

SUPPLEMENTATION

When – Why – How???

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DISCLOSURES ... CONFLICTS OF INTEREST

- Program Coordinator
 - UCSD Perinatal Health Programs
 - Lactation Consultant
 - Pathway 1 and Pathway 2
 - Lactation Educator – CLEC
 - Lactation Specialist – Baby Friendly Hospital Training's
 - IBLCE CERP's
 - Lactation Consultant
 - Sharp Mary Birch Hospital (Retired)
 - Private Consulting/Lecturing
 - Web Site
 - www.breastfeeding-education.com




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HUMAN MILK UNIQUENESS



- Synergistic:
 - Multifunctional capabilities of specific factors
 - Interactive nature of immunoglobulin's, cells, and anti-inflammatory agents
- Species Specific
 - Hanson LA. The Mammary gland as an immunological organ, *Immunol Today* 3:168, 1982
- Huh ?


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SECRETORY IGA ...

- MALT
 - Mucosa-associated lymphoid tissue
 - Gut
 - Lung
 - Mammary Gland
 - Salivary gland
 - Lacrimal glands
 - Genital tract
- GALT
 - Gut-associated lymphoid system
- BALT
 - Broncho-associated lymphoid tissue
 - Immunization at one site might be effective means of producing immunity at other sites
 - Example: Antibodies found in milk found in saliva

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IMPLICATIONS FOR CHILDCARE?



- Moms BF Baby in Daycare setting
 - Usually end of day
 - See's environment
 - **Entero-Mammary Pathway**
- Take home baby clothing or blanket
 - Wear, smell, feel
- Baby hands to mamma's mouth
 - Mom takes in Baby's environment
 - Creates specific milk for baby's environment

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IMPLICATIONS FOR THE NICU ?

- Moms touch baby
 - Hands to mouth
- Take home baby clothing or blanket
 - Wear, smell, feel while pumping
- Pumping at bedside in NICU

www.sptimes.com

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WHY DO BABIES SUCK "SO MUCH" ? Sucking DOES NOT = Hunger²

Day of life 0-3

JOB

- High Suck need³
 - Infant Job/Goal⁶: Poop!
 - Maternal Goal⁷: Prolactin receptor sites - Prolactin "Plug-in's"
- Low Milk Volume⁴
 - Baby born full⁵ Constipated with Meconium

DOL 3-4¹⁰


Milk increases in volume⁹

- DOL 0-3 (Only talking about first 3 days)
- Sucking doesn't mean hunger (babies aren't born hungry - otherwise would eat inside of mama)
- Baby one born with high suck need (it may seem like your baby wants to suck a lot?)
- (The breast has a -) Low Milk Volume
- Why - Baby is born full (Meconium) (Why would nature have high suck and low volume?)
- Infant Job/Goal = poop!
- (Sucking causes peristalsis in infant gut/tummy)
- Mom-Maternal Job/Goal = Prolactin "plug-in's" A place for Prolactin to plug into (Job of sucking for mom)
- (Over next few days) Suck becomes more efficient - Straw analogy
- DOL 3-4 = Milk increases in volume (Doesn't COME IN - collecting since 10-14 wks preg increased volume = slower/deeper suck)
- This happens at DOL 3-4

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MAMMOGENESIS ...

- Milk making ... In the beginning
- Monthly during menses
- Pregnancy
 - Breasts grow: Size & weight
 - Ducts & glands proliferate
 - Estrogen and progesterone



From: Breastfeeding & Human Lactation Jan Roodan

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LACTOGENESIS STAGE 1

- About 10-14 weeks gestation
 - Milk secretion accelerates
 - Alveoli distend
 - Accumulation of colostrum
 - WHY there is milk at delivery!
 - Supply and Demand
 - Last 3-4 days - transition
- Supply & Demand

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TRANSITION PHASE - FIL THEORY - PLACENTA DELIVERY TO INCREASE IN MILK VOLUME

- Endocrine -
 - Under influence of PLACENTA

0-3 DOL WHY? Baby has a JOB!

FIL
Feedback Inhibitor of Lactation
Most common cause of not enough milk, after 2 weeks is not BF enough!
Have to take FIL out to Fill up!

Auto
Autocrine ... Must be driven

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LACTOGENESIS STAGE 2: MILK INCREASES IN VOLUME

- 3-4 days after birth
 - Can be delayed by "third spacing" of fluids
- Placenta Delivery Triggers:
 - Fall progesterone/estrogen
- Milk "coming in"
(Change Vocabulary !!!!!)

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3RD SPACING ... POSTPARTUM ...

- 8-10 hours after birth ..
 - Fluid shifts
 - 1st Space: IV
 - 2ndSpace: Intracellular
 - 3rd Space: Extra Cellular
- Path of least resistance:
 - Any part that "hangs down"
 - Feet Bottom
 - Hands Breasts

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Third Spacing:
 Due to fluid load
 1st space – Intravenous
 2nd space – Intracellular
 3rd space – Extra cellular

Delayed mammary cell response:
 Fluid Creates "lake" effect
 Reduces hormonal influence
Diuresis: "Lake dries up"
 Takes about 4-5 days

Delayed onset Lactogenesis II

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REVERSE PRESSURE SOFTENING ... 3RD SPACING

Jean Colquhoun at Kellymom.com ... Counseling the Nursing Mother Pg 500

Two handed, two-step method:

- Using 1-2 straight fingers on each side – press - hold for 5 – release
- Thumbs upper and lower - press - hold for 5 – release

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STAGES OF LACTOGENESIS

Mamogenesis	Lactogenesis Stage 1	Transition	Lactogenesis Stage 2	Galactopoiesis	Involution
(Milk making ... In the beginning) a. Breasts grow: Size & weight b. Ducts & glands grow c. Influences of Estrogen and progesterone Part of Menses Hyperactivity during Pregnancy	~ 10-14 Wks Gestation a. Milk secretion starts b. Areolae distend c. Accumulates in breast WHY there is MILK at delivery Supply And Demand!	Delivery of Placenta to Milk Increasing in Volume Note: Milk does NOT come in! It increases in volume!	3-4 days after delivery Placenta Milk "let" Increased in volume to meet infant demands Delayed by 3 rd Spacing! (3 rd spacing seems to resolve - DOL 4) Reverse Pressure Softening	Maintenance of Established Milk Supply Demand and Supply! FIL Factor Feedback Inhibitor of Lactation	Return of uterus and breasts to pre-pregnant state - 40 days Lots of choices based on this ... Are ya sure?
Did your breasts change size during pregnancy?	Not only will you have milk at delivery you have had milk since 10-14 wks pregnancy	Transition from endocrine to autocrine system while baby does job and sets up production "pump in"	Milk "increases in volume" or "amount"	Demand and Supply - FIL	Will have left over prolactin receptors for months to years

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Clinical Reasons to Supplement

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Reasons to Supplement ... Infant Protocols

Supplementation = Volume Feeding	Stimulate Suck-Swallow = Small Amts
<p>Latch Not Established Infant < 24 hours</p> <p>10 ml or less Harvest colostrum EBM/ABM Stimulate Suck-Swallow</p> <p>At Breast Dropper or TB Syringe Other: Finger Feed, Cup, Spoon, Bottle</p> <p>1-2 Days DESIRED OUTCOME: Infant learns latch 24-48 hours</p>	<p>Slow weight Gain or Weight loss >7-10%</p> <p>15-20 ml EBM or ABM Stimulate suck swallow Day 1: 20ml every feed Day 2: 10 ml every feed Day 3: no supplement Day 4: Evaluate/weight (6-8 days if necessary) Minimum 10 feed 24 hrs</p> <p>At Breast SNS Other: Finger feed, Cup, Spoon, Bottle</p> <p>7 days or less DESIRED OUTCOME: Weight Gain Curve improves Wean from the ABM Increase suck efficiency, breast stimulation; milk supply</p>
<p>Elevated Bilirubin Not BF Enough Jaundice Starvation Jaundice</p> <p>20-30 EBM/ABM Every feed until level normal range Stimulate suck swallow Supplemental Feed</p> <p>At Breast SNS Other: Finger feed, Cup, Spoon, Bottle</p> <p>1-3 days DESIRED OUTCOME: Bilirubin normal Infant breastfeeding</p>	<p>Hypoglycemia</p> <p>15-20 ml EBM/ABM Only if glucose level below protocol</p> <p>At Breast SNS Other: Finger feed, Cup, Spoon, Bottle</p> <p>1 time -- re-evaluate DESIRED OUTCOME: Infant glucose normal</p>
<p>Low milk supply</p> <p>15-20 ml EBM or ABM Stimulate suck swallow Day 1: 20ml every feed Day 2: 10 ml every feed Day 3: no supplement Day 4: Evaluate/weight (6-8 days if necessary) Minimum 10 feed 24 hrs</p> <p>At Breast SNS Other: Finger feed, Cup, Spoon, Bottle</p> <p>3-7 days DESIRED OUTCOME: Infant gains weight Infant satisfied Wean from EBM/ABM Increases milk supply Increase infant efficiency</p>	

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REVIEW OF PROCESS FOR SUPPLEMENTATION

- Goal**
 - Stimulate suck pattern ... OR
 - Stimulate sucking pattern & supplement ... OR
 - Supplement
- Suck Pattern**
 - Disorganized
 - Organized
- Type of Device**
 - Active = Clueless Baby
 - Passive = Suck organized

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WHAT TO SUPPLEMENT?:

- **Mother's own milk:** MOM
- **Another mother's milk:** EBM
 - Fresh
 - Casual Milk Sharing
 - Donor
 - Milk Banks
- **ABM:** Artificial Baby Milk
 - Hypoallergenic
 - Partially Hydrolyzed
 - Regular ABM
- **Water**
 - Rare used
 - Contributes to increase in jaundice

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SUPPLEMENTATION DEVICES ...

- **Passive suck pattern** (Need to stimulate mouth of baby)
 - TB Syringe
 - Peridontal Syringe
 - 5 Fr Feeding Tube + 20 ml syringe
 - Colored syringes
 - 10ml needs to be changed too often
 - 30ml takes too much vacuum for baby
- **Active suck pattern** (Baby organized suck)
 - Cup and/or spoon
 - Dropper
 - Bottle with nipple
 - Medela SNS
 - Commercial
 - Starter
 - Lactaid
 - Bottle + 5 fr feeding tube
 - Cap or threaded

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SUPPLEMENTING ... BOTTLE

- **Bottle: "What's the big deal for baby?"**
 - Nipple preference NOT confusion
 - Flow preference
 - When to use
 - Long term supplementation
 - When not to use
 - Short term situation
 - HOW to use: Paced Bottle Feeding
 - Breastfeeding friendly behaviors
 - Rub nose to chin and let infant invite in
 - Which one?
 - Wide base – infant open mouth
 - Silicone – popular as infant must compress
 - Whatever infant will take

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California WIC Paced Bottle Feeding
<https://wicforyou.org>

Let your baby set the pace for bottle feeding

Feeding is a great time to connect with baby. When you hold your baby in a supportive position, baby can see, hear, smell, and feel you. This helps baby learn to regulate his or her own pace. It's called "paced" feeding. It's all about listening to baby and letting baby know when to stop.

Is baby hungry?

- Baby looks wide-eyed
- Baby looks toward you
- Baby makes sucking sounds
- Baby makes rooting sounds

Feed baby.

- Hold your baby in a supportive position
- Hold your baby so he or she can see, hear, smell, and feel you
- Hold your baby so he or she can regulate his or her own pace
- Hold your baby so he or she can know when to stop

Is baby full?

- Baby looks relaxed
- Baby looks away from you
- Baby makes burping sounds
- Baby makes content sounds

Alimentar a su bebé con el biberón, deje que sea él quien fije su propio ritmo

La hora de alimentarlo es un momento especial. Cuando su bebé está en una posición de apoyo, él puede ver, escuchar, sentir y oler a usted. Esto ayuda a su bebé a aprender a regular su propio ritmo. Se llama "alimentación pausada". Todo se trata de escuchar a su bebé y dejar que él sepa cuándo detenerse.

¿El bebé tiene hambre?

- El bebé se ve alerta
- El bebé mira hacia usted
- El bebé hace ruidos de succión
- El bebé hace ruidos de búsqueda

Alimentar a su bebé.

- Mantenga a su bebé en una posición de apoyo
- Mantenga a su bebé de modo que pueda ver, escuchar, sentir y oler a usted
- Mantenga a su bebé de modo que pueda regular su propio ritmo
- Mantenga a su bebé de modo que pueda saber cuándo detenerse

¿El bebé está satisfecho?

- El bebé se ve relajado
- El bebé mira hacia otro lado
- El bebé hace ruidos de eructos
- El bebé hace ruidos de satisfacción

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PARTNERS ... AS PUMPS!

Nursing Mothers Counsel

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