



A Reflection of an Embedded Nurse-Librarian During a Scoping Review and the Development of an Information Toolkit

Translating Science Through a Critical Theory Lens



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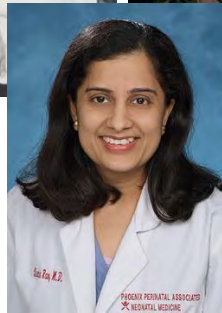
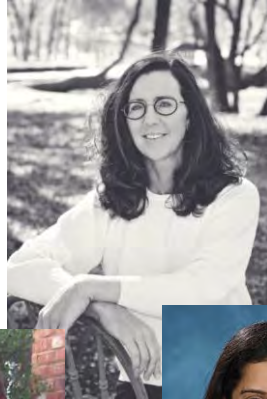
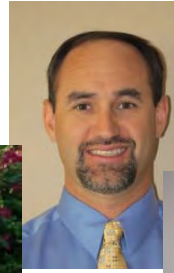
Objective. An appraisal of a scoping review and subsequent activities highlights tangible examples of community engagement and the subsequent bounty of a toolkit that continues to be fruitful.



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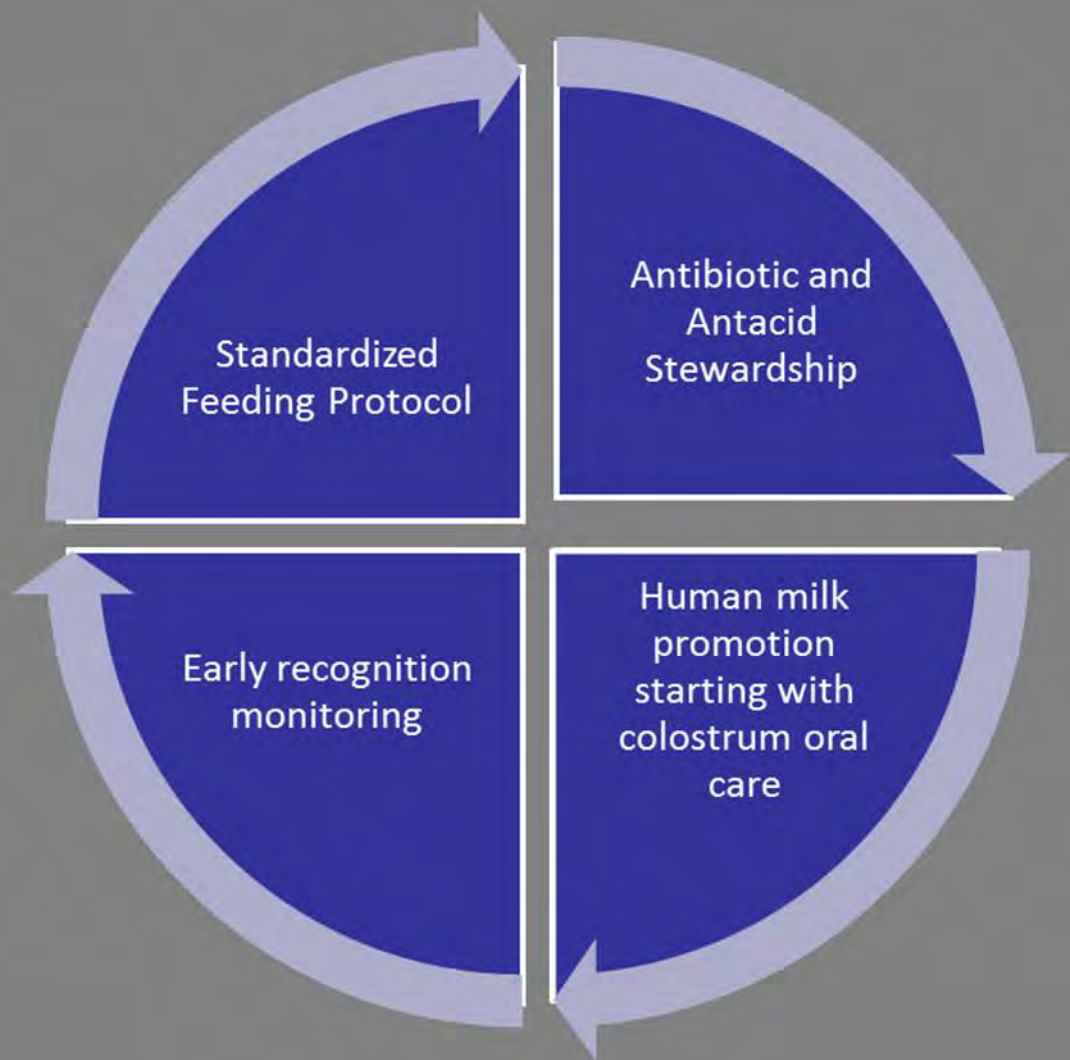
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Gephart, S.M., Hanson, C., Wetzell, C.M., Fleiner, M., Umberger, E., Martin, L. Rao, S., Agrawal, A., Marin, T., Kirmani, K., Quinn, M., Quinn, J., Dudding, K., Clay, T., Sauberan, J., Eskenazi, Y., Porter, C., Msowoya, A., Wyles, C., Ruiz, M., Vo; S., Reber, K., & Duchon, J. (2017). NEC-Zero recommendations from scoping review of evidence to prevent and foster timely recognition of necrotizing enterocolitis. *Maternal Health, Neonatology & Perinatology*. Dec 2017, Vol. 3, No. 1. Available FREE at <https://mhnjournal.biomedcentral.com/articles/10.1186/s40748-017-0062-0>





What is NEC?



NEC-Zero is a team delivered intervention with a goal to prevent and improve early diagnosis of NEC.



www.neczero.nursing.arizona.edu



NEC-Zero Toolkit

- GutCheckNEC risk score
- SBAR communication tool for NEC concern
- NEC-Zero prevention adherence score (0-10)
- NEC Prevention Checklist
- Parent support and education materials
- Collaborating with parents video
- Electronic tools: clinical decision support logic, NEC-Zero dashboard



For Health Professionals

Healthcare Professionals

Early Recognition

Caring for Babies with NEC in the Hospital

Breastfeeding

Breastfeeding and the Workplace

GutCheckNEC

Resources

Upcoming Webinars

For Parents

For Parents

What is NEC?

How does NEC happen?

What are the symptoms of NEC?

Treatment of NEC

Recovery

Resources and Support Groups

GutCheck ^{NEC} (< 1500 grams)				Points
Gestational age (weeks) (9 max.) Calculate GA in weeks at birth based preferably on due date determined by 1 st trimester ultrasound. If that is unavailable, use the gestational age assessment at delivery (Ballard or Dubowitz)		<28 9 points	28-31 6/7 8 points	≥ 32 0 points
Race (2 max) If the infant is either Black or Hispanic race assign 2 points. If both, assign only 2 points. If not Black or Hispanic, assign 0 points.		Black 2 points	Hispanic 2 points	Other races 0 points
Outborn (3 max) If the infant is transferred into this center from another hospital at any time after birth, assign 3 points.		Yes 3 points	No 0 points	
NICU NEC rate (23 max.) This is the annual calculated NEC rate for infants weighing less than 1500 grams at delivery. If < 2%, assign 0 points.	2-4.99% 9 points	5-7.99% 16 points	8-11.99% 19 points	> 12% 23 points
Exclusive human milk feeding (0 max) Defined as human milk fed at both day 7 and day 14 of life. Volume of human milk fed is not defined. If any milk is fed at both day 7 and day 14, <u>subtract 3 points</u> from the total score. Points cannot be subtracted until day of life 14.		Yes -3 points	No 0 points	
Probiotics (0 max) If any probiotic preparation has been given at any dose or any volume, <u>subtract 5 points</u> from the total score.		Yes -5 points	No 0 points	
How many culture-proven infections has the infant had since day 3 of life? (6 points max)		One 4 points	Two 6 points	None 0 points
Packed Red Blood Cell transfusion history (8 max) If any PRBC transfusion has been given, regardless of feeding status or volume given. Once the infant receives a transfusion, from that time on it is scored "yes." Highest risk for NEC is associated within 48 hours of the transfusion.		Yes 8 points	No 0 points	
Hypotension treated with Inotropic Medication (4 max) If hypotension is severe and medications such as dopamine, dobutamine or milrinone are given to treat it, regardless of dose, frequency or duration of treatment. Once this is "yes" it stays "yes".		Yes 4 points	No 0 points	
Metabolic Acidosis (3 max) After the 1 st 12 hours of life, if the infant experiences metabolic acidosis, defined as low pH associated with low serum bicarbonate ($\text{HCO}_3^- < 17$) but normal or near normal pCO_2 ($\text{pH} < 7.30$) or lactate > 6.1 mmol/L. If ordering clinician (physician, NNP, PA-C) documents "metabolic acidosis" code as "yes."		Yes 3 points	No 0 points	
TOTAL: Score > 32 At Risk; > 36 high risk (especially at 72 hours of age); 58 points maximum				
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Structured communication form for clinical concern when NEC is suspected

S	<p>Situation: Purpose of call</p> <p>Hello, this is _____ I am calling about _____ in room _____ because I have some concerns about his/her assessment.</p>
B	<p>Background: All pertinent risk factors and recent history</p> <p>Gestational Age _____ Corrected GA _____ Day of Life _____</p> <p>Risk Score (GutCheck^{NEC}) _____</p> <p>Feeding type (EBM, fortified?) and tolerance _____</p> <p>Transfusion within the last 48 hours? _____</p> <p>Relevant history _____</p>
A	<p>Assessment: Give your conclusion about the present situation based on assessment</p> <p>Is the parent concerned? Y N</p> <p>Tachycardia at rest? Y N Hypotension? Y/N</p> <p>Temp_{oral} &/or Temp_{ax} = 24 hours outside normal limits? Y N</p> <p>Significant increase in axillary temperature? Y N</p> <p>Increased respiratory support or FiO₂? Y N</p> <p>Increase in apnea/bradycardia spells? Y N</p> <p>Blood present in stool or emesis? Y N</p> <p>Change in color, fullness, or feel of abdomen? Y N</p> <p>Change in abdominal girth = 1cm? Y N</p> <p>Bowel sounds present? Y N</p> <p>Feeding tolerance: Residual color, amount, dark bilious? Y N</p> <p>Emesis in last 24 hours? Y N</p> <p>Stooling? Y N Change in general skin color or perfusion? Y N</p> <p>Behavior: Irritable (early) or lethargic (late)? Y N</p>
R	<p>Recommendation: Clarify expectations – may differ with severity of situation or institutional policy.</p> <p>ASK for something specific</p> <ul style="list-style-type: none"> ○ Hold feeding? ○ Abdominal x-ray? ○ Come in to see baby? ○ Order repeat workup?
<p>Content based on evidence about NEC risk and clinical presentation (Christensen et al., 2010; Gephart, Wetzel, & Krisman, 2014; Gregory, Deforge, Natale, Phillips, & Van Marter, 2011)</p>	

Christensen, R. D., Wiedmeier, S. E., Baer, V. L., Henry, E., Gerday, E., Lambert, D. K., . . . Besner, G. E. (2010). Antecedents of Bell stage III necrotizing enterocolitis. *J Perinatol*, *30*(1), 54-57. doi:10.1038/jp.2009.93

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Gregory, K. E., Deforge, C. E., Natale, K. M., Phillips, M., & Van Marter, L. J. (2011). Necrotizing enterocolitis in the premature infant: neonatal nursing assessment, disease pathogenesis, and clinical presentation. *Adv Neonatal Care*, *11*(3), 155-164; quiz 165-156. doi:10.1097/ANC.0b013e31821baaf4

Avoiding NEC Checklist- VLBW

Hospital Name [customize]

Before Delivery of Baby

Facility verifies:

- Contract for donor breast milk has been established
- Standardized breast milk promotion strategies
- Have nurses been educated on GutCheckNEC
- Has policy on antibiotic use and implementation
- Has feeding protocol been adopted
- Bedside focused assessment and communication tools
- System to audit protocol adherence
- Facility guideline on H2 blocker use

Nurse and Neonatologist verify:

- Feeding initiation and protocol use
- Benefits of human milk as critical therapy for preemies shared verbally along with proper milk preparation
- Benefits of human milk printed information given
- Determine champions to promote feeding protocol use

Lactation consultant verifies:

- Pumping kit with colostrum for oral care supplies given
- Advised mother [Insert Name _____] to pump within first hour after delivery and by 6 hours post-delivery
- Parents as partners information given

At delivery

OB Nurse, Obstetrician and NICU nurse verify:

- Delayed cord clamping plans
- Plans to draw admission labs off the cord
- OB nurse to help mother pump by 1 hour post-delivery
- Initiate feeding protocol
- Infant GutCheckNEC score and neonatal sepsis score
- Obtain cultures to determine infection

24 hour briefing

Mother-baby nurse

- Mother meets with lactation specialist
- Time first pumping completed (Goal= < 6 hours post-delivery) _____
- Colostrum for oral care kit given or scheduled
- Ensure mother has way to pump milk at home

Nurse shares at handoff and rounds:

- First oral care with colostrum given
- Initial GutCheckNEC score _____
 - High risk
 - Moderate risk
 - Low risk

Neonatologist verifies:

- Risks and benefits of probiotics shared
- Donor milk consent signed

Before Advancing Feeding (3 days of age)

ROUNDS (with family)

Nurse asks:

"Is everyone ready to perform the feeding check-in for [first name, last name]? Please state your name and role."

TEAM BRIEFING

Physician shares:

- Feeding plan
- Antibiotics and steroid plan
- Probiotic use plan
- Warning signs to watch for (use term necrotizing enterocolitis)
- Standardized risk assessment

Parent shares:

- Parent's plans to be in NICU
- When wants to do kangaroo care
- Pumping log- volume
- Other concerns

NICU Nurse shares:

- GutCheckNEC score
- Warning signs pamphlet given to parent
- How baby is tolerating feeding
- Relevant focused assessment findings
- Other concerns

Pharmacist shares:

- Date antibiotics should be stopped if culture negative (Goal: < 5 days Tx)

Dietitian shares:

- Plan for feeding advance and goal
- Fluid management goals

Neonatologist asks:

"Does anybody have any concerns? If you see something that concerns you during the care of [First Name, Last Name], please speak up."

Before Advancing to 80 ml/kg/day

Nurse reports to team (* or dietitian)

- Proportion of human milk feeds given (% of total)*
- Total ml dose of human milk given*
- Received any formula?
- GutCheckNEC score
- Feeding tolerance
- Weight and growth*

Physician states:

- Plans to fortify to 22 kcal
- Share risks of cow's milk fortifier with parent if used
- Transfusion plan- read HgB _____, if HgB < _____ plan to transfuse. Says *"If we transfuse, we will time the transfusion to not happen at the same time as feeding."*
- Will remove central line when reaches 120 ml/kg/day and increase fortifier to 24 kcal at that time [adjust for protocol]

Parent shares:

- Pumping log and volume [Goal= 500 ml/day]
- # of kangaroo care times completed
- Other concerns

When Transfusion is needed

Entire Team discusses:

- Timing to avoid feeding at time of transfusion
- Higher NEC awareness within 48 hrs of transfusion
- Plans to not advance or fortify on the day of transfusion

After Discharge [May be deleted]

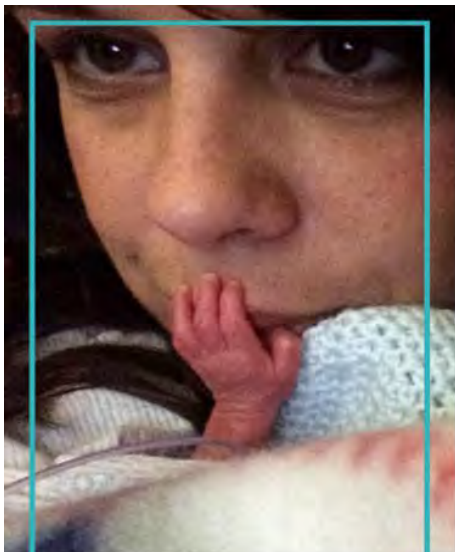
Entire Team discussed:

- Measures for adherence scores
- Contacting mother for updates on how infant is progressing



Parents know their baby and want to be part of the process.





Expecting a Preemie?

**How the gift of your
milk protects your new
baby.**

NEC zero 



Prevent Complications!

It's a team effort!

NEC zero 



What is Necrotizing Enterocolitis?

NEC zero 

10 THINGS ALL PARENTS OF PREEMIES NEED TO KNOW

1 You are an integral part of your preemie's care team. Your feelings and observations are critically important. Speak up, respectfully. Ask questions. Voice your concerns. Share what is important to you. If you feel strongly that something is in the best interest of your baby, insist on it being that way.

Created by parents of NICU babies impacted by NEC; what we wish we had known from day one in the NICU

www.NECsociety.org



2 Premies need breast milk. Human milk can be life-saving for fragile infants. Mothers should begin pumping as soon as possible. When mothers' own milk is unavailable, pasteurized donor breast milk is the next best option. Formula increases a preemie's risk of developing NEC.

3 You know your preemie best. Learn your baby's cues. Premies can become critically ill fast. If you sense something isn't quite right, voice your concerns and make sure they are addressed. Watch for these subtle signs that something may be wrong:

- Abnormally distended belly
- Frequent or large amounts of vomit
- Temperature instability
- Constipation
- Blood in stool
- Lethargic or not as responsive
- Frequent dry diapers
- Difficulty or change in breathing

4 Insist on having primary caregivers. A primary team who knows your baby and family will help to ensure better communication and continuity of care, which increases patient safety. Take time to build a respectful, trusting relationship with your baby's primary caregivers.

5 Learn how to care for your preemie. Ask your baby's nurse to teach you how to provide basic care for your preemie. Provide kangaroo care as often as you can. When you cannot kangaroo your baby, hold hands, sing and read to him/her.



6 Pay attention to details. Keep a journal documenting your baby's routines, behavior, as well as his/her setbacks and accomplishments. Take notes during rounds. You may notice details that no one else will.

7 Become your preemie's expert. Learn everything you can about your preemie's health or condition. If you're not sure where to find credible information, ask your baby's care team. Reach out to other NICU families. Reach out to other institutions, neonatologists or researchers if you have specific questions that your baby's care team cannot address.

8 You are your baby's voice. Attend rounds. Do not let anyone intimidate or shame you for being your baby's advocate. You are not annoying. You are not stupid. Your baby needs you to speak up for him/her, respectfully.



9 Create a haven of peace and healing. Leave behind your frustrations and fears so that you can be present and tune into your baby. Make your preemie's space your home away from home. Smile at your baby. Sing to your baby. Bring in special blankets. Hang up family photos. Play soothing music. Celebrate the smallest of milestones.

10 Live your life fully. Having a baby in the NICU is exhausting and overwhelming. The NICU journey may feel like it's never going to end, but it will be over soon. For better or worse, you'll never have this time back. Live it fully, without regrets. Make hand and footprints. Read special books to your baby. Take pictures and videos with your baby, even if s/he is critically ill. Savor this time with your baby.



JUNE 2-5
ANN ARBOR MI

NEC SYMPOSIUM 2019

NURSE PRACTITIONERS PED. SURGEONS
NEONATOLOGISTS INDUSTRY SCIENTISTS
NON-PROFITS NURSES PATIENT-FAMILIES

HIGHLIGHTS:

- Prevention and early detection of NEC
- Human milk and NEC
- Patient-family centered care in NEC prevention
- Animal models of NEC
- Probiotics and NEC
- NEC registry and biorepository
- Treatment and neurodevelopmental outcomes

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& FOR THE FULL AGENDA:**
<https://necsymposium.eventbrite.com>



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Thank you!

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Breakout session #2,
Thursday June 13 at 1:10pm
in the Xavier room

