

Slow Weight Gain And the Vicious Cycles That Keep it Going: Poor Appetite, Poor Feeding, Poor Production

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Declaration and Disclosure

NOTHING to declare:
I have NO affiliation with any person(s) or entities that could be perceived as having a bearing on my presentation of this subject.

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Objectives

The participant will:

- List three clinical situations which could potentially cause an infant's weight gain to be suboptimal in the first week of life.
- Explain how once underweight, an infant's feeding pattern could cause his mother's milk production to slow down.
- Explain the rationale for intervening when a newborn is gaining slowly, but not failing to thrive.

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This lecture's structure

- A review of some of the literature on infant growth, and some commonly accepted paradigms regarding slow growth and "failure to thrive."
- Observations about the feeding behaviors of underweight infants, and hypotheses about what's going on.
- A proposed strategy for rapid management that we have been successfully using in our practice, based on the hypothesized pathophysiology.
- Along the way, a little side trip to look at some commonly accepted paradigms regarding milk production, and some alternative strategies for increasing the rate of milk production.

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Background: Clinical Observations

The slow-growing breastfed baby often behaves as if "content to starve."

--R. Illingworth, 1967

- *Sleepy and disinterested in feeding*
- May cue to feed but then fall asleep after a few suckles
- Hard for mothers to feed
- *Management challenge*

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Background: Literature review

Evidence base:

- Confused definitions
- Contradictory growth references
- Inadequate research and data

No solid physiologic rationale for intervention:

When?
Why?
How much?
What endpoint?

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Weight gain: the data

	<u>Old Guidelines</u>	<u>Evidence-based</u>
Initial weight loss	Up to 10%	Up to 7%
Begin regaining	By 7–10 days	By 2–4 days of age
Back to birth weight	By 2 (or 3!) weeks	By 2 to 7 days
Acceptable gain	20 g/day	30–45 g/day

Background: Literature review

Long quoted minimum standards

- “Back to birthweight by 2 weeks”
- “20 gm/day” * (from 8 days to 112 days)

*5th %tile, for specific short periods Nelson et al, Early Hum Dev 1989

WHO data and new CDC/WHO charts show:

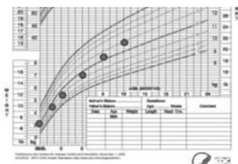
- All babies, all percentiles back to birthweight *before* 5-7 days of age
- Growth @ 50th %tile:
34 g/day (♀)
39 g/day (♂)
- Growth @ 1st %tile:
28 g/day (♀)
32 g/day (♂)

Differences in the growth patterns of *physiologically* fed and *artificially* fed infants

Compared to breastfed infants, **formula fed infants:**

- Gain weight more slowly in the first two months
- Gain weight faster from 3–12 mo
- Have similar or lesser body fatness during the first 6 mo
- *Consume 13–19% more* calories than do breastfed infants, despite slower growth in the first months, and...
- Putting them then later at higher risk for obesity in later infancy/childhood

- Dewey KG, et al. *Peds.* 1992 Jun;89(6 Pt 1):1035–41.
- WHO Working Group on Infant Growth *Peds.* 1995 Sep;96(3 Pt 1):495–503.



Normal breastmilk intakes

Feeding 8 – 12 x / day

Day	Age	Average feed size	Total daily intake
1	0 days	7–10 ml	30–50 ml
2	1 day	15 ml	60–100 ml
3	2 days	30 ml	100–200 ml
4	3 days	45 ml	200–400 ml
5	4 days	45–60 ml	400–550 ml
6-14	1–2 weeks	45–75 ml	550–700 ml
	1 month		750 ml
	5 months		850 ml

Neville MC, Keller R, Seacat J, et al: Studies in human lactation: milk volumes in lactating women during the onset of lactation and full lactation. *Am J Clin Nutr* 48: 1375–86, 1988.

Two Very Different Issues

Slow growth before or after lactogenesis

Before lactogenesis

- Physiology
- Evaluation
- Concerns
- Management

After lactogenesis

- Physiology
- Evaluation
- Concerns
- Management

Urine & stool output before lactogenesis

Day	Total daily intake	Urine &	Stool expectations
1	30–50 ml	1 wet	1-2 mec (black)
2	60–100 ml	2 wet	1-2 mec (brown)
3	100–200 ml	3 wet	2-4 stool (green)
4	200–400 ml	4 wet	2-4 stool (greenyellow)
5	400–550 ml	5 wet	3-4 stool (yellow)

Urine & stool output *after* lactogenesis

Within 24 hours of lactogenesis, regardless of age

- Minimum 6 to 8 wet diapers per 24 hours
- Minimum 3 to 4 yellow seedy stools per 24 hours
 - Can be every feed
 - A stool is defined as at least 15 gm

Less frequent stools RED FLAG

- **Abnormal until ~ 3–4 weeks**
- **Sign of poor intake**



Effective milk transfer (After lactogenesis)

Awakens self 8–14 times a day to nurse

Gets sufficient aqueous fraction (“foremilk”) to

- Meet thirst needs, adequate hydration
- Stop losing weight
- Wet at least 6–8 diapers/day

Is getting sufficient “cream” to

- Meet energy needs for activity, feeding, and growth
- Start gaining weight (200-300 gm/week)
- Have bright yellow stools at least 2–4/day

Ineffective milk transfer (After lactogenesis)

Very sleepy—sleeps through feedings if not awakened

- Takes a long time for parent to wake

May be meeting thirst but not energy needs

- Losing or gaining few oz/week
- Few or many damp diapers

Stools might be

- None
- Infrequent (< 2/day)
- Frequent but very scant
- Mucousy, brownish yellow, dark green, brown, or black

Autocrine control isn't working?

Dewey et al: Breastfed infants self-regulate their energy intake to maintain ordinary growth

- Growth needs should drive appetite
- Appetite should control maternal production
- Maternal milk production determined by infant appetite should meet infant's growth needs

But with slow weight gain babies this isn't happening.

What's going wrong?

Classically cited medical causes for poor milk transfer

Maternal causes

- Thyroid issues
- Insufficient glandular tissue
- Sheehan's syndrome
- History of breast surgery
- Retained placental fragment
- Maternal illness
- Medications, smoking

Infant causes

- Ankyloglossia
- Jaundice
- Thyroid issues
- Infant illness, infection
- Classic galactosemia
- Neurologic disorders
- Other congenital problems
- Premature, SGA

Common causes for poor milk transfer

Maternal causes

- Separation from infant
- Clock scheduling, “rules”
- Delayed milk release:
 - Confidence issues
 - Worry, anxiety, distrust
 - Painful feeding
- Misunderstandings re feeding
- Fatigue, postpartum depression

Infant causes

- Separation from mother
- Clock scheduling, “rules”
- Delayed learning to feed
 - “Shoved” to breast,
 - Tight latch not corrected
 - Suckling not reinforced
- Vicious cycles:
 - sleepy baby, jaundice → infrequent feeds
- Prematurity, SGA

Autocrine control isn't working? Pathophysiology of slow weight gain

Scenarios that can interfere with autocrine control

- Poor grasp/suckling, poor milk transfer
- Painful feedings
- Clock feeding and/or separation of baby from mother
- Maternal mood issues
- Formula feeding without pumping
- *Our observations (Case 3):*
Easy going baby & multip mom easy early rapid milk



Take what I say with a grain of salt This is just my (educated) opinion

- Test the worthiness of what you hear against
 - Your own experience
 - Your observations
 - Your own reading and research
- I am not the final expert on anything



"Failure to thrive": classic paediatric descriptions

Organic vs. "non-organic"

Model rarely applies to breastfeeding families

- Self-selection, decision to breastfeed
- Can devote time, energy and emotions to feeding without effective caloric transfer
- Frequent oxytocin
 - Releasing milk that baby's not drinking
 - Promotes parenting, bonding



Homeostasis

The *inherent ability* or tendency of an organism or biological system to self-regulate its physiological processes to *maintain internal equilibrium* and physiological stability, despite variations in external conditions.

Involves monitoring functions, feedback functions, and the capacity to adapt physiologic processes.

Autocrine control isn't working?

Dewey et al: Breastfed infants self-regulate their energy intake to maintain ordinary growth

- Growth needs should drive appetite
- Appetite should control maternal production
- Maternal production and appetite should meet infant's growth needs

But with slow weight gain babies this isn't happening.

What's going wrong?

Pathophysiology of slow weight gain

Common scenarios that may interfere with normal autocrine control

- Poor grasp/suckling, poor milk transfer
- Painful feedings
- Clock feeding and/or separation of baby from mother
- Maternal mood issues
- Formula feeding without pumping

How slow weight gain begets slow weight gain



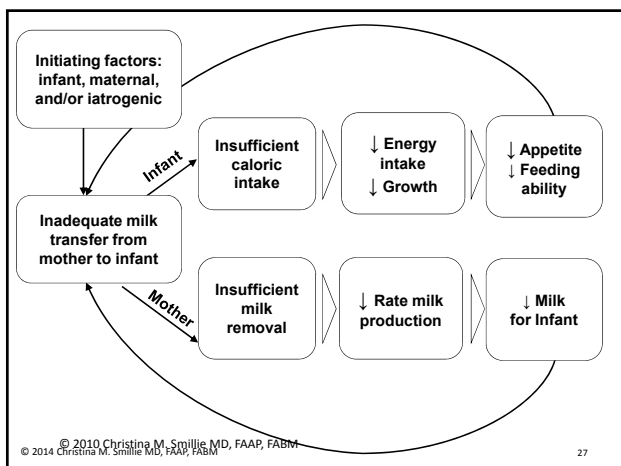
Underweight infant conserves energy (with/without dehydration) →

- Delayed or muted feeding behavior →
 - Fewer feeds
- Suckles only to high flow →
 - Drinks only lower fat milk
- Stops suckling with slower flow
 - Doesn't get as much hi-calorie cream
 - Or shallow ineffective suckling

How slow weight gain begets slow weight gain

Fewer feeds and poor milk transfer →

- Decreased energy for feeding
 - Vicious cycle
- Decreased milk removal
 - Slows rate of mother's milk production
 - Milk flow slows further
 - Less intake
 - Vicious cycle



Our theory of SWG

Observation:

The underweight baby is hard to feed

Regardless of initial cause

- SWG baby acts anorectic, is “content to starve”
- Mother has to do all the work
 - No trustworthy self-regulation
 - Mother must awaken baby to feed, and keep awakening infant throughout the feed

Our theory of SWG

Theory:

**This behavior is adaptive:
Infant is conserving energy**

Observation:

- Feeding is flow-dependent
- Baby gets fast-flow aqueous fraction
- As flow slows, baby stops, falls asleep
- Baby leaves behind slower richer milk
- Mother's milk production slows

Our theory of SWG

The **HEALTHY** breastfed infant

- *Self-regulates* energy intake
- Grows **FASTER** than CDC/NCHS curves in first 2 months of life

Dewey KG, Heinig MJ, Nommsen LA, Pearson JM, Lonnerdal B. *Peds.* 1992 Jun;89(6 Pt 1):1035-41

But we postulate, once underweight,

Underweight breastfed infant is **NOT** “healthy”:

- *Must conserve energy*
- *Cannot self-regulate* intake to growth and energy needs
- Grows more slowly than either CDC/NCHS or WHO curves

Our theory of SWG

Regardless of initial cause, once baby is underweight

**Feeding is compromised
simply by being underweight**

**Theory:
Slow weight gain
begets
slow weight gain**

Chronic early slow energy transfer

- Chronic ineffective shallow suckling
 - Infant oxytocin ↑ gastric CCK → false satiety
- Interference with hunger
 - ? ↓ Sensation of hunger (“Anorexia of starvation”)
 - ? ↓ Learning that food relieves hunger
 - Infant is “content to starve” (Woolridge)
- Decreased energy for learning
 - Can’t fix primary problem (oral grasp, suckling, etc.)
 - Until there’s more energy for learning
 - Need to catch up on weight first

Finally, on to management!

First days before lactogenesis
vs
After lactogenesis

Getting started: First few days

- Primary prevention
- Get oxytocin and prolactin receptors started
- Take advantage of naturally high prolactin
 - No need for galactagogues
 - Rare need to pump if baby has free access
- Except in rare instances, no such thing as a “supply” problem at this early hour

First 2–3 days

Normal volumes small

Colostrum in first days

- 7-10 ml/feed 1st day, 30–50 ml/day 1st day of life
- 30 ml/feed and 100-200 ml/day by day 3

Neville MC, Keller R, Seacat J, et al: Studies in human lactation: milk volumes in lactating women during the onset of lactation and full lactation. *Am J Clin Nutr* 48: 1375–86, 1988

First 2–3 days

Feeding opportunities:

- For mother/infant learning
- To speed the initiation of milk production

Colostrum in first days

- Immune function
- Establish gut flora
- Laxative effect → mec stools → hunger
- Stabilizes blood sugar
- NOT for hydration or large caloric intake

Excessive weight loss in the first 24 hrs of life

- Intrapartum IV fluids?
 - Mother edematous
 - Baby edematous—can be >250 gm heavier!
- First 24 hours—both mother and baby diurese
- If baby loses a lot in first 24 hrs
 - Not attributable to poor intake (only expect 50 cc intake/first 24 hrs)
 - Think diuresis!
- Some recommend using **24 hr weight** *instead of birthweight* to assess weight loss

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First 2–3 days

Skin to skin : Frequent feeding

- Separation interferes
- 8–12 feeds/day (≠ “Q 2–3 hrs”)
- Swaddling interferes with arousal
Franco et al *Pediatrics* 2005;115;1307-1311
- Swaddling + supplements interfere with weight gain
Bystrova et al *Early Hum Dev* 2007 Jan;83(1):29–39

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First 2–3 days

If baby feeds poorly in first days

- Examine baby
- Treat baby, not numbers

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First 2–3 days



If mother is uncomfortable or in pain

- Discomfort/pain are a GUIDE to maternal comfort
 - Toward more effective feedings
 - Toward promoting good infant weight gain
- Ointments, hydrogel treatments, nipple shields
 - DO NOT address this KEY ISSUE
 - Cause mothers to accept pain as “normal”
 - Interfere with effective feeding, good weight gain
- Help mother GET COMFORTABLE

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First 2–3 days

In healthy infant, low intake in first days

- Does not effect immediate infant growth, energy, or blood glucose (WHO, ABM, AAP)
- Usually NOT an emergency

HOWEVER, persistent low intake in first days

- May delay onset of good milk production
- May delay maternal/infant learning about feeding
- Can aggravate hyperbilirubinemia
- Can lead to slow weight gain

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If baby feeds poorly in days before lactogenesis

Management

- Keep mother and baby TOGETHER
 - for optimal biobehavioral interaction
 - to decrease excess energy utilization
- Lots of skin on skin promotes ↑ infant feeding

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Increasing weight gain After the first week

Slow growth after lactogenesis: the problem

Break the vicious cycles

- ✓ Feed the baby
- ✓ Increase rate of milk production
- ✓ Address primary problem
 - If still present (ankyloglossia, etc.)
 - Issues with suckling, etc., may need to wait until infant's weight is "caught up"
- ✓ Take care of mom: Sleep, support, mood

✓ Address the primary problem

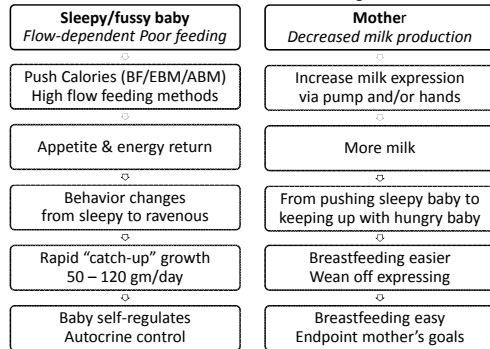
- Maternal confidence, mood issues, etc.
- Infant ankyloglossia
- Maternal sore nipples (injury or infection)
- Infant suckling issues
 - Often complicated by maternal confidence issues
 - Usually quite difficult before baby "caught up"
 - ✓ Lower energy: trouble learning
 - Increasing flow helps baby feedback

✓ Address the primary problem

- Primary problem of later slow weight gain is often simply early slow weight gain
"Slow weight gain begets slow weight gain."
- Once a baby is underweight, mother's milk production has slowed down—
as RESULT,
NOT cause
of baby's slow growth

Break the vicious cycles

Intervention and counseling



Management of slow weight gain

- ✓ Feed the baby!
 - Sleepy baby—
Needs to be pushed to increase intake
 - Vicious cycle will continue until baby has
 - ↑ appetite for feeding
 - ↑ energy for milk transfer
 - At first, mother is doing all the work
 - Later, baby's appetite and energy kick in

Management of slow weight gain

- ✓ Feed the baby!
 - Vicious cycle will continue until ↑energy for transfer
 - Baby at breast ≠ breastfeeding
 - May need electronic scale to demonstrate this to family
 - Underweight baby often transfers < ½ oz per hour
 - To get baby's attention, need faster flow:
 - Breast compression when at breast
 - Supplement/alternative feeding
 - Until baby willing to sustain nursing with slower flow

Baby needs to “catch up” on weight

- To “expected weight for age,” not simply to birthweight
 - To be able to transfer milk well at breast
 - To be able to fix any primary feeding issues
- *Breastfed babies gain faster than current growth charts, not slower! 200-300 gm a week is AVERAGE for first months*
- Will need to gain MORE than 35–45 g/day to catch up

Needs to gain MORE than 33–45 g/day to catch up

- When underweight babies well supplemented, they *can gain 50 to 150 gm/day*
- The more behind, the more rapid the weight gain
- The younger identified, the more rapid weight gain
- *The quicker caught up, the sooner off supplement*
- Weight gain slows as infant approaches “expected weight”
- Expected weight as guesstimate, moving target

Catch up to WHAT?

Guesstimate of “expected weight”

What would baby weigh by now, if:

- Baby had been back to birth weight by 5–7 days,
- And then gained 30–45 gm/day since then?

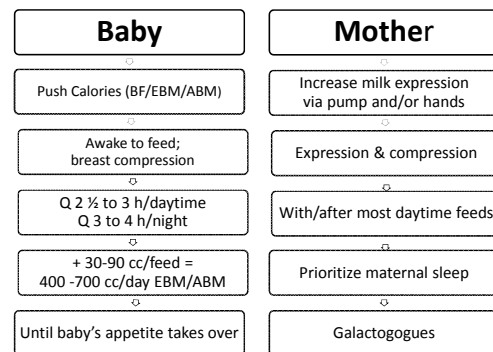
Best judge is baby's behavior: The three 3 stages

1. *Underweight*
Very sleepy, poor transfer, flow dependent
Mom has to push baby to feed
2. *Catching up*
Hungry, gaining fast, very demanding, hard for mom to keep up!
3. *Caught up on weight*
No longer crazy hungry, feeds well, sleeps well, awakens self easily
Able to maintain growth and milk production without prodding

✓ Feed the baby!

- Feed what?
 - Breastmilk
 - Fractionated breastmilk (creamier)
 - Formula
- How much?
 - Powers & others: “extra” 50 cc/kg/day”
- Rationale for **much more**
 - 30 to 100 cc extra *per feed*
 - in addition to breastfeeding & pumping/expression

General approach to catching up



✓ Feed the baby!

When to give supplement?

- Most recommend supplementing **AFTER** feeds
 - To “stimulate” oxytocin & prolactin
 - But thirsty or sleepy baby stops suckling as flow slows
 - Poor alveolar emptying
 - Baby then satiated at bottle
- Supplementing **BEFORE** feeds more physiologic
 - Thirst met quickly by bottle
 - Baby then has energy/interest to nurse better at breast
 - Satiated at breast



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✓ Feed the baby!

“Pre-feeding” during catch-up phase, OR NOT

- Trial and error, 30-100 cc per feed
- Bottle feed → breastfeed → pump OR WHATEVER WORKS

After baby has caught up on weight, (then prefeed?)

- Gradually decrease ac supplements by ~ 10-20 cc
- Decreasing total daily supplement by ~ 50 to 150 cc every ~ 1–2 days

“Caught up” to what? –Guestimate:

- Back to birthweight by 10 days
- Gained 30–45 gm/day then, or since nadir

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✓ Increase rate of milk production

“Any breast that can make milk
can make more milk”

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Confidence boosting measures

Of pumps and hands

- Hands on pumping
- Hand expression
- Express smarter, not harder
- Interrupted pumping
- “Cluster” pumping/hand expression
- And/or day of pumping like crazy

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Breastfeeding 101

“Autocrine” control of lactation

Autocrine control

= *hormonal control by the nursing dyad*

- Maternal–infant neurobehavioral interaction
- The biologic basis of “supply and demand”
- No longer under mother’s endocrine control
- Maternal mechanisms, without baby, are all geared to *shut down* lactation

Mothers don’t make milk.

Babies make milk

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Breastfeeding 101

“Autocrine control”

How the baby controls milk production

Suckling at the breast

Prolactin SURGE increases rate of production
Oxytocin releases milk to baby

Mother’s senses

(smell, sound, touch, etc, just thinking about baby)
Oxytocin releases milk to baby

Receptors—places on the cell that receive these hormones

There are more prolactin receptors in multiples
Oxytocin receptors increase with lots of suckling in first weeks

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Breastfeeding 101

How the baby controls milk production

Mother's senses—neurosensory stimulation

Skin to skin: feel of baby, scent, sight, sound of baby
Just thinking about baby

Feelings of love, laughter, joy

All cause maternal oxytocin release

*Releasing milk to baby and emptying alveoli
More emptying, more production*

Milk is a side effect of love

Breastfeeding 101

“Autocrine control”

But what’s the negative feedback?

The milk itself in each alveolus

Alveolar baroreceptors (milk pressure)

And/or “Feedback Inhibitor of lactation” (FIL)

- Leaving alveoli fuller ↓ milk production
- Keeping alveoli emptier ↑ milk production

*Since oxytocin causes the alveoli to “empty,” then
oxytocin release indirectly increases production*

Of herbs and medications

Galactogogues

- Metoclopramide, 10 mg 3x/day
- Domperidone, 20 mg 4x/day
- Fenugreek, 1.2 - 3 gm (2-4 capsules) 3 or 4x/day
- Blessed thistle, given with fenugreek
- Fennel, barley, oatmeal, hops, etc.
- Goat's rue
- Raspberry leaf tea (oxytocinergic)

Of herbs and medications

Importance overemphasized

Do not increase milk production by themselves

Most* work by increasing prolactin

*Do not increase prolactin surge—
only increase baseline prolactin*

CAN make alveolar emptying strategies more effective

*CanNOT increase milk production
without **increased alveolar emptying***

Are never necessary to *maintain* milk production

Are only helpful when *increasing* milk production

*Raspberry leaf tea (via oxytocin) increases alveolar emptying

Breastfeeding 101

More emptying, more production

What increases alveolar emptying?

Frequent suckling
Skin to skin, feel of baby, scent, sight, sound of baby
Just thinking about baby

What interferes with alveolar emptying?

Left-brained activity (like watching the clock)
Stress, pain, worry.
Logic, concentration, goals.

Physiology 101

The conscious brain is not in charge

The body makes our tissues and fluids...

Thoughtlessly

Continuously

At varying rates

On a circadian rhythm

By using them (thoughtlessly)

The more we use, the more we make

The less we use, the less we make

Change the paradigm

- Mothers don't make milk; babies do
- Milk is a side effect of love, and laughter!
- There's no such thing as a supply of milk: only a varying rhythm of milk production
- The conscious brain is not in charge
- Sleep is good
- Pain is bad
- Any breast that can make milk can make more milk.

Empower the mother to increase the rate of milk production

"Any breast that can make milk, can make more milk"
—CM Smillie

Confidence boosting measures

Oozing confidence (autonomic self-control)

- Your words
- Your expectations
- Your attitude

Cultural competence:

Accepting any mother where she is

Alveolar emptying— key to increasing production

"Any breast that can make milk, can make more milk"
(—CM Smillie)

Minimize feedback inhibition by baroreceptors or "FIL"

Stress, left brained thinking, pain

Frequent oxytocin release

- Increases alveolar emptying
- Increases *rate* of milk production
- The conscious mind is not in control
- Love, laughter, joy

Of-heard pumping "rules"

1. Pump at least 8 times a day, every 3 hours
2. Pump at least 15 minutes each breast
3. Pump at least 100 minutes each day
4. You must pump at night
5. To increase milk, you must use a good electric pump
 - A good hospital grade pump *is better than*
 - a personal electric double pump, *which is better than*
 - a manual pump, *which is better than*
 - manual expression

Alveolar emptying: Pumping strategies

Why pumping by the clock doesn't work any better than nursing by the clock

Oxytocin issues

- More MERs → more milk release
- Left brain interferes with oxytocin release
- The conscious brain is not in charge
- So: no clocks, no minutes, no rules

Of pumps and hands

Hospital grade pumps, personal electric double pumps, manual pumps and manual expression
Issues to consider

- Alveolar emptying
- Maternal confidence issues
- Positive pressure and negative pressure
- Neurosensory stimulation
- Positive feedback and oxytocin release
- When milk production is low

Alveolar emptying: Pumping strategies

Zen and the art of pumping or hand expression
Pumping and hand expression: smarter, not harder

- Right-brained pumping and issues of “time”
 - Frequent brief pumping sessions
 - No strict pumping rules, keep it easy
- “Interrupted” and “cluster” pumping
- Heat, showers, compresses
- Breast compression
- Manual expression
- A day of “pumping like crazy”

Cannot increase milk production without increased alveolar emptying

What do we need to increase alveolar emptying?

Oxytocin!

How do we increase oxytocin?

- Confidence
- Love
- Laughter
- Skin on skin
- (synthetic oxytocin)

KEY

Hands on pumping

- Before
 - During
 - After
- } pumping

✓ Take care of mom

Express smarter, not harder

- Right-brained pumping and issues of “time”
 - Frequent brief pumping sessions
 - *No strict pumping rules, keep it easy*
- Interruptions: it helps to interrupt!
 - Avoid being chained to sofa, to pump
- “Cluster” pumping/hand expression
- Heat, showers, compresses
- Massage, breast compression, manual expression
- ONE day of “expressing like crazy”

✓ Take care of mom

The mother is doing all the work: “Triple feeding”

Nursing, pumping, supplementing

Baby's not doing his job

Getting enough sleep

- Solid 4-hour stretch at the beginning of her night
- Stagger bedtimes
- Mother skips one whole feed—no pumping, nursing or feeding

Support

✓ Take care of mom

“Any breast that can make milk, can make more milk”

—CM Smillie

Fatigue, mood, attitude

- Sleep is good
- Pain is bad
- Support, positive feedback is good

PPD

- Watch for it, screen, refer
- Omega 3s

Careful counseling is KEY

Mother can misunderstand the need for

Supplemental feeding & increasing production

Rate of production has slowed

Because of slow weight gain, not vice versa

Mother's misunderstanding can sabotage plan

- Some will quit breastfeeding
- Others will refuse to supplement

Not enough to tell her to supplement & rent a pump

- Family needs thoughtful explanation & education
- If you aren't an LC, REFER to a Lactation consultant

Summary: Break the vicious cycles

- ✓ Feed the baby
- ✓ Increase rate of milk production
- ✓ Address primary problem
 - Some issues may need to wait until infant's weight is caught up
- ✓ Take care of mom: Sleep, support, mood

FIVE take-home messages

1. Slow weight gain can be seen as a self-perpetuating vicious cycle, of depressed infant appetite, ineffective feeding, and slowed rate of milk production.
2. We view underweight babies as "flow dependent" and a lot of work for their mothers to feed.
3. When calories are pushed via a fast flow feeding method, these babies suddenly seem to notice their hunger, demand a huge amount to eat, and catch up rapidly.
4. Oxytocin and alveolar emptying are more important than prolactin for increasing milk production.
5. Hand expression, breast compression, and interrupted pumping are great tools for increasing production.