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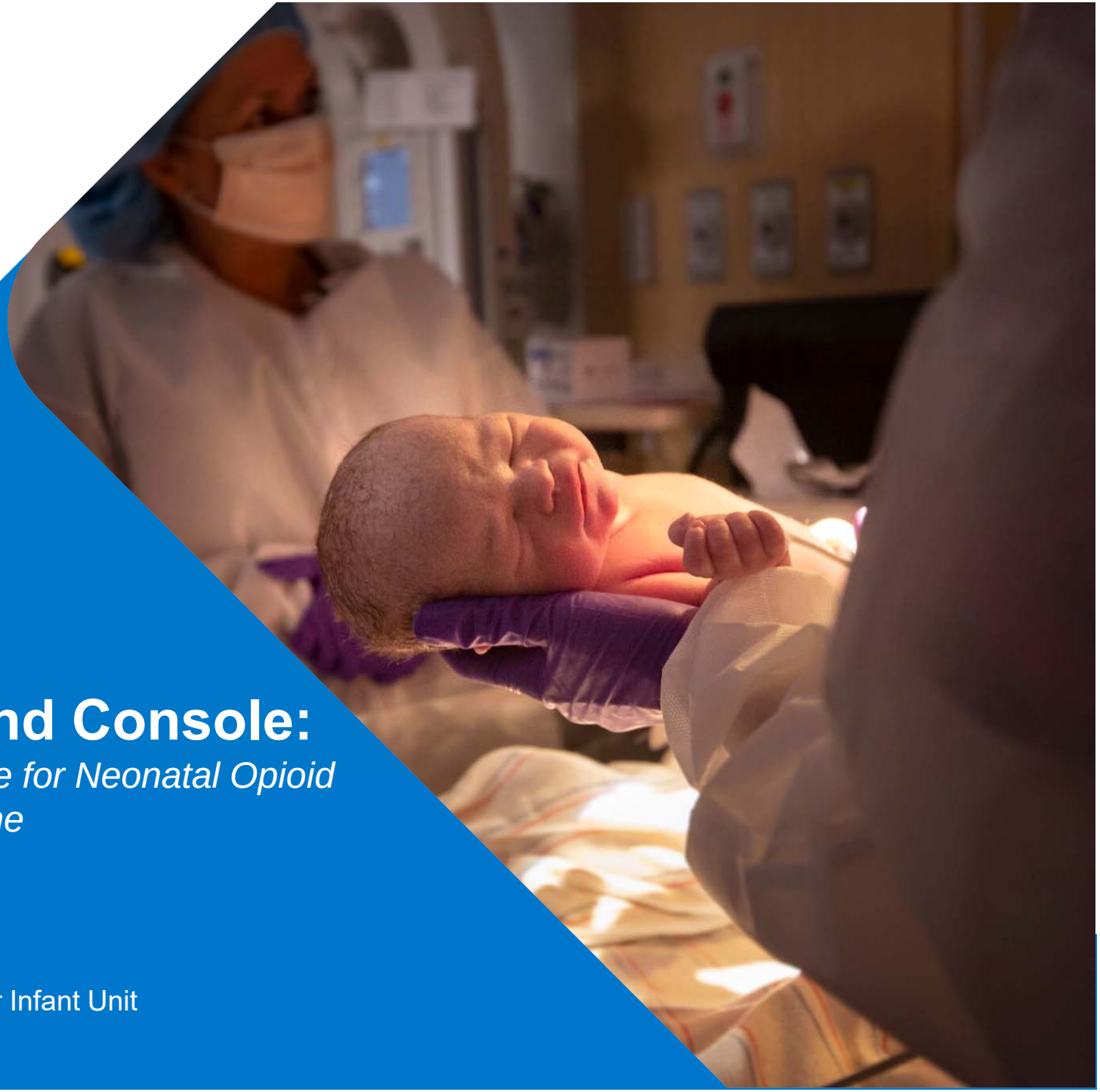

Eat, Sleep and Console:

Changing Landscape for Neonatal Opioid Withdrawal Syndrome

Tiffany Kimbrough, MD
Medical Director Mother Infant Unit

December 17, 2019

Objectives

1. Review magnitude of Neonatal Opioid Withdrawal Syndrome in VA
2. Discuss Traditional Care Model for NOWS
3. Describe Eat, Sleep and Console as a novel assessment tool
4. Share Eat, Sleep and Console implementation journey at VCU

Disclosures

1. I am sub-PI on MOM-DYAD study

Neonatal Opioid Withdrawal Syndrome (NOWS) in Virginia

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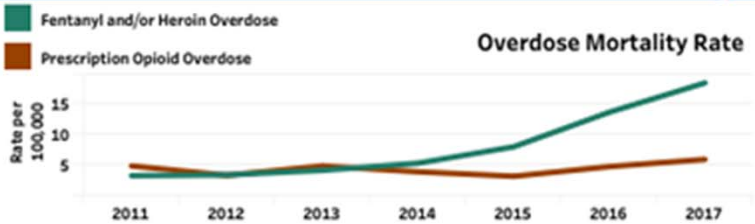
Opioid Addiction in Virginia

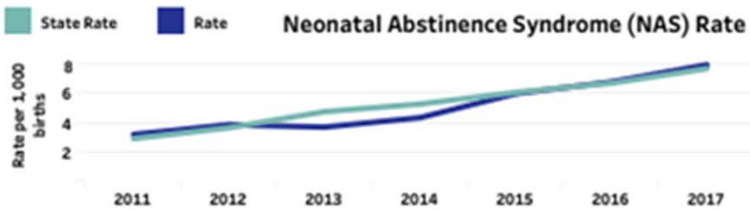
2018 Virginia State Summary

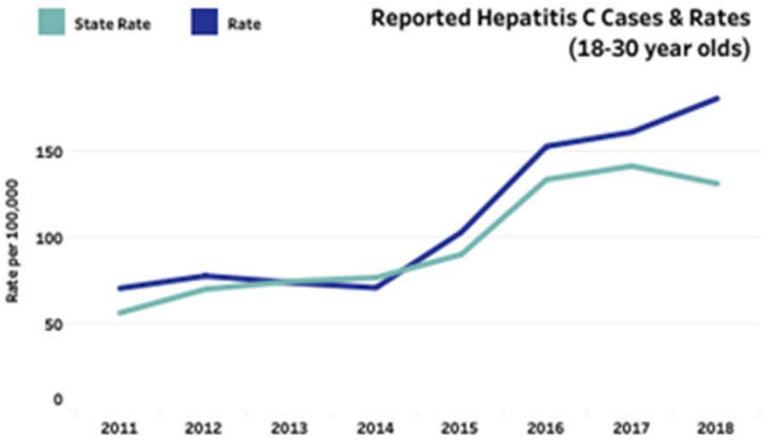
Fentanyl and/or ..	Prescription ..	ED Heroin..	ED Opioid..	EMS Narcan	Reported Hepatitis C ..	Diagnosed HIV
Deaths	Deaths	Visits	Visits	Administrations	New Cases	New Cases
N/A	N/A	1,301	7,323	7,775	1,991	831
Mortality Rate	Mortality Rate	Visit Rate	Visit Rate	Administration Rate	New Case Rate	New Case Rate
N/A	N/A	15.4	86.5	89.5	130.8	9.8

Rates are calculated as per 100,000 Virginia residents, except for Neonatal Abstinence Syndrome (NAS), which is calculated as per 1,000 live births.

VDH Health Region Trends by Year







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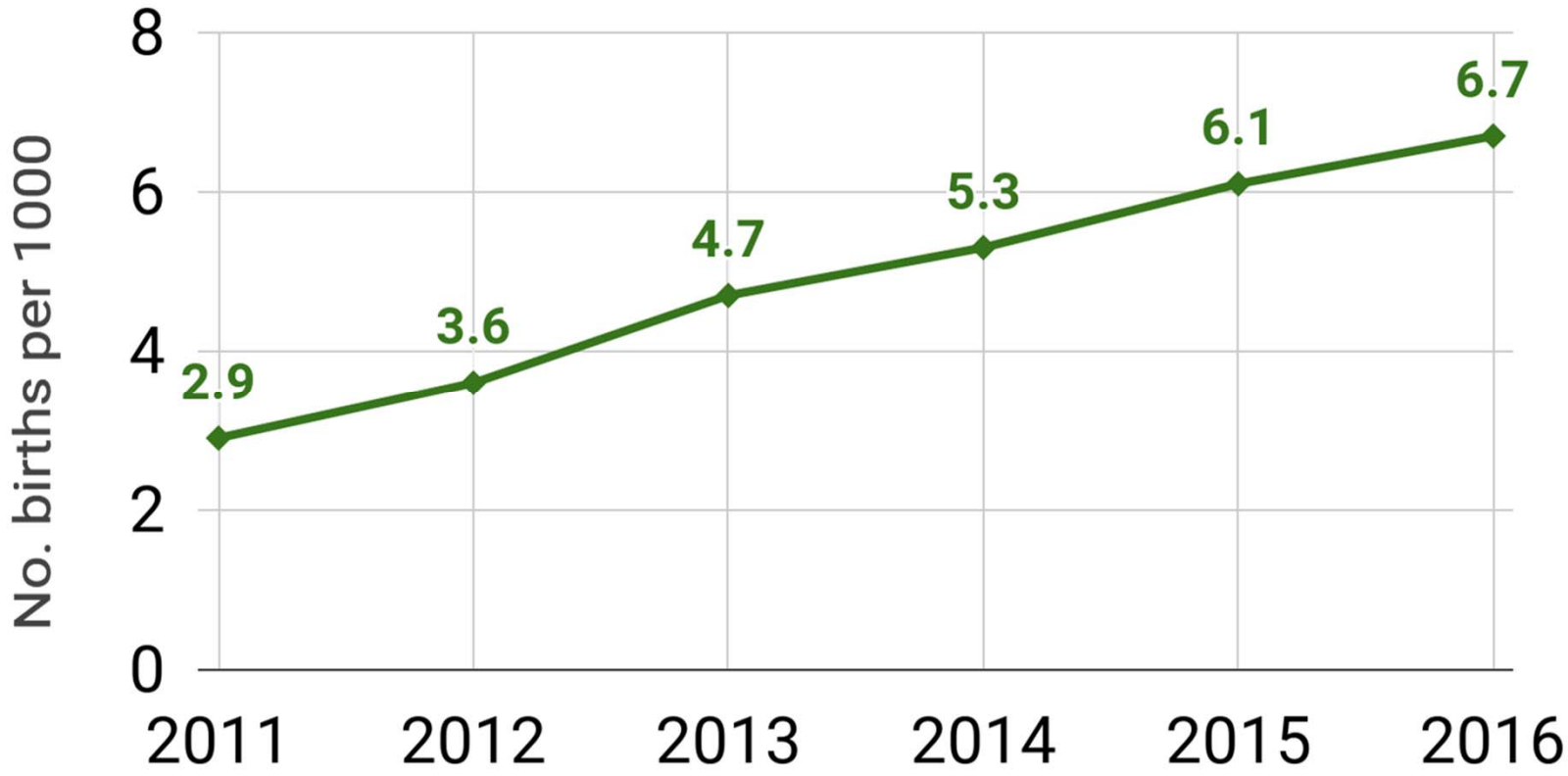
NOWS Hospitalizations in Virginia



Virginia Department of Health, 2017

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Neonatal Abstinence Syndrome

- Infants exposed to tobacco, alcohol, prescription medications (e.g., benzodiazepines, opioids, SSRIs), and illicit substances in utero may exhibit signs of physiologic withdrawal from these substances.
- NAS is an expected and treatable condition that often follows prenatal exposure to opioids.
- Neonatal opioid withdrawal syndrome (NOWS) is a subset of NAS and refers to withdrawal symptoms associated specifically with opioid exposure.

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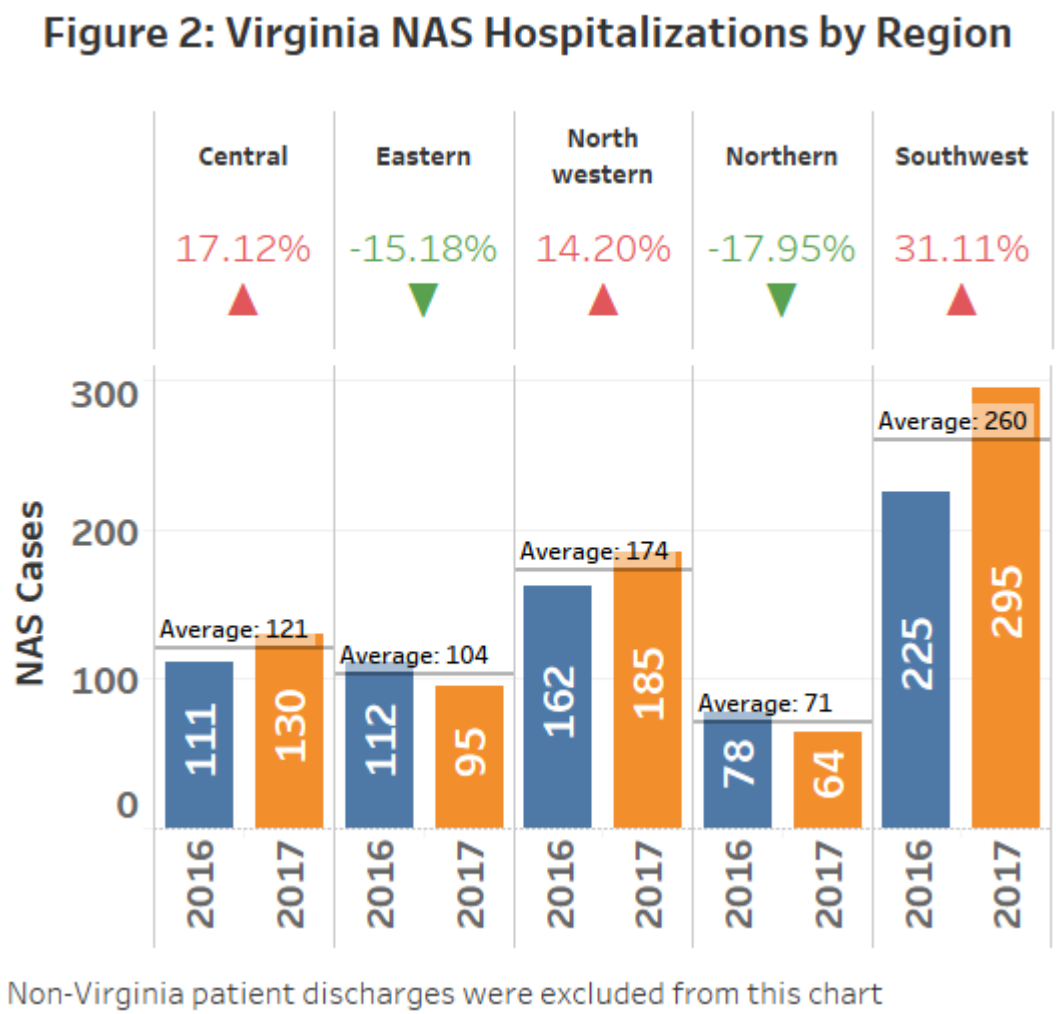
NOWS by Region in Virginia



Virginia Department of Health, 2017

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Expenditures

- **Nationwide**, roughly 400,000 pregnancies annually affected by substance use disorder
- **Nationwide**, average NOWS LOS – 16 days
  - Unchanged between 2000-2009
  - **Virginia** LOS: 20 days (range 6 – 55)
- Average hospital cost ~$94,000*

  *For those requiring pharmacotherapy
- Healthcare expenditures – 1.2 billion for Medicaid (2009)

Parick SW, Davis MM, Lehman CU, Cooper WO. Increasing incidence and geographic distribution of neonatal abstinence syndrome: United States 2009 to 2012. J Perinatol. 2015;35:667

Women with opioid use disorder face *intense stigma* during pregnancy and postpartum period

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Opioid use disorder in pregnancy

High risk for depression

Hormonal shifts

Lose Medicaid post-delivery

At risk for leaving treatment

At risk for use of other substances

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Barriers to accessing substance abuse care for mothers

- **Fear of incarceration**
- **Fear of losing custody**
- **Shame/feeling judged**
- **Limited resources**
- **Lack of funds to pay for services**
- **Transportation**
- **Childcare**

Involvement with Department of Social Services

State-mandated for CPS reporting of all substance exposed infants

10.3 Mandated reporting of SEI

The Code of Virginia and the Virginia Administrative Code (VAC) provide for the mandated reporting of SEI. *Effective July 1, 2017, § 63.2-1509 B of the Code of Virginia was significantly revised and supersedes the VAC, 22VAC40-705-40 A5.*

> *(§ 63.2-1509 B of the Code of Virginia) B. For purposes of subsection A, "reason to suspect that a child is abused or neglected" shall include (i) a finding made by a health care provider within six weeks of birth of a child that the child was born affected by substance abuse or experiencing withdrawal symptoms resulting from in utero drug exposure; (ii) a diagnosis made by a health care provider within four years following a child's birth that the child has an illness, disease, or condition that, to a reasonable degree of medical certainty, is attributable to abuse of a controlled substance during pregnancy; or (iii) a diagnosis made by a health care provider within four years following a child's birth that the child has a fetal alcohol spectrum disorder attributable to in utero exposure to alcohol. When "reason to*

C Section 10 Page 5 of 33 10 Substance-Exposed Infants

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Managing NOWS: Traditional Model of Care

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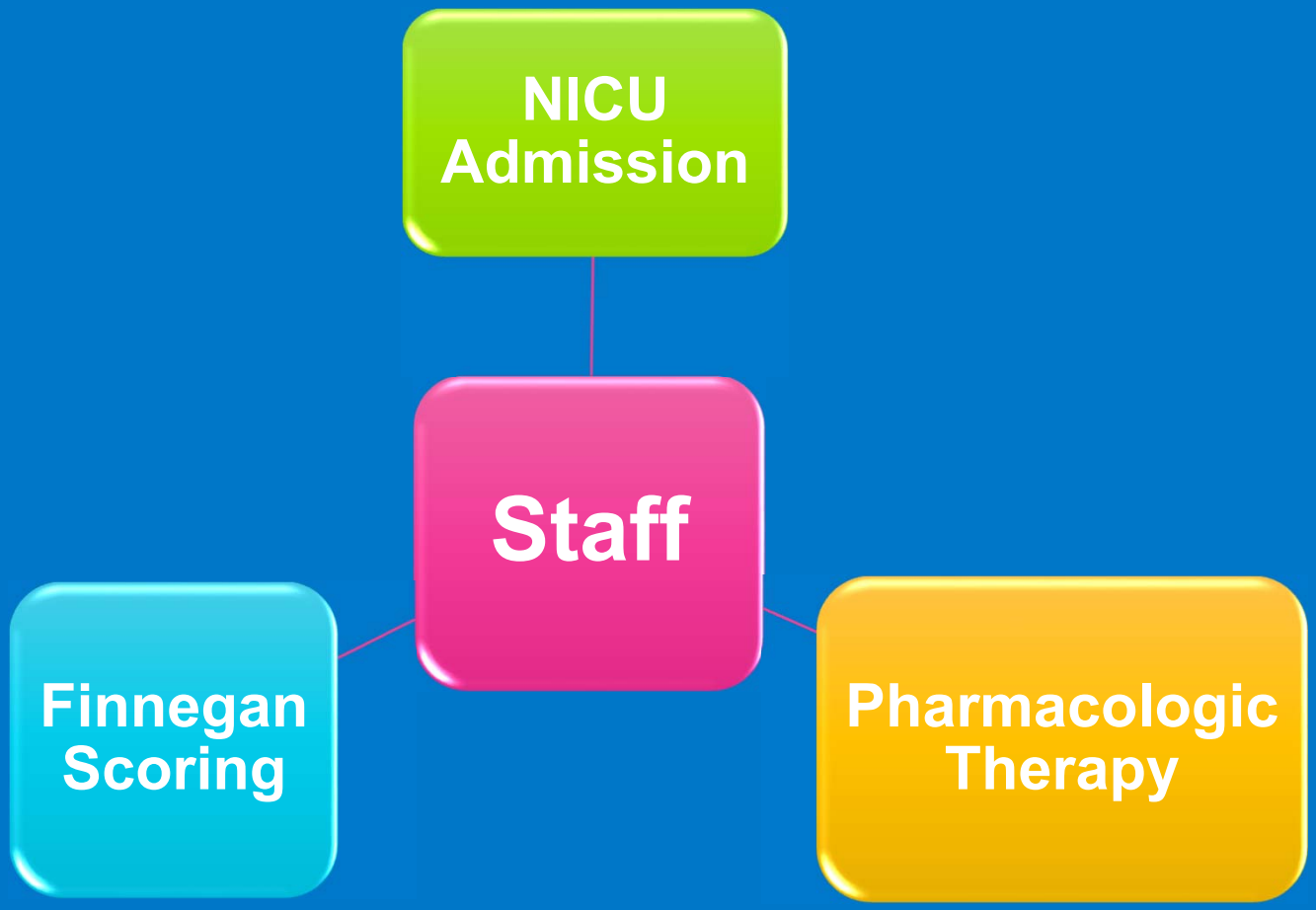
Traditional Model of Care



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Assessment of infant: Finnegan Scoring

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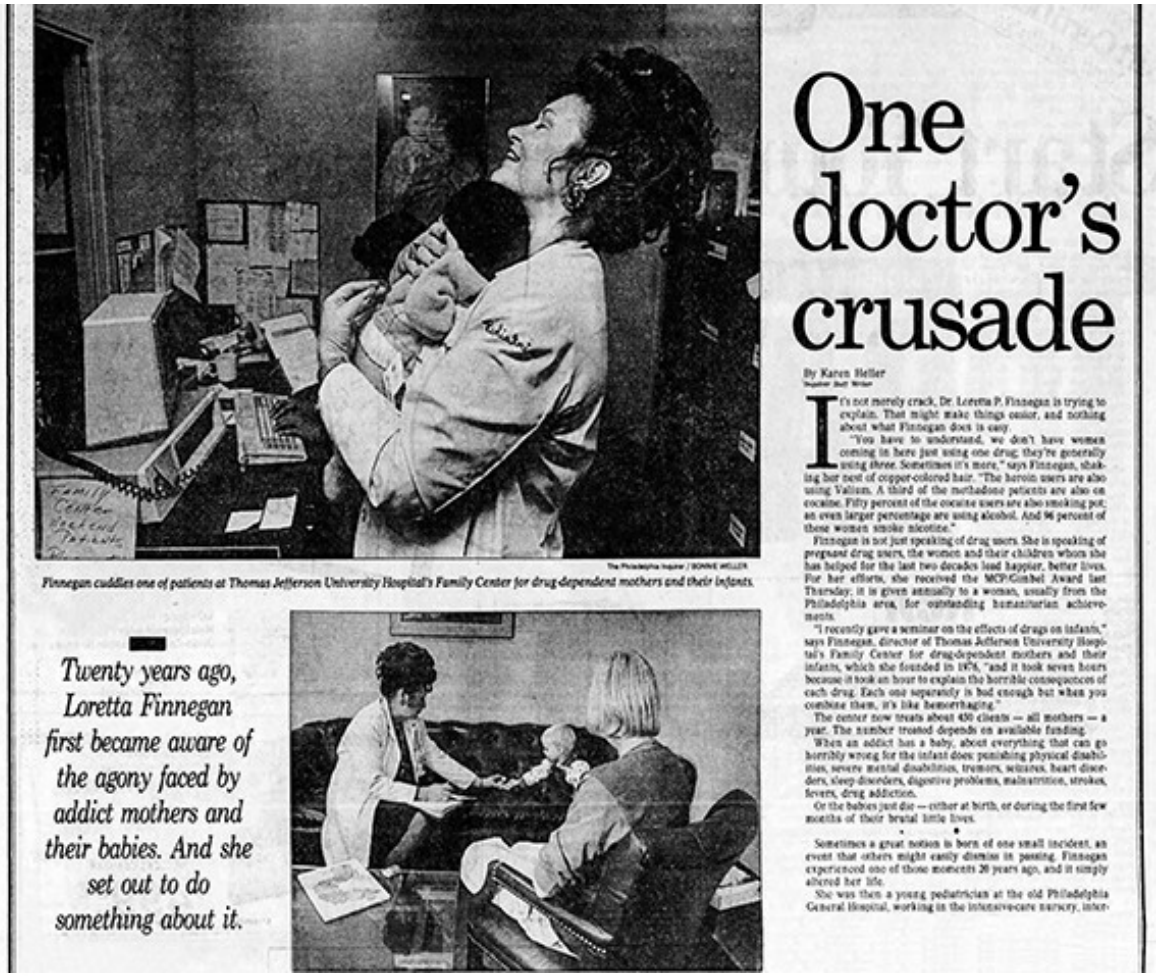
Assessment Tool: Finnegan Scoring

Developed for NAS infants in 1974

- 20 signs in total
  - Various severity assigned
- Most utilized tool across nation (92% 2017)
  - Virginia rate (2019):

    53% Finnegan
    47% Modified



Finnegan cuddles one of patients at Thomas Jefferson University Hospital's Family Center for drug-dependent mothers and their infants.

Twenty years ago, Loretta Finnegan first became aware of the agony faced by addict mothers and their babies. And she set out to do something about it.

One doctor's crusade

By Karen Heller

It's not merely crack, Dr. Loretta P. Finnegan is trying to explain. That might make things easier, and nothing about what Finnegan does is easy.

"You have to understand, we don't have women coming in here just using one drug; they're generally using three. Sometimes it's more," says Finnegan, shaking her nest of copper-colored hair. "The heroin users are also using Valium. A third of the methadone patients are also on cocaine. Fifty percent of the cocaine users are also smoking pot; an even larger percentage are using alcohol. And 96 percent of these women smoke nicotine."

Finnegan is not just speaking of drug users. She is speaking of pregnant drug users, the women and their children whom she has helped for the last two decades lead happier, better lives. For her efforts, she received the WCP/Gimbel Award last Thursday; it is given annually to a woman, usually from the Philadelphia area, for outstanding humanitarian achievements.

"I recently gave a seminar on the effects of drugs on infants," says Finnegan, director of Thomas Jefferson University Hospital's Family Center for drug-dependent mothers and their infants, which she founded in 1974, "and it took seven hours because it took an hour to explain the horrible consequences of each drug. Each one separately is bad enough but when you combine them, it's like hemorrhaging."

The center now treats about 450 clients — all mothers — a year. The number treated depends on available funding.

When an addict has a baby, about everything that can go horribly wrong for the infant does: punishing physical disabilities, severe mental disabilities, tremors, seizures, heart disorders, sleep disorders, digestive problems, malnutrition, strokes, fevers, drug addiction.

Or the babies just die — either at birth, or during the first few months of their brutal little lives.

Sometimes a great notion is born of one small incident, an event that others might easily dismiss in passing. Finnegan experienced one of those moments 20 years ago, and it simply altered her life.

She was then a young pediatrician at the old Philadelphia General Hospital, working in the intensive-care nursery, inter-

Finnegan LP, Connaughton JF Jr, Kron RE, Emich JP. Neonatal abstinence syndrome: assessment and management. Addict Dis. 1975;2:141–58

Philadelphia Inquirer Nov 19, 1989

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Signs of NOWS

Neurologic	Gastrointestinal	Autonomic
• Excessive or high-pitched crying • Short and/or irregular sleep patterns • Tremors or irritability • Skin breakdown (face/knees) • Frequent sneezing and/or yawning • Increased muscle tone • Myoclonic jerks • Seizures	• Excessive sucking • Poor feeding • Vomiting • Loose stools and/or diarrhea • Poor weight gain	• Sweating • Low-grade fever • Nasal stuffiness • Tachypnea • Mottling of skin

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Finnegan Scoring Tool

Patient ID: Name: Today's Weight: DOB: Date:

Signs & Symptoms	Time	Score	AM							PM							Comments
Central Nervous System Disturbances																	
Crying: Excessive High Pitched		2															
Crying: Cont. High Pitched		3															
Sleeps < 1 Hr After Feeding		3															
Sleeps < 2 Hr After Feeding		2															
Sleeps < 3 Hr After Feeding		1															
Hyperactive Moro Reflex		2															
Markedly Hyperactive Moro Reflex		3															
Mild Tremors: Disturbed		1															
Mod-Severe Tremors: Disturbed		2															
Mild Tremors: Undisturbed		3															
Mod-Severe Tremors Undisturbed		4															
Increased Muscle Tone		2															
Excoriation (Specific Area)		1															
Myoclonic Jerk		3															
Generalized Convulsions		5															
Metabolic, Vasomotor And Respiratory Disturbance																	
Sweating		1															
Fever < 101 (37.2-38.3c)		1															
Fever > 101 (38.4c)		2															
Frequent Yawning (> 3)		1															
Mottling		1															
Nasal Stuffiness		1															
Sneezing (>3)		1															
Nasal Flaring		2															
Respiratory Rate (> 60/Min)		1															
Respiratory Rate (>60/Min With Retractions		2															
Gastrointestinal Disturbances																	
Excessive Sucking		1															
Poor Feeding		2															
Regurgitation		2															
Projectile Vomiting		3															
Loose Stools		2															
Watery Stools		3															
Score																	
Total Score																	

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Finnegan Scores & Treatment Decisions

"The infant with a score of '7' or less was not treated with drugs for the abstinence syndrome, because, in our experience, he would recover rapidly with swaddling and demand feedings. Infants whose score was '8" or above were treated pharmacologically"

Finnegan LP et al. Assignment and treatment of abstinence in the infant of the drug- dependent mother. Int Clin Pharmacol Biopharm. 1975;12(1–2):19–32

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NICU Admission

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Location of Service

- 87% of centers will transfer infant to NICU if require pharmacotherapy (BORN Network study)
  - 11% of sites offer rooming in once on medications
  - 41% of sites prohibit rooming in once on medications

Bogen et al. Wide variation found in care of opioid-exposed newborns. Acad Pediatr. 2017, May-Jun. 17 (4): 374-380

NICU Admission

Parental Separation?

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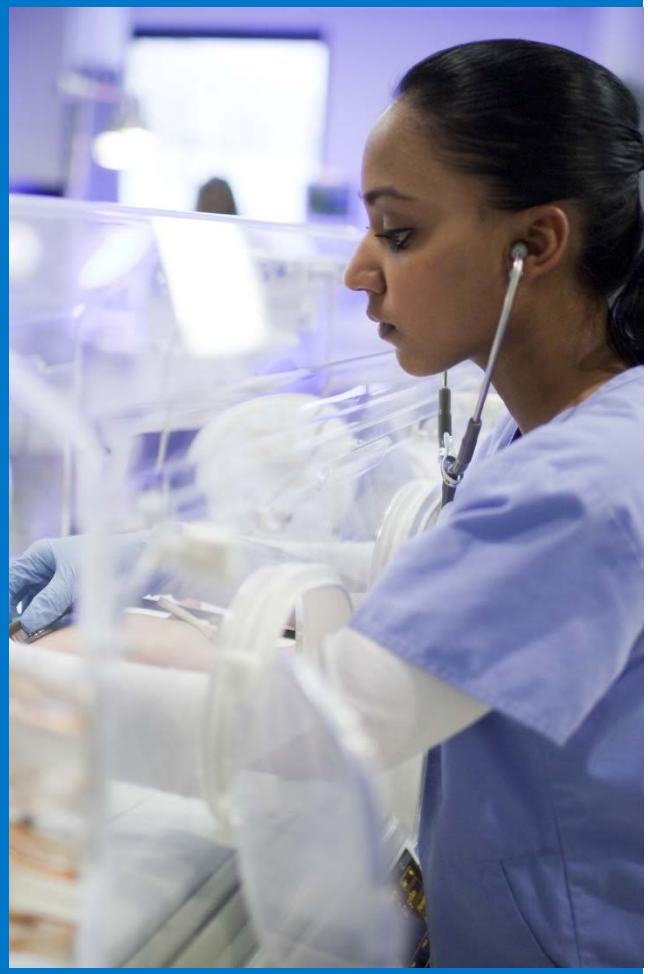
- Separation leads to:
  - Poorer attachment and bonding
  - Decreased breastfeeding
  - Disturbed infant emotional and cognitive development and self regulation skills



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NICU Admission: Separation of Mothers and Infant

"Separation of the mother-infant dyads in the early postpartum period is detrimental to the development of the mother-infant bonding and attachment. It is predictive of infant abandonment, abuse, and neglect in the non-addicted population, and is even more likely to be so for high-risk populations. We know that this early period is critical and influential; the health benefits of immediate contact from birth seem to be life-long."

Abraham et al. J Obestr Gynaecol Canada. 2010; 32(9): 866-71.

Staff Cares for Infant: How do moms feel?

- Misunderstood
- Guilty
- Judged
- Mistrusting of medical team – nurses, doctors, social workers

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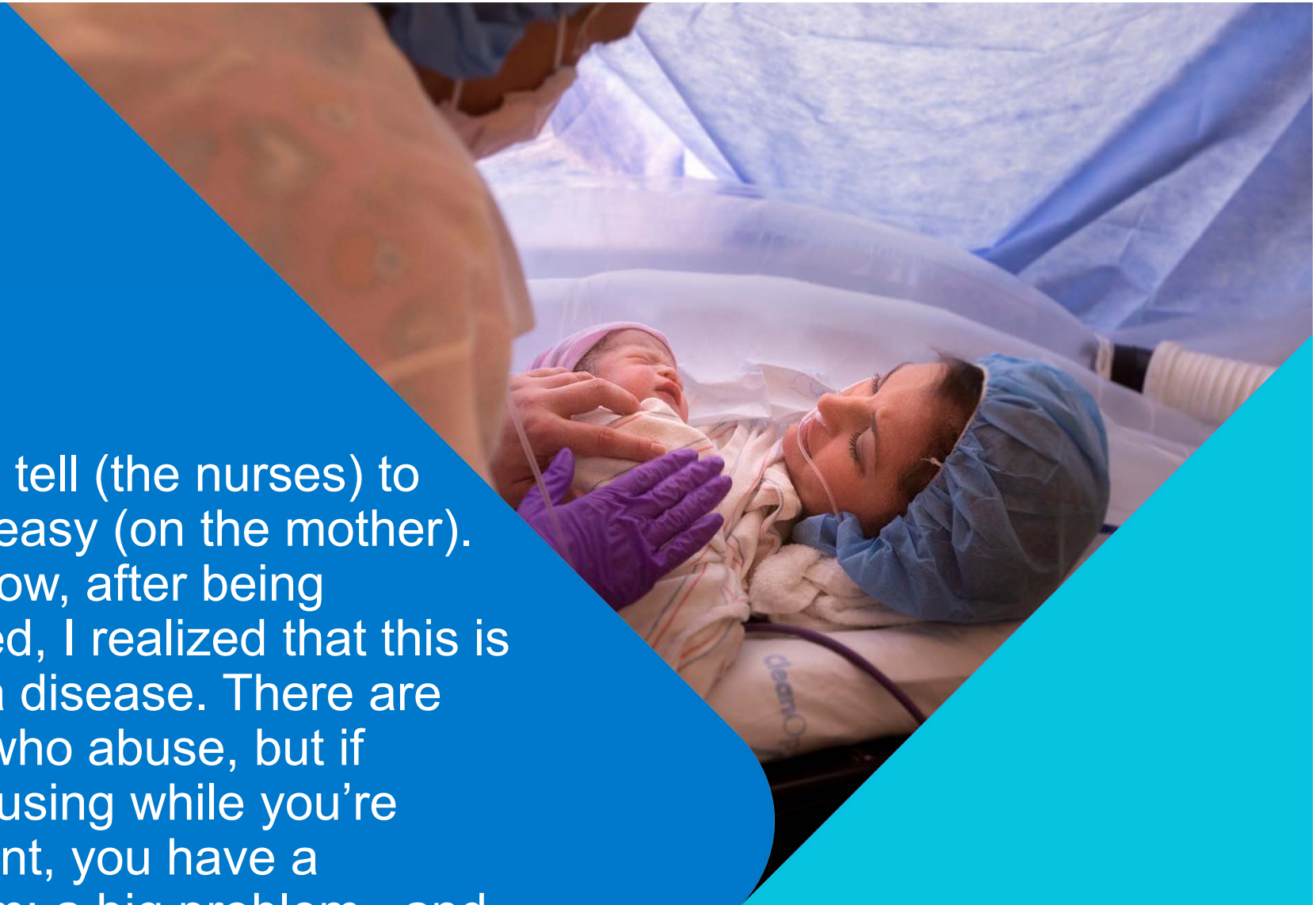

"I would tell (the nurses) to take it easy (on the mother). You know, after being addicted, I realized that this is really a disease. There are some who abuse, but if you're using while you're pregnant, you have a problem; a big problem...and <u>you need help</u>"

Grossman et al 2017

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"His nurse was like 'his muscles are locking up because of his junkie mom'. I didn't want to visit, I would call before and if that nurse was there, I wouldn't"

Grossman et al 2017

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Maternal attachment

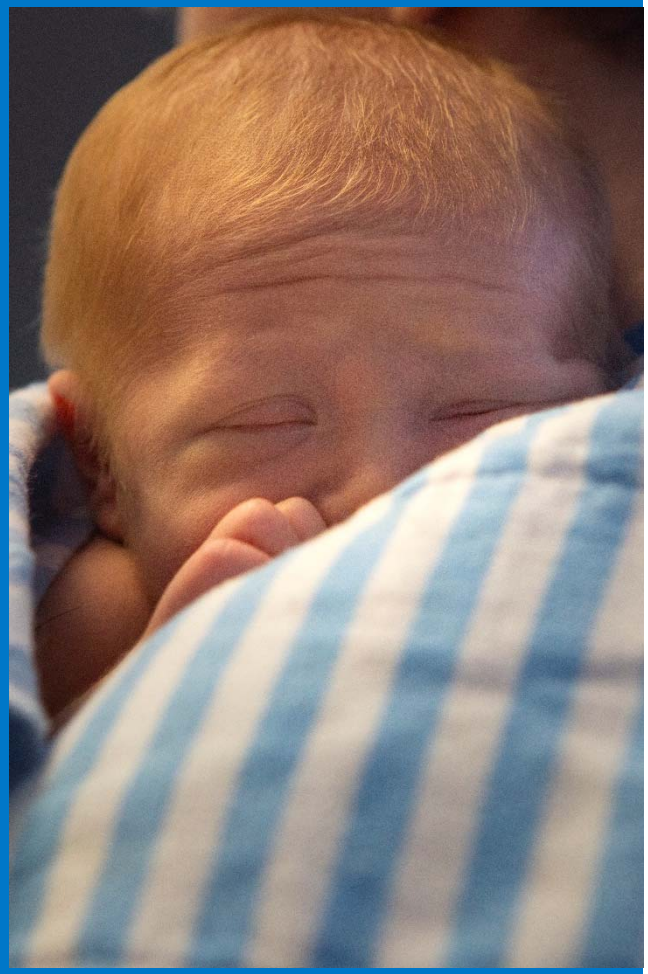
Attachment theory

Attachment negatively impacted by substance use disorder (SUD)

- SUD decrease reward of valuing infant's cues
  - Perceived as stressful instead

Risk for child maltreatment is higher

- 2-3 fold increased risk for abuse and neglect
- Due to:
  - Behaviors while under the influence
  - Irritable mood or feeling of shame/blame
  - Abusive behaviors leads to further substance use



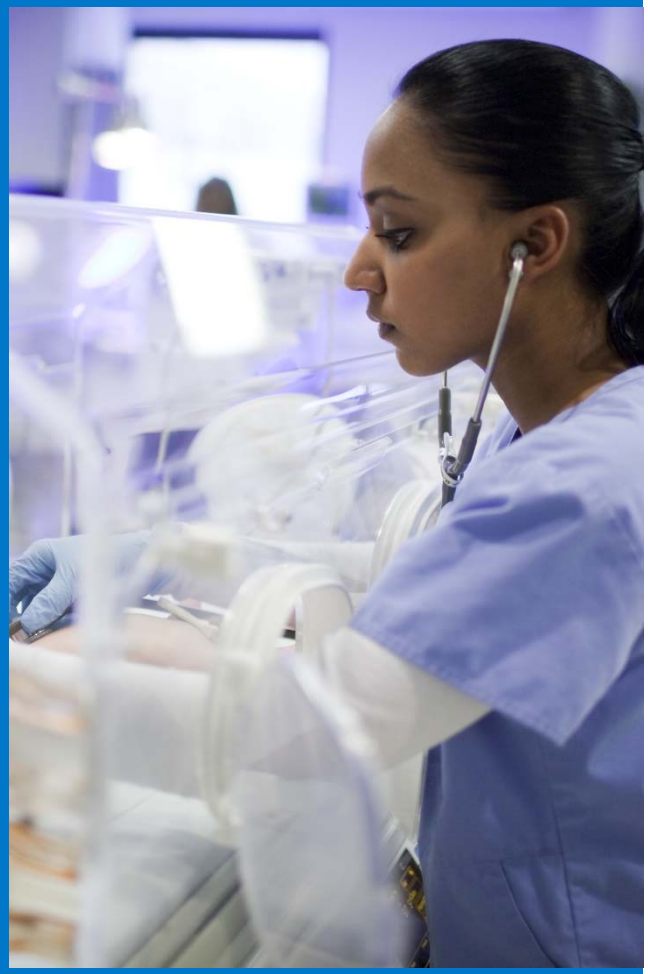
Romanowicz M, Vande Voort JL, Shekunov J, Oesterle TS, Thusius NJ, Rummans TA, et al. The effects of parental opioid use on the parent-child relationship and children's developmental and behavioral outcomes: a systemic review of published reports. *Child Adolesc Psychiatry Ment Health*. 2019; 13:5; e pub 2019 Jan 2

Attachment further impacted by separations

- Relapse + recovery
- Incarcerations
- hospital stay as a separation

Separations occur in as many as 30% of children born to SUD mothers in first 2 years of life

Poor feelings of self efficacy + stigma of drug use contribute to feelings of inadequacy and guilt



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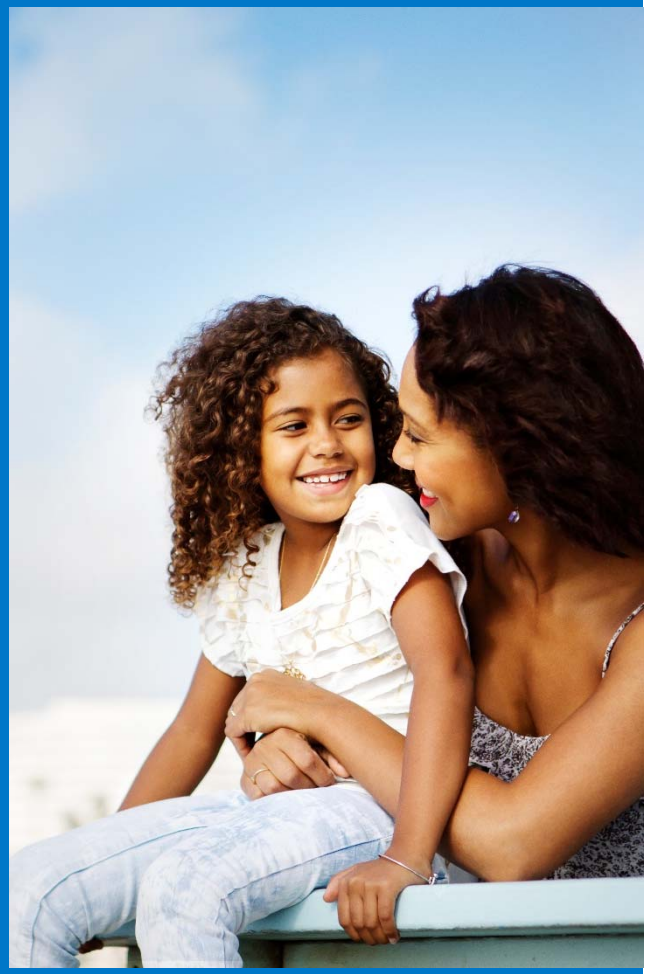
Building secure attachment

Attachment builds from repeated interaction between child and adult

- Secure children: experience sensitivity, availability and responsivity
- Insecure children: experience rejection, unresponsive care, unpredictability



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Pharmacotherapy

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Pharmacotherapy rates for NOWS

Methadone exposed:

- Roughly 50-80% infants require pharmacotherapy

Buprenorphine exposed:

- 22-63% infants require pharmacotherapy

Chavan NR et al. Buprenorphine for medication-assisted treatment of opioid use disorder in pregnancy: relationship to neonatal opioid withdrawal syndrome. AJP Rep 2017 Oct; 7(4): e215-22.

Pharmacotherapy for NAS

Pharmacologic Treatment	Opioid Exposure, %			Polydrug Exposure, %		
	First Line	Second Line	Seizure Treatment	First Line	Second Line	Seizure Treatment
Morphine (oral)	53	10	1.4	47	7	1.4
Morphine (IV)	8	1	1.4	7	1	
Methadone	22	4		21	4	
Clonidine	1	25		1	19	
Phenobarbital	3	33	45*	4	33	43*
Buprenorphine	1			1		
Diazepam			13†		1	8†
Other	7‡	6	7	4‡	4	
Unsure	4	21	32	14	29	

Bogen et al. Wide variation found in care of opioid-exposed newborns. Acad Pediatr. 2017, May-Jun. 17 (4): 374-380

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Pharmacology Throughout the state

Vermont Oxford NETWORK

VON Day Quality Audit - Neonatal Abstinence Syndrome
Pharmacologic Agents
21 NICUs Audited 75 Infants
Virginia (VNPC) Report: Center 951 (January 2019)

	Center 951						Virginia (VNPC)					
	In Hospital			At Discharge			In Hospital			At Discharge		
	Cases	N	(%)	Cases	N	(%)	Cases	N	(%)	Cases	N	(%)
Pharmacologic agents administered for the treatment of NAS												
Morphine	0	8	(0.0)		0		49	75	(65.3)	3	8	(37.5)
Methadone	8	8	(100.0)		0		24	75	(32.0)	0	8	(0.0)
Buprenorphine	0	8	(0.0)		0		0	75	(0.0)	0	8	(0.0)
Clonidine	0	8	(0.0)		0		20	75	(26.7)	1	8	(12.5)
Phenobarbital	0	8	(0.0)		0		12	75	(16.0)	5	8	(62.5)
Paregoric	0	8	(0.0)		0		0	75	(0.0)	0	8	(0.0)
Deodorized Diluted Tincture of Opium	0	8	(0.0)		0		0	75	(0.0)	0	8	(0.0)

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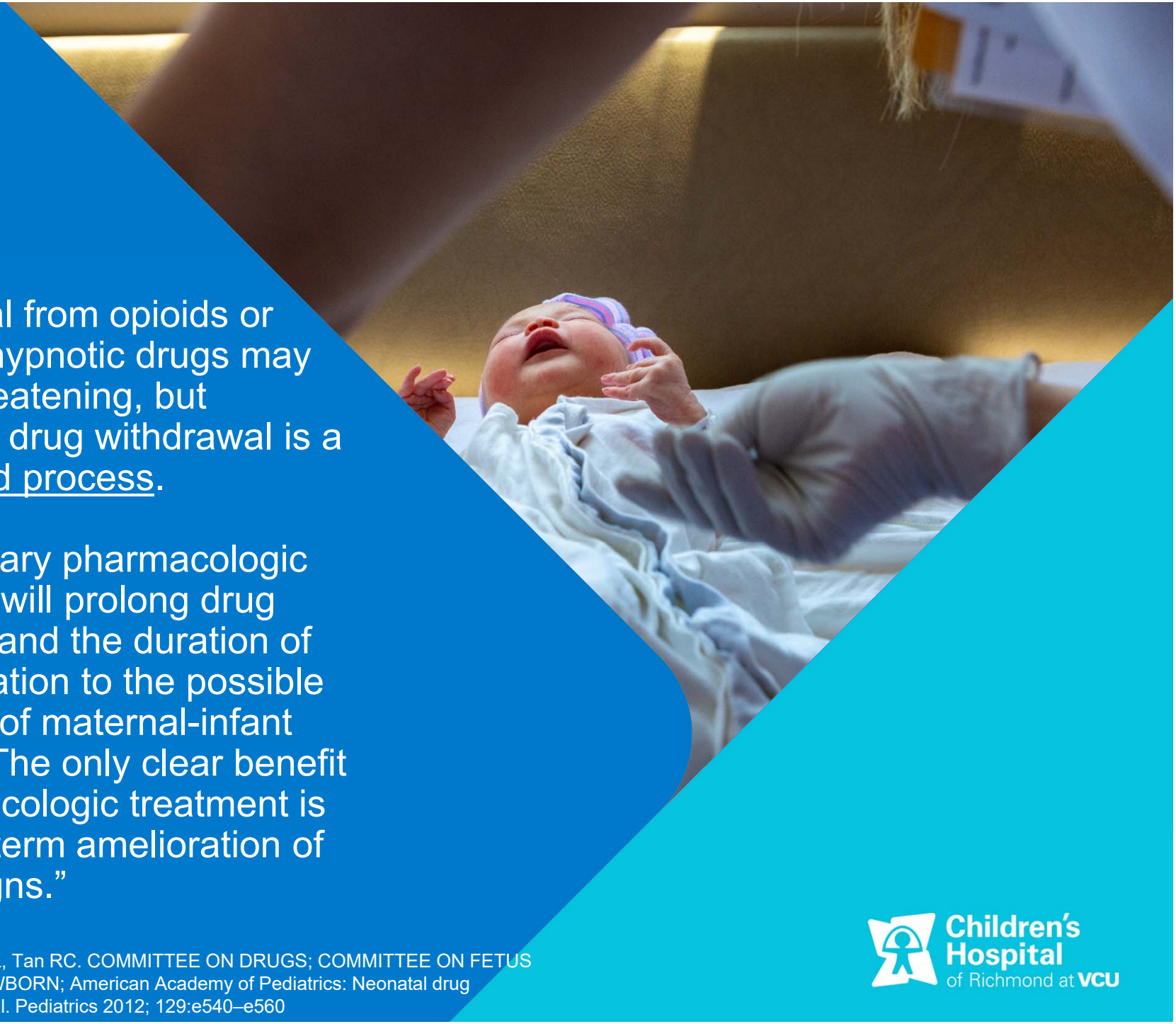

"Withdrawal from opioids or sedative-hypnotic drugs may be life-threatening, but ultimately, drug withdrawal is a self-limited process.

Unnecessary pharmacologic treatment will prolong drug exposure and the duration of hospitalization to the possible detriment of maternal-infant bonding. The only clear benefit of pharmacologic treatment is the short-term amelioration of clinical signs."

Hudak ML, Tan RC. COMMITTEE ON DRUGS; COMMITTEE ON FETUS AND NEWBORN; American Academy of Pediatrics: Neonatal drug withdrawal. Pediatrics 2012; 129:e540–e560

Issues with current care model

- No studies on sensitivity or specificity
- Long lengths of stay and large % of infants treated with pharmacotherapy
- Purpose of treatment is to get scores “below a threshold” NOT on overall best outcome for infants or dyads
- Must disturb the infant and this exacerbates signs of withdrawal
  - Increases as the infant’s symptoms increase
- Can be slow to respond to infant’s needs by the time a score is generated, speak with the provider team and get a response/order
- Powerful meds given to treat a sneeze or yawn – are these clinically significant signs/symptoms?

Changing Landscape

Eat, Sleep and Console

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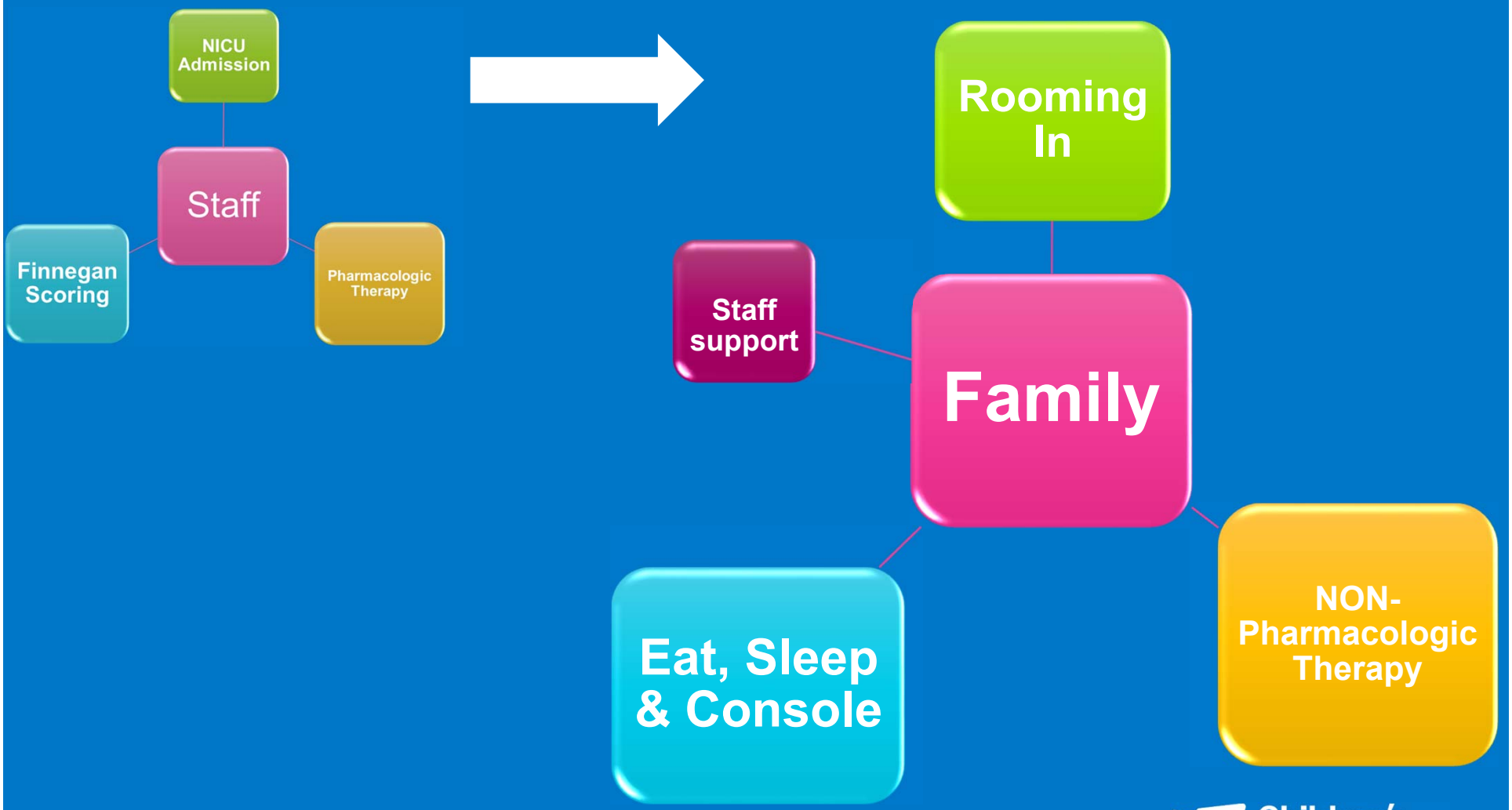
Challenging our traditional model



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Challenging the traditional care model

Thinking of the FAMILY at the center

Changing mindset to focus on normal functions of a newborn

- Eating, sleeping, ability to be consoled/comforted

Emphasis on non-pharmacologic care

- Rooming In
- Breastfeeding promoted
- Enhance parental efficacy
  - Change dialogue from what WE have to do TO the patient, to:
  - How can we empower MOMS to care FOR their infant

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Grossman, et al 2017: Eat, Sleep and Console

Built multidisciplinary team – Yale/Dartmouth

5 Year QI project

- Term infants who were methadone-exposed
- Morphine used for pharmacotherapy

Focused on multiple PDSA cycles focused on improving care of the mother-infant dyad

- PDSA 1: STANDARDIZE Non-pharmacologic care
- PDSA 2: Admit to General Peds (instead of NICU)
- PDSA 3: Change the assessment tool **(Eat, Sleep and Console)**
- PDSA 4: Wean dose multiple times per day
- PDSA 5: Go to PRN dosing
- PDSA 6: Empowering messaging

PDSA #1: Non-pharmacologic treatment

Interventions:

- Low stimulation environment
- Non-nutritive sucking
- Skin to skin placement
- Breastfeeding
- Caloric supplementation

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PDSA 1 and 2: Rooming In

- Increases rates of successful breastfeeding
- Promotes more successful mothering behaviors
- Increases rates of infants discharging with mom retaining custody
- Decreased length of stay
- Decreased need for higher level of care

- No evidence that moms are not able to care for their infants**

  *** If not concerns for continued active use*

- Build parental efficacy

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PDSA 3: Functional Assessment Tool

Eat **S**leep **C**onsole = **ESC**

1. Can the baby eat?
2. Can the baby sleep?
3. Can the baby be consoled?

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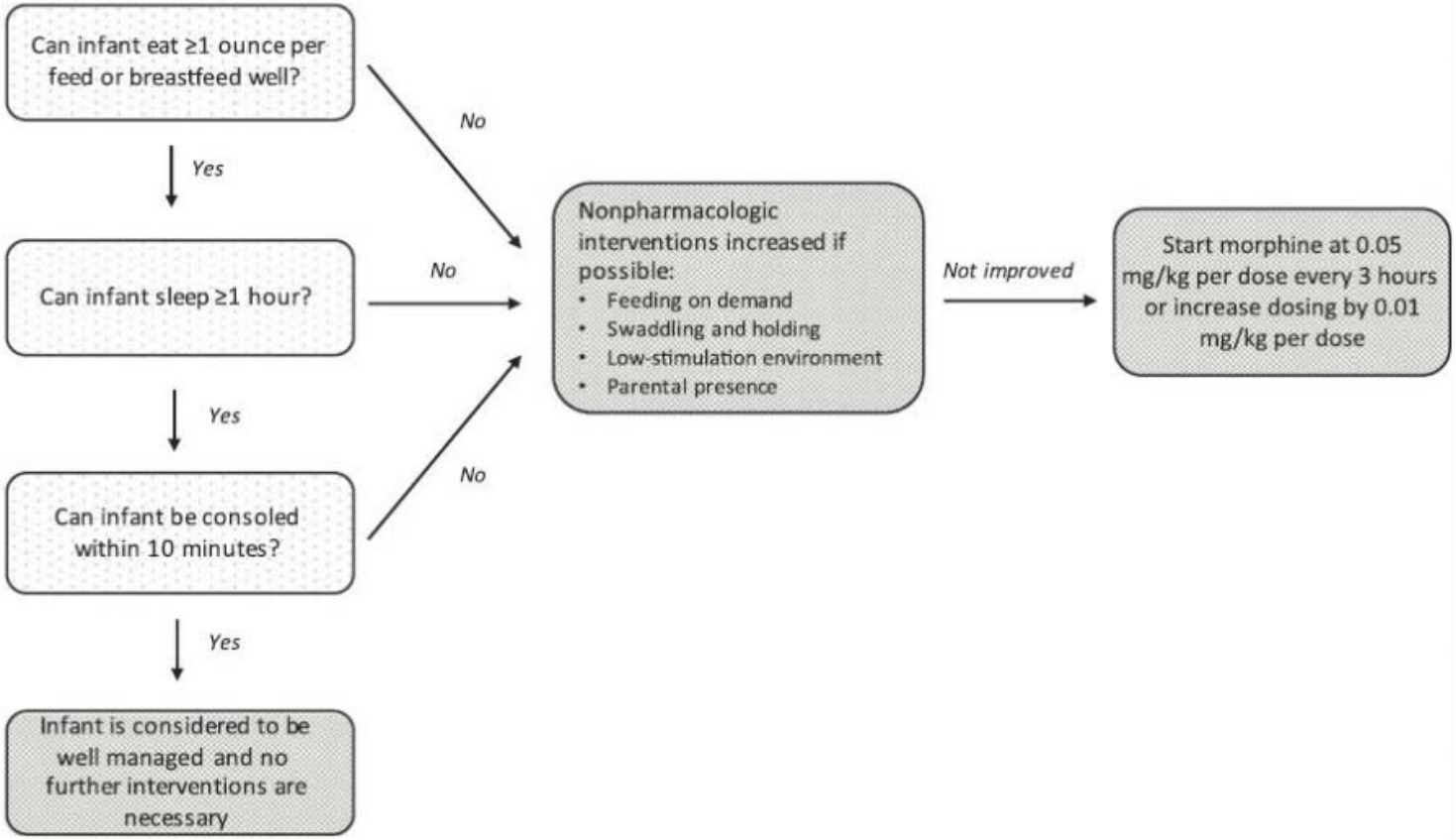
YALE'S ESC APPROACH



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Poor Eating

Unable to coordinate <u>within 10 minutes</u> of showing cues

Unable to sustain feeding for <u>at least 10 minutes</u> at the breast

Unable to take <u>at least 10 ml</u> via alternative method

- ** Focus on age-appropriate duration and volume
- Do not mark that they cannot properly feed if clearly another cause:
  - Prematurity
  - Transitional sleepiness
  - Spitting up within first 24 hours of life
  - Unable to latch due to maternal or infant anatomic factors

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Poor Sleep

Unable to sleep for <u>at least 1 hour</u> after feeding due to withdrawal

- Examples: fussiness, restlessness, increased startle or tremor
- Exclude non-opioid causes
  - Examples: nicotine withdrawal (present in first 24 hours of life)
  - Physiologic cluster feeding in first few days
  - Interruptions to sleep due to routine newborn care

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Poor consoling

Unable to console within 10 minutes due to withdrawal

Despite caregiver effectively providing **Consoling Support Interventions** (next slide)

- Exclude poor consoling due to other circumstances
  - Examples: circumcision, caregiver non-responsiveness, etc

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Focus on Caregiver
Consoling Support Interventions

Staff provide education to mom or caregivers who then initiate the intervention

- Talk slow and softly to infant
- Hand to mouth movements
- Hand on infant's abdomen (firm but gentle)
- Bring arms and legs to center of body
- Pick up infant and hold skin to skin
- Swaddle in a blanket
- Slowly rock or sway
- Finger or pacifier
- Feed infant if hunger cues

Maine Quality Counts. Eat, Sleep, Console (ESC) Overview. Sep 11, 2018

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Eat, Sleep and Console Flow Sheet

NNEPQIN | Yale-New Haven Children's Hospital | Boston Medical | CHAD Children's Hospital at Dartmouth-Hitchcock

EATING, SLEEPING, CONSOLING (ESC) CARE TOOL

- **Review ESC** behaviors with parents **since last assessment 3-4 hours ago** using **Newborn Care Diary**.
- If infant with **Yes** for any **ESC** item or **3** for **Consoling Support Needed**: Perform a **Formal Parent/Caregiver Huddle** to **determine Non-Pharm Care Interventions to be optimized further** and **continue to monitor closely**.
  - *If not clear if infant's difficulties eating, sleeping or consoling are due to NAS, indicate Yes and continue to monitor closely while optimizing all Non-Pharm Care Interventions.*
- If infant **continues with Yes** for any **ESC** item or **3** for **Consoling Support Needed** *(or other significant concerns are present)* **despite maximal non-pharm care**: Perform a **Full Care Team Huddle** to **determine if medication treatment is needed. Continue to follow infant closely, maximizing all Non-Pharm Care Interventions.**

See back of sheet for definition of items prior to performing assessment

ESC Care Tool 2.25.18

TIME							
EATING							
Poor 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 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							
Rooming-in: 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:							

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During implementation of ESC at Yale

Infants had simultaneous FNASS and ESC scoring done simultaneously

- FNASS scores done every 2-6 hours
- Treatment decision based on ESC only
- Days noted where the two disagreed
- FNASS monitored further for the day after the ESC and FNASS disagreed

Inter-rate Reliability

Recommend to train gold star raters in use of ESC so that they can do inter-rater reliability checks with nursing staff

Inter-rater Reliability (IRR)

We recommend that sites train "gold star raters" in use of the ESC Care Tool so that they can then perform regular inter-rater reliability checks with bedside nursing staff (i.e., checking the reliability of ESC responses between two providers). We recommend using the **Eating, Sleeping, Consoling, Consoling Support Needed,** and **Formal Parent/Caregiver and Full Care Team Huddle** items **for inter-rater reliability checks** (total of 6 items). This means that one provider will perform the ESC assessment while a second provider simultaneously performs an independent assessment while directly observing the patient encounter. Providers then determine percent agreement between ESC items, with goal of a minimum of **80% agreement** (5/6 items) **for bedside staff**[16] and **100% for "gold star raters"**. The ESC IRR Tool in *Appendix D* can be used to perform inter-rater reliability checks.

DATE/TIME:	RN	"Gold Star" Rater
EATING		
Poor 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: 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		
INTER-RATER RELIABILITY PERCENTAGE	%	

Gold star rater: 6/6 = 100%
Bedside RN: 5/6 = 83%

Determining Inter-rater Reliability Percentage: Calculate the percent agreement between the RN and the Gold Star rater on the 6 areas highlighted in yellow above. For example, if 6 out of 6 items are in agreement = 100% reliability, and if 5 out of 6 items are in agreement = 83% reliability.

*Hospitals may also use additional items from the full ESC Care Tool (**Appendix A**) to determine IRR, if desired.*

http://mainequalitycounts.org/wp-content/uploads/2018/09/Eat-Sleep-Console-ESC-Combined-Slides-WITHOUT-DATA-SLIDES.pdf

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Results

- 50 Infants enrolled
  - Infants receiving morphine according to ESC: 12%
  - Infants who would have been treated according to FNASS: 62%
    - P score < 0.001
- ESC allowed for quicker weaning doses than FNASS
  - FNASS score still decreased subsequent day despite weaning being in opposition to FNASS score
- Balancing measures
  - No seizures
  - No NICU admissions
  - No readmissions

Results

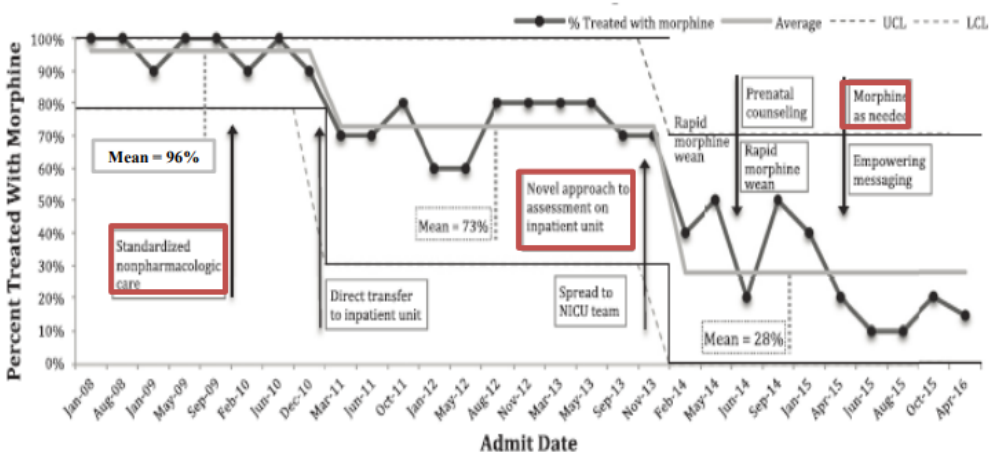
- ↓LOS from 22.4 to 5.9 days
- ↓cost by >$30,000 per infant
- ↓ morphine treatment from 98% to 14% of exposed infants

- Emphasis on overall clinical picture
  - Feeding, weight loss, stress to infant
- Elevate non-pharmacologic care to primary intervention
- Less medication management → less monitoring → less DISTURBING

Grossman, et al 2017. Results

An Initiative to Improve the Quality of Care of Infants With Neonatal Abstinence Syndrome

Matthew R. Grossman, MD,[a] Adam K. Berkwitt, MD,[a] Rachel R. Osborn, MD,[a] Yaqing Xu, MS,[b] Denise A. Esserman, PhD,[b] Eugene D. Shapiro, MD,[a,c] Matthew J. Bizzarro, MD[a]



- **Morphine Rx decreased**: 98% → 14%
- **LOS decreased**: 22.4 days → 5.9 days
- **Hospital costs decreased**: $44,824 → $10,289

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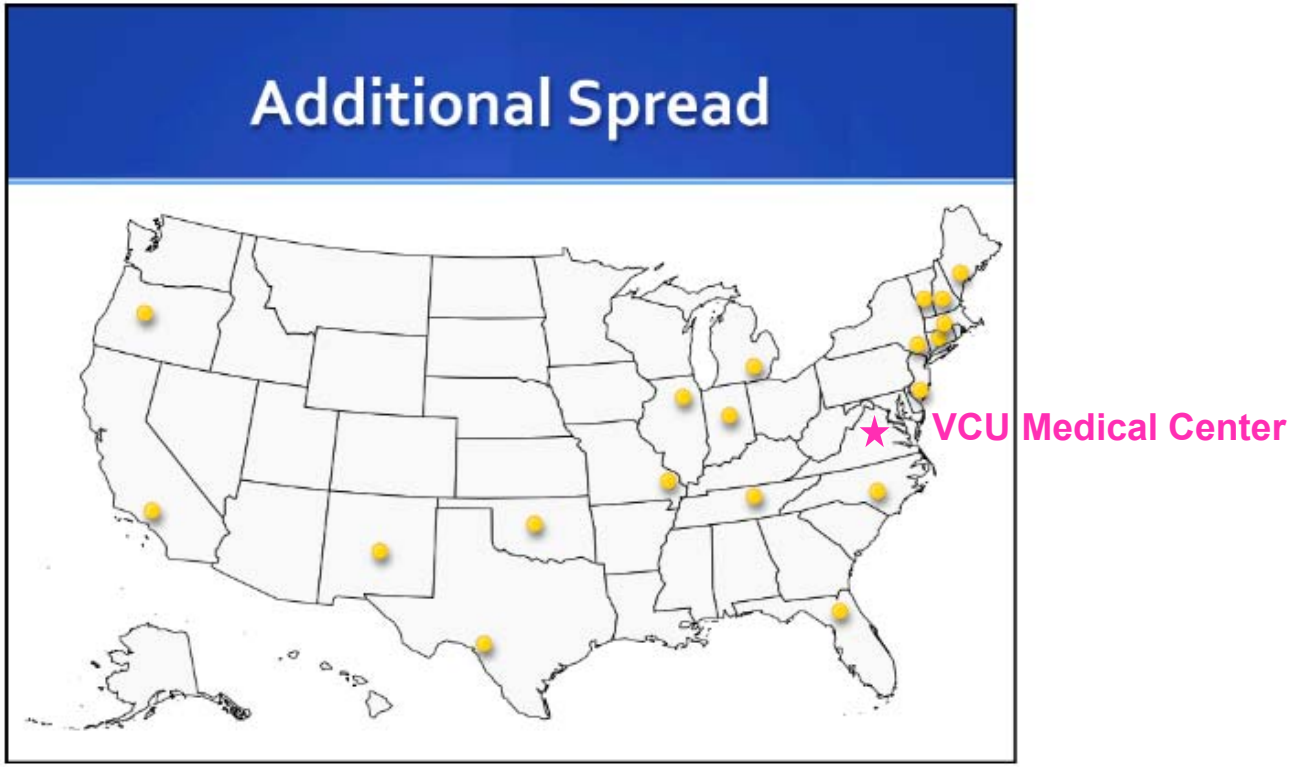
Eat Sleep and Console Spread



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VCU Implementation

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VCU: Eat Sleep and Console

Pre-implementation:

- 25-29% infants require pharmacotherapy
- Predominance of mothers in substance use treatment (subutex or suboxone)
- 30% of mothers incarcerated at time of discharge
- Promote breastfeeding and rooming in prior to initiation
- NAS rate: 154 infants (birth rate ~ 2500) = 60 per 1000

VCU: Eat Sleep and Console

Implementation timeline:

- 6 months of meetings with key stakeholders from NICU, OB and Peds including providers, nurses and social work
- In person education from UNC (nurses and providers)
- Learning Exchange modules for nursing
- Developing new unit protocol
- Go live: 9/9/19

VCU ESC Implementation

Barriers:

- HUGE practice change
- Repeated chart audits, just in time feedback
- Dual use of Finnegan at same time
- Cerner documentation not able to coincide with roll-out
- Staffing model challenging when caregiver is not present

ESC Pushback

PERSPECTIVES

Optimal Care for NAS: Are We Moving in the Wrong Direction?

Lauren M. Jansson, MD, Martha L. Velez, MD

HOSPITAL PEDIATRICS Volume 9, Issue 8, August 2019

However, new protocols should be studied rigorously and before implementation with ethical safeguards and should contain comprehensive evaluations of the following: (1) short-term infant functioning (including unique neonatal dysfunction and perhaps pain) and neurobehaviors, (2) long-term child functioning (including neurocognitive, social-emotional, and behavioral development), (3) maternal functioning (including treatment adherence, violence exposure, psychosocial characteristics, and psychological and neurocognitive functioning), and (4) dyadic communication (including the infant capacity for yielding interpretable cues and the maternal perception of these cues and of infant development), dyadic interaction (including attachment), and the environment.

"Neonatologists and pediatricians should resist the premise that vulnerable infants should be discharged to vulnerable mothers as soon as possible"

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Thank you

Questions?

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Addiction is an attachment disorder

Drugs used to

- compensate for alienated sense of self
- Manage fearful/anxious mental states
- Regulate emotions
- Restore comfort
- Find an alternative to attachment functions that occur through relationships due to disruption of attachment in infancy or childhood

High rates of maternal trauma in OUD patients

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