Recognizing when things are headin’ south

Objectives
1. Differentiate the three main categories of milk production problems.
2. List at least 3 risk factors for lactation problems in the early postpartum
3. Relate the importance of current pregnancy history to lactation capability
4. Explain the impact of infant suck on maternal milk production

~No disclosures~

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

Are things heading south?
Well, it’s all about the clues

Early weight loss
>7%?
>10%?

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

Start Here → Is baby getting enough?
Lots of smaller stools OR
Less often but blow-outs

Once milk comes in, baby should start to gain 30-45g/day in the first 1-2 mo

How does baby look and act?
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WHO Velocity Growth Charts

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Median</th>
<th>10th Percentile</th>
<th>25th Percentile</th>
<th>50th Percentile</th>
<th>75th Percentile</th>
<th>90th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-7 days</td>
<td>9.0</td>
<td>6.0</td>
<td>8.0</td>
<td>10.0</td>
<td>12.0</td>
<td>14.0</td>
</tr>
<tr>
<td>8-14 days</td>
<td>12.0</td>
<td>9.0</td>
<td>11.0</td>
<td>13.0</td>
<td>15.0</td>
<td>17.0</td>
</tr>
<tr>
<td>15-21 days</td>
<td>17.0</td>
<td>13.0</td>
<td>16.0</td>
<td>19.0</td>
<td>22.0</td>
<td>25.0</td>
</tr>
</tbody>
</table>


For full WHO velocity charts by birthweight: http://www.who.int/childgrowth/standards/w_velocity/en/

Fast, slow, on target?

Milk at breast?

Oz expressed milk?

Oz formula?

If something is wrong

Is it Mom or is it Baby?

If things really are heading south...

#1: Feed the Baby

#2: Protect/Work on Supply

#3: Find the problem

Don’t put the cart before the horse

You must find the problem before you can fix the problem

Weight gain/rate

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?

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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?

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

The first week

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

Risk Factors for Delayed lactogenesis

- Stress in labor (Grajeda, 2002)
- Long labor or Prolonged stage 2 labor (Dewey 2003, 2001; Chen 1998)
- Caesarean delivery, especially unscheduled (Dewey 2003, 2001; Evans 2003)
- Ineffective or infrequent breast emptying (Chen 1998; Nommsen-Rivers 2010)
- Vacuum-assisted deliveries (Hall 2002)
- Severe bleeding (Livingstone, 1996; Willis 1995)

DOL Risk factors: The first-time mother

Put baby to breast right away, or pump
Aim for 8-12 times per day from the start. Skin to skin helps
Frequent feedings made a difference for this mother!

DOL Risk Factors

- Age ≥ 30 (Nommsen-Rivers, 2010)
  Incidental finding in bfg during pregnancy study: milk intake on day 2 decreased 25g for each 5-year increment of maternal age

- Hypertension (Hall 2002)
- Severe pp edema (Nommsen-Rivers, 2010; Chantry 2011)

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Retained placental tissue

DOL Risk Factors

Classical: hemorrhage

Subtle: persistent red bleeding, cramping, passing clots

Ask about her postpartum lochia (bleeding)

Hormonal contraception first wk postpartum

(Murry 2007, Betzold 2010)

SSRIs? Serotonin transport and metabolism in the mammary gland modulates secretory activation and involution

(Marshall 2010)

DOL Risk Factors

Hyperemesis gravidarum

How was it treated?

Timing/duration?

Dosage?

Serotonin transport and metabolism in the mammary gland modulates secretory activation and involution

(Marshall 2010)

Mom’s early reactions…

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


Rule out Maternal Management Problems

Did milk production struggle to get going?

Or did milk production start off well, and then start to die later on?

How well did mom manage breastfeeding?

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**Gratuitous Supplementation: It all started with just one bottle…**

**The night sleep myth:**
Babies who wake and eat more at night do so because mom isn’t making enough milk at that time

**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?

**Pumping for work**

The Magic Number
Pumping Equipment

**Pumps are not all created equal**

**Pumps aren’t perfect:** Using hands makes a difference

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 her job?

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Rule Out the Baby

- Behavioral/Sensory
- Mechanical
- Neurological
- Physical
- Airway

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

Has baby been latching well and often from the start?

Infant & Feeding Assessment

- Infant birth and health history
- Physical assessment
- Suck assessment
- How does mother 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?

Infant suck affects prolactin surges

- Zhang et al. (2016). Are Prolactin Levels Linked to Suction Pressure?
- Low suction pressure
- Smaller than average surge
- High maternal pre-pregnancy BMI
- Infant birth weight

What do we know about baby?

Because it’s all about suck

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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

Palate clefts

Problems can make it difficult to achieve adequate negative pressure
Clicking heard if suction is broken intermittently

Less Common Infant Issues

Cleft of Lip & hard palate
Soft palate cleft
Sonographic Cleft
Submucosal Cleft

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!
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Borderline early & premature

Central Nervous System problems

Low muscle tone

Airway problems

Frequent choking, sputtering & pulling away

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

Strategy for airway issues

Remember that air wins over food every time

- Cradle hold can make it worse—try latching upright, with head extension
- Paced feeding (breast/bottle)
- Time for physiological maturation
- Supportive pumping as needed

Facial asymmetry & aberrations

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Suck Problems: Jaw

Small Lower Jaw (micrognathia)
- May be associated with Pierre-Robin

Recessed Lower Jaw (retrognathia)
Livingstone, 2000

Red Flags: The kuk-kuk baby

Frenotomy for Posterior restrictions
Photos courtesy Dr. James Murphy

The third fork in the road
Or did milk production struggle despite good management and baby??
How well did mom manage breastfeeding?
How well did baby do her job?

If you’ve ruled out baby...

Take the Maternal Assessment Deeper

Detailed Maternal Assessment

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

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**Previous Breastfeeding history**

![Image of a family]

**Reproductive History**

- Age of breast development
- Age of menses
- Menstrual regularity

**Reproductive History**

- Fertility
- Hormonal issues
- Breastfeeding experience of her mother, aunts, sisters, cousins

**Mat’l health & event history**

- Illnesses
- Car or other accidents
- Breast surgery/biopsies
- Chest surgeries/wounds
- Nipple piercings (Garbin 2009)
- Blunt trauma or burn wounds
- Radiation therapy
- Abscess/mastitis damage?
- Spinal cord injuries
- Gastric by-pass

**Current Pregnancy history**

- Breast sensitivity, changes?
- Labs normal/abnormal?
- Gestational diabetes?
- Total/rapid weight gain
- Threatened premature labor?
- Milk in prior to delivery?
- Lowered voice, virilization?

**Normal Pregnancy Development**

![Image of pregnant woman at different stages]

General signs of successful mammogenesis:
Increased breast sensitivity, nipple changes, enlargement, expressible colostrum at end of pregnancy

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**Pregnancy: Critical role of the Placenta**

- Progesterone after 3 mo all from placenta
- Human Placental Lactogen (HPL) only produced in placenta
- Level of HPL correlates most closely with breast volume change

**Pregnancy history**

- Hypertension?
- Placental problems?
- Baby small for gestational age or growth restricted?

**Placental problems can interfere with normal mammary development**

**Pregnancy history: preterm labor**

Effect of preterm birth and antenatal corticosteroid treatment on lactogenesis II in women (Henderson 2008)

**Pregnancy & Birth complications**

- Postpartum hemorrhage
  - Vaso-constricting meds such as methergine
  - Possible damage to pituitary: mild ⇒ Sheehans
  - Anemia

**Breast Assessment**

- 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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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

Deficiency in overall breast “footprint”

Markers of Lactation Insufficiency

Risk factor:

Higher breast type #

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Risk factor:
Wide spacing
Flat space >1.5"

Risk factor:
Lack of veining

Risk factor:
Stretch marks w/minimal growth

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

Solving the riddle
Did she have enough milk in the beginning?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>When did it drop off, and what happened around then?</td>
<td>No</td>
</tr>
<tr>
<td>Check infant suck</td>
<td>Check for recent infections, accidents</td>
</tr>
<tr>
<td>Check breast development</td>
<td>Check breast surgeries, chest trauma, chemical exposures</td>
</tr>
</tbody>
</table>

Likely metabolic/hormonal issues

Is it IGT? Follow the clues
Did mom enter pregnancy with normal appearing breast tissue?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did her breasts appear to respond well to the pregnancy?</td>
<td>No</td>
</tr>
<tr>
<td>Any pregnancy complications? SGA baby?</td>
<td>Any history of breast surgeries, trauma to chest/breast? Severe mastitis or abscess? Nerve damage or impingements?</td>
</tr>
<tr>
<td>Any significant exposure to chemicals at home, job?</td>
<td>Are there any other red flags in her background to support possibility of abnormal development?</td>
</tr>
</tbody>
</table>

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Putting it all together:

Care Plan

Where did your clues lead to?
How long has the problem existed?
Single or multi-factorial problem?
What has she tried so far?
What seemed to make a difference?
What didn’t seem to make a difference?
What needs to happen next?

Screening for Hormonal Problems: The Next Step?

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