[cn]Chapter 20

**[ct]Medications and breast feeding**

[au]Deborah Sharp and Zoi Vardavaki

[aff]University of Hertfordshire, Hatfield, UK

**[h1]Aim**

[fo]The aim of this chapter is to provide the reader with an understanding of the impact of the administration of medication to breast-feeding women and the key points related to this.

**[loh]Learning outcomes**

[lot]After reading this chapter, the reader will:

[bl]

* Understand the transfer of medication into breast milk
* Gain knowledge about medications provided to women during the intrapartum and postnatal period and how this may affect breast feeding
* Gain knowledge about medications that are safe to use while breast feeding
* Understand professional duties when caring for breast-feeding women requiring administration of medication
* Understand where to signpost women to sources of information about medications whilst breast feeding.[xbl][xlot]

**[tykh]Test your existing knowledge**

**[tykt][bl]**

* During the colostrum period, the transfer of medication into the breast milk is lower or higher? What do you think and why?
* Is labetalol a recommended antihypertensive medication during the lactating period?
* On a postnatal ward, you are called to provide breast-feeding support to a woman who had fentanyl during labour as pain relief. What assessment would you carry out? What feeding advice would you give her based on the risk factors?
* Where would you access accurate information about medications and their effect on breast feeding?
* What management plan of care are you able to develop for a woman with mastitis?[xbl][xtykt]

**[h1]Introduction**

[fo]The management and administration of medication is an essential skill for midwives. Equally, promoting breast feeding and supporting women’s infant feeding choices are essential skills for midwives. It is important that midwives and student midwives have knowledge around the use of medication during the lactating period in order to provide safe and effective care for breast-feeding women. This chapter will focus on the role of the midwife and student midwife in administration of medication to breast-feeding women and the key points related to this. As part of this process, it is necessary that midwives and student midwives understand the transfer of medication into breast milk and use the most up-to-date knowledge about medicines management and breast feeding. This is essential in order to provide accurate and evidence-based information to women, enabling them to make an informed choice (Nursing and Midwifery Council (NMC), 2018).

This chapter will also explore some safe medication that can be used during the lactation period and common challenges arising while women breast feed and how these can be managed with and without the use of medicine.

**[h1]Transfer of medication in breast milk**

[fo]Before prescribing a medication for a breast-feeding woman, it is necessary to decide on the safety of the medication for the mother–infant dyad. The midwife as the individual administering a medication has to consider if the specific medication is appropriate to be used while the woman is breast feeding, due to the potential effect on the infant and the production of milk. It is important to know the route of administration, the volume, potential side-effects, how it will be absorbed, half-times/pick time of the medication and the ability of the lactating mother to absorb, metabolise and excrete the given medication. Hamilton (2014) highlighted that a midwife should refer to another healthcare professional for specialised knowledge on potential side-effects of a medication should there be any doubt. Similarly, it is necessary to have an awareness of the ability of the infant to absorb, metabolise, detoxify and excrete the medication passed through the breast milk (Mattison and Halbert, 2013). Another important issue is the age of the infant and how regularly they are fed in order to make a decision on what medication should be prescribed (Hamilton, 2014; Jones, 2018).

It is therefore necessary to be able to assess the transfer of a medication in breast milk. This assessment can be complex and may be difficult to undertake. Adverse effects on infants of medications passed from their lactating mother are rare and so serious events are not frequent (Anderson et al., 2003). However,]recautions need to be taken when prescribing a medication to the breast-feeding mother in order to avoid the discontinuation of breast feeding.

**[h2]Passage of medication during the intrapartum period**

[fo]It is known that the breast-feeding infant’s previous exposure to medication during the antenatal and intrapartum period can have an enhanced adverse effect during breast feeding (Mattinson, 2013). Midwives and student midwives looking after women during pregnancy, labour and birth and the postnatal period need to provide support and guidance on medication. Medication is administered routinely to women, especially during the intrapartum period, which means that the infant may be born having been exposed to maternal medication and this may have an impact on breast feeding. In the UK, breast-feeding rates are lower than in other European countries (Rollins et al., 2016) and failure to breast feed increases mortality and morbidity in mothers and their infants (Victora et al., 2016). Therefore, unnecessary administration of medication during the intrapartum period should be avoided to minimise the impact on breast feeding.

|  |
| --- |
| **[cch]Clinical consideration**  *[cct]Is oxytocin the medication of choice for painful engorgement?*  Oxytocin stimulates the milk ejection reflex (also known as the ‘let-down reflex’). Therefore, it is a medication of choice for painful engorgement. It also encourages uterine involution in the postnatal period (Schaefer et al., 2007).[xcct] |

Evidence shows that uterotonics used for management of the third stage of labour and prostaglandins used for induction of labour are associated with reduced breast-feeding rates (Jordan et al., 2009; Cadwell and Brimdyr, 2017; Erickson and Emeis, 2017). Brown and Jordan (2014) highlighted that prophylactic administration of uterotonics for the management of the third stage of labour does not affect the initiation of breast feeding but it may reduce the duration of it and women may need additional breast-feeding support. The National Institute for Health and Care Excellence (NICE, 2017) recommends that women should be informed about their choices on the management of the third stage of labour during the antenatal period and when in labour. Midwives and healthcare professionals should discuss with women their preference on this and the potential impact on breast feeding, especially when they plan to breast feed their infant.

The use of pain relief in labour has an impact on infant feeding behaviours. Wildstrom et al. (2019) found that high levels of intrapartum epidural fentanyl were associated with physiological compromise in newborns shortly after birth compared to mothers who had no exposure. Such compromised behaviours included less efficient crawling when newborns are skin to skin after birth, self-attachment to the breast and suckling, all of which will have an impact on initiation of breast feeding (Wildstrom et al., 2019).

Other studies have found an association between the use of intrapartum epidurals and suckling issues in the first few hours of life, exclusive breast-feeding rates following discharge and at 6 weeks postnatally while other studies failed to find a link between epidural use and breast feeding (Brimdyr et al., 2015; Wiklund et al., 2009). Jordan et al. (2005) highlighted that use of epidural in labour is linked to shorter duration of breast feeding. The use of intramuscular pethidine for pain management during labour is also associated with more admissions to neonatal units and less skin-to-skin contact which may have an impact on breast feeding (Fleet et al., 2017). In any case, women with interventions or complications during labour and birth tend to have higher rates of pain, be less mobile after birth, may be separated from their newborn infant and are less likely to have skin-to-skin contact. All these will contribute to fewer breast feeds and therefore less milk production.

The midwife’s role is crucial to ensure accurate information is shared with women on the use of analgesia during labour in order for women to make an informed decision, especially if they aim to breast feed (NICE, 2017; NMC, 2018). Furthermore, the use of opioids should be taken into consideration when providing education to women who intend to breast feed (Fleet et al., 2017). To aid such discussions, the Royal College of Association of Anaesthetists has produced a guidance document (Mitchell et al., 2020). See also Chapter 8 of this text for a detailed discussion of the pharmacology and analgesia used in pregnancy.

**[h2]Passage of medication in the immediate postnatal period**

[fo]The transfer of medication into breast milk occurs via several factors such as the oral bioavailability of the drug, its half-life and plasma protein binding, the milk–plasma ratio, the extent to which the drug undergoes first-pass metabolism and the relative infant dose (Jones, 2018; Mattison and Halbert, 2013). Medications are transferred from the maternal plasma, through the capillary walls and the alveolar epithelium and enter into the milk. There are four diffusion mechanisms of drug transfer, the transcellular route via the alveolar cell being the most common (Mattison and Halbert, 2013). The intercellular diffusion route allows transfer of the medication into breast milk due to the intercellular gaps that are wide open at delivery and gradually tighten over the following 4 days, allowing more medication to pass into breast milk on day 1 compared to day 3 after delivery (Jones, 2018). In the following days (days 4–6 postnatally), the alveolar cells enlarge and these gaps are tightened, resulting in a reduced amount of medication entering the breast milk (Hale, 2017). The solubility of the medication is also very important for transfer into breast milk. The more lipid soluble a medication is, the greater its ability to penetrate the alveolar cells and pass into the breast milk (Hale, 2017). Some medications cannot pass through the closed gaps but have to dissolve through the cellular membranes of the alveolar cells to enter the breast milk, while other medications are actively transported through the alveolar cells into the breast milk (Figure 20.1).

Diagram

Description automatically generated

[fn]Figure 20.1[ns][fc]Transfer of medication in the immediate postnatal period.

[PLEASE RE DRAW]

The transfer of medication into breast milk depends on a variety of factors, discussed below.

**[h3]Oral bioavailability of a medication**

[fo]This refers to the percentage of the medication being absorbed into the system having passed through the gut or the liver for first-pass metabolism (Jones, 2018). Medication given by injection only (i.e. low molecular weight heparinoids or insulin) have poor oral bioavailability because they are not absorbed from the gut. So, medication with low oral bioavailability is safer for a breast-feeding mother to take.

**[h3]Half-life of the medication**

[fo]This is the time that a medication takes to clear from the mother’s body and milk. Five half-lives have to elapse to ensure that a safe and steady state is reached (Jones, 2018; Mattison and Halbert, 2013). For the lactating mother, when a medication is prescribed it is important to remember that the longer the half-life, the greater the risk of accumulation in the infant’s body and the higher the possibility of adverse effects. That is why naproxen is not a preferred non-steroidal anti-inflammatory drug (NSAID) during the postnatal period (first 6 weeks after birth); instead, ibuprofen is recommended as its half-life is 1.8–2 hours (Bushra and Aslam, 2010).

**[h3]Plasma protein binding**

[fo]This is the extent to which a medication becomes bound to the plasma protein in the maternal bloodstream and the amount that remains free (Jones, 2018; Mattison and Halbert, 2013). The free medication can be passed to the infant through the milk. Therefore, high protein-binding medications are preferred for the lactating mother. During the early postnatal period, some medications compete for binding sites that would normally be occupied by bilirubin, with the risk of bilirubin displacement. Such displacement of the unconjugated bilirubin can cause kernicterus and brain damage to the infant (Jones, 2018) and therefore it is important to avoid prescribing such medication for lactating mothers.

|  |
| --- |
| [ech]Episode of care  [ect]Mary, a primigravida, gave birth to her infant 4 days ago and was been discharged. In the last 38 hours, Mary developed some pain in the lower abdomen and burning when passing urine, which seemed to be a common issue as she had recurrent urinary tract infections (UTIs) during her pregnancy. She spoke to the GP on the phone and was diagnosed with a UTI. Mary was advised to collect the prescribed medication from the nearest pharmacy. Ellie, the community midwife, visited Mary for a routine postnatal visit. During the visit, Ellie discussed with Mary her infant feeding choices and noted that Mary was breast feeding effectively. Mary also mentioned that because of her UTI symptoms, she was prescribed co-trimoxazole that she had collected from the pharmacy earlier in the day – but she had not taken any yet. Ellie contacted the GP to discuss the prescribed medication as there is a risk of kernicterus and it is not recommended for a lactating mother. The GP had not seen Mary before, and he was not aware of her infant feeding choice. Following the discussion with Ellie, the GP decided to change the medication and cephalexin was prescribed instead as it is a commonly used first-generation cephalosporin antibiotic to be used while breast feeding.  *Further activity*  **[bl]**   * Describe are the signs and symptoms of UTI. * Considering the physiology of lactation, what are the priorities for managing this and enabling Mary and her child to successfully continue breast feeding? * Where can Mary get additional help about breast feeding from?[xbl][xect] |

**[h3]Milk/plasma (m/p) ratio**

[fo]This refers to the concentration of the protein-free fractions in milk and plasma (Jones, 2018). It is advisable for lactating mothers to avoid medication with a milk/plasma ratio over 1. For instance, iodine has a m/p ratio up to 26 (Jones, 2018) and therefore should be avoided during the lactating period as it can cause an increased level of iodine in breast milk which can result in transient hypothyroidism in breast-fed infants.

**[h3]Extent to which the drug undergoes first-pass metabolism**

[fo]This relates to the phenomenon of medication metabolism whereby the concentration of a medication when absorbed from the gut is greatly reduced before it reaches the systemic circulation and is carried to the liver. In the liver, it may be converted to active or inactive metabolites. Inactive metabolites will be excreted without any effect. Active metabolites may pass through the liver unchanged or they will have a therapeutic effect (Jones, 2018). Medications with an inactive first-pass metabolism are safer for use during lactation as they will be excreted without any effect on mother and the infant.

**[h3]Relative infant dose (RID)**

[fo]The relative infant dose is one of the most important parameters to determine the safety of a medication entering the breast milk. The simplest way to calculate the RID is the dose in the infant in milligrams per kilogram per day divided by the dose in the mother in the same way (Hale, 2017). Therefore, to calculate the RID the equation below is used.

[fo]Hale (2017) and Jones (2018) state that a safe option for percentage of RID is less than 10% for full-term infants. However, when deciding about medication prescription and thinking about the RID, every case should be evaluated based on the individual medication and its toxicity. The age of the infant is therefore important when considering the RID in a preterm infant as the dose should be decreased appropriately in order to ensure the safest option is provided and the potential increased medication is not passed through the breast milk to the infant.

**[h3]Maturity and age of the infant**

[fo]When considering the risk of medication being transferred into the breast milk, it is important to know the maturity and age of the infant (Jones, 2018). Premature infants have immature hepatic and renal function and a lower percentage of body fat and therefore cannot metabolise and excrete medication effectively. In contrast, a 10-week-old infant will be able to better detoxify and excrete medication than a premature infant or a newborn. The age of the infant matters as this is linked to the volume of milk the infant will consume and therefore the potential risk of transferring medication into the breast milk (Jones, 2018). For instance, a newborn infant who exclusively breast feeds will have more feeds during 24 hours which results in consumption of a higher volume of milk and therefore the level of medication transferred to the newborn infant is higher. The risk of drug exposure via the breast milk is decreased after 2 months of life in exclusively breast-fed infants and even more when breast milk is no longer the only food for the infant or toddler (Anderson et al., 2003; Soussan et al., 2014).

It is important to note that if the medication passed through the breast milk to the infant has a therapeutic range, then an effect on the infant might be noted, but in most of cases the amount of medication passed to the infant is below the therapeutic level and therefore no side-effects are noted (Jones, 2018). If the amount of medication passing through breast milk is above the therapeutic level, then the infant will have side-effects from this medication (Jones, 2018).

During the immediate postnatal period, breast-feeding women are commonly prescribed more medication (e.g. pain relief, anti-inflammatory medication, medication for haemorrhoids, laxatives and low molecular weight heparinoids). The midwife’s role is not only to ensure necessary and safe treatment is provided to the breast-feeding mother but also to consider the impact on breast feeding and the infant, especially if the latter is premature. Information on the transfer of medication into breast milk is not readily available to healthcare practitioners and therefore it is important to ensure that available specialised resources are used. In addition, involving parents in decision making is necessary and therefore sufficient information about the relative risks of all the options should be provided to women to allow them to make an informed decision. Midwives should ensure they practise in accordance with the NMC Code in terms of administration of medication and its use to preserve the safety of the woman (NMC, 2018), bearing in mind the severity of her situation and the maturity and age of her child (Hamilton, 2014).

**[h1]Maternal diseases and medication in the breast-feeding mother**

[fo]With advances in medical treatment and medication, there has been a significant increase in the number of women with pre-existing medical conditions and increasing complexity becoming pregnant and having a baby (Cumberlege, 2017; Knight et al., 2020). Increased awareness of the potential teratogenic effects of medication on the fetus has resulted in caution when prescribing for pregnant women. When medication is required for chronic conditions, this requires careful monitoring and/or a review of medication by a medical specialist, to minimise the harmful effects when known contraindications exist (Robson and Waugh, 2008; NICE, 2021a).

The midwife’s role is to identify any medical and mental health conditions and medications taken and refer to the appropriate team as early as possible (NICE, 2021a). This practice of referral, review and caution is now standardised practice within maternity care (NICE, 2021a). However, it is suggested that some healthcare practitioners’ lack of knowledge about the known effects of medications on breast feeding results in women being given incorrect or conflicting advice that they cannot breast feed or must stop. It should, however, be recognised that medication is a barrier to breast feeding for some women, which needs to be addressed within the healthcare system (Jones, 2018).

The advantages of breast feeding should never be underestimated nor should the wishes of a mother to continue to breast feed and the right of the infant to continue to receive it (Jones, 2018). It is important to remember that most medications for acute and chronic maternal disorders are safe to use during lactation. It has been reported that serious acute adverse reactions from drugs in breast milk are uncommon and cautionary warnings about not using a drug in lactation may sometimes be based on one reported incident (Anderson et al., 2015; Jones, 2018).

This is complicated by the advice provided in standard reference sources of information on medications such as the British National Formulary (BNF), which often present minimal information on certain drugs and applies an ‘avoid if breast feeding’ advisory line (Jones, 2018). Upon receipt of this advice, women have described feeling that they have no alternative other than to formula feed (Jones, 2018). This inaccurate information may be a contributory factor affecting the 1% exclusive breast-feeding rates in the UK at 6 months (McAndrew et al., 2012). Whilst it is acknowledged that the decision to breast feed and to continue to breast feed is multifactorial and complex, it is argued that a lack of correct accessible information may contribute to three out of five women stopping breast feeding before they want to (Brown et al., 2015; McAndrew et al., 2012). Additional sources such as the Breastfeeding Network Drugs in Breastmilk information service (www.breastfeedingnetwork.org.uk/detailed-information/drugs-in-breastmilk/) provide more detailed evidence to inform decision making, often providing safer alternatives for mothers who are breast feeding which enable them to continue breast feeding as opposed to stopping.

Two examples of a common medical condition and a breast-feeding challenge that the student midwife is likely to encounter on a regular basis, postnatal depression and mastitis, are presented below. An overview of the considerations needed when caring for the breast-feeding woman who needs medication is presented. Pharmacological and non-pharmacological approaches will be discussed. A full exploration of the pharmacological management of all medical conditions and the effects of medications on breast feeding is beyond the remit of this chapter and this book. For more detailed information about specific conditions, drugs and the effect on breast feeding, other sources need to be accessed.

**[h2]Postnatal depression**

[fo]Having a baby is an extremely emotional event resulting in physical, social and psychological adaptations. Establishment of a close loving relationship between a mother and baby is vital for maternal and neonatal physical, mental health and well-being, in both the short and long term (Gerhardt, 2015; NICE, 2021a, 2021b; UNICEF, 2017). The importance of promoting secure mother–infant attachment for neurological development is now widely recognised (NICE, 2021a, 2021b; UNICEF, 2017). It is estimated that 10–20% of mothers experience some form of depression, from mild depression and anxiety-related symptoms to the rarer severe pschiatric disorders, during pregnancy and the first year of the baby’s life (NICE 2014, 2021). This can significantly affect the development of this precious mother–baby relationship (Brown et al., 2015; Gerhardt, 2015; Jones, 2018; UNICEF, 2017). A full discussion of postnatal depression is beyond the remit of this chapter and as such the focus will be on issues related to medication and the midwife’s role in recognition and referral. See Chapter 18 for more information.

The relationship between breast feeding and the development and continuation of depression is complex, with some studies suggesting that when breast-feeding challenges are encountered, these can contribute to the development of depression (Brown et al., 2015). However, it is also argued that a positive breast-feeding experience can prevent postnatal depression (Kendall-Tackett et al., [2011](https://onlinelibrary.wiley.com/doi/full/10.1111/jan.12832#jan12832-bib-0037); Ystrom, [2012](https://onlinelibrary.wiley.com/doi/full/10.1111/jan.12832#jan12832-bib-0072)). There is evidence to suggest that many women with pre-existing depression or who develop depression stop taking antidepressants or are reluctant to take them postnatally if breast feeding because of perceived concerns about the effect on the baby through transference in breast milk (Mohrbacher, 2010; NICE, 2014).

Despite this concern, many modern antidepressants, particularly selective serotonin uptake inhibitors (SSRIs), are considered compatible with breast feeding as studies have demonstrated that accumulation in the breast-fed baby is minimal, particularly in babies whose mothers have been medicated with sertraline (see below for more detail) (Jones, 2018). It is suggested that in most cases, depression in the breast-feeding mother can be successfully managed. Therefore, the need to medicate a mother with antidepressants should not be a reason to suggest discontinuation of breast feeding. Furthermore, if medication is suddenly stopped because of these perceived concerns or depression is not appropriately recognised and treated, this could have dire consequences as described above (Knight et al., 2020; NICE, 2014, 2021b).

**[h3]Antidepressants commonly used**

[fo]Most manufacturers have not conducted clinical trials on the use of antidepressants in lactation and in the Summary of Product Characteristics recommend that they are not used by breast-feeding mothers. However, evidence from studies that have examined levels in neonates should be considered when having conversations with women to inform their decisions (Jones, 2018). To assist these discussions, women could be directed to the Breastfeeding Network antidepressant factsheet (www.breastfeedingnetwork.org.uk/antidepressants/).

Prior to the mother being prescribed medication by a medical practitioner, other strategies should be explored such as talking therapies.

The treatment for depression usually involves SSRIs such as sertraline(Lustral®), citalopram (Cipramil®), paroxetine (Seroxat®) and fluoxetine (Prozac®) which act by inhibiting reuptake of serotonin into neurones in the central nervous system (Jones, 2018). Studies have reported varying effects on the neonate, depending on which drug is given. Jones (2018) suggests that due to the shorter half-life of sertraline, accumulation in the baby is unlikely and therefore this SSRI is normally the choice for a breast-feeding woman if she has not had a previous antidepressant which was effective for her (BNF, 2021).

|  |
| --- |
| **[ech]Episode of care**  *[ect]Depression*  Khajal had an uncomplicated pregnancy and delivery, and gave birth to a boy called William who is now 2 weeks old. Khajal is breast feeding William who is gaining weight and breast feeding 8–12 times in 24 hours with yellow stools and at least six wet nappies in a 24-hour period. The midwife visiting Khajal knows her well as the trust where Khajal delivered is implementing a continuity of care model.  When the midwife arrives, Khajal is in bed saying that she is just so tired, with no energy. The midwife undertakes a full assessment of both mother and baby and has no concerns about their physical well-being. During this visit, Khajal starts crying and shares with the midwife that she is crying a lot for no reason, isn't really bothered with anything, just wants to sleep all the time and is finding it hard to even think about going out or seeing friends or family. Following this conversation, Khajal recognises that she was trying to do too much and is going to spend more time with William in skin-to-skin contact as she finds this calming. Khajal feels better after this discussion; the midwife provides helpline numbers and has a further discussion with the couple about signs of postnatal depression.  When the midwife visits next, Khajal states that she has done the things that were suggested but is still crying a lot and does not really feel any different to when the midwife came before. She is aware of the possibility of developing depression but feels that she can't see her GP as she is worried what she will think of her. She loves William and desperately wants to breast feed as she feels this is the only thing that she is doing well. She is asthmatic and has eczema and knows that breast feeding can protect William against this and doesn’t want to have to formula feed. The midwife recognises that Khajal is showing signs of depression and has a conversation with her about this and tries to encourage her to see her GP. It is revealed that Kahajl has heard that if she is prescribed medication then she will have to stop breast feeding. The midwife discusses this with her and encourages her to look at the Breastfeeding Network drug factsheet.  Khajal does this and is seen by the GP who is supportive and confirms that she is depressed and in discussion with Khajal prescribes sertraline 25^mg increasing to 50^mg after 1 week and also encourages Khajal to access the local mother and baby group. The midwife visits Khajal following this and is pleased to see that she is feeling more positive about having been to the doctor and is able to continue to breast feed William.  *Discussion points*  **[bl]**   * What factors contributed to the disclosure about how Khajal was feeling? * What professional considerations must the midwife remember? * During postnatal care and discharge from midwifery care, who in the multidisciplinary team could the midwife liaise with to support Khajal further? [xbl][xect] |

**[h2]Mastitis**

[fo]The management of mastitis is controversial as it does not always need antibiotic treatment. This is normally only recommended if an infection is present. It can be difficult to determine if the mastitis is caused by an inflammation or infection but with prompt recognition and non-pharmacological management, antibiotics can often be avoided. Whilst many antibiotics are considered safe for use in breast feeding, it is also documented that breast-fed babies often develop colic, abdominal pain and diarrhoea. This together with the overuse of antibiotics are valid reasons to avoid taking them unless necessary. Conservative non-pharmacological management should occur with careful observation and the mother being advised of what signs to look for regarding deterioration. However, if the condition worsens oral antibiotic treatment may be necessary.

|  |
| --- |
| **[ech]Episode of care**  [ect]Mandi is breast feeding her baby Carlie which was going well. However, when the midwife visits her on day 5 the midwife identifies as part of the physical assessment that Mandi’s left breast is displaying early signs of a potential mastitis that is becoming painful. Carlie is also feeding constantly and not settling between feeds. At this stage the midwife feels that antibiotics are not needed. However, as Mandi has pain and the mastitis at this stage is suggestive of an inflammatory response, the midwife suggests she takes paracetamol and ibuprofen regularly which are considered safe whilst breast feeding.  Two days later Mandi’s symptoms have developed further, and she is now feeling unwell. Mandi visits her GP who prescribes an antibiotic, amoxicillin, that is considered safe whilst breast feeding. The GP is aware of the importance of checking that medications are compatible with breast feeding and has accessed the Breastfeeding Network antibiotic and mastitis factsheet and has assured Mandi that she should continue to breast feed during the treatment with frequent milk removal as well as regular analgesia. **Note:** The use of antibiotics does not necessitate suspension or cessation of breast feeding (Jones, 2018). *Further activity*  [bl]   * Describe the signs and symptoms of mastitis. * What are the likely causes of the mastitis? What else needs to be determined to answer this question and to rectify this for Mandi? * Considering the physiology of lactation, what are the priorities for managing this and enabling Mandi and Carlie to successfully continue breast feeding? * Where can Mandi get additional help about breast feeding? * Describe the non-pharmacological management plan that the midwife can suggest both before starting the antibiotics and during treatment? * What considerations are needed before the mother takes ibuprofen? * What is the maximum dose of paracetamol that the mother can take in a 24-hour period? [xbl][xect] |

**[h1]Over-the-counter medicines**

[fo]There are many medications available without prescription, including simple analgesics, antihistamines, cough and cold preparations, decongestants, gastrointestinal preparations, herbal remedies and alternative therapies. Caution needs to be exercised whilst breast feeding as transference to the breast milk and baby can occur. If the breast-feeding mother asks the student midwife about the suitability of taking such medications, she should be advised that she should always discuss this with a pharmacist, advising them of the fact that she is breast feeding. She should also be directed to one of the additional sources of information as described below. The Breastfeeding Network, for example, has extensive factsheets on over-the-counter medications**.**

**[h1]Midwife’s role**

[fo]The decision to treat depression or any other medical condition in a woman who is breast feeding is one for the medical practitioner in conjunction with the woman and not the midwife. However, the student midwife/midwife’s role is to advise the mother and family about the possibility and signs of illness, in this case depression and mastitis, as well as recognising deviation from the normal in the postnatal mother. Upon recognition, it is appropriate to refer to a medical practitioner and consider referring to a specialist service as well as accessing information about breast feeding and the condition (NICE, 2014, 2021b).

If treatment or advice is required about specific conditions and/or drugs for the breast-feeding mother that is beyond the remit and knowledge of the student midwife/midwife, a timely referral to an appropriate practitioner should always be made (NMC, 2018). The skills of advocacy could be used to support the mother’s discussion with such practitioners, to facilitate an informed decision-making process about the most appropriate medication and management (NMC, 2019). It is suggested that the midwife/student midwife could signpost both the mother and the professional to reliable, effective information (see Further reading). A breast-feeding mother should be advised to always share the fact that she is breast feeding with a pharmacist or any healthcare practitioner prescribing medications as well as practitioners providing any alternative therapies before taking or applying any medications.

**[h1]Breast feeding and medications information**

[fo]Sources of information about medication whilst breast feeding include the Breastfeeding Network (BfN) which is a registered charity and an independent source of support and extensive information for breast-feeding women and healthcare professionals. This charity operates a Drugs in Breast milk service for parents and professionals which is run by volunteer qualified pharmacists and produces factsheets on a range of topics related to medications and breast feeding. Additionally, there are online lactation-specific databases such as the UK Drugs in Lactation Advisory Service (UKDILAS) and the Drug and Lactation database (LactMed). It is recommended that student midwives familiarise themselves with these resources in order to effectively signpost the mother to them for more information.

**[h1]Conclusion**

[fo]Taking any medications whilst breast feeding should always be undertaken with caution. Many women who have medical conditions can breast feed. Most drugs pass into breast milk but at low levels and it is suggested that very few are totally contraindicated during breast feeding (Jones, 2018). Whilst most medications can be taken as the amount transferred in the breast milk is minimal, there is always a possibility of the baby having a reaction. New medications are being developed all the time and it is not possible to clearly define which are suitable for breast feeding, but it is the responsibility of the practitioner to search for studies that determine the safety and effect in the neonate.

There should be a careful decision-making process to ensure that the advantages of taking the medication for the mother's health outweigh the small risks to the baby. These decisions should be aided by healthcare professionals to enable the mother to make an informed decision, thus ensuring that breast feeding is protected and women are supported to breast feed for as long as they wish. Requiring medication should not be a reason for a woman to stop breast feeding and safe alternatives should always be sought.

**[h1]Find out more**

[fo]The following is a list of conditions. Take some time and write notes about each of them . Be specific about the pharmacokinetics and pharmacodynamics and how these may affect breast feeding. Remember to include aspects of patient care. It may be helpful to think of actual examples you have seen, but ensure that you have adhered to the rules of confidentiality.

|  |  |
| --- | --- |
| **[tch]Condition** | **Your notes** |
| [tb]Oral thrush in the baby.thrush in the mother’s breast |  |
| Cold/flu |  |
| Urinary tract infection |  |
| Hayfever |  |

**[h2]Glossary**

**Bioavailability** A measure of absorption or the fractional extent to which the drug dose reaches its site of action

**Half-life** Defined as the time taken for the concentration of a medication in blood or plasma to fall to half its maximum value

**Kernicterus** High plasma concentration of bilirubin in the newborn which can lead to neurological damage

**Mastitis** An inflammation of the breast tissue that may or may not be accompanied by infection. It is often caused by poor attachment of the baby to the breast and ineffective removal of breast milk. If untreated, it can result in painful breast feeding

**Over-the-counter medication** A medication sold directly to the public without a prescription

**Therapeutic range** Thedesirable range for concentration of the medication in plasma and tissues to achieve the desired therapeutic effect. Above the therapeutic range, toxic effects will appear and below the therapeutic range, the medication is less likely to have the desired effect

**[h1]Test yourself**

[fo]Now review your learning by completing the learning activities for this chapter at [www.wiley.com/go/pharmacologyformidwives.](file:///C:\Users\Owner\Documents\Peate%20Pharma%20for%20Midwives%20original%20files\www.wiley.com\go\pharmacologyformidwives)

**[h1]References**

Anderson, P.O., Pochop, S.L., Manoguerra, A.S. (2003) Adverse drug reactions in breastfed infants: less than imagined. *Clinical Pediatrics*, **42**(4) : 325–340.

Anderson, P., Manoguerra, A., Valdez, V. (2015) A review of adverse reactions in infants from medications in breast milk. *Clinical Pediatrics*, **5**(3): 236–244.

Brimdyr, K., Cadwell, K., Widström, A.-M. et al. (2015) The association between common labor drugs and suckling when skin-to-skin during the first hour after birth. *Birth*, **42**: 319–328.

Brown, A., Jordan, S. (2014) Active management of the third stage of labor may reduce breast feeding duration due to pain and physical complications. *Breastfeeding Medicine*, **9**(10): 494–502.

Brown, A., Rance, J., Bennett, P. (2015) Understanding the relationship between breast feeding and postnatal depression: the role of pain and physical difficulties. *Journal of Advanced Nursing*, **72**: 273–282.

Bushra, R., Aslam, N. (2010) An overview of clinical pharmacology of ibuprofen. *Oman Medical Journal*, **25**(3): 155–1661.

Cadwell, K., Brimdyr, K. (2017) Intrapartum administration of synthetic oxytocin and downstream effects on breast feeding: elucidating physiologic pathways. *Annals of Nursing Research and Practice*, 2(3): 1024.

Erickson, E.N., Emeis, C.L. (2017) Breast feeding outcomes after oxytocin use during childbirth: an integrative review. *Journal of Midwifery & Women's Health*, **62**(4): 397–417.

Fleet, A.J., Jones, M., Belan, I. (2017) The influence of intrapartum opioid use on breast feeding experience at 6 weeks post partum: a secondary analysis. *Midwifery*, **50**: 106–109.

Hamilton, C. (2014) Medication and the midwife. In: Peate, I., Hamilton, C. (eds) *The Student's Guide to Becoming a Midwife*. Wiley-Blackwell: Oxford.

Jones, W. (2018) *Breast feeding and Medications*. Routledge: London.

Jordan, S., Emery, S., Bradshaw, C., Watkins, A., Friswell, W. (2005) The impact of intrapartum analgesia on infant feeding. *British Journal of Obstetrics & Gynaecology*, **112**: 927–934.

Jordan, S., Emery, S., Watkins, A., Evans, J.D., Storey, M., Morgan, G. (2009) Associations of drugs routinely given in labour with breast feeding at 48 hours: analysis of the Cardiff Births Survey. *British Journal of Obstetrics & Gynaecology*, **116**(12): 1622–1629.

Kendall-Tackett, K., Cong, Z., Hale, T.W. (2011) The effect of feeding method on sleep duration, maternal well-being and postpartum depression. *Clinical Lactation*, **2**(2): 22– 26.

Knight, M., Bunch, K., Tuffnell, D. et al. (2020) Saving Lives, Improving Mothers’ Care: Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2016–18. [www.npeu.ox.ac.uk/mbrrace-uk/reports](http://www.npeu.ox.ac.uk/mbrrace-uk/reports) (accessed February 2022).

Mattison, D., Halbert, L. (eds) (2013) *Clinical Pharmacology During Pregnancy*. Elsevier: St Louis.

McAndrew, F., Thompson, J.. Fellows, L,, Large, A., Speed, M., Renfrew, M. (2012) Infant Feeding Survey 2010. <https://sp.ukdataservice.ac.uk/doc/7281/mrdoc/pdf/7281_ifs-uk-2010_report.pdf> (accessed February 2022).

[Mitchell](https://associationofanaesthetists-publications.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Mitchell%2C+J), J.,  [Jones](https://associationofanaesthetists-publications.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Jones%2C+W), W., [Winkley](https://associationofanaesthetists-publications.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Winkley%2C+E), E., [Kinsella,](https://associationofanaesthetists-publications.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Kinsella%2C+S+M) S.M. (2020) Guideline on anaesthesia and sedation in breast feeding women 2020. *Anaesthesia*, **75**: 1482–1493.

Mohrbacher, N. (2010) *Breastfeeding Answers Made Simple*. Hale: London.

National Institute for Health and Care Excellence (2014) Antenatal and postnatal mental health: clinical management and service guidance (CG 192). [www.nice.org.uk/guidance/cg192](http://www.nice.org.uk/guidance/cg192) (accessed February 2022).

National Institute for Health and Care Excellence (2017) Intrapartum care for healthy women and babies (CG190). www.nice.org.uk/guidance/cg190 (accessed February 2022).

National Institute for Health and Care Excellence (2021a) Antenatal care (NG201). [www.nice.org.uk/guidance/ng201](http://www.nice.org.uk/guidance/ng201) (accessed February 2022).

National Institute for Health and Care Excellence (2021b) Postnatal care (NG194). [www.nice.org.uk/guidance/ng194](http://www.nice.org.uk/guidance/ng194) (accessed February 2022).

Nursing and Midwifery Council (2018) The Code: Professional standards of practice and behaviour for nurses, midwives and nursing associates. [www.nmc.org.uk/standards/code/](http://www.nmc.org.uk/standards/code/) (accessed February 2022).

Nursing and Midwifery Council (2019) Standards of proficiency for midwives. [www.nmc.org.uk/standards/standards-for-midwives/standards-of-proficiency-for-midwives/](http://www.nmc.org.uk/standards/standards-for-midwives/standards-of-proficiency-for-midwives/) (accessed February 2022).

Rollins, N.C., Bhandari, N., Hajeebhoy, N. et al. (2016).Why invest, and what it will take to improve breast feeding practices? *Lancet Breastfeeding Series*, **387**: 491–504.

Schaefer, C., Peters, P.W.J., Miller, R.K., Miller, R.K. (eds) (2007) *Drugs During Pregnancy and Lactation: Treatment Options and Risk Assessment*. Elsevier: St Louis.

Soussan, C., Gouraud, A., Portolan, G. et al. (2014) Drug-induced adverse reactions via breast feeding: a descriptive study in the French Pharmacovigilance Database. *European Journal of Clinical Pharmacology*, **70**: 1361–1366.

UNICEF (2017) Guide to the Baby Friendly Initiative Standards. [www.unicef.org.uk/babyfriendly/baby-friendly-resources/implementing-standards-resources/guide-to-the-standards/](http://www.unicef.org.uk/babyfriendly/baby-friendly-resources/implementing-standards-resources/guide-to-the-standards/) (accessed February 2022).

Victora, C.G., Bahi, R., Barros, A.J.D. et al. (2016) Breast feeding in the 21st century: epidemiology, mechanisms and lifelong effect. *Lancet Breastfeeding Series*, **387**:475–490.

Widström, A.M., Brimdyr, K., Svensson, K., Cadwell, K., Nissen, E. (2019) Skin-to-skin contact the first hour after birth, underlying implications and clinical practice. *Acta Paediatrica*, **108**: 1192–1204.

Wiklund, I., Norman, M., Uvnas-Moberg, K., Ransjo-Arvidson, A.-B., Andolf, E. (2009) Epidural analgesia: breast-feeding success and related factors. *Midwifery*, **25**: e31–e38.

Ystrom, E. (2012) Breast feeding cessation and symptoms of anxiety and depression: a longitudinal cohort study. *BMC Pregnancy and Childbirth*, **12**(1): 36.

**[h1]Further reading**

Breastfeeding Network (2019) Drugs In Breast milk – Is It Safe? www.breast feedingnetwork.org.uk/drugs-in-breast milk/

Breastfeeding Network drugs factsheets: www.breast feedingnetwork.org.uk/drugs-factsheets/

UK Drugs in Lactation Advisory Service (UKDILAS): [www.sps.nhs.uk/articles/ukdilas/](http://www.sps.nhs.uk/articles/ukdilas/)

Drug and Lactation database (LactMed): [www.ncbi.nlm.nih.gov/books/NBK501922/](http://www.ncbi.nlm.nih.gov/books/NBK501922/)

**bry, a/w, contents, perms**