ENTERAL NUTRITION

Standardized Feeding Regime

Implementation of a standardized feeding regime for premature infants minimizes variations in feeding practices, may improve early detection and management of feeding intolerance, and is associated with a significantly lower incidence of NEC.[1] The feeding regime that is in place at FMC was developed in 1993 and has been revised as new data has emerged.

Premature infants are at risk for feeding intolerance and necrotizing enterocolitis (NEC) – a serious bowel infection with a mortality rate that approaches 50%. The pathogenesis of NEC may involve compromised gastrointestinal perfusion and many believe that feeding in the presence of risk factors for poor gut perfusion may place an infant at greater risk of developing NEC.

Risk factors for compromised gastrointestinal perfusion:

- Sepsis
- Hypotension
- Patent ductus arteriosus
- Indomethacin treatment

There is no clear evidence that withholding feedings affects the risk of necrotizing enterocolitis. [2, 3] However, because of the possible risk of NEC we are cautious in regards to initiating and advancing feedings.

Initiation:

Initiate enteral feedings as soon as all of the following criteria are met:

- No epinephrine within the last 24 hours.
- Dopamine dose is $\leq$ 5 mcg/kg/min and stable or decreasing
- Abdominal exam normal (non-distended, no visible fixed loops)

Contraindications to Enteral Feeding:

- Anatomic or functional bowel obstruction
- Hypotension requiring high doses of inotropic medications
- During treatment of NEC or during evaluation for NEC

Trophic Feedings

Trophic feeding is defined at FMC as 10 ml/kg/day and should be considered *rather than discontinuing feedings completely* for the following conditions:

- Presence of a patent ductus arteriosis
- Treatment of a patent ductus arteriosis with indomethacin
- Respiratory decompensation
- Mild hypotension (requiring $\leq$ 5 mcg/kg/min of dopamine)

Feeding Type

Mother's milk feeding during the NICU hospitalization is associated with a lower risk of feeding intolerance,[4, 5] NEC[6-8], sepsis,[7, 9, 10], rehospitalization,[11] and poor developmental outcomes.[12-17] Donor milk may provide similar benefits.[18]

Use human milk, mother's or donor, for infants $\leq$1500 grams birth weight when permission has been obtained for donor human milk. Nonmaternal human milk is not permitted unless obtained from a certified human milk bank and the parents have given consent.

- Considerations and Contraindications:
    - For questions about a maternal medication and human milk feeding, refer to the reference books: Medications and Mother's Milk or Drugs in Pregnancy and Lactation, which is located in the charting alcove.
        - Most medications are compatible with breastfeeding.
    - Mothers positive for HIV should be discouraged from breastfeeding or providing human milk since formula is a safe alternative.
    - Mothers who have a history of drug abuse and plan to breastfeed should be counseled regarding the danger to the infant of receiving milk that contains cocaine or heroin. A lactation consult should be ordered.
        - Mothers who continue to use drugs after delivery should not breastfeed.
- Human milk contains approximately 100 calories and 1.5 grams of protein/150ml and will not meet the nutrient requirements of the premature infant.
    - Therefore, human milk fortifier is added to increase protein, carbohydrate, vitamins and minerals.

If mother's milk is not available and 1) the parents refuse donor milk or 2) the infant's birthweight is ≥1500 g order infant formula according to the following chart.[19]

Birthweight	Gestational Age	Formula
< 2500 grams	< 38 weeks	Similac Special Care 24 High Protein
≥ 2500 grams	< 36 weeks	Enfacare 22 or Neosure 22
< 2500 grams	≥ 38 weeks	Enfacare 22 or Neosure 22
≥ 2500 grams	≥ 36 weeks	Enfamil or Similac

Commercial Formula:

- Preterm formula should be used for premature infants when human milk is not available.
- Similac Special Care Advance High Protein 24 calorie/oz with Iron is to be used for infants <2500 gm. This formula provides 120 cal and 4.0 gm protein per 150 ml.
- Enfacare Lipil 22 or Neosure 22 may be used for premature infants ≥2500 gm.
- These formulas contain much more calcium, phosphorus, vitamins and minerals than term formulas and support appropriate growth for the preterm infant after discharge.
- Term formula such as Enfamil Lipil with Iron or Similac Advance with Iron may be used for term infants. The nutrient content is 100 calories and 2.2 grams/150 cc.

Administration of Feedings

Infants <32 weeks postmenstrual age (PCA) will be tube fed as their sucking/swallowing mechanism is immature. Most infants will begin to show signs of interest in sucking around 32-33 weeks PCA, and are gradually progressed by the nursing staff to full nipple feeds via either breast or bottle.

Continuous vs. Intermittent Feedings

Continuous feeding infusion results in significant fat and protein losses from human milk and can be as high as 50 % compared to 17% loss with intermittent infusion.[20, 21] There is some evidence that these losses are inversely related to flow rates. Fat and protein loss during tube feeding could adversely affect growth as well as deprive infants of very low chain polyunsaturated fatty acids needed for brain and nervous system development. However, intermittent feeding can lead to airflow and respiratory instability in VLBW infants who require mechanical ventilation[22] and for

this reason has been used in infants requiring respiratory support. To decrease fat and protein losses, order feedings to be infused intermittently (bolus) unless an infant is requiring continuous positive airway pressure or mechanical ventilation. Change to bolus feedings when these methods of respiratory support are no longer needed.

Initiation and Advancement Rates for Continuous Feeding:
The following guide may be used if continuous feedings are deemed necessary for respiratory support. Adjust feeding advancement according to tolerance of feedings:

GA (weeks)	Initial rate	Advance to 150 cc/kg/day over:
23-25	10 ml/kg/day	15 days
26-28	12 ml/kg/day	12 days
29	15 ml/kg/day	10 days
30-35	20 ml/kg/day	8 days

When mechanical ventilation or CPAP is no longer needed transition to intermittent bolus feedings. Infants with gestational ages between 31-35 weeks can be advanced more rapidly after the transition (see guide for bolus feedings).

Small for Gestational Age
Infants meet the classification for small for gestational age (SGA, i.e. birth weight <10% for gestational age) are at risk for feeding intolerance and necrotizing enterocolitis.[23] To be cautious, we need to advance feedings more slowly in SGA infants than recommended in the above schedule. We have chosen to add 50% more days to the goal for time to full feedings. Example: infant born at 32 weeks gestation weighing 1000g. This weight plots <5% for 32 weeks gestational age. Normally feedings would be advanced over 4 days. Instead, advance over 6 days, as tolerated.

Changing from Continuous Feedings to Intermittent Gavage:

1. When a decision has been made to start condensing the continuous feeding to bolus feedings, the following routine should be followed: for 24-48 hours, give in 2 hours of continuous infusion the same volume previously received in 3 hours. For 1 hour give nothing. Repeat cycle.
2. After 24-48 hours of 2-hour infusions, change to the same 2-hour volume infused over 1 hour. For 2 hours, give nothing. Repeat cycle.
3. After 24-48 hours of 1-hour infusions, change to intermittent gavage every 3 hours.
4. If symptoms of gastroesophagel reflux or aspiration occur, change back to the method which was previously tolerated.

Initiation and Advancement Rates for Bolus Feeding:
To Start Feedings:
The initial feeding volume is based on the infant's birth weight:
Take the first 2 numbers of the infant's birth weight and subtract 10. This is the amount to order for the initial volume. For example: birth weight is 1500 grams, the first 2 numbers are 15. Subtract 10 from 15 to get 5. Order 5 ml every 3 hours. For premature infants with birth weight > 2500 grams, begin feeding 15 ml every 3 hours. Maximum initial feeding volume for any infant is *15 ml every 3 hours*.

Daily rate of advancement is the same as for continuous feedings and is based on gestational age.

GA (weeks)	Advance to 150 cc/kg/day over:
26-28 weeks	12 days
29	10 days
30	8 days
31	6 days
32-35	4 days

To increase feedings:
Feeding orders should include a schedule for increasing volume based on gestational age.

Gestational age	Increase	Time to Full Feeds (Days)
28	1 ml every 24 hours	12
29-30	1 ml every 12 hours	8-10
31	1 ml every 6 hours	6
32-36	1 ml every 3 hours.	4

When feedings are started the IV must be decreased. Divide the feeding volume by the feeding interval. For example: the initial feeding volume is 5 ml, divide by 3 hours to get 1.6 ml. Decrease the IV by 1.6 ml/hr. Then for each 1 ml feeding increase, decrease the IV by 0.3 ml/hr (1 ml divided by 3 hours). This will keep total fluids the same.

Feeding Goal:
To quickly calculate the goal, multiply the first two numbers of the birth weight in kilograms by 2.
Example: Birth weight is 1500 grams, 15 X 2 =30. The goal is 30 ml every 3 hours

Feeding Order Example for 1500g, 32 weeks gestation at birth:
1. Start 5 ml every 3 hours of mother's milk or EPF 24 and increase by 1 ml every 3 hours to a goal of 30 ml every 3 hours.
2. Decrease IV with the first feeding by 1.6 ml/hr.
3. Decrease IV by 0.3 ml for each 1 ml feeding increase.

Feeding Order Set
Order feedings using the feeding order set. These are kept in the physician/NNP/PA work area. Use the feeding order set when feedings are first started and whenever there is a change in composition. Orders for increases in current feeding composition can be placed on the "generic" order forms in the medical chart.

Ad Libitum Feedings

If after 2-3 days of advancement as initially ordered, the baby is nippling all feeds and appears "hungry," it is usually safe to accelerate the feeding schedule. After establishing tolerance to feedings, an *ad-lib* feeding order may be written for the following infants:

- >32 weeks postmenstrual age
- Nippling >50% of total intake
- Not needing supplemental oxygen

- The order should be written for ad lib with a minimum of 100 ml/kg/day (written in ml every 3 hours). If the infant is not nippling all feedings and gaining weight within 48 hours, the order should be changed back to 150 ml/kg/day by nipple or gavage tube.

Advancement of Feedings - Full Term Infants

- Full term infants should be allowed to feed ad lib when respiratory distress resolves and when stable after delivery.
- There should not be a minimum amount ordered as healthy full term infants feed progressively better and if not, this should be considered a sign of illness.
- Once an infant takes 1-2 formula feedings of 10-15 cc, the IV rate can be cut in half. After another 1-2 feedings the IV can be hep-locked

Management of Gastric Residuals:

For continuous feedings:

If the gastric residual is more than 2 ml examine the abdomen. If the exam is normal, re-feed the residual but hold any further feedings for one hour. If the residual after one hour is lower, resume enteral feedings. If it remains high, re-examine abdomen and consider obtaining an abdominal x-ray. Consult with the fellow or attending.

All residuals less than 2 ml should be re-fed if the abdominal exam is normal.

For bolus feedings:

The infant's nurse will check residuals if tube feedings are required. Gastric residuals will not be checked if the infant does not have a feeding tube. If the residual is 1-2 ml the feeding should be given as ordered. If the volume is > 2 and < 5 ml, the residual should be refed and subtracted from the feeding volume. If the residual is 5 ml or greater on bolus feeding, the nurse will contact you for instructions. Examine the abdomen. If the exam is normal, re-feed the residual and re-check residual in one hour. If the next residual is lower, resume enteral feedings. If it remains high, re-examine abdomen and consider obtaining an abdominal x-ray. Consult with the fellow or attending. Stooling pattern should be evaluated if residuals are a problem.

Guidelines for Restarting Feedings:

When restarting enteral feedings after brief (<7 day) interruption in feedings (ie. for feeding intolerance, non-GI surgery, sepsis evaluation, etc), start at 25% of the previous feeding rate (or initial starting volume, whichever is greater). Advance by this amount each day to achieve the previous feeding rate in 4 days.

Feedings and Blood Transfusions

Blood transfusions in infants receiving full enteral feedings have been associated with necrotizing enterocolitis. If a transfusion is needed and feeding volume is >50 ml/kg/day make the infant NPO for 3 hours prior, during, and for 12 hours after the transfusion (total of 18 hours). If the feeding volume is <u>≤</u>50 ml/kg/day do not decrease the feedings or make the infant NPO.

Supplements

- <u>Human Milk Fortifier</u>
    - Fortifier should be ordered for infants < 2500 gm when:
        - Receiving 100 ml/kg/day of human milk
        - No longer receiving PN
    - The dose is 1 packet to 25 ml human milk.
    - If weight gain is poor, more HMF can be added. One packet added to 17 ml of milk will provide 27 cal/ounce milk.
- <u>Beneprotein</u>
    - Whey protein modular that is added to breast milk with human milk fortifier.
    - Order for infants who have birth weight <1500g and who have gotten to full feedings (130-150ml/kg/day).

    - If the human milk fortifier is added at 1 packet to 25 ml of milk (24 calories/ounce) the dose of Beneprotein is ¼ teaspoon to 50ml.
    - If the human milk fortifier is added at 1 packet to 17 ml of breast milk (27 calories/ounce) the dose of Beneprotein is ¼ teaspoon to 75 ml of breast milk.
- MCT Oil
    - May be added to increase calories.
    - MCT oil is coconut oil fractionated into medium chain triglycerides and contains 7.7 kcal/cc.
    - The usual dose is 20 kcal/kg/day.

- Iron
    - Preterm infants on human milk should be started on 2 mg/kg/day when HMF is ordered.
    - Iron fortified formula provides 2 mg of iron in 150 ml of 24-cal/oz concentration and in 180 ml of 20-cal/oz concentration.
    - If the hemoglobin drops below 9 mg/dl and a transfusion is not indicated, start therapeutic doses of elemental iron
        - 6 mg/kg/day for infants on human milk
        - 4 mg/kg/day for infants on iron fortified formula.
        - Continue with this dosage even when the hemoglobin rises above 9 mg/dl.

Breastfeeding the Premature Infant

- Premature infants whose mothers want to breastfeed should be put to breast whenever signs of interest in suckling are evident regardless of gestational age.
  Infants do not have to demonstrate proficiency at bottle-feeding before being allowed to breastfeed. We do not expect measurable milk transfer but the practice provides mother and baby special time together and can help maintain milk supply. Mothers who regularly attempt breastfeeding in the nursery are more likely to make the transition to breastfeeding at home when the infant is stronger and more mature.

Breastfeeding the Full Term Infant

- Breastfeeding requires that an infant participate whereas bottle-feeding is a more passive activity.
    - Thirst is a strong incentive to feed and breastfeeding infants may need to become thirsty to become interested in nursing.
    - Therefore, for the full term infant who is ready to eat (acting hungry and breathing comfortably), write an order that states: *Breastfeed ad lib. If the mother is not available for a feeding offer 15 ml of expressed breast milk or formula by soft cup feeder*. Also order to decrease the IV rate by half before the first feeding and then heplock the IV if the infant nursed fair to well.
- If the mother is unable to visit the NICU for a feeding, the infant can be offered 15 ml of mother's expressed milk or term formula by soft cup feeder. Bottle nipples will not be used unless the mother specifically requests this.
    - Limiting the volume to 15 ml will encourage the infant to nurse at the next feeding. An ad lib feeding order in the first 3 days of life can lead to overfeeding and poor breastfeeding.
    - 15 ml per feed is enough to prevent hypoglycemia for most term infants and is less likely to dampen interest in nursing compared to ad lib volumes.

    - After 3 days of age, write an ad lib feeding order. The mother's milk volume is increasing at this point and more fluid is warranted.
- The full term infant recovering from respiratory distress may be put to breast before the respiratory rate is <60.
    - Most of the time the amount of milk the mother is producing is low and the rate of flow from the breast is dependent on the suckling ability of the infant, decreasing the risk of aspiration.
    - Bottle-feeding should not begin until the baby is breathing comfortably.

Gastroesophageal Reflux (GER)

- Limiting feeding volume: If symptoms of reflux are present and weight gain is over 18 gm/kg/day the feedings may be decreased to 125 ml/kg/day.
    - If an improvement is seen and weight gain is suboptimal on this volume, consider adding rice cereal or MCT oil for extra calories.
- Rice Cereal - may be added to feedings when reflux is suspected.
    - The dose is one teaspoon/ ounce and this adds 5 calories/ounce.
    - This usually works best if the infant is nippling all feeds as the cereal can clog a feeding tube.
    - Rice cereal will not thicken breast milk.
- Enfamil Lipil AR (added rice) is a term formula designed for infants with symptoms of gastroesophageal reflux. Since it is a term formula it should only be prescribed for infants who are >2500 grams and close to term (post menstrual) age. It should not be used for premature infants whose birth weight was < 1000 grams as it does not contain the amounts of calcium and phosphorus needed for adequate skeletal growth.
- Simply Thick – food thickener made of xanthan gum. Will thicken breast milk. Dosing instructions: 1 packet (of nectar thickness) added to 4 ounces of breast milk. Simply Thick adds volume but no calories which results in a decrease of caloric density by 2 calories/ounce. (Ex. 24 caloric/oz milk will be 22 calories/oz with Simply Thick added at 1 packet to 4 ounces.)

Metabolic Bone Disease of Prematurity Guidelines

1. **Definition:** Decreased mineralization of bones caused by deficiency of calcium, phosphorus and/or vitamin D that occurs in preterm infants when post-natal intake and/or absorption are insufficient to support intrauterine mineral accretion rates.

2. **Significance:**
    a. May contribute to respiratory insufficiency, prolonging need for mechanical ventilation,
    b. Promote fractures
    c. Lead to decreased linear growth

3. **At risk infants:**
    a. Birth weight <1000 grams or <27 weeks GA **OR**
    b. >30 cumulative days on parenteral nutrition **OR**
    c. Severe chronic lung disease defined as > 30 cumulative days of ventilator therapy **OR**

d. Past/current diuretic therapy of > 2 weeks **OR**
e. Cholestasis (unconjugated bilirubin >2 mL/dL)

4. Prevention

a. Ensure intake of calcium, phosphorus and vitamin D is adequate:
    i. Recommended intake in growing healthy preterm infants:
        1. Calcium 120-230 mg/kg/day
        2. Phosphorus 60-140 mg/kg/day
        3. Vitamin D 200-400 IU/day
    ii. Parenteral Nutrition
        1. Follow recommendations given by NeoHal program and maintain calcium to phosphorus ratio: 1.8:1 *except* in the following situations:
            a. If serum phosphorus is less than 4 mg/100ml, then consider the following options in order of preference:
                i. Increase phosphorus in parenteral nutrition to 40-60 mg/kg/day
                ii. Eliminate chloride (to allow more phosphorus to be added to the parenteral nutrition).
                iii. Increase sodium or potassium (to allow more PO4 to be added to the parenteral nutrition).
                iv. Decrease calcium in parenteral nutrition unless serum calcium is less than 8 mg/100ml.
        2. Vitamin D: 120 IU/kg/day (included in parenteral MVI solution)

    iii. Enteral Nutrition
        1. Follow Neonatal Enteral Feeding Guidelines (as outlined in BCH NICU manual/FMC Best Practices).
        2. Consider distal fistula feedings in patients with bowel ostomies.
        3. For "fluid restricted" (<150 mL/kg/day) infants consider changing to 27 or 30 cal/oz fortified human milk or formula.

b. Reduce the use of furosemide
    i. Assess infant for evidence of pulmonary edema after a transfusion rather than automatically ordering furosemide.
    ii. Consider reducing maintenance fluid rate when transfusing blood products to keep within intended total fluid intake for the day.
    iii. Consider hydrochlorothiazide earlier in patients with evolving chronic lung disease, instead of intermittent dosing of furosemide

c. Maintain serum phosphorus above 5.0 mg/dl. If serum phosphorus is below 5.0 mg/dl, twice consecutively, either increase phosphorus in the parenteral nutrition, or supplement orally with either 1 -2 mEq/kg/day potassium phosphate (65-130 mg/kg/day phosphorus) or 1.5 – 3 mEq/kg/day sodium phosphate (35-70 mg/kg/day) depending upon the serum potassium or sodium levels. Order this on the Oral Electrolyte Order Form found in the work area. Maintain serum calcium to phosphorus product below 70 (serum calcium X serum phosphorus). Discontinue phosphorus supplement if >70.

d. Physical/Massage therapy for at risk patients as tolerated *who have not yet been diagnosed* with metabolic bone disease of prematurity.

5. Monitoring for "at risk" infants:

i. Beginning at 42 days of age, obtain: serum calcium, phosphorus and alkaline phosphatase level. (Neopanel @ FMC, CMP and phosphorus @ BCH).
ii. Normal values:
    a. Total serum calcium: 8-11 mg/dL
    b. Serum phosphorus: 5.0-8.5 mg/dL (<37 weeks PMA) 5.6-8. mg/dL (≥ 37 weeks PMA)
    c. Alkaline phosphatase ≤ 500 IU/L

6. Screening:

a. If the alkaline phosphatase is >500 IU/L obtain left wrist and knee radiograph at 6 weeks of life (around 42 days of age) and every 30 days thereafter.
b. If initial radiographs are normal or inconclusive and alkaline phosphatase remains >500 IU/L, repeat radiographs at monthly intervals until alkaline phosphatase decreases or radiographs are diagnostic of Metabolic Bone Disease of Prematurity.

For patients who are not growing by at least 15 grams/kg/day and are over 60 days of age consider treating for MBDP even without radiographic evidence of MBDP as radiographs may not be diagnostic if infant is not growing, even in the face of severe disease.

7. Diagnosis

Radiographs: *Hypodensity, fraying/cupping/dense line at metaphyses, fractures*

8. Treatment:

a. Institute enteral feedings *as soon as possible*.
b. Ensure adequate calcium and phosphorus administration
    i. Recommended intake for *treatment* of Metabolic Bone Disease:
        1. Calcium, elemental: 200 mg/kg/day
        2. Phosphorus, elemental: 100 mg/kg/day
c. Ensure adequate vitamin D administration and metabolism (Vitamin D: 400 IU/day)
    i. If receiving at least *10 cc/kg/day of* enteral feedings:
        1. For patients *without* cholestatic liver disease: Give D-vi-sol: 1 mL/day to provide 400 IU supplemental Vitamin D in addition to the Vitamin D received from parenteral nutrition, enteral nutrition, human milk fortifier, etc..
        2. For patients *with* cholestatic liver disease (serum unconjugated bilirubin level of ≥ 2 mL/dL): consider giving Calcitriol 0.05 mcg/kg/day PO in addition to Source CF, 0.5 ml twice daily and and Actigall for cholestatic hyperbilirubinemia. Source CF is a vitamin preparation that contains water soluble vitamins including vitamin D.
d. Do *not* perform physical/massage therapy on these infants as they are at risk for fractures.
e. Continue treatment until biochemical indexes are normal and radiographic evidence of healing is present.
    i. Monitor serum calcium, phosphorus and alkaline phosphatase twice per month.
        1. For patients on Calcitriol, in addition to the above:

a. Every 7 days: spot urine sample for urine calcium creatinine ratio (normal < 0.6 when values expressed as mg/dL). If ratio is > 0.6, discontinue Calcitriol and obtain renal ultrasound to evaluate for nephrocalcinosis.
b. Every 30 days, if serum calcium and phosphorus are in the normal range, obtain serum for Intact Parathyroid Hormone (normal 36-72). If less than 36, consider discontinuing Calcitriol, as significant disease is unlikely to be present.
c. Maintain serum calcium to phosphorus product below 70 (serum calcium X serum phosphorus). Discontinue calcitriol if >70.

ii. Perform wrist and knee radiographs monthly after initiating treatment and every 3-6 months thereafter until healing is documented.

f. Discharge:
   i. If there is no radiographic evidence of healing by the time of discharge, continue supplemental Vitamin D treatment by prescribing D-vi-sol if receiving formula or Poly-vi-sol with Iron if receiving breast milk. Do not discharge patients on Calcitriol unless direct bilirubin is >2.
   ii. Monitoring:
      1. Monitor serum calcium, phosphorus and alkaline phosphatase every 30 days during treatment.
      2. Wrist radiographs every 3-6 months thereafter until healing is documented.

NUTRITIONAL DISCHARGE PLANNING

- <u>Formula Fed Infants</u>
  - Premature infants < 2500 gm should be kept on 24 calorie/oz preterm formula or fortified human milk until the day before discharge (except when infant nurses).
  - One to two days prior to discharge, change to the formula that the infant will be discharged home on.
    - <1800 gm at discharge: Enfacare®Lipil or Neosure®Advance mixed to 24 calorie/oz
    - >1800 gm at discharge: Enfacare®Lipil or Neosure®Advance 22 calories/ounce
      - Preterm infants should stay on Enfacare®Lipil or Neosure®Advance until 9 months of age or the weight exceeds the 90th % for corrected age.
    - Birth weight > 2500 gm and gestational age at birth <36 weeks: Enfacare®Lipil 22 or Neosure®Advance 22
    - Birth weight > 2500 gm and gestational age at birth > 35 weeks: 20 cal/oz term formula (if feeding very well.)
- <u>Human Milk Fed Infants</u>
  - For infants receiving human milk with human milk fortifier at time of discharge and who will continue to receive at least some feedings by bottle, the expressed human milk should be supplemented at home with Enfacare®Lipil or Neosure®Advance powder. However, the mother should not be discouraged from putting the infant to breast in order to give supplemented human milk.

        - For infants <1800gm: supplement the expressed milk to 24 cal/oz
        - For infants >1800gm: supplement the expressed milk to 22 cal/oz
- Vitamin and Mineral Supplements
    - Premature infants –
        - If receiving breast milk/breast milk and formula – prescribe Poly-vi-sol with Iron, 0.5 ml twice daily
        - If receiving formula only – prescribe D-vi-sol (0.5 ml twice daily)
            - If the hemoglobin is < 9.0 gm/dl send home on 4 mg/kg/day of elemental iron. Prescribe Fer-in-sol which contains 15mg/0.6 ml.
    - Full term infants
        - If receiving breast milk - prescribe D-vi-sol (0.5 ml twice daily)
        - If receiving formula – prescribe D-vi-sol (0.5 ml twice daily)

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