

ESCaping the Finnegan: Implementing the Eating, Sleeping, Consoling Approach at the Vermont Children's Hospital

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Disclosures

- I have no relevant financial relationships to disclose or conflicts of interest to resolve

Objectives

- Review the Eating, Sleeping, Consoling Care Tool.
- Discuss training process and implementation at the Vermont Children's Hospital.
- Share challenges and opportunities in implementation

NAS in 2019

DRAMATIC INCREASES IN MATERNAL OPIOID USE DISORDER AND NEONATAL ABSTINENCE SYNDROME

Opioid use during pregnancy can result in a drug withdrawal syndrome in newborns called **neonatal abstinence syndrome, or neonatal opioid withdrawal syndrome (NAS/NOWS)**, which causes **costly** hospital stays. A recent analysis showed that an estimated **32,000** babies were born with this syndrome in the United States in 2014, a more than **5-fold increase** since 2004.

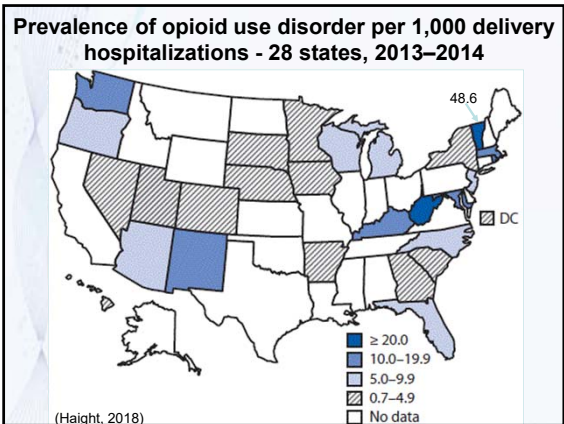
EVERY ~ 15 MINUTES, A BABY IS BORN SUFFERING FROM OPIOID WITHDRAWAL.

NAS/NOWS and Maternal Opioid Use Disorder on the Rise
Rates per 1,000 Hospital Births

Growing Hospital Costs for Treatment of NAS/NOWS
Inflation-Adjusted U.S. Dollars (millions)

Source: Journal of Pediatrics 2015; 168:1069-1074; Pediatrics 2015; 136:e1231-1235

DRUGABUSE.GOV



Variation in Care: an opportunity for process improvement?

- Identification of cases
- Prenatal counseling
- Location of care
- Length of hospital stay
- Assessment tool
- Threshold for pharmacologic treatment
- Type of pharmacologic treatment
- Weaning of pharmacologic treatment
- Staff training
- Hospital policies and protocols

(Mehta, 2013, Bogen, 2017)

Evidence for a Standardized Care Pathway

Large multicenter collaboratives show that increased standardization in NAS management is associated with reduced length of stay

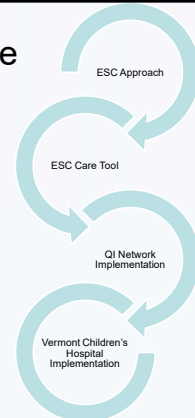
- Vermont Oxford Network¹
- Ohio Children's Hospital Neonatal Research Consortium²

Yale, Boston Medical Center, and Dartmouth show that symptom prioritization and standardized non-pharmacologic care are associated with reduced length of stay and reduced need for pharmacologic treatment^{3,4,5}

(1. Patrick, 2016 2. Hall, 2014 3. Holmes, 2016 4. Grossman, 2017 5. Wachman, 2018)

Standardizing Care

1. Symptom prioritization
2. Parental involvement
3. Non-pharmacologic care



ESC Approach

- Prioritizes functional symptoms
- Standardizes non-pharmacologic care
- Clear threshold for pharmacologic treatment
 - Unable to eat, sleep, or console after optimizing non-pharmacologic care
- No exam
- Empowers parents and parental presence is part of treatment

Finnegan Approach

- Scores all symptoms of withdrawal
- Focus is on a number
- No guidance for non-pharmacologic care
- Varied threshold for pharmacologic treatment
 - (3 scores >8 or 2 scores >12 widely used, not validated)
- Exam every 3-4 hours before feeds

ESC Care Tool

1. Symptom prioritization
2. Parental involvement
3. Standardized non-pharm care

TIME
EATING
Feed rating due to NAS? Yes / No
SLEEPING
Sleep < 1 hr due to NAS? Yes / No
CONSOLING
Unable to console within 10 min due to NAS? Yes / No
Consoling Support Needed
1: Able to console on own
2: Able to console with caregiver support within 10 min
3: Unable to console with caregiver support within 10 min
PLAN OF CARE
Recommend Formal Parent/Caregiver Huddle? Yes / No
Recommend Full Care Team Huddle? Yes/No
Management Decision
1: Continue/Optimize Non-pharm Care
2: Initiate Medication Treatment
3: Continue Medication Treatment
4: Other (please describe)
PARENTAL / CAREGIVER PRESENCE
0: No parent present
1: < 1 hour
2: 1-2 hours
3: 2-3 hours
4: > 3 hours
NON-PHARM CARE INTERVENTIONS
Knowledge: Increase / Reinforce
Parent/caregiver presence: Increase / Reinforce
Skin-to-skin contact: Increase / Reinforce
Holding by caregiver/cuddler: Increase / Reinforce
Safe swaddling: Increase / Reinforce
Optimal feeding at early hunger cues: Increase / Reinforce
Quiet, low light environment: Increase / Reinforce
Non-nutritive sucking / pacifier: Increase / Reinforce / Not Needed
Additional help / support in room: Increase / Reinforce
Limiting of visitors: Increase / Reinforce
Clustering care: Increase / Reinforce
Safe sleep / fall prevention: Increase / Reinforce
Parent/caregiver self-care & rest: Increase / Reinforce
Optional Comments:

NNEPQIN & neoQIC Training and Quality Improvement

- ESC Care Tool & Manual
- Simulation based training (Dartmouth)
- Tools available on neoQIC website
- Data monitoring for quality improvement
- Monthly webinars

neoQIC Neonatal Quality Improvement Collaborative of Massachusetts

NNEPQIN NORTHERN NEW ENGLAND
NEONATAL QUALITY IMPROVEMENT COLLABORATIVE

Planning for change!



Vermont Children's Hospital ESC Planning group

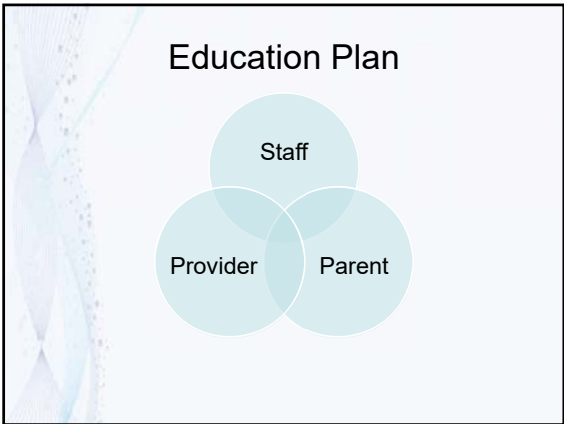
IMPLEMENTATION TEAM Jerilyn Metayer, RN Sara Burton, RN Alison Corey, RN Fran Grimason, RN Naomi Jakobeit, RN Amelie Thurston, RN	ESC SUPPORT MEMBERS Michele Bouchard, RN Katie Dezotelle, RN Barbara Henle, RN Susan Lord, RN Jennifer Robare, RN Holly Sarrazin, RN Tracey Wagner, RN	PROVIDERS Karin Gray, MD Anne Johnston, MD Adrienne Pahl, MD Molly Rideout, MD Michelle Shepard, MD Susan White, APRN Leslie Young, MD
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ESC Care Tool Implementation Timeline



NNEPQIN Webinars	June, 2017	ESC Workgroup Planning Meetings	December, 2017
		Education Sessions	June, 2018
		Go-Live	July, 2018



Train the Trainer

- Team of “gold star raters” identified
 - 1 RN and 1 MD previously trained in ESC
 - 4 RNs and 2 MDs attended Dartmouth Simulation Day in January, 2018

Staff Education

- 16 in person trainings at varied times
- 216 staff members (staff nurses, transport teams, pharmacists, and providers)

Overview of ESC Approach and Care Tool
 Case review: 1 written and 3 video cases
 (>80% agreement with “gold star rater”)

Staff Education

- Co-score with second nurse until 80% agreement
- Resources:
 - “Gold star rater” scheduled for each shift
 - ESC Resource Binder available on each unit
- Independent study tool to train future staff

Provider Education

- Email announcement
 - Dr. Matt Grossman (Yale) video: ESC Approach
 - Dr. Bonny Whalen (Dartmouth) video: ESC Care Tool
- Medical Staff Meetings
- Pediatric Grand Rounds
- Family Medicine Grand Rounds
- Pediatric resident education session
- OB/Gyn Research Retreat
- ICON ESC Handout

Parent Education

- Goal: consistent ESC information
- Our Care Notebook
 - Includes NNEPQIN information on ESC
 - NeoMed / OBs share at prenatal visits
 - Copies available on inpatient units
- ESC presented to obstetric providers

ESC Implementation

- Education Plan
 - Staff
 - Providers
 - Parents
- Documentation Plan
 - Paper → Electronic Health Record

EHR Integration

TITLE	AV/IB
EATING	1000
Feet eating due to NAS? Yes/No	
SLEEPING	
Sleep < 1 hr due to NAS? Yes/No	
CONSOLING	
Unable to console within 10 min due to NAS? Yes/No	
Consoling Support Needed?	
PLAN OF CARE	
Recommended Formal Parent/Caregiver Handler? Yes/No	
Recommended Full Care Team Handler? Yes/No	
Management Decision:	
1) Continue/Optional Non-pharm Care	
2) Initiate Medication Treatment	
3) Continue Medication Treatment	
4) Other (please describe)	
PARENTAL / CAREGIVER PRESENCE	
8) No parent present	
9) 1-2 hours	
10) 2-3 hours	
11) 3-4 hours	
NON-PHARM CARE INTERVENTIONS	
Knowing OR Increase / Reduce	
Parent/Caregiver presence Increase / Reduce	
Skin-to-skin contact Increase / Reduce	
Holding by caregiver / cuddler Increase / Reduce	
Safe Swaddling Increase / Reduce	
Optimal Feeding at early hunger cues Increase / Reduce	
Optimal Low Light Environment Increase / Reduce	
Non-nutritive sucking / pacifier Increase / Reduce / Not Needed	
Additional help / support in room Increase / Reduce	
Limiting # of visitors Increase / Reduce	
Clustering Care Increase / Reduce	
Safe Sleep / Fall Precaution Increase / Reduce	
Parent/Caregiver Self-Care & Rest Increase / Reduce	
Optional Comments:	

EHR Integration

TITLE	AV/IB
EATING	1000
Feet eating due to NAS?	
SLEEPING	
Sleep < 1 hr due to NAS?	
CONSOLING	
Unable to console within 10 min due to NAS?	
Consoling Support Needed?	
PLAN OF CARE	
Recommended Formal Parent/Caregiver Handler?	
Recommended Full Care Team Handler?	
Management Decision:	
PARENTAL / CAREGIVER PRESENCE	
Caregiver(s) Providing Consoling	
Parent/Caregiver Presence	
Non-Pharm Care Interventions	
Knowing OR Increase / Reduce	
Parent/Caregiver presence Increase / Reduce	
Skin-to-skin contact Increase / Reduce	
Holding by caregiver / cuddler Increase / Reduce	
Safe Swaddling Increase / Reduce	
Optimal Feeding at early hunger cues Increase / Reduce	
Optimal Low Light Environment Increase / Reduce	
Non-nutritive sucking / pacifier Increase / Reduce / Not Needed	
Additional help / support in room Increase / Reduce	
Limiting # of visitors Increase / Reduce	
Clustering Care Increase / Reduce	
Safe Sleep / Fall Precaution Increase / Reduce	
Parent/Caregiver Self-Care & Rest Increase / Reduce	
Optional Comments:	

Go Live: July 18, 2018



modified Finnegan → ESC Care Tool

Planning for Bumps in the Road

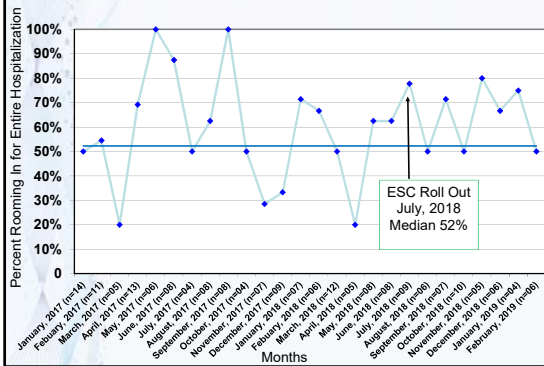
- Measures over time
- Monthly case review themes



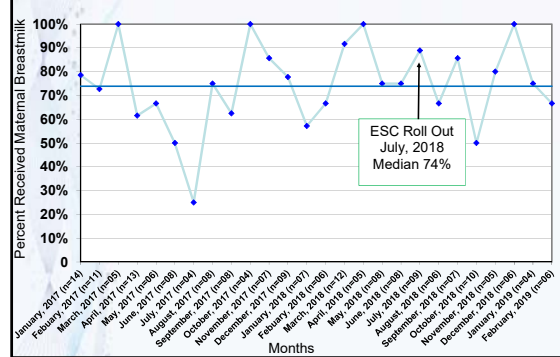
Measures Over Time

Non-pharmacologic care:	Rooming In Breastmilk Feeds
Length of Stay:	Non-pharmacologic care only Pharmacologically treated
Pharmacologic care:	Pharmacologic Treatment Rate Discharge on Medication

Rooming In



Breastmilk Feeds

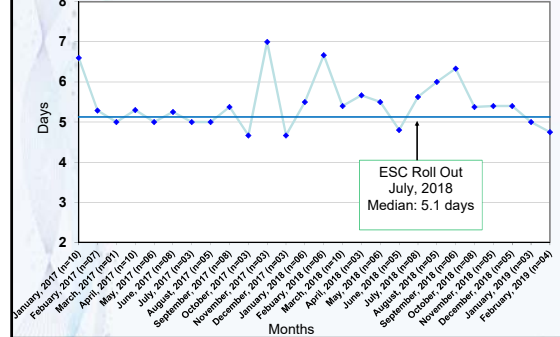


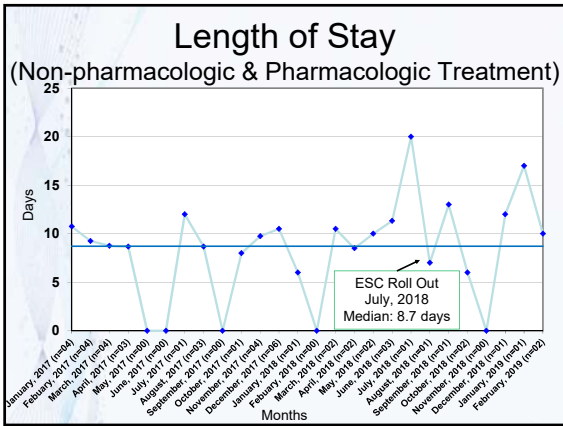
Measures Over Time

Non-pharmacologic care:	Rooming In Breastmilk Feeds
No Measurable Change	
Length of Stay:	Non-pharmacologic care only Pharmacologically treated
Pharmacologic care:	Pharmacologic Treatment Rate Discharge on Medication

Length of Stay

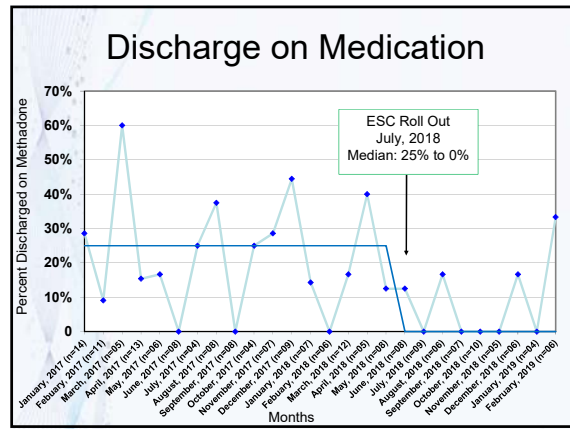
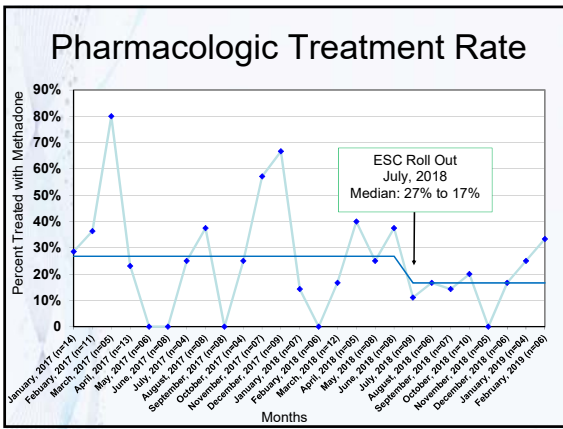
(Non-pharmacologic Treatment only)





Measures Over Time

- Non-pharmacologic care: Rooming In
Breastmilk Feeds
No Measurable Change
- Length of Stay: Non-pharmacologic care only
Pharmacologically treated
No Measurable Change
- Pharmacologic care: Pharmacologic Treatment Rate
Discharge on Medication



Measures Over Time

- Non-pharmacologic care: Rooming In
Breastmilk Feeds
No Measurable Change
- Length of Stay: Non-pharmacologic care only
Pharmacologically treated
No Measurable Change
- Pharmacologic care: Pharmacologic Treatment Rate
Discharge on Medication
Decreased

Zero is not the Goal

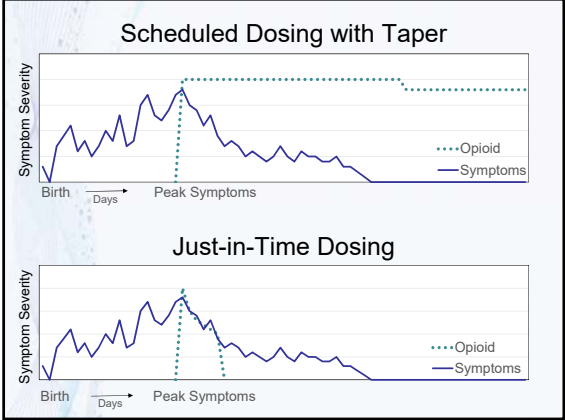
Goal is appropriate treatment:

- Unable to eat, sleep, OR console
 - Due to NAS
 - Despite optimized non-pharmacologic care

Just-in-Time Opioid Dosing

- Not an official part of the ESC Care Tool
- Many hospitals implement following ESC

Eliminates need for long taper
Reduces iatrogenic withdrawal
Often effective with 1-2 doses



Just-in-Time Dosing

- Boston Medical Center reports:
 - Average number of doses (Methadone): 2 (SD 1)
 - Mean timing: DOL 4.3 (SD 1.5)¹
- Vermont Children's Hospital
 - No official change in management with ESC implementation
 - Attending discretion

Goal Treatment Rate is not Zero!

(1. Wachman, 2019 – NNEPQIN Webinar)

Planning for Bumps in the Road

- Measures over time
- Monthly case review themes

Monthly Case Review Themes

1. Huddle and transfer workflow
 - Why hold a huddle?
 - Who attends a huddle?
 - What happens at a huddle?
2. Support parents / caregivers
 - Cuddler Program
 - Discharge planning

1. Huddle and Transfer Workflow

Why hold a huddle?
Who attends a huddle?
What happens at a huddle?

TIME	
WAKING:	First waking due to NAS? Yes / No
WEEPING:	Wang < 1 hr due to NAS? Yes / No
CONSIDERING:	Cuddling Support Needed 1. Able to console on own 2. Able to console with caregiver support within 10 min 3. Unable to console with caregiver support within 10 min
RECOMMENDATIONS	
Recommend Formal Parent/Caregiver Huddle? Yes/No	Recommend Full Care Team Huddle? Yes/No
Management Decision	
1: Continue/Optimize Non-pharm Care	
2: Initiate Medication Treatment	
3: Continue Medication Treatment	
4: Other (please describe)	
PARENT/CAREGIVER PRESENCE	
#1 No parent present #2 < 1 hour #3 1-2 hours #4 > 2 hours	
NON-PHARM CARE INTERVENTIONS	
Breast-feeding	Increase / Reduce
Parent/caregiver presence	Increase / Reduce
Skin-to-skin contact	Increase / Reduce
Holding in caregiver's chest	Increase / Reduce
Soft swaddling	Increase / Reduce
Optimal feeding at each hunger cue	Increase / Reduce
Quiet, low light environment	Increase / Reduce
Non-sterile sucking pacifier	Increase / Reduce / Not Needed
Additional help / support to room	Increase / Reduce
Limiting of visitors	Increase / Reduce
Clustering care	Increase / Reduce
Soft tone / low frequency	Increase / Reduce
Parent/caregiver reassurance & rest	Increase / Reduce
Optimal Comments	

Formal Parent / Caregiver Huddle

Why?	Unable to eat, sleep, <u>OR</u> console Due to NAS
Who?	Parent / caregiver <u>and</u> Nurse
What?	Purposeful plan to optimize non-pharmacologic care

Full Care Team Huddle

Why?	Unable to eat, sleep, <u>OR</u> console Due to NAS Despite optimized non-pharmacologic care
Who?	Parent / caregiver, Nurse, <u>and</u> provider <small>*NICU provider should be called to attend unless NBN attending is at the bedside</small>
What?	Consideration of transfer <u>and</u> pharmacologic therapy

1. Huddle and Transfer Workflow

First "Yes":

- Optimize non-pharmacologic care in a Formal Parent / Caregiver Huddle

Persistent "Yes" after Formal Parent / Caregiver Huddle:

- Consider transfer and immediate treatment in a Full Care Team Huddle

* Parents may participate in person or by phone *

Monthly Case Review Themes

1. Huddle and transfer workflow

- Why hold a huddle?
- Who attends a huddle?
- What happens at a huddle?

2. Support parents / caregivers

- Cuddler Program
- Discharge planning

2. Support Parents / Caregivers

"Parents as treatment"

- Anticipatory guidance at prenatal visit
- Prenatal handout encouraging respite planning
- In hospital supports for parental rest
 - Cuddler Program
- Pre-discharge planning for home supports

Cuddler Program

- Established for NICU patients in 2012
- Special training required for volunteers to safely hold medically complex infants
- Scheduled for 3 hour shifts during daytime hours
- Cuddlers now prioritize ESC support before NICU

Goal:

- Establish separate newborn nursery cuddler group
- Consider on call scheduling for opioid exposed newborns

Discharge Criteria

Discharge criteria emphasize identification of supports at home

- Infant is at least 96 hours old
- Caregiver education complete and caregiver is comfortable with discharge plan
- Caregiver home respite supports identified
- Home Health referral placed
- Safe sleep education complete and no use of sleep aids (e.g. Mamaroo, swing, etc.) for 24 hours prior to discharge

If Methadone received:

- Stable dose or off Methadone for 72 hours prior to discharge
 - * Monitoring may occur in NBN if Eating, Sleeping, AND Consoling well for 24 hours after a single dose

Monthly Case Review Themes

1. Huddle and transfer workflow

Why hold a huddle?

Who attends a huddle?

What happens at a huddle?

2. Support parents / caregivers

Cuddler Program

Discharge planning

Continue Monthly Case Reviews

Summary

- The ESC Care Tool is now the standard assessment for opioid exposed newborns at Vermont Children's Hospital
- Fewer infants are treated with Methadone and even fewer are sent home on Methadone following implementation
- Continuous case review is essential to a successful implementation of the ESC Care Tool at a new site

Questions / Comments



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