1.0 OBJECTIVES

1.1 To standardize supplemental feeding of the breastfed newborn when medically indicated or when required by the mother. The primary goals are to feed the newborn and optimize maternal milk supply while determining the cause of inadequate feeding or inadequate milk transfer.

1.2 To ensure all breastfed babies have a feeding plan.

2.0 DEFINITIONS

2.1 Supplemental feedings: Feedings given in addition to breastfeeding.

2.2 Replacement feedings: Feedings given instead of breastfeeding.

2.3 Most infants who require nutritional support will only require supplemental feeds. Replacement feeds are usually restricted to infants and mothers with specific medical issues. The milk given in these situations, in order of preference, is expressed mother’s own breast milk, donor breast milk, or artificial baby milk.

3.0 MEDICAL INDICATIONS

The following are medical indications for the use of supplemental feeding and/or replacement feeding.

3.1 Newborn Indications

- Weight loss greater than 10% and evidence of ineffective breastfeeding (see Appendix C) with clinical evidence of dehydration.
- Newborn with an inborn error of metabolism.
- Unable to feed at the breast due to congenital malformation or illness.
- Hyperbilirubinemia when breast milk intake is inadequate despite appropriate interventions.
- Low birth weight babies when macronutrient supplementation is indicated.
- Hypoglycemia indicating a need for additional calories not met by breastfeeding (please refer to Hypoglycemia Policy).

3.2 Maternal Indications

- HIV positive status of the mother
- Mother unavailable due to severe illness or physical separation.
- Mothers receiving medications that are contraindicated while breastfeeding when there are no safe alternatives available.
- Breast pathology or prior breast surgery resulting in ineffective breastfeeding.
• Primary glandular insufficiency (primary lactation failure) as evidenced by insufficient breast growth during pregnancy and minimal indications of milk production.

4.0 GENERAL PRINCIPLES

4.1 Colostrum feedings in the first 48 hours are appropriate for the size of the newborn’s stomach and are sufficient to prevent hypoglycemia in the healthy full term newborn.

4.2 Healthy newborns, who are breastfeeding normally, do not need supplemental feedings for the first 24 – 48 hours. Babies who are too ill to breastfeed, who cannot latch, or whose mothers are too ill to allow breastfeeding will probably require supplementation (see Appendix A).

4.3 Hand expression is preferred over electric pumping in the first 24 hours to reduce trauma of the nipples (see Appendix B).

4.4 The following are NOT rationales for supplementing a newborn:

- To quiet a fussing newborn when mother is available
- To let the mother sleep or rest
- To prevent weight loss/dehydration
- To prevent hyperbilirubinemia in well newborns without major risk factors
- To prevent hypoglycemia in well full term newborns without identified risk factors
- To prevent sore nipples
- To teach a newborn to take a bottle “for later”
- To feed the newborn because “mother’s milk is not in”

4.5 Inappropriate supplementation will:

- Undermine a mother’s confidence in her ability to meet her infant’s nutritional requirements
- Disrupt the supply/demand cycle
- Alter infant bowel flora, potentially sensitizing the infant to foreign proteins
- Decrease exclusive breastfeeding or breastfeeding duration

4.6 When parent(s) request supplemental feedings:

- Explore reasons for requesting supplementation
- Provide evidence-based information
- Reinforce that breastfeeding support is available at any time
- Teach appropriate hand expression and/or pumping to prevent engorgement and to protect breast milk supply as first alternative
- Support the mother’s informed decision
- Document patient informed decision making

4.7 Maternal/newborn healthcare professionals are responsible for providing evidence-based information to enable parents to make informed decisions regarding appropriate
5.0 SUPPLEMENTS

5.0.1 Appropriate supplements for a newborn in order of optimal nutrition:
- Expressed mother’s own human milk
- Artificial baby milk (formula)

5.0.2 Amounts for supplementation of a newborn are dependent on:
- Assessment of the effectiveness or ineffectiveness of newborn breastfeeding (see Appendix D)
- The age and weight of the newborn; current growth and requirements (see Appendix E)
- Reason for supplementation
- Newborn readiness cues (see Appendix F)

6.0 PROCEDURE

6.0.1 If supplementation is indicated select the appropriate supplement and method of supplementation after consultation with the mother.

6.0.2 Review feeding and diapering chart with mother.

6.0.3 Methods of Supplementing:

6.0.3.1 The method of supplementation is made on a case-by-case basis with the mother, considering the following criteria:
- A good match for the newborn’s stamina, physical condition and level of maturity
- Easy for the parents to manage; they are able to obtain, afford and clean the supplementation device
- Suitable for the length of time it will be needed
- Whether adequate milk volume can be fed in 20 – 30 minutes

6.0.3.2 Cup feeding is recommended initially.

6.0.3.3 Bottle feeding is appropriate when larger volumes are needed for an extended time or when this is the parent’s informed choice.

6.0.4 In the first 24 – 48 hours, newborn intake is adequate if the mother expresses colostrum within the ranges shown in Table 1, and if the newborn is assessed to have appropriate hydration, vital signs, and output and is satiated.

6.0.5 After the newborn has had a partial feeding at the breast the appropriate volume of supplement should take into consideration, the total intake required by age, the newborn’s size, output and satiation.

6.0.6 Follow Table 1 to determine appropriate milk volume.
TABLE 1 Total Milk Volumes First Hours

<table>
<thead>
<tr>
<th>Day</th>
<th>Per Feeding</th>
<th>Total in 24 Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Few drops to 5 ml</td>
<td>Few drops – 30 mls</td>
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<td>120 – 240 mls</td>
</tr>
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<td>240 – 360 mls</td>
</tr>
<tr>
<td>5</td>
<td>45 - 60 ml</td>
<td>360 – 480 mls</td>
</tr>
</tbody>
</table>

6.7 Prior to each feeding reassess the need to continue supplementation.

6.8 Throughout the period of supplementation, continue to encourage skin to skin contact, 24 hour rooming-in and encourage the mother to express / pump milk each time the baby receives a supplemental feeding, or about every 2 – 3 hours.

7.0 DOCUMENTATION

7.1 Documentation on the infant’s chart should include:
- Informed risks of artificial feeding
- Mother’s informed consent
- The reason for supplementation
- The type of milk used for supplement
- Amount taken, time and method of supplementation
- Parent’s competence and confidence in feeding the newborn
- Method, frequency and the amount of breast milk the mother is expressing

8.0 REDUCING/ELIMINATING SUPPLEMENTS

8.1 Individualize the feeding plan in consultation with the mother and physician, based on the initial medical indication for supplementation, the current breastfeeding assessment, newborn’s weight and age and mother’s milk supply.

9.0 FOLLOW-UP IN THE COMMUNITY

9.1 A breastfed newborn discharged on a supplementation should have a follow-up home visit by a Public Health Nurse within 24 – 48 hours of discharge.
- Assess breastfeeding effectiveness and/or appropriate intake for age
- Assess mother’s milk supply and progress with pumping
- Provide parent education and anticipatory guidance
- Refer to other breastfeeding support services, as appropriate
10.0 REFERENCES


WELL NEWBORN FEEDING ASSESSMENT PROTOCOL – (FIRST 72 HOURS)

ON ADMISSION, ASSESSMENT AND DOCUMENTATION OF FOLLOWING:

a) Labour medications/interventions (i.e. Drugs, length of labour, epidural)
b) Treatments (i.e. Resus measures, MgSO4)
c) Physical assessments (i.e. inverted nipples, receding chin, short frenulum, dysfunctional suck)

**Baby Wakes & Feeds Effectively Within 3 – 5 hours of Birth**

First 12 Hours
- Infant to the breast at least 8x in 24 hours
- In the first 24 hours hand expression is required assist mother as necessary.

**NO**

Assess for:
Factors that may inhibit the baby’s ability to feed effectively (i.e. proper positioning, proper latch, drugs, sucking pattern, alertness, baby/environmental temperature, tongue tie)
Consult with charge nurse

If not awake by 5 hours:
- Use gentle stimulation; unwrap baby, change diaper, rocking, massage
- Place infant in skin to skin position
- Wake baby (consider sleep/wake states) limit waking attempts to 10 – 15 minutes
- Offer the breast. Allow 1 hour to attempt.

**Baby Does NOT Breastfeed Effectively Within 1 Hour**

**NO** Signs

- Skin to skin
- Wait 1 hour (observe sleep/wake states)
- Put back to the breast

Breastfeeds Effectively

Complete Assessment for Alerting Signs
- S&S of hypoglycemia (see protocol)
- S&S of sepsis (i.e. unstable temp, poor colour, tachypnea, lethargy, apnea)
- S&S of dehydration (see supplementation policy)

**NO**

Baby < 12 Hours of Age:
- Attempt to feed q1 – 2 hours
- Assist with waking / latching / positioning

Baby > 12 Hours of Age:
- Attempt to get baby to breastfeed
- Supplement
- Put baby to breast q2 – 3 hours. age appropriate # of feeds
- Continue for Assessment of Alerting Signs
- Empty breasts 8 times in 24 hours

**YES** Signs

- Notify Physician
- Implement treatments as ordered
- Supplement as per policy
- Method and type of fluids dependent on baby’s condition

REFERENCES


APPENDIX B

Teaching Hand Expression Guidelines

Reasons to Express
• Hand expression is recommended in the first 24 hours to minimize trauma to the nipples.
• Hands are always available and you do not require parts that can be lost or broken.
• It can be very effective and quick when the mother becomes competent and is a skill that can be used throughout the breastfeeding period.
• Less risk of cross contamination.
• To get a few drops of milk to entice the baby to latch.
• To get a few drops of milk to give to babies who are separated from their mother.
• To soften the areolae enough to allow the baby to latch to an engorged breast.
• To provide maternal comfort and relief of discomfort associated with breast engorgement.
• To obtain milk for a baby who is unable to breastfeed or who requires a supplement for medical reasons.

Method of Hand Expressing
1. Mother should wash her hands.
2. If expressing in hospital, use a sterilized container. If at home, mother should use a container that has been rinsed with boiling water or put through the dishwasher. Collect a clean washed container, sterilized or if at home has been rinsed with boiling water.
3. Sit in a comfortable position where she can rest her arm and lean forward over the container.
4. Gently massage the breasts, running the hands over the nipple and areola to stimulate the milk ejection reflex.
5. Position the thumb above the nipple and first two fingers below the nipple, about 1 to 1-1/2 inches from the nipple. The fingers do not have to be at the outer edges of the areola, the darkened area surrounding the nipple. Use this measurement as a guide, since breasts and areolas vary in size from one woman to another. Be sure the hand forms the letter “C” and the finger pads are at 6 and 12 o’clock in line with the nipple. Avoid cupping the breast.
6. Push straight in to the chest wall. Avoid spreading the fingers apart. For large breasts, first lift, and then push in to the chest wall.
7. Roll the thumb and fingers forward at the same time. This rolling motion compresses and empties the area where the milk is stored without injuring sensitive breast tissue. Repeat this process rhythmically to completely drain reservoirs. Position, push, roll. It may take a minute or so to stimulate the milk ejection reflex.
8. When the flow slows down, swap to the other breast. Keep changing breasts until the milk is dripping very slowly or stops altogether.
9. Store mother’s milk in the fridge for up to 48 hours at 0 to 4°C. STORE MILK AT THE BACK OF THE FRIDGE AND NOT IN THE DOOR. (Please follow the policies for Handling of Expressed Breast Milk and Mother’s Milk Safe Handling and Administration).

REFERENCES


APPENDIX C

Reassuring Signs of Effective Breastfeeding

- Baby is skin to skin on mother’s chest several times a day for at least 60 – 90 minutes or until self-wakening.
- Baby is in mother’s arms most of the time and sleeps calmly and safely within arm’s reach (in proximity) when not being held.
- Baby rarely cries, mother responds quickly to early feeding cues before active crying begins.
- Baby wakes for feeds, feeds 8 or more times per day, and is content when fed and held.
- Baby actively suckles at least 160 minutes per day, 8 – 12 times with audible swallowing.
- Baby is not hungry after feeds. Mother and baby may be drowsy after feeds. Once mother's milk is in (day 3 or 4), breasts should be softer after feeds.
- After feeds, mother’s nipple is comfortable, wet, and intact.

Note: Losing 7% to 10% of birth weight can be normal but also can be a sign of ineffective breastfeeding. Losing greater than 10% of birth weight is generally a sign of inadequate milk intake.

REFERENCES


APPENDIX D

Signs and Symptoms of Inconsistent or Ineffective Breastfeeding

MOTHER:
- Nipple pain or trauma
- No breast filling by day 4
- Breasts that are abnormal in shape
- History of extensive breast surgery

BABY
- No swallowing heard
- Baby never seems satisfied
- Shallow latch
- Low or high muscle tone
- Cheek dimpling
- Not being able to latch or stay latched
- Baby is consistently irritable or feeding constantly
- Baby has lost more than 10% of birth weight

REFERENCES


APPENDIX E

Newborn Stomach Capacity by Weight

<table>
<thead>
<tr>
<th>Average Newborn Weight</th>
<th>Average Stomach Capacity mL (Scammon)</th>
<th>Average Stomach Capacity mL (Naveed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 – 2.0 kg (3.3 – 4.4 lbs.)</td>
<td>22</td>
<td>14</td>
</tr>
<tr>
<td>2.0 – 2.5 kg (4.4 – 5.5 lbs.)</td>
<td>30 (~ 1 oz.)</td>
<td>17</td>
</tr>
<tr>
<td>2.5 – 3.0 kg (5.5 – 6.6 lbs.)</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>3.0 – 3.5 kg (6.6 – 7.7 lbs.)</td>
<td>35</td>
<td>n/a</td>
</tr>
<tr>
<td>3.5 – 4.0 kg (7.7 – 8.8 lbs.)</td>
<td>35</td>
<td>n/a</td>
</tr>
<tr>
<td>4.0+ kg (8.8+ lbs.)</td>
<td>38</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Adapted from (Naveed et al., 1992; Scammon, 1920)

Total Milk Volumes First Hours

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REFERENCES


# APPENDIX F

## Feeding Cues

<table>
<thead>
<tr>
<th>BABY CUES</th>
<th>STAGE OF READINESS TO FEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiggling, moving arms or legs</td>
<td>Early</td>
</tr>
<tr>
<td>Rooting, fingers to mouth</td>
<td>Early</td>
</tr>
<tr>
<td>Fussing, squeaky noises</td>
<td>Mid</td>
</tr>
<tr>
<td>Restless, crying intermittently</td>
<td>Mid</td>
</tr>
<tr>
<td>Full cry, aversive screaming pitch, colour turns red</td>
<td>Late</td>
</tr>
</tbody>
</table>

## REFERENCES
