True/False

4. The anti-inflammatory drug most frequently recommended for breast feeding women is;

a) Paracetamol	True/False
b) Ibuprofen	True/False
c) Codeine	True/False
d) Aspirin	True/False

5. A breastfeeding mother should restrict her fluid intake if she has mastitis ;

a) Always	True/False
b) Sometimes	True/False
c) Never	True/False
d) Usually	True/False

6. It is possible to diagnose mastitis by undertaking leukocyte counts and milk samples;

a) Yes	True/False
b) No	True/False
c) In theory	True/False
d) Unlikely to be useful in primary care setting	True/False

7. Previous history of mastitis is a predisposing factor in subsequent lactations;
- a) Always True/False
 - b) Sometimes True/False
 - c) Never True/False
 - d) Usually True/False
8. It is important to support a woman to continue breastfeeding whilst she has symptoms of mastitis;
- a) Always True/False
 - b) Sometimes True/False
 - c) Never True/False
 - d) Usually True/False
9. Frequent feeding and expression may make mastitis worse;
- a) Always True/False
 - b) Sometimes True/False
 - c) Never True/False
 - d) Usually True/False
10. It is necessary to temporarily suspend breastfeeding if a mother is taking antibiotics;
- a) Always True/False
 - b) Sometimes True/False
 - c) Never True/False
 - d) Usually True/False

Multiple Choice Answers

1. Mastitis can be caused by;

e) Less than perfect positioning and attachment	True
f) Feeding too frequently	False
g) Poor fitting bra	True
h) Exercising too much	False

2. The first symptom of mastitis is normally;

e) Pain in both breasts	False
f) A red area on one breast	True
g) A high temperature	False
h) Feeling thirsty	False

3. Antibiotics are required to treat mastitis;

e) Always	False
f) Sometimes	True
g) Never	False
h) Usually	False

4. The anti-inflammatory drug most frequently recommended for breast feeding women is;

e) Paracetamol	False
f) Ibuprofen	True
g) Codeine	False
h) Aspirin	False

5. A breastfeeding mother should restrict her fluid intake if she has mastitis ;

e) Always	False
f) Sometimes	False
g) Never	True
h) Usually	False

6. It is possible to diagnose mastitis by undertaking leukocyte counts and milk samples;

e) Yes	True
f) No	False
g) In theory	True
h) Unlikely to be useful in primary care setting	True

7. Previous history of mastitis is a predisposing factor in subsequent lactations;
- | | |
|--------------|-------|
| e) Always | True |
| f) Sometimes | False |
| g) Never | False |
| h) Usually | False |
- (You could argue that sometimes is correct if positioning and attachment are optimised but "yes" is the answer from the study)
8. It is important to support a woman to continue breastfeeding whilst she has symptoms of mastitis;
- | | |
|--------------|-------|
| e) Always | True |
| f) Sometimes | False |
| g) Never | False |
| h) Usually | False |
9. Frequent feeding and expression may make mastitis worse;
- | | |
|--------------|-------|
| e) Always | False |
| f) Sometimes | False |
| g) Never | True |
| h) Usually | False |
10. It is necessary to temporarily suspend breastfeeding if a mother is taking antibiotics;
- | | |
|--------------|-------|
| e) Always | False |
| f) Sometimes | False |
| g) Never | True |
| h) Usually | False |