Recognizing when things are headed south

Are things heading south?

Well, it’s all about the clues

Baby behavior often drives the crisis

Before vs after Lact 2

Early weight loss

>7%?

>10%?

Use day 2 weight as baseline for % loss - Noel-Weiss 2011

Gathering good clues

Start by listening to mom’s story

- Is there really a problem?
  - Reassure, educate

Take a detailed history

- Risk factors for delays
- Breastfeeding Management

Further Observations

- Infant assessment
- Feeding assessment
- Maternal Assessment

- Differentiate delayed, primary and/or secondary causes

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Start Here → Is baby getting enough?

- ~80% pass meconium within 48 hrs (Bekkali 2008)
- Risk factor: Scant output in first 5 days or delayed change to yellow
- Bottom line: Lots of smaller stools OR Less often but blow-outs

Nommsen-Rivers et al. (2008). Newborn wet and soiled diaper counts and timing of onset of lactation as indicators of breastfeeding inadequacy. J Hum Lact

And Here → Is baby getting enough?

Once secretory activation occurs, most babies start to gain 30-45g/day in the first 1-2 mo
Again, how does baby look and act?


First 14 days: Typical parameters for “enough”

Table 3. Description of Sample: Exclusively Breastfed Neonates During the First 14 Days Post Birth

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean</th>
<th>SD</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth weight</td>
<td>7.9 lbs</td>
<td>0.6</td>
<td>10th</td>
</tr>
<tr>
<td>Feedings per 24 hours</td>
<td>8</td>
<td>0.6</td>
<td>25th</td>
</tr>
<tr>
<td>Maximum weight loss</td>
<td>8.1%</td>
<td>2%</td>
<td>75th</td>
</tr>
<tr>
<td>First day to gain weight</td>
<td>4.7 days</td>
<td>3.9 days</td>
<td>50th</td>
</tr>
<tr>
<td>First occurrence of yellow stool</td>
<td>6.8 days</td>
<td>5.5 days</td>
<td>75th</td>
</tr>
<tr>
<td>Day of regaining birth weight</td>
<td>9.0 days</td>
<td>7.1 days</td>
<td>90th</td>
</tr>
<tr>
<td>BMs per 24 hours first 3 days</td>
<td>4.0</td>
<td>0.6</td>
<td>75th</td>
</tr>
<tr>
<td>BMs per 24 hours during 4th-14th days</td>
<td>4.8</td>
<td>1.4</td>
<td>75th</td>
</tr>
<tr>
<td>Weight gain in 15 days in preterm</td>
<td>7 lbs</td>
<td>0.6 lbs</td>
<td>75th</td>
</tr>
<tr>
<td>Weight gain in 15 days in term</td>
<td>11 lbs</td>
<td>0.6 lbs</td>
<td>75th</td>
</tr>
<tr>
<td>Percent of birth weight at 14 days</td>
<td>100%</td>
<td>100%</td>
<td>100th</td>
</tr>
</tbody>
</table>

Take home message:
It is uncommon for babies gaining appropriately to stool infrequently


WHO Velocity Growth Charts
For full WHO velocity charts by birthweight: who.int/childgrowth/standards/w_velocity/en/

Factor in supplementation

Weight gain/rate
Fast, slow, on target?
Milk at breast? Oz expressed milk? Oz Formula?

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If something is wrong

Is it Mom or is it Baby?

Is baby not getting enough because mom isn’t making enough?
Or is there enough milk but baby can’t get enough out?
Or was there enough milk but now there isn’t because baby killed off the supply?

If things really are heading south...

#1: Feed the Baby
#2: Protect/Work on Supply
#3: Find the problem

You must find the problem before you can fix the problem

First fork in the road

Did milk production struggle to get going?
Or did milk production start off well, and then start to die later on?

The first week

DELAYED ONSET: Milk in >72hrs (noticeable fullness)
Happens to over 1/3 of mothers in U.S. studies!
→ 40% of those babies lose >10% BW by day 4

Nommsen-Rivers 2010: “Delayed onset of lactation is epidemic; risk factors are multidimensional”

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Milk intake first week: Realistic expectations

Example:
7 lb 16 oz / 3 kg baby

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>80</td>
<td>60</td>
<td>50</td>
<td>40</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>160</td>
<td>140</td>
<td>120</td>
<td>110</td>
<td>100</td>
<td>90</td>
<td>80</td>
</tr>
</tbody>
</table>

Breast Milk Transfer Over First 6 Days

Milk volume estimated by breast milk transfer over the first 6 days in vaginal and cesarean births. *Adjusted difference P ≤ .05. Adapted from Evans KC, Evans RG, Royal R, Esterman AJ, James SL. Effect of caesarean section on breast milk transfer to the normal term newborn over the first week of life. Arch Dis Child Fetal Neonatal Ed. 2003;88(5):F382.

Risk Factors for Delayed lactogenesis

- Stress, stress in labor (Caparros-Gonzalez 2019; Dimitraki 2015; Grajeda, 2002; Dewey 2001)
- Long labor or Prolonged stage 2 labor (Dewey 2003, 2001; Chen 1998)
- Labor pain medications (Lind 2003, 2001; Chen 1998)
- Ineffective or infrequent breast emptying (Galea 2012; Hurst 2007; Chen 1998; Nommsen-Rivers 2010)
- Severe bleeding (Livingstone, 1996; Wilis 1995)

DOL Risk Factors

- Maternal Age (usually 35+)


- Obesity

(Ballestra-Castillejos 2020; Preusting 2017; Rasmussen 2001, 04, 07, Nommsen-Rivers, 2010)

- Big Baby (birth wt >3600g) (Nommsen-Rivers, 2010)

- Diabetic Pregnancy (De-Bonist 2003)

"Suboptimal glucose tolerance may be a key factor in the relation between obesity and delayed onset of lactation" (Nommsen-Rivers 2016)

- Hypertension (Salahadeen 2013; Hurst 2007; Hall 2002)

- Severe pp edema (Nommsen-Rivers, 2010; Chantry 2011)

- Retained placental tissue

Classical: hemorrhage
Subtle: persistent red bleeding, cramping, passing clots (Feldman 2020; Hurst 2007)

Placenta accreta, increta, percreta:
↑ risk w/previous c-section, age >35, multiple pregnancy, placenta previa

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**DOL Risk Factors**
- Rarer: Gestational ovarian theca-lutein cyst
- High testosterone during pregnancy
- Lact II commences when levels drop sufficiently

*Dahl* (2008)

**DOL Risk Factor?**
Hyperemesis gravidarum

*How was it treated?*
*Timing/duration?*
*Dosage?*

*Breastfeeding Medicine.*

**Another one to keep an eye on**

**Tocolytics**


**Mom’s early reactions...**

Failure of early removal of colostrum may inhibit lactogenesis II despite normal hormonal changes.


Breastfeeding frequency impacts the start of lactogenesis II, which in turn influences how long a woman exclusively breastfeeds.


**The second fork in the road - A**

Did milk production struggle to get going?
Or did milk production start off well, and then start to die later on?
How well was breastfeeding managed?

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Rule out Maternal Mgt Problems: Accidental Inhibitors

Medications: Bupropion, Pseudophedrine, Hormonal BC

Herbals: Peppermint products, Sage foods, Parsley foods

Tobacco & Alcohol

Parenting Programs/Books

Placenta pills—another accidental inhibitor?

Premie management issues

Gestation
Lack of touch
Frequency of milk removal
Efficiency of milk removal
Stress over infant condition

Pumping in lieu:
Do not take responses at face-value: Check and re-check answers

How often do you pump?
Day AND night?
How many times in 24hrs?

Pumps aren't perfect: Using hands makes a difference

More milk using hands + pump

Pumping for work

The Magic Number
Pumping Equipment

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**Second fork in the road** - B

Or did milk production struggle to get going and never got there? Did milk production start off well, and then start to die later on? How well did baby do their job?

**Mom may own the equipment, but...**

The Baby Drives the Supply

Baby’s early feeding experiences at the breast factor into long-term production

**Infant & Feeding Assessment**

- Infant birth and health history
- Physical assessment
- Suck assessment
- How does the parent describe baby’s feeding behavior in relation to available milk supply?
- Observe a feed and/or test-weighing
- Consider that a problem may be multifactorial

**Look and Listen**

What do you see and hear when baby tries to latch & suck?

**What do we know about baby?**

Because it’s all about suck

**Infant suck affects prolactin surges**

Zhang et al. (2016). Are Prolactin Levels Linked to Suction Pressure?

- High maternal pre-pregnant BMI
- Smaller than average surge
- High infant birth weight

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Infant suck affects milk removal

- Poor milk removal →
- Residual milk →
- Lower persistency →
- Decreased milk production

“Cows with a higher percentage of residual milk usually have a lower persistency of lactation”
- Hurley 2010

Red Flags

Difficult birth

Facial asymmetry & aberrations

Suck Problems: Jaw

Receding chin (retrognathia)
Livingstone, 2000

Torticollis

Less Common Infant Issues

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Fatiguing

The Sleepy / Lethargic / Worn Out Baby
Typically symptomatic of poor milk flow
May also indicate infant stress from
✓ poor muscle tone
✓ Heart problems
✓ inhibition of tongue mobility
✓ infection

All can affect suck!

Borderline early & premature

Central Nervous System problems

Low muscle tone

Airway: Laryngomalacia
Inspiratory stridor due to prolapse of walls in larynx during inhalation
May worsen over the first few months, but usually resolves by 2 yrs
➢ Stress triggers: crying, feeding
➢ Worse when lying on back (supine)
➢ Usually does best with head hyper-extended

Red Flag: Clicking

Red Flags: The kuk-kuk baby

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Red Flags: Leaking

Obvious to subtle/sneaky restrictions

Timing may be critical

Many practitioners want to “wait and watch” BUT accumulated experience now suggests that success rate drops over time beyond 2 months


The third fork in the road

If you’ve ruled out baby...

Or did milk production struggle despite good management and baby??

How well did mom manage breastfeeding?

How well did baby do their job?

Take the Maternal Assessment Deeper

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**Detailed Maternal Assessment**

- Previous breastfeeding history
- Mother’s Reproductive history
- Mother’s Health & Event history
- This pregnancy history
- Breast assessment
- Hormonal Issues

**Breast Assessment**

*Note:*
- Overall symmetry
- Overall shape
- Spacing between breasts
- Significant veining
- Fullness of each quadrant
- Proportion of glandular to fatty/connective tissue
- Nipple-areolar complex:
  - Pregnancy changes? Bulbous?
  - Overall density? Unusual nipple configuration? Pore patency?

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**Rib Span**

- Vertical span = ribs 2 to 6
- Horizontal span = midaxillary to sternum
- "~50% glandular up to age 35"

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**Markers of Lactation Insufficiency**

*Risk factor:*
- Higher breast type #

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**Risk factor:**
- High inframammary fold
- Rib span less

**Risk factor:**
- Lack of veining

**Risk factor:**
- Wide spacing
- Flat space >1.5"

**Risk factor:**
- Stretch marks w/minimal growth

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**PLASTIC SURGERY BREAST TYPES: VON HEIMBURG CLASS**

**Class I:** hypoplasia lower medial quadrant

**Class 2:** hypoplasia of both lower quadrants with adequate areolar skin

**Class 3:** hypoplasia both lower quads with limited areolar skin

**Class 4:** hypoplasia of all quads

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**Deficiency in overall breast “footprint”**

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Risky Breast Shapes

More difficult to classify
Marked asymmetry considered “classic,” but often presents without dramatic asymmetry

Could it be a letdown problem?

Be suspicious when...
- The milk “came in” but didn’t come out
- Parent exhibits depression, high anxiety or obsessive behavior
- Recent traumatic experience, or difficult/painful birth
- Lack of confidence
- Unsupportive partner, family, friends
- Weak infant suck

Screening for hormonal problems: The Next Step?