

the
Breastfeeding
network

Information Pack

Updated: January 2017



To talk to a mum who knows about breastfeeding call National Breastfeeding Helpline 0300 100 0212

Calls to 0300 numbers cost no more than calls to UK numbers starting 01 and 02 and will be part of any inclusive minutes that apply to your provider and call package.

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Who writes the fact sheets?

My name is Wendy Jones and I am a qualified pharmacist as well as Registered Breastfeeding Network Supporter and Tutor. Over the last 20 years I have developed a passion for providing evidence based information to enable mothers and healthcare professionals to make decisions on the relative safety of drugs taken by breastfeeding mothers and passing through breastmilk to babies. I am a mother to 3 grown up daughters and grandmother to 3 grandchildren - all breastfed, not without their own challenges.

Qualifications and experience

I began working on the subject of drugs in breastmilk in July 1995 by extending some information compiled by NCT and writing what become known as the Drugs in Breastmilk Compendium. In the same year I began research which led to a PhD with the title "Community Pharmacy Support for Breastfeeding Women Requiring Medication". It involved surveying 1000 mothers (NCT mothers), 1000 pharmacists and 1000 GP s in a matched area to ascertain their attitudes and experiences around the use of drugs in lactation. I also followed 100 women from the day they delivered until they stopped breastfeeding looking monthly at their experiences of buying and being prescribed medication. I was awarded my PhD in 2000 by the University of Portsmouth.

In my working life I have always worked in Community Pharmacy (in fact I was born over a branch of Boots of which my father was manager). I have largely worked as a locum since the birth of my children but was also manager of a pharmacy in the village where I live across the period of my research. I have also worked as a practice support pharmacist in GP surgeries in Portsmouth and SE Hampshire. I am an independent prescriber and have run clinics on primary prevention of coronary heart disease including smoking cessation, weight management as well as prescribing medication to control hypertension and raised cholesterol. I had dreams of running a breastfeeding surgery but it never came to fruition. I gave up work 3 years ago to finish a book and develop my own website and Facebook page. In 2013 I was very proud to have a book published by Routledge "Breastfeeding and Medication". I hoped this would provide an easily accessible reference source for doctors and pharmacists in particular.

How to use the Drugs in Breastmilk factsheets

Our small team answer over 7000 queries a year - via the telephone, email and increasingly social media - so we have tried to provide more and more information on frequently asked questions via our factsheets.

These factsheets are available online for mothers (and relatives) and healthcare professionals to read and freely download and they are all included here in printed form. If you have a question about the use of medications, medical treatments or other common products whilst you are breastfeeding please have a look here or on our website in the first instance to see if the question you have is already answered in one of our many factsheets. www.breastfeedingnetwork.org.uk/ If you have a query not covered in the factsheets or you need more in depth or personalised information about multiple medications or a specific scenario you can get in touch by ringing 0844 412 4665 (you may need to leave a message) or if you can, please email via the website to druginformation@breastfeedingnetwork.org.uk. You can also contact us on Facebook or Twitter.

If you would like to support the information offered by the Drugs in Breastmilk service you can make a donation by visiting www.justgiving.com/Drugs-in-Breastmilk-Helpline-Appeal/ or by texting DIBM88 and the amount you wish to donate to 70070 eg DIBM88 £3 to 70070.

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Support the Drugs in Breastmilk information service

If you find the support and information in this booklet useful and would like to help support the service you can become a Friend of Drugs in Breastmilk, either as an individual or as an organisation. Becoming a Friend will help support the service in a sustainable, long-term way. You can find out more information about the Friends scheme on our website

- www.breastfeedingnetwork.org.uk/drugs-breastmilk-helpline-needs-friends/

Disclaimer

Please note the statement below refers to all the drug information sheets and leaflets.

The information provided is taken from various reference sources. It is provided as a guide. No responsibility can be taken by the author or the Breastfeeding Network for the way in which the information is used. Clinical decisions remain the responsibility of medical and breastfeeding practitioners. The data presented here is intended to provide some immediate information but cannot replace input from professionals and voluntary breastfeeding personnel.

If a mother notices any change in her baby's behaviour she should seek further information as soon as possible as it may be necessary to consider stopping or changing the medication.

The information applies to term babies who are fit and well.

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Whilst you are welcome to print single copies of drug sheets to use in discussions between healthcare professionals and mothers please do not photocopy or print multiple copies of the BfN Drug Information Sheets or other BfN leaflets. Photocopying means that old information is perpetuated and mothers and health professionals do not get access to updated versions. A lot of time is spent on the appearance of the leaflets and materials and they appear less professional when copied. Revenue we get from sales of BfN leaflets provides us with funds to develop new leaflets and update old ones. Single copies are available free on receipt of an SAE see www.breastfeedingnetwork.org.uk/free-leaflet for more information. If you wish to reproduce any of the information please contact us via the website admin@breastfeedingnetwork.org.uk or telephone our admin line on 0844 412 0995

Introduction to the Safety of Drugs passing through Breastmilk

Taking medication does not usually mean that a mother has to stop breastfeeding temporarily or permanently. The advantages of breastmilk should never be underestimated nor should the wishes of a mother to continue to breastfeed and the right of the infant to continue to receive it.

The number of adverse reactions to drugs passing through breastmilk is small ⁽¹⁾. Warnings about not using a drug in lactation may sometimes be based on one reported incidence.

In general less than 1% of a drug will pass through breastmilk to the baby. Technology exists to measure very small amounts of drugs in milk and plasma. Their detection does not necessarily imply that they will cause harm.

Drug manufacturers are not required to produce clinical data on the safety of the use of a new drug in lactation when applying for a licence to market their product. It is obviously unethical to expose an infant to potential harm. Patient information leaflets provided within drug packs may say "do not take if you are breastfeeding" or "please consult your GP or pharmacist before taking this drug if you are breastfeeding". See information sheet on Patient Information Leaflets on the website www.breastfeedingnetwork.org.uk

The majority of drugs are unlicensed for use during lactation. This means that the manufacturers have not undertaken research to confirm safety on ethical grounds. Data may be available on the amount which gets into breastmilk. However the person recommending the drug e.g. GP has to take ultimate responsibility for prescribing should there be any adverse effects in the baby.

Current readily available reference books do not provide quantitative data on which to base decisions on whether a drug is safe to be given to a breastfeeding mother. However this data is available.

Before prescribing for any mother and baby pair several factors should be taken into consideration:

1. The need of the mother for treatment and any particular drug
2. The age and maturity of the baby - liver and kidney systems do not work fully for some time after birth. Premature babies are particularly susceptible to drugs and may exhibit higher than expected drug levels.
3. The volume of breastmilk being taken daily - a fully fed two-week-old baby consumes more milk than a nine-month-old feeding just once or twice a day.
4. Information available on the safety of the drug.

Drugs which are safer to prescribe for a breastfeeding mother are;

- Drugs which are highly protein bound so that less drug is free to enter milk
- Drugs which have a low plasma:milk ratio - the lower the ratio the less drug reaches breastmilk. Ratios above 1 imply concentration of the drug in breastmilk
- Those with a shorter half life are preferable as there is less likelihood of the drug building up
- Drugs in which there is experience of use in breastfeeding and published reports. Mothers should be made aware of potential side effects e.g. diarrhoea and/or colic with antibiotics, drowsiness with sedatives and when these are significant and justify stopping the drug, rather than breastfeeding unless the circumstances are exceptional.
- If a drug is available in a formulation for children it is likely to be safe to be taken by breastfeeding women.

It is important that no baby is exposed to risk by the mother taking a drug which is contra-indicated in breastfeeding. It is also important that the baby is not denied the value of continued breastfeeding. Prescribing during lactation is not simple or straightforward and includes dilemmas for mothers and health professionals faced with the lack of good data on which to make decisions. As the number of women who initiate and sustain breastfeeding increases this will become a more important area.

The National Service Framework for Children, Young People and Maternity, 2005 (10.5) ⁽²⁾ stated that:

- mothers who are taking medicines need particular advice about breastfeeding;
- current sources available to healthcare professionals may lead to women, unnecessarily, being advised not to breastfeed;
- women who are taking medicines should receive specialist advice, based on best available evidence, in relation to breastfeeding.

This is reiterated in the National Institute for Health and Clinical Excellence (NICE) Maternal and Child Nutrition Guides (2008) ⁽³⁾ where it is also highlighted that:

- health professionals should discuss the benefits and risks associated with the prescribed medication and encourage the mother to continue breastfeeding, if reasonable to do so. In most cases, it should be possible to identify a suitable medication which is safe to take during breastfeeding by analysing pharmacokinetic and study data. Appendix 5 of the 'British National Formulary' should only be used as a guide as it does not contain quantitative data on which to base individual decisions; and
- health professionals should recognise that there may be adverse health consequences for both mother and baby if the mother does not breastfeed. They should also recognise that it may not be easy for the mother to stop breastfeeding abruptly - and that it is difficult to reverse.

The provision of information to mothers and healthcare professionals on the relative risks of medication taken by breastfeeding mothers is the aim of the Breastfeeding Network, Drugs in Breastmilk Helpline.

Bibliography

- British National Formulary
- Hale T. Medications in Mothers Milk 2012 (15th Ed)
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- Lactmed website <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>

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1. Anderson PO, Pochop SL, Manoguerra AS. Adverse Drug Reactions in Breastfed Infants: Less Than Imagined. *Clinical Pediatrics*, 2003; 42(4): 325-340).
2. The National Service Framework for Children, Young People and Maternity 2005. www.gov.uk/government/uploads/system/uploads/attachment_data/file/199957/National_Service_Framework_for_Children_Young_People_and_Maternity_Services_-_Maternity_Services.pdf
3. National Institute for Health and Clinical Excellence (NICE) Maternal and Child Nutrition Guides (2008) www.nic

The safety of drugs passing to the baby through Breastmilk - a summary

- Most drugs pass into breastmilk - but generally in very small amounts (less than 1%)
- It is safe to continue breastfeeding when taking most medications. If insufficient information on any one drug is available, it may be possible to use a different one on which there is more information available instead.
- It can be difficult to find information on how much of a drug gets into breastmilk from commonly available medical texts.
- The age of the baby can be important when deciding if it is safe for a breastfeeding mother to take a medicine. A premature baby may not be able to deal with exposure to drugs which would be safer if given to a baby born at term. An older baby is likely to have efficient systems to detoxify any drug which reached it through its mother's breastmilk.
- The value of continued breastfeeding is generally more important than the need for a particular drug. There are exceptions such as treatment of maternal cancer.
- Alternative drugs may be available which are safe to take during breastfeeding. The mother may decide she would rather not take medication.
- If a drug is available in a formulation for children it is likely to be safe to be taken by a breastfeeding woman.
- Many drugs are unlicensed for use during lactation. This means that the manufacturers have not undertaken research to confirm safety on ethical grounds. Data may be available on the amount which gets into breastmilk. However the person recommending the drug e.g. GP has to take ultimate responsibility for prescribing should there be any adverse effects in the baby.

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- British National Formulary
- Hale T. Medications in Mothers Milk 2014 (16th Ed)
- Jones W Breastfeeding and Medication 2013 Routledge
- Lactmed website <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>

Patient information leaflets - what do they mean?

Many mothers and healthcare professionals are confused by the fact that patient information leaflets (the inserts in packets of medicines) say "this drug should not be taken during breastfeeding" or "consult your doctor or pharmacist before taking this drug if you are breastfeeding".

The words do not mean that the medicine is harmful to be taken by a breastfeeding mother but are required by law depending on the information supplied to the licensing authority (MHRA) when the medicine was first launched or launched by that manufacturer.

- The manufacturer of any medicinal product must obtain a marketing authorisation from the Licensing Authority prior to promoting and selling the medicine. Part of the application for marketing authorisation includes a clinical expert report, the content of which is governed by European Community legislation. The clinical expert should also discuss "the possible utilisation during pregnancy and breastfeeding". A "statement" on pregnancy and lactation should also appear in the Summary of Product Characteristics. It is not stated what information should be supplied or what, if any, specific animal work is required to generate the data.
- Manufacturers are also required by law to provide patient information leaflets giving full information on the use of the drug, including side effects, treatment of overdose and cautions which generally include details of use during pregnancy and lactation.
- It is obviously unethical to give a drug to a pregnant or lactating mother without full knowledge of safety. Animal studies can provide a limited amount of safety data which may or may not be relevant to human use. In general little information on the safety of drugs which may pass into a mother's breastmilk are available prior to marketing so a manufacturer will not recommend that drug should be given to a lactating woman.

However, we accrue information subsequently from case reports or small scale studies and use knowledge of the pharmacokinetics of the drug (the way in which it is handled by the body) to enable us to make recommendations as to whether a drug is safe to be taken "outside of its licence application" during breastfeeding.

When used in this way the doctor who prescribes, the nurse who recommends or the pharmacist who sells or dispenses the medicine have to take responsibility for doing so and the manufacturers are able to disclaim all responsibility.

When discussing medication use during breastfeeding, several sources are used by myself as a pharmacist, and information provided on that basis as to whether it is safe for a breastfeeding mother to take. If there is any possibility of harm coming to the child from exposure to that medicine, the mother will be provided with that information and also warned of any potential side effects to be aware of in the child e.g. drowsiness, poor weight gain etc.

All the information sheets carry a statement that "The information presented here is intended to provide some immediate information but cannot replace input from the medical profession and breastfeeding experts. No responsibility can be taken by the author or the Breastfeeding Network for the way in which the information is used".

We are aware that other people pass on information or may perceive it differently to that which was intended. Whilst every attempt is made to pass on evidence based information this is frequently perceived as advice, because that is what we are used to receiving from healthcare professionals. Ultimately use of any medicine during breastfeeding remains the responsibility of the mother, but we strive to provide information for her to be able to continue to breastfeed her child safely.

Reference

- Medicines and Healthcare products Regulatory Agency (MHRA) website; www.mhra.gov.uk/

Alcohol and Breastfeeding

The effect of maternal consumption of alcohol is insignificant except at high or regular consumption levels.

Breastfeeding mothers can have occasional, small amounts of alcohol but should not drink regularly or heavily (e.g. binge drinking) without considering how to limit the baby's exposure.

- Alcohol passes freely into breastmilk reaching approximately maternal levels.
- Chronic exposure to more than 2 units per day may have an effect on development.
- Maternal blood levels have to reach 300mg/100ml before mild sedation is reached in the baby (this compares with a level of 80mg/100ml needed to fail the police breath test).
- Reduction of let-down is reported when the mother drinks heavily.
- Peak levels in the milk appear after 30-90 minutes.
- Excess levels of alcohol in milk may lead to drowsiness, deep sleep, weakness and decreased growth in the infant.
- To reduce exposure of the baby to alcohol, avoid breastfeeding for 2-3 hours after drinking.
- Chronic consumption of alcohol is more likely to cause harm than occasional social drinking.
- Alcohol may reduce the baby's sucking time at the breast but not the volume of milk consumed.
- Alcohol, particularly Guinness and stout, has in the past been recommended to increase milk production. This may be due to relaxation and increased fluid intake, as much as to any galactagogue properties. Non-alcoholic beers seem to have similar prolactin stimulating properties.
- It is not necessary to express breastmilk off to clear it of alcohol, as the mother's blood levels fall, the level of alcohol in the breastmilk will decrease.
- Some mothers may need to express for comfort, to maintain their supply and to avoid blocked ducts or mastitis. It has to be acknowledged that if mothers have drunk a considerable quantity of alcohol they may not be in a position to consider this.
- If vomiting occurs as a result of too much alcohol breastfeeding should be avoided until the following morning.
- Mothers who have been drinking alcohol should never let themselves be in a situation where they might fall asleep with the baby; on a bed, chair or settee (this would also apply to other carers who have been drinking alcohol).
- Drinking alcohol reduces the ability of the mother to be aware of her baby's needs, whether she is breastfeeding or not. It is safest to ask someone else to care for the baby.

Other websites

- www.food.gov.uk/multimedia/pdfs/board/life02breastfeeding1109.pdf
- www.eatwell.gov.uk/healthydiet/nutritionessentials/drinks/alcohol/
- <https://www.drinkaware.co.uk/check-the-facts/health-effects-of-alcohol/fertility-and-pregnancy/alcohol-and-breastfeeding>
- www.nhs.uk/chq/Pages/958.aspx?CategoryID=54&SubCategoryID=135
- www.maternal-and-early-years.org.uk/breastfeeding-and-alcohol

Guidelines from the Department of Health

Alcohol passes through to breastfed babies in very small amounts. It's unlikely that having an occasional drink will harm you or your baby, but it might affect how easily your baby feeds. So when breastfeeding, it's probably sensible to drink very little. For example no more than 1 or 2 units once or twice a week.

If you intend to drink more than this on a special occasion, you might want to think about expressing milk in advance for your babysitter.

It's not safe to get drunk when you are caring for your baby, whether he/she is breast or bottle fed. And when you have been drinking never share a bed, sofa or chair with your baby. If you fall asleep you could put your baby at risk.

One unit of alcohol is approximately a single measure (25ml) of spirits, half a pint of beer or half a standard (175ml) glass of wine - this may vary with the strength of the product.

www.nhs.uk/Planners/breastfeeding/Pages/breastfeeding-diet.aspx

Anaesthetics and Breastfeeding

Some women need to have operations under general anaesthetic whilst they are breastfeeding. Some healthcare professionals and mothers are concerned about the safety of the baby who may be exposed to anaesthetic agents via their mother's breastmilk. This adds to the stress of many mothers undergoing procedures - minor or major.

Mothers who undergo caesarean sections under general anaesthetic (usually as an emergency procedure) are encouraged to breastfeed as soon as possible after delivery. In some cases babies are helped to latch whilst the mother is still in the recovery room and drowsy. Anecdotally many mothers are advised to pump and dump their breastmilk for 24-48 hours after anaesthetic even for a short operation in order to clear the body of the drugs rather than simply to maintain supply. This is not necessary.

General anaesthetics have very short half-lives and are redistributed in the body within minutes which is why they have to be infused continuously during operations. Some is stored within the fat cells of the body and gradually released over the following 24-48 hours but the level of drug released from a short procedure is unlikely to cause any greater effect than drowsiness in the baby. In most cases of minor surgery the mother is wide awake within minutes of the end of the operation. Even with major surgery recovery from the anaesthetic is short although drowsiness may then result from opiate pain killers injected in theatre. Once a mother is awake enough to recognise that she has a baby who needs to be breastfed the level of anaesthetic in her blood is likely to be small.

Consideration does however need to be given to;

- Who will look after the baby whilst mum is in surgery?
- If the mother is to remain in hospital overnight are there facilities for the baby to remain with her?
- If so is she happy for the baby to be there?
- Is there someone who is available to look after the baby but bring it to mum when a feed is needed?
- If the baby is not to stay with the mother does she have access to a breast pump and somewhere to store the milk safely for it to be given to the baby later?
- Is she able to express milk for the baby? We need to avoid the risk of mastitis if mother and baby are separated.
- Is it possible to delay the operation until after weaning? This may not be an option nor should a mother be pressurised into weaning in order to have an operation. Breastfeeding and anaesthetic are not normally mutually exclusive.

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- www.ilca.org/education/Anesthetic%20Meds.pdf

Analgesics (Pain killers) and Breastfeeding

There are a wide variety of commercially available painkillers available over-the counter and on prescription. The breastfeeding mother should check with the pharmacist before purchasing a brand to ensure that it does not contain aspirin.

OTC (Over the counter) Preparations

NB: Many of these products are available in supermarkets, garages etc. as well as through pharmacies. Individual ingredients need to be checked as there are many products available.

Preparations containing **paracetamol** are suitable for use by breastfeeding mothers up to the maximum dose of two tablets four times a day. If the baby needs to take paracetamol suspension, transfer from the mother's medication is too small to be harmful in addition. Branded forms include Panadol®, Hedex®, Anadin®. Paracetamol may also be included in cold remedies and it is important not to take double the ingredient by accident - please check with the local pharmacist.

Products containing **ibuprofen** are also safe for a breastfeeding mother to take. Transfer of non-steroidal anti-inflammatory drugs is generally small. Branded ibuprofen products include Brufen® and Advil® and most pharmacies stock own-brand generic products.

Paracetamol and ibuprofen can be taken together (to their maximum daily dose of 8 paracetamol + 3 ibuprofen 400milligrammes) for the relief of severe pain.

Ibuprofen is contra-indicated in people with a history of peptic ulcer (as it can cause gastric bleeding) or who have asthma (it can cause bronchospasm in people who are sensitive).

Aspirin (Dispirin®) as a painkiller should be avoided because of the increased risk of Reye's syndrome in paediatric viral infections. The amount transferring is a very small but as there are suitable alternatives, it is best avoided. If it has been taken accidentally at a dose of 600mg, please call the Drugs in Breastmilk Helpline to discuss

75-150milligrammes aspirin dispersible tablets are frequently given as a blood thinning agent. The amount transferred into breastmilk is likely to be very small compared to an analgesic/antipyretic dose of 600milligrammes taken four times a day which is reported to be 0.25milligrammes/kg/day (Hale 2012).

Codeine is no longer recommended as routine medication for breastfeeding mothers (MHRA June 2013) with particular caution where the mother has never taken the drug before or has found that the drug causes her to be drowsy, dizzy or experience severe constipation. See information sheet on Codeine on the website www.breastfeedingnetwork.org.uk

Use of codeine by breastfeeding mothers, if necessary, should be at the lowest effective dose, for the shortest possible duration and the mother made aware that she should cease the drug and seek medical advice, if she notices side effects in her baby such as:

- Breathing Problems
- Lethargy
- Poor Feeding
- Drowsiness
- Bradycardia (slow heart beat)

If adverse effects develop in breastfeeding infants the possibility of toxicity should be considered, regardless of maternal dose (Madadi 2009, UKMI 2012). Codeine should be replaced by a suitable non-opioid analgesic. Breastfeeding should not be interrupted unless the symptoms are extreme e.g. necessitating admission, and then only for the shortest duration possible in line with NICE recommendations (NICE Maternal and Child Nutrition Recommendation 15; www.nice.org.uk PH11 March 2008)

This recommendation follows an adverse event report from Canada, where a breastfed baby died at 12 days of age (Koren 2006). At post mortem he was found to have very high levels of morphine

in his blood because his mother had multiple copies of the gene which metabolises codeine into morphine and was taking compound codeine analgesics for episiotomy pain. The mother had reported side effects of constipation and somnolence in herself. She had sought medical help on several occasions prior to the baby's death as he was lethargic and had intermittent periods of difficulty in breastfeeding. A further 44 adverse events have been reported to the MHRA (personal communication July 2013).

Codeine combinations have in the past formed the mainstay of analgesic use, particularly in the early postpartum period. The genotype producing ultra-rapid metabolism is rare but is impossible to identify without genetic testing. It affects approximately 3% of Europeans (vanderVaart 2011).

Co-codamol tablets contain 8milligrammes of codeine per tablet are available to purchase from community pharmacies. Prescription only co-codamol contains 30milligrammes codeine per tablet. Branded products include Solpadeine®, Ultramol®, Paracodol®.

Codeine is also a constituent of a wide variety of preparations available OTC which contain multiple analgesic ingredients e.g. Veganin®, Feminax®, Syndol®, Propain®, Paramol®, Migraleve®.

Prescription analgesics

The most widely prescribed analgesics are listed below. However there are many combinations used. Non - steroidal anti-inflammatory drugs are generally safe to be taken during breastfeeding as they transfer in small amounts into breastmilk (see ibuprofen) e.g. **Diclofenac**, (Voltarol® , Diclomax®, Motifene®)

Naproxen (Naprosyn®, Synflex®)- longer half-life than diclofenac but amount secreted into breastmilk is small.

Indometacin (Indocid®) should be avoided if possible as there is one report of convulsions in a neonate exposed to this drug through breastmilk (Hale 2012).

Mefenamic acid (Ponstan®) is frequently given to reduce period pain and transfers into breastmilk in small amounts (BNF 2012)

There is less information on the transfer of the newer Cox 2 anti-inflammatories which are used for patients who are at risk from gastric bleeding e.g. **Celecoxib** (Celebrex®). They can be avoided by taking a combination of traditional NSAID with a proton pump inhibitor e.g. omeprazole, a combination of which is safe in breastfeeding. However it appears that the amount of celecoxib passing through breastmilk is too small to be harmful.

Compound codeine preparations

Co-codamol - paracetamol 500milligrammes and codeine 8milligrammes or 30milligrammes per tablet

Co-dydramol - paracetamol 500milligrammes and dihydrocodeine 10milligrammes

Dihydrocodeine 30milligrammes

These products can generally be taken by a breastfeeding mother bearing in mind the research above regarding apnoea. Any baby with respiratory difficulties should not be exposed to these drugs.

Tramadol is a new type of drug which resembles morphine but is less addictive. It is a stronger pain killer. Small amounts of Tramadol are secreted into breastmilk. One study of 75 women showed no adverse effects in breastfed infants whose mothers had taken it. As with other opiate analgesics it is sensible to observe the baby for drowsiness, feeding difficulties and breathing problems. If any of these are noted the drug should be discontinued and medical advice sought.

Opiate analgesics e.g. morphine and diamorphine are generally used post-operatively and only for short periods. If they are used for any significant length of time, the baby should be observed for sedation. Opiates have a potential for misuse and addiction. If a mother requires this level of pain relief she may not feel well enough to breastfeed and means of maintaining her milk supply should be considered. However individual wishes should always be borne in mind.

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Antibiotics and Breastfeeding

The use of antibiotics does not generally necessitate suspension or cessation of breastfeeding. Antibiotics are generally prescribed more sparingly than they were in the past in the light of increasing evidence of lack of benefit in self-limiting conditions and increased resistance in some organisms. Antibiotics are not appropriate in viral conditions such as the majority of coughs and colds. However, there are times when their use is important and even lifesaving. The use of antibiotics to treat mastitis is discussed in the BfN leaflet Breastfeeding and Mastitis.

Choice of antibiotic to treat any condition depends primarily on the organism likely to be causing the symptoms, taking into account any previous allergies e.g. rash in response to penicillin.

Most antibiotics can produce excessively loose motions in the baby, with the appearance of diarrhoea. Some infants appear more unsettled with tummy aches or colic. These effects are not clinically significant and do not require treatment. The value of continued breastfeeding outweighs the temporary inconvenience. In theory exposure may sensitise the baby to later doses e.g. penicillin allergy but this is exceedingly rare. Large doses of antibiotics may encourage overgrowth of thrush (candida) in the mother by killing all the natural gut bacteria. Many women find taking supplements of acidophilus or live yoghurt beneficial to redress the balance. Antibiotics safe to take during lactation.

The following antibiotics are all safe to take whilst breastfeeding;

- Amoxicillin, Amoxil®,
- Azithromycin, Zithromax®,
- Cefaclor, Distaclor®,
- Cefuroxamine, Zinna®
- Cephalixin, Cefalexin, Keflex®,
- Cephradine, Velosef®,
- Clarithromycin, Klaricid®,
- Co-amoxiclav, Augmentin®,
- Co-fluampicil, Flucloxacillin + Ampicillin, Magnapen®
- Erythromycin, Erymax®, Erythrope®, Erythrocin®
- Flucloxacillin, Floxapen®,
- Penicillin V, Phenoxymethyl penicillin
- Trimethoprim, Monotrim®,

All are available as liquid forms to treat infant infections.

Intra-venous antibiotics

Some antibiotics e.g. gentamycin are given intra-venously as they poorly absorbed from the gut. Any drug passing into breastmilk is therefore unlikely to be absorbed in sufficient quantities by the baby and there is no need to cease breastfeeding on safety grounds. However the mother may not feel well enough to breastfeed or may need the baby to be cared for by another adult and brought to her for feeding.

Tetracyclines

It was believed in the past that tetracycline antibiotics were contra-indicated in breastfeeding because they could stain the infant's teeth (even if they had not appeared). In short courses (less than a month) this appears not to be a problem as the drug forms a complex with the calcium in the milk and is not absorbed by the baby. Long courses e.g. for acne should be avoided wherever possible.

The drugs in this family are:

- Tetracycline
- Oxytetracycline
- Minocycline (Minicin®)
- Doxycycline (Vibramycin®)
- Lyme cycline (Tetralysal ®)

Metronidazole

Metronidazole (Flagyl®) has been said to impart an unpleasant taste to the milk and cause the baby to reject it. It has not been possible to trace the original research which suggested this or who tasted the milk and made this conclusion. Babies do not appear to be concerned by the frequent variation in the taste of breastmilk which occurs naturally. Occasionally it can alter the colour of the milk. In the US single doses of 2g are used and breastfeeding is temporarily interrupted. In the UK doses of 200-400milligrammes three times a day are used and breastfeeding can continue. Intra-venous use does not appear to pose any difficulties in lactation.

The concentration in milk following an oral dose 400milligrammes three times daily produced milk levels of 15.52 µg/ml and 200milligrammes three times a day an equivalent dose to the infant of 3milligrammes/kg/day compared to the dose of 22.5milligrammes/kg/day given therapeutically to children. Anecdotally increased maternal consumption of garlic masks the taste of the Metronidazole.

Other antibiotics

- Ciprofloxacin (Ciproxin®) can cause problems in the joints of juvenile animals exposed to it. The relevance to breastfeeding is unknown, and short maternal courses are unlikely to pose problems, other antibiotics are preferable e.g. trimethoprim or nitrofurantoin as first line for simple urinary tract infection.
- Nitrofurantoin (Furadantin®, Macrochantin®) - only small amounts are excreted into breastmilk but may cause haemolysis in G6PD deficient infants (a comparatively rare condition involving enzyme deficiency). It may colour the mother's urine, tears and milk yellow. This is not significant.
- Vancomycin and teicoplanin are used to treat multiple resistant staphylococcus aureus (MRSA). The side effects of these drugs are potentially severe and their use requires blood counts, kidney and liver function tests. Use to treat MRSA is generally given by intra-venous and intra-muscular absorption. The British National Formulary (BNF) states that oral absorption is poor but there is little information on use in lactation and studies of milk transfer. The mother may not feel well enough to breastfeed during therapy but individual circumstances should be taken into consideration.

Topical antibacterial agents

There is no evidence that topical anti-infective creams, ointments and gels are sufficiently absorbed to pass into breastmilk. If they are applied to the nipple any visible product should be gently wiped off prior to breastfeeding.

- Fusidic Acid, (Fucidin®)
- Mupirocin, (Bactroban®)

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Anticoagulants and Breastfeeding

Blood clots may develop in the calves (deep vein thrombosis/DVT) or the lungs (pulmonary embolism/PE). Risks increase in patients who smoke or who are overweight. They increase if the person is immobile for prolonged periods e.g. during travel or after surgery. Anti-coagulants are used frequently to prevent the development of DVT in those at risk.

For further information see www.patient.co.uk/health/deep-vein-thrombosis

Pregnancy increases your chances of getting DVT, with approximately 1 in 1,000 pregnant women developing the condition. The risk is considerably increased if your Body Mass Index (BMI) is over 30 (NICE 2010)

The symptoms of a DVT in the leg include:

- swelling,
- pain,
- warm skin,
- tenderness, and
- redness, particularly at the back of your leg, below the knee.

A DVT usually (although not always) affects one leg (NHS Choices www.nhs.uk)

If you have a BMI of more than 30, have a previous history of DVT or develop symptoms of a DVT or PE you may be given daily injections of heparin or a low molecular weight heparinoid (enoxaparin, dalteparin or tinzaparin) (BNF) .

These drugs do not pass into breastmilk in any significant amount as the molecules are very large and the drugs have very poor oral bioavailability (Hale, Jones, LactMed).

Enoxaparin was studied by Guillonneau (1996) in 12 women receiving 10-20 milligrammes: after 5-7 days of exclusive breastfeeding their infants showed no change in anticoagulant activity or evidence of bleeding

Although there are no studies on transfer of tinzaparin into breastmilk, there is no reason to suggest that it will pass through to the baby due to its lack of oral bioavailability (Hale, Jones, LactMed).

In another study (Richter 2001) of 15 patients who had undergone caesarian section, breastmilk levels of dalteparin measured were less than 0.037 international units (IU) per millilitre and no adverse events were reported.

Alternatively women may be prescribed warfarin tablets to take. Warfarin is an anticoagulant that is taken as tablets once daily (NICE 2010). The dose of warfarin has to be precise to ensure that the blood does not clot too easily, or that it does not cause excessive bleeding. This may involve regular monitoring of INR (a measure of clotting levels) by blood tests.

Mothers can continue to breastfeed normally whilst taking warfarin up to 12milligrammes daily, as levels passing through breastmilk are too low to affect your baby's blood clotting (Orme 1977). No adverse reactions in breastfed infants have been reported from maternal warfarin use during lactation.

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Antidepressants and Breastfeeding

It is important that post-natal depression is recognised and treated effectively as it may impair bonding between mother and child and enjoyment of an important period in the relationship. Approximately 80% of women experience post-natal blues but some 10-15% experience more severe symptoms and need medication and or counselling and cognitive behavioural therapy. Some mothers may not immediately recognise or accept that they are depressed. Some fathers may recognise the difference in their partners. Others will deny the possibility.

The symptoms of post-natal depression may include obsessive thoughts often concerning harm to the baby, hyperactivity or lethargy, weight loss, volatility of behaviour and restlessness. Some women will express suicidal tendencies. But many symptoms are non-specific e.g. feeling of tiredness and not wanting to get up, not being able to cope as the day goes on and needing to go to bed early - could describe the natural effects of caring for a new baby 24 hours a day. Some women, particularly those who are normally natural leaders, may express concern over loss of confidence.

Most anti-depressants take three to four weeks to exert maximal efficacy and it is important that the woman is informed of this. Many patients stop taking anti-depressant medication within the first four weeks having found no benefit. Initially some medicines may also make symptoms appear worse and patients need to be aware of this to ensure concordance with the drug regime.

Tri-cyclic anti-depressants

Tricyclic antidepressants have been around for a considerable period and much is known of their metabolism, safety and side effects. However the latter can be intolerable for some patients, particularly nursing mothers. Side effects include sleepiness, dry mouth, urine retention and constipation.

Amitriptyline - The levels measured in breastmilk are low, because the drug is 94.8% bound to plasma proteins. There have been no reports of adverse effects on the baby and in one study where the mother took 150milligrammes there was no detectable drug in the infant's serum.

Clomipramine (Anafranil®) - is particularly useful for panic attacks and obsessive, compulsive disorders. In one study of 4 women taking 75-125milligrammes daily, plasma levels of clomipramine in the infants was below the level of detection. No untoward effects were noted in any of the infants.

Dothieprin (Prothiaden®) - At a dose of 75milligrammes/day a concentration of 11microgrammes/L has been estimated to be consumed by the infant, equivalent to 1/650 of the adult dose. No adverse effects have been noted in the infants despite numerous studies. This drug is less frequently used now.

Imipramine - has an active metabolite, desipramine. At therapeutic doses it is estimated that the baby would receive 20-200microgrammes / day and no adverse effects have been noted. It would be prudent to observe the baby for sedation and dry mouth.

Lofepamine (Gamanil®) - amount in breastmilk likely to be too small to present risk to breastfed baby. No precise data on transfer is available.

Selective Serotonin Re-uptake Inhibitors (SSRI)

The newer treatment for depression involves SSRIs which have far fewer side effects than tri-cyclics and act by inhibiting re-uptake of serotonin into neurones in the central nervous system. The majority of manufacturers have not conducted clinical trials on the use in lactation and in the Summary of Product characteristics recommend that they are not used by breastfeeding mothers. Their use is therefore off-licence and at the discretion and responsibility of the prescribing physician.

Side effects include nausea which may be particularly marked in the early weeks of therapy, diarrhoea, headache, insomnia and agitation. They are safer than the tri-cyclics in overdose. It may be difficult to differentiate the side effects of the drugs from the symptoms of depression so it may seem that the drugs are not being effective in the early weeks of therapy.

Fluoxetine (Prozac®) - has a very long half-life which may in theory, lead to accumulation and high levels in the infant. It has an active metabolite. Adverse effects including increased irritability and colic have been reported. One anecdotal report linking severe colic with the use of fluoxetine has been published. Hale reports personal communications, indicating that it can cause excessive sedation if used throughout pregnancy and then in subsequent lactation. He has recommended that if it is used in pregnancy that the mother is changed onto another SSRI in the 2 weeks before expected delivery. It is suggested that use in mothers of babies more than 4 months old would appear to be safe. It may be difficult to switch anti-depressants at this late stage of pregnancy.

Sertraline (Lustral®) - has a shorter half-life. The long half-life metabolite is only marginally active, unlike that in fluoxetine and hence is unlikely to cause accumulation in the baby. There are published studies on more than 30 infants with no untoward effects noted. In almost all cases none of the drug has been detected in the infant plasma. Reported but anecdotal, evaluation of an infant exposed to 100milligrammes daily was that the child reached normal developmental milestones and weight at 3 months. There is one report of an infant developing benign neonatal sleep at 4 months, which resolved at 6 months, it is unclear whether this bears any relationship with the maternal use of sertraline. **It is normally seen as the SSRI of choice for a breastfeeding mother**

Citalopram (Cipramil®) - There is one report of an infant exhibiting "uneasy" sleep patterns on a maternal dose of 40milligrammes/day. This resolved when the mother's dose was reduced. There are also two reports of excessive somnolence, decreased feeding and weight loss in breastfed infants. In studies no adverse effects on the babies were noted. If the baby shows less than expected weight gain it might be prudent to discontinue the drug and change to another SSRI. It should not be given concomitantly with erythromycin or fluconazole. However the majority of breastfed babies tolerate it well. The milk plasma ratio has been estimated to be 1.16-3, suggesting that the drug concentrates in milk. The metabolite enters breastmilk in low levels and at a normal daily intake would produce 14.6 microgrammes/Kg/day (0.7-5.9% of the maternal dose) a very low level.

Paroxetine (Seroxat®) - One case reports levels in breast milk below the level of detection in 16 infants exposed to levels up to 50milligrammes per day (dose normally 20-30milligrammes daily) through their mother's breastmilk. There are reports of neonatal withdrawal syndrome in newborns exposed to paroxetine in utero. Symptoms include jitteriness, vomiting, irritability and hypoglycaemia.

Other antidepressants

Venlafaxine (Efexor®) - The mean total drug dose reported in the infant is 7.6% of the maternal weight adjusted dose. Metabolites have been detected at low levels but infants have shown no adverse effects and would appear able to metabolise the drug. The action is similar to that of fluoxetine but with fewer anti-cholinergic effects. The dose transferred to the infant is relatively high although no adverse reports have been reported. As the drug is associated with discontinuation syndrome it would be difficult for the mother to stop abruptly. In neonates, monitoring for excessive sedation and lower than expected weight gain is advisable.

Progesterone injections and pessaries

It has been suggested that post-natal depression and pre-menstrual disorder may be linked to low progesterone levels. Dr Katarina Dalton advocated the use of progesterone injections for the first 10 days after birth followed by the use of progesterone (Cyclogest®) as a suppository or pessary 400milligrammes twice a day until periods return and for the last 14 days of the cycle thereafter. This is safe to use in lactation but should be accompanied by adequate carbohydrate consumption (every two hours by day). This treatment has not been proven by double blind trials and is now somewhat controversial. However if the mother does not wish to take anti-depressant medication it may provide some support, if only at a placebo level.

Treatment depends on a risk: benefit assessment for each mother: baby pair. However it must be borne in mind that many mothers with depression report that it is the only part of their life which they feel is under their control and at which they can succeed. Advising a mother to cease breastfeeding in order to administer anti-depressant medication should be undertaken as a last resort. Should mothers need to be admitted to hospital, it should be in a mother and baby unit allowing her to continue to care for her infant. The use of cognitive counselling together with anti-depressant therapy has been shown to be advantageous.

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Antihistamines and Breastfeeding (Hayfever and other allergies)

Optimal treatment choice

- Non sedating antihistamine
- Nasal spray
- Eye drops

Can breast feeding mothers take antihistamines for Hayfever and other allergies?

Whilst many mothers prefer to take as few medicines as possible whilst they are breastfeeding, hayfever can make life particularly unpleasant during the summer months if left untreated. It is not necessary to stay indoors or suffer because you are breastfeeding.

Most of the drugs to treat allergies are available to buy over the counter but the leaflets may say that they are not suitable to take whilst you are breastfeeding. This does not necessarily mean that they are dangerous, merely that the drug company has not undertaken trials itself and has chosen not to recommend its use in this situation. (See information sheet on Patient Information leaflets www.breastfeedingnetwork.org.uk/dibm/patient%20info%20leaflet.pdf).

Nasal sprays

Nasal sprays act locally and are unlikely to pass into breastmilk in significant quantities ⁽¹⁾. Corticosteroids may be used to block the allergic response locally e.g. Beclometasone (Beconase®), Fluticasone (Flixonase® Pirinase®), Budesonide (Rhinocort®), Dexamethasone (Dexa-Rhinospray®), Mometasone (Nasonex®) Triamcinolone (Nasocort®). Other products are designed to block the passage of pollen into the nose thus preventing the reaction e.g. Prevalin allergy®, NasalGuard Allergie Block® and similar own brand pharmacy products. These will not pass into breastmilk.

Tablets

Non-sedating antihistamines such as **loratadine** (Clarityn®) are the preferred oral antihistamines ^(2, 3) **Cetirizine** (Zirtek®, BecoAllergy®, Piriteze®, Benadryl®) reaches low levels in breastmilk and is recommended by the British Society for Allergy and Clinical Immunology ⁽²⁾. **Fexofenadine** (Telfast®) is a newer antihistamine with similar low levels of transfer and no reports of adverse events ⁽⁴⁾. **Acrivastin** (Benadryl relief®) can cause drowsiness in mother and baby ⁽⁵⁾. As there is less research it is the least favoured option in younger babies unless it is the only drug that the mother finds effective. In such a situation the baby should be observed for drowsiness. Most multiple pharmacies make their own brands of these drugs. Many are both available as paediatric syrups to be given to children over 2 years.

Short courses of sedating antihistamines e.g. chlorpheniramine (Piriton®, Promethazine (Phenergan®) and Trimeprazine (Vallergan®) taken three times a day to control urticaria (nettle rash) or severe reaction to an insect bite are unlikely to cause significant drowsiness in the baby but are best avoided long term as use may cause the baby to become drowsy, miss feeds and fail to thrive ⁽⁵⁾.

Oral decongestants such as pseudoephedrine and phenylephrine should be avoided as they can reduce milk supply (see cough and cold remedies information sheet [www.breastfeedingnetwork.org.uk/dibm/cough%20and%20cold%20remedies%20\(2\).pdf](http://www.breastfeedingnetwork.org.uk/dibm/cough%20and%20cold%20remedies%20(2).pdf)). Benadryl plus® contains an antihistamine with a decongestant and should be avoided as it may reduce milk supply.

Eye Drops

Eye drops also act only locally and can be used during lactation. e.g. sodium cromoglycate (Opticrom®) ⁽⁶⁾.

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Anxiety and Breastfeeding

There are many reasons that we become anxious at one point or another in our lives. Anxiety is a normal and healthy emotion which helps to tell us that something in our environment may be threatening, either physically or emotionally to either ourselves or the people we care about. Feeling anxious about these situations encourages us to act to make ourselves safe. Without it we would not be able to recognise danger or keep ourselves safe. It is only necessary to seek help if you find your feelings spiralling out of control. Tell your loved ones how you feel, a hug and an opportunity to express your frustration and worries may be all that you need.

Sometimes though we misinterpret situations and start to believe that they are threatening when they are not. This can be affected by the information;

- we are given by others,
- how confident we feel about coping with a situation,
- our experiences from the past.

If we have been told that something will be difficult or upsetting, or have experienced struggling in a situation in the past we are more likely to be anxious about that situation again now.

It is important to know that 1 in 10 of us will experience a significant anxiety disorder at some point in our lives although this increases during pregnancy and the year after giving birth. It doesn't mean that you need medication, nor that you are a bad mother or a failure. You may benefit from access to Improved Access to Psychological Therapies (IAPT) services. You may feel better knowing that what you are feeling is perfectly normal and common in many mothers. We hope that this information gives you options to decide what is right for you.

Parenthood is a time when all experiences are new. We are given a lot of information (much of it conflicting) and advice. It feels like there is pressure to get everything 'right' every time - to keep our child healthy and to be seen as a 'good' mother. Add into the mix the fact that we are usually sleep deprived, exhausted and having difficulty concentrating, and it is very understandable that anxiety is common in mothers, especially those with young babies.

This information sheet is not designed to give a definitive answer that will immediately make the anxiety disappear - we wish it could. Anxiety is very much more complicated and the solutions will be individual to each one of us. Hopefully it will be able to provide some information on what anxiety is and how we may be able deal with this. It will also try to normalise anxiety and consider what a normal reaction to a situation is and when we may want to seek more help. It is important to recognize that anxiety may begin in pregnancy and that it can occur alongside other conditions such as depression and obsessive compulsive disorder (OCD) which can make it less readily recognized by you and your healthcare professionals.

What is anxiety?

Anxiety is a feeling or dread or fear about a real or imagined situation. It is often characterised by excessively worrying and focusing on thoughts and situations that scare or upset you and is accompanied by a range of physical sensations. We will often notice changes in three areas, our thoughts, our physical feelings and our behaviours. Below are listed some of the symptoms in these areas you may experience.

Physical sensations

- Racing heart beat
- Changes in breathing (feeling breathless, holding your breath or rapid breathing)
- Tightness or pain in your chest
- Pins and needles or tingling in the arms and legs
- Butterflies
- Feeling sick (sometimes, although rarely, also being sick)
- Stomach upsets and needing to go to the toilet frequently or urgently.
- Wobbly legs
- Feeling dizzy and light headed
- Feeling as if things don't feel real/dream like (depersonalisation)
- Difficulty concentrating
- Head aches
- Muscles tension, especially in the neck, shoulders and jaw
- Irritability
- Disturbed sleep, difficulty getting to sleep or waking frequently
- Feeling exhausted

Thoughts

- Worrying excessively, either about one thing or many things
- Feeling that others are looking at you or judging you
- Thinking that you will be unable to cope with a situation
- Thinking you are not good enough in some way
- Focusing on bad or upsetting experiences from your past
- Feeling unable to let go or stop thinking about something
- Worrying that something is wrong or will go wrong in the future
- Unpleasant thoughts about bad things happening that pop into our head.

Often these thoughts feel very out of control and we may find it difficult to concentrate on normal daily life because our head is so full of these thoughts. We may also find that no matter how much we think about the problems they don't get better, and often get worse. When someone asks what you are worrying about you may respond "everything and nothing". That's okay, it's how you feel that you are dealing with your thoughts that is important.

Behaviours

- Reducing normal activities
- Feeling unable to face talking to people
- Avoiding crowded places
- Repeatedly checking things, our children, information, locks, switches etc.
- Avoiding thinking or doing things that make us anxious
- Becoming withdrawn

Initially taking some time out may be helpful to give us time to rest and spend time with our baby. However in the long run by reducing enjoyable activities we have little else to distract us or balance the negative thoughts.

What causes anxiety?

Anxiety is normal and a natural part of our biology which we share with all animals. It comes from our fight or flight response that is designed to keep us safe.

When we were cavewomen, if we came across a sabre toothed tiger, to keep ourselves safe we would either need to fight it, or run away. In order to do this our brain reacts very quickly to give us

the best chance of escaping or winning by making our bodies ready for action by releasing adrenaline. This causes several immediate changes:

- Our hearts beat faster to help pump blood around the body
- Our breathing rate increases to give our muscles oxygen
- We get tingling in our arms, legs and stomach (butterflies) as our blood diverts away from our stomach where it's not needed and into our arms and legs instead
- Our stomachs are not essential for fighting so we may feel sick or need to go to the toilet
- Our muscles tense ready for actions
- We feel on edge as our senses are on high alert for danger
- We feel the urge to escape or leave a situation

In our modern life we rarely encounter sabre toothed tigers, but the same reaction can still be triggered if a situation or thought feels threatening to us. Our bodies are unable to differentiate whether something we just think is real or not. Even if you are just thinking about an anxiety provoking situation, what may or may not happen, or worrying that something might be wrong, this will still cause all the same physical reactions that a physical threat would.

Anxiety and parenthood

Parents are anxious about doing their best for their child and as a result some level of anxiety is to be expected. Not only do we worry about our children, but we may also be facing massive changes to our lives; changes in our role within a family, greater responsibility, less time to ourselves, less money, less time with our partners and friends. The list is endless but below are some common worries you may experience:

- Is my child eating enough?
- Is my child gaining weight?
- Am I feeding too frequently/frequently enough?
- Is the baby's poo the right colour?
- Are they safe where they are sleeping?
- Will my baby nap today?

Breastfeeding and anxiety

Everyone loves to give advice about how best we should care for our children, this is especially true when it comes to feeding. Over the past 100 years breastfeeding has become less common than it was and information about what is normal has been lost over time. Instead we are inundated with advice which is often unrealistic and related to old childrearing practices that we no longer regard as helpful or evidence based.

Advice may include ideas that every baby should sleep through the night from x weeks, that they should only be fed every y hours, if they cry or are fussy they are hungry, mums can't produce enough milk to feed a large baby and a million more opinions that you will be exposed to every day.

With breastfeeding it isn't as easy to see exactly how much milk a baby has consumed. We may question our ability to sufficiently feed the baby - especially if a healthcare professional questions baby's weight gain or feeding schedule. Concerns about breastfeeding or perceived lack of support may add to anxiety.

Breastmilk is completely absorbed so breastfed babies will be more likely to wake frequently throughout the night and for longer. This is not a bad thing for the babies, who are feeding effectively and naturally, however this may lead to more disrupted sleep for the parents. Feeling more tired may result in higher levels of anxiety as we struggle to think clearly when tired. Few babies sleep through the night for the first year, but the pressure that is given by society for them to do this may again lead to anxiety and self-doubt.

We may get very conflicting or incorrect advice about what is normal from a variety of sources. Our society also has limited knowledge about healthy breastfeeding practices so we may be more likely to encounter misinformed opinions from others which may make us feel uncertain about what we are doing. You may feel your wishes to breastfeed or indeed to give up, may not be listened to or respected. This may add to your feelings of loss of control.

What can I do to manage my anxiety?

There are several simple things we can do to balance our life and manage anxiety. The focus should be on reducing focus on the worrying thoughts and trying to refocus attention on life activities which are happening at the moment, rather than what may happen in the future.

- Deal with or approach a problem if you can - if you can't do anything or it hasn't happened yet - let it go. The Exeter Worry Guide in the link below may give you some ways in which to do this. Mindfulness techniques may also be helpful with this and there are links to some helpful websites in the next section.
- Talk to people – other mums in similar situations to get an idea of what is normal. This may be via baby groups, helplines, Facebook groups or online forums. However, you may find that the mood of a forum may be negative and make you feel worse. If that happens find somewhere that helps you feel positive. Keep talking to those who love you and let them know how you are feeling.
- Keep doing enjoyable activities. These may need to be adapted to life with a baby but try to do something enjoyable every day e.g. baby groups, walks, playing with your baby or swimming. If you can get someone to babysit you may enjoy getting time out for half an hour to go for a run, have a bath, painting your nails, reading a book or even going to the toilet by yourself.
- Get out of the house - get to the shops for some milk, walk around the block, go for a drive. Staring at the same four walls will not help to distract you and your thoughts will go round in circles. Getting out even just for 15 minutes a day can be helpful to clear your head and may help your baby sleep too.
- Focus on positives each day - try and write one positive thing in a daily diary or try 100 days of happiness on Facebook. Maybe if someone asks how things are going, try to think of the positives first before the problems. Also make a list of all the things you are doing well rather than where you might be struggling.
- Take a breath and ignore those giving advice which doesn't feel comfortable - they are giving their opinion not facts. Their baby might be very different from yours, whatever they did was their choice but you do not have to conform to everyone else's ideas.
- Stop googling! There is a place for internet searches, but you can also drive yourself mad looking at conflicting, inaccurate and catastrophic advice. Go to reliable sources and once you have found an answer, stop checking further - you will just start to doubt yourself and you keep yourself focused on the worrying thoughts rather than the solutions.

When might you want to seek help?

As we have said, some level of anxiety is normal in parenthood, however if you find that you are anxious most of the day, several days a week for more than 2-3 weeks then this can be signs that anxiety is becoming more of a problem for you. If it is impacting on your ability to continue your normal life then you may wish to seek further help from your GP or other voluntary services.

Your health visitor and GP should both be checking on your mental health at each appointment and even if you do not feel you need help yet, if you are starting to feel anxious or low you can still discuss it with them so that they know to check up on you in the future.

What help is available?

Your GP may suggest a period of two weeks of watchful waiting to see whether your mood improves by itself. This is normally the first plan of action if anxiety or low mood is mild. They will normally suggest some self-help guides similar to the ones at the bottom of this page and then book a review appointment in two weeks.

If you and your GP decide you need some support, they may offer you a referral to a talking therapy service or discuss whether medication would be helpful.

Talking therapy services based within mental health teams are very different to how they were 20 years ago. They are designed to support people within the community with common mental health issues such as anxiety, depression and panic attacks. You will be offered an assessment during which you can discuss what difficulties you have been facing and what your goals are. After this you may be offered some treatment, the most common of which is counselling or Cognitive Behavioural Therapy (CBT). Counselling allows you to look at issues more commonly from your past which may be affecting you now, or issues around relationships with other people. Cognitive Behavioural Therapy comes in many forms, most of which is face to face, but it can be offered over the telephone or in group settings. CBT looks at cycles of thoughts, feelings and behaviours which may be keeping you stuck. It aims to help you understand what is happening and may offer practical steps to reassessing whether these thoughts are realistic and changing unhelpful behaviours.

CBT currently has the greatest evidence base for treating anxiety and is widely available within the NHS however there are other therapy options available in some teams such as Cognitive Analytical Therapy (CAT), Interpersonal Therapy and Mindfulness.

Safe medication in breastfeeding

If you and your doctor decide that prescribed medication is the best route for you, there are several options which you can take and continue breastfeeding. They include, in no particular order:

1. SSRI antidepressants e.g. sertraline, citalopram, fluoxetine, paroxetine all have anti-anxiety activity. They take 4 to 6 weeks to exert full benefit.
2. Tri-cyclic antidepressants e.g. amitriptyline, imipramine.
3. Beta blockers e.g. propranolol act to reduce heart rate and slow the body and act very quickly. They can be taken regularly or when required. They cannot be taken if you have asthma.
4. Benzodiazepines e.g. diazepam, lorazepam, alprazolam act very quickly to reduce anxiety but cannot be taken long-term because they are addictive and can also accumulate in the breastfed baby leading to drowsiness and poor feeding.

The first thing most mothers prescribed with anti-anxiety medications worry about is whether the drugs will harm the baby in the short or long term. They are also concerned that they are 'bad' mothers for needing to take medication but they don't know how to cope without. They worry about long term use, addiction, withdrawal, development of the baby, whether formula milk may be a better option than breastmilk containing even a small amount of the drug. They 'google' madly trying to find the information which supports their concerns, but often don't trust those sites which support the safety. They may ask lots of people's opinions which can be even more anxiety provoking according to that person's experience of breastfeeding and medication. Often they fear that even admitting that they are anxious may lead to their baby being taken into care and them being labelled as an unfit mother. This is not going to happen but can sadly lead to delays in seeking treatment.

Where can I get further support and information? Information websites

Anxiety UK www.anxietyuk.org.uk Panda www.pandasfoundation.org.uk MIND www.mind.org.uk
Birth Trauma www.birthtraumaassociation.org.uk/

Self-help guides

Centre for Clinical Interventions www.cci.health.wa.gov.au/resources/consumers.cfm Mindfulness and other self-help material www.getselfhelp.co.uk

Exeter Worry Management Guide

http://cedar.exeter.ac.uk/media/universityofexeter/schoolofpsychology/cedar/documents/Worry_website_version_colour.pdf

Northumbria Mental Health Guides www.ntw.nhs.uk/pic/selfhelp/

What if I need emergency help?

Although rarely talked about, when people have been feeling very anxious or depressed for long periods of time, they can feel that they are unable to cope and they can experience thoughts of suicide or self-harm. The intensity of these can vary significantly, some people experience fleeting thoughts of 'I just don't want to be here', for others they can start to imagine more in depth thoughts and plans about what they could do. Most of the time having these thoughts does not mean that you intend to act on them. It can be part of our brain's way of imagining one possible escape, and often we have many protective factors that would stop us ever acting on them, such as our children, partners, family, friends, faith or hope for the future. Normally once our mood improves, thoughts of harming ourselves reduce and disappear. However they can still be very distressing to experience so it can be helpful to talk to others if you feel able to. Although they may find it upsetting to hear that you feel this low, friends and family can often support you to manage these feelings when they occur and help you not to feel so alone. You can also talk to your GP or health visitor about them and they can decide with you what support would be helpful.

If you ever feel that you may be more seriously thinking about harming yourself or unable to keep yourself safe it is important that you speak to your GP or another health professional as soon as possible. Doctors, midwives and health visitors are aware that these are symptoms of depression and anxiety. They should support you to access help and appropriate treatment.

If you need immediate help you can go to any accident and emergency department or drop in clinics to help. Suicidal or self-harm thoughts are also seen as a priority and would be counted as a reason for an emergency appointment with a GP. You can also call NHS direct on 111 or in an emergency 999.

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This information was compiled by Beth Chapman Cognitive Behavioural Psychotherapist and Wendy Jones Pharmacist.

Asthma and Breastfeeding

Every ten seconds someone in the UK has a potentially life-threatening asthma attack and three people die every day. Tragically two thirds of these deaths could be prevented, whilst others still suffer with asthma so severe current treatments don't work (asthma.org.uk).

Asthma inhalers - relievers or preventers - are safe to use as normal during breastfeeding. Monteleukast can be used if needed. There is limited research but amount in breastmilk appears significantly lower than that licensed to be given to a 6 month old baby. Prednisolone 40mg for 5 days is unlikely to affect the baby and breastfeeding can continue as normal.

Many mothers have symptoms of asthma. We do not yet know the cause of asthma but there are genetic links and it is associated with exposure to cigarette smoke. One of the important ways to minimise asthma attacks (which are scary!) is to use prescribed medication regularly. Anecdotally some breastfeeding mothers have been avoiding using inhalers because they perceive a risk to their breastfed baby, particularly when using steroid (preventer) inhalers.

Asthma inhalers do not produce levels of drug in the blood system let alone in milk so are safe to use as normal during breastfeeding. They act locally in lungs to prevent or relieve symptoms

Reliever inhalers - beta 2 agonist (often blue in colour)

Relievers are used when you have symptoms of wheeze or cough e.g. Salbutamol (Ventolin®), Salamol®, Airomir®, Asmasal®), Formoterol (Atimos®, Oxis®), Terbutaline (Bricanyl®), Salmeterol (Serevent®)

Preventer inhalers (often brown in colour)

Preventer inhalers are usually steroids which reduce the inflammation in the lungs. They are added to reliever inhalers IF there is a need to use an inhaled beta2 agonist three times a week or more, being symptomatic three times a week or more, experiencing night-time symptoms at least once a week, or if you have had an asthma attack in the last 2 years. These inhalers are normally used regularly twice a day and it is good practice to rinse the mouth after use to avoid symptoms of oral thrush e.g. beclomethasone (Asmabec®, Clenil®, Qvar®), budesonide (Pulmicort®), fluticasone (Flixotide®), mometasone (Asmanex®)

Compound inhalers

Symbicort®(budesonide plus formoterol), Seretide®(fluticasone plus salmeterol)
Fostair®(beclomethasone plus formoterol)

Inhaled long-acting beta2 agonist such as salmeterol and formoterol are usually only used if symptoms haven't been controlled with short acting beta2 agonist plus steroid inhalers

Leukotriene receptor antagonists

These are tablets added in if symptoms are not controlled, where asthma is exercise induced or where allergic rhinitis is an additional symptom to the asthma e.g. Montelukast (Singulair®), Zafirlukast (Accolate®). We have one study of 7 women given montelukast and the authors estimated the babies would receive 5.32 microgrammes per litre of breastmilk. It is also given directly to babies from 6 months of age at a dose of 4mg compared to an adult dose of 10mg (Hale, Datta).

Acute asthma attacks

Acute attacks may necessitate use of a course of oral steroids, normally 40mg (8 x 5mg tablets) prednisolone. These can be taken during breastfeeding without risk to the baby. Some authorities recommend waiting 4 hours after taking the once daily dose to minimise transfer but this is usually only necessary with doses in excess of 40mg (BNF).

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Beauty treatments for Breastfeeding Mothers

Breastfeeding mothers frequently ask if they can continue to have their favourite beauty treatments whilst breastfeeding without harming their babies. Because these products are not readily absorbed, levels reaching breastmilk would be insignificant if detectable at all. Whilst you are breastfeeding you can:

- Have your hair coloured, permed, straightened or bleached
- Have false nails applied and use nail varnish
- Have a spray tan
- Have dental work (see information sheet on dental treatment which can be downloaded from www.breastfeedingnetwork.org.uk. There is little research on having teeth whitened but it is unlikely to affect breastfeeding as it should not be swallowed)
- Have a pedicure or manicure
- Have osteopathic or chiropractic treatment
- Have a massage with simple massage oils
- Have a leg or bikini line wax

If you have any concerns please contact the Drugs in Breastmilk Helpline

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Codeine and Breastfeeding

During lactation analgesics such as paracetamol, ibuprofen or naproxen (unless contraindicated) should preferably be used and codeine or other opioid only considered as a third line analgesics. In June 2013 the MHRA issued guidance that codeine should no longer be used by breastfeeding women (EMA, MHRA 2013). This is due to the concern that individuals vary in the way their bodies metabolise codeine.

Codeine is converted to morphine in the liver by the CYP2D6 enzyme. There are many genetic variations of CYP2D6, which affect the extent of this conversion in individuals. This leads to differences in the plasma levels of morphine and different levels of pain relief. This then leads to a variable and unpredictable risk of side effects due to morphine's action on the brain and respiratory centre. For some this can result in no benefit from the drug, for others that they experience excessive drowsiness and constipation. For breastfeeding mothers in the latter group this may also lead their babies to experience respiratory depression.

Initial cautious recommendation of use during breastfeeding followed an adverse event report from Canada, where a breastfed baby died at 12 days of age. At post mortem he was found to have very high levels of morphine in his blood because his mother had multiple copies of the gene which metabolises codeine into morphine and was taking compound codeine analgesics for episiotomy pain. The mother had reported side effects of constipation and somnolence (sleepiness) in herself. She had sought medical help on several occasions prior to the baby's death as he was lethargic and had intermittent periods of difficulty in breastfeeding (Koren 2006).

In another study (vanderVaart 2011) it was found that ultra rapid metabolisers chose to take less codeine than their counterparts complaining of dizziness and constipation. They chose instead, to take paracetamol and naproxen or naproxen alone which were options in the study protocol.

The MHRA have reported that to date, at least 44 cases of neonatal respiratory depression in breastfed infants of codeine-using mothers have been published (MHRA 2013) .

Codeine combinations have in the past formed the mainstay of analgesic use, particularly in the early postpartum period. The genotype producing ultra rapid metabolism is rare but is impossible to identify without genetic testing.

If a mother has never taken codeine preparations before she would be unaware of whether she might be an ultra rapid metaboliser putting herself and her baby at risk of adverse effects.

Approximately 3% of Europeans have this genotype (vanderVaart 2011). In most people only 10% of codeine is biotransformed into morphine but this can vary according to the genetic variation (and rapid metabolisers can biotransform 50% more codeine into morphine, whilst those with no active CYP2D6 genes convert almost no codeine into morphine and find it ineffective. Postpartum pain, due to either cesarean section (c-section) or episiotomy, is a major reason for the prescription of codeine, with an estimated 30% of North American women using the drug (vanderVaart 2011).

Madadi et al (the group who have published most papers on codeine use during breastfeeding Motherisk.org) produced guidelines for safe use of medications that contain codeine during breastfeeding (2009). They suggested that:

- In most cases, the occurrence of CNS depression is consistent between the mother and the baby. If the mother suffers from symptoms of CNS depression (e.g. somnolence, grogginess), a physician should examine the baby for signs of CNS depression as well.
- If the baby is not feeding well, does not wake up to be fed, does not gain weight, or shows limpness, he or she should be examined by a physician.
- Central nervous system depression in the baby appears to worsen after 4 days probably, owing to the accumulation of morphine with more breastfeeding. If possible, codeine should not be used for longer than 4 days. If pain still necessitates codeine, an attempt should be made to decrease the dose or to switch to non-codeine painkillers (e.g. NSAIDs).

The recommendation from the MHRA to avoid codeine during lactation supersedes the information in 2007 that breastfed babies might “very rarely develop side effects due to the presence of morphine in breastmilk” (DSU 2007).

The UKMI Specialist Pharmacy Service issued information in October 2013 that dihydrocodeine and tramadol should be considered where breastfeeding mothers require opioids. If opioids are prescribed and adverse effects develop in breastfeeding infants, the possibility of opioid toxicity should be considered regardless of the maternal dose. In such cases, the opioid should preferably be replaced by an alternative non-opioid analgesic and breastfeeding interrupted until the cause of the symptoms is clear. (SPS 2016).

The Sudden Infant Death Syndrome Institute reviewed all cases of infants referred for unexplained apnea, bradycardia and/or cyanosis in the first week of life (0.5-7 days) over a one year period (1984-85). The data demonstrated that opioids could have been a factor as 10 of the 12 infants were exposed to opioids and most of their mothers received more doses than the control group (Naumburg 1998).

Use of any opioid by breastfeeding mothers, if necessary (and only as third line choice of medication after the use of regular paracetamol and non steroidal anti-inflammatories - see Information sheet on Analgesics and breastfeeding on www.breastfeedingnetwork.org.uk), should be at the lowest effective dose, for the shortest possible duration, regardless of the baby’s age and the mother made aware that she should cease the drug and seek medical advice, if she notices side effects in her baby such as:

- Breathing Problems
- Lethargy
- Poor Feeding
- Drowsiness
- Bradycardia – slow heart rate

If adverse effects develop in breastfeeding infants the possibility of opioid toxicity should be considered, regardless of maternal dose. The opioid should be replaced by a suitable non-opioid analgesic (LactMed Hale).

Breastfeeding should not be interrupted unless the symptoms are extreme e.g. necessitating admission, and then only for the shortest duration possible in line with NICE recommendations (NICE 2008).

Mothers should be fully informed of the risks before being sold or prescribed codeine or any opioid and to watch their nursling carefully for any signs of increased drowsiness – sleeping longer or more frequently. This can be evident whatever the age of the nursling and it should not be assumed that an older baby is not at risk.

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Colonoscopy and Breastfeeding Mothers

Colonoscopy is carried out under light sedation in order to examine the inside of the colon. A small flexible tube is passed in through the anus and into the intestine. It may be used to diagnose or exclude conditions such as inflammatory bowel disease or diverticulitis. The examination takes under half an hour and in most cases the patient is not asleep but drowsy and relaxed. For further information see www.patient.co.uk/health/colonoscopy

The colonoscopy procedure is uncomfortable but not painful and is over in a short period. In many instances the preparation period is worse as the urgency to pass motions can be extreme. If a breastfeeding mother needs to have this procedure it may be important that someone is with her to look after the baby during the bowel preparation period, as well as on the day following. She may be drowsy afterwards from lack of food in addition to the colonoscopy and sedation.

In order that the medical staff can examine the gut thoroughly, bowel cleansing is necessary to clear out all faeces in advance of the procedure. This requires a low residue diet for one or two days and the use of a strong laxative the day before the procedure to produce liquid motions as the gut is cleared.

The laxative normally used is a stimulant laxative such as sodium picosulphate (Picolax ®) which is not known to be absorbed into breastmilk or the osmotic laxative macrogol 3350 (Klean Prep ®). Macrogol is an inert substance that passes through the gut without being absorbed into the body. It works because it causes water to be retained in the bowel instead of being absorbed into the body. Enemas such as Fleet ® may also be used without affecting the breastfed baby.

Care should be taken to ensure that the mother remains adequately hydrated throughout the preparation period and on the day of the procedure by drinking plenty of water as permitted by the pre-operative instructions.

Short acting hypnotics such as midazolam, fentanyl and pethidine are used during the procedure itself to sedate the patient and are not contra- indicated during breastfeeding unless the baby is at risk of respiratory depression.

Drugs used in this procedure are not licensed for use during breastfeeding and are therefore not recommended for use by the manufacturers. This does not imply that they are unsafe.

See information sheet on patient information leaflets on the website www.breastfeedingnetwork.org.uk for further explanation

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Computed Tomography (CT) Scans

Computed tomography (CT) scanning is used commonly for diagnosis of a variety of conditions. It uses X-rays to provide cross sectional images (slices) of organs and vessels in the body. In order to obtain a CT scan patients lie in a scanner - similar to a bed inside a circular mint. The X-ray tube and the detectors are opposite to each other. Both of these rotate around the patient. (patient.co.uk).

CT scanning provides images in shades of grey - occasionally the shades are similar, making it difficult to discern between two areas. Injection of contrast medium is used to enhance the images to overcome this problem. Barium is commonly used to outline the gastrointestinal tract, and intravenous contrast containing an iodine based substance is used to outline arterial blood vessels.

Breastfeeding after injection of contrast medium

Manufacturers of intravenous contrast indicate mothers should not breast-feed their babies for 24 to 48 hours after contrast medium is given. However, both the American College of Radiology (ACR) and the European Society of Urogenital Radiology note that the available data suggest that it is safe to continue breast-feeding after receiving intravenous contrast.

The ACR website is www.acr.org/Quality-Safety/Resources/Contrast-Manual (Breastfeeding and iodinated contrast medium Chapter 14) states that:

The plasma half-life of intravenously administered iodinated contrast medium is approximately 2 hours, with nearly 100% of the media cleared from the bloodstream in patients with normal renal function within 24 hours. Because of its low lipid solubility, less than 1% of the administered maternal dose of iodinated contrast medium is excreted into the breast milk in the first 24 hours [Bettman 2004, Webb 2005]. In addition, less than 1% of the contrast medium ingested by the infant is absorbed from its gastrointestinal tract [Trembley 2012]. Therefore, the expected systemic dose absorbed by the infant from the breast milk is less than 0.01% of the intravascular dose given to the mother. This amount represents less than 1% of the recommended dose for an infant being prescribed iodinated contrast material related to an imaging study (usually 1.5 to 2 mL/kg). The potential risks to the infant include direct toxicity and allergic sensitization or reaction, which are theoretical concerns but have not been reported. The likelihood of either direct toxic or allergic-like manifestations resulting from ingested iodinated contrast material in the infant is extremely low.

Newman (1987) comments that contrast media used for both magnetic resonance imaging and computed tomography scans are excreted into breast milk in such small quantities that there is no concern at all for nursing babies. Further that the iodine of contrast material is bonded to a carrier molecule, and the compound does not enter the milk in any noticeable amount [Nielsen 1987, Illett 1981].

The concerns of radiologists to avoid exposing any baby to any product is understandable but dismisses the needs of the mother and baby to continue breastfeeding. Expressing for 24 hours after the procedure is not without difficulty. The use of artificial formula is not without risks and some babies refuse to feed from a bottle whether given expressed breastmilk or formula.

Diatrizoate

- Hale reports a study of a single patient who received 18.5 grams of iodine, diatrizoate levels were undetectable [Fitz 1982] In another woman who received 93 grams of Iodine, total iodine transferred into breastmilk in the first 24 hours was 0.03% [Texier 1983]
- Lactmed states that "Limited information indicates that maternal doses of diatrizoate up to 38 g (containing 18.5 grams of iodine) produce low levels in milk. In addition, because diatrizoate is poorly absorbed orally, it is not likely to reach the bloodstream of the infant or cause any adverse effects in breastfed infants. Guidelines developed by several professional organizations

state that breastfeeding need not be disrupted after a nursing mother receives a iodine-containing contrast medium. [ACR, Webb 2005, Chan 2008]

Iohexol

- Lactmed states that "Limited information indicates that maternal doses of iohexol up to 45.3 grams (containing 21 grams of iodine) produce low levels in milk. In addition, because iohexol is poorly absorbed orally, it is not likely to reach the bloodstream of the infant or cause any adverse effects in breastfed infants. Guidelines developed by several professional organizations state that breastfeeding need not be disrupted after a nursing mother receives an iodine-containing contrast medium. [ACR, Webb 2005, Chan 2008]
- Hale states that as a group, radiocontrast agents are virtually unabsorbed after oral administration (<0.1%). Iohexol has a brief half-life of just two hours, and the estimated dose ingested by the infant is only 0.5% of the radiocontrast dose used clinically for various scanning procedures in infants. Although most company package inserts suggest that an infant be removed from the breast for 24 hours, no untoward effects have been reported with these products in breastfed infants. Because the amount of iohexol transferred into milk is so small, breastfeeding is acceptable after intravenously administered iohexol.

Conclusion by ACR

"Review of the literature shows no evidence to suggest that oral ingestion by an infant of the tiny amount of contrast medium excreted into breast milk would cause toxic effects.... it is safe for the mother and infant to continue breast-feeding after receiving such an agent"

Contrast medium names

- Diatrizoate; Trade Names: Angiovist®, Cardiografin®, Cystografin®, Gastrografin®, Hypaque®, Reno-M®, Renografin®, Renografin-30®, Renografin-60®, Renografin-Dip®, Retrografin®, Sinografin®, Urovist®
- Iohexol: Accupaque®, Myelo-Kit®, Omnigraf®, Omnipaque®, Omnitrast®

Constipation Treatment in Breastfeeding Mothers

Constipation is defined as difficulty in passing bowel motions, which may be described as hard, infrequent or changed in volume and/or consistency. Frequently constipation is caused by a change in diet or by medication. Individual experiences of bowel motions are subjective but constipation affects many people at some time in their lives. It is common towards the end of pregnancy and following pain relief for childbirth when it may be particularly difficult due to perineal stitches. For further information see www.patient.co.uk/health/constipation-in-adults-leaflet

The first remedy should be to increase fruit, vegetable and fibre intake, along with additional water consumption. Exercise may also help to relieve symptoms. If the mother is taking an analgesic (pain relief) medication containing codeine e.g. co-codamol, co-dydramol, this should be stopped and paracetamol and/or a non-steroidal drug such as ibuprofen or diclofenac substituted. If codeine is needed it can be given as a separate tablet of codeine phosphate 15milligrammes and added in as needed to relieve the pain. However, where a medication is required to resolve constipation during breastfeeding, osmotic or bulk laxatives are preferable, at least initially, to stimulant laxatives.

Bulk Laxatives are particularly useful where stools are small and hard. However there may be a delay of up to 72 hours before they exert their full effect. Bulk laxatives absorb water within the gut and swell to produce a greater volume of soft stool which is easier to pass e.g. Fybogel®, Regulan®, Isogel®, Normacol® Absorption of bulk laxatives is minimal and they can all be used during breastfeeding.

Osmotic laxatives work by increasing the amount of fluid in the large bowel. These also have a delay in action but it is generally shorter than bulk laxatives. They help to produce softer bowel movements, which are easier to pass. E.g. Magnesium Hydroxide, Magnesium Sulphate, Lactulose, Movicol ® Passage of osmotic laxatives into breastmilk is low and they can all be used during breastfeeding.

Stimulant laxatives should not be used routinely by anyone as they can lead to a reliance on their action. They may cause evacuation of all bowel contents, which then need to re-build before a regular normal bowel action is resumed. They are however, useful for occasional use. They have a more rapid onset of action than bulk or osmotic laxatives, and are usually given at night to help produce a bowel motion the following morning e.g. Senna (Senokot® Ex Lax®,) Bisacodyl (Dulcolax®), Sodium Picosulphate (Laxoberal®, Picolax®)

Side effects in breastfeeding infants have not been proven although loose bowel motions have been reported even with undetectable levels of senna in breastmilk.

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Contraception and Breastfeeding

According to the Family Planning Association (www.fpa.org.uk/home) lactational amenorrhoea (LAM) can be up to 98 per cent effective (RCOG suggest over 98%) in preventing pregnancy if all of the following conditions apply:

- you are fully breastfeeding – this means you are not giving your baby any other liquid or solid food and
- your baby is less than six months old and
- you have no periods.

The risk of pregnancy increases if:

- you start breastfeeding less often especially if there are long intervals between feeds – both day and night, or
- you stop night feeds or
- you use a dummy/pacifier or
- you give any artificial supplements

Even if a woman expresses breast milk, or if she is separated from her baby by more than a few hours, she cannot expect a high level of contraceptive protection (Valdes 2000, http://irh.org/projects/fam_project/lactational-amenorrhea-method-lam/) Dummy/pacifier use which may decrease feeding frequency increasing the risk of return of fertility (Ingram 2004)

Once your baby is over six months old the risk of getting pregnant increases, so even if you don't have periods and are fully breastfeeding, you should use another contraceptive method (FPA).

The Progesterone only pill (mini-pill POP)

The progesterone only contraceptive pill (mini-pill) is generally recommended during breastfeeding. It needs to be taken at the same time every day continuously – a delay of more than 3 hours may mean contraceptive protection is lost. The POP is generally started a minimum of 3 weeks after delivery but ideally no less than 6 weeks to avoid interfering with milk production. Vomiting and severe diarrhoea can interfere with absorption. New UKMEC guidelines (2016) suggest that use from birth will not diminish supply. This is at variance with the experience of many breastfeeding workers and is currently a cause for concern. Decisions should be made with mothers fully informed about the risk of initiating contraception early.

Oral progestogen-only contraceptives can be started up to and including day 21 postpartum without the need for additional contraceptive precautions. If started more than 21 days postpartum, additional contraceptive precautions are required for 2 days. In most cases contraception is initiated at the 6 week post natal check. Initiation too early after delivery may interfere with priming of prolactin receptors.

Normally, the POP does not affect lactation but I have had anecdotal reports from quite a few women who have noted a rapid drop in milk supply after beginning it. Anyone noticing such an effect should report it to the MHRA via <http://yellowcard.mhra.gov.uk/>

Brand names; Desogestrel (Cerazette®), Ethynodiol diacetate (Femulen®), Norethisterone (Micronor ®, Noriday®), Levonorgestrel (Norgeston ®)

Progesterone depo injection.

The progesterone depo injection is often given to new mothers, particularly younger ones who value not having to remember to take a tablet daily. Medroxyprogesterone acetate (Depo Provera®) can be used 6 weeks after delivery and repeated every 12 weeks. It is used 5 days after delivery for mothers who do not intend to breastfeed. Too early use may interfere with prolactin priming.

Progesterone depo (subdermal implant) products.

Norethisterone enantate (Noristerat®) is not advised if baby has symptoms of severe or persistent jaundice – it is repeated every 8 weeks.

Etonogestrel releasing implant (*Nexplanon®*) consists of a single, radiopaque, rod-shaped implant. It must be removed no later than by the end of the third year. It can be inserted after the 4th week post-partum.

In light of the response of some mothers to oral preparations of progesterone it may be advisable to try one month of tablets before using any depo product to rule out any lowering a milk supply.

Intra Uterine Progestogen Only Contraceptives

Intra- uterine Progestogen-only contraceptives release levonorgestrel directly into the uterine cavity. The Mirena® system is used as a contraceptive method for women with excessively heavy periods. It can be inserted 6 weeks after delivery and is effective for 5 years. As with the depo injection in light of the response of some mothers to oral preparations of progesterone, it may be advisable to try one month of tablets before using the coil.

Simple coil (intra uterine device)

An IUD is a small plastic and copper device that is inserted into the uterus. There are different types and sizes of IUD to suit different women. An IUD can stay in for 5–10 years, depending on type. An IUD is sometimes called a 'coil'. Simple coils can be used in breastfeeding mothers without complication as no medication is involved.

Emergency Hormonal Contraception see separate fact sheet

The combined oral contraceptive pill

According to the most recent UKMEC guidelines (2016) "Based on breastfeeding status alone, CHC can be used by breastfeeding women safely after 6 weeks following childbirth"

This is at variance with the previous guidelines that the combined pill is not suitable for a breastfeeding mother in the first 6 months after delivery and with the experience of many breastfeeding workers and is currently a cause for concern. Decisions should be made with mothers fully informed about the risk of initiating contraception early

In theory after this time the supply is established and will not be lowered by the oestrogen content of the combined pill. However, some mothers do notice an effect so the decision to use it should not be undertaken lightly if you want to carry on breastfeeding. If you take it and do notice your supply diminishes you can stop taking it (remember to take additional precautions!) and re-stimulate your supply with frequent breastfeeds.

Brand names: Gedarel® 20/150, Mercilon®, Femodette®, Millinette® 20/75, Sunya 20/75®, Loestrin 20®, Gedarel® 30/150, Marvelon®, Yasmin®, Femodene®, Katya 30/75®, Millinette® 30/75, Levest®, Microgynon 30®, Ovranelle®, Rigevidon®, Loestrin 30®, Cilest®, Brevinor®, Ovysmen®, Norimin®, Norinyl-1®, Femodene® ED, Microgynon 30 ED®, Triadene®, Logynon®, TriRegol®, BiNovum®, Synphase®, TriNovum®, Logynon ED®, Qlaira®

Contraceptive Patch

The contraceptive patch contains Ethinylestradiol with Norelgestromin (Evra®) so is a combined oral contraceptive which may reduce supply depending on the time when it is first used. The instructions are: apply first patch on day 1 of cycle, change patch on days 8 and 15; remove third patch on day 22 and apply new patch after 7-day patch-free interval to start subsequent contraceptive cycle.

Other forms of contraception

Barrier methods of contraception such as condoms, diaphragms and caps have no implications for breastfeeding. Lubricants and spermicides are also compatible with breastfeeding.

Yellow card reporting of adverse events

If mothers notice lowered milk supply with early use of progesterone only contraception or combined oral contraception, a yellow card report should be filed <https://yellowcard.mhra.gov.uk/>. Until evidence is collected to support the concerns of breastfeeding advocates breastmilk supply may be put at risk in mothers who have not had the opportunity to make fully informed decisions.

Other sources of information on oral contraceptives

- Hale Medications and Mother's Milk (online access Nov 2016)

"Clinicians should suggest that the mother establish a good milk production prior to beginning oral contraceptives. Avoid combination (estrogen-progestin) contraceptives if at all possible. Use oral progestin-only preparations initially preferably after 4 weeks postpartum. Warn mothers that even progestin-only preparations may suppress milk production and to discontinue them at the first sign of low milk supply. Use medroxyprogesterone (Depo-Provera) only in those patients who have used it previously and have not experienced breastfeeding problems, or in those who have used progestin-only mini pills without problems. Attempt to wait for 4 weeks postpartum prior to using medroxyprogesterone. The transfer of progestins and estrogens into breastmilk is exceedingly low, and numerous studies confirm that they have minimal or no effect on sexual development in infants.

Suggestions for OC therapy. 1) Always start with an oral progestin-only pill first, if only for a month. If milk production is sustained, then continue on the oral preparation, or a sustained release preparation like Depo medroxyprogesterone may be suitable. 2) Avoid using any form of progesterone the first week postpartum, as these may suppress early milk production. 3) Avoid estrogen-containing preparations, particularly early postpartum. While controversial, extensive clinical experience with these preparations suggest caution as significant loss of milk supply has been frequently reported. 4) We have numerous reports of loss of milk supply following placement of Mirena IUDs. While one suggests no such loss, caution is recommended until this is clear"

- World Health Organization (WHO) Task Force on Oral Contraceptives. Effects of hormonal contraceptives on breast milk composition and infant growth. *Stud Fam Plann.* 1988 Nov-Dec;19(6 Pt 1):361-9.

"Breast milk volume and composition and infant growth were measured at three- and four-week intervals, up to six months, in a multicenter randomized double-blind trial comparing a low-dose combined oral contraceptive (OC) with a progestogen-only OC. A nonrandom group using nonhormonal methods was also studied in the three centers: Szeged, Hungary; Bangkok, Thailand; and Khon Kaen, Thailand. A fourth group, users of depot-medroxyprogesterone acetate (DMPA) was included in the two Thai centers. Altogether, 341 women were recruited into the study. Combined OCs caused a significant decrease in milk output and total energy content as well as widespread changes in milk constituents. In the DMPA group, no significant changes were observed in milk volume, and only minor shifts occurred in milk composition, which varied between centers. No differences were found between the progestogen-only pill and DMPA.

No hormonal contraceptive was associated with any significant difference in infant weight or fat fold, nor in the rate of discontinuation for failure to gain weight. This study reiterates the need to avoid combined OCs during the first few weeks or months of lactation. Both norgestrel and DMPA appear to be safe for use in both developing and developed countries, at least when the nutritional status of the mother and infant are adequate, but further research is needed on the safety of these contraceptives in populations with malnutrition.”

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Older studies often lacked quantified results. Most trials did not report significant differences between the study arms in breastfeeding duration, breast milk composition, or infant growth. Exceptions were seen mainly in older studies with limited information. For breastfeeding duration, two of eight trials indicated a negative effect on lactation

Mothers should be enabled to make an informed decision based on their own family circumstances, the risk of pregnancy and be aware of the need to be alert for lowered milk supply. Breastfeeding advocates world wide seem to be aware of anecdotal reports of lowered, lost milk supply but these reports do not appear to have been published leading to variance with academic researchers.

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Cough and cold remedies and Breastfeeding

Optimal treatment choice

- Paracetamol
- Ibuprofen
- Steam Inhalation
- Anaesthetic throat spray

For colds and influenza two paracetamol four times a day or 400milligrammes ibuprofen three times a day with plenty of fluids and rest may be the most effective cure. Other commercial remedies may help to relieve symptoms but the evidence of effectiveness behind many products is poor.

DECONGESTANTS should be avoided by breastfeeding mothers as they can dramatically reduce milk supply with just one or two doses e.g. pseudoephedrine, phenylephrine, phenylpropanolamine. Individual ingredients need to be checked as there are many products available with multiple drugs each of which should be considered separately for safe consumption during breastfeeding.

Pain killer

- Additional paracetamol should not be taken where it is contained in the commercial product. A maximum total of eight 500milligrammes doses of paracetamol should not be exceeded in 24 hours.
- If the child is receiving paracetamol suspension to relieve cold symptoms, the additional passage of the drug through the mother's breastmilk is unlikely to be clinically significant so both can take paracetamol at the same time in normal doses.
- Continuing to breastfeed during a cold or flu will not weaken the mother nor harm the baby, who will receive beneficial maternal antibodies to protect him/her from the infection.
- Products containing paracetamol or ibuprofen can be taken by breastfeeding women.
- Products containing aspirin should be avoided e.g. Dispirin®, Beechams Powders® because of the risk of Reye's syndrome. If such products are taken in error it is not a reason to interrupt breastfeeding as the risk is remote but these products should not be continued.

Decongestants

- Antihistamines e.g. diphenhydramine, Promethazine may cause drowsiness as well as drying up a runny nose. These may produce drowsiness in the baby who may miss feeds.
- Sympathomimeticamines e.g. pseudoephedrine, phenylpropanolamine, phenylephrine. There is some new evidence that these decongestants may dramatically reduce prolactin levels in breastfeeding mothers and therefore reduce breastmilk supply, particularly in established breastfeeding of an older baby. Until more is known about this it may be best avoided.
- Nasal decongestant sprays or drops will act directly on the nasal passages to relieve congestion and reduce absorption into the mother's body. These may prove to be a safer alternative to decongestant tablets.
- Steam inhalations can be useful in relieving symptoms of nasal congestion - products such as Menthol and Eucalyptus may be preferred by individuals because of the cooling effect of the menthol on the nasal passages. Care should obviously be taken with bowls of almost boiling water if the baby is nearby.

Expectorant cough mixtures

- Medicines containing Guaifenesin can be taken by breastfeeding mothers to relieve a chesty cough.

Cough Linctus

- A linctus is generally a sugary solution (but may be sugar free) used to soothe coughs and the active ingredients listed need to be considered individually. Many are based around glycerin and lemon which can be safely taken during breastfeeding.
- Medicines containing codeine should preferably be avoided as they may cause constipation or colic in the baby. However they can be taken for limited periods to relieve a distressingly irritant cough.
- Pholcodeine linctus may be taken by breastfeeding women to relieve dry coughs.
- Products containing dextromethorpan will sedate a dry cough but should be avoided if there is any phlegm on the mother's chest. Suppression of a chesty cough may result in a chest infection particularly if the mother is asthmatic.

Lozenges or pastilles to soothe coughs and sore throats

- Lozenges and pastilles will not produce sufficient absorption of ingredients to pass into breastmilk and can be used by breastfeeding mothers to relieve their symptoms.

Alternative remedies and herbs

- Echinacea containing products can be taken to increase immunity and help the body to fight symptoms of coughs and colds as can vitamin C and zinc.

WHEN BABIES HAVE COLDS

- Babies may want to feed frequently both for extra fluid and for comfort when they have cold symptoms.
- Babies with blocked noses may find it hard to feed and may keep coming off the breast. Sodium Chloride nasal drops used before feeds may help as may a manual decongestor (a mini suction pump used to suck out mucus from the baby's nose).
- Sometimes babies pull away from the breast and cry - this may be because it increases the pressure in their ears causing earache. This is particularly common overnight or after a longer sleep.
- Babies may have a croaky, hoarse cry which is different to normal, indicating a sore throat.
- Paracetamol should only be given to babies older than 3 months.
- Ibuprofen can be given to babies older than 6 months.
- Historically paracetamol and ibuprofen were taken together but NICE (CG47) recommended that this is not evidence based practice.
- Keep the atmosphere around the child moist by using vapourisers, steam generators or a damp towel over a radiator.
- If the parents have any concerns over the well-being of the baby medical advice should be sought urgently. It is better to err on the side of caution with young children whose condition can deteriorate rapidly.

Many of a baby's symptoms can be taken to reflect a lower milk supply. Colds do not cause milk quality or quantity to diminish and breastfeeds can supply a great deal of comfort as well as nutrition to a child who is feeling poorly.

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Cows' Milk Protein Allergy (CMPA) and Breastfeeding

- Feeding with artificial formula in the first 4-6 months of life increases the risk to cow's milk protein allergy (CMPA) compared to exclusive breastfeeding (Vandenplas et al 2007)
- 0.5% of exclusively breastfed infants show reactions to cow's milk protein compared to 2%-7.5% of formula fed infants. (Vandenplas et al 2007)
- If a breastfed baby is thought to have CMPA the mother should eliminate all sources of cow's milk from her own diet as well as that of her baby for a minimum of 3 weeks. Although improvement **may** be seen after 3 days it may not resolve for 4 weeks (Ludman et al 2013)
- A breastfeeding mother who is on a diet free of cow's milk protein she should be prescribed a supplement of 1000 mg of calcium and 10 microgramme of vitamin D every day. (Ludman et al 2013)

Cows' milk allergy can often be recognised and managed in primary care. Patients warranting a referral to specialist care include those with severe reactions, faltering growth, atopic comorbidities, multiple food allergies, complex symptoms, diagnostic uncertainty, and incomplete resolution after cows' milk protein has been excluded (Ludman).

Cow's milk protein allergy (CMPA) can affect people of all ages but is most prevalent in infants, affecting between 2 and 7.5% of formula fed and 0.5% of exclusively breastfed babies. Exclusively breastfed babies develop CMPA as a result of milk proteins from products the mother has eaten transferring through breast milk. The level of cow's milk protein present in breast milk is 100,000 times lower than that in cow's milk. Most reactions to cow's milk protein in exclusively breast fed babies are mild or moderate and severe forms of CMPA very rare. It is thought that immunomodulators present in breast milk and differences in the gut flora of breastfed and formula fed infants may contribute to this. (Ludman et al, 2013).

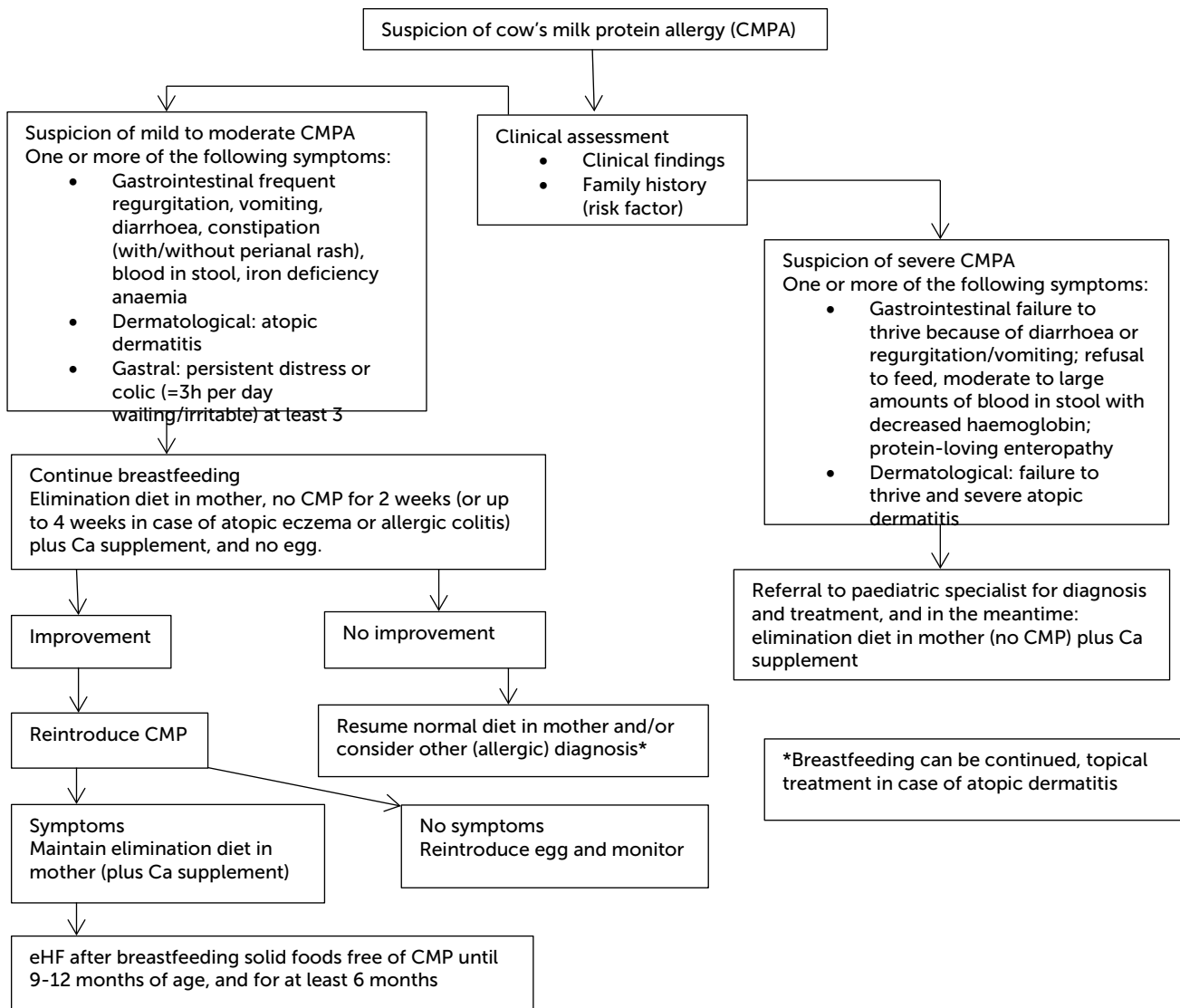
Secretory immunoglobulin A (sIgA) in breastmilk "paints" a protective coating on the inside of a baby's intestines to prevent penetration by potential allergens such as foreign proteins. SIgA cannot be replicated in formula.

The reaction may be mediated by IgE (anaphylaxis, urticaria) if they occur immediately following consumption of cow's milk protein or non IgE (GI reactions, eczema, GOR) which may occur several hours or even days after consumption. The immune system responds to the protein casein or the whey found in cow's milk.

Although these symptoms may be related to other conditions, they are likely to be due to CMPA if the severity is related to a change in the amount of cow's milk consumed by the mother and/or baby, or if cow's milk based formula or other similar foods are introduced into the baby's diet. CMPA is also a likely cause if the symptoms appear in more than one system, for example diarrhoea and atopic dermatitis, and also if these symptoms are resistant to treatment. It is important to consider all outcomes and to take a full medical history to ensure that the symptoms are not due a cause other than CMPA. (Ludman et al 2013). Attention should also be paid to optimising attachment and frequent feeding if the baby is breastfed.

Where CMPA is suspected in a breastfed baby, the recommended treatment is for the mother to remove all sources of products containing cow's milk from her diet, ideally under medical supervision. Mothers should be prescribed a supplement of 1000mg of calcium and 10 microgrammes of vitamin D every day.

Algorithm for the diagnosis and management of cow's milk protein allergy (CMPA) in exclusively breast-fed infants. eHF, extensively hydrolysed formula.



Vandenplas Y et al. Arch Dis Child 2007; 92:902-908

Vandenplas et al (2007) state that 10-35% of infants with CMPA have adverse reactions to soya. While Ludman et al (2013) report that up to 60% of patients with non-IgE mediated cow's milk allergy and up to 14% with IgE mediated allergy also react to soya.

Where solid foods have been introduced, all sources of products containing cow's milk should also be removed from the baby's diet. It will usually take between 2 and 4 weeks for symptoms to disappear. It is suggested that milk is then reintroduced to ensure that this has been the cause of the symptoms. (Ludman et al 2013, NICE 2011).

Where a diagnosis of CMPA is confirmed the mother should avoid cow's milk products in her diet for as long as she is breastfeeding. She will continue to require support to manage her nutrition, particularly where the elimination diet is over an extended period of time. A dietician or other healthcare professional managing the case will recommend at which point reintroduction of cow's milk should be trialled and how this should be managed. Care should also be taken with the weaning diet and appropriate alternative sources of calcium included under dietetic supervision.

There is generally no need to add special prescription formula or soya formula. The baby can continue to receive breastmilk even whilst his/her mother is beginning to eliminate cow's milk protein from her diet

A diagnosis of cow's milk protein allergy has many ramifications for mother and baby. A mother should not be asked to remove products containing cow's milk protein lightly e.g. to resolve colic symptoms, without first considering referral to a breastfeeding expert to address issues around optimal attachment.

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Organ involvement	Symptoms
Gastrointestinal tract	Frequent regurgitation Vomiting or diarrhoea Constipation (with/without perianal rash) Blood in stool Iron deficiency anaemia
Skin	Atopic dermatitis Swelling of lips or eye lids (angio-oedema) Urticaria unrelated to acute infections, drug intake or other causes
Respiratory tract (unrelated to infection)	Runny nose, otitis media Chronic cough or wheezing
General	Persistent distress or colic (wailing/irritable for ≥ 3 h per day) at least 3 days/week over a period of >3 week

Creams and Ointments applied to the skin of Breastfeeding Mothers

Breastfeeding mothers may need to apply a variety of cream and ointments to their skin whilst they are breastfeeding. There is very little absorption of these products into breastmilk and most products can be applied without interruption of breastfeeding.

Creams which can be used:

- Emollient creams/ointments to soothe and moisturise skin
- Topical steroids can be applied sparingly as directed in normal quantities i.e. no more than one standard tube per week
- Shower gels and bath emollients to soothe eczema
- Anti-viral cream to treat cold sores (herpes simplex) e.g. acyclovir (Zovirax®)
- Creams or ointments to be applied directly to the nipple or areola should be applied sparingly after feeds and any visible product gently wiped off before the subsequent breastfeed
- Simple creams/ointments or gels to treat acne e.g. benzoyl peroxide,
- Antibacterial creams/ointments/gels e.g. fucidic acid (Fucidin®)
- Preparations for warts e.g. salicylic acid (Cuplex ®)
- Preparations to treat verrucas e.g. Bazucca®
- Topical anti-inflammatory creams/ointments/gels e.g. ibuprofen (Ibugel®), Mentholatum (Deep Heat®)
- Sunscreen products can be applied liberally as necessary
- Antiseptic creams e.g. Savlon®

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Cystitis in the Breastfeeding Mother

The information provided is taken from various reference sources. It is provided as a guideline. No responsibility can be taken by the author or the Breastfeeding Network for the way in which the information is used. Clinical decisions remain the responsibility of medical and breastfeeding practitioners. The data presented here is intended to provide some immediate information but cannot replace input from professionals.

- Sodium citrate sachets and tablets can be taken by breastfeeding mothers as can cranberry juice.
- If symptoms persist antibiotics may need to be prescribed – please take a mid-stream urine specimen with you

Cystitis is an inflammation of the bladder which may or may not be accompanied by bacterial infection. NHS Clinical Knowledge Summaries indicates that without antibiotics most cases resolve between four and nine days and antibiotics speed the process by around 24 hours.

Symptoms include pain on urination (dysuria), frequency and urgency as well as a feeling of being unable to empty the bladder completely. Any woman who has had symptoms for more than five days, or who has fever or loin pain should see a doctor because the symptoms could indicate a bacterial infection needing prompt treatment with antibiotics.

Patient information leaflets and packaging of over-the-counter remedies for cystitis generally advise that they should not be used during breastfeeding. The manufacturers are not required to conduct any safety tests in terms of breastmilk when first licensing a product and therefore do not take responsibility. It does not indicate risk.

Over the counter products contain sodium citrate in tablets or sachets to be dissolved in water. Sodium citrate is metabolised to bicarbonate after absorption. There appears to be no data on the pharmacokinetics controlling absorption and passage into breastmilk but it is likely to be limited, particularly with a 48-hour course, and is unlikely to adversely affect a breastfed infant. Sodium citrate is also an ingredient of formula milk. It is important to drink additional watery fluids to speed resolution of symptoms. Cranberry juice and cranberry capsules can also be taken during breastfeeding.

Most antibiotics for urinary tract infections are safe to use during breastfeeding. See fact sheet on antibiotics and breastfeeding. All antibiotics can produce loose bowel motions and colic in breastfed babies but these are an inconvenience rather than being harmful.

Brand names: Effercitrate ®, Cystopurin ®, Cystemme ®, Canesten Oasis, Own brand cystitis relief

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Day Surgery and Breastfeeding Mothers

Day surgery, or other minor operations entailing general anaesthesia, may be necessary for some women whilst they are breastfeeding. Many professionals and mothers are concerned about the safety of the baby who may be exposed to the anaesthetic agents through their mother's breastmilk after the operation. This adds to the stress for mothers undergoing procedures.

Mothers who undergo caesarean sections are encouraged to breastfeed as soon as possible after delivery and may even have their baby brought to them whilst suturing of the wound takes place. Many women (anecdotally) are advised to pump and dump their breastmilk for 24 hours after short anaesthesia and in order to clear their breastmilk of the agents. This is not necessary (see references below).

General anaesthetic agents have very short half-lives and are redistributed in the body within minutes, which is why they have to be infused continuously. Some is stored within the fat of the body and gradually released over the following 24 hours but the levels of these on single short scale use are unlikely to cause any greater effect than drowsiness in the baby.

After the majority of minor surgery the patient is awake within a very short period. Once a mother is awake enough to recall that she has a baby and the need to breastfeed, the level in her milk is likely to be minimal.

Consideration does however need to be given to:

- Who will look after the baby whilst mum is in surgery?
- If mum has to remain in hospital overnight are there facilities for the baby to remain with her and if so is she happy that the baby is there?
- Is there someone who can look after the baby and bring it to mum when it is due for a feed?
- After many operations an anti-emetic drug such as domperidone is given to reduce nausea, this may have the effect of increasing the mother's milk supply. If she is to be separated from the baby for any length of time then she needs access to a breast-pump and a means to store the milk safely.
- If it is possible to delay the operation until after weaning, the mother may choose this option but having an operation should not be used as a reason to pressure the mother to wean sooner than she would otherwise choose to do so.

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Decongestants and Breastfeeding

Many people take decongestant tablets, powders and lemon drinks when they have a cold or sinus pain. They have a potential impact on milk supply although are unlikely to affect a breastfeeding baby. Inhaling steam is a cheap and effective means of reducing congestion and should be used frequently before resorting to drugs

First-line treatment inhale steam frequently, if medication is required use decongestant nasal spray containing xylometaxoline or Oxymetazoline.

AVOID decongestant tablets or drinks.

Pseudoephedrine is secreted into breastmilk in low levels. In one study (Findlay 1984) the calculated dose that would be absorbed by the infant was very low (0.4 to 0.6% of the maternal dose). However in a study of 8 women a single 60 mg dose of pseudoephedrine reduced milk supply by 24% over a 24 hour period. This could be explained suggest the authors by a drop in prolactin which was greater in those with babies older than 60 weeks (Aljazaf 2003). Anecdotally some mothers have reported wakefulness. Mothers reported irritability in 20% of infants exposed to pseudoephedrine in one study of breastfeeding mothers (Ito 1993).

Phenylephrine is poorly bioavailability (not well absorbed from the gut) so it is not likely to produce effects in a breastfed infant with normal doses. Because of pseudoephedrine's effect on milk production, concerns exist that phenylephrine may suppress milk although there is no evidence that this occurs.

Brand names include: Sudafed, Lemsip, Beechams, Benylin, Day Nurse and Night Nurse, own brand pharmacy

Decongestant nasal sprays containing xylometazoline, oxymetazoline are effective in relieving nasal congestion but do not produce wakefulness nor reduce milk supply. They are safe and effective but should not be used long term (more than 7 days).

Brand names include; Otrivine, Sudafed, Own brand pharmacy

I have been asked about using pseudoephedrine to dry up milk supply or reduce engorgement. There is no research to support this and I could not advocate or support this as a pharmacist

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Dental Sedation and Breastfeeding

Some people become very anxious about undertaking dental procedures and prefer to be sedated prior to the filling or extraction. The drug normally used is midazolam which is injected. This drug is also used in several other procedures such as colonoscopy, endoscopy or other explorative surgery.

If the baby of a mother receiving midazolam sedation is more than 2 months of age breastfeeding can continue as normal. If the baby is less than 2 months waiting 4 hours may be justified but in view of the way the drug is handled in the body the risk of continuing to breastfeed as normal is low especially if the baby is exclusively breastfed.

Lactmed ^[1] states "The small amounts of midazolam excreted into breastmilk would not be expected to cause adverse effects in most breastfed infants. Two expert panels advocate waiting for at least 4 hours after a single intravenous dose of midazolam (e.g., for endoscopy) before resuming nursing.^{[2][3]} However, no waiting period or discarding of milk might be necessary before resuming breastfeeding after a single dose of midazolam in the mothers of infants over 2 months of age.

Hale ^[4] reports that in a study of five lactating women who received a single 2 mg IV dose, milk levels of midazolam were exceedingly low after 7 hours. The median amount of midazolam recovered within 24 hours was only 26 µg which was only 0.004% of the maternal dose of 2 mg.^[5] Midazolam is so rapidly redistributed to other tissues from the plasma compartment, milk levels will invariably be exceedingly low

For healthcare professionals: Midazolam has a very rapid onset of action and excretion. It is highly protein bound (97%) and poorly bio available making it poorly absorbed from the gut (27-44%). It's half life is 2-5 hours.

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Dental Treatment and Breastfeeding Mothers

There is little research on the safety of dental treatment during breastfeeding but many mothers undertake treatments without harm on a daily basis. The risk of interrupting breastfeeding and substitution of formula appears greater (Dorea 2004).

Fillings – there is no reason to avoid inserting or replacing fillings during breastfeeding.

One report suggests that it is prudent to avoid unnecessary removal of fillings during pregnancy or lactation (Barreguard 1995). However there are occasions when a new mother may need a filling inserted or replaced. When mercury is removed some will be vaporised by the high-speed drill and a very small amount may be swallowed or inhaled. These amounts are minute and passage into breastmilk is insignificant compared to the background levels of mercury in the environment.

The limitation of the consumption of tuna in line with the FSA guidance is more important on limiting the body burden of mercury and it is very difficult to prove any link between mercury fillings and long term health problems (Lawson). Preventative dental health to minimise the risk of decay is perhaps the message which is of paramount importance.

Local anaesthetic- there is no evidence to interrupt breastfeeding after the use of local anaesthetics.

Local anaesthetics work by deadening sensation of the nerve endings around the tooth. There is no evidence of passage into breastmilk and therefore no reason not to continue breastfeeding. The addition of adrenaline to the anaesthetic to reduce bleeding may possibly make a sensitive baby jumpy and irritable so it may be worth asking the dentist to limit use if possible.

Tooth extraction - there is no evidence to interrupt breastfeeding after tooth extraction.

If a tooth is to be removed the mother is likely to be offered a local anaesthetic injection or sedation. She may also need pain killers and/or antibiotics.

Sedation/general anaesthetic - there is no evidence to interrupt breastfeeding after sedation or general anaesthesia. The anaesthetics used for dental extractions have a very short half-life (time they act in the body). By the time the mother is awake most of the drug has been metabolised by the body or exhaled. Similarly sedation with drugs such as midazolam will act for only a short time and by the time the mother is aware of the need to breastfeed once at home, the baby is at worst likely to sleep for a longer than expected period. It may be advisable for another adult to be available to care for the baby until the mother feels totally alert. *see fact sheet dental sedation and breastfeeding*

Analgesics (pain killers) breastfeeding mothers may take paracetamol and/or ibuprofen in normal doses after dental treatment.

Antibiotics breastfeeding mothers may take antibiotics in normal doses after dental treatment and continue to breastfeed. Babies may have looser bowel motions and may be windy.

Other dental agents

- Mouthwashes – can be used by a breastfeeding mother as they will not be absorbed into the bloodstream e.g. Oraldene®, Corsodyl®, Chlorhexidine mouthwash,
- Gels and liquids for mouth ulcers e.g. Anbesol®, Bonjela®, Adcoryl in Orabase®, Medijel®, Rinstead® pastilles can all be used
- Fluoride toothpastes can be used during breastfeeding. Although there is no research the absorption from the teeth would be minimal and swallowing of excess is unlikely e.g. Durophat®

Tooth whitening

There appears to be no information available on the use of tooth whitening agents during lactation. Whilst it is unlikely that any significant transfer of the agents used into breastmilk will take place, it is unlikely that urgent treatment is necessary and can be delayed until breastfeeding has finished naturally. Unless the products spill from the bath in which the liquid is placed, absorption is unlikely.

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Diarrhoea (Acute) and Breastfeeding Mothers

Acute diarrhoea is a sudden onset or loose and/or frequent bowel motions. It may be caused by infections e.g. food poisoning or a virus. Symptoms may be accompanied by stomach cramps, temperature and headache.

There is no need to stop breastfeeding if you have diarrhoea but you should be very careful with hand hygiene e.g. after going to the toilet and before you touch food.

A breastfeeding mother with diarrhoea will pass on antibodies to her baby, which will help to combat the risk of infection. Breastfed babies are much less likely to suffer from tummy upsets than formula fed infants.

Symptoms of acute diarrhoea usually settle within a few days as the immune system deals with the infection. Breastfeeding mothers need to ensure that they remain well hydrated by drinking additional water fluids ideally water or rehydration solutions e.g. dioralyte®. These do not stop the diarrhoea but prevent dehydration.

If you feel that you need to take medication you can purchase anti-diarrhoea drugs over the counter in pharmacies. Loperamide (Imodium®) is the drug most widely used. The dose is two capsules to start then one after each loose bowel motion. It can be taken by breastfeeding mothers as it is poorly absorbed from the gut and minimal amounts reach breastmilk.

You can also take paracetamol to relieve any headache or temperature at the same time. You may not feel like eating for a while but there is no reason to starve for any period. If symptoms continue for more than a few days, you are passing blood in your bowel motion or if you have recently returned from a trip abroad you should consult your GP.

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Domperidone and Breastfeeding

The prescription of domperidone should be avoided in the following situations ⁽¹⁻³⁾;

- where either mother or baby has any evidence of cardiac abnormalities and specifically arrhythmia
- is receiving other medications known to prolong QT interval or potent CYP3A4 inhibitors e.g. quinolone antibiotics, ketoconazole (fluconazole may also be considered a risk), macrolide antibiotics, SSRI antidepressants, tricyclic antidepressants, salbutamol⁽⁴⁾
- where severe hepatic impairment has been identified in mother or baby
- where either mother or baby has high or low levels of potassium, or low levels of magnesium ⁽⁴⁾.

Before prescribing domperidone other measures to increase milk supply should be in place. These include an assessment by someone skilled in breastfeeding support alongside expressing both breasts, at least 8 times in 24 hours including overnight.

The maximum dose as a galactagogue should be 10mg three times a day. This prescription should be reviewed at 7 days and further prescriptions should be considered at a reducing dose.

Mothers should be counselled as to the adverse effects of domperidone (abdominal cramping, dry mouth, depressed mood and headache) and advised to report any changes in their baby's behaviour immediately.

Domperidone is a drug prescribed for nausea and vomiting. It also speeds emptying of the gut (prokinetic). Until September 2014 it was sold over the counter in the UK. It is not licensed for any indication in the USA because of concerns about arrhythmia. Domperidone has been prescribed off label for babies with reflux. Following a European Review by PRAC ⁽¹⁾ the MHRA updated their advice on the prescription of domperidone in May 2014 ⁽⁵⁾ (Appendix 1). They advise that domperidone is associated with a small increased risk of serious cardiac side effects. These have been reported predominantly in over 60s who had cardiac problems, were taking other drugs which also cause arrhythmia or were taking a dose of domperidone greater than 10mg three times a day ^(6,7).

However:

- We know that breastfeeding and breastmilk are important for optimal health long and short term for mother and baby
- We have research that domperidone increases prolactin levels and milk volume in mothers who have delivered pre term babies and are producing insufficient milk ⁽⁹⁻¹⁶⁾
- We have data on the levels of domperidone entering breastmilk and can be confident that these are very low ⁽¹⁴⁻¹⁷⁾
- We do not have research suggesting that domperidone causes risks to otherwise healthy, young women who are breastfeeding ⁽⁸⁻¹⁶⁾
- The consensus statement of breastfeeding experts from Canada is that adverse effects to domperidone given to increase lactation are exceptionally rare ⁽⁸⁾

So individual prescribing decisions should be made bearing in mind the recommendations of MHRA and the risk to mother and baby of not establishing full lactation.

Side effects

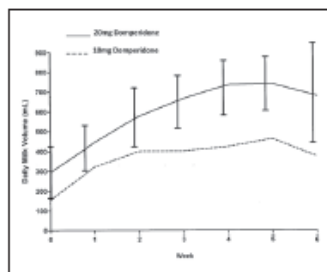
Other than those identified by MHRA, side effects are rare - they include stomach cramps, dry mouth, headache and occasionally domperidone is associated with depressed mood (although less than metoclopramide).

Evidence of effectiveness

Domperidone has been used as a galactagogue (to increase milk supply), use for which is off-label, utilising its effect of increasing prolactin. Studies have predominantly been around use in mothers of pre-term infants who are struggling to establish lactation 2 to 4 weeks after delivery. The studies have shown that domperidone is effective in increasing breastmilk production. Very small amounts of domperidone pass into breastmilk, the amount depending on the dose that the mother takes. Decision to prescribe for domperidone is the responsibility of the person signing the prescription. This document aims to provide sufficient information for individual decision making bearing in mind the risk to the mother and baby of not breastfeeding compared to the possible risk of the drug. There is no evidence of increased risk to health young women who do not fall into any of the at risk categories ⁽⁸⁾

“Of the thousands of mothers the authors of this statement have collectively treated with domperidone for the purposes of breastfeeding support, no one is aware of a single case of maternal death from ventricular arrhythmia. In fact, Health Canada’s Canada Vigilance Program has confirmed that between 1965 and 2011, there were no cardiac-related deaths reported among women taking Domperidone”

Osadchy ⁽⁹⁾ reviewed 3 randomised controlled trials (DaSilva ⁽¹⁰⁾, Campbell-Yeo ⁽¹¹⁾ and Petrolagia⁽¹²⁾) involving a total of 78 participants. The results showed a relative increase in breastmilk production of 74.72% over placebo. The study periods varied between 7 and 14 days. Only one study (Petrolagia⁽¹²⁾) referred to lactation counselling prior to prescription of medication or placebo. No follow up data on outcomes after the study period are available.



Knoppert⁽¹³⁾ studied pre-terms to determine the optimal dosage of domperidone as a galactagogue randomising women to a regime of 10 or 20mg three times a day for 4 weeks. Following the study period the dose was tapered to a twice daily then daily regime before stopping. At the end of 4 weeks there was no statistically significant difference in the increased milk volumes between the 2 groups but the study was not powered to demonstrate this because of the number of women involved

Figure 1: Milk volume as a function of dose (Reproduced from

Knoppert ⁽¹³⁾

There was a statistical difference in prolactin levels in both cohorts between baseline and day 10. Mothers excluded from the study were those taking anti arrhythmia drugs, who had a family history of arrhythmia, were taking quinolone antibiotics, or drugs metabolised by CYP 3A4 e.g. ketoconazole, macrolide antibiotics. They were required to be pumping a minimum of 8 times in 24 hours. Following the cessation of the drug 4 mothers continued to measure milk volume - 3 maintained their supply one dropped from 750ml per day to 500ml per day. Only one mother exhibited a side effect of nausea which resolved when she took the medication with food.

Campbell-Yeo ⁽¹¹⁾ studied the composition of breastmilk following maternal use of domperidone. She analysed the macronutrient content with respect to protein, fat, carbohydrate and energy and macro mineral content of sodium, phosphorous and calcium of 44 women taking either 10mg three times a day of domperidone or placebo. Domperidone increased the volume of breast milk without substantially altering the nutrient composition.

In the DaSilva study ⁽¹⁰⁾ 20 women in a double-blind, placebo-controlled protocol. Those prescribed domperidone 10mg three times a day showed a steady increase in milk production over placebo. Mothers received counselling support and were double pumping. The increase in production achieved fell once the drug was stopped after seven days. The babies in the study were all in neonatal intensive care and the mothers were only expressing for feeds to be given via nasogastric tube. The increase in milk volume began 48 hours after the drug was initiated and continued to the end of the trial. The study was stopped after seven days when most mothers began some level of direct breastfeeding, at which point it became impractical to measure breastmilk volume.

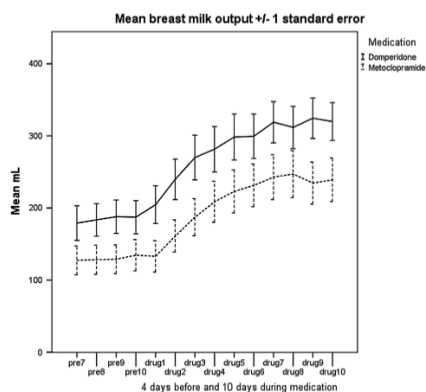
Only one study looked at mothers who had not delivered prematurely ⁽¹²⁾. One month after the study began all treated women had adequate milk production, but none of those who had **not** been treated with domperidone had achieved an increase in milk supply above that at the beginning of the trial.

Wan et al ⁽¹⁴⁾ studied seven mothers who had delivered pre-term in a double-blind, randomised cross-over study. They used two dose regimes - 10mg or 20mg three times a day. One mother taking the 20mg dose withdrew early because of severe abdominal cramps. Two others failed to respond to either dose. In four mothers, there was a significant increase in prolactin level and milk volume, with a greater response at the higher dose in three of these women. Side effects noted included abdominal cramping, constipation, dry mouth, depressed mood and headache, which were more apparent with the higher dose. Wan et al (2008) concluded that if there is no response at a 10mg dose, there is no point in further increasing the dose. This is at variance to the information in the consensus statement ⁽⁸⁾.

Ingram ⁽¹⁵⁾ studied eighty mothers expressing breast milk for their infants (mean gestational age 28 weeks) based in NICU and the amounts expressed fell short of the infant's needs. Mothers produced more milk in the domperidone group and achieved a mean of 96.3% increase in milk volume compared with a 93.7% increase for metoclopramide. This difference was not statistically significant. Ten women (15.4%) reported 12 side effects when taking the medication. Headache by 1 on domperidone 3 on metoclopramide, 1 on each medication reported diarrhoea, one on each mood swings, one mother on domperidone reported dizziness. Other effects reported by the metoclopramide cohort were change in appetite, dry mouth, and tingling, stinging, uncomfortable

breasts. Only one woman stopped taking the trial medication (metoclopramide) after 5 days due to bad headaches and dry mouth; all the others tolerated any side effects as they were keen to keep their increased milk production going.

Figure 2: Average milk output (ml per 24 h) over the medication phase of the study for mothers taking domperidone or metoclopramide (drug days 1–10) and for 4 days before (pre-7 to pre-10). (Reproduced from Ingram ⁽¹⁵⁾)



Amount of domperidone in breastmilk

Very small amounts of domperidone pass into breastmilk.

DaSilva ⁽¹⁶⁾ reported average milk concentrations ranged from 1.2 micrograms/L (1) to 2.6 micrograms/L. in babies whose mothers had taken domperidone 10mg three times a day for 5 days. No adverse events were noted in mothers or children. Domperidone is subject to extensive first pass metabolism which accounts for the low transfer into breastmilk. The mean relative infant dose was 0.01% after a 30 mg daily dose and 0.009% at 60 mg ⁽¹⁴⁾. Hale ⁽¹⁷⁾ quotes a relative infant dose range of 0.01% - 0.04%, well below the 10% regarded as significant.

Weaning from domperidone

There are no studies that provide an evidence base on how long to continue domperidone in the case of inadequate lactation ⁽¹⁸⁾. Anecdotally, some women feel that their supply cannot be maintained without the drug, while some can reduce the dose but not stop altogether. It is possible that domperidone is acting as a placebo to boost their confidence - we do not know and should admit the limitations of the research.

After a slow withdrawal from domperidone, one study found no significant increase in formula supplementation suggesting that once sufficient milk production is established, it is maintained even without the use of domperidone ⁽¹⁹⁾.

Knoppert ⁽¹⁰⁾ showed that in 3 out of 4 women who had taken domperidone for 4 weeks at full dose, 2 weeks at reducing dose, milk supply was maintained. Although gradual weaning from the drug has become standard, there is little evidence apart from the reports and experience of breastfeeding specialists.

Other drugs to increase milk supply

Domperidone is preferred to metoclopramide because it poorly penetrates the blood-brain barrier and does not produce parkinsonian-like adverse effects or increase the risk of depression ⁽¹⁷⁾. The amount passing through breastmilk is significantly less than the dose prescribed directly to babies to control symptoms of reflux.

In Ingram's study ⁽¹⁵⁾ ten women (n=65) reported 12 side effects when taking the medication as shown in table 3. Seven of the mothers taking metoclopramide reported side effects and three of those taking domperidone. Only one woman stopped taking the trial medication (metoclopramide) after 5 days due to bad headaches and dry mouth; all the others tolerated any side effects as they were keen to keep their increased milk production going.

Side effect	Domperidone (three women)	Metoclopramide (seven women)	Post-trial metoclopramide
Headache	1	3	0
Diarrhoea	1	1	1
Mood Swings	1	1	2
Depression	0	0	2
Feeling Dizzy	1	0	0
Change in appetite	0	1	0
Dry mouth	0	1	0
Tingling, stinging, uncomfortable breasts	0	1	0
Restless legs	0	0	1
Itchy skin	0	0	1
Less effective galactagogue	-	-	1
Total	4	8	8

Table 3: reported side effects from trial drugs (reproduced from Ingram)

Review of recommendation on safety of domperidone 2011 in the consensus statement by breastfeeding experts:

"The recommendation 2011 ⁽²⁰⁾ is based on data derived from two public health databases: one in the Netherlands ⁽⁶⁾ and one in Saskatchewan ⁽⁷⁾. The warning was based on information gathered from an entirely different population than those who would be taking domperidone for breastfeeding purposes and is thus not generalizable to the lactating population.

The average age of the patients in the studies was 72.5 years in one and 79.4 years in the other. Many of the patients in the studies had pre-existing health problems such as high blood pressure, coronary artery disease, and congestive heart failure. There were, however, some notable trends that, when extrapolated to the breastfeeding population largely comprised of younger healthier women, are quite reassuring. In one study, the authors concluded that the risk of a cardiac problem related to taking domperidone in younger patients was much lower than in older patients.

In fact, the risk quoted in younger patients was almost the same as that outcome occurring by chance alone (OR of 1.1 in those younger than age 60 compared with an OR of 1.64 in those older than age 60). That study also specifies that the risk in females was significantly lower than in males (OR of 1.25 in females compared with an OR of 2.23 in males).

The warning regarding the use of domperidone in higher doses (>30mg per day) was based on only one of the two studies; the other study did not include any information about dosing. In the one study where dosing information was included, out of the 1304 deaths that were studied, only 10 patients were taking domperidone at the time of death. Of those 10 taking domperidone, only 4 patients were documented to be taking higher doses of domperidone (>30mg per day). Thus, this Health Canada-endorsed dose-related warning comes from dosing data compiled from a total of four patients. In fact, the authors were not specifically cautioning physicians not to prescribe higher doses, but rather were suggesting that "it is important to avoid prescribing domperidone to patients with a high risk of sudden cardiac death". It is very hard to make a case for a drastic reduction in domperidone dosing in lactating women (wherein a dose of <30mg may not be sufficient to support lactation in a significant number of cases) when the data relied upon to generate the dosing warning was based on such a small number of cases that do not demographically resemble the population in which it is being prescribed. "

Conclusion

Domperidone is not a 'magic wand' to increase the milk supply of a mother struggling to breastfeed, and it should not be used unless accompanied by regular and effective drainage of milk from the breast. It may be a valuable tool to support mothers who have delivered pre-term and who maintain their lactation over a prolonged period by expression, or mothers who have had a poor start to breastfeeding who need to re-lactate to some extent. It is also useful for women with identified hormonal difficulties that could affect milk supply, e.g. hypothyroid and polycystic ovaries.

Domperidone is a relatively safe drug, but it would be unethical and unprofessional to expose a mother and baby to a drug they do not need, and all measures to improve breastfeeding management should be made and documented prior to a decision to advocate its use.

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Ways to increase breastmilk supply without drugs

- Ensure the baby is well attached to the breast and is feeding effectively and frequently
- Encourage and support breastfeeding.
- Listen empathetically to any concerns the mother may have or that have been raised by others who are less supportive of breastfeeding
- Ascertain why she feels she has a low milk supply and address any misconceptions, e.g. reinforce the normality of babies feeding eight to 12 times in 24 hours. Discourage the routine use of dummies if the baby is not feeding frequently enough. Reinforce normality of baby feeding patterns, e.g. 'cluster feeding' in the evenings
- If she feels the baby is unsettled and that this indicates she has a low milk supply, encourage periods of calming skin-to-skin contact or encourage use of a sling to settle the baby. She may also need guidance on feeding the baby lying down at night in order to cope with night feeds
- Observe a complete breastfeed. Check for effective attachment and ensure that both breasts are offered at each feed, with the baby coming off the first breast spontaneously and the breast feeling softer
- Check that the baby's urine and stool output are normal for their age
- Check the baby's weight gain progress
- Check that there are no hormonal reasons why milk supply might be low, e.g. polycystic ovaries, thyroid problems or retained placental fragments
- Question if any medications - prescribed or purchased - are being taken e.g. diuretic, combined oral contraceptive
- If the mother smokes encourage her to stop, since nicotine reduces milk supply

Appendix 1 MHRA 25 April 2014

Domperidone: risk of cardiac side effects - restricted indication, new contraindications, and reduced dose and duration of use

I am writing to inform you about important new information for domperidone (Motilium).

Summary; Domperidone is associated with a small increased risk of serious cardiac side effects. Its use is now restricted to the relief of symptoms of nausea and vomiting and the dosage and duration of use have been reduced. Domperidone is now contraindicated in those with underlying cardiac conditions and other risk factors (see below).

Background

A recent Europe-wide review has recommended updates to the treatment advice for domperidone following evaluation of the benefits and risks of domperidone (see http://www.ema.europa.eu/ema/index.jsp?curl=pages/news_and_events/news/2014/04/news_detail_002083.jsp&mid=WC0b01ac058004d5c1). The review was triggered following continued reports of cardiac side effects and a small increased risk of serious cardiac side effects was confirmed. A higher risk was observed in patients older than 60 years, adults taking daily oral doses of more than 30mg, and those taking QT-prolonging medicines or CYP3A4 inhibitors concomitantly.

Advice for healthcare professionals

Indication Domperidone is now restricted to use in the relief of symptoms nausea and vomiting. It should be used at the lowest effective dose for the shortest possible time

Contraindications Domperidone is contraindicated in people: - with conditions where the cardiac conduction is, or could be, impaired - with underlying cardiac diseases such as congestive heart failure - receiving other medications known to prolong QT or potent CYP3A4 inhibitors - with severe hepatic impairment.

Dose For adults and adolescents over 12 years of age and weighing 35kg or more, the recommended maximum dose in 24 hours is 30mg (dose interval: 10mg up to three times a day). In children under 12 years of age and weighing less than 35kg, the recommended maximum dose in 24 hours is 0.75mg/kg body weight (dose interval: 0.25mg/kg body weight up to three times a day).

The maximum treatment duration should not exceed one week.

Non-prescription availability of domperidone:

Domperidone is available to buy in a pharmacy without prescription as tablets for use in adults and adolescents of 16 years and above. It is now restricted to use in nausea and vomiting. It should be used at a dose of up to 10mg three times daily for a maximum period of 48 hours.

Pharmacists are asked to take the following steps when supplying domperidone without prescription: Ask questions to exclude supply for use by people for whom domperidone is contraindicated (see above) • Advise people to take domperidone without prescription only for nausea and vomiting • Advise people to take the lowest dose for the shortest possible time up to a maximum daily dose of 3 tablets and for a maximum period of 48 hours.

Eczema and Breastfeeding

Eczema is a condition that causes the skin to become itchy, red, dry and cracked. It can affect all areas of the body but most frequently the hands, inside the elbows and behind the knees. It can also affect the face. Many breastfeeding mothers are concerned that it will affect their nipples during breastfeeding.

Treatment is generally to improve the symptoms by:

- removing the itching which can be unbearable resulting in damage to the area,
- softening the area by applying emollient creams regularly – people vary in the products that they find most effective
- reducing the inflammation which causes the itching, dryness and thickened skin areas. This is normally achieved by the use of steroid creams applied sparingly along with emollients

Creams to remove itching include Crotamiton (Eurax®), topical benzocaine (Lanacane®). These can be applied during breastfeeding but should be avoided on the nipple.

Emollient creams include brands such as Diprobase, Dermol, E45, Doublebase, Cetraben, as well as own brands. Each person tends to have a favourite product that they find effective. Special bath oils and soap substitute products are also available. All can be used by a breastfeeding mother. Creams can be used to keep the nipples supple but should not be used in excessive to leave them soggy and therefore more liable to infection. They should be applied after feeds. Washing off prior to the next feed would cause more drying to the nipple. If used sparingly there should be no obvious product visible.

Steroid creams can be applied to areas of eczema on other parts of the body during breastfeeding. Low potency steroids such as hydrocortisone are preferred on the nipple to avoid thinning of the skin.

Emergency hormonal contraception and Breastfeeding

“The morning after pill”

It is possible to continue uninterrupted breastfeeding and take the “morning after pill”.

Levonelle® was licensed to be given to women during breastfeeding. However the patient information leaflet in the packet now suggests that women should not breastfeed for 8 hours. It contains a progesterone-only drug levonorgestrel.

The tablet should be taken as soon as possible after unprotected intercourse - up to 72 hours after. The longer the interval between intercourse and taking the tablet the greater is the chance that it will not be effective. No contraception has a 100% success rate. If vomiting occurs soon after taking the tablet medical advice should be sought as soon as possible.

The next period may be early or late and barrier contraception should be continued until the next period. levonorgestrel can be purchased over the counter from a pharmacist as well as being prescribed by a GP, family planning clinic or accident and emergency department.

Should the next period be delayed more than 5 days she should seek further medical advice. Levonelle is reported by the manufacturers not to show evidence of teratogenicity even if it fails to prevent pregnancy. However emergency hormonal contraception should not be used if there is any possibility that the woman is already pregnant.

There is no information on the amount of the newer drug Ulipristal (ellaOne®) passing into breastmilk although data from the manufacturer indicates that the amounts in breastmilk are low. World Health Organization guidelines state that women who are breastfeeding can generally use ulipristal as an emergency contraceptive.

Women who do not wish to expose their baby to any medication may wish to consider how frequently they are breastfeeding and therefore the likelihood of ovulation. She needs to take into account whether she is still exclusively breastfeeding or has introduced solids or complimentary feeds which make it more likely that she is ovulating. She and her partner also need to consider the consequences of a subsequent pregnancy for them.

A copper intra-uterine contraceptive can be inserted up to 5 days after intercourse as an alternative method of emergency contraception.

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Endoscopy and Breastfeeding

You can breastfeed as soon as you are wide awake after an endoscopy performed under conscious sedation using midazolam, fentanyl, pethidine and propofol.

An endoscopy is an examination where the inside of your gut (stomach/intestines) are examined using a long flexible tube with a light source and camera at the end. It is passed through your mouth, down the throat into the stomach and intestines. It allows the healthcare professional to look for any abnormalities.

An endoscopy is usually carried out with the patient conscious but sedated. It is not usually painful, but can be uncomfortable. A local anaesthetic may be sprayed to the back of the throat to make the tube easier to swallow or you may be given a lozenge to suck. The sedative helps relaxation during the procedure. It is normally carried out on an outpatient basis.

The sedatives normally used during endoscopy are fentanyl, midazolam, pethidine and propofol. These have a rapid onset of action but short half-life so that you will be wide awake shortly after the procedure.

Due to the short half-life of the sedative drugs, you can breastfeed as soon as you are awake and conscious of the need to feed. The local anaesthetic will not be absorbed into your breastmilk. If the procedure is carried out under general anaesthetic please refer to anaesthetic factsheet.

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Eye Infection and Breastfeeding

Optimal treatment choice

Wait for 3-5 days to determine if resolves without treatment

If symptoms continue first line fusidic acid drops if clinically appropriate

If unresponsive consider chloramphenicol drops

Infective conjunctivitis is inflammation of the conjunctiva due to infection. It can be caused by bacteria or viruses. Viral conjunctivitis will resolve by itself - it is often associated with a blocked nose during a cold. Recent studies care estimate that between 33% and 78% of cases of conjunctivitis are bacterial. Acute bacterial conjunctivitis resolves spontaneously in most people (65%), without treatment, within 7 days ^(1, 2). It is also possible to have allergic conjunctivitis - see information sheet on antihistamines and breastfeeding on the Breastfeeding Network website.

Symptoms of conjunctivitis include pink eye in one or both eyes, there may be a sticky or watery discharge particularly overnight. The eyes can feel gritty ⁽³⁾.

However if symptoms include eye pain or photophobia (sensitivity or pain on exposure light), blurred vision, or marked redness of the eye you should seek medical attention as soon as possible⁽³⁾.

Remove contact lenses, if worn, until all symptoms and signs of infection have completely resolved and any treatment has been completed for 24 hours.

In addition wash hands regularly, particularly after touching eye and avoid sharing pillows and towels to minimise the risk of spreading the infection.

It is possible to clean away any infected secretions from eyelids and lashes with cotton wool soaked in water or breastmilk ⁽⁴⁾.

Purchased eye drops

Lubricant eye drops e.g. hypromellose may reduce discomfort ⁽⁵⁾ Propamidine eye drops (Brolene®, Golden Eye ®) can be bought from pharmacies to treat minor eye infections of the eye, conjunctivitis or blepharitis. One or two drops should be administered into the infected eye up to four times a day ⁽⁶⁾.

Prescribed eye drops

Fusidic acid (Fucithalmic®) drops are viscous and are applied twice daily. If symptoms resolve within the first 5 days of treatment, continue for 48 hours afterward symptoms ease ^(5, 8). Topical fusidic acid is active against Gram-positive bacteria, especially *Staphylococcus aureus* ⁽⁵⁾.

Chloramphenicol is an antibacterial eye drop which can also be purchased over the counter under the supervision of a pharmacist or may be prescribed. If symptoms resolve within the first 5 days of treatment, continue for 48 hours afterward symptoms ease ^(5, 8). Topical chloramphenicol has a relatively broad spectrum of action against most Gram-positive and Gram-negative bacteria. If clinically appropriate fucidic acid drops are preferable in a breastfeeding mother although the risk of adverse effects is highly unlikely ⁽⁸⁾.

Patient Information Leaflet (PIL)

The PIL of chloramphenicol eye drops suggests that they should not be used by breastfeeding mother. The information is based on the theoretical risk of aplastic anaemia. This is predominantly associated with Chloramphenicol capsules which used to be given to patients but has largely been discontinued due to the incidence of serious blood dyscrasias ⁽⁹⁻¹²⁾.

HOWEVER THERE ARE NO REPORTS OF SIDE EFFECTS IN BREASTFED INFANTS WHOSE MOTHERS USED CHLORAMPHENICOL DROPS OR OINTMENT.

If chloramphenicol is considered the appropriate treatment it can be used as normal by breastfeeding mothers. To minimise the absorption of any drug into the blood stream you can apply naso-lachrymal occlusion (pressing over the tear duct to close it off) as you use the drops.



Do you need to stay away from work or have your infected child off school?

Public Health England advises that you do not need to stay away from work or school if you or your child has conjunctivitis, unless you are feeling particularly unwell. If there are a number of cases of conjunctivitis at one school or nursery, you may be advised to keep your child away from the school until their infection has cleared up. Generally, adults who work in close contact with others, or share equipment such as phones and computers, should not return to work until the discharge has cleared up

A newborn with conjunctivitis needs to be seen by a doctor immediately ⁽³⁾

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Feeling anxious and Breastfeeding

There are many reasons that we become anxious at one point or another in our lives. Anxiety is a normal and healthy emotion. 1 in 10 of us will experience a significant anxiety disorder at some point in our lives although this increases during pregnancy and the year after giving birth.

What is anxiety?

Anxiety is a feeling or dread or fear about a real or imagined situation. It is often characterised by excessively worrying and focusing on thoughts and situations that scare or upset you and is accompanied by a range of physical sensations. We will often notice changes in three areas, our thoughts, our physical feelings and our behaviours. If you find that you are anxious most of the day, several days a week for more than 2-3 weeks then this can be signs that anxiety is becoming more of a problem for you. If it is impacting on your ability to continue your normal life then you may wish to seek further help from your GP or other voluntary services.

Treatment

Your GP may refer you for CBT or you may be able to self-refer. There may be a waiting period before assessment and before treatment can begin but you have made the first step by acknowledging how you feel. You may be prescribed medication. This may include propranolol and SSRI antidepressants. It may be that you are given tri-cyclic antidepressants or very short term benzodiazepines such as diazepam or lorazepam.

You can take medication for anxiety and continue to breastfeed without harming your baby.

For further information please check out the more detailed information

www.breastfeedingnetwork.org.uk/wp-content/dibm/anxiety%20and%20breastfeeding.pdf

If anyone tells you that you have to stop breastfeeding in order to take a medication please contact the Drugs in Breastmilk Helpline via facebook

www.facebook.com/BfNDrugsinBreastmilkinformation), email (drug-

information@breastfeedingnetwork.org.uk) or telephone (0844 412 4665) and we will discuss this with you and help you find information based on research .

Feeling depressed and Breastfeeding?

Around 10-15% of mothers feel depressed during the first year or so after giving birth. Many of them are also breastfeeding. It is nothing to feel ashamed about. It is important to ask for help.

Symptoms of depression are sometimes vague and hard to define but include:

- a persistent feeling of sadness and low mood which goes on for days and weeks
- loss of interest things that used to give you pleasure
- lack of energy, feeling tired all the time
- trouble sleeping at night when your baby is asleep
- problems concentrating and making decisions
- loss of appetite or an increased appetite
- feeling agitated, irritable or that you "can't be bothered")



Our mood varies from day to day, week to week, but if you feel miserable on more days than you feel happy then you should share with those who love you how you feel and think about discussing this with your health visitor or doctor.

If you are feeling miserable because breastfeeding isn't proving to be as easy as you hoped please keep asking for help from local drop in support groups or by calling the National Breastfeeding Helpline.

You can take anti-depressants and continue to breastfeed without harming your baby.

The drug of choice for someone who has never had depression before is sertraline which passes into breastmilk in very low levels. If you have been treated for depression before, the drug which is best for you is probably the one which helped you then. For more detailed information, visit www.breastfeedingnetwork.org.uk/wp-content/dibm/anti-depressants-oct14.pdf

If anyone tells you that you have to stop breastfeeding in order to take a medication please contact the Drugs in Breastmilk Helpline via facebook (www.facebook.com/BfNDrugsinBreastmilkinformation), email (drug-information@breastfeedingnetwork.org.uk) or telephone (0844 412 4665) and we will discuss this with you and help you find information based on research.

'Flu injections for Breastfeeding Mothers

Many women who are breastfeeding, who come into the nationally agreed categories of "at risk" patients, will be offered the 'flu vaccination during the winter months.

There is no evidence that breastfeeding should be seen as a barrier to use of this vaccine.

- Influenza vaccine is given directly to babies over 6 months who are at risk.
- Influenza vaccine is not orally bio-available and therefore cannot be absorbed from breastmilk.

At risk patients

- Those with chronic respiratory disease – including those with symptoms of asthma requiring regular use of inhalers
- Those with chronic heart disease
- Those with chronic liver disease
- Those with chronic renal disease
- Those with chronic neurological disease
- Those with diabetes mellitus
- Those on immuno- suppressant medication
- Those with HIV
- Carers
- NHS employed staff

Other persons may choose to pay for vaccination via community pharmacists.

Children aged 2, 3 and 4 years are also included in the routine programme and both mother and child can both be vaccinated at the same time. There seems to be no reason why mother and baby cannot receive vaccination at the same time.

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Foot problems and Breastfeeding

Athletes Foot, Fungal Nail Infection, Verrucae and Corns

Athlete's foot, fungal nail infections, verruca and corns can be treated with over the counter topical products without interfering with breastfeeding.

Athlete's foot is a fungal infection usually presenting as sore or itchy areas between the toes. It can also produce blisters on the feet. Symptoms are usually mild and can be treated with creams purchased over the counter from pharmacies. Most packages say that a doctor or pharmacist should be consulted before using the product if you are breastfeeding. This is about the licensing of the product rather than any risk (www.breastfeedingnetwork.org.uk/wp-content/dibm/patient%20information%20leaflet.pdf). The skin on the foot is largely dead and absorption of the cream into breastmilk is unlikely. Athlete's foot spreads very easily. It can be passed from person to person through towels, and surfaces. The fungi can survive and multiply in warm and humid places, such as swimming pools, showers and communal changing rooms.

Treatment for athlete's foot is available as creams including **clotrimazole** (Canesten®, pharmacy own brands), **miconazole** (Daktarin®), **terbinafine** (Lamisil®) **Tolnaftate** (Mycil, Scholl®), **zinc undecenoate** (Mycota®).

Some creams also contain hydrocortisone to help to relieve itching and inflammation e.g. Canesten HC®, Daktacort®. These should not be used for more than 7 days.

There are also sprays: **Miconazole** (Daktarin Activ®, Lamisil® Griseofulvin (Grisol®, liquids **Tolnaftate** Scholl® and powders **Tolnaftate** (Mycil®, Scholl®), **Zinc undeconoate** (Mycota®)

If symptoms fail to clear with topical treatment you may need to see your healthcare provider to discuss oral medication.

The following measures can help treat and prevent athlete's foot:

- Wash your feet regularly and thoroughly using soap and water.
- After washing, dry your feet, paying particular attention to the areas between your toes.
- Wear clean cotton socks.
- Change your shoes and socks regularly to help keep your feet dry.
- Don't share towels and wash your towels regularly.

Fungal Nail Infections can affect part or all of the nail, including the nail plate, nail bed and root of the nail. The infection develops slowly and causes the nail to become discoloured, thickened and distorted. The toenails are more frequently affected than the fingernails.

(www.nhs.uk/conditions/fungal-nail-infection/Pages/Introduction.aspx) Treatments can take some months to be effective because of the speed at which the nail regrows. In mild cases soaks of tea tree oil can be effective. Nail paints such as **amorolfine** (Loceryl®), **urea** (Canespro®), own brand pharmacy products, can be applied directly to the nail even when breastfeeding despite the patient information saying otherwise. (www.breastfeedingnetwork.org.uk/wp-content/dibm/patient%20information%20leaflet.pdf). If symptoms fail to clear with topical treatment you may need to see your healthcare provider to discuss oral medication.

Verruca is a wart caused by a virus (HPV) and usually occurs on the sole or under the toes. They generally will disappear of their own accord but are often treated to lessen transmission as well as relieve pain. Due to the pressure on the foot the wart is pushed inwards and a layer of hard skin may develop over it. They look like miniscule cauliflowers with tiny black spots in the centre. Most over the counter treatments involve applying a chemical such as salicylic acid to remove the dead surface skin cells (Bazuka®, Wartner®). Freezing of the skin destroys the cell structure of the wart and has become more popular in over the counter products (Scholl®, Wartie®, Bazuka Sub Zero®) and may be performed by the GP or chiropractor. Products can be used by breastfeeding mothers without affecting their breastmilk or baby.

Corns are often caused by poorly fitting shoes producing hard, thickened skin. They usually develop on the tops or sides of toes. Over the counter remedies such as corn paints and plasters can be applied carefully to the corn (avoiding the healthy skin around it). These products can be used by breastfeeding mothers without affecting their breastmilk or baby.

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Haemorrhoids (piles) treatment in Breastfeeding Mothers

Haemorrhoids (piles) occur frequently as a result of increased abdominal pressure during pregnancy or a prolonged second stage of labour. Anyone experiencing haemorrhoids should eat additional fruit and fibre and drink plenty of fluid in order to avoid constipation. If necessary a bulk laxative such as Fybogel® or lactulose (which are safe to be used whilst breastfeeding - see information sheet on constipation) can be useful on a temporary basis.

For further information see <http://www.patient.co.uk/showdoc/23068749/>

Creams, ointments and suppositories do not cure haemorrhoids but do help with the symptoms of pain and irritation. They often contain a local anaesthetic which limits use to seven days after which time increased sensitisation from the ingredient may occur.

Ice packs, or the application of bags of frozen peas suitably wrapped, can also help to relieve swelling. Care should be taken not to burn the skin by using frozen agents directly to the skin.

Prescribed creams may include a corticosteroid to reduce inflammation – this will not produce clinically significant levels in breastmilk.

Painkillers (analgesics) may be needed in cases of severe pain – products containing codeine should be avoided as they cause constipation which results in additional straining and further irritation of haemorrhoids. Paracetamol is an ideal choice taken regularly at normal doses.

Products to treat haemorrhoids can be used by breastfeeding mothers without affecting breastfeeding. The absorption of the ingredient drugs from the rectum will not produce significant levels in breastmilk and can be used as necessary for the mother's comfort (morning and night and after bowel motions).

There are a variety of commercially available creams and ointments: Anusol®, Anusol HC®, Proctosedyl®, Germoloids®, Hemocane®, Preparation H®, Xyloproct®, Ultraproct®

Anal fissures

In severe cases mothers may develop anal fissures which do not heal and produce severe pain. This may be treated with glyceryl trinitrate ointment 0.2% or 0.4%. The mother may experience a headache but there are no reports of adverse effects in babies whose mothers have applied it (Taylor 2008, UKMI). Use during breastfeeding is unlicensed. It is assumed that diltiazem cream would similarly not affect the baby but no research has been identified.

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Head Lice Treatment in Breastfeeding Mothers

Head lice are a common problem for mothers with older children. The breastfeeding mother may need to apply lotions to her children and may find herself affected too. Head lice are spread by head to head contact. They are not a sign of poor hygiene and in fact prefer clean hair. Medicated lotions should not be used unless live lice are detected by combing. Prevention is best achieved by regular combing with a fine toothed comb. For further information see www.patient.co.uk/showdoc/23068753/

Head lice may be mechanically removed by meticulous combing of wet hair with a fine toothed detection comb. Combing needs to be undertaken for at least 30 minutes at four day intervals for a minimum of two weeks. Conditioner facilitates combing particularly of long hair. Anecdotally use of tea tree oil is effective in killing and preventing head lice but there is no evidence from clinical trials.

Treatments with lotions or liquids are preferable to shampoos which are diluted below an effective therapeutic concentration. Aqueous solutions are recommended for children with eczema or asthma. Rotation of treatments is no longer recommended. A mosaic approach is considered advisable however whereby the child or adult is treated with a different chemical at each infestation or if a treatment fails.

Absorption of the products through the skin in sufficient quantities to affect breastmilk is unlikely. If a lactating mother has to treat several children's heads it may be sensible to use rubber gloves to protect her hands and ensure the room is well ventilated.

There are a variety of products available to treat head lice.

Malathion Derbac M®, Prioderm®, Quelleda M®

Permethrin, *Lyclear*®

Phenothrin Full Marks ®

Dimeticone *Hedrin*®

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Increasing Milk Supply - use of Galactagogues

Galactagogues are substances that aid the initiation and maintenance of milk supply at a level which meets the needs of the baby. The production of milk is controlled by the hormone prolactin. Nipple stimulation controls the release of prolactin whilst oxytocin controls the release of the milk, experienced as the letdown.

Poor milk supply can result from:

- Less than perfect positioning and attachment of the baby at the breast resulting in incomplete breast drainage
- Infrequent, restricted, limited feeds

Reduction in milk supply is frequently noted after premature delivery with milk supply maintained only by expression over a period of weeks (DaSilva 2004 and Wan 2008). Smoking is associated with decreased milk production and smokers are more likely to wean earlier because of low milk supply or to notice inhibition of letdown (Vio 1991 and Hopkinson 1992).

Many cultures have their own remedies to increase milk supply (Riordan and Auerbach 1998). In the past Guinness and Vitamin B supplements have been advocated widely. There is limited research evidence to support its effectiveness. However if a mother believes it will help her, the positive effect may be apparent - whether due to placebo or genuine effect is unknown.

Medicinal products which have been shown to increase milk supply produce their effect by dopamine antagonism, generally as a side effect, whilst having other therapeutic effects. Use of these medicines as galactagogues is outside of the licence application and prescribers are required to take ultimate responsibility for their use.

Many women perceive that their milk production is inadequate and it is the commonest reported reason given for cessation of breastfeeding earlier than the mother had intended. Medication should not be advocated as a solution to unfounded concerns or where additional support and encouragement as well as consistency of information are the prime need. Expert assessment of the latch and the effectiveness of feeding is essential.

Metoclopramide (Maxolon ®)

This drug is used as an anti-nauseant. Clinical studies have shown that it increases prolactin levels and consequentially milk supply at a dose of 10milligrammes three times daily. However it can produce extra-pyramidal side effects including tremor and slow, shuffling movements as well as precipitating depression (Ingram 2011, BNF)

Domperidone (Motilium ®)

This drug is used to speed gastric emptying and is used for dyspepsia after meals, reflux oesophagitis and vomiting (BNF). It is available as an over the counter medicine to treat bloating after meals. The normal dose is 10milligrammes three times a day. Reports of higher doses have been published (reported in Gabay 2002) but care should be taken if mother or child have a history of cardiac problems or are on interacting medication. Reported side effects are unusual but can include headache, diarrhoea, mood swings and feeling dizzy. The drug has been evaluated as a randomised double blind; placebo controlled trial although this only involved 20 women (reported in Gabay 2002). Warnings issued by the FDA in June 2004 reported concerns over IV use, which are not applicable in these circumstances (Hale 2014). Further concerns on use and limitations on dose and indication were published by MHRA and EMC in May 2014.

*Important -please see separate sheet on Domperidone use in breastfeeding

<http://www.breastfeedingnetwork.org.uk/wp-content/dibm/BfN%20statement%20on%20domperidone%20as%20a%20galactagogue.pdf>

Sulpiride and Chlorpromazine have been noted to have galactagogue properties but side effects limit their effectiveness. (Hale 2014, Jones 2013, BNF)

If no increase in milk supply is noted after seven days of taking medication, consideration should be given to removing the medication rather than continuing to expose mother and child.

Fenugreek

This is a herbal spice, which is a member of the pea family whose seeds are used amongst other things as the artificial flavour in maple syrup. Anecdotal reports of its effectiveness go back to 1945 (reported in Gabay 2002) but no formal studies have been located. Its mechanism of action has been theorised as stimulation of sweat production (the breast is a specialised sweat gland). The recommended dose is 2-3 capsules three times a day (Newman 2009). Since herbal remedies are not standardised the exact amount of fenugreek may vary. Reported adverse events are rare and include maple syrup like odour of the sweat and urine, diarrhoea and aggravation of the symptoms of asthma (Lawrence 1998) although it has also been suggested as a remedy for asthma. Fenugreek can also interact with insulin and warfarin and anyone taking medication is advised to seek advice from a medical practitioner or herbalist. It also stimulates the uterus and should not be used in pregnancy. Hypoglycaemic effects (low blood sugar levels) have also been reported Vijayakumar (2005). Milk production is said to increase within 24-72 hours (Humphrey 2003).

It is important to note that natural products can vary in strength. The fact that they are natural products does not imply their use is without risk. **Other natural remedies** said to increase milk supply include anise, basil, blessed thistle, caraway, chasteberry and fennel but evidence is anecdotal rather than scientific. Kellymom 2011, Humphrey 2003, Lawrence 1998)

Nursing supplementer (SNS) devices may prove effective in aiding additional nipple stimulation through suckling. Breast compression may also stimulate milk flow and encourage the baby to suckle.

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Indigestion and Breastfeeding

The main symptom of indigestion is discomfort around the stomach area. You may also experience heartburn or this may occur on its own. Symptoms frequently come on soon after eating or drinking, although there can sometimes be a delay before experiencing indigestion. [Heartburn](#) is caused by acid that passes back up the throat from the stomach. It often is worse when you lie down or go to bed. If you have indigestion, you may also feel uncomfortably full, frequently burp or pass wind, feel bloated or even sick.

Antacids and alginates are safe during breastfeeding.

Choose according to personal preference

Simple antacids are composed of a combination of aluminium, magnesium and calcium salts all of which reduce acidity. **Antacids** may have peppermint or spearmint flavour added, both of which have historically been used to settle the stomach. Antacids do not alter the volume of hydrochloric acid produced and if used in excess may cause the body to produce more acid.

Sodium bicarbonate solution - an old household remedy is particularly bad at doing this and should be avoided.

Aluminium containing antacids may produce a constipating action if consumed in excess e.g. aluminium hydroxide. Magnesium containing products may produce a laxative action if consumed in excess e.g. magnesium trisilicate, magnesium hydroxide (*Milk of Magnesia*[®]). Calcium containing antacids generally rely on the neutralising properties of calcium carbonate (*Rennie Rap-Eze*[®] *Settlers*[®]). Most commercial products contain a mixture of ingredients. None of the ingredients in antacids are likely to pass into breastmilk as they only act locally to neutralise excess stomach acid.

Simeticone (Dimeticone) is used to relieve flatulence and abdominal discomfort due to wind. It causes bubbles of gas in the gut to coalesce, aiding dispersion of wind. It is often combined with antacids. Brand names: Altacite Plus[®], Asilone[®], Windcheaters[®] Maalox Plus[®], Rennie Deflatine[®], Remegel Wind Relief[®]

Many women are familiar with taking alginates during pregnancy. Alginates form a pH neutral raft on top of the food contents of the stomach in order to prevent regurgitation and heartburn resulting from irritation of the oesophagus. They are poorly absorbed from the gut and can safely be taken during breastfeeding. E.g. Gaviscon[®], Gaviscon Advance[®]

If your symptoms persist after the Festive Period and do not respond to lifestyle changes, antacids or alginates your GP may suggest other medication. This may be a H2 antagonist:

e.g. Cimetidine or ranitidine (drug of choice in breastfeeding) or a Proton Pump Inhibitor;

e.g. Omeprazole (drug of choice in breastfeeding), lansoprazole or esomeprazole. Ranitidine and omeprazole reach breastmilk in levels significantly lower than those used to treat reflux in babies

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Irritable Bowel Syndrome (IBS) and Breastfeeding

Irritable bowel syndrome (IBS) is a common, chronic, relapsing, and often life-long condition, mainly affecting people aged between 20 and 30 years. It is more common in women. Symptoms include abdominal pain or discomfort, either diarrhoea, or constipation and bloating. The treatment of IBS is focused on symptom control, in order to improve quality of life.

- Peppermint oil and mebeverine are the drugs of choice to remove spasms, hyoscine is acceptable if preferred. Dicycloverine should NOT be taken
- Laxatives and Loperamide can be used to relieve symptoms of constipation and diarrhoea

Antispasmodic drugs

- Dicycloverine (Dicyclomine) (Merbentyl ® Kolanticon ®) . In the past this drug was used to treat infantile colic but following reports of apnoea, its license for use in infants under 6 months was withdrawn. The adverse reactions occurred in babies under the age of 6 weeks and involved sudden reactions following administration of the drug via a spoon. All children recovered normally (Williams 1994, Edwards 1984, Spoudea 1984). There is also a single case report of a similar reaction in a 12 day old breastfed baby whose mother took this drug (personal communication reported in Briggs 2005) so it is a drug best avoided in lactation since there are alternative preparations available.
- Hyoscine (Buscopan ®) is often the drug preferred by patients with IBS. No levels in breastmilk have been reported from studies. It is licensed at half the adult dose for children over 6 years (10 milligrammes three times daily) so the amount passing into breastmilk is likely to be safe.
- Alverine Citrate (Relaxyl®, Spasmonal®) is widely used to treat symptoms of irritable bowel syndrome but one study shows that it was no better than placebo in providing relief of symptoms (Mitchell 2002). It is licensed for use in patients over the age of 12 years. There is no information on its passage into breastmilk. Avoid if possible.
- Mebeverine Hydrochloride (Colofac®) should be taken 20 minutes before meals for maximum effect. It is licensed for use in children above the age of three so levels passing into breastmilk are likely to be safe.
- Peppermint Oil Enteric coated capsules are used to relieve spasms associated with IBS but should be swallowed whole, half to one hour before food to avoid irritation of the oesophagus. There is some evidence to support the value of this product in therapy (Pittler 1998, Grigoleit 2005). Peppermint oil is believed to undergo rapid first pass metabolism so levels in breastmilk will be low. There have been anecdotal reports in internet discussions by lactation specialists in the US that it can reduce milk supply but there are currently no studies to prove or disprove these.
- **Laxatives** can be taken according to preference. It is suggested by the BNF that lactulose is avoided as it can cause bloating. Bulk and osmotic laxatives are preferable to stimulant drugs (see fact sheet on constipation and breastfeeding).
- **Loperamide** can be taken according to need to control diarrhoea as low levels pass into breastmilk.

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IVF/Fertility drugs and Breastfeeding

An increasing number of mothers are seeking to use IVF/Fertility drugs whilst still breastfeeding. This is a very complex area lacking research and based on professional judgements and pharmacokinetic data.

A face book group called "Breastfeeding Mums undergoing Fertility Treatment/IVF" (www.facebook.com/groups/bfduringivf/)

This group offers peer support from other mothers who have undertaken treatments whilst breastfeeding. Members are very knowledgeable. Whilst Wendy Jones BfN Pharmacist has had input to the fact sheets within the group, the expertise lies with the mothers. We would therefore signpost mothers with questions on medications such as:

- Clomiphene (clomid ®)
- FSH
- Aspirin 75mg
- Progesterone
- Buserelin ®
- Menotropin

Before deciding to wean your baby in order to undertake fertility treatment/transfer of frozen embryos consider requesting to join the closed group.

Lactose intolerance and Breastfeeding

- Lactose is the sugar in all mammalian milks.
- The amount of lactose in breastmilk is independent of the mother's consumption of lactose and hardly varies.
- The quantity of lactase, the enzyme needed to breakdown the sugar, does vary

Lactose intolerance occurs when a person does not produce the enzyme lactase, or does not produce enough of it, and is therefore unable to digest lactose. If it is not digested and broken down, lactose cannot be absorbed. The undigested lactose passes rapidly through the gut until it is broken down by bacteria, producing acids and gas. The production of lactase decreases in most humans from the age of two years although symptoms of intolerance are rare before the age of six. Lactose intolerance in adults is very common. Lactose intolerance is not the same as intolerance to cows' milk protein (Anderson).

Primary lactose intolerance

Primary lactose intolerance is a rare, inherited metabolic disorder. It is incompatible with life without medical intervention and a lactose free diet. A truly lactose-intolerant baby would fail to thrive from birth (i.e. not even start to gain weight) and show obvious symptoms of malabsorption and dehydration (Kellymom). Savilahti et al identified only 16 cases of congenital lactase deficiency over 17 years despite the fact that the genes are very common in Finland. In each case the mother reported watery diarrhoea usually after the first breastfeed but up to 10 days after birth. Poor absorption of lactose was confirmed between 3 and 90 days after delivery at which time all infants were dehydrated and 15 of the 16 weighed less than at birth. On a lactose free diet the children all caught up with their growth. Some premature babies are temporarily lactose intolerant due to their immaturity.

Secondary lactose intolerance

Secondary lactose intolerance can appear at any age due to damage to the brush borders of gut villae (where lactase is produced) by infection, allergy or inflammation. This reduces lactase activity. It is a temporary condition and removal of the cause permits the gut to heal. It may also become apparent in a breastfed baby following maternal use of antibiotics but resolves without treatment even with continued breastfeeding (Anderson).

Lactose free formula

Healthcare professionals should only recommend the use of lactose-free artificial baby milk if the baby is artificially-fed and is very malnourished and/or losing weight. Breastmilk remains the optimal milk and will assist with gut healing in secondary lactose intolerance (Shulman). Average recovery time for the gut of a baby with severe gastroenteritis is 4 weeks, but may be up to 8 weeks for a baby under 3 months. For older babies, over about 18 months, recovery may be as rapid as 1 week. Medical advice should be sought for any baby with long-term symptoms and/or who is failing to thrive.

Symptoms blamed for lactose intolerance

Lactose intolerance is often blamed as being a contributory factor for colic, resulting in cessation of breastfeeding and substitution of lactose free formula. Infants with gastrointestinal symptoms on exposure to cows' milk are more likely to have cows' milk allergy than lactose intolerance (Jones)

Green and frothy bowel motions may be a sign that the baby is receiving too much lactose, which has a rapid gut transit time. This may be due to an excess of the early less fat-rich milk or switching the baby between breasts before emptying one breast first. Babies may be very unsettled and windy. Mothers may have an overactive letdown reflex.

Assessment by an experienced breastfeeding worker may be beneficial to ensure optimal milk removal by the baby is taking place before considering lactose free formulae. Imbalance of milk transfer (caused by less than perfect attachment) can produce similar symptoms i.e. loose bowel motions, which may be green and frothy. This is due to the rapid transit time of large volumes of lower fat milk and consequently an excessive consumption of lactose (Woolridge 1988). Breast compression when the baby is not actively sucking may improve milk transfer.

Babies can exhibit excess wind and gastric discomfort, which may be diagnosed as lactose intolerance, but which in fact is transitory lactase deficiency i.e. too much lactose for the available lactase.

Lactase drops

Addition of lactase enzymes (Colief®) to breastmilk has been suggested as a treatment for colic. Kanabar et al (2001) conducted a study of 53 babies Formula or expressed "fore-milk" had lactase or placebo added and incubated for a period before being given to the baby. Formula was refrigerated for four hours, and then re-warmed. "Fore-milk" was incubated during the feed and given at the end of the feed. Total crying time over the 10-day treatment period was reduced in all 46 and in the 32 compliant families reached statistical significance. Lack of compliance (undefined), was possibly due to a high proportion of non-native English speakers.

Lactose is a specific nutrient for infancy, supplying about 40% of the baby's energy needs, facilitating calcium, magnesium, zinc and iron absorption, promoting a normal healthy gut by promoting the growth of bifidobacterium, and providing the galactose which is incorporated directly as galactolipids into the tissues of the central nervous system (Akre 1990). Soya formula is not recommended for children under six months

Soya formula

Soya milk is not recommended as substitute milk for babies under six months due to phyto-oestrogens and high sugar content. Babies who are cow's milk protein allergic are likely to be allergic to soya protein as well (Chief Medical Officer, COT)

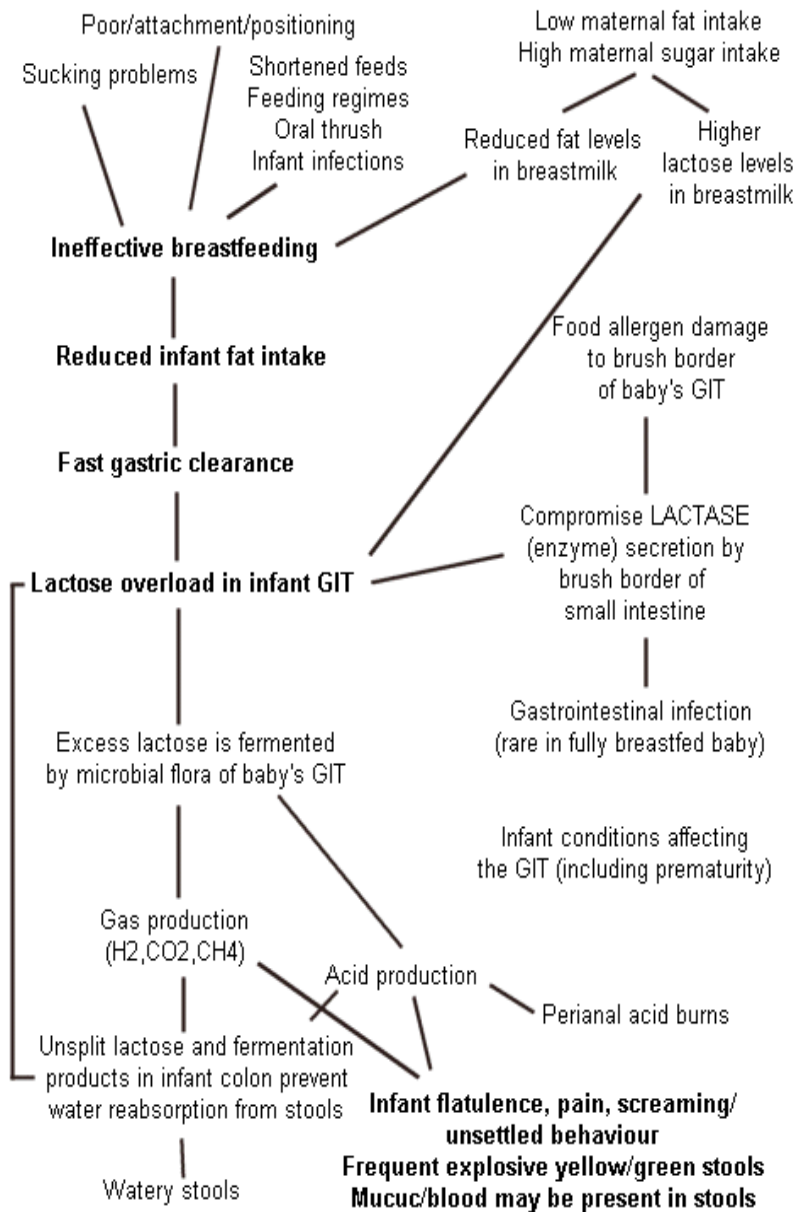
Lactose intolerance in adults

Lactose intolerance is very common in adults. The production of lactase decreases from approximately 2 years of age although symptoms are rare before 6 years of age.

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Local anaesthetics and Breastfeeding

Breastfeeding can continue as normal following a local anaesthetic.

Local anaesthetics work to produce a reversible loss of sensation by preventing the conduction of nerve impulses near to the site of injection or application. The response is restricted to this very local area.

Lidocaine, the most common agent, can be administered intravenously, orally, and topically to produce a local anaesthetic effect. The oral bioavailability of lidocaine is very poor, only 35% so any passing into breastmilk would not be absorbed from the infant's gut. Only small quantities are used for dental anaesthesia or for other minor surgical procedures e.g. removal of moles, sutures, removal of ingrowing toenails etc.

Local anaesthetics vary in potency, speed of onset and duration of action e.g. oxybuprocaine, mepivacaine, procaine, benzocaine. All can be used without interrupting breastfeeding.

The topical application of lidocaine preparations to the nipple to relieve is not recommended and could be harmful.

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Measles vaccination and Breastfeeding

In light of the ongoing problem with measles outbreaks some mothers who did not have their vaccinations as children may now be looking at protecting themselves and hence their babies who are too young to be vaccinated.

Breast-feeding is not a contraindication to MMR immunisation.

MMR vaccine can be given to breast-feeding mothers without any risk to their baby. Very occasionally, rubella vaccine virus has been found in breast milk, but this has not caused any symptoms in the baby (Buimovici-Klein et al., 1997; Landes et al., 1980; Losonsky et al., 1982). The vaccine does not work when taken orally. There is no evidence of mumps and measles vaccine viruses being found in breast milk.

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Miconazole Gel and the Breastfed baby with oral Thrush (Candida)

In 2008 Janssen-Cilag the manufacturers of Daktarin oral gel ® altered the licensed application of the product with respect to the age from which it is recommended. They recommend that it is not licensed for use in babies under 4 months of age and only with care between 4 and 6 months (EMC).

Despite conversations with the manufacturers and breastfeeding experts in USA, Canada and Australia it proved difficult to discover the reason for the change. It appears to originate from the concerns regarding the administration of the gel and the infant choking on the viscosity of the gel, rather than the medication itself (The Royal Women's Hospital).

This change appears to originate from a published report (De Vries 1996) documenting a 17 day old baby (born at 36 weeks gestation) who choked when exposed to miconazole oral gel applied to her mother's nipples before and after feeds on the advice of a pharmacist. The baby suddenly stopped feeding and breathing, became cyanotic and lost consciousness. The mother scooped out the visible miconazole gel and the baby recovered within a few moments. The doctor who was called could find no abnormalities and the baby recovered without further problem. The report mentions nine other cases of babies who suffered some form of difficulty with breathing, one of who was admitted to hospital, but all recovered spontaneously.

The alternative licensed anti-fungal agents available to treat oral candida (thrush) in an infant below 4 months of age are nystatin oral suspension and oral fluconazole suspension for the baby. The current research evidence for nystatin is poor according to Hoppe (1996, 1997).

If practitioners choose to continue to recommend miconazole oral gel they should ensure that the mother/carer is aware that the gel should be applied gently, in small amounts at a time until all the surfaces of the mouth are covered. It is important that a spoon is not used to administer the gel and that the back of the throat is not touched either by the adult's finger or by the gel (Ainsworth 2009).

Healthcare providers must ensure that when recommending this product that the parent/carer is aware of how to apply the gel safely i.e. using a clean finger, apply small amounts of gel at a time, four times a day after feeds.

Practitioners who recommend miconazole oral gel that responsibility in a baby under 4 months lies with the person who prescribes or recommends its use.

The licensed application does not necessarily imply a risk if used appropriately but each prescription should be considered on an individual basis. Under no circumstances should miconazole oral gel be applied to the mother's nipples as a means of treating the baby or the mother.

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Migraines and Breastfeeding

Migraines are different from normal headaches and can be totally debilitating. Pain is often accompanied by nausea and vomiting as well as sensitivity to light and sound. Some people also experience auras and changes in vision. They are said to affect up to 20% of women. Triggers vary for most people but migraines can be associated with missing meals and not drinking enough watery fluids. The pain is often described as throbbing. For further information www.migrainetrust.org/

Treatment of migraine

A simple analgesic such as paracetamol (preferably in a soluble or dispersible form) and/or a non-steroidal anti-inflammatory drug such as ibuprofen, diclofenac or naproxen is often effective. Aspirin should be avoided because of the associated risk with Reye's syndrome.

Peristalsis and therefore gut absorption is often reduced during migraine attacks so the medication may not be sufficiently well absorbed to be effective; dispersible or effervescent preparations are therefore preferred. It may be useful to take an anti-nauseant such as metoclopramide or domperidone alongside the simple painkiller. Compound paracetamol and metoclopramide is available as Paramax™ which may be prescribed.

Codeine should be taken with caution during breastfeeding and avoided if it causes drowsiness in the baby (more frequent or longer sleeping periods).

If treatment with an analgesic is inadequate, an attack may be treated with a specific anti-migraine compound such as a 5HT₁-receptor agonist ('triptan'). The manufacturers recommend that breastfeeding should be interrupted for 12 hours following use of these drugs. Hale however states "*Sumatriptan is the best-studied drug in its class and is suitable for use in breastfeeding women. One trial (Wojnar-Horton 1996) measured drug concentrations in the plasma and milk of 5 women given a 6 mg subcutaneous injection. Milk levels were 4.9 times higher than plasma levels and peaked at 87.2 µg/L at 2.6 hours post-dose. The mean half-life of elimination from the milk was 2.2 hours. Total recovery of the drug via milk was calculated to be about 14.4 µg, or 0.24% of the 6 mg dose. This equates to a relative infant dose of 3.5%. Given that triptans are not given continuously and that the drug has such poor oral bioavailability (14%), the amount of sumatriptan that reaches the infants circulation is expected to be exceedingly low (less than 1%).*"

There has been no research on the passage of any of the other triptans into breastmilk.

Topical cooling pads are also available for symptom relief.

Over the counter remedies include:

- Migralve™- pink tablets contains paracetamol, codeine and buclizine, yellow tablets contains paracetamol and codeine
- Syndol™ which contains paracetamol, codeine and caffeine
- Solpadeine headache™ which contain paracetamol and caffeine
- Solpadeine migraine™ which contain ibuprofen and codeine
- Nurofen migraine™ which contains ibuprofen
- Sudafed congestion & headache relief max strength™ which contains paracetamol, caffeine and phenylephrine
- Nurofen tension headache™ contains ibuprofen
- Boots Cooling Headache and Migraine Pads
- Kool 'n' Soothe Migraine Sheets
- 4head Quickstrip

Standard analgesic brands vary in ingredients.

Medicine over use headaches

Excessive use of acute treatments for migraine (opioid and non-opioid analgesics, 5HT1 receptor agonists,) is associated with medication-overuse headache (analgesic-induced headache which may be daily); therefore, increasingly frequent consumption of these medicines even at recommended doses needs careful management. The treatment is to stop all medications even though for a week or so headaches and migraines may be more frequent and worse but they will the return to a less frequent condition. Ten days a month or more of triptan or opiate use is considered to be overuse, whereas fifteen days or more a month of paracetamol (alone) or NSAID use is considered as overuse. Frequent use of codeine can lead to addiction.

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MRI Scans and Breastfeeding

MRI stands for magnetic resonance imaging. MRI scans use strong magnetic fields to produce detailed images of the organs and other parts of the body. It is a painless but noisy procedure that lasts between 15 and 90 minutes, according to the number of images needed. MRI scans are usually outpatient procedures carried out by radiologists.

Sometimes it is necessary to inject a contrast medium containing gadolinium to make the images more clearly visible. It is not radioactive and is given by intra venous injection into the arm. The gadolinium will be excreted (removed) from the body through the kidneys within 24 hours. For this reason it is often suggested that mothers should pump and dump their breastmilk during this time.

There is no need to discontinue breastfeeding after the contrast medium has been given or to pump to clear milk of the contrast medium (Georgen 2009). The amount that will pass to the baby is very small and does not represent a risk. Oral absorption is minimal, with only 0.8% of gadopentetate being absorbed. (Lactmed, Hale).

The concerns of radiologists to avoid exposing any baby to any product is understandable but dismisses the needs of the mother and baby to continue breastfeeding. Expressing for 24 hours after the procedure is not without difficulty. The use of artificial formula is not without risks and some babies refuse to feed from a bottle whether given expressed breastmilk or formula.

A small number of patients (1-5%) who are given gadolinium as part of the MRI scan, may experience headache, nausea or dizziness but these effects generally pass within a few minutes of the injection. There is no evidence that the breastfed baby experiences any such effects as a result of exposure through breastmilk.

Webb et al carried out an extensive literature review on the use of contrast media in pregnancy and lactation. They drew up guidelines which were presented and discussed at a European Symposium. They concluded that "only tiny amounts of iodinated or gadolinium-based contrast medium given to a lactating mother reach the milk, and only a minute proportion entering the baby's gut is absorbed. The very small potential risk associated with absorption of contrast medium may be considered insufficient to warrant stopping breastfeeding for 24 hours following either iodinated or gadolinium contrast agents". This is supported by Chen and the ACR committee.

Ingredients and Brands; gadoterate (Dotarem®); gadodiamide(Omniscan®); gadobenate (MultiHance®), gadopentetate (Magnevist®, Magnegita®, Gado-MRT ratiopharm®), gadoteridol (ProHance®), gadoversetamide (OptiMARK®), gadoxetate (Primovist®), gadobutrol (Gadovist®)

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Norovirus (winter vomiting bug) and Breastfeeding

The first sign of norovirus is usually a sudden feeling of nausea followed by forceful vomiting and profuse watery diarrhoea. You may also have a raised temperature (over 38C/100.4F), headache and feel generally achy. Most people make a full recovery within a couple of days but it is very unpleasant whilst it lasts.

Treatment

- Drink plenty of water to avoid dehydration - you may only be able to manage a sip at a time whilst the vomiting phase lasts.
- Take paracetamol to reduce your temperature and to relieve any aches and pains.
- Stay at home whilst you have symptoms and for 3 days after because norovirus is contagious.
- Telephone your GP to seek advice if your symptoms last longer than a few days or if you already have a serious illness.
- Wash your hands frequently to prevent the spread of the illness as much as possible. If you feel able you should continue to breastfeed your baby in order to pass on antibodies and protect the baby from developing symptoms (less common in exclusively breastfed babies). You may need another adult to care for the baby between feeds. Even if you have not eaten for several days, you will still make milk for your baby, your breasts may feel softer so you may notice your baby asking to feed more often. Your milk supply will increase again as soon as you start to feel better.

Medication

Some people are prescribed (or buy) prochlorperazine (Buccastem ®, Stemetil ®) tablets to relieve the nausea and vomiting, loperamide (Imodium®) to reduce the symptoms of diarrhoea and rehydrating sachets (Dioralyte ®) to prevent dehydration. These drugs are suitable to take and carry on breastfeeding as normal.

Preventing the spread of the virus

- Wash your hands frequently and thoroughly with soap and water, particularly after using the toilet and before preparing food. Liquid soap is less likely to spread the virus than a bar of soap. Alcohol hand gels do not seem to be effective protection against norovirus.
- Do not share towels and flannels.
- Disinfect any surfaces or objects that could be contaminated with the virus. It is best to use a bleach-based household cleaner.
- Wash any clothing or bedding that could have become contaminated. Wash the items separately and on a hot wash to ensure that the virus is killed.

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- Further Information; Information sheet Diarrhoea and Breastfeeding on the website www.breastfeedingnetwork.org.uk

Obsessive Compulsive Disorder (OCD) and Breastfeeding

Sadly it is not uncommon for people to joke that they have OCD when they are being particular about some activity and feel a bit quirky. OCD is an anxiety related condition where there are recurrent unwelcome, intrusive thoughts and ideas. These thoughts lead to excessive behaviours often around cleanliness or recurrent checking, possibly a predetermined number of times. Those who have symptoms have insight and know that the thoughts and behaviours are irrational but are unable to stop them. In fact attempts to stop the thoughts and behaviours may lead to increased anxiety if attempted without professional support.

For most people OCD follows on from anxiety and is often associated with depression. It has a prevalence of 0.5% of the general population but is often more common in the post-natal period with the obsessive thoughts focussing on risk to the baby. It can interfere with family relationships, social life and personal care.

Cognitive Behavioural Treatment (CBT) is very effective and should be sought as soon as is possible. As far as medication is concerned first-line treatment is by the use of an SSRI antidepressant (sertraline, citalopram, paroxetine or fluoxetine). If at least one of these drugs has been tried but not helped clomipramine is an alternative.

Information is available from LACTMED in PDF format (the source of information recommended by NICE PH11 Guideline) accessed online May 2016 (<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACTMED>). The recommended PDFs are sertraline.pdf, citalopram.pdf, Paroxetine.pdf, Fluoxetine.pdf and Clomipramine.pdf. Full details can be sent to healthcare professionals or families.

Sources of support

OCD-UK : www.ocduk.org/

MIND : www.mind.org.uk

Anxiety UK: www.anxietyuk.org.uk

Mental Health UK : www.mentalhealth.org.uk

For further information on anxiety and breastfeeding www.breastfeedingnetwork.org.uk/wp-content/dibm/anxiety%20and%20breastfeeding.pdf

Personal story

Below is the experience of a mother, shared with her permission, so that others may recognise symptoms and not be affected for as long as she was. We thank her very sincerely for this.

"I had pre and postnatal OCD with my first child. I think it was brought on by the overwhelming feeling of responsibility I felt to protect my little one. I don't think I really knew how to deal with those feelings and therefore my reaction was fairly extreme.

I first became anxious when I was pregnant. Anything from what I ate to general substances in the environment that I was exposed to (and everything in between) would cause me anxiety. At the time I put this down to just normal pregnancy hormones but now I know it was the start of Obsessive Compulsive Disorder.

This got worse when baby was born. To keep the anxiety in check, I developed rules and rituals that I had to carry out, I won't go into specifics but they generally centred around cleaning. If something that could go in the baby's mouth had touched something that I deemed to be unclean I would probably end up throwing it away. I had to know everything that was near the baby had been washed or wiped, (normal maybe but I even got nervous about things which were clean). I washed my hands a minimum of 50 times a day, sometimes a lot more. I breastfed and this was my saviour as I didn't trust myself to sterilise bottles properly but I even had to have showers throughout the day because I didn't trust that I was clean enough to feed the baby.

If someone gave the baby something I thought was 'unclean' my anxiety would rocket.

Obviously when you have a baby you don't always (or ever, really) have time to thoroughly clean every day and so finding the time to keep everything clean and carry out all these rituals was very tricky. When I couldn't keep on top of cleaning, or carry out the rituals, my anxiety hit a new level. I started to feel that places in the house were almost contaminated and couldn't touch them even to clean them as I didn't want to get myself dirty and consequently get the baby dirty, so there were places in the house I was actually too anxious to clean, My anxiety was made worse by the fact that it was difficult to get out of the house. My hands were red raw and sometimes bled from all the washing. Other people being round or doing things for me was also a problem as I didn't know what they had touched in the house that could have made them dirty. My house wasn't dirty. It was messy, as I didn't have the time or energy to tidy it, but it certainly wasn't contaminated, or a danger to the baby. It was all in my mind. In my mind everything was covered in dirt or germs. My anxiety had escalated to a point where there were some days that I literally had no idea what to do or how to deal with it. It all seems completely irrational now I am writing it down, but at the time it was very real.

It affected my relationships. I stopped wanting to go to peoples' houses, I didn't want people round mine. My marriage suffered. My husband couldn't understand my OCD (which I thoroughly understand as it seems completely illogical). People kept telling me I was irrational but that didn't help at all. I felt very isolated, I knew I needed to talk to someone but I was embarrassed and felt like people would think I had gone mad. It felt like other people thought I could just switch it off, but I couldn't.

I felt pressure to be a perfect mum, I was worried that I would pass my anxiety on to my baby, I was worried that people would think I was unhappy since becoming a mum, which couldn't be further from the truth, I was so happy to be a mummy and I love my children more than anything. I compared myself to other mums who seemed to have it all 'together' and knew what they were doing and I just didn't feel confident or trust myself enough to do a good job. I loved this little one so much I was so scared I would mess up.

When baby was 16 months I finally accepted I needed help. I went to the GP. I told him I thought I had OCD and he referred me to the mental health clinic. I cried all the way home, I felt like a failure. It started to feel real, like I really had a mental health issue. I was assessed and referred for face to face counselling sessions with iTalk. It took 6 months to get an appointment. It was hard to wait as by this time I really needed some strategies in place to manage the anxiety. I didn't want to take drugs as I was worried about taking anything while I was breastfeeding and I thought this would make me more anxious, even though there probably is medication that is safe to take, no one could have convinced me of that at the time.

I had 20 counselling sessions in total, over 5 months, and during this time I fell pregnant with my second child. I was worried that all the anxiety would come back due to the pregnancy but the counselling had done the trick. I have been so much more relaxed with this baby. There is no fog. It feels easier. I am now pretty sure that I had Post Natal Depression with my first, as well as the anxiety. Now, although I still have anxious or down days, they are very few and far between, and I know how to deal with them and I know where to go if I need help. I don't feel the need to wash my hands as much any more and I don't get as anxious about cleaning. I am happier and generally more relaxed. I don't know what my experience would have been if I hadn't have had counselling."

Prednisolone and Breastfeeding

Prednisolone can be taken by a breastfeeding mother in doses up to 40mg a day to treat asthma, rheumatoid arthritis, inflammatory bowel disease or for an allergic reaction.

Prednisolone is a corticosteroid used to treat a variety of conditions including asthma, inflammatory bowel disease, allergic reaction and rheumatoid disease.

The action of this drug is to dampen the body's response to inflammation. It can be life-saving. Sometimes it is used as a short course of 40mg (eight tablets of 5mg taken once daily) but may also be used long term at gradually reducing doses in chronic conditions.

Prednisolone is extensively bound to plasma proteins and passes into breastmilk in small quantities. Maternal doses of prednisolone up to 40 mg produce low levels in milk and would not be expected to cause any adverse effects in breastfed infants (Greenberger et al. 1993; McKenzie et al. 1975; Ost et al. 1985). High-dose steroids (more than 40 mg) are rarely necessary long term and so can be used in breastfeeding.

The BNF recommends waiting 4 hours after administration if possible to minimise exposure – this may not be practical advice for most breastfeeding mothers.

The maximum level in breastmilk occurs one hour after dosage. Even at a maternal dose of 80 mg the maximum level of drug in breastmilk was recorded by Ost was 317 microgramme per litre.

Prednisolone is licensed at a dose of 2 mg per kilogramme to a maximum of 60 mg in children over the age of 2 years. With prolonged high doses over 40 mg monitoring of the infant for growth may be advisable but no reports of problems have been reported in the literature and this may be only a theoretical problem (Committee on Safety of Medicines, Medicines Control Agency 1998). This recommendation refers to direct levels administered to the child and not to the level being taken by a breastfeeding mother.

The benefit of treatment with corticosteroids during pregnancy and breastfeeding outweighs the risk to the baby. The BNF states that prednisolone appears in small amounts in breastmilk but maternal doses of up to 40 mg daily are unlikely to cause systemic effects in the infant; infants should be monitored for adrenal suppression if the mothers are taking a higher dose.

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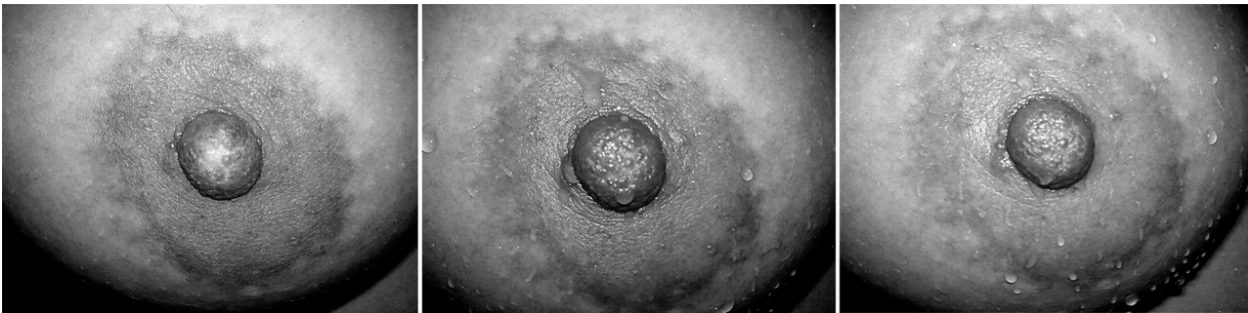
Raynaud's Phenomenon in Breastfeeding Mothers

Reynaud's phenomenon affects up to 10% of otherwise healthy women aged 21-50 years of age. It is 9 times more common in women than men. It was first described by Maurice Raynor 1862 who referred to "local asphyxia of the extremities" and "episodic digital ischaemia provoked by cold and emotion. Originally it was described as affecting mainly fingers and toes but it can affect ear lobes, nose and lips as well as parts of the body.



Fig. 1 Raynaud's Phenomenon in the fingers

The first published study of the impact of Reynaud's phenomenon on breastfeeding was published by Coates (1992)



White nipple

Pallor (vasoconstriction)

Purple nipple

Cyanosis (deoxygenation of blood)

Red nipple

Rubor (vasodilatation)

Fig 2 Tri colour changes in the nipple affected by Reynaud's disease (reproduced from Holmen 2009)

The mother took the photographs above on a camera phone. The mother was 25 years old and described pain in both breasts lasting 5-15 minutes after feeds. Symptoms began in the second week after her child's birth. She had no medical history of poor circulation but suffered migraines. She did not smoke and had never undergone breast surgery. Nipple pain began in pregnancy but resolved immediately after delivery at 38 weeks gestation. The baby weighed 2.8kg. Breastfeeding technique was checked at 2 weeks post partum when the unbearable pain began. Prescription of Nifedipine produced resolution of the pain totally within a week but it re-occurred when the drug stopped. The mother took nifedipine 30milligrammes daily for 12 months and breastfed for a total of 18 months

Lawlor-Smith and Lawlor-Smith (1997) studied 5 patients with severe, debilitating nipple pain. Three had had symptoms during other lactations: one gave up breastfeeding at 6 weeks, another breastfed for 14 months, and the third breastfed for 7 months despite the pain. In all women the cold precipitated pain. All five exhibited blanching during, after, and between feeds. None of them smoked and 2 had history of Reynaud's, 2 others had parents with Reynaud's.

There are other case reports where women have been diagnosed with thrush and treated with oral or topical antifungal medication (Barrett). Among the 22 patients with Raynaud phenomenon of the nipple studied, 20 (91%) had previously been treated for Candida with oral or topical antifungals

without effect. Of the 12 patients who tolerated a trial of nifedipine, 10 (83%) reported decreased or resolved nipple pain. All patients experienced marked improvement of symptoms with appropriate therapy involving treatment of Raynaud phenomenon. They reported that Nifedipine appeared to be an effective medication for the treatment of Raynaud phenomenon of the nipple and associated improvement of nipple pain.

One study suggested that a mother's stress increased the severity of symptoms.

Diagnostic features of Reynaud's phenomenon affecting breastfeeding

- Pain which worsens in the cold e.g. passing fridges in the supermarket or even exposure of the nipple to feed
- Bi or tri-phasic colour changes immediately after feeds
- History of circulation problems or close family history of circulation problems
- History of migraines
- Early delivery of baby or small baby - due to vasoconstriction of placental blood vessels
- Optimisation of attachment should be undertaken before considering medical treatment.

Self-help measures

- stop smoking Even 2 cigarettes a day are enough to increase constriction of blood vessels by 100% and reduce blood flow by 40%.
- limit caffeine intake (both nicotine and caffeine constrict blood vessels). Caffeine is not just in tea and coffee but also in soft and energy drinks as well as some painkillers
- avoid getting cold, and try moderate aerobic exercise (Cardelli 1989).
- rub the nipples gently with warm oil immediately after feeds or cover the breast immediately with a warm heat- retaining compress eg wheat bag.
- avoid decongestants (in cold remedies), the contraceptive pill and fluconazole which can make symptoms worse

Supplements

- High doses of vitamin B6 (Newman 2012), magnesium (Smith 1960, Turlapaty Leppert1994), calcium (DiGiacomo 1989), fatty acids (Belch 1985) and fish oil supplementation (DiGiacomo 1989) have also been suggested but take a minimum of 6 weeks to be effective.
- Ginger 2000mg-4000mg daily. Capsules usually contain 500mg. It may also be beneficial to add ginger to your diet, to drink ginger tea, or to put a spoonful of ground ginger in your bathing water (Royal Free hospital
http://www.royalfree.nhs.uk/pip_admin/docs/Raynaudsnatural_186.pdf)

Medication

Symptoms can be successfully managed by the use of nifedipine 30milligrammes daily (10milligrammes capsules three times a day or long acting tablet 30milligrammes daily) for two weeks. Some women need ongoing medication but many find symptoms resolve by this stage. However the drug produces flushing particularly of the face and headaches which some women find intolerable.

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Reflux and Breastfeeding

Gastro Oesophageal Reflux (GOR) and GORD in infants

Some gastro-oesophageal reflux (GOR) occurs in most babies. Up to 40-50% of babies younger than 3 months regurgitate their feeds at least once a day (Craig 2004). Incidence peaks around 4 months. GOR is a normal physiological process that usually happens after eating in healthy infants, children, young people and adults. Most of us are familiar with it in the later stages of pregnancy. In reflux there is no retching as associated with a gastric infection, milk simply comes up and out of the baby's mouth.

Symptoms

The predominant symptom is frequent regurgitation of feeds (possetting). Diagnosis is usually made by description of symptoms. Other signs include:

- Irritability or excessive crying
- Recurrent hiccups
- Frequent night waking
- Frequent coughing.

Studies show that frequency of regurgitation declines over the first 6 months and dramatically after 12 months (NICE 2015). This interestingly corresponds with the time when babies can sit and stand.

Regurgitation of at least 1 episode a day with age (Nelson 1997)

age	percentage
0-3m	50
4m	67
6m	61
7m	21
12m	5

NICE 2015 recommends to healthcare professionals that GOR is a normal physiological process in infancy. Parents should be reassured that it does not need any investigation or treatment unless the child presents with symptoms such as unexplained feeding difficulties, distressed behaviour, or faltering growth. Overfeeding is a common cause in artificially-fed infants who may benefit from smaller, more frequent bottles.

Silent Reflux

Silent reflux is described as reflux where the regurgitation is swallowed rather than being spat out. Babies may cry and show signs of distress but not posset. Symptoms may otherwise be identical to GOR.

Managing reflux symptoms

- Most cases of reflux clear up without intervention but simple changes can help reduce symptoms.
- Feed more frequently and respond at the baby's first cues that he/she is hungry - crying is a late sign of hunger and will increase the air swallowed making regurgitation of feeds more likely. Scheduling feeds with longer intervals and larger volumes may increase symptoms.
- Keep the baby upright after feeds over your shoulder ideally for at least 30 minutes with a muslin to catch milk if necessary.
- Using a sling to keep the baby upright may help but ensure there is no pressure on the stomach and do not bend yourself.
- Do not put the baby down in a car seat where they become somewhat slumped. Try not to jiggle or move the baby too much as the feed settles.

- Take time to burp the baby in a sitting position with his/her head supported with your hand - be prepared with a muslin cloth over your shoulder and a bib on the baby to protect clothing (and reduce washing!)
- Put the baby to sleep flat on his or her back. You can raise the whole of the top of the crib but do not use pillows etc. to raise the head of the baby.
- Ensure that breastfeeding has been optimised to ensure the baby has access to all the milk and that your breasts are well drained after a breastfeed (Woolridge 1988).

Caring for a baby with reflux is difficult, exhausting and confusing. It may be isolating as you may be concerned about the baby vomiting when outside the family home. Do you have enough changes of clothes for yourself and the baby? What will other people say? What if the regurgitated milk goes onto someone or something else?

Treatment for GOR

With GOR, medication is not essential. However you may wish to try remedies to relieve symptoms of excessive crying and possetting in the baby. Medication should not be commenced without support by an expert in breastfeeding to optimise attachment.

If frequent regurgitation associated with marked distress, continues despite a breastfeeding assessment and advice, NICE recommends that alginate therapy can be considered for a trial period of 1–2 weeks. If the alginate therapy (Gaviscon Infant sachets ®) is successful continue with it, but it should be stopped at intervals to see if the infant has recovered as we know that it may resolve with time as described above.

The sachets of alginate should be dissolved in water or expressed breastmilk as described below.

Side effects Alginates, such as Gaviscon®, can cause constipation in the baby as they thicken the gastric contents. This may cause further distress to the baby and anecdotally can lead to prescription of bulk forming laxatives in addition to the alginate. This is inappropriate and symptoms would be better managed with other drugs

Dose: infant body-weight under 4.5 kg, 1 'dose (sachet)' mixed with feeds (or water in breast-fed infants) when required (max. 6 times in 24 hours); body-weight over 4.5 kg, 2 'doses' mixed with feeds (or water in breast-fed infants) when required (max. 6 times in 24 hours);

Manufacturer Gaviscon® directions: Bottle fed infants; Mix each sachet into 115ml (4 fl oz) of feed in the bottle and shake well before feeding as normal. Breast fed infants and other infants up to 2 years mix each sachet with 5ml (1 teaspoon) of cooled boiled water until a smooth paste is formed, add another 10ml (2 teaspoons) of cooled boiled water and mix. For breast fed infants give Gaviscon Infant® part way through each feed or meal using a spoon or feeding bottle.

Gastro-oesophageal Reflux Disease (GORD)

Symptoms:

- The baby is not gaining weight
- The baby vomits frequently and forcefully
- The baby spits up green or yellow fluid
- The baby spits up a liquid which looks like coffee grounds
- The baby repeatedly refuses feeds
- The baby has blood in the bowel motions

It is reported by Salvatore (2002) that in up to half of the cases of GORD in infants younger than 1 year, there may be an association with Cow's Milk Protein Allergy. Heine (2006) noted that infants with these conditions often respond to hypoallergenic formula or a maternal elimination diet but that only a few randomized clinical trials have been conducted.

Treatment first line is with alginate but may be replaced with a 4 week trial of the H₂ antagonist ranitidine or Proton pump Inhibitor (PPI) Omeprazole. NICE 2015 recommends that metoclopramide, domperidone or erythromycin to treat GOR or GORD are not prescribed without seeking specialist advice and taking into account their potential to cause adverse events.

Ranitidine is licensed to treat Reflux oesophagitis. Studies have suggested that H₂ antagonists are effective in treating children with GORD. Ranitidine is well tolerated and has a low incidence of side effects. Common side effects include fatigue, dizziness and diarrhoea. (Cucchiara 1993). Ranitidine is the H₂ antagonist used most commonly to reduce the acidity of GORD. Cimetidine is rarely used, as concerns surround its effects on cytochrome P450, leading to multiple drug interactions.

Dose (BNFC May 2015):

Neonate 2 mg/kg 3 times daily but absorption unreliable; max. 3 mg/kg 3 times daily

Child 1–6 months 1 mg/kg 3 times daily; max. 3 mg/kg 3 times daily

Child 6 months–3 years 2–4 mg/kg twice daily

An oral solution is available and can be provided as a sugar free formulation. Anecdotally some babies refuse to take the solution with an alcohol content so it is worth asking the dispensing pharmacist to check the excipients.

The 2014 Cochrane review concluded that “Moderate evidence was found to support the use of PPIs, along with some evidence to support the use of H₂ antagonists in older children with GORD, based on improvement in symptom scores, pH indices and endoscopic/histological appearances. However, lack of independent placebo-controlled and head-to-head trials makes conclusions as to relative efficacy difficult to determine. Further RCTs are recommended”.

Omeprazole is licensed to treat GORD. It is usually dispensed as Losec MUPS® to be dissolved in water as directed.

Dose (BNFC May 2015):

Neonate 700 micrograms/kg once daily, increased if necessary after 7–14 days to 1.4 mg/kg; some neonates may require up to 2.8 mg/kg once daily

Child 1 month–2 years 700 micrograms/kg once daily, increased if necessary to 3 mg/kg (max. 20 mg) once daily

Child body-weight 10–20 kg 10 mg once daily increased if necessary to 20 mg once daily (in severe ulcerating reflux oesophagitis, max. 12 weeks at higher dose)

Child body-weight over 20 kg 20 mg once daily increased if necessary to 40 mg once daily (in severe ulcerating reflux oesophagitis, max. 12 weeks at higher dose)

Studies of omeprazole and lansoprazole in infants with functional GOR have demonstrated variable benefit, probably because of differences in inclusion criteria (Cochrane 2014)

Cost to NHS (NICE 2015)

	Cost per month (£)
Oral alginate formulations (cost given for Gaviscon Infant)	22.14
Ranitidine 75mg/5ml (liquid)	2.82
Omeprazole oral formulations (cost given for Omeprazole 10mg dispersible gastro-resistant tablets (LOSEC MUPS)	8.30

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Shingles and Breastfeeding

Aciclovir can be taken by a breastfeeding mother with shingles together with paracetamol and a non-steroidal drug e.g. ibuprofen

Shingles, also known as herpes zoster, is a painful skin rash caused by the reactivation of the chickenpox virus (varicella-zoster virus) in people who have previously had chickenpox. Early symptoms can include a headache, burning, tingling, numbness or itchiness of the skin in the affected area (normally the area is in a line often across the tummy, back or face), a feeling of being generally unwell accompanied by a temperature.

Many mothers with shingles will be prescribed a course of antiviral tablets lasting seven days, usually acyclovir 800mg.

Commonly prescribed antiviral medicines include aciclovir, famciclovir and valaciclovir. These medications can't kill the shingles virus, but can help stop the virus multiplying reducing the severity of the symptoms and lowering the risk of post-herpetic neuralgia which can last several months. Medicines are most effective when taken within 72 hours of symptoms so it is important to consult a healthcare professional quickly. You may also need to take painkilling medication such as paracetamol and ibuprofen (see factsheet on analgesics and breastfeeding).

If the rash is only on your body and can be covered by clothing, there's little risk of passing the infection on to others even before the lesions have dried.

- Aciclovir (Zovirax ®) can be given during lactation as it achieves less than 1% of the paediatric licensed dose. Oral bio-availability of aciclovir is limited. It is widely used to treat neonates and its safety is well established Lau 1987, Frenkel 1991, Meter 1988, Taddio 1994)
- Famciclovir (Famvir ®) has greater bio-availability than aciclovir but data is not available on its transfer into breastmilk. It has no particular benefits over aciclovir and is more expensive so unless there are compelling reasons why this drug should be used, aciclovir would be preferred during lactation. It is not used in children.
- Valacyclovir (Valtrex®) is a prodrug that is rapidly converted to acyclovir in the body.

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Silicone Breast Implants and Breastfeeding

Concerns have been raised by some mothers who have had Poly Implant Prosthese (PIP) implants in their breasts and are now breastfeeding or pregnant and planning to breastfeed.

Although there have been no studies that we are aware of regarding the passage of this particular type of gel, in general the recommendation on silicone breast implants is:

Concerns have been raised by some mothers who have had Poly Implant Prosthese (PIP) implants in their breasts and are now breastfeeding or pregnant and planning to breastfeed.

Although there have been no studies that we are aware of regarding the passage of this particular type of gel, in general the recommendation on silicone breast implants is that:

"Silicone transfer to breastmilk has been studied in one group of 15 lactating mothers with bilateral silicone breast implants.^[3] Silicon levels were measured in breastmilk, whole blood, cow's milk, and 26 brands of infant formula. Comparing implanted women to controls, mean silicon levels were not significantly different in breastmilk or in blood. Mean silicon level measured in store-bought cow's milk was 708.94 ng/mL and that for 26 brands of commercially available infant formula was 4402.5 ng/mL (ng/mL = parts per billion). The authors concluded that lactating women with silicone implants are similar to control women with respect to levels of silicon in their breastmilk and blood. From these studies, silicon levels are 10 times higher in cow's milk and even higher in infant formulas. It is not known for certain if ingestion of leaking silicone by a nursing infant is dangerous.

Although one article has been published showing oesophageal strictures, it has subsequently been recalled by the author.

Silicone by nature is extremely inert and is unlikely to be absorbed in the GI tract by a nursing infant although good studies are lacking. Silicone is a ubiquitous substance, found in all foods, liquids, etc."

Taken from "Hale T Medications in Mothers Milk Online version accessed August 2014"

For further information mothers should be advised to consult their GP and surgeon for individual discussion ^[4]

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4. www.nhs.uk/news/2012/01January/Pages/government-review-advises-on-french-pip-breast-implants.aspx

Smoking, Smoking Cessation and Breastfeeding

Smoking Whilst Breastfeeding

Smoking whilst breastfeeding is not advised. However the benefits of breastfeeding and smoking are still greater than formula feeding. Smoking only after feeding and away from the baby is recommended to limit the baby's exposure.

- Nicotine is found in breastmilk.
- The flavour of breastmilk collected 30-60 minutes after smoking was identified as tasting more like cigarettes than samples taken at any other time.
- The levels of cotinine (the chemical into which nicotine is changed in the body) in the urine of breastfed babies whose mothers smoked were ten times higher than those of formula fed babies of smoking mothers. It appears that this is due to passage through breastmilk and not through exposure to smoke in a room.
- Babies of mothers who smoke appear to be more likely to suffer from colic.
- Smoking appears to lower breastmilk production - more women who smoke believe that they have insufficient milk
- Mothers who smoke are likely to breastfeed for a shorter length of time
- Many women continue to smoke whilst breastfeeding perceiving that it is the only time that they have for themselves, to overcome tiredness or to reduce their appetite.
- Passive smoking is related to early onset of wheezing - breastfeeding may reduce the severity of bronchial asthma.
- Research shows exposure to smoke increases the risk of cot death in babies.
- There have been recent reports linking smoking during breastfeeding with risk of obesity and endocrine dysfunction in the baby in later life (Lisboa 2012, 2015)
- Mothers and fathers should stop smoking - or not restart after pregnancy
- The use of nicotine replacement therapy exposes the baby to less nicotine than smoking does
- There appears to be no current research on "e cigarettes". Although there is some vapour release the risk would probably be less than with smoking.

Smoking Cessation Whilst Breastfeeding

It is safer to use nicotine replacement therapy whilst breastfeeding than to smoke.

- NRT products are not licensed to be used by breastfeeding mothers. This means that the manufacturers have not included a statement on their use when they first made the product available. It does not mean they are not safe.
- Babies will be exposed to less nicotine through NRT than through smoking. Smoking produces blood levels of nicotine of 44ng/ml whilst NRT patches produce around 17 ng/ml
- NRT avoids exposure to the other chemical compounds in tobacco smoke.
- Mothers should not use NRT and continue to smoke
- Patches applied over a 24 hour period may produce vivid dreams in the mother; it might be advisable to remove the patch overnight so that the baby is exposed to less during night time feeds.
- NRT products do not cause breastmilk to smell of cigarettes.
- Nicotine gum produces large variations in nicotine levels whilst patches produce a sustained but lower level. If gum is used it should be chewed immediately after feeds to reduce the baby's exposure. NRT nasal sprays similarly produce rapid high levels and may best be used after feeds.

- Exposure of the baby to NRT products is safer than exposure to cigarettes and with appropriate support may help the mother (and ideally her partner) to quit smoking permanently.

NB - Research shows exposure to smoke increases the risk of cot death in babies.

Oral medication to help with smoking cessation Varenicline (Champix[®]) and Bupropion (Zyban[®]) should be avoided during breastfeeding.

Suggestions to Help You Stop Smoking

These suggestions are based on my experience of running a smoking cessation clinic as in independent prescribing pharmacist.

- Think about why you want to stop smoking - is it for you, for your baby or older children, because somebody says you OUGHT to? If the latter you are unlikely to succeed long term, you need to decide that it is what YOU want to do and have a clear reason to do so.
- Set a date when you plan to stop smoking and work towards that date.
- Decide on what NRT you wish to use - it is much easier than trying to go cold-turkey. Can you get support from your local community pharmacy, practice nurse or smoking cessation service? They may well prescribe for you so the NRT is free if your baby is under 12 months of age. They will also monitor your carbon monoxide level in your breath showing you how your lungs clear quickly
- Think about when you smoke - is it a routine e.g. after a meal, with a cup of coffee, when you are tired or hungry? Think about each cigarette you have over several days - what made you decide to light this cigarette? Do you really want it?
- Think about where you smoke - is it always in the same place e.g. a chair you sit in, outside the kitchen door so in sight or sound of your baby but not with him/her.
- Decide how you can change each time you smoke - can you distract yourself for 20 minutes? This is the time it usually takes a craving to subside. Could you wash the floor, sing a song to your baby, make everything ready for the next meal, paint your nails or something else that works for you? Can you change where you sit?
- On the day you decide to stop you may want to tell everyone so that you elicit their support or you may want to keep quiet so no-one tries to tempt you because they haven't made their own decision.
- Put away the cash you would have spent on the cigarettes and spend it after 6 weeks of being cigarette free on a treat for YOU - not the family, not the baby, this is YOUR celebration of overcoming the addictive habit called smoking.
- If you smoke to give yourself "5 minutes peace" think about how else you could spend that time.
- Have strong tasting sweets around to suck - traditionally these are mints but could be anything you like. Also have lots of healthy snacks so you don't resort to chocolate instead.
- Be proud of yourself - stopping smoking is not easy! Take every day as it comes and celebrate. If you have one cigarette it doesn't mean you failed, think why it happened and plan how to avoid that situation again. Do not give up giving up!

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Resources

- NHS Choices Stopping Smoking
- www.nhs.uk/Conditions/Smoking-%28quitting%29/Pages/Treatment.aspx
- Smoke Free NHS www.nhs.uk/smokefree, <https://quitnow.smokefree.nhs.uk/>
- ASH Scotland www.ashscotland.org.uk/media/3836/Breastfeeding.pdf
- Breastfeeding and Smoking. KellyMom <http://kellymom.com/bf/can-i-breastfeed/lifestyle/smoking/>

Sore throats and Breastfeeding

A sore throat is normally a symptom of a bacterial or viral infection and may be the first sign of a cold. The soreness can be accompanied by swollen tonsils (tonsillitis), enlarged and tender glands in the neck, difficulty in swallowing due to pain. It is common to have a temperature, headache, and general aches and pains.

Treating a sore throat

Sore throats are common and are best treated with simple remedies. Most sore throats pass without the need for GP intervention. Your local community pharmacist can help with simple, effective remedies.

Treatments which are compatible with breastfeeding

- Over-the-counter painkillers, such as paracetamol or ibuprofen taken regularly to relieve the temperature and general aches
- Anything which keeps your throat moist (has a demulcent effect) - sucking pastilles or lozenges, sipping honey and lemon, sucking raisins or other similar natural remedies or teas will help symptoms
- Anaesthetic throat sweets e.g. Strepsils®, Dequacaine® help to relieve pain
- Anaesthetic throat sprays e.g. Difflam®, Chloraseptic®, Pharmacy own brands anaesthetise the throat without numbing the tongue
- Throat rinses e.g. Oraldene®, Difflam®, TCP® can help
- Regular inhalation of steam, with menthol crystals if you prefer, will relieve dryness and nasal congestion. Avoid keeping the room in which you are sitting from being over heated with a dry atmosphere.
- Rest, drink lots of fluids, keep up your vitamin C intake
- Echinacea and Zinc supplements can be taken

Antibiotics are not usually prescribed for a sore throat, unless it is particularly severe or you are considered at risk of a more serious infection. Consult your GP if you have a persistent high temperature above 38C (100.4F), which does not go down after taking medication or if your symptoms do not improve at all within a week.

How long will a sore throat last? (NHS Choices)

A recent UK study looked at people who book a GP appointment for a sore throat (probably those with worse symptoms). The results found that in 50% of cases, moderately bad symptoms of a sore throat had settled seven days after the onset of the illness and in 80% of cases had gone after 10 days.

When to seek medical help (NHS Choices)

Make an appointment to see your GP if you have a persistent high temperature above 38C (100.4F), which does not go down after taking medication, your symptoms do not improve within a week, you have a specific risk e.g. have had spleen removed, take anti-thyroid drugs, are on drugs which impair your immune response or feel significantly unwell.

See also factsheet on cough and cold treatments

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- NHS Choices-Sore throat– accessed January 2015 www.nhs.uk/conditions/sore-throat/Pages/Introduction.aspx

Steroid injections and Breastfeeding Mothers

Corticosteroids may be injected locally to relieve inflammation and pain in joints. They are given to relieve pain and increase mobility in a joint e.g. tennis elbow, housemaid's knee.

Drug names include Depo-Medrone®, Depo-Medrone with Lidocaine®, Hydrocortistab®, and Kenalog®

There is no need to stop breastfeeding if you have one of these injections as the amount of steroid which will pass into your breastmilk will be very small and much less than the equivalent of 40milligrammes oral prednisolone which can safely be taken by a breastfeeding mother.

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Threadworms Treatment in Breastfeeding Mothers

Threadworms are small, white, thread-like worms between 2 and 13 mm long. Infection in children is common and toddlers may infect their mothers who may be breastfeeding. Threadworms live for about 6 weeks in the gut, and then die. The female worms lay tiny eggs around the anus and these cause intense itching. Transfer of the ova back into the mouth perpetuates the infection. Careful washing of hands and scrubbing beneath the nails, which should ideally be kept short, is essential. Tight fitting underwear for children prevents scratching in the sleep. Threadworm eggs can also survive for up to two weeks outside the body and so can be moved from sheets into the general household environment. Infection is not serious but is unacceptable to most families. If left untreated, but with strict hygiene measure to ensure no further eggs are swallowed, the worms will die out in 6 weeks.

For further information see www.patient.co.uk/showdoc/23068841/

Medication to treat threadworm infections is generally used in addition to hygiene measures.

Mebendazole (Vermox®, Ovex®, Pripsen tablets®).

Adults and children over the age of two take 100milligrammes (one tablet) with a second dose after 2 weeks if re-infection is suspected. It may be given to children under the age of 2 years but is not licensed for such use (BNFC). The BNF states that the amount excreted into breastmilk is too small to be harmful although the manufacturer advises avoidance under the limitations of licensing. For explanation see www.breastfeedingnetwork.org.uk/patient-information-leaflets.html

Mebendazole is poorly absorbed from the gastro intestinal tract. It undergoes extensive first pass metabolism and is highly protein bound, so only low levels are likely to reach breastmilk (Jones 2013, Martindale 2007). Side effects in the mother are generally gastro-intestinal with tummy cramps and diarrhoea reported (BNF). Preparations are not licensed during lactation but as it is virtually unabsorbed from the gut it is unlikely to cause adverse effects in the baby or to affect breastmilk supply.

Piperazine (Pripsen®)

Piperazine is reported to be excreted in breast milk (Leach 1990) but no reports on the amounts have located. According to the manufacturer, the mother should take her dose of the drug immediately following feeding her infant, and then express and discard her milk during the next 8 hours (BNF, Leach 1990). It is readily absorbed from the gastro intestinal tract. It is given directly to babies down to 3 months of age ⁽¹⁾ suggesting that the amount reaching a breastfed baby is safe (Jones 2013). However use of mebendazole is preferable based on available safety data (Jones 2013, LactMed).

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2. BNF
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5. Leach FN. Management of threadworm infestation during pregnancy. Arch Dis, Child 1990;65:399400.
6. LactMed website accessed August 2014

Thrush and Breastfeeding

Optimal treatment choice

- Swab mother's nipples and baby's mouth to confirm thrush
- Ensure breastfeeding and particularly latch are pain free

If swabs positive:

Topical treatment

- Miconazole oral gel applied gently a small amount of time to baby's mouth four times a day
- Miconazole cream applied sparingly to mother's nipples after every feed
- If symptoms persist
- Ongoing topical treatment plus

"I had been breastfeeding without problem for 5 months then suddenly developed terrible pains after every breastfeed. I hadn't changed anything and I was very confused. I noticed my baby's tongue was white. The doctor took swabs of my nipples and my daughter's mouth which confirmed we had thrush. It cleared up with treatment within a week"

"I was told I had thrush when my baby was 4 weeks old but I could feel her clamping onto my nipple to slow my really fast flow. I went to see someone else who helped me to sort out my baby's attachment at the breast and the pain went without any medicines."

"Who'd have thought such pain could stem from just an incorrect latch on. He fed for longer and it definitely didn't hurt as much afterwards. I'll keep on working to improve the attachment."

Information for mothers

Signs of thrush in you

Thrush (*Candida albicans*) infection can affect a mother's breast while she is breastfeeding but it is being over-diagnosed at the moment. Symptoms of thrush are a sudden start of breast and/or nipple pain in BOTH breasts after some weeks of pain free breastfeeding - pain is severe and can last for an hour after EVERY breastfeed. It should be confirmed by a swab of your nipples.

Thrush should not be diagnosed if;

- There is pain in only one breast/nipple
- You have never had pain free breastfeeding
- If your nipples are shaped oddly after breastfeeds
- If your nipple is white at the tip after breastfeeds
- If the pain is different at different times of the day
- If your baby has a tongue tie which you are waiting to have snipped.

Signs of thrush in your baby

- Creamy white patches in your baby's mouth, on the tongue and may be far back or in the cheeks. Patches do not rub off.
- Baby's tongue/lips may have a white gloss

It should be confirmed by a swab of the baby's mouth.

If you think you have thrush

Before treating either you or your baby you should ask the person supporting you with breastfeeding to watch a full breastfeed from the moment the baby goes to the breast to the moment he/she comes away from the breast at the end of the feed. They need to look at your nipples at the end of the feed to look for change in colour and shape

If your baby has a white tongue but you are not experiencing pain, be aware of the risk of thrush but do not treat either of you immediately. Some babies have white tongues in the first few weeks after birth or this may be associated with tongue tie where the milk is not thrown to the back of the mouth.

Diagnosis should be confirmed by nipple swabs cultured for fungal and bacterial infection

BREASTFEEDING SHOULD BE PAIN-FREE from the point of attachment (the moment the baby goes to the breast) onwards. (Pain from thrush begins after a feed). There should be no change in the shape or colour of the nipple after a feed. Even good attachment can often be improved and help to relieve symptoms of pain.

Other causes of nipple pain:

- attachment of the baby to the breast may need fine-tuning
- eczema including reactions to breast pads or creams
- tongue-tie in the baby
- Reynaud's syndrome (associated with history of poor circulation and pain made worse when cold)
- white spot which produces pin-point pain
- bacterial infection which appears as a yellowy, thick discharge
- vasospasm which is associated with less than perfect attachment of the baby at the breast and produces white nipples (particularly at the tip) after breastfeeds

Self-help measures

- Thrush can be passed between you and your baby - and also between you, your partner and other children
- Anecdotally some mothers find acidophilus capsules can help to restore bacteria which can keep thrush under control (available from health food stores or chemists)
- It is necessary to be very careful with hygiene in order to get rid of thrush completely - be sure to wash your hands well after each nappy change
- use a separate towel for each person in the family
- Anecdotally some mothers find reducing the level of sugar and yeast in their diet helps

IMPORTANT - To make sure that you get rid of thrush infection, both you and your baby need treatment. Usually once treatment begins the pain and other symptoms will begin to improve within 2 or 3 days. It may take longer for full recovery.

If there is no improvement at all after 7 days, consult your breastfeeding helper again as the cause of the pain may not be thrush.

Information for health professionals

- Presenting symptoms which suggest the presence of candida infection of the breast:
- previous pain free breastfeeding
- positive swabs for candida from maternal nipples and infant mouth
- bilateral pain
- pain which begins after a breastfeed has finished and continues for up to an hour afterwards
- absence of red area on the breast
- absence of pyrexia

If a mother reports sore nipples during breastfeeding the first action should ALWAYS be to re-examine and improve attachment. This needs to be carried out by a skilled practitioner.

It is unethical to treat a mother and baby with medication inappropriately or unnecessarily, particularly if such use is outside of product licence

The diagnosis of candidial infections on the breast is difficult. Swabs of the mother's nipples and the baby's mouth are useful to confirm the presence/absence of fungal or bacterial infection (commonly *Staph. aureus*).

Treatment of the surface of the nipple, the baby's mouth, and oral treatment for the mother (when necessary to treat deep breast pain), should be undertaken simultaneously to achieve relief from symptoms of confirmed candidial infection.

Treatment of the baby.

- There is evidence that the use of miconazole oral gel is preferable to nystatin suspension with greater efficacy within a shorter period (Hoppe).
- Fluconazole oral suspension may be used to treat oral symptoms in the baby (Brent) but use is recommended for infections which do not respond to topical therapy (BNF).

Treatment of the mother

- Miconazole 2% cream applied SPARINGLY to the nipple & areola area after each feed. There is some anecdotally reported evidence that using 1% clotrimazole cream as an alternative is associated with allergic reactions.
- Miconazole gel and nystatin suspension have been reportedly applied to treat nipple candidiasis - they are not pharmacologically designed to penetrate the skin of the nipple and application is unlikely to be effective.
- For nipples which are very red and inflamed a mild steroid cream can be used to facilitate healing (Weiner). Miconazole 2% plus hydrocortisone cream 1% may be useful (Daktacort®)
- *S. aureus* is significantly associated with nipple fissures and a topical antibiotic may be used concurrently with anti-fungal creams if swabs confirm both infections (Weiner).

If symptoms of pain do not improve or deep breast pain develops, oral treatment with fluconazole may be necessary in addition to topical treatment of mother and baby.

Treatment of thrush

Swabs

- A swab should be taken using a sterile charcoal media swab and sent to the microbiology lab in a black swan tube requesting a culture for bacterial and fungal growth. The cost is under £5 (personal communication)

Ongoing care with attachment to the breast is vital if mothers and babies are to be treated effectively. Thrush is very frequently diagnosed when poor attachment is the cause of pain, resulting in inappropriate exposure to unlicensed drugs and delay in achieving pain free breastfeeding. Thrush can co-exist with poor attachment and it seems **much** harder to clear thrush when the nipple is continuing to be damaged at each feed. Attention to improving attachment will help thrush to clear.

Oral treatment for the mother if the pain is severe or deep within the breast after topical treatment

Fluconazole is not licensed to be given to lactating women. Practitioners are required to take full liability for use. The amount that gets through in breastmilk is 0.6mg/kg/day. The amount which could be given to the baby within the license is 6mg/kg/day (Hale). Studies on the use in premature babies weighing under 1000g have demonstrated successful outcomes (Kaufman).

The dose of fluconazole is 150-400mg as a loading dose followed by 100-200mg daily for at least ten days (Hale, Amir). The World Health Organisation recognises fluconazole as compatible with breastfeeding (WHO) but see below.

FLUCONAZOLE

- The amount of fluconazole passing into breastmilk is less than that given to treat babies with Candida. **However in babies under 6 weeks the half-life is 88 hours.** Daily treatment of the mother could theoretically lead to accumulation in the baby. (Babies under 6 weeks are not treated with fluconazole daily for this reason).
- The experience of the BfN Drugs in Breastmilk Helpline is that many mothers with young babies are treated for thrush without having problems with attachment addressed first.
- This is unethical and potentially dangerous to the health of the baby and cannot be supported by BfN or the pharmacist responsible for compiling this information



A 2004 paper by Francis-Morrill on the Diagnostic Value of Signs and Symptoms of Mammary Candidiasis (J. Hum Lact. 2004;20:288-95) recommended use of a swab moistened in sterile saline, wiped over the area after cleaning the breast with sterile saline. This is not current UK practice (personal communication)

Currently the CASTLE study (Amir 2011) is investigating the micro-organisms involved in the development of mastitis and "breast thrush" among breastfeeding women. This study is the first longitudinal study of the role of both staphylococcal and candidial colonisation in breast infections and will help to resolve the current controversy about which is the primary organism in the condition known as breast thrush. This study will also document transmission dynamics of *S. aureus* and *Candida* species between mother and infant. In addition, CASTLE will investigate the impact of common maternal physical health symptoms and the effect of breastfeeding problems on maternal psychological well-being.

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Thyroid medication (under and over active) and Breastfeeding

Under-active thyroid

A mother with an under active thyroid needs to take medication to return her levels of levothyroxine to "normal". The dose of the drug is regulated by therapeutic drug monitoring. It is worth repeating blood levels after delivery as anecdotally, fluctuations seem common at this time. If the supplementation is too low, prolactin levels will be affected resulting in a poor milk supply. The correct dose gives a mother the level of levothyroxine of a normal breastfeeding mother. Symptoms of an under active thyroid include gain in body weight, dry skin and hair and tiredness. Levothyroxine is secreted in extremely low levels into breastmilk, if at all. It is highly bound to proteins in the maternal plasma. The estimated level to which the baby will be exposed is theoretically 0.6 nanogrammes per kilogramme per day - virtually undetectable. Levels secreted into milk are too low to influence tests for neonatal hypothyroidism.

Over-active thyroid

A mother with an over active thyroid gland produces raised levels of levothyroxine and will experience symptoms which may include tachycardia (increased heart rate), sweating, heat intolerance and loss of body weight. Symptoms are initially controlled by anti-thyroid drugs (carbimazole or propylthiouracil) and beta blockers. In some cases the gland is removed surgically or by the use of radioactive iodine and levels replaced by synthetic levothyroxine.

Carbimazole (Neomercazole®) reaches sub-clinical levels in infants exposed to less than 30milligrammes a day through their mother's breastmilk. The theoretical infant dose is 6.45 microgrammes per kg per day. If this drug is used monitoring of the infant's thyroid function is recommended but not always essential.

Propylthiouracil (PTU) is the drug of choice in a breastfeeding mother. Only small amounts are secreted into breastmilk and reports suggest that levels are too low to produce side effects. At doses of 400milligrammes, a study of 9 women and their babies showed no change in infant thyroid function (Kampmann 1980). A further study has shown that up to 750milligrammes produces no changes (Momotani 2000). However monitoring is recommended but not always essential. Theoretical infant dose is quoted as 0.105milligrammes/kg/day (Hale 2014)

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Travel Sickness and Breastfeeding

Optimal Medicinal Treatment Choice:

- Cinnarazine
- Hyoscine
- Promethazine only as third choice if mother needs to sleep

Causes of travel sickness

Travel (Motion) sickness can occur when you are travelling in a car, ship, plane or train. It is caused by a contradictory set of signals from the eyes and the inner ear balance mechanism. It affects different individuals in different ways and may be very difficult for a mother who needs to respond to her infant.

Treatment of travel sickness

- Treatment may be achieved by simple remedies such as avoiding heavy meals and fresh air. However some mothers may need medication if their symptoms are severe or prolonged e.g. a long flight or sea crossing. It may be important that the mother is not made drowsy by the remedy if she has to care for the child during the journey.
- Frequently travel sickness remedies are based on antihistamines e.g. promethazine (Avomine®), Phenergan® Lloyds Pharmacy own brand travel sickness®), although the passage of these sedating remedies may produce some drowsiness in the baby, in the short term this is unlikely to cause major difficulties with milk supply and may assist the journey by sedating the baby. If the baby is excessively drowsy it may need to be woken and prompted to feed to prevent dehydration.
- Another antihistamine but which generally causes less sedation is cinnarazine (Stugeron® Boots motion sickness®)
- Other remedies rely on the anti-muscarinic action of hyoscine and may make the mother thirsty but less drowsy e.g. Kwells®, Joy Rides®.

Most drugs for travel sickness can be purchased in a community pharmacy. Many of us have remedies which we have come to trust as effective for us. Remedies are often licensed to be taken by children.

Self-help techniques

- Keep still - if possible, choose a cabin or seat in the middle of a boat or plane, because this is where you'll experience the least movement. Use a pillow or headrest to help keep your head as still as possible.
- Look at a stable object - for example, the horizon. Reading or playing games may make your symptoms worse. Closing your eyes may help relieve symptoms
- Fresh air - open windows or move to the top deck of a ship to avoid getting too hot and to get a good supply of fresh air.
- Relax - by listening to music while focusing on your breathing or carrying out a mental activity, such as counting backwards from 100.
- (www.nhs.uk/Conditions/motionsickness/Pages/Introduction.aspx)

Fear of flying

Some people find that they need tranquillisers such as diazepam or a beta blocker such as propranolol if they are very anxious e.g. for long haul flights. These can be prescribed by your doctor. To discuss the safety of the dose you have been prescribed please contact the Drugs in Breastmilk Helpline druginformation@breastfeedingnetwork.org.uk

Complementary therapies

Several complementary therapies have been suggested for motion sickness, although the evidence for their effectiveness is mixed.

- Ginger supplements, or other ginger products including ginger biscuits or ginger tea, may help to prevent symptoms of motion sickness. Although there's little scientific evidence to support the use of ginger to treat motion sickness, it has a long history of being used as a remedy for nausea and vomiting.
- Acupressure bands are stretchy bands worn around the wrists. They apply pressure to a particular point on the inside of your wrist between the two tendons on your inner arm. Although acupressure bands don't cause any adverse side effects, there's little scientific evidence to show they're an effective treatment for motion sickness
- Homeopathic remedies e.g. Nelson's Travella has limited research but is not harmful to the breastfed infant if it is a remedy which the mother finds useful

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Vaccinations and Breastfeeding Mothers

Vaccinations are poorly bio-available so levels reaching breastmilk are very restricted. Babies may be expected to receive additional antibodies following their mother's vaccination.

Chicken pox (varicella); breastfeeding is not a contraindication to varicella vaccine

Hepatitis A: There is no contra indication to having the vaccination and continuing to breastfeed.

Hepatitis B: Vaccinations are routinely offered to healthcare professionals who may come into contact with body fluids. There is no contra indication to having the vaccination and continuing to breastfeed.

Influenza; A breastfeeding mother can have an influenza vaccination whilst she is breastfeeding - see page 35 (also available on the drug information section of the BfN website).

Meningococcal C: Immunization of pregnant or lactating women with meningococcal vaccine increased the specific secretory IgA content of milk.

MMR Injections: A breastfeeding mother can have an MMR injection if she is not rubella immune. Although live vaccines multiply within the mother's body, the majority have not been demonstrated to be excreted in human milk (Bohlke K, Galil K, Jackson LA, et al. Postpartum varicella vaccination: is the vaccine virus excreted in breast milk? *Obstet Gynecol* 2003; 102:970--7). Although rubella vaccine virus might be excreted in human milk, the virus usually does not infect the infant. If infection does occur, it is well-tolerated because the virus is attenuated (182). Inactivated, recombinant, subunit, polysaccharide, conjugate vaccines and toxoids pose no risk for mothers who are breast feeding or for their infants.

Pneumonia: A breastfeeding mother can have a Pneumococcal vaccination whilst breastfeeding

Polio: The injectable polio vaccine is inactivated and poses no risk when given to mothers who are breastfeeding. The oral vaccine may reduce the production of antibodies by the infant and immunisation of the mother before the infant reaches 6 weeks of age is not recommended.

Tetanus Vaccination: One study of previously vaccinated infants found that at 21 to 40 months of age breastfed infants had higher IgG levels against diphtheria, higher secretory IgA levels in saliva against diphtheria and tetanus and higher fecal IgM against tetanus than formula-fed infants. There is no contra indication to a breastfeeding mother having this vaccination.

Tuberculin and BCG; - there is no reason to avoid tuberculin testing during breastfeeding nor to avoid use of the BCG vaccine

Typhoid Vaccination: One study of previously vaccinated infants found that at 21 to 40 months of age breastfed infants had higher IgG levels against diphtheria, higher secretory IgA levels in saliva against diphtheria and tetanus and higher fecal IgM against tetanus than formula-fed infants. There is no contra indication to having the vaccination and continuing to breastfeed.

Whooping Cough; there is no evidence of risk of vaccinating breastfeeding mothers with the whooping cough (pertussis) vaccine as part of the campaign to protect new-born babies.

For those mothers who did not receive vaccination during pregnancy, administration after delivery, whilst the mother is breastfeeding, is acceptable.

The Health Minister recommended (28 Sept 2012) that all pregnant women should receive pertussis (whooping cough) vaccination in their third trimester in order to protect their baby from this condition prior to the baby receiving its own vaccination as part of the normal immunization schedule at 2 months of age.

Whooping cough is a disease that can cause long bouts of coughing and choking, which can make it hard to breathe. It can be very serious for young children, and even fatal for babies under one year old. New-born babies are likely to have little or no protection against whooping cough at delivery. Antibodies passed from the pregnant mother to her unborn child following vaccination, should provide some protection to the baby in the first few weeks of life. Maternal antibody levels

will be low unless the mother developed whooping during pregnancy and the baby is vulnerable from delivery. It appears that antibodies passing through breastmilk are also unlikely to protect the baby.

The vaccine Repevax®, will also provide protection against diphtheria, tetanus and polio, in addition to whooping cough. There is no evidence to suggest that the use of this vaccine during pregnancy is unsafe for either the expectant mother or their unborn baby. The vaccine is not live and cannot cause whooping cough.

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Breast Feeding and Vaccination: Neither inactivated nor live vaccines administered to a lactating woman affect the safety of breast feeding for women or their infants. Breast feeding does not adversely affect immunization and is not a contraindication for any vaccine, with the exception of smallpox vaccine. Limited data indicate that breast feeding can enhance the response to certain vaccine antigens (Pickering LK, Granoff DM, Erickson JR, et al. Modulation of the immune system by human milk and infant formula containing nucleotides. Pediatrics 1998; 101:242-9. Breast-fed infants should be vaccinated according to recommended schedules.

Vaginal Thrush and Breastfeeding

Creams and pessaries containing Clotrimazole and oral single dose treatments of fluconazole can be used during breastfeeding as small amounts pass into breastmilk.

Vaginal thrush is experienced by most women on occasions - some more frequently than others. Symptoms are vaginal itching, irritation, soreness and sometimes a cream-cheesy discharge. It can make passing urine painful and sex uncomfortable. Symptoms can occur after a course of antibiotics when all the friendly bacteria as well as the infecting ones are killed off allowing the thrush (Candida) to flourish. It can also occur if your partner has candida on his penis or after enthusiastic sex (often called honeymoon disease!). If you have never had thrush before it is advisable to consult a Doctor to confirm the diagnosis. However, many women self-treat by purchasing products from a community pharmacy. Many people apply live, plain yoghurt vaginally (often on a tampon) as well as eating it or taking acidophyllis capsules. Careful hand hygiene prevents spread to other members of the family. Towels should be kept separate. Avoiding tight jeans and not wearing tights may be necessary with repeated infections. Cotton pants can also help to relieve symptoms

Over the counter products

- Vaginal creams - Clotrimazole. Trade name : Canesten®
- Pessaries - Clotrimazole. Trade name : Canesten®
- Oral treatment - single dose fluconazole 150mg. Trade names: Difflucan®, Canesten Once®, Own Brands

Prescribe products

- Vaginal creams - Clotrimazole (Canesten®), Miconazole,(Gyno-Daktarin®), Econazole (Gyno-Pevaryl®)
 - Pessaries Clotrimazole (Canesten®), Miconazole,(Gyno-Daktarin®),Econazole (Gyno-Pevaryl®)
 - Oral treatment - single dose fluconazole 150mg. Trade names: Difflucan®, Canesten Once®
- All can be used during breastfeeding

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Vitamin D and Breastfeeding

In 2012 the Chief Medical Officer in the UK made recommendations about supplementing all pregnant and breastfeeding mothers and children with Vitamin D. There seems to remain a lot of confusion as to who should take these supplements, why this is necessary and how to obtain them. The recommendations were updated in July 2016 in line with the SACN recommendations on vitamin D and health.

- Breastfed babies from birth to one year of age should be given a daily supplement containing 8.5 to 10mcg of vitamin D as a precaution (SACN 2016)
- Breastfeeding Mothers should also take a daily Vitamin D supplement of 10 µg per day
- Vitamin D deficiency in the UK is a consequence of our weather and the latitude at which we live.
- Breastmilk is perfect for babies
- Vitamin D drops should be given to babies on a teaspoon as droppers are hard to sterilise
- Healthy Start Vitamins remain an excellent, economic source of vitamin D and are provided free of charge in many areas. They currently contain 7.5µg/day

Please refer to the UNICEF baby friendly statement Nov 2016

www.unicef.org.uk/babyfriendly/baby-friendly-resources/guidance-for-health-professionals/statements/

The risks for babies

- Babies born to mothers with low vitamin D status are at risk of developing rickets. Taking into account that MOST of us are deficient between October and April at best and MANY of us will have low levels throughout the year, the recommendation that ALL pregnant women should take a supplement of 10 µg Vitamin D per day throughout pregnancy is sensible and cost effective (Prevention of rickets and vitamin D deficiency in Birmingham: the case for universal supplementation).
- Babies born to mothers who have not taken a vitamin D supplement in pregnancy are likely to be born with low vitamin D status. Levels of vitamin D in that mother are also likely to be low and even if she begins to take a supplement herself at that time, cannot redress the baby's deficiency by breastfeeding. So the recommendation is that the baby should receive its own oral vitamin D drops containing 7-8.5µg per day from 4 weeks of birth until the age of 5 years. Waiting until the baby is 6 months may be too late to prevent development of symptoms. Mothers may also develop symptoms of deficiency themselves.
- Although it was thought that levels of vitamin D stores laid down in pregnancy by a mother who has taken vitamin D supplements in pregnancy would be sufficient for a few months. **New recommendations (July 2016) are that breastfed babies from birth to one year of age should be given a daily supplement containing 8.5 to 10mcg of vitamin D, to make sure they get enough** (www.nhs.uk/Conditions/vitamins-minerals/Pages/Vitamin-D.aspx). In addition breastfeeding Mothers should take a daily Vitamin D supplement of 10 µg per day – in fact as more and more conditions are linked with lack of vitamin D most of us would benefit from taking it regularly.

Implications of low levels of vitamin D

- In children; rickets, delayed tooth eruption, increased risk of infection, decreased bone mass, hypocalcaemic seizures, delay in walking.
- In adults; osteomalacia, muscle weakness, bone pain plus possible association in many other conditions.

Vitamin D supplements for breastfeeding mothers

Mothers who are diagnosed with vitamin D deficiency may be prescribed very high dose supplements. Papers looking at these doses are scarce. Hollis and Wagner (2004) concluded that "Maternal vitamin D intakes of 4000 IU/d appear to be safe and to provide sufficient vitamin D to ensure adequate nutritional vitamin D status for both mothers and nursing infants. Hollis et al 2015 that "Maternal vitamin D supplementation with 6400 IU/day safely supplies breast milk with adequate vitamin D to satisfy her nursing infant's requirement and offers an alternate strategy to direct infant supplementation.

Dietary Sources of Vitamin D;

- Oily fish including trout, salmon, mackerel, herring, sardines, anchovies, pilchards, and fresh tuna
- Cod liver oil and other fish oils
- Egg yolk; 0.5 micrograms (20 IU) per yolk
- Mushrooms
- Supplemented breakfast cereals typically contain between 2 and 8 micrograms (80-320 IU) per 100 g
- Margarine

The average dietary vitamin D intake of young women in the UK approximates 3 micrograms per day and fewer than 1% consume more than the 10 micrograms (Williams 2007). The National Diet and Nutrition Survey of British adults suggest that if such a threshold were investigated in the UK population data, some 80–90% would be deficient (Henderson 2003).

Sunlight and Vitamin D

The main source is Ultraviolet B sunlight exposure; more than 90% of mankind's vitamin D supply is derived from exposure UVB in sunlight. Deficiency of vitamin D in the UK is predominantly caused by poor weather, increasing use of high factor sunscreen (more than factor 8), and latitude: those born north of approximately Birmingham (40°N) are unlikely to be able to reach sufficient exposure.

Sunlight exposure needed is 2 hours per day (if only the face exposed), 20-30 minutes a day if the face, arms and neck are exposed without sunscreen. Sun protection factor in excess of 8 prevents absorption of the UVB sufficient to make vitamin D. Need increases for those with darker skins. In all cases it is important to avoid sunburn, particularly in babies.

Where to get vitamin D supplements

Those who are eligible for Healthy Start vouchers receive free vitamin tablets and drops containing the correct dose of vitamin D for mothers and children.

Those not eligible for Healthy Start may purchase vitamin supplements from pharmacies and Health Food Stores – please check that they contain 10µg for adults and 7-8.5µg for children.

Is formula better if breastfeeding mothers need to take tablets?

Vitamin D deficiency in the UK is a consequence of our weather and the latitude at which we live. The addition of vitamin D to formula milk does not make it better than breastmilk – it does not contain all the immunological properties that make breastmilk specific to cater for each baby's needs.

Specific Groups at Increased Risk

- Some mother and infant groups have been shown to be at increased risk, including:
- Babies of mothers with darker skin types
- Pregnant and breastfeeding women.
- Babies born in the winter months and not exposed to the sun
- Babies and mothers who wear concealing clothing, preventing skin exposure to sunlight
- Babies and mothers who spend a lot of time indoors or use sun creams, reducing exposure to sunlight
- Babies of obese mothers (BMI >30)
- Babies of mothers with gestational diabetes.

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Whooping Cough (Pertussis) Vaccination and Breastfeeding

There is no evidence of risk of vaccinating breastfeeding mothers with the whooping cough (pertussis) vaccine as part of the campaign to protect new-born babies. For those mothers who did not receive vaccination during pregnancy, administration after delivery, whilst the mother is breastfeeding, is acceptable.

The Health Minister recommended (28 Sept 2012) that all pregnant women should receive pertussis (whooping cough) vaccination in their third trimester in order to protect their baby from this condition prior to the baby receiving its own vaccination as part of the normal immunisation schedule at 2 months of age.

Whooping cough is a disease that can cause long bouts of coughing and choking, which can make it hard to breathe. It can be very serious for young children, and even fatal for babies under one year old. New-born babies are likely to have little or no protection against whooping cough at delivery. Antibodies passed from the pregnant mother to her unborn child following vaccination, should provide some protection to the baby in the first few weeks of life. Maternal antibody levels will be low unless the mother developed whooping during pregnancy and the baby is vulnerable from delivery. It appears that antibodies passing through breastmilk are also unlikely to protect the baby.

The vaccine Repevax®, will also provide protection against diphtheria, tetanus and polio, in addition to whooping cough. There is no evidence to suggest that the use of this vaccine during pregnancy is unsafe for either the expectant mother or their unborn baby. The vaccine is not live and cannot cause whooping cough.

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The Breastfeeding Network's Drug in Breastmilk Helpline provides specific, evidence based information on the safety of medications, medical procedures and treatments whilst breastfeeding. It also offers vital information for breastfeeding families and health professionals about the safety of alcohol, smoking and the use of illicit drugs. The service is run by dedicated volunteers, including a registered pharmacist and they answer around 7000 calls and emails every year from families and healthcare professionals looking for support and information.

Many mums are wrongly told they should stop breastfeeding in order to take medication for common conditions including diabetes, migraines and arthritis. At least 10% of calls are from mums suffering from post-natal depression, a figure which is increasing year on year. By providing mums and healthcare professionals with accurate, evidence based information, the Helpline gives mums the confidence to make their own decisions about whether to continue breastfeeding or not.

X rays and Breastfeeding

X rays are used to look at bones and other structures within the body e.g. to identify fractures, to look at the state of teeth, to determine damage to joints, pneumonia etc.

As they pass through the body, the energy from X-rays is absorbed at different rates by different parts of the body. A detector on the other side of the body picks up the X-rays after they've passed through and turns them into an image.

Dense parts of your body that X-rays find it more difficult to pass through, such as bone, show up as clear white areas on the image. Softer parts that X-rays can pass through more easily, such as your heart and lungs, show up as darker areas. (<http://www.nhs.uk/conditions/X-ray/Pages/Introduction.aspx>).

Where possible X rays are avoided during pregnancy but there is no reason to avoid them during breastfeeding. Diagnostic X-rays have no known effect on the milk in the breast at the time of imaging, nor on milk production. No special precautions are required (LactMed).

In some situations a contrast agent may be used in addition to the X-ray. This can help show soft tissues more clearly on the X-ray. These include:

- barium swallow – a substance called barium is swallowed to help highlight the upper digestive system
- barium enema – barium is passed into your bowel through your bottom

Barium is an inert agent which shows up under the X ray but is not absorbed into the body so would not affect the breastfed baby.

Because barium sulfate is not absorbed after oral or rectal administration, it will not enter the milk, reach the bloodstream of the infant or cause any adverse effects in breastfed infants. No special precautions are required (LactMed).

References

LactMed on line database accessed January 2017 <https://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACTMED>

More information and how you can help

Since 1997 this unique helpline has been supported by the Breastfeeding Network without external funding. However, as the volume of calls and emails increases, this is becoming increasingly difficult, and we are now looking for ways to ensure the continued existence of the helpline in the future.

Wendy Jones, Breastfeeding Network Pharmacist said: "Studies show mums who choose to breastfeed and who also take medication or need surgery need extra specialist information and support to inform their choice to breastfeed. There is insufficient readily-available information for about the safety of drugs in breastmilk, and mums who need to take medication are often advised to stop breastfeeding. Rarely do we see that this is justified by evidence of the passage of the drug into breastmilk."

Breastfeeding rates in the UK are amongst the lowest in the world and more than 3 in 5 mums stop breastfeeding before they want to. This figure is even higher for Mums who breastfeed and need to take medication. We also know that breastfeeding mums take fewer drugs too - potentially putting themselves at risk.

An independent evaluation of the DIBM helpline published in 2012 found over 90% satisfaction rates with the service and Mums give consistently high praise to the quality of information and levels of service they receive from the Drugs in Breastmilk team: *"Thank you Breastfeeding Network for being there! I can't thank you enough! Just having the confidence to tell the doctors that I know what it is and that there was someone willing to email them if needed was fantastic."*

If you would like to support the service you can make a donation by visiting www.justgiving.com/Drugs-in-Breastmilk-Helpline-Appeal/ or by texting DIBM88 and the amount you wish to donate to 70070 eg DIBM88 £3 to 70070

You can also become a Friend of Drugs in Breastmilk helpline, as an individual or as an organisation, to help support the service in a more long-term way. You can find out more information about the Friends scheme on our website - www.breastfeedingnetwork.org.uk/drugs-breastmilk-helpline-needs-friends/





Cut out and share these flyers with your friends and colleagues to let them know about the Drugs in Breastmilk Information service.

You can download more of these flyers from the Drugs in Breastmilk page of our website

Or order our 'How Safe is...' leaflet for easy to share information about the safety of medication and breastfeeding.

 **the Breastfeeding network**
Drugs in Breastmilk Information

Support this service by signing up to our Friends scheme—More information on our website

Information and support from a qualified pharmacist about the safety of different medications and medical treatments during breastfeeding

Over 40 factsheets on our website covering some of the topics we get asked about most frequently
www.breastfeedingnetwork.org.uk/detailed-information/drugs-in-breastmilk/

If you need more information you can get in touch by email
druginfomation@breastfeedingnetwork.org.uk

The Breastfeeding Network is a registered charity Scottish charity no. SC027007

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