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Discharge Planning and Post-discharge Nutrition

Introduction

The VLBW infant at the time of discharge is a nutritional challenge to healthcare providers in terms of what type of milk should be given and whether human milk will need fortification or supplementation.^{1,2} Post-discharge recommendations and practices vary widely by country and by region of the US. Preterm infants tend to be discharged before reaching term corrected age and before breastfeeding is well established. Volume of feeds at discharge varies greatly and has been shown to vary with caloric content, which will determine in part the intake of other nutrients, including protein.^{3,4}

Despite nutritional improvements made (early TPN, trophic feeds, more rapid feeding advancement, higher protein intake) to try to match intrauterine growth rates in the NICU, many preterm infants continue to have growth restriction at discharge.⁵ Postnatal growth failure and inadequate nutrition have been associated with poorer long-term neurodevelopmental outcomes.⁶ However, systematic reviews have shown limited benefits in growth and neurodevelopmental outcomes with the use of post-discharge formulas or multinutrient fortification of human milk.⁷

In addition, there may be a window for catch-up growth in the early post-discharge period.^{7,8} However, increasing evidence also suggests that either low birth weight or rapid post-natal weight gain, or the combination of both, may predispose to adverse long-term effects, such as increased risk for metabolic syndrome (hyperlipidemia, hypertension, cardiovascular diseases, type 2 diabetes) and osteoporosis in adulthood.^{3,9,10} The goal in nourishing preterm infants after discharge is to promote human milk feeding, minimize nutrient deficits, promptly address any nutritional deficits, and avoid over-nourishing.¹

Exclusive breastfeeding without supplementation at hospital discharge is not the primary goal for most ex-VLBW infants. A full milk supply at discharge is one of the best predictors of successful breastfeeding post-discharge.^{11,12} Mothers who intend to breastfeed after discharge, should be assisted to establish and maintain a full milk supply as well as practice breastfeeding while still in the NICU.¹³ VLBW infants who are to be formula-fed at discharge also require careful, coordinated feeding and follow-up plans and may require substantial additional nutrients in their diets.





POTENTIALLY BETTER PRACTICE #28

Nutritional discharge planning should be individualized, comprehensive, coordinated and include appropriate nutrient fortification (if needed) and nutritional follow-up.

Background, Rationale, and Goals

- Proactive nutritional support during the NICU stay can help prevent nutritional deficits and minimize the degree of growth failure before discharge.¹⁴
- Infants who are small (<2,000g) or SGA at discharge will usually require some fortification.³
- Human milk (with appropriate fortification, if needed) is always the first choice for feeding at discharge.^{1,7}
- Protein is almost always the limiting nutrient for growth, not calories.^{15,16}
- The best determinant of long-term bone health is not how much calcium is in the diet, but how much human milk is consumed.¹⁷
- The development of a nutritional care discharge plan for infants on MOM should consider:¹⁸
 - **The mother's:**
 - current supply of stored milk
 - intention whether to continue pumping
 - current milk output (ounces/day)
 - wishes for breastfeeding after discharge
 - **The infant's:**
 - current nutritional status (including biochemical indices)
 - current health status and treatments
 - bone health
 - growth pattern during NICU stay
 - ability to take oral feeds at breast or bottle
- Overly complicated nutritional discharge plans are to be avoided.¹⁹
- Some infants may be discharged home on full or partial gavage feedings to reduce the length of stay

in the NICU. There is limited evidence of the safety or efficacy of this policy.²⁰

Recommended Guidelines and Algorithms

- In the week before discharge, a discharge feeding plan should be determined by the physician, dietitian, lactation consultant, nursing and the parents, with agreement by the follow-up primary care provider and transmitted in writing to all.^{2,7,19} (Refer to [TOOL #19](#) on page 109.)
- As human milk is preferred at discharge for **ALL** infants, especially for preterm infants, lactation support should be provided both during the hospital course and after discharge.
- To avoid creating nutritional deficits after discharge, preterm infants should at least receive the nutrient intake of their respective corrected age. (Refer to [TOOL #20](#) on page 110 and [TOOL #21](#) on page 111.)
- An individualized approach, based on growth, personal history and selective nutrient deficiencies as well as current needs, should be employed for the post-discharge nutrition of preterm, especially VLBW infants. (Refer to [TOOL #22](#) on page 112.)
 - Infants born VLBW, or who are small (<2,000g), or small for gestational age (SGA) at discharge will almost always require some additional nutritional intervention (beyond term formula or human milk alone).^{2,3}
- A post-discharge nutritional intervention is more effective in promoting growth if

- performed early (i.e. before term CGA).
- The NICU team, parents and, when possible, the outpatient care provider, should be involved in discharge planning.
- Close monitoring of growth parameters (weight, length, head circumference) and feeding should be performed at discharge and every 2-4 weeks thereafter, until stable weight gain is established, using appropriate growth curves (WHO21, Fenton22, and Olsen23).^{1,7,24}
 - Fenton or Olsen charts should be used for infants born < 37 wks
 - After the infant reaches 42 weeks, switch to the WHO growth charts.²⁵
 - PediTools (<http://www.peditools.org>) provides a calculator to determine an infant's exact weight percentile and z score using Olsen, Fenton and WHO growth data.
 - Downloadable calculators on the Fenton chart are available at <http://u.calgary.ca/fenton>.
 - Selective biological measurements may indicate selective nutritional deficiencies (e.g. BUN, ferritin, 25(OH) vitamin D, retinol-binding protein).
- Iron supplementation should be continued after discharge until at least 6-12 months of age.¹
- Vitamin D supplementation should be continued after discharge in breastfed infants alone or as a component of a multivitamin.
- Multivitamins, dosed to deliver at least 1500 IU/day of Vitamin A, 20-70 mg/day of Vitamin C, and 400 IU/day of Vitamin D should be added at discharge. B vitamins are also necessary for the former preemie receiving unfortified human milk. A multivitamin preparation dosed at 1 mL/day will usually supply all the above.
 - If formula constitutes >50% of an infant's daily intake, the dose should be 0.5 mL per day. Multivitamin administration should be continued for at least 3 to 6 months, although the optimum length of use has yet to be determined.^{24,26}
- The composition of mature human milk and post-discharge supplementation options vary significantly. (Refer to **TOOL #23** on page 113

and **TOOL #24** on page 114.)

Quality & Process Improvement

- Provide standing admission orders for discharge planner and lactation consultant to consult with mother upon infant admission to the NICU.
- Provide facilities for rooming-in prior to discharge.
- Follow-up plan arranged and documented in discharge summary/instructions for parent and follow-up physician:
 - With infant's primary physician (1-3 days)
 - With lactation consultant (1-2 weeks or sooner if possible)
 - With dietitian (4-6 weeks if available)
- Nutritional assessments should be completed and documented prior to discharge on infants with nutritional risk factors.
- Written discharge nutritional plan should be in the chart for parent, primary physician (including nutritional laboratory follow-up). (Refer to **TOOL #25** on page 115.)
- Follow-up clinic includes a dietitian and lactation consultant if possible.
- NICU growth chart should be sent home along with the discharge summary and any other important paperwork (e.g. hearing screen results, newborn screen result, last cardiac ultrasound, nutritional laboratory follow-up recommendations, etc., as appropriate) for parents and primary physician.

Outcome/Process Measures

- Is there a discharge nutritional plan in each VLBW infant's chart? Given to parent? Sent to primary physician?
- Is the growth chart sent to the primary physician as well as the discharge nutrition plan and discharge summary?



POTENTIALLY BETTER PRACTICE #29

Mothers should be encouraged to eventually achieve exclusive breastfeeding after discharge while ensuring appropriate growth for the infant.

Background, Rationale, and Goals

- The multiple benefits of breastmilk and breastfeeding should not terminate at hospital discharge. Adequate support should be arranged to allow each mother to reach her breastfeeding goal while ensuring appropriate growth and nutrition for the infant.
- Exclusive breastfeeding without supplementation at hospital discharge is not the primary goal for most ex-VLBW infants.
- Establishing a full milk supply in the first 2 weeks after birth (coming to volume ≥ 500 mL/day) has been correlated with receiving breastmilk at discharge.²⁷
- Mothers are most likely to eventually succeed in transitioning their infants when they are fed breastmilk throughout the NICU stay.¹²
- The duration of human milk feedings is significantly longer for those who transition to some breastfeeding in the hospital v. those who just receive expressed milk.²⁸
- Mothers should be advised to continue to express milk using a hospital grade electric pump after breastfeeding to maintain milk supply for at least 1-2 months post-discharge, or until the infant is transitioned over to direct breastfeeding.
- The concept of “triple feeding” (breastfeeding, supplementing with previously expressed milk or formula, then pumping) has been useful.²⁹
 - Ensure continued breast pump availability.
 - Provide families and the primary care provider with written guidelines for infant feeding at discharge.
- Initially, small infants may fall asleep at the breast due to fatigue rather than satiety, so time limits of 20-30 minutes at the breast are advised.
- As the infant becomes more efficient in emptying the breast, breastfeeding frequency can be increased as supplementation and pumping decrease.
- The most common reasons mothers cite for ceasing breastfeeding are concerns their milk is nutritionally inadequate, and the effort required for pumping is too burdensome.³⁰

Recommendations, Guidelines and Algorithms

- Skin-to-skin care should be continued after discharge home.³¹
- Test-weighing (pre and post breastfeeding) in the NICU enables mothers to quantify milk intake and therefore needed supplementation without increasing their stress. This can be continued at home with rental scales if the mother wishes.^{32,33}
- The method of supplementation initiated in the hospital and agreed upon by the mother, physician, primary nurse, dietitian and lactation consultant should be continued at home.
 - Infants can have fortification added to each supplemental feed of expressed breastmilk, OR, can have 1-4 feedings per 24 hrs (as calculated by the dietitian) of the prescribed supplemental formula with otherwise unlimited breastfeeding.
 - The mother should be offered options and choose the one easiest for her.
- Provide realistic time guidelines and frequent follow-up:

- Primary care follow-up in 1-3 days
- Lactation follow-up in 1-2 weeks
- Dietitian follow up in 4-6 weeks
- Encourage continued attendance at breastfeeding and other premature infant support groups after discharge as well as referral to other community resources.
- Premature infant developmental follow-up clinics should include both nutritional and lactation expertise if possible.
- If infants are to be discharged before full oral feeds are established (i.e. on some or all gavage feeds), has there been adequate assessment of the parents' understanding of the risks and benefits, social situation, identification and approval of home caregivers, the family's learning style, appropriate follow-up, etc.?³⁴
- Infants formula-feeding at discharge will also need support and appropriate follow-up.

Quality and Process Improvement

- Establish a breastfeeding support group with an educational component and lactation consultant support for mothers of inpatient and discharged VLBW and other infants.
- Establish an NICU Nutrition Committee.
- Obtain or create a local community resource list for mothers, including WIC and private providers.
- Include referrals to breastfeeding resources on discharge instructions.
- Ensure affordable breast pump availability for EVERY breastfeeding mother/infant dyad for at least 2 months post discharge.
- Provide families with a written guide for transitioning to full breastfeeding for former VLBW infants at home.
- Make follow-up phone calls to discharged VLBW patients' families if possible.

Outcome/Process Measures

- Measure attendance at mother-to-mother support groups (current and discharged families).
- Quality of breastfeeding support (by nurses, physicians, lactation consultants) can be measured on post-discharge patient satisfaction surveys. Construct a related run chart and discuss findings.
- At discharge, what percentage of discharged mothers have a full milk supply? Any breastmilk for their infants? Are directly breastfeeding?
- On post-discharge phone calls: what percentage of families are reached? What questions are asked? Common themes? Have standing report to NICU Nutrition Committee.



EXAMPLE: NICU Graduate Nutrition Discharge Plan

NICU Nutrition Discharge Plan

Nutrition for Preterm Breastmilk Fed Infant											
<p>Birth Weight > 1800 grams and Gestational Age 34-37 weeks → Fortification of mother's milk <u>not</u> usually necessary</p> <ul style="list-style-type: none"> Continue current breastfeeding frequency. As baby grows and gets stronger, more breastfeeding times may be added If infant lagging in growth, encourage more breastmilk volume or consider adding Post-Discharge Formula (PDF) i.e. Neosure™ or Enfacare™ to provide extra calories, protein, calcium, phosphorous, and vitamins. <p> <input type="checkbox"/> Plain breastmilk or breastfeeding with <input type="checkbox"/> PDF 22 cal/oz <input type="checkbox"/> Two (2) daily PDF feedings <input type="checkbox"/> PDF 24 cal/oz <input type="checkbox"/> Three (3) daily PDF feedings <input type="checkbox"/> PDF 24 cal/oz <input type="checkbox"/> Two (2) daily PDF feedings </p>											
<p>Birth Weight < 1800 grams and Gestational Age <34 weeks → Fortification of mother's milk recommended</p> <ul style="list-style-type: none"> Continue supplementation of mother's milk with post-discharge formula (PDF) or PDF alone based on guideline below, or longer if not growing well. The following fortification timeline is based on infant's birth weight. Consider history of growth restriction, growth delay, current growth trend, and feeding-related morbidities. <table border="0"> <tr> <td>Birth Weight:</td> <td>Supplement duration:</td> </tr> <tr> <td>< 750 grams –</td> <td>Up to 12 months postnatal</td> </tr> <tr> <td>751-1000 grams</td> <td>Up to 9 months postnatal</td> </tr> <tr> <td>1001-1500 grams</td> <td>Up to 6 months postnatal</td> </tr> <tr> <td>1501-1800 grams</td> <td>Up to 3 months postnatal or term weight</td> </tr> </table> <p>Supplement feeding using method A or B below. Total feedings per day = 8 (?)</p> <p><input checked="" type="checkbox"/> Continue current breastfeeding plan and pumping routine. Refer to handout: 'Breastfeeding Plan for Going Home'</p> <p>A. <input type="checkbox"/> Fortification of mother's milk with PDF [Neosure™ or EnfaCare™ powder] to: <input type="checkbox"/> 22 cal/ounce <input type="checkbox"/> 24 cal/ounce _____ feedings per day</p> <p>B. <input type="checkbox"/> Post-Discharge formula [PDF] only [Neosure™ or EnfaCare™ powder]* <input type="checkbox"/> 22 cal/ounce <input type="checkbox"/> 24 cal/ounce _____ feedings per day</p> <p><i>* Mix formula powder and water per recipe provided by Sharp Mary Birch NICU</i></p>		Birth Weight:	Supplement duration:	< 750 grams –	Up to 12 months postnatal	751-1000 grams	Up to 9 months postnatal	1001-1500 grams	Up to 6 months postnatal	1501-1800 grams	Up to 3 months postnatal or term weight
Birth Weight:	Supplement duration:										
< 750 grams –	Up to 12 months postnatal										
751-1000 grams	Up to 9 months postnatal										
1001-1500 grams	Up to 6 months postnatal										
1501-1800 grams	Up to 3 months postnatal or term weight										
Nutrition for Preterm Formula-Fed Infant											
<ul style="list-style-type: none"> Use PDF: Neosure™ or EnfaCare™ <input type="checkbox"/> 22 cal/ounce <input type="checkbox"/> 24 cal/ounce <input type="checkbox"/> Other: _____ Use term formula of mother's choice or per MD recommendation: _____ <input type="checkbox"/> 22 cal/ounce _____ <input type="checkbox"/> 24 cal/ounce _____ Other: _____ 											
Notes for Pediatrician											
<ul style="list-style-type: none"> Fortification of mother's milk or formula has been shown to improve growth in VLBW preterm infants. Sufficient protein, minerals, and calories improve long-term growth, including brain growth. Post-discharge preterm-adapted formula [PDF: Neosure, EnfaCare] supplies more calories, protein, vitamins, and minerals than term formula. Its use has been shown to improve somatic growth, brain growth, and bone mineralization. Preterm infants should receive PDF until term weight (3.5kg) or 12 weeks (MD discretion) and longer if not growing well. American Academy of Pediatrics (AAPCON) recommends oral Vitamin D supplement for all breastfed and most formula-fed infants: 400 international units per day. Monitor growth using Fenton, W.H.O., or CDC charts. Screen for iron deficiency. Continue iron supplement as needed. Consider periodic evaluation of biochemical indices: BUN (protein status), serum ferritin, serum 25 (OH) vitamin D, etc. 											



Nutritional Needs by Weeks of Gestation

Nutritional needs per kg/day GA, weeks						
	< 28	28-31	32-33	34-36	37-38	39-41
Fetal growth						
Weight gain, g	20	17.5	15	13	11	10
Lean body mass gain, g	17.8	14.4	12.1	10.5	7.2	6.6
Protein gain, g	2.1	2	1.9	1.6	1.3	1.2
Requirements						
Energy, kcal/kg	125	125	130	127	115	110
Proteins, g/kg	4	3.9	3.5	3.1	2.5	1.5
Protein/energy ration, g/100 kcal	3.2	3.1	2.7	2.4	2.2	1.4
Calcium, mg/kg	120-140	120-140	120-140	120-140	70-120	55-120
Phosphorus, mg/kg	60-90	60-90	60-90	60-90	35-75	30-75

Weight gain, lean body mass and protein gain during the last trimester of pregnancy and theoretical energy and protein requirements for enteral nutrition are indicated by gestational age (GA) group. Before 39 weeks GA, requirements are based on the fetal growth, fetal accretion rate and intestinal absorption, after 40 weeks GA, requirements are based on the composition of human milk [adapted from 11, 44]. The values indicated in this table are theoretical values per GA groups. They show that both the late preterm (i.e. 34–36 weeks GA) and the early term infant (i.e. 37–38 weeks GA) have nutritional requirements that are different than the full-term infant (i.e. 39–41 weeks GA). The values indicated do not take into account the nutrient supply needed to compensate for any nutritional deficit and therefore are not applicable as such for the very preterm infant at time of, or after, hospital discharge.

Adapted from: Lapillonne A. [Feeding the preterm infant after discharge](#). World review of nutrition and dietetics 2014;110:264-77.



TOOL #21

Recommended macro/micronutrients for infants 0-6 months

Recommended macronutrient/micronutrient requirements (units/kg/d) for the stable preterm infant				
	Term	ELBW	VLBW	VLBW Post term
Energy, kcal	90-120	130-150	110-130	90-100
Protein, g	1.52	3.8-4.4	3.4-4.2	2.0
Carbohydrate, g	16-20 ^a	9-20	7-17	6.8-14.1
Fat, g	8-10.3 ^a	6.2-8.4	5.3-7.2	4.0-6.6
Vitamin A, IU	1333	700-1500	700-1500	545-1273
Vitamin D, IU	200	150-400	150-400	400
Calcium, mg	70-120	100-220	100-220	253-377
Phosphorus, mg	35-75	60-140	60-140	105-273
Iron, mg	0.09 ^a	2-4	2-4	1.8-2.7
Zinc, mg	666 ^a	1000-3000	1000-3000	890

Adapted from: Nzegwu NI, Ehrenkranz RA. [Post-discharge nutrition and the VLBW infant: To supplement or not supplement?: a review of the current evidence.](#) Clin Perinatol 2014;41:463-74.



Composition of post-discharge formulas

Composition of post-discharge formulas (per 100 mL) and mature human milk						
	Mature Human Milk	Similac Neosure	Enfamil Enfacare	Similac Advance	Enfamil Lipil	Nestle Good Start
		22 kcal/oz ^a	22 kcal/oz ^b	20 kcal/oz ^a	20 kcal/oz ^b	20 kcal/oz ^c
Energy, kcal	65-70	74.4	74	67.6	68	67
Protein, g	1.03	2.1	2.1	1.4	1.4	1.5
Carbohydrate, g	6.7-7.0	7.5	7.9	7.2	7.4	7.5
Fat, g	3.5	4.1	3.9	3.8	3.6	3.4
Calcium, mg	20-25	78.1	89	52.8	53	44.9
Phosphorus, mg	12-14	46.1	49	28.4	29	25.5
Sodium, mg	12-25	24.5	26	16.2	18.4	18.4
Iron, mg	0.3-0.9	1.34	1.3	1.2	1.2	1.0

^a Mead Johnson Nutritionals, Evansville, IN; <http://www.meadjohnson.com/Brands/Pages/Products-by-Need.aspx>.

^b Abbott Nutrition, Abbott Laboratories, Columbus, OH; <http://abbottnutrition.com/>.

^c Gerber (Nestle) Infant Formulas, Glendale, CA; <http://medical.gerber.com/products/Default.aspx>.

Adapted from: Nzegwu NI, Ehrenkranz RA. Post-discharge nutrition and the VLBW infant: To supplement or not supplement?: a review of the current evidence. Clin Perinatol 2014;41:463-74.



TOOL #23

Composition of MOM + Varying Formula Intakes (Stanford)

Assuming intake of 180 mL/kg/day	Energy (kcal/kg)	Protein (gm/kg)	Calcium (mg/kg)	Phosphorus (mg/kg)
Target (AAP)	120-130	2.5-3.5	150-175	90-105
Mature Human Milk	138	2.0	50	26
MBM+PDF 22 cal/oz (powder added to MBM)	131	≤ 2.2	54-56	25-27
MBM + 2 bottles PTF 24 cal/oz, High Protein	128	2.7-2.8	91-97	48-54
MBM + 2 bottles PDF 24 cal/oz	128	2.5	69-75	40-42
MBM + 2 bottles PDF 22 cal/oz	125	2.4	66-71	38-40
MBM + PTF 30 cal/oz mixed in a 2:1 ratio = ~23 cal/oz	138	3.5	139	76
MBM + PTF 30 cal/oz mixed in a 1:1 ratio = ~25 cal/oz	150	4	185	102
MBM + PTF 30 cal/oz mixed in a 1:2 ratio = ~27 cal/oz	162	4.5	234	130
MBM + 2 bottles PTF 30 cal/oz	130	2.6	111-122	57-66

MBM= Maternal breastmilk; PTF = Preterm formula; PDF = Post-Discharge formula



Possible Post-Discharge Feeding Regimens

Adequate Maternal Milk Supply		
Appropriate growth & benign labs	Slow growth & benign labs	Slow growth and/or abnormal bone labs
<ul style="list-style-type: none"> Maternal milk ad lib PO vitamin & iron drops 	<ul style="list-style-type: none"> Maternal milk ad lib PDF-22 X 2 feedings/day PO vitamin & iron drops 	<ul style="list-style-type: none"> Maternal milk ad lib PDF-22 or PDF-24 X 2 feedings/day PO vitamin & iron drops PO calcium supplement

Inadequate Maternal Milk Supply		
Appropriate growth & benign labs	Slow growth & benign labs	Slow growth and/or abnormal bone labs
<ul style="list-style-type: none"> Maternal milk ad lib PDF-22 as needed PO vitamin & iron drops 	<ul style="list-style-type: none"> Maternal milk ad lib PDF-22 or PDF-24 as needed PO vitamin & iron drops 	<ul style="list-style-type: none"> Maternal milk ad lib PDF-24 as needed PO vitamin & iron drops PO calcium supplement

PDF-22: Postdischarge formula 22 kcal/oz

PDF-24: Post discharge formula 24 kcal/oz

Bone labs: serum alkaline phosphatase, calcium, phosphorus

Adapted from: Cohen RS, Mayer O, Fogleman AD. Managing the Human-Milk-Fed, Preterm VLBW Infant at NICU Discharge: A Simpler Algorithm? *Infant, Child, & Adolescent Nutrition* 2015;7:177-9.



TOOL #25

Nutritional Assessment	
Growth	Action Values
Weight gain	< 20 g/day
Length growth	< 0.5 cm/week
Head circumference	< 0.5 cm/week
Biochemical Tests	
Growth	Action Values
Phosphorus	< 4.5 mg/dL
Alkaline phosphatase	> 450 IU/L
BUN	< 5 mg/dL
Pre-albumin/transthyretin	< 10 mg/dL

Adapted from: Hall RT. [Nutritional follow-up of the breastfeeding premature infant after hospital discharge.](#) *Pediatr Clin North Am* 2001;48:453-60.



Procedure for Accurate Test-Weighing

DEFINITION: Weighing the infant before and after breastfeeding to determine intake at the breast.

REQUIREMENTS: A digital scale with the following features:

1. Digital read-out
2. Integration function that allows for movement of the infant
3. Accurate to 2 grams

PROCEDURE:

If leads can be disconnected for weights:

1. Place scale up against infant bed/warmer/isolette on flat, level surface.
2. Disconnect leads and place monitor on standby
3. Wrap infant tightly so he/she will not move around on scale. No leads should be hanging off the scale.
4. Turn on and zero scale.
5. Before breastfeeding, place baby on the center of the scale and weigh him/her. No need to undress, remove or hold up leads. This is the “before” weight. Record. Leave scale on during breastfeeding.
6. Reconnect leads and press “continue current” on the monitor.
7. Mother breastfeeds infant. **DO NOT CHANGE DIAPER YET.**
8. Disconnect leads and place monitor on standby.
9. Reweigh the infant, on the center of the scale with the **EXACT SAME CLOTHES, DIAPER, BLANKET, LEADS, ETC.** This is the “after” weight. Record.
10. Subtract the first (before) weight from the second (after) weight. The difference in grams is considered the “intake” in milliliters (mL).
11. Some scales automatically store the values and compute the difference for you. Refer to manufacturers’ instructions.

If leads or tubing cannot be disconnected for weights:

1. Place scale up against infant bed/warmer/isolette on flat, level surface.
2. Wrap infant tightly so he/she will not move around on scale.
3. Place the baby on the scale with scale turned off.
4. Tape lead connection and other tubes to side of crib or isolette. There should be no tension on wires/tubes and they should not touch the scale.
5. Lift infant off scale.
6. Turn on and zero scale.
7. Before breastfeeding, place baby on the center of the scale and weigh him/her. You may place a hand under the leads to relieve any pulling. This is the “before” weight. Record.
8. Untape leads, tubes, etc but leave tape on crib/isolette/warmer/etc.
9. Remove infant from scale and turn off scale.
10. Mother breastfeeds infant. **DO NOT CHANGE DIAPER YET.**
11. After breastfeeding, replace infant on center of scale with the scale turned off.
12. Retape leads/tubes in same spot as before (on crib/isolette/warmer).
13. Lift infant, turn on and zero scale.
14. Replace the infant on the center of the scale and reweigh the infant, with the **EXACT SAME CLOTHES, DIAPER, BLANKET, LEADS, ETC.** You may place a hand under the leads to relieve any pulling. This is the “after” weight. Record.

15. Subtract the first (before) weight from the second (after) weight. The difference in grams is considered the “intake” in milliliters (mL).
16. Some scales automatically store the values and compute the difference for you. Refer to manufacturers’ instructions.



1. Lapillonne A. [Feeding the preterm infant after discharge](#). World review of nutrition and dietetics 2014;110:264-77.
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