Guideline

# Infant Feeding - Management of Low Breast Milk Supply

## 1. Purpose

This guideline outlines the diagnosis and management for low breast milk supply, including the use of medicines to enhance milk supply at the Women's hospital.

This guideline is related to the Breastfeeding Policy.

## 2. Definitions

- Milk supply is considered low when there is not enough breast milk being produced to meet the infant's growth needs
- Galactogogue - a substance than increases breast milk production

Low milk supply is the one of the most common reasons given for early weaning. Therefore, it is imperative it is diagnosed accurately and if confirmed, should be managed appropriately. Low milk supply may be real, or perceived. Mothers may perceive their infant's need for frequent feeding and comfort as a problem with milk supply. Awareness of normal, frequent feeding patterns and growth and the developmental stages of infants can help mothers to be more reassured about their own infant's feeding behaviour (1, 2).

**Causes of low milk supply** (3, 5)

- Insufficient removal of milk from the breasts leading to a reduction in milk production is the most likely cause of low supply. This is associated with:
    - Poor attachment when breastfeeding leading to insufficient breast milk removal
    - Insufficient breastfeeding and restricting breastfeeds, or a sleepy infant
- Mother-infant separation and use of infant formula, teats and dummies/pacifiers, unresolved engorgement
- Infant problems interfering with breastfeeding, e.g. ankyloglossia (tongue-tie), infant oral cavity abnormalities, congenital abnormalities, cardiac problems, prematurity, illness, oromotor dysfunction

Other causes of low milk supply may include:

- Insufficient glandular tissue- primary - hypoplastic breasts or secondary – after reduction mammoplasty
- Maternal medical problems e.g. retained products, severe postpartum haemorrhage, serious maternal illness, severe anaemia, maternal diabetes, obesity, maternal medications, hypothyroidism, polycystic ovary syndrome, Sheehan's syndrome, ( hormonal imbalance, inverted nipples (3)
- Maternal smoking, or alcohol consumption may slow the milk ejection reflex thus reducing breast drainage and milk production
- Use of combined oral contraceptive medications
- Menstruation and/or subsequent pregnancy – some women perceive a reduction in milk supply during menstruation or early pregnancy
- Excessive maternal exercise (4) or early introduction of solids for infant that infers with breastfeeding

**Signs and symptoms** (3, 5)

Low supply may be indicated by the following clinical signs. Careful history and examination is necessary, and the presence of some of these may not necessarily indicate low supply:

- Less than 3 wet nappies per 24 hours after 72 hours age
- Less than 5-6 heavy wet nappies per 24 hours after day 5
- Concentrated urine
- No change to normal breast milk stools by day 3-4 and scant stools thereafter
- Weight loss greater than 10% birth weight with further weight loss after 96 hours

- Less than 20g weight gain per day after day 4
- Failure to regain birth weight by 2 weeks of age
- Limited evidence of milk transfer during feeds
- Reduced signs of lactogenesis II (breast fullness and heaviness)
- Prolonged or continuous feeding with little evidence of satiety
- Persistent jaundice, sleepiness or lethargy and dry mucous membranes
- Excessive crying or weak cry
- Infant appears unwell

# 3. Responsibilities

Nurses, midwives, doctors and pharmacists caring for women with a low milk supply should follow this guideline.

# 4. Guideline

## *4.1 Management*

Plan of management should be prepared to ensure the infant remains hydrated and nourished whilst implementing strategies to increase mother's milk supply (1, 3, 5, 6)

- Identify cause and consider referral to a lactation consultant for specialised lactation management, particularly if there are associated maternal or infant medical conditions
- Treat any underlying maternal or infant medical conditions identified
- Medical staff to consider referral to endocrinologist if failure to lactate / Sheehan's syndrome suspected.
- Correct positioning and attachment, and management of any nipple trauma
- Increase the number of breastfeeds: wake the infant more often and/or offer the breast for comfort instead of using a dummy/pacifier
- Educate the mother regarding infant hunger and satiety cues and the signs of effective milk transfer
- Decrease non-medically prescribed or unnecessary use of artificial infant formula if appropriate
- Implement 'switch feeding' while milk supply is low and infant is sleepy: change the infant from one breast to the other several times during a feed to keep the infant alert during the feed
- Increase skin-to-skin contact
- Breast compression during feeds may increase milk transfer
- Additional breast stimulation and drainage through regular expressing after or between breastfeeds
- Good maternal nutrition, rest, relaxation and domestic support and reduce smoking, caffeine and use of alcohol
- Consider medicines that increase milk supply

## *4.2 Pharmacological Management*

Medicines that may increase milk supply should only be recommended following a thorough assessment of breastfeeding and appropriate physiological management to increase milk supply has been implemented. Lactation management to increase milk supply should be continued even if medicines are commenced.

Commonly available galactagogues:

- Domperidone (Motilium®)

- Metoclopramide (Maxolon®, Pramin®) now not commonly prescribed due to the risk of neurological adverse events - see below
- Herbal preparations

**Domperidone (Motilium®)** is a peripheral dopamine antagonist. It blocks dopamine receptors in the gastrointestinal tract and the brainstem. It does not enter the brain compartment as it does not cross the blood brain barrier. It is generally used for the treatment of nausea, vomiting and gastroparesis. However domperidone also increases the level of prolactin and is used to increase breast milk supply.

**Dosage:**

Domperidone is available as 10mg oral tablets.

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| Usual dose to increase breast milk supply | 10mg (one tablet) three times a day with or without food (7) |
| Time to maximum effect | 2 to 4 weeks (8) |
| Maximum dose in 24 hours (usual) | 30mg daily*<br>*Women with persistent low milk supply may increase to 20 mg three times a day (maximum 60 mg day) |
| Quantity needed | 100 tablets are required for up to 4 weeks.<br>Please note: 25 tablets is listed on the Pharmaceutical Benefits Scheme (PBS) |
| Ongoing treatment - some women may require treatment for several weeks, especially if they are expressing milk for a preterm infant or inducing lactation. If treatment beyond 4 weeks is contemplated, evaluation for the need, safety and effectiveness of the medicine should be considered. | |
| Once an adequate breast milk supply is achieved, women may benefit from the dose downwards over 1 to 2 weeks before ceasing. Avoid an abrupt withdrawal of treatment as this may result in an abrupt cessation of breast milk production. | |

**Side-effects (9):**

- Common – dry mouth, headache
- Uncommon –, urticarial rash, insomnia
- Rare – loss of balance, palpitations, swelling of feet, restlessness

**Contraindications:**

Domperidone is contraindicated in patients with:

- severe hepatic impairment,
- conditions where cardiac conduction is, or could be impaired or where there are underlying cardiac disease such as congestive heart failure, and
- co-administered with QT-prolonging medicines or potent CYP 3A4 inhibitors (see Appendix 1).

**Drug Interactions (10):**

Domperidone is metabolised by CYP3A4. The concentration of domperidone will increase if given with an inhibitor of CYP3A4 (see Appendix 1) and increasing the risk of adverse effects. In high doses, domperidone may prolong QT interval.

Avoid the use of domperidone with other medicines that may prolong the QT interval (see Appendix 1).

Prolongation of the QT interval can predispose a patient to potential fatal ventricular arrhythmias known as torsades de pointes (14).

Domperidone should be used with caution as may interact with other medicines, such as fluconazole:

- If fluconazole has been prescribed and domperidone has not yet been commenced then delay the introduction of domperidone until fluconazole has ceased
- If domperidone has already been commenced and fluconazole is prescribed – cease domperidone until fluconazole has ceased then recommence domperidone. Contact The Women's Medicines Information line on (03) 8345 3190 for further advice

**Use in lactation:**

Clinical trials of domperidone have been conducted on breastfeeding women to establish its role as a galactagogue. The amount of domperidone ingested by the infant through the breast milk would be extremely low (less than 0.2 mcg/kg/day) (11) as compared to doses used to treat infants and children (600-1600 mcg/kg/day) (12). Side-effects in infants of breastfeeding mothers have not been reported.

See consumer health information fact sheets for Low Milk Supply and Domperidone for increasing breast milk supply.

**Metoclopramide (Maxolon®, Pramin®)** is a central dopamine antagonist. It has an effect in the gastrointestinal tract and in the brain. It is a widely used antiemetic and gastroprokinetic medicine. Metoclopramide increases prolactin levels and breast milk supply. However, the use of metoclopramide has been associated with an increased risk of neurological adverse events, including extrapyramidal disorders and tardive dyskinesia. A risk of rare cardiac conduction disorder has also been identified. Cases of depression associated with metoclopramide use have been reported. Other adverse effects of metoclopramide include restlessness, drowsiness and fatigue (13), and therefore is not usually recommended for treatment of low breast milk supply.

For further information on the use of metoclopramide, please contact the Women's Medicines Information Line on (03) 8345 3190.

### Herbal preparations

Many herbal preparations such as hops, fenugreek, fennel seed, blessed thistle and alfalfa have traditionally been used to increase breast milk production. However, there is little published research to support their effectiveness in increasing milk supply or their safety to mother and infant. For this reason, herbal preparations are not recommended by the Women's.

Breastfeeding women who are concerned about their breast milk supply should consult with a lactation consultant or other health care provider.

## 5. Evaluation, monitoring and reporting of compliance to this guideline

Compliance to this guideline will be monitored, evaluated and reported through the following:

- Breastfeeding Services Lactation Consultants (LC) when called to provide consultations for women and their babies within the scope of this guideline will review the documented treatment plan to determine consistency with this guideline
- Where a treatment plan does not comply with this guideline the staff will complete a VHIMS report
- Breastfeeding Service will review all reported incidents of non-compliance reported through VHIMS and develop an action plan to address issues as required

## 6. References

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14. Grzeskowiak L, Amir LH. *Pharmacological management of lactation difficulties with domperidone: Separating fact from fiction.* Med J Aust 2014; 201:257-58
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## 7. Legislation/Regulations related to this guideline

Not applicable.

## 8. Appendices

Appendix 1 – CYP3A4 Inhibitors

Appendix 2 – Medicines that may prolong QT interval

Appendices

# CYP3A4 Inhibitors / Medicines that may prolong QT interval

## Appendix 1: CYP3A4 Inhibitors

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| aprepitant (moderate), atazanavir (moderate) |
| boceprevir (strong) |
| cimetidine, clarithromycin (strong), cobicistat (strong), crizotinib |
| darunavir, diltiazem (moderate) |
| erythromycin (moderate) |
| fluconazole (moderate), fluvocamine, fosamprenavir (moderate) |
| grapefruit (moderate) |
| imatinib (moderate), indinavir (strong), itraconazole (strong) |
| ketoconazole (strong) |
| Lopinavir |
| posaconazole (strong) |
| ritonavir (strong) |
| saquinavir (strong) |
| telaprevir (strong), ticagrelor, tipranavir |
| verapamil (moderate), voriconazole (strong) |

## Appendix 2: Medicines that may prolong QT interval

| **Class** | **Medicines** |
|---|---|
| Antiarrhythmics | amiodarone, disopyri\amide, sotalol |
| Anti-infectives | atazanvir, clarithromycin, erythromycin, fluconazole, mefloquine, moxifloxacin, pentamidine, quinine, voriconazole |
| Antineoplastics | arsenic trioxide, crizotinib, dasatinib, eribulin, lapatinib, nilotinib, pazopanib, sorafenib, sunitinib, toremifene, vandetanib, vemurafenib |
| Others | cisapride, citalopram, cocaine, dextropropoxyphene, domperidone, escitalopram, fluoxetine, methadone, pasireotide, solifenacin, tacrolimus, tricyclic antidepressants, tetrabenazine, vardenafil |