

# Breastfeeding & Infant Mortality

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INDIANA RURAL HEALTH ASSOCIATION CONFERENCE | JUNE 2018

# OUTLINE

## Breastfeeding & Infant Mortality

- Unique Components
- Recommendations
- Costs & Outcomes

## The Provider Landscape & Breastfeeding Support

- Who's Who
- Scope of Practice
- Staffing Ratios & Recommendations

## Closing the Care Gaps

- Gaps in Care
- Example Case
- Innovation

# Current Recommendations

Breastfeeding is the biological norm for human infants

Human milk is the preferred form of nutrition for the optimal development of infants and children



## **The Surgeon General's Call to Action to Support Breastfeeding:**

emphasizes breastfeeding as a public health imperative

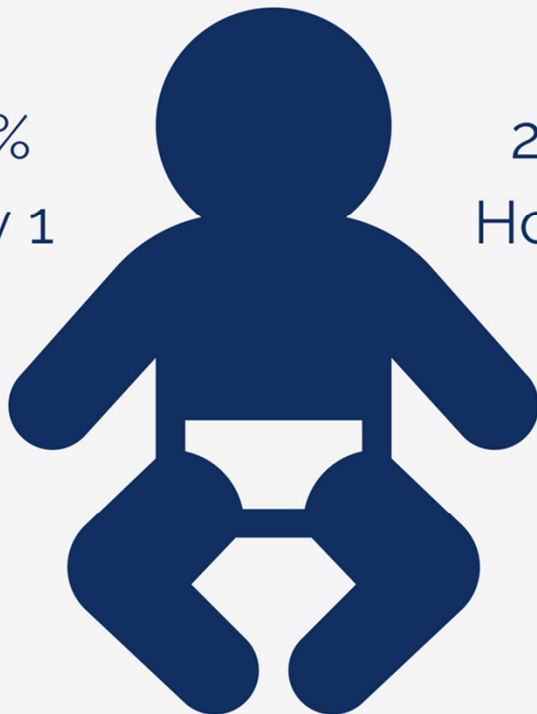
## **The AAP Recommends:**

"Exclusive breastfeeding for the first 6 months of life, followed by continued breastfeeding for 1 year or longer, as mutually desired by mother and child."

# STATISTICS

Not breastfeeding significantly increases a child's risk of dying in infancy in both the developed and in developing countries.

16%  
Day 1



22%  
Hour 1

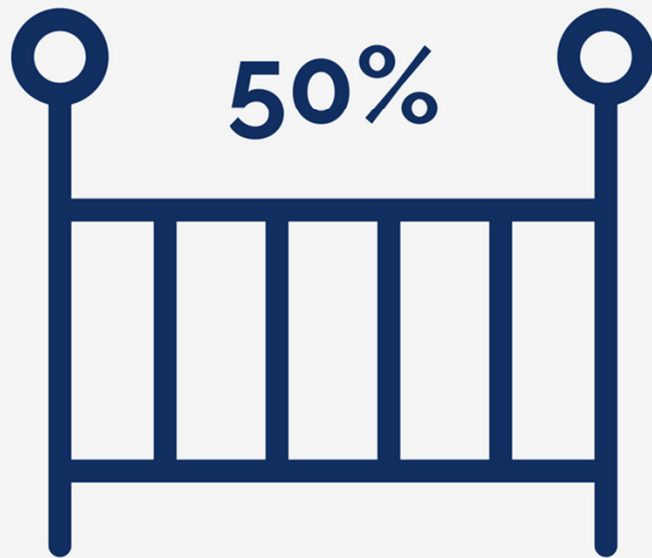
## Globally

**Neonatal deaths could be reduced by 16% if all infants were breastfed from day 1 and 22% if breastfeeding started in the 1st hour.**

Source: Spatz, D. L., & Lessen, R. (n.d.). Risks of Not Breastfeeding (Publication). ILCA. See Reference page for a [hyperlink](#).

# STATISTICS

Not breastfeeding significantly increases a child's risk of dying in infancy in both the developed and in developing countries.



## SIDS

**Not breastfeeding increases the risk of an infant dying of SIDS.**

**Breastfeeding reduces the risk of SIDS by approx. 50% at all ages throughout infancy**

Source: Spatz, D. L., & Lessen, R. (n.d.). Risks of Not Breastfeeding (Publication). ILCA. See Reference page for a hyperlink.

# Infant & Maternal Health Outcomes Associated with Not Breastfeeding

Infant Health Outcomes	Maternal Health Outcomes
Increased incidence and severity of infection: otitis media, lower respiratory tract infection, urinary tract infection, diarrhea, bacterial meningitis, sepsis	Higher prevalence of hypertension, diabetes, hyperlipidemia, cardiovascular disease, metabolic syndrome
Increased rate of sudden infant death syndrome (SIDS), necrotizing enterocolitis (NEC), post neonatal deaths	Increased risk of breast cancer, ovarian cancer, rheumatoid arthritis, postpartum depression
Increased risk of atopic dermatitis, leukemia, lymphoma, Hodgkin's disease, asthma, diabetes	Reduction in bone health
Impaired temperature and respiratory regulation	Increased sleep disturbances
Lack of pain relief	Decreased postpartum weight loss
Decreased cognitive development	Lack of amenorrhea
Increased obesity	

Source: Spatz, D. L., & Lessen, R. (n.d.). Risks of Not Breastfeeding (Publication). ILCA. Retrieved from [https://higherlogicdownload.s3.amazonaws.com/ILCA/e3ee2b6e-c389-43de-83ea-f32482f20da5/UploadedImages/Learning/Resources/Risks of Not Breastfeeding-FINAL.pdf](https://higherlogicdownload.s3.amazonaws.com/ILCA/e3ee2b6e-c389-43de-83ea-f32482f20da5/UploadedImages/Learning/Resources/Risks%20of%20Not%20Breastfeeding-FINAL.pdf).

# The Costs of Suboptimal Breastfeeding

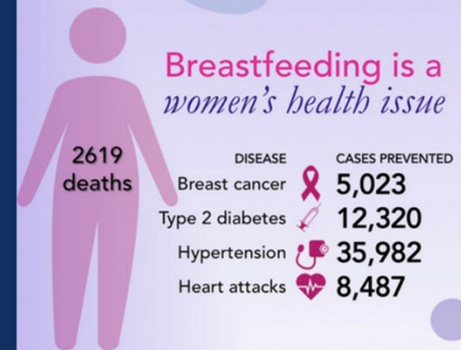
United States

Sources:

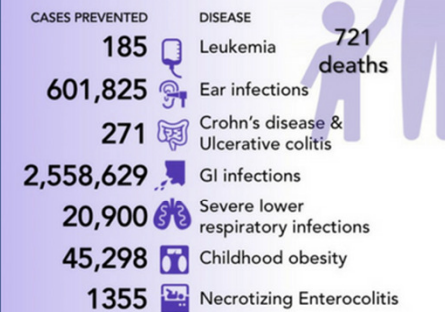
<http://www.challiance.org/Uploads/Public/Documents/PublicSafety/BreastfeedingInfographic.jpg>

Stuebe, A. M., Jegier, B. J., Schwarz, E. B., Green, B. D., Reinhold, A. D., Colaizy, T. T., Bogen, D. L., Schaefer, A. J., Jegier, J. T., Green, N. A., Bartick, M. C. (2017). An online calculator to estimate the impact of changes in breastfeeding rates on population health and costs. *Breastfeeding Medicine*, 12(10), 645-658.

Enabling optimal breastfeeding would prevent **2619 maternal deaths** & **721 child deaths** annually in the U.S.

















... and a children's health issue



About the study: We modeled maternal and child health outcomes given current, suboptimal breastfeeding rates, and we compared those outcomes with optimal breastfeeding, defined as 90% of women exclusively breastfeeding each child for six months and continuing to breastfeed for 12 months. Current, suboptimal breastfeeding incurs \$3 billion per year in medical costs and \$1.2 billion in non-medical costs. The research was funded by the W.K. Kellogg Foundation.

Learn more: Bartick et al 2016 [bit.ly/BartickMCN](http://bit.ly/BartickMCN)

<b>Maternal Outcomes</b>						
		<b>Cases (95% CI)</b>	<b>Deaths (95% CI)</b>	<b>Medical Costs (95% CI)</b>	<b>Non-Medical Costs (95% CI)</b>	<b>Death Cost (95% CI)</b>
<b>Pre-menopausal Ovarian Cancer</b>		-0 (-10, 10)	-0 (-6, 7)	\$-1,614 (\$-1,140,560, \$1,168,171)	\$-370 (\$-261,188, \$267,511)	\$-24,413 (\$-30,470,169, \$32,659,595)
<b>Breast Cancer</b>		23 (-75, 128)	4 (-37, 48)	\$553,478 (\$-1,768,239, \$3,012,251)	\$126,747 (\$-404,927, \$689,806)	\$11,305,227 (\$-103,048,825, \$136,388,235)
<b>Hypertension</b>		165 (-21, 378)	1 (-19, 27)	\$1,353,663 (\$-174,486, \$3,095,203)	\$177,900 (\$-22,931, \$406,776)	\$3,702,559 (\$-50,424,893, \$69,640,880)
<b>Diabetes</b>		63 (-105, 259)	2 (-29, 36)	\$6,177,841 (\$-10,298,279, \$25,369,077)	\$1,632,088 (\$-2,720,643, \$6,702,110)	\$7,524,308 (\$-91,840,243, \$115,131,950)
<b>Myocardial Infarction</b>		38 (-67, 155)	5 (-23, 38)	\$3,583,968 (\$-6,313,935, \$14,578,783)	\$164,258 (\$-289,375, \$668,164)	\$10,978,522 (\$-54,852,848, \$90,797,868)
<b>Total</b>			12 (-50, 82)	\$11,667,336 (\$-7,786,553, \$34,019,884)	\$2,100,623 (\$-2,320,133, \$7,238,738)	\$33,486,201 (\$-142,980,955, \$231,001,766)
<b>Child Outcomes</b>						
		<b>Cases (95% CI)</b>	<b>Deaths (95% CI)</b>	<b>Medical Costs (95% CI)</b>	<b>Non-Medical Costs (95% CI)</b>	<b>Death Cost (95% CI)</b>
<b>Acute Lymphoblastic Leukemia</b>		1 (-12, 16)	0 (-5, 7)	\$203,088 (\$-1,661,852, \$2,252,106)	\$14,729 (\$-120,526, \$163,334)	\$1,886,067 (\$-38,879,986, \$51,029,940)
<b>Crohn's Disease</b>		-1 (-10, 11)		\$-7,065 (\$-96,741, \$108,429)	\$-122 (\$-1,672, \$1,874)	
<b>Ulcerative Colitis</b>		-1 (-13, 12)		\$-5,604 (\$-94,219, \$90,446)	\$-353 (\$-5,929, \$5,692)	
<b>Sudden Infant Death Syndrome</b>			2 (-7, 12)			\$22,006,905 (\$-67,864,337, \$117,833,409)
<b>Ear Infections</b>		-559 (-1,067, 74)		\$-174,353 (\$-332,637, \$22,929)	\$-95,164 (\$-181,557, \$12,515)	
<b>Gastrointestinal Illness</b>		592 (-369, 1,737)		\$31,545 (\$-19,656, \$92,633)	\$161,006 (\$-100,324, \$472,805)	
<b>Obesity</b>		301 (187, 405)		\$878,724 (\$546,865, \$1,181,160)	\$70,885 (\$44,114, \$95,282)	
<b>Lower Respiratory Tract Infection</b>		4 (-65, 96)	-0 (-3, 4)	\$23,881 (\$-350,220, \$519,433)	\$4,232 (\$-62,059, \$92,044)	\$-17,945 (\$-29,444,795, \$39,096,922)
<b>NEC (Necrotizing Enterocolitis)</b>		-1 (-11, 9)	-0 (-4, 4)	\$-33,881 (\$-264,433, \$227,589)	\$-670 (\$-5,226, \$4,498)	\$-2,196,894 (\$-39,370,109, \$39,044,297)
<b>Total</b>			2 (-9, 15)	\$916,335 (\$-1,039,376, \$3,077,144)	\$154,544 (\$-160,443, \$527,733)	\$21,678,133 (\$-87,804,736, \$143,451,069)

Stuebe, A. M., Jegier, B. J., Schwarz, E. B., Green, B. D., Reinhold, A. D., Colbazy, T. T., Bogen, D. L., Schaefer, A. J., Jegier, J. T., Green, N. A., Bartick, M. C. (2017). An online calculator to estimate the impact of changes in breastfeeding rates on population health and costs. *Breastfeeding Medicine*, 12(10), 645-658.



# Breastfeeding & Opioids



Breastfeeding can effectively decrease NAS symptoms because methadone and buprenorphine are transferred to the breast milk.

Maternal contact while breastfeeding also plays a role in ameliorating the NAS symptoms. Interventions that also support breastfeeding in the treatment of NAS include skin-to-skin contact, swaddling, and rooming-in.

- Pritham, U. A. (2013). Breastfeeding Promotion for Management of Neonatal Abstinence Syndrome. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 42(5), 517-526. doi:10.1111/1552-6909.12242

Breastfeeding support is valuable for a variety of reasons, from encouragement and emotional support to guidance and assistance with complex clinical situations. Mothers benefit from all kinds of support, and it is important to receive the right kind at the right time. The breastfeeding support categories listed below each play a vital role in providing care to mothers and babies.

Breastfeeding Support Types	Prerequisites	Training Required	Scope of Practice
<p><b>Professional</b> <i>(International Board Certified Lactation Consultant, IBCLC®)</i></p>	<p>Recognized health professional or satisfactory completion of collegiate level health sciences coursework.</p>	<ul style="list-style-type: none"> <li>• 90 hours of lactation-specific education</li> <li>• College level health science courses</li> <li>• 300-1000 clinical practice hours</li> <li>• Successful completion of a criterion-referenced exam offered by an independent international board of examiners.</li> </ul>	<p>Provide professional, evidence based, clinical lactation management; educate families, health professionals and others about human lactation.</p>
<p><b>Certified</b> <i>(i.e. Certified Lactation Counselor, Certified Breastfeeding Educator, etc.)</i></p>	<p>N/A</p>	<ul style="list-style-type: none"> <li>• 20-120 hours of classroom training</li> <li>• Pass a written exam offered by the training organization</li> </ul>	<p>Provide education and guidance for families on basic breastfeeding issues.</p>
<p><b>Peer</b> <i>(i.e. La Leche League, WIC Peer Counselor, etc.)</i></p>	<p>Personal breastfeeding experience.</p>	<ul style="list-style-type: none"> <li>• 18-50 hours of classroom training</li> </ul>	<p>Provide breastfeeding information, encouragement, and support to those in their community.</p>



Washington, D.C. | [www.USLCA.org](http://www.USLCA.org) | [info@USLCA.org](mailto:info@USLCA.org)

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# IBCLC

## STAFFING SHORTAGE



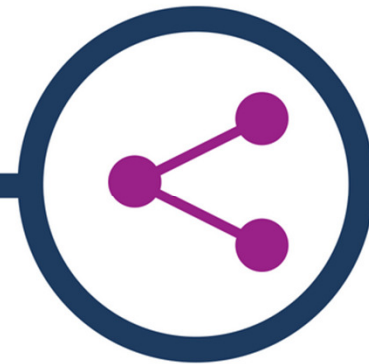
**15,000**

US-Based IBCLCs



**3 MILLION**

Women Start  
Breastfeeding  
Every Year



**1:200**

Provider : Patient Ratio

# THE PATIENT PERSPECTIVE

92%

of breastfeeding  
women have  
problems

24/7  
~365

problems occur  
anytime,  
day or night

3-4  
HRS.

feeding problems  
need to be addressed  
and within 3-4 hours



**Staffing shortages**

**+**

**high % of problems**

**=**

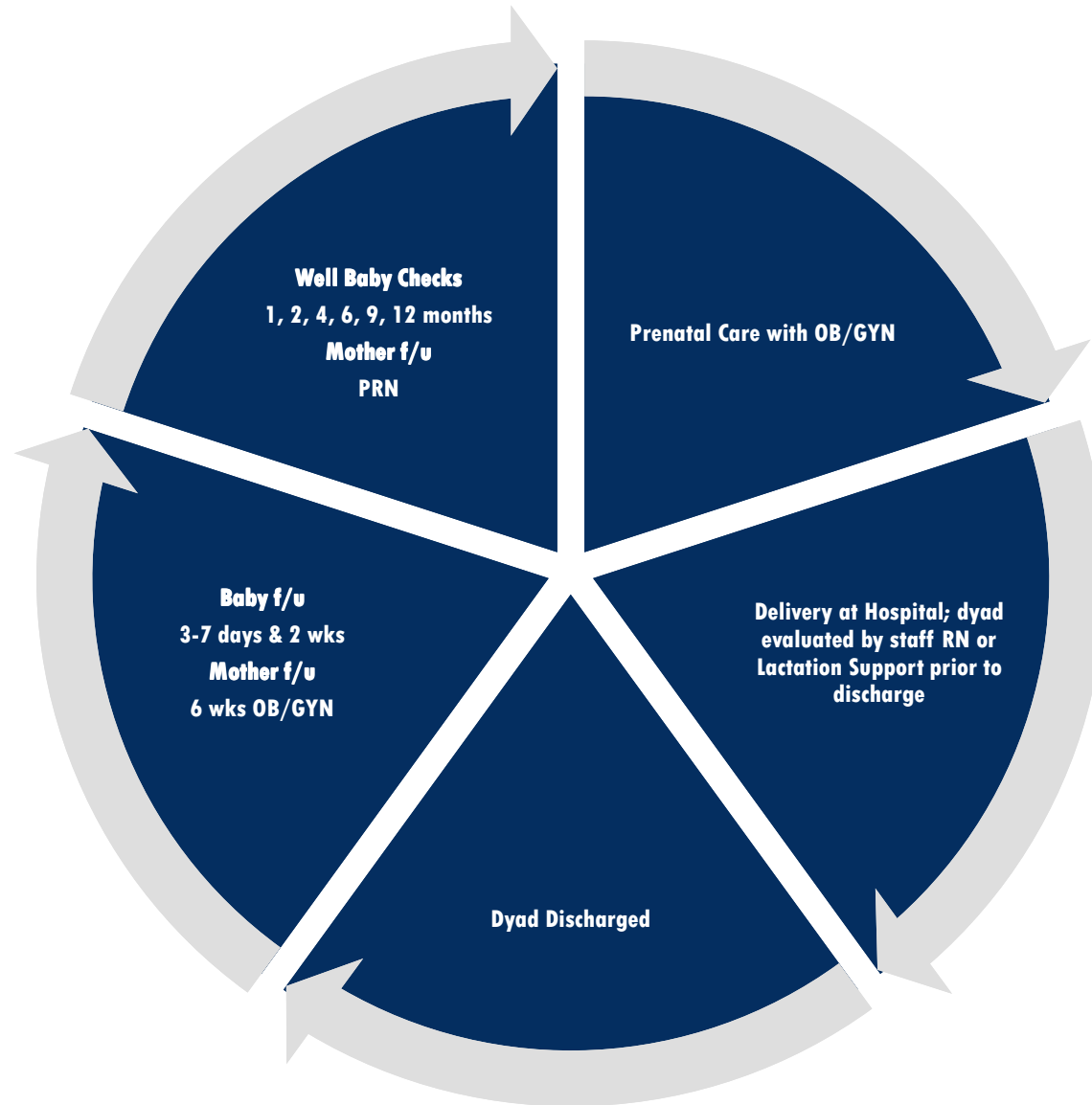
**poor(er) clinical  
outcomes**



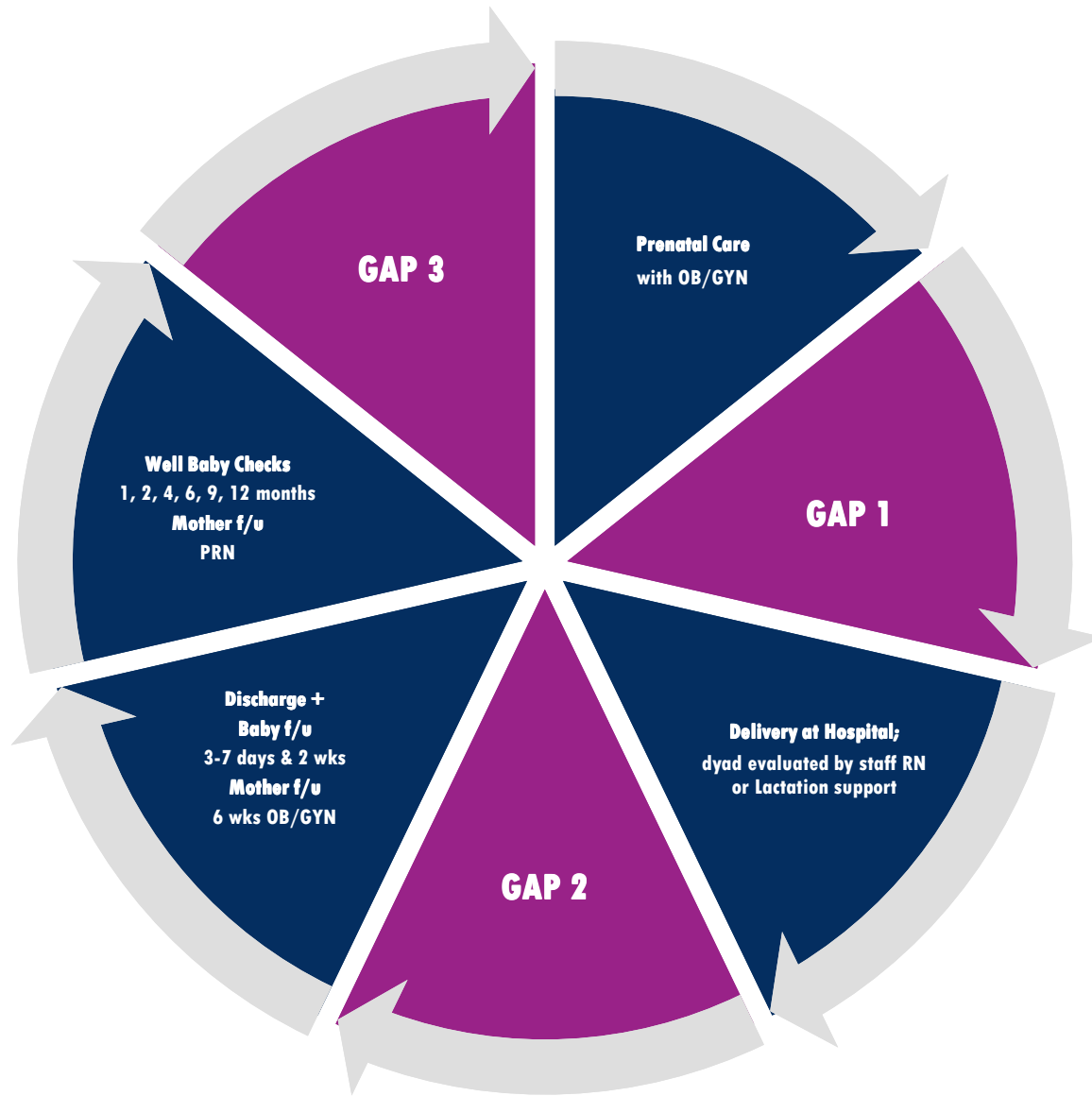
# CLOSING THE CARE GAPS

FOR BREASTFEEDING WOMEN

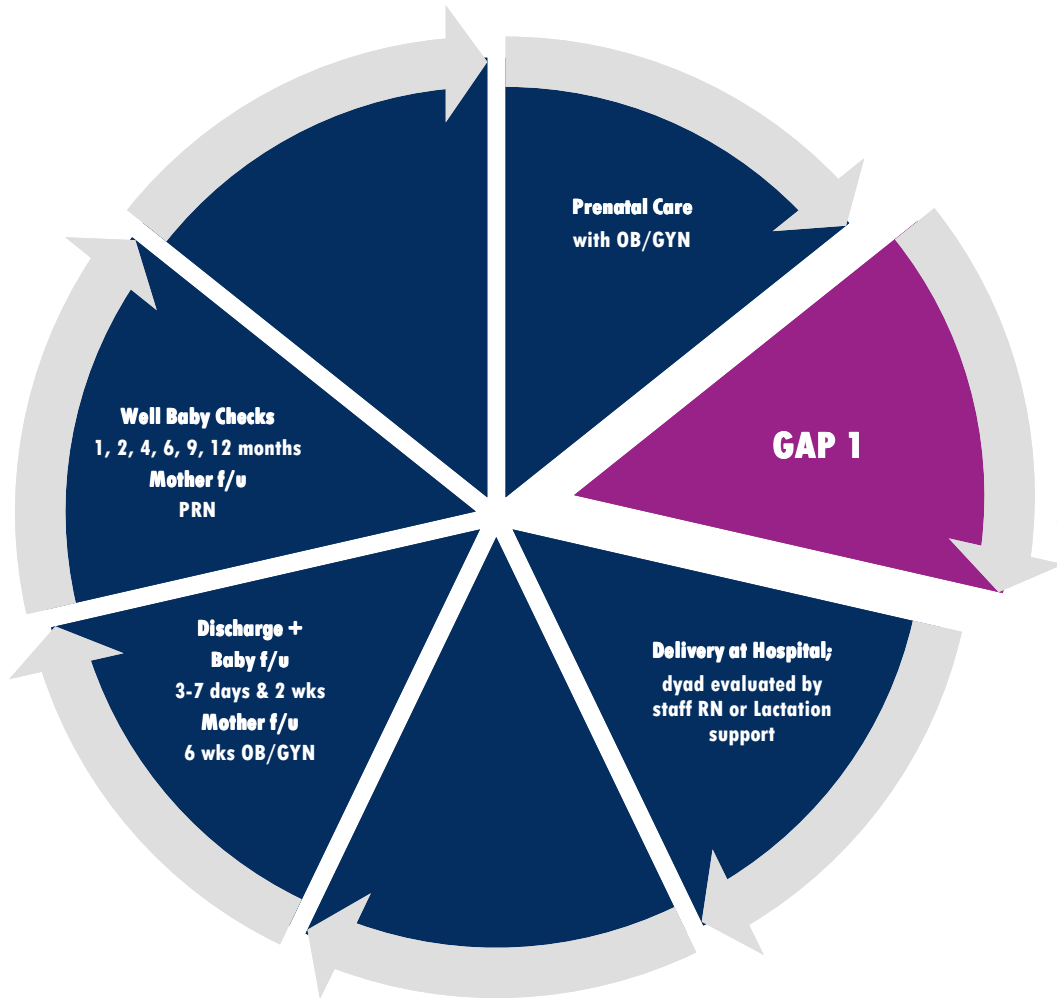
## Current Lactation Delivery Model



## Current Lactation Delivery Model + Care Gaps







## Prenatal Care with OB/GYN

### GAP 1

#### OB/GYN Level

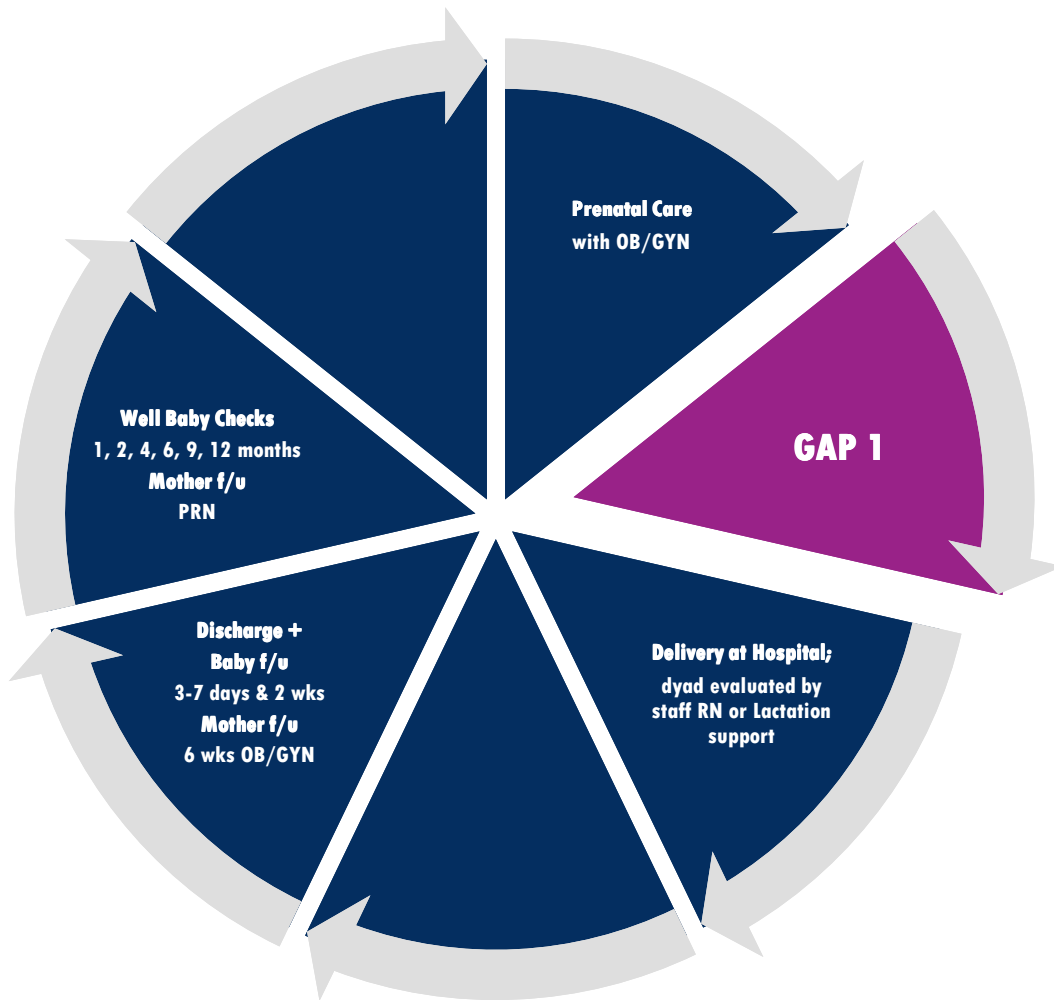
- **Prenatal risk factor assessments**
  - breast injuries and surgeries, hypoplasia, endocrine disorders, previous failed lactation experiences, multiples, abnormal nipple variations
- **Increased prenatal education at routine office visits**
  - lactation management, Skin to Skin, rooming in, risks of formula supplementation
- **Identify those at risk of early weaning to due routine separation**
  - Employment and school / no leave
  - Give RX orders to get breast pumps and guidance on pump selection

#### Mother Level

- Inadequate prenatal appointments
- Previous lactation failure or early weaning

#### Baby Level

- Gestational abnormalities and high risk neonates such as:
  - drug dependent, downs syndrome, cleft lip and palate, cardiac or respiratory issues



## Prenatal Care with OB/GYN GAP 1—Real Life Scenario

Mary lives in rural community of about 15,000 people

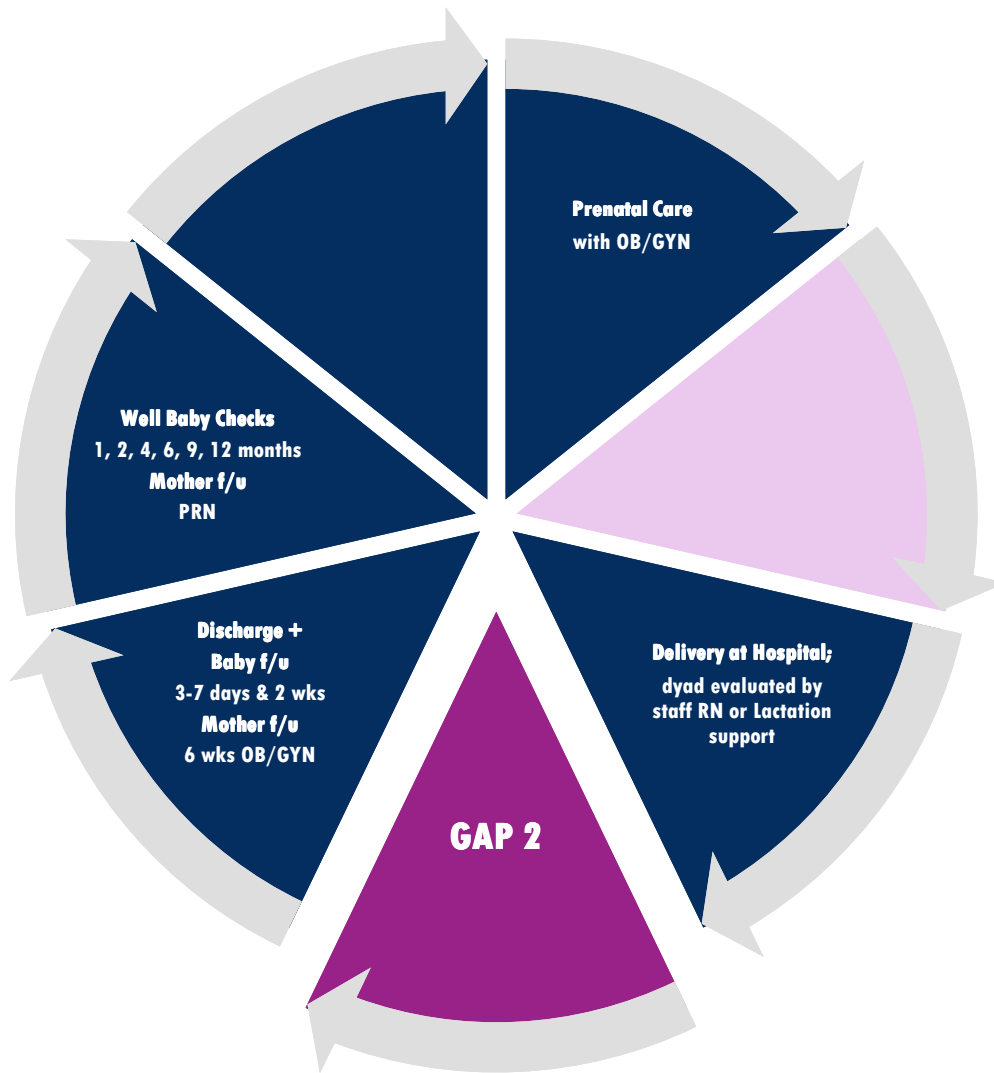
Starts going to OB at 6 weeks  
Healthy mother, G1P1, healthy BMI and no gestational complications

WIC and Medicaid eligible  
No paid maternity leave

OB gives handouts for where to attend a breastfeeding class at hospital but doesn't attend due to work conflicts

Attends 30 min WIC class on the importance of breastfeeding and its nutritional value

- **No risk factor assessment done by provider**
- **Understands importance of breastfeeding and is convinced to try it but is unprepared for problems**
- **Has to return to work at 10 days PPD, unprepared to sustain lactation**



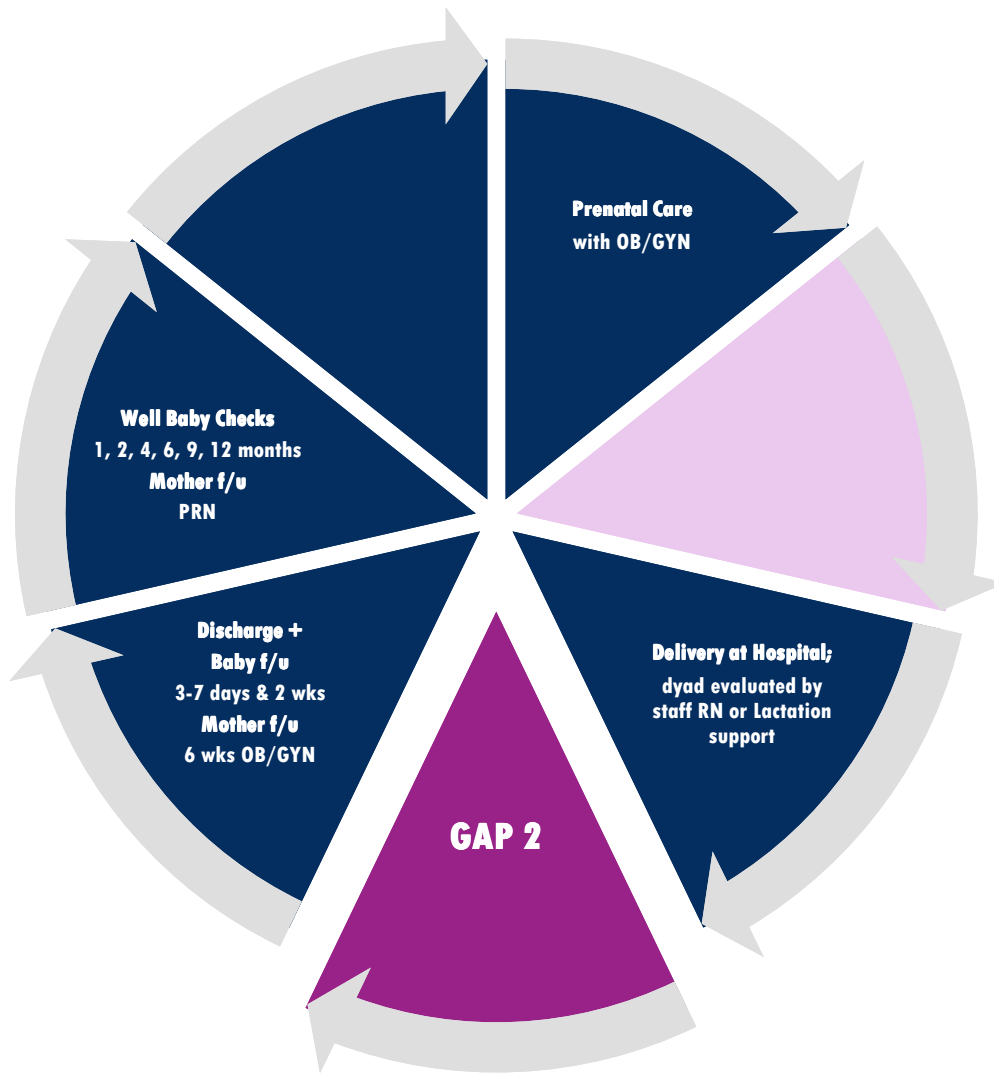
## Delivery at Hospital Dyad evaluated by staff RN or Lactation Support GAP 2

### Hospital Level

- **Policy & Education**
  - Outdated policies and procedures
  - Educate staff at all levels on breastfeeding
- **Staffing & Load Balancing**
  - Address inadequate IBCLC coverage and load balancing issues for smaller hospitals
  - Ensure 24-7/375 access to trained providers
- **Referral Management & Discharge Care Coordination**
  - Breastfeeding mothers with any risk factors or identified feeding problems need follow up care and referrals for 24-72 hours post discharge
  - Referrals to peer support for dyads without documented issues  
→ dyads with issues need to be referred to appropriate care team providers
  - Coordinate discharge care to prevent time lag and readmissions

### Mother & Baby Level

- **Lactation Management**
  - prompt care for any breastfeeding issue
  - Risk of delayed Lactogenesis II (ex. diabetic/obese)
  - Teach hand expression, cup or spoon feeding
  - Instruct on proper pump usage, check flange size
  - Prevent conflicting advice from provider staff
  - Assist C/S mothers with reducing delayed initiation
  - Supplement only when medically indicated and at appropriate amounts, using mothers milk or donor milk as first line intervention



**Delivery at Hospital  
Dyad evaluated by staff RN or Lactation  
Support**

**GAP 2—Real Life Scenario**

**Mary 40 wk. term baby, uncomplicated**

**Delivery Friday at 10pm**

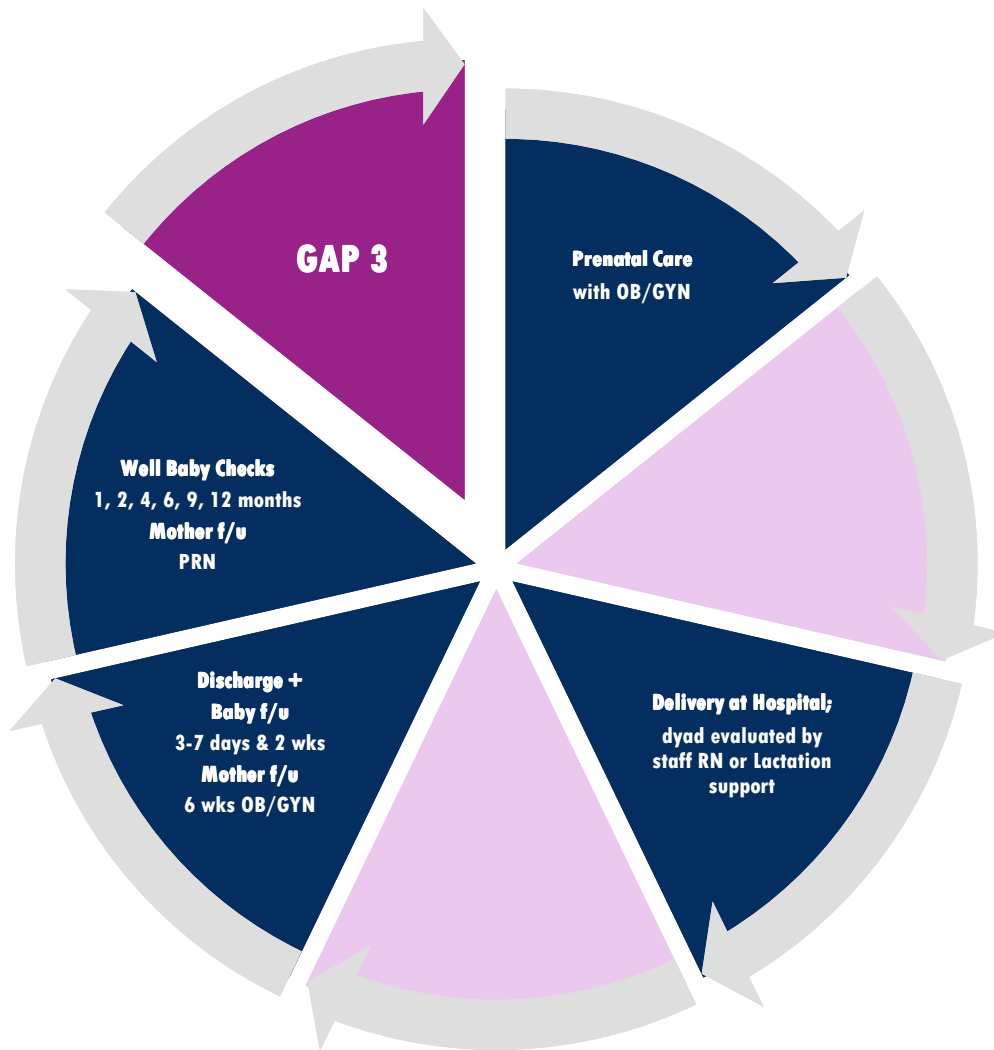
**Baby latches 1 hour after birth**

**Mother reports soreness at 12 hours, requests to see lactation staff**

**RN on duty assists mother with latching, gives nipple shield to assist with soreness**

**Baby discharged approx. 40 hours later,  
Sunday evening**

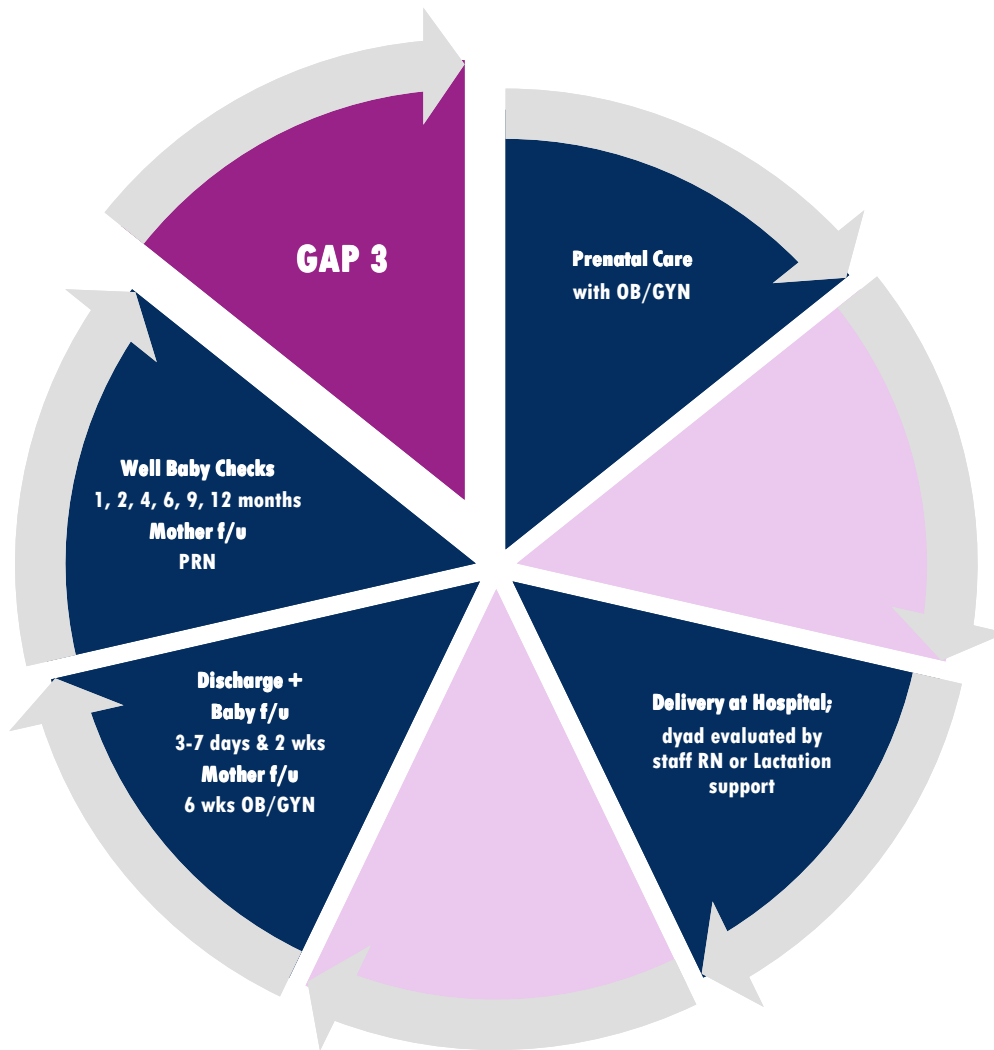
- **Mother requested to see IBCLC on staff, no IBCLC coverage on nights or weekends**
- **Nipple shield given without informed consent, instructions for use, plan of care, or follow up**
- **Mother unprepared for problems due to lack of prenatal education**
- **Mother lives approx. 1 hour away from home, makes arrangements for transportation**



## Discharge + Ambulatory f/u & Care Continuity GAP 3

### Hospital and/or Ambulatory (OB/PCP/PEDS) Level

- **Access to Care Issues (esp. in rural communities)**
  - No outpatient lactation clinic
  - No IBCLC outpatient staff
  - Minimal hours of coverage
- **Discharge, Referral, F/U, & Coordination of Care**
  - Lack of established relationship with IBCLC and confusion around what provider to see and when
  - ED/UC may have little resources on BF management
  - ED/UC may be too far away or too expensive to utilize
  - Follow up to IBCLC may be too long or disrupted due to needing multiple providers or dealing with multiple, complex issues—1 for each patient (i.e. PEDS can't treat Mom, OB can't treat baby)



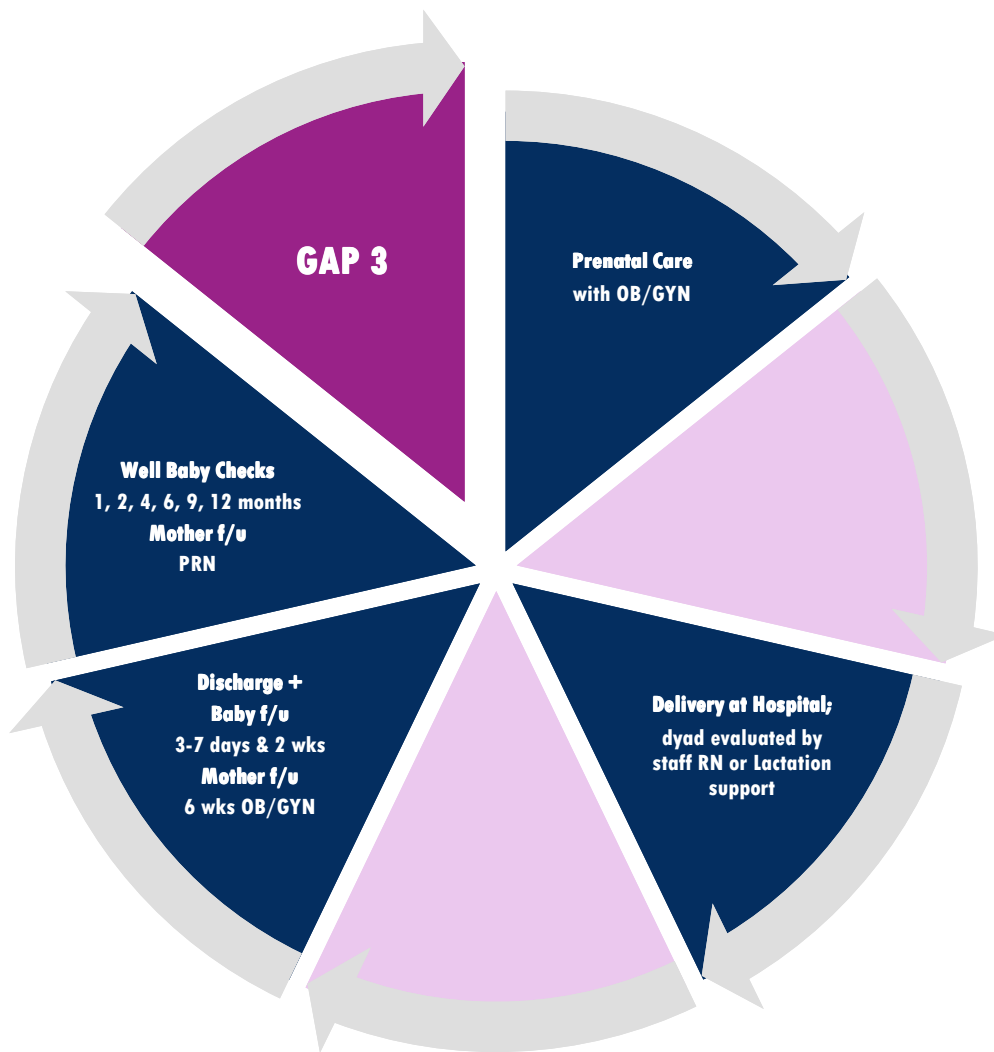
## Discharge + Ambulatory f/u & Care Continuity GAP 3

### Mother Level

- **Supplementation & Early Weaning**
  - Unaddressed problems and lack of provider availability increases supplementation with artificial baby milk
  - Lack of clinical guidance on safe preparation, handling, amounts needed, and delivery method
- **Peer Support**
  - Peer support in rural areas may not have available hours or be difficult to reach in UC scenarios
  - Scope of practice is not appropriate for problems needing clinical management
- **Mother at risk for PPD, increased need for BH**

### Baby Level

- **PEDS is the first to assess lactation success in early weeks, however:**
  - Lack of onsite IBCLC care at office
  - PEDS is not seeing the mother as a patient
  - PEDS often looks at weight alone and may not ask breastfeeding assessment questions
  - Often does not counsel on lactation management in office
  - Delayed problem resolution, lack of referral mgmt. and care coordination



## Discharge + Ambulatory f/u & Care Continuity GAP 3—Real Life Scenario

**Dyad discharged at 48 hours, given number to local peer support group and number of IBCLC warm line.**

**Baby is latching 5 times a day, with nipple shield and continued pain. Mother supplements with 3 bottles a day due to pain and milk not yet “in”.**

**Jack is seen 48 hours post discharge at PEDS. Weight is normal due to supplementation. PEDS ask if baby is BF, mother say yes. No other BF questions asked. Lactation management goes undetected at PEDS appointment.**

**Milk comes in on day 5. Milk isn’t removed frequently or effectively, mother develops high fever.**

**Mother calls local peer support group and WIC peer counselor—they both recommend breastfeeding on demand, getting better latch and to call MD for follow up and see IBCLC.**

**Mother calls OB. OB calls in RX without being seen and recommends seeing IBCLC at hospital—lactation management goes unaddressed w/ OB.**

**Mother calls IBCLC at hospital, which is 60 minutes away. Phone call is returned 8 hours later but has no outpatient appointments until 48 hours later.**

**ABX don’t work. Mother ends up at ER. MDs switch ABX, lactation management unaddressed.**

**Mother weans at 2 weeks due to unresolved issues, pain, low milk supply and frustration.**

# INNOVATION

in Lactation Management



## Telehealth

- Increases access to care
- Triage tool for acuity
- Reduces time to see a provider
- Makes care more effective, bridging care gaps
- Engages patients and increases care continuity





# INNOVATION

in Lactation Management

## Private Practice / Home Visits

- Reduces transportation barriers for the patient
- Specialty care for the dyad in the home environment
- Increases access to care, for rural populations
- Tools accompany the provider outside of the hospital environment for weight checks & digital assessments



# INNOVATION

in Lactation Management

## Paramedicine EMT

Local EMTs work with community resources and local hospitals to identify & refer at-risk mothers prenatally

- Prenatal education
- Vital sign checks
- Identification those not receiving prenatal care
- Resource referral



Breastfeeding reduces infant mortality.

Comprehensive, timely education and support from an integrated healthcare network increases the chance of breastfeeding success, thereby improving clinical outcomes and saving lives.





## Brea Carlson

**IBCLC, RLC**

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Brea Carlson is a Board Certified Lactation Consultant and owner of Connections Lactation Services, based in Crawfordsville. She provides in-home lactation support, education, and assessment in West-Central Indiana.

Brea became passionate about the health and well-being of women and adolescent girls in her own adolescence and founded a non-profit for heart disease in women during college in 2003. In addition to her private practice as a lactation consultant, Brea supports girls and women in Crawfordsville as director of The Athenas, an after-school program for girls at Crawfordsville High School.



## Lauren Majors

**IBCLC, RLC**

**[lauren@sonderhealth.com](mailto:lauren@sonderhealth.com)**

Lauren Majors is an International Board Certified Lactation Consultant and the Co-founder and CEO of Sonder Health, an online provider network specializing in telehealth care delivery and consulting services for lactation and nutrition.

Ms. Majors brings more than 12 years of clinical and healthcare IT experience working with patients and their families in a variety of settings to include hospitals, ambulatory clinics, community centers, and now telehealth. Lauren's expertise centers around merging quality clinical care and patient accessibility through the use of technology.

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