
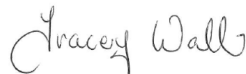


GUIDELINES FOR OLCHC STAFF CARING FOR MOTHERS EXPRESSING BREAST MILK IN OLCHC


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Appendix 2: Medela Equipment

Appendix 3a: Breast Shield Assessment Tool

Appendix 3b: Choosing your correct size Medela Breast Shield Size

Appendix 4a: Expressing Assessment Tool (EAT)

Appendix 4b: Expressing Assessment Tool (EAT) Mothers Version

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Appendix 6: Storage Guidelines for EBM


Appendix 7: Expressed Breast Milk Sign Out Sheet

Appendix 8: Transitioning from Tube Feeding to Breastfeeding Guide

Appendix 9: Breastfeeding Assessment Tool (BAT)

Appendix 10: Conditions for Mothers Breastfeeding in OLCHC

Appendix 11: Permission Letter for OLCHC to discard Expressed Breast Milk

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1.0 Introduction

Our Lady's Children's Hospital Crumlin (OLCHC) believe that breastfeeding is the healthiest way for a woman to feed her infant. Staff in OLCHC support mothers who choose to breastfeed according to the Breastfeeding Policy Statement (Nurse Practice Committee (NPC) 2013a). World Health Organisation (WHO) (2002) recommends exclusive breastfeeding for six months and continued breastfeeding for a minimum of two years; this is inclusive of the consumption of expressed breast milk (EBM). Not all infants are able to feed at the breast for a variety of reasons; hence mothers may need to express and store their own breast milk for administration enterally at a later date (Becker et al 2016). This guideline aims to assist nurses to provide consistent and accurate advice and education, and to provide appropriate support and encouragement for mothers of infants receiving EBM and when transitioning from expressing to direct breastfeeding.

2.0 Definition of expressed breast milk

Expressing breast milk means squeezing milk from the breasts, either with a pump or by hand, after which it can be stored and fed to an infant at a later date. It is the only way, apart from breastfeeding directly, which releases breast milk (Riordan 2010, La Leche League (LLL) 2012).


3.0 Indications for using express breast milk (this is not an exhaustive list)

Most infants are able to breastfeed directly at the breast, however, in children's hospitals, breastfeeding may be difficult to establish, leading mothers to express if:

- Initially after birth, mothers are unable to be with their sick infant due to post-partum conditions or environmental/ geographic reasons
- Uncorrected anatomical anomalies e.g. Gastrointestinal (GI) obstructions (atresia/stenosis), or a diagnosis where an infant is nil orally, fluid restricted or breast milk alone cannot provide adequate nutrition (UNICEF 2011, Beech 2011, Becker et al 2016)
- Infants are ill or premature

Expressing may also be performed for a variety of other reasons, these may include

- to stimulate or increase a breast milk supply;
- to stimulate attachment
- to tempt infants to attach and feed
- to help infants attach to a very full breast
- to demonstrate how their breasts work
- to add breast milk to infant's solid feed
- if separation from infants is required i.e.: going out or returning to work
- if infants are not sucking well but mothers still want to give breast milk
- if breasts feel uncomfortably full or engorged
- to allow other people to feed the infant
- if own preference to express and feed by bottle
- to donate EBM to other infants via the milk bank
(Clemons and Amir 2010, McGorrian et al 2010, Beech 2011, Becker et al 2016, Kent et al 2012a, LLL 2012, WHO 2017)

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4.0 Benefits of breast milk (this is not an exhaustive list)

Breast milk is associated with long and short term health benefits and has been shown to:

- Reduced mortality rate among preterm and low birth weight infants from necrotising enterocolitis (NEC)
- Reduce the risk of developing:
 - GI infections
 - Respiratory infections
 - Otitis media
 - Juvenile onset diabetes
 - Obesity
 - Celiac disease (when small amounts of gluten is introduced while still exclusively breastfeeding)
 - clinical asthma, atopic dermatitis, and eczema
 - dental caries
 - leukemia
 - childhood inflammatory disease
 - SIDS
- Promote brain growth and cognition
- Enhance intellectual and visual development
- Protect preterm infants against infection
- Improve GI function and maturity
- Prime the GI tract to protect against microbial invasion (through trophic feeds)
- Improve glucose tolerance
- Stimulate the maturity of the immune system

(King & Jones 2005, American Academy Pediatrics (AAP) 2012, Victoria et al 2016)

4.1 Trophic Feeds

Trophic feeds consist of small volumes of enteral nutrition (ideally breast milk) (less than 10mls/kg/day) administered to 'prime the gut' without increasing the risk of NEC and late onset of sepsis (Cortez et al 2018, Tyson and Kennedy 2009, Morgan et al 2009). Most often used with preterm infants and surgical neonates and, where appropriate, for those on TPN. It is not designed to serve as a significant source of caloric or volume intake. Trophic feeds are kept at a constant volume daily until infants are deemed clinically stable to advance to enteral nutrition - but not usually advanced before Day 7-10 of trophic feeds. This is a clinical decision is made in conjunction with the dietitian and medical teams.


5.0 Types of expressing methods

Becker et al (2016) states that the most suitable method of milk expression may depend on the time since birth, the purpose for expressing and the individual mother and infant. A variety of methods have been used to obtain breast milk:

- **Hand expressing** (Hand action stimulates milk ejection reflex and compresses milk ducts) is the cheapest way to express. It is an important skill to learn as it allows mothers to express EBM in any situation (Beech 2011).

And/or

- **Breast pumps** are available in manual, electric and battery forms (Wall 1998). Negative pressure

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created by hand/arm or pump action of the pump causes milk to flow from breast to pump. Suction pressures may be difficult to control in some pumps while others have adjustable suction pressures available (Becker et al 2016). **Electric hospital grade pumps** are a good choice if mothers have to express for a long time or if expressing more than a couple of times a day. There are several types, and most can be adapted to allow single or double pumping.

In combination with:

- **Hands on Pumping (HOP)** involves using **breast compression** and **breast massage** while hand expressing or using a breast pump. This technique has been shown to increase breast milk production (Morton 2009).

There is no specific type of pump that is suitable for all mothers and/or circumstances (Becker et al 2016). However, Slusher et al (2007) revealed greater maternal milk volumes with electric breast pumps than hand expression. Becker et al (2016) identified that hand expression or large electric pumps provide higher protein content than manual pumps and fat content was higher with breast massage when pumping. For mothers expressing breast milk for infants in OLCHC, it is advisable to use the electric hospital grade pump (Medela Symphony) available in OLCHC in combination with HOP (This and similar pumps can also be rented for home use).

6.0 Potential risks associated with expressing breast milk

For mothers:


- Injury to the mother (Clemons and Amir 2010), (e.g. Mastitis, discomfort and irritation if incorrect funnel size or pump pressure is used)
- Reduced milk supply (Rasmussen 2011)
- Reduced maternal self-confidence (Buckley 2009)
- Stress: particularly in neonatal units (Edmunds and Nevill 2008, Lee et al 2009, Becker et al 2016)

For infants:

- Risk of microbial contamination (Carneiro et al 2004, King and Jones 2005, Drenckpohl et al 2007, Widger et al 2010)
- Risk of misappropriated EBM (given to the wrong infant) (Warner and Sapsford 2004)
- Risk of medication transfer from mother to infant (rarely does breastfeeding or expressing need to be disrupted)

7.0 EBM and Maternal Medication

Almost all prescription and over-the-counter medications taken by the mother are safe during breastfeeding American Academy of Family Physicians (2015). Nevertheless, mothers should be asked if they are taking any medications (either recreational, 'over the counter' or prescribed). Several resources are available to help estimate the degree of medication exposure an infant will receive through breast milk and medication compatibility with breast milk. These resources include the Pharmacy Department in OLCHC, with reference to Briggs et al (2016) or for out of hours advice use: www.ukmicentral.nhs.uk. Other Medication and Lactation databases include www.nmic.ie, www.infantrisk.com, www.toxnet.nlm.nih.gov and www.uktis.org. This compatibility should also be performed in consultation with the infants medical team to determine the compatibility of medication with breastfeeding or if a safer alternative can be found. Rarely does breastfeeding have to be disrupted.

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Infant's exposure to such medications is dependent on the:

- extent of medication transfer into breast milk,
- effects of medication on milk production and composition, and
- extent and consequent effects of exposure to medication in breast milk on breast-fed infants
- infants age
- action of medications may vary among mothers over periods of time (absorption, distribution, metabolism, excretion)

(Briggs et al 2016, AAP 2012)

8.0 Principles of teaching both hand/pump expressing

Mothers should be assisted to learn the skill of hand expression before discharge from maternity services (WHO/ UNICEF 1989). This skill ensures that expressing is effective to establish and/or maintain an adequate breast milk supply (Becker et al 2016). However, due to the nature of emergency admissions from maternity to children's hospitals, this skill may not be taught. Therefore, it is important that nurses in OLCHC teach this skill to mothers who choose to breastfeed and/or express breast milk for their infants.

Mothers who receive breastfeeding education and support were more likely to be breastfeeding at discharge (Ahmed 2008). The best way to support breastfeeding is difficult to define, as many methods can be useful (Hannula et al 2008). **Hands-off Technique (HOT)** is one principle that can be used to teach mothers how to breastfeed with minimal intervention of 'showing' rather than 'doing' the attachment for mother, nurses are encouraged to educate and facilitate the mother and infant to attach independently with the assistance of teaching aids like information leaflets, dolls, and demonstrate attachments (Ingram et al. 2002, Hannula et al 2008, McGorrian et al 2010, LLL 2012). Mothers should be given verbal and written information on handwashing, expressing, supply, labelling, storage, handling of EBM and care of pump and expressing equipment (HMBANA 2011) (written information is available in the 'Information leaflet for mothers expressing breast milk in OLCHC' (NPC 2011a). This can assist in consolidating the verbal advice given by nursing staff in OLCHC.

9.0 Privacy, rest and expressing


Privacy should be maintained while expressing by providing a single cubicle space where possible with screens/curtains, a bed for mothers and a 'do not disturb' sign. Privacy is essential as stress may affect the milk ejection reflex in some mothers. This may mean the reallocation of beds in a ward area, with due consideration for the medical condition, and infection risk of infants involved. A single cubicle space for mothers allows mothers to rest both day and night and facilitates skin to skin contact (Ludington-Hue 2011). There are also dedicated Breastfeeding/Expressing Rooms in the Infant Wards and PICU's within OLCHC for mothers to express while their sick infants is hospitalised. There is no dedicated room for mothers who wish to express while visiting or if their infant is an out patient in OLCHC. However, a room will be made available to accommodate this or they can avail of the Breastfeeding/Expressing Rooms in the Infant Wards if appropriate

10.0 Establishing and maintaining the process of expressing breast milk for infants in OLCHC

The process often involves the following steps:

- Skin to Skin Contact
- Stimulating the Milk Ejection Reflex
- Hand or pump expressing
- Expressing Assessment Tool
- Safe Handling of EBM
- (Re)Establishing breastfeeding after expressing breast milk

10.1 Skin to Skin Contact (SCC)

Action	Diagrams	Rationale & Reference
<p>Mothers should be encouraged to perform Skin to Skin Contact (SSC):</p> <ul style="list-style-type: none"> • Place the infant (with nappy and hat) prone onto the mothers chest, skin to skin, inside their clothes with the infants head exposed • Mothers should be encouraged to wear a front opening top • Cover the infant with the mothers clothes and a pre-warmed blanket • Monitor the infants regularly or as clinically indicated 	 <p>SSC</p>	<p>SSC has been shown to stimulate prolactin, promote a better milk ejection reflex, improve breastfeeding rates (with longer and more exclusive breastfeeding) and higher volumes of expressed breast milk, trigger mammary antibody production (Jones and Hartmann 2005, Conde-Agudelo and Diaz-Rossello 2016, Gregson and Blacker 2011, Ludington-Hue 2011, Moore et al 2016, AAP 2012, Acuna-Muga et al 2014, AAP 2015)</p> <p>To facilitate SSC and easy access to the infant during SCC (Ludington-Hue 2011, Moore et al 2016)</p> <p>To maintain the infants body temperature and stay dry (Moore et al 2016)</p> <p>Healthy newborn infants temperature will remain in a safe range provided SSC is uninterrupted and infants are dry and covered with a pre-warmed blanket (or other material) and their</p>

<ul style="list-style-type: none"> • This can be performed at regular intervals throughout the day/night or as tolerated by the infant (at least one hour daily) <p>Documented in nursing care plan</p> <ul style="list-style-type: none"> • Daily frequency and duration of SCC • Performed by whom • evidence the SCC was tolerated or not 		<p>head covered with a hat. (Moore et al 2016). As per thermoregulation Guidelines (NPC 2017b)</p> <p>To improve the transition to breastfeeding (Edwards and Spatz 2010)</p> <p>To provide evidence that SCC was either tolerated or not (Spatz 2004). Good clinical records are essential to provide documentary evidence of the delivery of quality patient care (National Hospitals Office 2009, Nursing and Midwifery Board of Ireland (NMBI) 2015a).</p>
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10.2 Milk Ejection Reflex (MER)(Let down Reflex)

To obtain quantities of milk by any method requires an effective milk ejection or let down reflex (WHO 2006, Becker et al 2016). This reflex is dependent on the hormone oxytocin, produced in the posterior pituitary gland. Oxytocin causes the contraction of the myoepithelial cells surrounding the alveoli and makes the milk flow from the alveoli and down the ducts (Riordan 2010). Improved MER can result in more fat-rich hind milk being available, though restricting the length of the pumping session may reduce the hind milk obtained (Becker et al 2016).

10.2.1 Milk Ejection Reflex Responses

Milk ejection reflex responses differ between the early days of establishing milk supply to when milk supply is well established, and can also depend on:

- mothers parity
- previous breastfeeding experience
- gestation of infant at birth
- mothers level of distress
- the length of time since commencing pumping
- the length of pumping sessions
- breastfeeding directly in addition to expressing

(Becker et al 2016)

10.2.2 Signs of the milk ejection reflex

After birth, mothers may experience:

- Painful uterine contractions
- Spraying of milk from the breast
- Leaking from the breast not being suckled
- An increase in thirst

- Feeling a squeezing sensation
- Breast's feel tingly, with a warm sensation during milk ejection
- Slow deep sucks and swallowing by the baby
- Some mothers may not feel any sensation

(WHO 2006, Noonan 2011)

Mothers are more likely to feel the MER at the beginning of full breast release (LLL 2012) but it can also occur later in the expressing process (Prime et al 2011). However, not all mothers feel the MER happen and therefore, taken on its own, it cannot be used as a reliable sign of milk sufficiency (West and Marasco 2009). Milk expression may be an unusual stimulus for mothers to trigger the MER (Kent et al 2012a) however, over time mothers often may even become conditioned to having a MER to the pump (LLL 2012).

10.2.3 How to stimulate the Milk Ejection Reflex (MER)?

ACTION	DIAGRAMS	RATIONALE & REFERENCE
<p>Mothers should decontaminate their hands</p> <p>Allow plenty of time</p> <p>Ensure mothers have easy access to fluids</p> <p>To stimulate MER encourage mothers to use:</p> <ul style="list-style-type: none"> • relaxation techniques such as deep breathing exercises • visualisation techniques such as picturing their infant, looking at a photo or recordings of their infant • using tactile and olfactory reminders such as their clothing 		<p>Prevention of cross infection (HSE 2009a, CDC 2018, Infection Control Department 2017a, HMBANA 2011, NPC 2017c)</p> <p>To promote a relaxing atmosphere (LLL 2012)</p> <p>Mother should drink according to their thirst (about 8 to 10 glasses of fluids per day) while breastfeeding to maintain hydration status (LLL 2004)</p> <p>The use of relaxation/visualisation techniques and tactile/olfactory stimulation has been shown to help stimulate MER and improve milk yield (Rondo and Souza 2007, Jackson 2010, Conde-Agudelo and Diaz-Rossello 2016, LLL 2012 HSE 2016). Stress may inhibit the MER leading to insufficient milk production (Geddes 2007). Greater milk volumes are yielded when mothers use relaxation techniques such as listening to music, relaxation techniques, breast</p>

Encourage mothers to get a back and neck massage (up and down the back on either side of the spine between the shoulder blades)

Choose a comfortable chair with a high back and supportive arms.

Facilitate expressing at the infant's bedside

Maintain privacy to express:

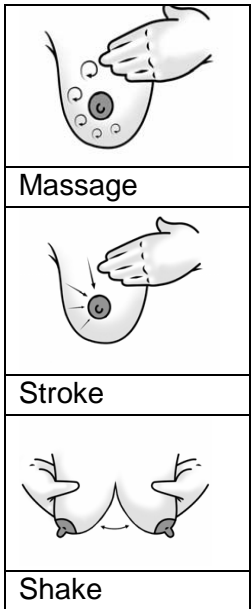
- Use a screen or curtains in a single cubicle space beside the infant

Advice mothers to place warm moist compresses (face cloth) on their breasts.

Do not feel rushed while expressing.

Mothers should:

- **Massage** around their breasts gently in small circular motions with their fingers from the chest towards the nipple,
- **Stroke** their breasts from the chest towards the nipple, and
- Lean forward and **shake** their breasts gently.
- Gently roll their nipples between their fingers



massage (Becker et al 2016)

To help stimulate MER and express effectively and comfortably (WHO 2009, HSE 2016). To yield a greater milk volume (Becker at al 2016)

To help stimulate MER and express effectively and comfortably (WHO 2009, HSE 2016)

To help stimulate MER and improve milk yield

To help stimulate MER and assist the milk to flow

To help stimulate MER and assist the milk to flow (Kent et al 2012b)

To help stimulate MER and assist the milk to flow

To help stimulate MER and assist the milk to flow (Morton 2009, HSE 2016) and improve the quality and quantity of breast milk (Foda et al 2004, Carlson-Bowles 2011, Becker at al 2016)

To help stimulate MER and assist the milk to flow

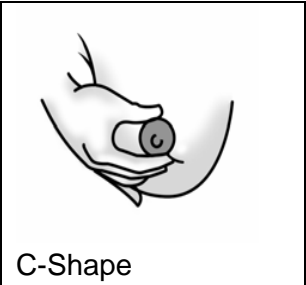
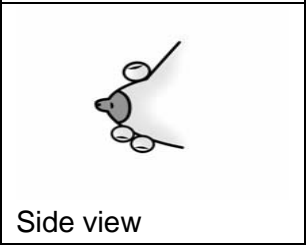
To help stimulate MER and assist the milk to flow

To help stimulate MER and assist the milk to flow


10.3 How to teach a mother to hand express?

Equipment:

Sterile wide necked bowl/container
Hand cleansing facilities

ACTION	DIAGRAMS	RATIONALE & REFERENCE
<p>Gather equipment</p> <p>All bowl / container must be rinsed, washed, sterilised as per Section 16:</p> <p>Decontaminate hands</p> <p>Explain the procedure to the mother in simple language using a hands off technique</p> <p>Stimulate the 'milk ejection' reflex as shown in Section 10.2.3 above, then, the mother should:</p> <ul style="list-style-type: none"> • With one hand, position the thumb and 1st two fingers in a 'C' shape on the edge of the areola, • Compress and release the breast tissue using rhythmic movements. 	 <p>C-Shape</p>  <p>Side view</p>	<p>To prepare environment (Trigg & Mohammed 2010)</p> <p>As per OLCHC Guidelines (Infection Control Department 2012a)</p> <p>Prevention of cross infection (HSE 2009a, CDC 2018, Infection Control Department 2017a, HMBANA 2011, NPC 2017c, OLCHC 2012a)</p> <p>Explanations can gain co-operation and trust and allay fears (Trigg & Mohammed 2010) and facilitate the mother and infant to attach independently (LLL 2012)</p> <p>To ensure the fingers and thumb are positioned behind the alveolar ducts (HSE 2016) Refer to the following web link for a video clip of hand expressing for visual footage: https://www.healthpromotion.ie/hp-files/docs/HPM00972.pdf</p> <p>To create pressure behind the alveolar duct and expel milk</p> <p>Sliding and rubbing the nipple may hurt and should be avoided (HSE)</p>

<ul style="list-style-type: none"> • Collect the milk as it is released • Do not slide or rub along the nipples • If the milk doesn't flow, try moving fingers slightly towards the areola or further away. • When the flow of breast milk slows down, move to the other breast and repeat the process. • Aim the nipple into a sterile bowl/container to collect the breast milk • Transfer this milk from the sterile bowl into a sterile screw top container/bottle when finished expressing <p>Do not collect milk in breast shield during or between pumping sessions</p> <p>Label the EBM</p> <p>Store EBM</p> <p>Provide the 'Log Book for Mothers Expressing EBM' Document (available in OLCHC Intranet) (not for filing in HCR, for mothers own</p>		<p>2016)</p> <p>Otherwise known as 'drip milk', collected in breast shells between or during pumping sessions has been found to have 50% less fat than actively expressed milk and is at risk of being heavily contaminated with skin flora (Gessler et al 2004, HMBANA 2011)</p> <p>As per Section 11.1</p> <p>As per Section 11.2</p> <p>To permit quick assessment and detect decreases in mothers milk supply so that remedial action to increase supply can be taken (Spatz 2004, Dougherty and Luther 2008, Spatz et al 2012)</p> <p>Good clinical records are essential to provide documentary evidence of the delivery of quality patient care (National Hospitals Office 2009, Nursing and Midwifery Board of Ireland (NMBI) 2015 a)</p>
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<p>use) and review by the nurse daily (Appendix 1a) or the 'Log Book for Mothers Breastfeeding / Expressing' Document (Appendix 1b)</p> <p>Document same in Nursing Care Plans</p>		
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10.4 How to teach a mother to express using a breast pump with/without Hands on Pumping (HOP)?

Equipment:

Breast pump

Hand cleansing facilities

Breast pump equipment with appropriate fitting breast shield(s) (See Appendix 2 for diagrams of same)

ACTION	DIAGRAMS	RATIONALE & REFERENCE
<p>Gather equipment</p> <p>Decontaminate hands</p> <p>Clean equipment before use: As per Section 16</p> <p>Assemble expressing set equipment (connection tubing and breast shield) once cleaned and sterilised (as per manufacturers instructions)</p> <p>Attach the sterile EBM Bottle to the bottom of the funnel</p>		<p>To prepare environment (Trigg & Mohammed 2010)</p> <p>Prevention of cross infection (HSE 2009a, CDC 2018, Infection Control Department 2017a, HMBANA 2011, NPC 2017c, OLCHC 2012a)</p> <p>As per hospital guidelines (Infection Control Department 2011 and HMBANA 2011)</p> <p>To express effectively and comfortably. To allow gravity to work to the mothers advantage</p>

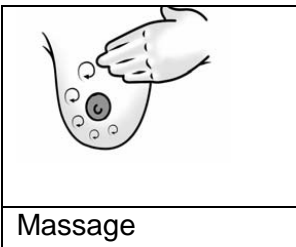
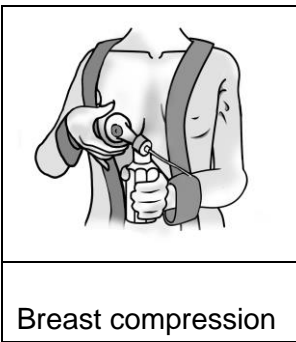
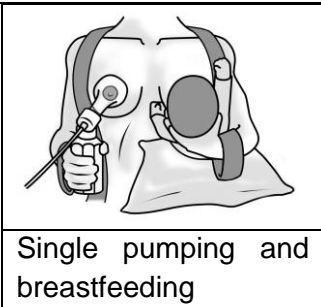
<p>Advise the mother to sit in a comfortable chair with their back supported (sitting upright and slightly forward).</p> <p>Stimulate the 'Milk Ejection' reflex as per Section 10 above</p> <p>Breast shield assessment: Perform when using the breast shield equipment and pump for the first time (See Appendix 3a, Appendix 3b and Section 10.4.1)</p> <p>Single or double pumping</p> <ul style="list-style-type: none"> ▪ When breast shield is positioned correctly: ▪ Turn the pump on ▪ Teach mothers to gradually increase the pressure setting from minimum to a comfortable level tolerated by mother ▪ Continue to express until 	<div data-bbox="620 438 1003 814" data-label="Image"> </div> <p data-bbox="620 814 1003 894">Correctly fitting Breast Shield</p> <div data-bbox="620 1318 935 1612" data-label="Image"> </div> <p data-bbox="620 1612 935 1654">Single pumping</p> <div data-bbox="620 1654 935 1927" data-label="Image"> </div> <p data-bbox="620 1927 935 1969">Double pumping</p>	<p>To ensure the shield is fitting correctly as ill fitting breast shields may impede breast milk drainage by occluding ducts resulting in milk stasis and the eventual reduction in breast milk supply (Zoppi 2012)</p> <p>Double pumping as opposed to single pumping is associated with more milk ejections, more efficient and effective milk removal resulting in higher fat content and improved drainage of the breast and is time saving (Prime et al 2010)</p> <p>(LLL 2012)</p> <p>To avoid hurting or damaging alveolar tissue.</p> <p>Liquid expands when frozen (ABM 2010)</p> <p>To mimic infants natural breastfeeding (Medela 2010)</p>
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the flow of EBM slows down, then mothers should **massage their breasts** for 1-2 minutes and express any remaining milk either by hand expressing or pumping

- Continue to pump for a further 1-2 minutes after the flow stops.
- Turn off the breast pump before removing the breast shield.
- Always leave a 2cm gap at the top of each bottle.
- Continue to the other breast if single pumping.
- The Medela Symphony breast pump uses two phase expression:
 - Phase 1: rhythm, rapid stimulation followed by
 - Phase 2: slower expression (It is normal for the breast pump sound to change and sound slower during Phase 2)

Use Hands On Pumping (HOP)

Usually performed while single pumping, but can be performed with double pumping if the breast



Breast pump suction causes milk to be removed from the breast but does not completely empty the breast. Combining pumping and HOP (breast massage and compression) has been shown to increase milk supply and help provide more of the fatty hind milk (Morton 2009, Carlson-Bowles 2011). Refer to the following web link for a video clip of maximizing your breast milk supply for visual footage: <https://globalhealthmedia.org/portfolio-items/is-your-baby-getting-enough-milk/?portfolioID=5623>

(LLL 2012)

To prevent contamination of EBM (HMBANA 2011)

As per Section 11.1

To prevent contamination of EBM (Jones and Hartmann 2005, HMBANA 2011)

<p>shields are held firmly in place</p> <ul style="list-style-type: none"> • While this continues, with a mothers free hand, use HOP, moving between breast compression and breast massage to further stimulate milk flow (some extra milk should be seen spurting out of the nipple). • Breast compression consists of mothers firmly supporting their breast with their cupped hand, and squeezing to increase the internal pressure of the whole breast (without causing discomfort). • Release the pressure when the milk stops dropping and repeat this by moving their hand around the breast. • Mothers should massage their breasts gently with their fingers in small circular motions from the chest towards the nipple. • When the flow of breast milk has stopped mothers should move to the other breast. • If the milk doesn't flow, mothers should try moving their fingers slightly towards the nipple or further away. • Continue to pump for 1-2 minutes after the last flow is seen <p>When finished expressing,</p>		
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<p>remove the EBM bottle from the expressing equipment and place the lid on the EBM container</p> <p>Label the EBM container</p> <p>Store the container in the EBM refrigerator/freezer immediately as per Section 11.2.1 below or consume immediately as per Section 12.</p>		
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10.4.1 Expressing Assessment Tool (EAT)

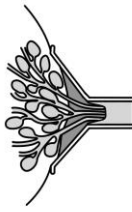
Nurses should discuss the process of expressing of breast milk with mothers and what is normal and what indicates when there is a problem with expressing breast milk. The Expressing Assessment Tool (EAT) can help to determine when expressing is going well for mothers (See Expressing Assessment Tool, Appendix 4a and Table 1 below). The EAT is performed on a daily basis, with green indicating effective expressing of breast milk and pink indicating a expressing problem that needs to be resolved. This Expressing Assessment Tool is available as a Mothers Version (Appendix 4b) and is available for download on www.olchc.ie, so mothers can also assess how expressing breast milk is going for them.

Table 1 (Expressing Assessment Tool (EAT))

10.4.2 Breast Shield Assessment

Breast shield assessment is performed to determine that the correct breast shield size is used when using a breast pump (Prime et al 2010, LLL 2012, Becker et al 2016). The breast shield size is determined by the nipple size not the breast size. Some pumps have a flexible breast shield that compress the breast and some have a choice of sizes of breast shields (Becker et al 2016). Medela breast pumps are available in OLCHC. Medela have a choice of breast shield sizes available (standard size (24mm) is available with all expressing kits). Other available sizes include: sizes S(21mm), M(24mm standard), L(27mm), XL(30mm), XXL(35mm))

It is essential that the correct breast shield size is used when expressing. If the breast shield is too small, too big or not centred correctly the nipple and alveolar tissue will not move freely into the breast shield causing redness, soreness and a white ring around the nipple. Incorrectly fitted breast shields may also impede breast milk drainage by occluding ducts resulting in milk stasis and the eventual reduction in breast milk supply (Zoppi 2012).

Breast Shield Assessment Tool (Adapted from Zoppi 2012)		Correctly Fitting Breast Shield
Breast Shields fit correctly when the:		
Nipple:	<ul style="list-style-type: none"> • is centred and pointing in the direction of the funnel • moves freely in the tunnel • is gently pulled into the tunnel • does not rub against the sides of the breast shield 	
Areolar tissue:	<ul style="list-style-type: none"> • Little or none is pulled into the tunnel • Has no white rings after pumping 	
Breast:	<ul style="list-style-type: none"> • moves gently and rhythmic • is completely empty with no lumps after pumping 	
No pain or discomfort is experienced while pumping		

When performing the breast shield assessment the nurse must also be cognisant that:

- Some mothers alveolar size may have different between the right and left alveolar
- The breast shield size will depend on the mothers breast tissues and skin elasticity
- The breast shield size may change over the duration of the pumping experience
- The nipple size may change when the pump pressure is turned on (during both the stimulation and expressing phase of the expressing cycle)
- If the breast shield is pressed too hard onto the alveolar it may block the milk ducts.

(Medela 2017)

10.5 Frequencies, duration of expressing

Action	Rationale & Reference
<p>Mother should aim to express in a pattern similar to their infants typical breastfeeding rhythm. Encourage mothers to design a breastfeeding and expressing regimen that works for both mother and infant</p> <p>Mothers should be advised to tailor their expressing frequency to their breast storage capacity</p>	<p>Breast storage capacity and infant nursing style varies widely. To ensure that mothers are still producing sufficient milk to facilitate their infants demands (Meier et al 1998, LLL 2012)</p> <p>Breast storage capacity and infant nursing style varies widely. Mothers whose breasts have a small storage capacity will need to empty their breasts more frequently and avoid expended intervals between emptying (Kent et al 2012)</p>

<p>If the infant is a newborn mothers should aim to:</p> <ul style="list-style-type: none"> • Express as soon as possible after delivery • express milk 8-10 times in 24 hours for 10-14 days • avoid leaving gaps of more than three hours (during the day) • express every 5-6hours (at night) • produce between 750-1000ml EBM per day (24hours) by day 10 of birth. • If short of time mothers are advised to pump for short periods (5-10minutes) more frequently than to leave long gaps between pumping sessions. • Be aware that mothers will only express small amounts initially. The amount expressed can vary at each expression, from 	<p>To mimic the normal initiation of breastfeeding (Kent et al 2012a)</p> <p>This mimics the increased frequency of feeding by breastfeeding infants in order to increase mother breast milk supply (Dougherty and Luther 2008). Maximum total milk production is set early in lactation (LLL 2012, Schanler et al 1999). Mothers who express less than 6 times daily have lower daily yields (Hill et al 2001)</p> <p>Restricting the length of the pumping session may reduce the hindmilk obtained (Becker et al 2016)</p> <p>Prolactin, the hormone necessary for milk production, is released in greater quantities during night-time suckling, thus milk production may get its greatest boost when infant feeds at night (LLL 2004). Night feeds may also provide infants with a substantial amount of their 24 hour intake (Dougherty and Luther 2008).</p> <p>To establish an EBM supply and that mothers will still produce sufficient EBM to facilitate infant led feeding at discharge (Jones and Hartmann 2005, Riordan 2009)</p> <p>To establish an EBM supply and that mothers will still produce sufficient EBM to facilitate infant led feeding at discharge (Jones and Hartmann 2005, Riordan 2009)</p> <p>Colostrum is produced in small quantities and therefore expression times, and quantities, in the first few days will be minimal (Riordan 2010)</p> <p>To mimic their infants usual breastfeeding pattern (Hill et al 2001)</p> <p>To maintain an EBM supply while infants are</p>
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<p>each breast, and from day to day.</p> <p>If the infant is not a newborn, mothers should aim to:</p> <ul style="list-style-type: none"> • express at regular intervals or at the same times their infant would usually breastfeed. <p>If the infant is starting to breastfeed after receiving expressed breast milk for a while, mothers may need to:</p> <ul style="list-style-type: none"> • continue expressing EBM until the infant is totally established on breast feeds(allowing infants to breastfeed first and then express) <p>If EBM is not required immediately, it should be disconnected from the expressing set, capped, labelled and placed in the appropriate storage facility as per Section 11</p> <p>Praise mothers throughout this process regardless of the EBM volume produced</p> <p>Document these observations in the infants expressing care plan and continue to assess the mothers expressing progress using the Expressing Assessment Tool (EAT) (Appendix 4a) (a mother version is also available (Appendix 4b) and on www.olchc.ie</p>	<p>being (re)established on breastfeeds</p> <p>Frequent feeding is important in the establishment of a milk supply. The composition of breast milk changes throughout the course of a feed, the fat content of the feed increases throughout the feed, the highest fat content being towards the end of the feed. (Jones 2005, ASPEN 2009)</p> <p>To boost mother confidence in their expressing abilities</p> <p>Good clinical records are essential to provide documentary evidence of the delivery of quality patient care (National Hospitals Office 2009, Nursing and Midwifery Board of Ireland (NMBI) 2015a).</p>
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11.0 Safe handling of EBM

The process often involves the following steps:

- Labelling
- Defrosting
- Storage
- Decanting

11.1 Labelling of EBM

Action	Diagrams	Rationale & Reference
<p>Label each expressed breast milk bottle using the preprinted OLCHC 'Expressed Breast Milk' labels (Appendix 5), where available with the following information:</p> <ul style="list-style-type: none"> • Mother's name • Infant's name • Date and time expressed • HCRN • Ward name • if mother taking any medication <p>EBM transferred from another hospital (e.g. EBM expressed while the infants mother was hospitalised in another hospital and the infants was transferred to OLCHC):</p> <ul style="list-style-type: none"> • Each bottle of EBM should be relabeled: <ul style="list-style-type: none"> ○ by the parents on its arrival to OLCHC with an OLCHC preprinted EBM labels <p>or</p> <ul style="list-style-type: none"> ○ in the parents absence, it should be relabeled with an 	<div data-bbox="621 709 1027 936" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Baby's Name: <u>Express Breast Milk Label</u></p> <p>Expressed: Date: _____ Time: _____</p> <p>Thawed: Date: _____ Time: _____</p> <p>HCR Number: Frozen Date: _____</p> <p>Do not use after: Date: _____</p> <p>Ward Name: Fortified: Y / N Nurse Initial: _____</p> <p>Mother's Name: _____ Mother's Medication: _____</p> </div> <p style="text-align: right;">Appendix 5</p> <div data-bbox="621 1606 1027 1906" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="text-align: center;">Expressed Breast Milk <small>(Infusion Use Only)(Enteral Administration Only)</small></p> <p>Baby's Name: _____ Amount Added: _____</p> <p>Date of Birth: _____ Time Added: _____</p> <p>Hospital Number: _____ Fortified: Yes / No</p> <p>Ward Name: _____ Fortified with: _____</p> <p>Mother's Name: _____ Do Not Use After: Date: _____ Time: _____</p> <p>Checked by: _____</p> </div> <p style="text-align: right;">Appendix 5</p>	<p>Label EBM with the date of collection, including year if freezing (LLL 2012)</p> <p>Labelling EBM should be performed by mothers in order to minimise the number of people handling and potentially contaminating EBM (Lang 2002).</p> <p>To promote and enhance safer administration of EBM and prevent the misappropriation of EBM, legible pre-printed EBM labels should be used (MHRA 2003, NPC 2007, FSAI 2012, ASPEN 2009)</p> <p>To promote and enhance safer administration of EBM and prevent the misappropriation of EBM, legible pre-printed EBM labels should be used (MHRA 2003, NPC 2007, FSAI 2012, ASPEN 2009)</p>

<p>OLCHC preprinted EBM label by the OLCHC registered nurse receiving the care of the infant and in the presence of the transferring nurse from the hospital the infants transferred from</p> <p>'Tamper proof seal' must be applied between the bottle and bottle cap.</p> <p>Place the EBM in the appropriate storage area for use at a later date or Use the EBM straight away</p> <p>EBM is then stored in dedicated containers labelled (Appendix 5) (with infants name, date of birth, HCRN) for individual infants (i.e. individual trays, containing only EBM bottles from one mother).</p> <p>Labelling of EBM after decanting Each EBM bottle or syringe is correctly and clearly labelled using the EBM labels with the:</p>		<p>A tamper proof seal is a pressure sensitive tape that is applied to EBM storage containers (bottle, syringe or bag) to provide adequate seal integrity (AORN 2007) and to reduce the risk of EBM tampering prior to its administration.</p> <p>See Section 11.2: Storage of EBM</p> <p>See Section 12: Feeding infants EBM (fresh and defrosted)</p> <p>EBM storage space may be minimal in ward areas</p> <p>To identify potential risks, ensure appropriate measures are taken and reduce the risk of misappropriation of EBM (Warner and Sapsford 2004)</p>
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<ul style="list-style-type: none"> • infants name, • date of birth, • HCRN, • date and time of expression, • date and time of defrosting (if applicable) and • any medications the mother is taking. <p>The relabeling of decanted EBM should be performed by 2 nurses (one of which is a registered nurse) and the parent (if present)</p>		
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11.2 Storage of expressed breast milk

ACTION	RATIONALE & REFERENCE
<p>Place the EBM in the appropriate storage area for use at a later date</p> <p>or</p> <p>Use the EBM straight away</p> <p>EBM is only collected in a:</p> <ul style="list-style-type: none"> • sterile polypropylene (plastic) • Bisphenol A (BPA) free, • single use, • screw cap lid container <p>EBM may also be stored in enteral syringes of which are also sterile, bisphenol A (BPA) free and single use.</p>	<p>See Section 11.2: Storage of EBM</p> <p>See Section 12: Feeding infants EBM (fresh and defrosted)</p> <p>Sterile bottles reduce risk of contamination, plastic containers freeze well and there is less loss of immunoglobulins when compared to other materials (ASPEN 2009)</p> <p>BPA can cause adverse effects as an endocrine disruptor (ABM 2010, O'Malley 2012)</p> <p>To avoid contamination (HMBANA 2011)</p> <p>Caps produce an airtight seal in order to avoid leakage or contamination (ASPEN 2009)</p>

<p>These EBM containers are supplied by OLCHC.</p> <p>EBM is stored in a dedicated EBM fridge and freezer on the ward. There is no mixing of EBM with food, pathology specimens or medicines.</p> <p>EBM is then stored in dedicated containers labelled for individual infants (i.e. individual trays, containing only EBM bottles from one mother).</p> <p>Inform mothers if there are restrictions on storage space at ward level, surplus EBM may then be stored in the Formula Room in OLCHC or the mother's home fridge/freezer as appropriate</p> <p>Transporting EBM from (to) home to (from) OLCHC:</p> <ul style="list-style-type: none"> • upright in an insulated (easily cleaned) container • with coolant blocks to maintain a cool temperature. • double checked and signed out of the hospitals (by 2 nurses of which one is registered, and the parent may be the 3rd checker if available) to ensure it is the correct EBM for the correct infant <p>Transporting EBM from hospital to hospital:</p> <ul style="list-style-type: none"> • in rigid (easily cleaned) container and • in tightly packet in bubble wrap, paper towel, or foam chips without ice, (and freezer gel packs may be used if available) • double checked and signed out of the hospitals (by 2 nurses of which one is registered, and the parent may be the 3rd checker if available) to ensure it is the correct EBM for the correct infant 	<p>To prevent EBM spillages, cross contamination, misappropriation of EBM (Spatz 2004) and maintain the EBM temperature</p> <p>EBM storage space may be minimal in ward areas</p> <p>To prevent EBM spillages, cross contamination and maintain the EBM temperature as water freezes at a temperature higher than HBM and the ice is warmer than the frozen HBM and may thaw the frozen containers. Freezer gel packs are preferred over ice as they have a lower freezing temperature (ASPEN 2009)</p> <p>To prevent EBM spillages, cross contamination and maintain the EBM temperature as water freezes at a temperature higher than HBM and the ice is warmer than the frozen HBM and may thaw the frozen containers. Freezer gel packs are preferred over ice as they have a lower freezing temperature (ASPEN 2009)</p>
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11.2.1 Table of EBM Storage (See Appendix 6 for shortened version)

EBM STATUS	WHERE AND TEMPERATURE	DURATION	RATIONALE & REFERENCE
Fresh EBM	Refrigerator (2-4°C) (not in fridge door)	Up to 48 hours	Bactericidal capacity of stored refrigerated EBM declines significantly by 48-72hours, and bacterial growth has not been shown to increase at room temperature for up to 6

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			<p>hours in EBM (ABM 2010). However, due to the risk of contamination in the hospital setting, EBM should be either consumed within one hour after expression, or placed in the refrigerator or freezer immediately after expression.</p> <p>EBM stored in a refrigerator can be kept for 2-8 days without an increase in bacterial counts (HMBANA 2011). However, in hospital settings it is difficult to guarantee a constant temperature of 2-4°C in a frequently opened fridge, therefore should be consumed within 48 hours or freezing should be considered (FSAI 2017, ASPEN 2009) and to prevent bacterial contamination of EBM (Bankhead et al 2009, HMBANA 2011).</p>
Defrosted EBM (not warmed)	Refrigerator (2-4°C) (not in fridge door)	Up to 24 hours	<p>When thawing frozen EBM, label as thawed when completely thawed (no ice crystals present) and use this time when completely thawed to base acceptable time limits for use rather than when it is taken from the freezer (HMBANA 2011). Freezing reduces the quantity of some valuable nutrients (e.g. folacin, vitamin C and triglycerides) and destroys some live cells. Once frozen EBM is brought to room temperature, its ability to inhibit bacterial growth is lessened, especially by 24 hours after thawing (ABM 2010).</p>
Defrosted EBM (warmed to room temperature) (<u>Bolus feeds</u>)	Used immediately (Do not refreeze)	Discard immediately after use	<p>EBM that has been previously frozen will have lost some of its antibacterial properties and should be discarded soon after feeding (LLL 2012, HMBANA 2011)</p> <p>EBM left at room temperature can be forgotten and the temperature rises above 4°C increasing the risk of bacterial growth (Balmer et al 2001, Department of Clinical Nutrition and Dietetics 2011)</p>
Supplemented / fortified EBM (warmed to room temperature) (<u>Bolus feeds</u>)	Used immediately (Do not refreeze)	Discard immediately after use	<p>EBM that has been previously frozen will have lost some of its antibacterial properties and should be discarded soon after feeding (LLL 2012, HMBANA 2011)</p> <p>EBM left at room temperature can be forgotten and temperature rises above 4°C increasing the risk of bacterial growth</p>


			(Balmer et al 2001, Department of Clinical Nutrition and Dietetics 2011)
Defrosted EBM (warmed to room temperature) (<u>Continuous feeds</u>)	Used immediately (Do not refreeze)	Discard 4 hours once infusion commenced	To prevent colonisation of EBM with bacteria that could cause gastro-intestinal illness of the child (Balmer et al, 2001) a continuous infusion of defrosted EBM should hang no longer than 4 hours (American Dietetic Association 2004, ASPEN 2009, Department of Clinical Nutrition and Dietetics 2011)
Supplemented / fortified EBM (warmed to room temperature) (<u>Continuous feeds</u>)	Used immediately (Do not refreeze)	Discard 4 hours once infusion commenced	To prevent colonisation of EBM with bacteria that could cause gastro-intestinal illness of the child (Balmer et al, 2001) a continuous infusion of supplemented/fortified EBM should be discarded within 4 hours of the feed commencing in a closed feeding system (American Dietetic Association 2004, ASPEN 2009, Department of Clinical Nutrition and Dietetics 2011)
Supplemented / fortified EBM in Formula Room	Refrigerator (2-4°C) (not in fridge door)	Up to 24 hours	Contamination and osmolarity increase faster in fortified EBM (HMBANA 2011)
Supplemented / fortified EBM at Ward/Unit level	Used immediately (Do not freeze)	Discard immediately after use	Fortified EBM osmolarity increases the longer it is added to EBM feed (HMBANA 2011)
Fresh EBM for freezing	Freezer (-20°C)	Freeze within 24 hours of expressing for up to 3 months	Stored EBM may have an altered smell and taste due to lipodosis (the activity of lipase, an enzyme that breaks down fat into fatty acids). This breakdown of fat aids infant digestion of EBM, particularly for preterm infants, and is not harmful (ABM 2010) and doesn't need to be discarded (ASPEN 2009)

11.3 Defrosting expressed breast milk

ACTION	RATIONALE & REFERENCE
Decontaminate hands	Prevention of cross infection (HSE 2009a, CDC 2018, Infection Control Department 2017a, HMBANA 2011, NPC 2017c, OLCHC 2012a)
Remove a sufficient volume of the frozen EBM from the EBM Freezer to meet the dietary requirements of the infant	To ensure there is a sufficient volume of EBM available for the infant for this period of time and to avoid wastage
Place the frozen EBM in the infants labeled	If EBM was previously frozen it is

<p>and dedicated EBM container in the EBM Fridge to defrost</p> <p>EBM is defrosted when there are no crystals evident</p> <p>Defrost in the following order:</p> <ul style="list-style-type: none"> • 1st 1-5 days of colostrum/transition milk • Then the most recently expressed fresh EBM • Then defrost EBM (if fresh EBM is not available) <p>Document on the EBM milk label the time and date of defrosting</p> <p>Place it in the EBM fridge</p> <p>Emergency Defrosting (ONLY), using either the following methods:</p> <ul style="list-style-type: none"> • Water Method Defrosting <ul style="list-style-type: none"> ○ Clean the bottle warmer (inside and outside) with an alcohol wipe such as azowipe and allow to dry ○ Fill as directed with Sterile Water and 	<p>best to thaw it in the refrigerator (LLL 2012)</p> <p>When thawing frozen EBM, label as thawed when completely thawed (no ice crystals present) and use this time when completely thawed to base acceptable time limits for use rather than when it is taken from the freezer (HMBANA 2011) using only the unfrozen part of the EBM may result in unequal distribution of EBM components (ASPEN 2009)</p> <p>Colostrum should be fed as soon as possible in early feeding, as it contain high concentration of anti-infective, anti-inflammatory and growth factors (O'Malley 2012)</p> <p>To ensure the nutritional and immunological contents of the EBM is most suited to the infant (Spatz et al 2012)</p> <p>Label EBM as thawed when completely thawed (no ice crystals present) and use this time when completely thawed to base acceptable time limits for use rather than when it is taken from the freezer (HMBANA 2011) To ensure the EBM is identified as 'defrosted EBM' and used within 24hours of defrosting</p> <p>To ensure the EBM is defrosted safely, as rapid heating can alter the heat labile vitamins (HMBANA 2011, Infection Control Department 2012b)</p> <p>Clean as per the SOP on Maintaining and Cleaning Bottle Warmers in OLCHC (Infection Control Department 2012c)</p>
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<p>use as per manufacturer's instructions.</p> <ul style="list-style-type: none"> ○ Insert the frozen bottle on EBM into the bottle warmer (taking care that the water does not touch the lid) ○ Allow to defrost ○ Remove from the EBM Bottle from the bottle warmer when the EBM is thawed (no ice crystals present) but while still chilled ○ Dry the EBM bottle ○ Refrigerate until required for use <ul style="list-style-type: none"> ● Dry Method Defrosting <ul style="list-style-type: none"> ○ Clean the device before use as per manufacturers instructions ○ Place the Frozen EBM in the device ○ Set the device with the volume of EBM to be defrosted (if required) Remove from the EBM Bottle from the bottle warmer when the EBM is thawed (no ice crystals present) but while still chilled ○ Dry the EBM bottle ○ Refrigerate until required for use <p>Do not defrost EBM:-</p> <ul style="list-style-type: none"> ● under running tap water ● in containers of water ● in the microwave <p>When defrosted,</p> <ul style="list-style-type: none"> ● Do not re-freeze breast milk once it has been thawed. 	<p>EBM can be contaminated with non-sterile water seeping under the lid of the bottle (Brown et al 2000, Gras-Le Guen et al 2003)</p> <p>To reduce the incidence of microorganism growth (Bankhead et al 2009, HMBANA 2011)</p> <p>Circulates warm air in a customised bottle warming device around the EBM container to defrost EBM (O'Malley 2012)</p> <p>To reduce the incidence of microorganism growth (Bankhead et al 2009, HMBANA 2011)</p> <p>To reduce the incidence of microorganism growth (Infection Control Department 2012b, Regulation and Quality Improvement Authority 2012)</p> <p>To reduce the incidence of microorganism growth</p> <p>Microwaves can denature and destroy the nutrient quality of the EBM and can cause hot spots (CDC 2018, ABM 2010, HMBANA 2011)</p> <p>To reduce the risk of contamination with multiple openings of the bottle (MacQueen et al 2012) Bacterial growth and loss of antibacterial activity in thawed milk will vary depending on the technique of milk thawing, duration of the thaw, and the</p>
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<p>EBM bottle should only be opened once and all the EBM decanted at this time</p> <p>Frozen EBM expressed outside OLCHC:</p> <ul style="list-style-type: none"> • Should be labelled appropriately (with an OLCHC EBM label by the parent) • If it arrives in a frozen state to OLCHC it should be placed in the EBM freezer • If it arrives in a defrosted state to OLCHC it should be consumed with 24hours of defrosting or discarded <p>Document any disposal of EBM due to breakage or loss due to expiration of storage</p>	<p>amount of bacteria in the milk at the time of expression (ABM 2010)</p> <p>To reduce the risk of cross infection and to comply with Bankhead et al (2009) regulations (See Section 11.4)</p> <p>To ensure appropriate measures are taken and reduce the risk of misappropriation of EBM (Warner and Sapsford 2004)</p> <p>As per Storage Section 11.2</p> <p>As per Storage Section 11.2</p> <p>EBM must not be reused or reheated as this increases the risk of contamination by pathogenic organisms during the feed (Johnston et al 2003, WHO 2005, FSAI 2012, Department of Clinical Nutrition and Dietetics 2011)</p>
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11.4 Decanting EBM

EBM should not be decanted from one EBM container to another as it increases the risk of EBM contamination (HMBANA 2011). However, when infants are sick or premature and enteral feeding is being (re)establishing only very small volumes of EBM may be required. Mothers are advised to express as close to the volume the infant requires per feed into the EBM container, however, for some infants this volume may be very small initially. For this reason decanting may be performed.

As this is procedure should be performed in a clean and sterile surface, it is advisable to perform this procedure on a sterile prep towel placed on a sterile field (i.e. dressing trolley or prepared dressing pack or large plastic tray which has been washed with detergent and warm water, dried and disinfected with Chlorhexidine Gluconate 0.5% in 70% alcohol). This procedure should be performed by the infants bedside, firstly to facilitate the double checking of the infants EBM against the infants identification band. Secondly, the parents is encouraged to participate in this procedure (if available and trained to do so) and non-staff member (i.e. parents) are prohibited from entering the Ward/Unit Kitchen (in compliance with HIQA. Finally, this procedure will be performed by 2 nurses (one of which is a registered nurse) and the parent (if available and trained to do so).

ACTION	RATIONALE & REFERENCE
<p>If there is more EBM than required by the infant in the EBM container, it:</p> <ul style="list-style-type: none"> ● must be decanted either: <ul style="list-style-type: none"> ● immediately after expression (if the EBM volume requirement is known), or ● immediately after defrosting the EBM container ● is performed preferably by the mother or 2 nurses (one of which must be a registered nurse) and the parent (if available) ● should be performed in an environment suitable to facilitate ANNT Level 2:- <ul style="list-style-type: none"> ○ sterile field (i.e. dressing trolley or prepared dressing pack or large plastic tray which has been washed with detergent and warm water, dried and disinfected with Chlorhexidine Gluconate 0.5% in 70% alcohol).clean a dressing trolley as per ANTT Guidelines ○ place a sterile prep towel on the sterile field ○ at the infants bedside (not in the ward/unit Milk Kitchen) ● should only be opened/accessed once and all the EBM decanted at this time ● should be agitated gently prior to either decanting into the appropriate feeding container or equipment ● (the top of the bottle) should be cleaned with appropriate cleansing wipes (Sanicloth® contain 2% chlorhexidine 	<p>Decanting straight after expressing reduces the number of people potentially handling EBM, thus reducing the possibility of contamination (Lang 2002, FSAI 2012)</p> <p>Mothers should perform this procedure to reduce the risk of cross infection (Lang 2002)</p> <p>As per ANTT Guidelines (NPC 2017)</p> <p>To reduce the risk of cross infection and to comply with Bankhead et al (2009) regulations and FSAI (2012)</p> <p>In compliance with HIQA regulations</p> <p>EBM separates when expressed into a container and fat freezes and thaws at different rates than protein and water (HMBANA 2011)</p> <p>To prevent cross contamination (Trigg and Mohammad 2010) and ensure the maximum</p>


<p>gluconate in 70% isopropyl alcohol) and allow to dry for up to 40seconds or until visibly dry before opening the container and decanting EBM</p> <ul style="list-style-type: none"> • is decanted (by either using a milk straw attached to an enteral syringe to transfer the EBM, or pour (if the milk straw is not available) the EBM into another correctly labelled sterile bottle (if the quantities are very small EBM should be decanted into sterile enteral syringes, capped and labeled appropriately) • must be labeled by the mother or 2 nurses (one of which must be registered) if the mother is unavailable • should be: <ul style="list-style-type: none"> • placed in the appropriate storage facility <p>or</p> <ul style="list-style-type: none"> • used immediately 	<p>efficacy of the cleansing wipe (Pratt et al 2007)</p> <p>To reduce the risk of misappropriation of EBM, prevent cross contamination and reduce the risk of bacterial growth (Warner and Sapsford 2004)</p> <p>As per Section 11.2.1</p> <p>As per Section 12</p>
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12.0 Feeding infants expressed breast milk (fresh and defrosted)

ACTION	RATIONALE & REFERENCE
Decontaminate hand and put on a disposable apron and gloves	Prevention of cross infection (HSE 2009a, CDC 2018, Infection Control Department 2017a, HMBANA 2011, NPC 2017c)
Decontaminate the work surface to be used to prepare the feed	Prevention of cross infection (HSE 2009a, CDC 2018, Infection Control Department 2017a, 2011, HMBANA 2011, OLCHC 2012a)
Remove the fresh/ defrosted EBM from the breast milk fridge	Once stored expressed milk has been warmed to room temperature or above, it must not be returned to either refrigerator or freezer temperatures (ABM 2010, LLL 2012)
<p>Consume in the following order:</p> <ul style="list-style-type: none"> • 1st 1-5days of colostrum/transition milk (within 24-48hours of commencing feeding) 	Colostrum should be fed as soon as possible in early feeding, as it contain high concentration of

<ul style="list-style-type: none"> • Then the most recently freshly expressed EBM • Then defrost EBM (if fresh EBM is not available) <p>2 nurses (one must be registered) and the parent (if available) must check the EBM label against the infants ID band with to ensure the:</p> <ul style="list-style-type: none"> • Right milk • Right Infants name • Right Infants Date of birth • Within date • Right Infants HCRN • Right Infants feeding sheet • That the tamper proof seal is intact <p>And sign the relevant documentation (Appendix 7)</p> <p>Agitate the EBM bottle gently prior to either decanting into the appropriate feeding container or equipment</p> <p>Clean the top of the bottle with appropriate cleansing wipes (Sanicloth® contain 2% chlorhexidine gluconate in 70% isopropyl alcohol) and allow to dry for up to 40seconds or until visibly dry before decanting EBM</p> <p>Open the EBM bottle</p> <p>Addition to EBM if required</p> <ul style="list-style-type: none"> • Add prescribed additive(s) as per dietitian prescription:- <ul style="list-style-type: none"> - Breast Milk Fortifier - (Low Birth Weight or premature infants) (Cow and Gate Nutriprem Breast Milk Fortifier) (sachet) (used in OLCHC) (Added immediately before feeding at ward/unit level) 	<p>anti-infective, anti-inflammatory and growth factors (O'Malley 2012) and to prime the gut (Spatz 2004)</p> <p>To ensure the nutritional and immunological contents of the EBM is most suited to the infant (Spatz et al 2012)</p> <p>Appropriate labeling, handling and storage results in optimal feeding of the infant and decreases the risk of feeding the wrong feed to the wrong infant (Drenckpohl et al 2007, Zeilhofer et al 2009, Warner and Sapsford 2004)</p> <p>EBM separates when expressed into a container and fat freezes and thaws at different rates than protein and water (HMBANA 2011)</p> <p>To clean the clean the top of bottles/cans before decanting, prevent cross contamination (Trigg and Mohammad 2010) and ensure the maximum efficacy of the cleansing wipe (Pratt et al 2007)</p> <p>Additive/fortification may be required to ensure infants optimum nutritional needs are met with additional nutritional requirements (Sudha 2007) This reduces the length of time the fortifier is added; therefore decreasing the risk of osmolarity levels which rises the longer the fortifier is added to EBM and to decrease the risk of infection control.</p> <p>To ensure accurate amount of fortification is</p>
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<p>Or</p> <ul style="list-style-type: none"> • Ensure the prescribed additive(s) is/are added:- <ul style="list-style-type: none"> - Infant Based Formula - (Term infants)/Carbohydrate/ Protein supplement (Added in Formula Room) - Add fortification at room temperature <p>Record all additives to EBM on the EBM label and intake and output sheet</p> <p>Decant EBM into sterile individually capped and labelled (EBM label) enteral syringes if required (as per Section 11.4)</p> <p>Store in individually labelled (Infant name and HCRN) container in the EBM fridge until required for use</p> <p>2 nurses (one of which must be a registered nurse) and the parent (if available) must check the EBM label against the infants ID band at the bed side to ensure the:</p> <ul style="list-style-type: none"> • Right milk • Right Infants name and • Right Infants HCRN • Date and time feed commenced and time to finish is documented on the label <p>Administer EBM via:</p> <ul style="list-style-type: none"> • NG Tube (see Nasogastric guidelines) • Enteral feeding tubes (see enteral feeding guidelines) • Bottle (see Bottle feeding guidelines) 	<p>added and due to sterility concerns about powdered additives, this preparation should taking place in a controlled environment (ASPEN 2009)</p> <p>Warming EBM can also increase its osmolality especially if glucose polymer or lactase enzyme are added (Fenton and Belik 2002, Srinivasan et al 2004, HMBANA 2011)</p> <p>Anything added to EBM may alter infants feeding outcome (HMBANA 2011)</p> <p>To ensure the EBM container is only accessed once and minimise the risk of EBM contamination (HMBANA 2011). Appropriate labelling, handling, and storing results in optimum feeding for infants and decreases the risk of EBM misappropriation (Warner et al 2004, ASPEN 2009)</p> <p>To segregate individual mothers EBM from other mother EBM to reduce the risk of EBM misappropriation (Warner et al 2004, ASPEN 2009)</p> <p>To reduce the risk of feeding the wrong feed to the wrong infant (Drenckpohl et al 2007, Zeilhofer et al 2009, Warner and Sapsford 2004)</p> <p>To ensure syringe is labelled and discarded on the feed finishing and prevent colonisation of EBM with bacteria that could cause gastro-intestinal illness of the child (Balmer et al, 2001, Department of Clinical Nutrition and Dietetics 2011, ASPEN 2009) and to reduce the risk of misappropriation of EBM (Warner and Sapsford 2004)</p> <p>As per (OLCHC 2011e) As per (OLCHC 2011f)</p> <p>As per (OLCHC 2015)</p> <p>Dropper/spoon or syringe are not functional as a long term feeding methods and the use for larger</p>
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<ul style="list-style-type: none"> • Dropper, spoon or syringe <p>If administering EBM continuously via an enteral feeding tube EBM should be administered in a:</p> <ul style="list-style-type: none"> • 20 or 60ml enteral syringe and giving set • then placed in a B Braun pump with the syringe positioned vertically (brackets available in Clinical Engineering Department) • agitated 1-2 hourly • Use the shortest length feeding tube possible • Only prepare 4 hours worth of feed at a time • Administer EBM feed in the shortest length of time tolerated by infants • Minimise EBM feed exposure to sunlight and/or phototherapy • Commence EBM feeds at required rate as per Dietitian prescription sheet <p>If administering EBM bolus via an enteral feeding tube, refer to Nasogastric guidelines or Enteral feeding tubes guidelines</p>	<p>volumes can be time consuming (Bagnall 2005b)</p> <p>Due to the small volumes to be administered syringes should be used as this avoids the adherence of fat from EBM to the larger surface area of enteral feeding bags (ASPEN 2009)</p> <p>To ensure the infant receives the fat content of the EBM and it does not stick to the sides of the equipment (HMBANA 2011)</p> <p>To ensure the fat is evenly dispersed throughout the feed and the infant receives the fat content of the EBM and it does not stick to the sides of the equipment (HMBANA 2011)</p> <p>To increase the fat content delivered per feed resulting in greater weight gain, less feed intolerance and reduced nutrient loss (HMBANA 2011)</p> <p>To prevent colonisation of EBM with bacteria that could cause gastro-intestinal illness of the child (Balmer et al, 2001, Department of Clinical Nutrition and Dietetics 2011, ASPEN 2009)</p> <p>To increase the fat content delivered per feed resulting in greater weight gain, less feed intolerance and reduced nutrient loss (HMBANA 2011)</p> <p>Exposure to sunlight and phototherapy light can degrade riboflavin and Vitamin C (HMBANA 2011)</p> <p>As per (OLCHC 2011e) and (OLCHC 2011f)</p> <p>To prevent colonisation of the feed with bacteria that could cause GI illness of the child (Bankhead et al 2009, Department of Clinical Nutrition and Dietetics 2011)</p>
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<p>Discard the enteral syringe/feeding set every 4 hours</p> <p>Erase the patient details off the EBM label so they are illegible or peel off the EBM label from the</p> <p>EBM bottle and discard in the confidential waste bin</p> <p>Discard any unconsumed EBM within 4 hours of removing it from the fridge in sluice as directed by Infection Control Department</p> <p>If administering EBM via a bottle, dropper spoon or syringe, discard any unused EBM within 1-2 hours of commencing feed</p> <p>Praise mothers throughout this process</p> <p>Documented in feeding plan and intake and output sheet</p> <ul style="list-style-type: none"> • cues displayed prior to feeding • the type and volume of feed taken • how the infant fed • evidence the feed was tolerated or not • any vomits or dribbling 	<p>To prevent cross contamination (OLCHC 2012b)</p> <p>To maintain patient confidentiality (OLCHC 2012b)</p> <p>To prevent possible <i>Pseudomonas aeruginosa</i> contamination of sinks (The Regulation and Quality Improvement Authority 2012)</p> <p>The duration of time EBM can be kept at room temperature once infants have partially fed from bottles/droppers/syringes/spoons depend on the initial bacterial load of EBM, how long EBM has been thawed and ambient temperature (ABM 2010)</p> <p>To boost mother confidence (Spatz 2004)</p> <p>To provide evidence that the feed was either tolerated or not (Lanese 2011). Good clinical records are essential to provide documentary evidence of the delivery of quality patient care (National Hospitals Office 2009, Nursing and Midwifery Board of Ireland (NMBI) 2015a)</p>
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13.0 How to maintain and increase mothers EBM supply?

Refer to the following web link for a video clip of maximizing your breast milk supply for visual footage:
<https://globalhealthmedia.org/portfolio-items/is-your-baby-getting-enough-milk/?portfolioID=5623>

ACTION	RATIONALE & REFERENCE
<p>Maintain: Mother should aim to express in a pattern similar to their infants typical breastfeeding rhythm. Encourage mothers to design a breastfeeding and expressing regimen that works for both mother and infant</p> <p>By ensuring that breasts are emptied after each expression, milk production is more likely to be maintained.</p> <p>Useful techniques to increase mothers EBM supply: Use the techniques advised in Section 10.1 and 10.2</p> <p>Express at infants bed space instead of another room or Lactation Room</p> <p>Mothers should:</p> <ul style="list-style-type: none"> ● make time for meals, snack regularly ● drink plenty of drinks <p>Mothers should perform:</p> <ul style="list-style-type: none"> ● breast massage ● Skin-to-Skin Contact (See below) <p>Ensure mothers are double pumping using the hands on pumping technique with a hospital grade electric breast pumps</p>	<p>To ensure that mothers are still producing sufficient milk to facilitate their infants demands (Meier et al 1998, LLL 2012) See Section 12 for further details</p> <p>To ensure that mothers are still producing sufficient milk to facilitate their infants demands (Meier et al 1998, LLL 2012)</p> <p>See Section 10.1 and 10.2 for further details. Refer to the following web link for a video clip of maximizing your breast milk supply for visual footage: https://globalhealthmedia.org/portfolio-items/is-your-baby-getting-enough-milk/?portfolioID=5623</p> <p>See Section 10.2.3</p> <p>See Section 10.2.3</p> <p>See Section 10.1</p> <p>Double pumping as opposed to single pumping is associated with more milk ejections, more efficient and effective milk removal resulting in higher fat content and improved drainage of the breast and is time saving (Prime et al 2010). Breast pump suction causes milk to be removed from the breast but does not completely empty the breast. Combining pumping and HOP (breast massage</p>

<p>Ensure the flange is fitting correctly</p> <p>Mothers should express more often than presently doing</p> <p>Infants should be allowed to latch and suck at the pumped breast (once clinically stable and remains nil orally)</p> <p>Express in short bursts for an 8hour period either:</p> <ul style="list-style-type: none"> • every hour (15 minutes each session) or • every 2hours (30minutes each session) 	<p>and compression) has been shown to increase milk supply and help provide more of the fatty hind milk (Morton 2009).</p> <p>See Section 10.4</p> <p>To increase the amount of stimulation at the breast, therefore increasing the breast milk production (LLL 2004, Jones and Hartmann 2005)</p> <p>To increase the amount of stimulation at the breast, therefore increasing the breast milk production (LLL 2004)</p> <p>Increased frequency of feeding by breastfeeding infants increases mothers breast milk supply, increased frequency of pumping has similar effects (LLL 2004)</p>
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14.0 How to (partially) wean mothers EBM Supply and/or stop expressing?

The reasons mothers give for weaning their child within the first year have been shown to vary depending on the child's age (Li et al 2008). Most mothers can overcome temporary breastfeeding problems without weaning or stopping expressing if they receive appropriate guidance and support and accurate breastfeeding information (Li et al 2008). However, some mothers who produce larger volumes of EBM than their infant requirements may want to wean their EBM production and balance their EBM volume with their infant's milk needs especially if transitioning to breastfeeding directly (Dougherty and Luther 2008).

ACTION	RATIONALE & REFERENCE
<p>Ensure the decision to (partially) wean and/or stop expressing is an informed decision</p> <p>Weaning should be planned and gradual without excessive discomfort for mothers</p> <p>Mothers should consider the following if their breast milk production does not meet their total fluid/nutritional requirements:</p> <ul style="list-style-type: none"> • Choose a milk formula if under 1 year (if not 	<p>For mothers to make an informed choice they need to be able to access reliable, non-judgmental, problem-solving information (McGorrian et al 2010)</p> <p>Abrupt weaning can cause physical discomfort, as milk will continue to be produced and without sufficient removal mothers can become full and engorged which can lead to mastitis or breast abscesses (LLL 2004)</p>

<p>commenced or established on complementary foods)</p> <ul style="list-style-type: none"> • Commence regular full fat milk if over 1 year • Decide on the type of feeding bottle/cup to introduce <p>Mothers should be given written information about how to prepare bottles if they then choose to bottle feed: 'How to prepare your baby's bottle' and is available at https://www.hse.ie/eng/services/publications/children/how-to-prepare-your-baby's-bottle-feed.pdf</p> <p>Mothers who are about to stop expressing EBM should wean gradually rather than suddenly stopping (reduce by one pumping session every 2-3 days) and express to comfort as needed</p> <p>Bereaved mother who wish to wean: Using their previous pumping schedule: shorten pumping session times and lengthen the time between pumping sessions without causing discomfort</p>	<p>To substitute alternative feeds and feeding devices to deliver same (LLL 2004)</p> <p>Written information supports verbal information</p> <p>When mothers stop expressing, EBM may not be removed in sufficient quantities by her infant leading to engorgement and, if it occurs continually, it can lead to a diminished milk supply and mastitis (LLL 2004)</p> <p>To gradually wean milk production without excessive discomfort and remove enough milk to reduce the pressure in the breasts. This process can take one to two week depending on the frequency and duration of mothers breastfeeding/expressing schedule prior to their infant death (HMBANA 2012). For further information refer to the Guidelines on Lactation Support for Mothers who's child has died in OLCHC (NPC 2013) and End of Life Care Folder</p>
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15.0 (Re)Establishing breastfeeding after expressing breast milk

The breastfeeding experience for mothers of sick/premature infants often involves the following steps:

- Initiating and maintaining breast milk supply
- Skin to Skin Contact (See Section 10.1 above)
- Non-nutritive sucking (NNS) and oral stimulation
- Mouth Care with EBM
- Beginning breastfeeding (supplementary feedings given as needed)
 - Individualised nutritional assessment
 - Recognising feeding cues and that infants are feeding well
 - Full breastfeeding
- Discharge.

15.1 Individualised nutritional assessment

Some infants medical condition may affect their nutritional requirements making it necessary to fortify (infant formula powder, carbohydrate/protein supplementation or breast milk fortifier) EBM and other rare conditions may necessitate the discontinuation of breastfeeding and the use of an alternative feed (Shaw and Lawson 2001). Therefore, sick infant's nutritional requirements should be assessed on an individual basis by the medical team, dietician, or the multidisciplinary team. The nutritional needs of infants and how they can be best met will be discussed with parents who can therefore make informed choices in consultation with health care professionals caring for their infant. The assessment and proposed feeding plan will be recorded in infant's healthcare record to ensure clarity and continuity of care.

15.2 Recognising feeding cues

Infants may get overly distressed if left too long for feeds and sleepy infants may not get enough feeds. These problems are less likely to happen if mothers are taught how to recognise infant feeding cues (LLL 2012)

Early Cues	Eyes moving behind eyelids before they even open	Hands coming towards face	Mouth movements	If fed at this time infants will probably feed gently and easily
Obvious Cues	Rooting to their side / chest if held	Whimpering	Squeaking	If fed at this time infants will probably feed gently and easily
Late Cues	Body and mouth tense	Breathes faster	Starts to cry	Need to calm the infant before trying to feed

Refer to the following web link for a video clip of 'helping to identify feeding cue' for visual footage:
<https://globalhealthmedia.org/portfolio-items/is-your-baby-getting-enough-milk/?portfolioID=5623>

15.3 Recognising that infants are feeding well

When infants are feeding well (with EBM and/or breastfeeding) (in consultation with medical team and dietician as clinically indicated) they should:

24 HOUR PERIOD	WET NAPPIES	DIRTY NAPPIES
Day 1-2	1-2 or more	1 or more, meconium
Day 3-4	3 or more, heavier	2 or more, changing stool
Day 5	5-6 or more, heavy	2 or more, yellow and seedy
Day 7+	6 or more, heavy	2 or more, yellow and seedy

Infants Colour	Centrally and peripherally pink
Infants Alertness	Alert when awake
Infants Tone	Good
Weight (post initial birth loss)	No more than 10% of birth weight loss, otherwise gaining weight
Number of feeds	At least 8-10 feeds in 24 hours (by Day 5)
Infants behaviour during feeds	Generally calm and relaxed
Sucking pattern during feeds	Start with short sucks then longer sucks, pausing now and again (by Day 5)
Swallowing	Quiet
Length of feeds	5 - 30 minutes at most feeds
End of feeds	Infant lets go spontaneously, or when breast is gently lifted
Offer 2 nd breast?	Offered 2 nd breast but may or may not feed depending on appetite
Infants behaviour after feeds	Content after most feeds

(Adapted from UNICEF UK Baby Friendly

Initiative 2010)

When infants attach well,
mothers should **see** that infants:-


- have a large mouthful of breast in their mouth
- sounds
- lips are turned outwards
- cheeks should look rounded when infants suck
- are able to breathe freely through their nose

mothers should **hear**:-

- audible swallowing, not smacking

Refer to the following web link for a video clip of help identify feeding cue for visual footage:

<https://globalhealthmedia.org/portfolio-items/is-your-baby-getting-enough-milk/?portfolioID=5623>

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15.4 Non-Nutritive Suck (NNS) and oral stimulation

NNS is an organised series of short sucking bursts separated by brief pauses (2 sucks/second) and usually occurs when there is no nutrition flow (Bagnall 2005a). NNS can be introduced once infants are over 30 weeks gestation, medically stable and display a sucking reflex (Bagnall 2005a). The benefits of NNS include:

- may stimulate the gastric motor function and therefore facilitate the digestion of enteral feeds
- prior to a feed may alert infants to sucking and encourage tongue movement for feeding
- may facilitate the transition from tube to full suck feeds by accelerating the organisation and efficiency of sucking
- can build infants association between sucking and satisfaction
- has been shown to significantly decrease the length of hospital stays in preterm infants

(Bagnall 2005b, Pinelli and Symington 2010)

NNS can be offered in the form of a soother or gloved finger or the empty breast during tube feeds to stimulate rooting, latching and swallowing reflexes. If infants are stable, a soother can be substituted by encouraging infants to suck a gloved finger or alternatively it can be offered during SSC by mothers offering the empty breast during tube feeds (Bagnall 2005a). As infants begin to take more oral feeds at around 33 weeks gestation, the use of NNS is no longer appropriate, unless infant's clinical condition indicates otherwise (Bagnall 2005a). The use of NNS at the breast has shown to improve the transition to breastfeeding and is associated with longer breastfeeding durations (Spatz 2004, Edwards and Spatz 2010). Under special conditions the need for NNS may be necessary, for example during a period of prolonged fasting, for procedural pain relief, or through parental choice (Pinelli and Symington 2010). Therefore, NNS use should be a very specific part of a feeding regime and not ad hoc or for long periods of time. The need for NNS will be discussed with parents prior to its commencement and must be recorded in healthcare records as appropriate. These infants may also require referral to a speech and language therapist to help stimulate and practice oro-motor skills and reduce oral hypersensitivity (Pinelli and Symington 2010).

WHO (1998) recommends that bottles, teats and soothers should be avoided whilst establishing breastfeeding, unless needed for medical reasons, or through parental choice. Research has shown that prolonged soother sucking and early introduction of bottles and teats can lead to 'nipple teat confusion' and may interfere with infants ability to display feeding cues, thus leading to reduced milk supply and early weaning (Bagnall 2005b, Briggs 2005, Begley et al 2008, Karabulut 2009). Staff in OLCHC will not promote or encourage the use of soothers or artificial teats, while establishing breastfeeding. Parents will be informed by staff of the possible confusion that can occur for infants if introduced to soothers, teats and bottles during the first few weeks of breastfeeding. If parents decide to use either for their breastfeeding infants it is recorded in healthcare records. For breastfeeding mothers who do choose to give their infant a soother, it should be offered after the neonatal period (after breastfeeding is established) and only for sleep periods.

15.4.1 Mouth Care and EBM

The use of EBM for mouth care has by shown to decrease the risk of infection and protect the gastric mucosa while infants are nil orally (Rodriguez 2009).


ACTION	RATIONALE & REFERENCE
<p>Perform mouth care as per local assessment tools</p> <p>Perform mouth care with EBM:</p> <ul style="list-style-type: none"> • Double check EBM (2 nurses: one must be a registered nurse and a parent (if present)) • Decontaminate hands with water and appropriate soap suspension • Dip a sterile cotton swab into the EBM • Rub on the infants lips and inside their mouth • Discard the cotton swab • Decontaminate hands <p>Document:</p> <ul style="list-style-type: none"> • oral hygiene care in the nursing notes 	<p>As per Oral Assessment Tool1: For Infants and Children in Ward Area (NPC 2014a) / Oral Assessment Tool 2: For Infants and Children in PICUs (NPC 2014b)</p> <p>As per Section 12, to maintain the safe administration of EBM and prevent errors</p> <p>Prevention of cross infection (HSE 2009a, CDC 2018, Infection Control Department 2017a, HMBANA 2011, NPC 2017c)</p> <p>To oral and nasal stimulation</p> <p>To prevent cross contamination (OLCHC 2011)</p> <p>Prevention of cross infection (HSE 2009a, CDC 2018, Infection Control Department 2017a, 2012a, HMBANA 2011, NPC 2017c)</p> <p>Good clinical records are essential to provide documentary evidence of the delivery of quality patient care (National Hospitals Office 2009, Nursing and Midwifery Board of Ireland (NMBI) 2015a).</p>

15.5 Transitioning to breastfeeding


For some infants due to their prematurity or illness may not have been able to receive breast milk directly from the breast. Alternatively, these infants may have received breast milk via bottles or enteral tubes. Once clinically stable these infants can transition to receive breast milk directly from the breast. This transition can be safely facilitated by using the 'Transition from Tube feeding to Breastfeeding Guide' (OLCHC 20117b) (See Appendix 8). This transition may take a little time. During this time the infant progress should be monitored closely to ensure that the transition to breastfeeding directly runs smoothly and that the infants continues to receive adequate amounts of breast milk to maintain hydration and normal growth as per their centile chart.

Refer to the 'Transitioning from tube feeding to breastfeeding Guide' for more direction


ACTION	RATIONALE & REFERENCE
<p>Explain to mothers how infants progress from being enterally fed to directly breastfed</p> <p>Support mothers who choose to bottle feed their EBM</p> <p>Establish realistic expectations</p> <p>Provide reassurance and an optimal environment</p> <p>Perform mouth care with EBM as per Section 15.4.1</p> <p>Assess infants readiness to feed prior to considering the commencement of breastfeeding</p> <p>When establishing breastfeeding sterile water, glucose water or formula feeds should be avoided, and will only be given following discussion with parents and after assessment by the medical team.</p>	<p>Explanations can gain co-operation and trust and allay fears (Trigg & Mohammed 2010)</p> <p>Infants get comfort as well as their nutritive needs being satisfied.</p> <p>Breastfeeding can commence as soon as infants are clinically able to feed (able to coordinate sucking, swallowing and breathing with minimal changes in cardiovascular responses) which begins between 32 – 35 weeks gestation and older (Kuehl 1997), while also showing signs of stability (Jones 2012), and appropriate feeding cues. To identify when it is safe to commence feeding (Crowe et al 2016)</p> <p>Pre-term or sick babies may require additional nutritional support. Gut flora may be altered if supplemental feeds are given; there is an increased risk of sensitising a vulnerable infant to cows' milk protein (Jarvinen and Suomalainen 2001). Formula has a slower gastric emptying time and may reduce infant's interest in breast feeds (Van Den Driessche et al 1999).</p>

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<p>Maximise mothers milk production</p> <ul style="list-style-type: none"> • As per Section 13) <p>Prior to feeding, with a gloved finger assess initiation, strength and rhythm of NNS</p> <p>Teach infants to associate mother with breastfeeding by:</p> <ul style="list-style-type: none"> • Practicing the principles of SCC as per Section 10.1 above. • Use optimal feeding positions to support the airway • If mothers breasts are full of milk, or mothers have a strong milk ejection reflex, encourage mothers to express for first 2-3 minutes (before putting infants to the breast) • Tease infant's mouth and lips • Express milk on to infant's lips • Stimulate the MER • Offer a few drops of EBM orally • Monitor infant progress • Offer Non-Nutritive Suck (NNS) using: 	<p>Supplemental feeds may cause mothers to feel that their milk is inadequate or inappropriate for their infant (Marques et al 2001, Kramer et al 2001, Jones 2005) To adhere to the OLCHC Breastfeeding Policy Statement (NPC 2013) and the ten steps to successful breastfeeding outlines by WHO/UNICEF (1998)</p> <p>During this early period, before oral feeding is established, maternal lactation must be sustained by expressing EBM (Bagnall 2005a)</p> <p>In order to feel the tongue compression or stripping and the suction efficiency (Bagnall 2005b)</p> <p>Skin to skin contact has been shown to help establish and maintain a milk supply (Kramer et al 2001)</p> <p>To trigger the MER and elongate the nipple and reduce the rate of flow (Jones 2005)</p> <p>To stimulate the rooting reflex (Bagnall 2005b)</p> <p>To stimulate the rooting and latching (Bagnall 2005b)</p> <p>As per Section 10.1</p> <p>Sweet tastes stimulate sucking therefore, dripping EBM on the lips before a feed may encourage the initiation of sucking (Bagnall 2005b) and stimulate swallowing</p> <p>To assess infant stability and tolerance of the transition process</p>
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<ul style="list-style-type: none"> • a soother or (adhere to soother guidelines) or • gloved finger or • offering the empty breast during tube feeds <p>• NSS at the breast should only be preformed after mothers have completely emptied their breasts using a breast pump,</p> <p>Allow infants to smell EBM during feeds</p> <p>Breastfeeding should be assessed at least every 12 hours using the Breastfeeding Assessment Tool (Appendix 9)</p> <p>Use supplementary feeding techniques:</p> <ul style="list-style-type: none"> • Supplementary Nursing System (available to Medela) – (See Appendix 2 for diagram) <p>If the infant is starting to breastfeed after receiving EBM milk for a while, mothers may need to continue expressing breast milk until infants are fully established with breastfeeds</p> <p>Mothers are encouraged to breastfeed their infants on demand</p> <p>Mothers should be shown how to confidently sooth their infants by:</p> <ul style="list-style-type: none"> • encouraging 'skin to skin' contact, • helping mothers to cope with a fretful or upset infant by rocking, stroking, or making 	<p>To stimulate the rooting, latching and swallowing reflexes, to improve the transition to breastfeeding and is associated with longer breastfeeding durations (Spatz 2004, Edwards and Spatz 2010, Spatz et al 2012)</p> <p>To reduce the risk of infants receiving breast milk, especially if infants are nil orally (Edwards and Spatz 2010)</p> <p>Breast milk odour stimulus in gavage-fed premature infants increases NNS, leading to a shorter time for transition to oral feeding (Bingham et al 2007, Yildiz et al 2011) leading to shorter lengths of hospitalisation (Raimbault et al 2007)</p> <p>To ensure there is an effective transfer of breast milk (Lennon 2012)</p> <p>To provide infants with a steady flow of a supplemented (fortified) feed (if additional fluid/nutritional requirements are required) while sucking and to provide nipple and breast compression (Jones 2005). Rewards infants for sucking efforts, helps promote further breastfeeding (Lennon 2012)</p> <p>To maintain the breast milk supply</p> <p>Infants may be tried at the breast as often as possible, in order to establish breast feeding and prevent infants developing a preference to other feeding techniques (Lang 1994, Fallon 2016)</p> <p>Parents will gain necessary skills to cope with their fretful infant which are necessary for successful parenting (Kramer et al 2001)</p>
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<p>environmental changes.</p> <p>Document:</p> <ul style="list-style-type: none"> • cues displayed prior to attempting breastfeeding • how the infant fed • evidence as to whether the breastfeed was tolerated or not • any vomits or dribbling. 	<p>Good clinical records are essential to provide documentary evidence of the delivery of quality patient care (National Hospitals Office 2009, Nursing and Midwifery Board of Ireland (NMBI) 2015a).</p>
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15.6 Discharge Support and Information

ACTION	RATIONALE & REFERENCE
<p>Inform the Public health nurse prior to discharge of all infants receiving EBM/being breastfed.</p> <p>Inform all breastfeeding mothers prior to discharge of the breastfeeding support network (PHN or Voluntary) in their local area. Leaflets are available and the following web sites may be accessed and information printed.</p> <p>Voluntary Breastfeeding supports in their local area: https://www.breastfeeding.ie/Support-search/</p> <p>Private Lactation Consultant Supports are also available: www.alcireland.ie/</p> <p>Inform mothers who also wish to express how to access expressing equipment (to buy/rent) prior to discharge:</p> <ul style="list-style-type: none"> • Local pharmacy (to buy) 	<p>Mothers who are breastfeeding may require extra support following their discharge from hospital to enable the continuation of lactation.</p> <p>Mothers will have easy access to practical accurate support from appropriately trained breastfeeding personnel to provide comprehensive breastfeeding support (Begley et al 2008, McGorrian et al 2010, CDC 2014, LLL 2012) The breastfeeding support in the succeeding days and weeks after discharge will be crucial in identifying and addressing early breastfeeding challenges that occur (da Silva Lopez et al 2016, WHO 2017)</p> <p>Provide contact details for local voluntary organisations offering ongoing support to complement local community public health services (NICE 2006, HSE 2009b, Mulcahy et al 2012, HSE 2018)</p> <p>International Board Certified Lactation Consultants (IBCLC) are health professionals who specialise in the clinical management of breastfeeding to assist the mother-infant breastfeeding dyad (CDC 2014)</p>

<p>or</p> <ul style="list-style-type: none"> • Medela (to buy and/or rent)(available along with many other types of Medela pumps from “Medicare Health and Living”, Glencormack Business Park, Kilmacanogue, Co. Wicklow. Phone: (01) 2014900, www.medicare.ie <p>Check the hospital EBM Fridges or freezers for stored EBM prior to infants discharge home and return same to mothers prior to discharge</p>	
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16.0 Cleaning and Pump/Set Cleansing and Maintenance

ACTION	RATIONALE & REFERENCE
<p>Pumps</p> <p>For pumps used by more than one woman the outer surface of the pump should be cleaned before and after each using detergent and water by the user and daily by the healthcare assistant</p> <p>Deep clean weekly with detergent and water followed by disinfection with actichlor by the healthcare assistant</p> <p>Should be serviced annually or whenever EBM enters the pump or when not working properly by the pump manufacturer</p> <p>Use only pump equipment with a mechanism to prevent backflow or aerosols into the pump</p> <p>Breast Expression Kit (including membrane cap) Single Person Use ONLY</p> <p>Change the whole breast expression kit from Medela (including the membrane cap (See Appendix 2 for diagram) inside the lid of the Symphony pump monthly</p>	<p>As per hospital guidelines (Infection Control Department 2012a). As improper cleaning can lead to increased risk of EBM contamination (ASPEN 2009, HMBANA 2011, Medela 2011, Rhodes 2012)</p> <p>As per OLCHC guidelines and SOP's (OLCHC 2008a, 2008b, 2008c). Improper cleaning can lead to increased risk of EBM contamination (HMBANA 2011, Becker et al 2016)</p> <p>As per manufacturer's instructions (ASPEN 2009)</p> <p>(As per Medela 2010)</p> <p>Inadequate cleansing and sterilising between users may increase the risk of EBM contamination (Medela 2010, HMBANA 2011)</p> <p>(As per Medela 2010)</p>

<p>Cleaning (New) Breast Expression Kit: Ensure the (new) breast expressing sets or bowl/container (if hand expressing) is:</p> <ul style="list-style-type: none"> • Cleanse before and after use • Rinsed with cool water • Washed in a bowl of detergent and water • Patient specific bottle brushes can be used to clean parts, especially tight crevices • Rinsed thoroughly with cool water • Sterilised in either :- <ul style="list-style-type: none"> ▪ an electric steam steriliser <ul style="list-style-type: none"> ▪ allowed to drip dry on a clean paper towel ▪ stored in a dry sealed labeled container with a lid until required for use ▪ a sterilising unit containing water and a sterilising tablet 'acticlor' (140ppm av chlorine) <ul style="list-style-type: none"> ▪ Keep the kit submerged until required for use again <p>Do not wash or sterilise the membrane cap and connection tubing (if moisture or milk is evident it should be discarded and a replacement provided)</p> <p>EBM storage boxes EBM storage boxes can be reused after washing thoroughly with detergent and water.</p> <p>Deep cleaning weekly with detergent and water followed by disinfection with actichlor by the</p>	<p>As per hospital guidelines (Infection Control Department 2012a)</p> <p>To remove any milk residue and reduce the risk of EBM contamination (HMBANA 2011)</p> <p>To remove any milk protein residue (HMBANA 2011, Medela 2011)</p> <p>To clean the equipment and reduce risk of equipment contamination in a sink (HMBANA 2011, Medela 2011)</p> <p>To clean any tight crevices in the kit (Rhodes 2012)</p> <p>To remove any soap residue (Medela 2011)</p> <p>To sterile the equipment (Infection Control Department 2012a)</p> <p>Moisture in the connection tubing is a potential source of contamination for milk (HMBANA 2011)</p> <p>To sterilise the equipment (Infection Control Department 2012b)</p> <p>Moisture in the pump tubing is a potential source of contamination for milk (Medela 2010, HMBANA 2011, Rhodes 2007, Chui 2012)</p> <p>As per Infection Control Department (2012b) as improper cleaning can lead to increased risk of EBM contamination (ASPEN 2009)</p> <p>As per hospital guidelines (Infection Control Department 2012b).</p>
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healthcare assistant	
EBM freezer and refrigerator Temperature should be monitored daily	
	To provide an audit trail and ensure safe temperature control (FSAI 2012, HMBANA 2011) as per SOP for recording temperatures of refrigerators and freezers (OLCHC 2008a, 2008b)

17.0 Management of EBM left in OLCHC after an infant is no longer an inpatient


Parents are advised to sign document entitled 'Conditions for mother breastfeeding in OLCHC' (Appendix 10) on admission accepting that any EBM left in OLCHC by parents on departure from OLCHC. However in the event that this form is not signed and filed in the infants nursing notes the following action must be followed:

ACTION	RATIONALE & REFERENCE
Contact the parent via phone Inform them of their options: (a)Parent to return to OLCHC to collect the EBM: <ul style="list-style-type: none"> ○ Schedule a date and a time for collection (as EBM may be located in the EBM Freezers in either the Ward / Unit or Formula Room) ○ Document the correspondence and the infants parents decision to collect their EBM and that the EBM was collected by the parents in the infant nursing notes or (b)Parent consent for the EBM to be discarded by OLCHC: <ul style="list-style-type: none"> ○ Send the 'Permission Letter for OLCHC to discard Expressed Breast Milk' (Appendix 11) to their home address ○ On this Letters return to OLCHC (and completed) ○ Remove the frozen EBM from the EBM Freezer ○ Allow the EBM to defrost in the Sluice 	To inform the infants parents of the EBM in OLCHC To ensure that the Frozen EBM is ready for collection by the infants parents on their arrival to OLCHC Good clinical records are essential to provide documentary evidence of the delivery of quality patient care (National Hospitals Office 2009, Nursing and Midwifery Board of Ireland (NMBI) 2015a) To provide written confirmation of their decision for OLCHC to discard their EBM To facilitate defrosting of EBM and its safe diposal

<p>Room</p> <ul style="list-style-type: none"> ○ Erase the patient details off the EBM label so they are illegible or peel off the EBM label from the EBM Bottle and discard the label in the confidential waste bin ○ Discard the defrosted EBM in sluice as directed by Infection Control Department <p>Nursing Notes:</p> <ul style="list-style-type: none"> ○ File original letter in the infants nursing notes and a copy is returned to the infants parents <p>And</p> <ul style="list-style-type: none"> ○ Document the disposal of this EBM (along with the original completed 'Permission Letter for OLCHC to discard Expressed Breast Milk' and any other correspondence related to this) in the infant nursing notes <p>(c) Donate the EBM (See Section 18.0)</p>	<p>To maintain patient confidentiality (OLCHC 2012b)</p> <p>To prevent possible <i>Pseudomonas aeruginosa</i> contamination of sinks (The Regulation and Quality Improvement Authority 2012)</p> <p>Good clinical records are essential to provide documentary evidence of the delivery of quality patient care (National Hospitals Office 2009, Nursing and Midwifery Board of Ireland (NMBI) 2015a)</p> <p>Good clinical records are essential to provide documentary evidence of the delivery of quality patient care (National Hospitals Office 2009, Nursing and Midwifery Board of Ireland (NMBI) 2015a)</p>
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18.0 If the wrong EBM is given to the wrong infant

ACTION	RATIONALE & REFERENCE
<p>Stop the feed immediately if the feed is in progress</p> <p>Aspirate the enteral feeding tube if present</p> <p>Notify parent/guardian of the infant</p> <ul style="list-style-type: none"> • who received the EBM in Error (Recipient) • whose EBM was administered in error (Donor) 	<p>To prevent the infant receiving any additional EBM in error</p> <p>To remove as much EBM as possible</p> <p>To ensure the parent/guardian is aware of the risk of infection agents being transmitted via EBM and the potential consequences of same</p> <p>To work within OLCHC's 'Guidelines for the management of Occupational Blood Exposure'</p>

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<p>Follow the Occupation Blood Exposure Guidelines</p> <p>Arrange in conjunction with the medical team the blood screening for both mothers and infant that received the EBM</p> <p>Complete an Incident/Near miss Report Form</p>	<p>(NPC 2011g)</p> <p>To assess and detect if any potentially infectious agents were transmitted to the infant</p>
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18.0 Donating EBM

In the event of mothers having (excess) EBM stored within OLCHC and wishing to donate it, it is the responsibility of ward staff to:

- Inform mothers that it is their (mothers) responsibility to contact the Donor Milk Bank (DBM) (Western Trust Milk Bank, Sperrin Milk Bank) (Phone Number (00448) 68628333), <http://www.westeritrust.hscni.net/2026.html>
- Inform mothers that the DBM Coordinator within the Milk Bank will support and advise in this matter.
- Inform mothers that blood sampling and check-ups are performed independently of OLCHC (advised to attend family GP)
- Provide information leaflets and DBM contact details (available on the OLCHC Intranet and in the Breastfeeding Folder (lilac) at ward/unit level)
- For mothers who wish to donate breast milk following the death of their child refer to the Guidelines on Lactation Support for Mothers who's child has died in OLCHC (NPC 2013b) for more information.
- Document the verbal interaction between the nurse and the mother in the infants nursing notes.

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20.0 Appendices

20.1.1 Appendix 1a: Log Book for Mother's Expressing Breast Milk

Addressograph Label



Our Lady's Children's Hospital, Crumlin

Keeping Track of Expressed Breast Milk

Record the volume of Milk you express every day and record below.

DATE	Number of times Pumped in 24hours (6am-6am)	Total volume of milk Expressed in 24hours (mls)	Type of Pump used	DATE	Number of times Pumped in 24hours (6am-6am)	Total volume of milk Expressed in 24hours (mls)	Type of Pump used


Developed by Quality Improvement Breastfeeding Team.

Date issued: Dec 2016

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20.1.2 Appendix 1b: Log Book for Mother's Breastfeeding / Expressing Breast Milk







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LOG BOOK
For Mothers Breastfeeding / Expressing Breast Milk


Date of B/E	Time of B/E	Type of E	Volume per E	Total Daily Volume	Nipple Condition <small>(Infact, cracked, sore, red, bleeding)</small>	Comments

B=Breastfeeding E=Expressing
 Type of Expressing: HE = Hand Expression / MHH = Manuel Hand Held / EH = Electric (Hospital Grade) / EHH = Electric Hand Held


20.2 Appendix 2: Medela Equipment

	<p>Single Expressing Set:</p> <p>Breast Shield</p> <p>Membrane Cap</p> <p>Bottle</p> <p>Connection Tubing</p>		<p>Supplementary Nursing System</p>
	<p>Medela 'Symphony' Breast pump with: 'Double' Expressing Set</p>		<p>Membrane Cap</p>
<p>Medela (2010)</p>			

20.3.1 Appendix 3a: Breast Shield Assessment

Breast Shield Assessment Tool (Adapted from Zoppi 2012)		Correctly Fitting Breast Shield
The nipple:	is centred and pointing in the direction of the funnel	
	moves freely in the tunnel	
	is gently pulled into the tunnel	
	does not rub against the sides of the breast shield	
Areolar tissue:	Little or none is pulled into the tunnel	
	No white rings after pumping	
The breast:	moves gently and rhythmic	
	is completely empty with no lumps after pumping	
No pain or discomfort is experienced while pumping		

20.3.2 Appendix 3b: Choosing your correct size Medela Breast Shield Size

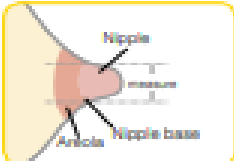


Choosing your Medela breast shield size

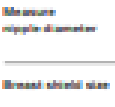
Make sure to use the right breast shield size. It is an essential component of effective pumping, helping to optimise milk flow.

Understanding Medela's breast shield sizing

Pumping should not hurt. For maximum comfort and pumping efficiency, Medela offers five breast shield sizes. This guide is a starting point to help determine your optimal size based on your nipple diameter.



Measure nipple diameter



Breast shield size

Up to 19 mm

21 mm

Up to 24 mm

24 mm

Up to 29 mm

27 mm

Up to 34 mm

30 mm

Up to 39 mm

36 mm

Step 1

Using a ruler or measuring tape measure the diameter of your nipple at base (across middle) in millimeters (mm). **Do not include areola.**

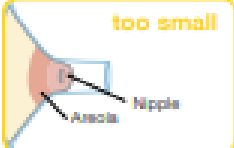
Step 2

Based on your measurement, determine your Medela breast shield size. Example: If your nipple size measures 19 mm in diameter, the recommended Medela breast shield size is 21 mm.

Test your breast shield size

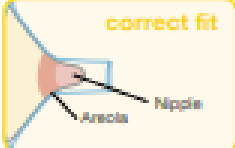
I Start with the breast shield that came with your pump, or the size determined by measuring.
 I Centre the nipple and gently hold the breast shield against your breast.
 I Adjust for Maximum Comfort Vacuum to achieve optimum suction level.
 I Refer to the images below while pumping in the expression phase (after the stimulation phase).

too small



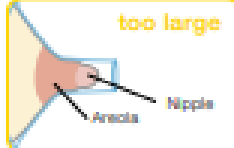
I The nipple rubs along the side of the tunnel.
I Try a larger size.

correct fit



I The nipple is centred and moves freely.

too large



I The nipple and excessive areola are pulled into the tunnel.
I Try a smaller size.

Did you know?


- I You may need a different size per breast.
- I Your breast shield size will depend on your breast tissue and skin elasticity.
- I Your breast shield size could change over the duration of your pumping experience.
- I When you apply vacuum pressure, your nipple size could change.
- I Pressing the breast shield too hard could block milk ducts.

Reasons to try a new size

I Does your nipple rub the tunnel sides to the point of causing discomfort?
 I Do you see excessive areola being pulled into the tunnel?

I Do you see any redness?
 I Is your nipple or areola turning white?
 I Do you feel unexpressed milk after pumping?

If you answered **-YES-** to any of these questions, consider trying a new size by following the measuring instructions above. If you are still unsure that you selected the correct size, see a lactation consultant or breastfeeding specialist.



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20.4.1 Expressing Assessment Tool (EAT)

Addressograph Label



Expressing Assessment Tool (EAT)

This assessment is performed on admission (when the infants mother arrives on the ward/unit expressing breast milk) and once per 24hours when a mother is expressing breast milk thereafter. Document the assessment outcome in the infants Expressing Care Plan/Nursing Notes. If any responses in the pink column are ticked: watch an expressing session, develop an Expressing Care Plan/Nursing Notes and/or refer to Breastfeeding Champion if required. Any additional concerns should be followed up as needed.

		Indication of effective pumping (Green Indicators)	Answer suggests a problem (Pink Indicators)
1	Frequency of expression	At least 8 times in 24 hours including once during the night.	Fewer than 8 times. Leaving out the night expression.
2	Timings of expressions	Timings work around her lifestyle with no gaps of longer than 4 hours (daytime) and 6 hours (night time)	Frequent long gaps between expressions. Difficulty 'fitting in' 8 expressions in 24 hours.
3	Stimulating milk ejection	Uses breast massage, relaxation, skin contact and/or being close to infant. Photos or items of baby clothing to help stimulate oxytocin.	Difficulty eliciting a milk ejection reflex. Stressed and anxious.
4	Milk flow	Good milk flow. Breasts feel soft after expression	Milk flow delayed and slow. Breasts remain full after expression.
5	Milk volumes	Gradual increases in 24 hr volume at each assessment. Aim 750 -1,000mls by 2 weeks	Milk volumes slow to increase or are decreasing at each assessment. Volume expressed < than 750 mls/day at 2 weeks
6	Breast condition	Mother reports breast are less full and softer after expressing No red areas on breasts	Breasts hard and painful to touch. Red areas and hard lumps in breasts
7	Hand expression	*Confident with technique. Appropriate leaflet provided & video viewed	*Poor technique observed. Mother not confident.
8	Using a breast pump	Access to hospital grade electric pump. Effective technique including suction settings. Switching breasts (or double pumping) to ensure good breast drainage. Expressing set provided	Concern about technique. Expressing set not provided
9	Effective Pumping Technique	Can assemble expressing set Knows technique for washing and sterilising equipment Hands on Pumping Technique used, Watched Stanford University video Uses massage and/or breast compression to increase flow Suction setting correct, maximum comfortable pressure used Breast shields fit correctly, no nipple soreness Expresses until flow slows down, massages and expresses again until flow decreases	Cannot assemble expressing set Does not know technique for sterilising equipment Using pump only, without combining with hand expression No breast massage and/or breast compression Suction setting too high/low Breast shield too small/large, nipples sore Restricting expression length

Adapted from UNICEF UK Baby Friendly Initiative 2013 and Guidelines for mothers HSE 2015

Date assessed	Time	Pink Indicators Nos.	Total EBM Volume (mls) expressed previous 24 hrs	Signature/ NMBI No	Date assessed	Time	Pink Indicators Nos.	Total EBM Volume (mls) expressed previous 24 hrs	Signature/ NMBI No

20.4.2 Expressing Assessment Tool (EAT) Mothers Version



Expressing Assessment Tool (EAT) (Mothers Version)

This is an expressing assessment tool to guide you while you are expressing breast milk in OLCHC. Your nurse will perform this assessment daily. The 'Green Indicators' mean that expressing is 'going well'. The 'Pink indicators' may suggest an expressing problem. If 'pink indicators' are present: ask your baby's nurse to watch you expressing, and get their advice about how to resolve the expressing problem.

24hour period	Amount of breast milk expected (24hours period)	Amount of breast milk expected per pumping session
Day 1	7-123ml	From a few drops to 5ml
Day 2	44-335ml	From 5-15ml
Day 3	98-775ml	From 15-30ml
Day4-14	750-1000ml	

5ml=1teaspoon Yes = √ No = X		Indication of effective pumping (Green Indicators)	Answer suggests a problem (Pink Indicators)
Frequency of expression		At least 8 times in 24 hours including once during the night.	Fewer than 8 times. Leaving out the night expression.
Timings of expressions		Timings work around your lifestyle with no gaps of longer than 4 hours (daytime) and 6 hours (night time)	Frequent long gaps between expressions. Difficulty 'fitting in' 8 expressions in 24 hours.
Stimulating milk ejection		Uses breast massage, relaxation, skin contact and/or being close to your baby. Photos or items of baby clothing to help stimulate oxytocin.	Difficulty getting a 'milk ejection reflex'. Stressed and anxious.
Milk flow		Good milk flow. Breasts feel soft after expression	Milk flow delayed and slow. Breasts remain full after expression.
Milk volumes		Gradual increases in 24 hr volume at each assessment. Aim 750 -1,000mls by 2 weeks	Milk volumes slow to increase or are decreasing at each assessment. Volume expressed < than 750 ml/day at 2 weeks
Breast condition		Breast are less full and softer after expressing No red areas on breasts	Breasts hard and painful to touch Red areas and hard lumps in breasts
Hand expression		*Confident with technique. Appropriate leaflet provided & video watched	*Poor technique observed. Mother not confident.
Using a breast pump		Access to hospital grade electric pump. Effective technique including suction settings. Switching breasts (or double pumping) to ensure good breast drainage. Expressing set provided	Concern about technique. Expressing set not provided
Effective Pumping Technique		Can assemble expressing set Knows technique for washing and sterilising equipment Hands on Pumping Technique used, (Watched Stanford University Video) Uses massage and/or breast compression to increase flow Suction setting correct, maximum comfortable pressure used Breast shields fit correctly, no nipple soreness Expresses until flow slows down, massages and expresses again until flow decreases	Cannot assemble expressing set Does not know technique for sterilising equipment Using pump only, without combining with hand expression No breast massage and/or breast compression Suction setting too high/low Breast shield too small/large, nipples sore Restricting expression length

Adapted from UNICEF UK Baby Friendly Initiative 2013 and HSE 2015

Every drop of breast milk makes a difference. Your breast milk gives your baby all the nutrients they need for around the first 6 months of life. Your breast milk continues to be an important part of their diet, as other foods are given for up to 2 years of age and beyond.

Developed by Quality Improvement Breastfeeding Team.

Date issued: April 2018

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20.5 Appendix 5: Expressed Breast Milk Labels

Baby's Name: Express Breast Milk Label	
Expressed:	Thawed:
Date of Birth: Date: _____	Date: _____
Time: _____	Time: _____
HCR Number: Frozen	Do not use after:
Date: _____	Date: _____
Ward Name: Fortified: _____	Time: _____
Y / N	Nurse Initial: _____
Mother's Name: _____	Mother's Medication: _____

Expressed Breast Milk	
(Infusion Use Only)(Enteral Administration Only)	
Baby's Name: _____	Amount Added: _____
_____	Time Added: _____
Date of Birth: _____	Fortified: Yes / No
Hospital Number: _____	Fortified with: _____
Ward Name: _____	Do Not Use After:
_____	Date: _____ Time: _____
Mother's Name: _____	Checked by: _____
_____	_____


Express Breast Milk Label for EBM Bottle

Expressed Breast Milk Label for Infusion Use Only


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20.6 Appendix 6: Storage Guidelines for EBM

EBM Status	Where and temperature	Duration
Fresh EBM	Refrigerator (2-4oC) (not in fridge door)	Up to 48hrs
Defrosted EBM (not warmed)	Refrigerator (2-4oC) (not in fridge door)	Up to 24hrs
Defrosted EBM (warmed to room temperature)	Used immediately (Do not freeze)	Discard immediately after use
Defrosted EBM (warmed to room temperature) (<u>Bolus feeds</u>)	Used immediately (Do not refreeze)	Discard immediately after use
Supplemented / fortified EBM (warmed to room temperature) (<u>Bolus feeds</u>)	Used immediately (Do not refreeze)	Discard immediately after use
Defrosted EBM (warmed to room temperature) (<u>Continuous feeds</u>)	Used immediately (Do not refreeze)	Discard 4 hours once infusion commenced
Supplemented / fortified EBM (warmed to room temperature) (<u>Continuous feeds</u>)	Used immediately (Do not refreeze)	Discard 4 hours once infusion commenced
Supplemented/fortified EBM	Used immediately (Do not freeze)	Discard immediately after use
Fresh EBM for freezing	Freezer (-20oC)	Freeze within 24hrs of expressing for up to 3 months
(UKAMB 2001, ADA 2004, ASPEN 2009, ABM 2010, Department of Clinical Nutrition and Dietetics 2011, HMBANA 2011)		

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20.8 Appendix 8: Transitioning from Tube Feeding to Breastfeeding Guide



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Transition from Tube Feeding to Breastfeeding' Guide

Assessment criteria for infants readiness to start/continue this guide		Maternal Education	
Need to achieve all the indicators to start / continue the guide:			
1	Medical Team has approved the infants readiness to start this guide	'Is your baby getting enough milk' Video <input type="checkbox"/> OLCHC website	Date:
2	The infant had no PEWS Triggers in the last 24 hours	'Attaching your baby to the breast' Video <input type="checkbox"/> OLCHC website	Mother observed Videos <input type="checkbox"/> Yes <input type="checkbox"/> No
3	The infant is demonstrating feeding cues	Guidelines for Mothers () <input type="checkbox"/> HSE website	Mother given Information <input type="checkbox"/> Yes <input type="checkbox"/> No
Breastfeeding Assessment Tool 'Mothers Version' <input type="checkbox"/> OLCHC website			
Perform the following DAILY:			
1	Ensure the infant meets the criteria listed above to continue the programme		
2	Continue to use Breastfeeding Assessment Tool (BAT) +/- Expressing Assessment Tool (EAT)		
3	Infant Weight: (Expect positive weight gain)		

Score	OBSERVED	Infant:	ACTION
A	Offered the breast, not interested, remained sleepy	Infant: <ul style="list-style-type: none"> Full top up (preferably Expressed Breast Milk (EBM)) 	Mother: <ul style="list-style-type: none"> Offers Non-Nutritive Sucking at her breast Continues Skin to Skin Contact at her breast during the tube feed Advised to express at this time to maintain her full milk supply
B	Interested in breastfeeding (licking / mouth opening / nuzzling / head turning however does not latch)	Infant: <ul style="list-style-type: none"> Full top up (preferably EBM) 	Mother: <ul style="list-style-type: none"> Offers Non-Nutritive Sucking at her breast Continues Skin to Skin Contact at her breast during the tube feed Advised to express at this time to maintain her full milk supply
C	Latched onto the breast, had a few sucks however: <ul style="list-style-type: none"> On and off or falls off the breast. Repeated this pattern for several minutes or Fell asleep within just a few minutes of latching on 	Infant: <ul style="list-style-type: none"> Full top up (preferably EBM) 	Mother: <ul style="list-style-type: none"> Offers Non-Nutritive Sucking at her breast Continues Skin to Skin Contact at her breast during the tube feed Advised to express at this time to maintain her full milk supply
D	Latched and started to suck and swallow, however: <ul style="list-style-type: none"> Shallow sucking for most of the feed (more than 2 sucks/second) Short sucking bursts Pauses for long periods between suck / swallow bursts Uncoordinated with breathing and swallowing 	Infant: <ul style="list-style-type: none"> Half top up (preferably EBM): 	Mother: <ul style="list-style-type: none"> Offers Non-Nutritive Sucking at her breast Continues Skin to Skin Contact at her breast during the tube feed May need to express for comfort
E	Latched well with: <ul style="list-style-type: none"> Regular burst of long slow rhythmical sucking and swallowing (1 suck / second) interspersed with: <ul style="list-style-type: none"> short pauses / short feed less than 10mins 	Infant: <ul style="list-style-type: none"> Half top up (preferably EBM): Consider not topping up if mother is available for the next feed. If the infant has 2 consecutive 'E' scores, give a half top up 	Mother: <ul style="list-style-type: none"> Offers Non-Nutritive Sucking at her breast Continues Skin to Skin Contact at her breast during the tube feed May need to express for comfort
F	Latched well with: <ul style="list-style-type: none"> Long slow rhythmical sucking and swallowing Long feed more than 10mins 	Infant: <ul style="list-style-type: none"> No top up is required 	Mother: <ul style="list-style-type: none"> Offers the 2nd breast

Adapted from: Hygiene et al (1996) Development of the Premature Infant Breastfeeding Behaviour Scale (PIBBS): a study of nurse-mother agreement. Journal of Human Lactation, 13(3):107-16.
 Developed by Breastfeeding Committee. Date issued: Feb 2016. Date of review: Feb 2020.
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20.9 Appendix 9: Breastfeeding Assessment Tool (BAT)

Addressograph Label



Breastfeeding Assessment Tool (BAT)

This assessment is performed on admission (when the infants mother arrives on the ward/unit) and once per 24 hours when an infant is feeding directly at the breast. The infants medical/surgical condition should be taken into consideration. Document the assessment outcome in the Breastfeeding Care Plan/Nursing Notes. If any responses in the pink column are ticked: watch a FULL breastfeed, update the Breastfeeding Care Plan/Nursing Notes including revisiting positioning and attachment and/or refer to Breastfeeding Champion is required. Any additional concerns should be followed up as needed.

24hour period	Wet Nappies	Stools	Day 5	Wet Nappies	Stools
Day 1-2	At least 1-2	At least 1-2 (meconium) black/dark green	Day 5	At least 5-6 (heavy)	At least 2 (large), soft, yellow and seedy
Day 3-4	At least 3 (heavier)	At least 2, green changing to yellow	Day 7+	At least 6 (heavy) (pale yellow/clear)	At least 2 (large), soft, yellow and seedy

	Indication of effective feed (Green Indicators)	Answer suggests a problem (Pink Indicators)
1	Infants Urinary/Stool Output As per table above	Not within the tables limits above
2	Infant Colour Centrally and peripherally pink / Normal for infants condition	Jaundice worsening or not improving
3	Infant Alertness Alert when awake, wakes to feed, engages in the feeding process	Lethargic to feed, not waking to feed
4	Infants Tone Good	Poor
5	Weight (post initial birth loss) No more than 7-10% of birth weight loss, regained birthweight by 2 weeks, otherwise gaining weight 30 – 40 g per day	Weight loss greater than 10%, gaining less than 30g per day
6	Number of Feeds At least:- 10-12 feeds in 24hours (1 st Week) 8-10 feeds in 24hours (2 nd -3 rd Week)	Fewer than 8 feeds in last 24 hour
7	Infants behaviour during feeds Generally calm and relaxed	Infant comes on & off breast frequently during the feed or refuses to breastfeed
8	Infants Latch Correct - full cheeks, lips flanged out, if any areola visible, more visible on top than bottom	Incorrect - sunken cheeks, lips flanged in, minimal amounts of areolar in mouth
9	Infant Position Head, neck and body in alignment, 'tummy to mummy'	Gap between mother & infant, head, neck and body not in alignment
10	Sucking/Swallowing Pattern during feeds Starts with short sucks then longer sucks, pausing now and again (by Day 5) Strongly, slowly, steadily and swallowing often (audible)	No change in sucking pattern or noisy feeding (eg: clicking)
11	Length of feeds 5-40 minutes at most feeds	Feeds for less than 5 minutes or longer than 40 minutes
12	End of feeds Infants let go spontaneously, or when breast is gently lifted	Infant not releasing breast spontaneously, mother removing infant
13	Offered 2nd Breast Offered 2 nd breast but may or may not feed depending on appetite	Mother restricts infant to one breast per feed or insists on two breasts per feed
14	Infants behaviour after feeds Content after most feeds	Unsettled after feeds
15	Shape of nipples at the end of the feed Same shape when feed began or slightly elongated	Missshapen or pinched at the end of feeds
16	Mothers report of her breasts & nipples Breast and nipple comfortable	Nipples sore or damaged; engorgement or mastitis
17	Use of soother/nipple shield/formula None used	Yes - explore why: attachment difficulty? Infant not growing? Infant unsettled?

Adapted from UNICEF UK Baby Friendly Initiative 2010 and Guidelines for mothers HSE 2015


Date assessed	Time	Pink Indicators Nos.	Signature/NMBI No	Date assessed	Time	Pink Indicators Nos.	Signature/NMBI No	Date assessed	Time	Pink Indicators Nos.	Signature/NMBI No

Developed by Quality Improvement Breastfeeding Team.

Date issued: April 2018

Date of review: April 2018

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Our Lady's Children's Hospital, Crumlin		
Document Name: Guidelines for OLCHC staff caring for mothers expressing breast milk in OLCHC		
Reference Number: SCLMEB-05-2018-EH-V3	Version Number: V3	
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20.10 Appendix 10: Conditions for Mothers Breastfeeding in OLCHC

Addressograph Label:

Conditions for Mothers Breastfeeding in *Our Lady's Children's Hospital, Crumlin (OLCHC)*

OLCHC believe that breastfeeding is the healthiest way for a woman to feed her baby. OLCHC supports mothers who choose to do so subject to the following conditions and asks that you accept these conditions by signing your name to this form. Should you have any queries whatsoever in relation to the form please contact a staff member.

1. The hospital accepts no responsibility for the condition and subsequent use of any expressed milk taken by me on my departure from the hospital;
2. Any expressed milk left by me on departure from the hospital shall be disposed of by the hospital at its sole discretion;
3. The health and safety of breastfed siblings shall be my sole responsibility during my time of residence in the hospital.
4. There are risks associated with breastfeeding by resident mothers of the siblings of patients in the hospital. These are mainly of infection. The hospital takes every precaution to minimise such risks. However, resident mothers choosing to breastfeed siblings of patients do so of their own choice and awareness of the risks. I understand the risks of (insert child's name) being resident in the hospital, which have been fully explained to me.

I acknowledge and agree to the above conditions for breastfeeding in OLCHC.

Note:

This completed form will be filed in your child's healthcare records


Mother's Name (Block Capitals): _____ Mother's Signature: _____

Nursing Staff

Name/Title: (Block Capitals): _____ Nursing Staff Signature: _____

Date: _____

Copy given to parents

Our Lady's Children's Hospital, Crumlin		
Document Name: Guidelines for OLCHC staff caring for mothers expressing breast milk in OLCHC		
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20.11 Appendix 11: Permission Letter for OLCHC to discard Expressed Breast Milk



Appendix A:

OUR LADY'S CHILDREN'S HOSPITAL CRUMLIN Dublin 12

Tel: 01 409 6100
 Fax: 01 409 8873
 Website: www.olchc.ie

Addressograph Label:

Permission Letter for OLCHC to discard Expressed Breast Milk

I _____ (mother of _____, HCR No: _____) give permission to OLCHC to discard my expressed breast milk in a fresh, frozen or defrosted state.

I have received a copy of this completed permission letter.

Note:

This completed form will be stored in your child's healthcare records

Mothers Name (Block Capitals): _____

Mothers (Signature): _____

Nursing Staff Name (Block Capitals): _____

Nursing Staff (Signature/Grade): _____

Nursing Staff (Title): _____

Date: _____