


Neonatal Abstinence Syndrome: Rethinking Our Approach



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**I Have No Conflicts of Interest or
Relevant Financial Relationships With Any
Commercial Interests**

The Traditional Model of Care for NAS


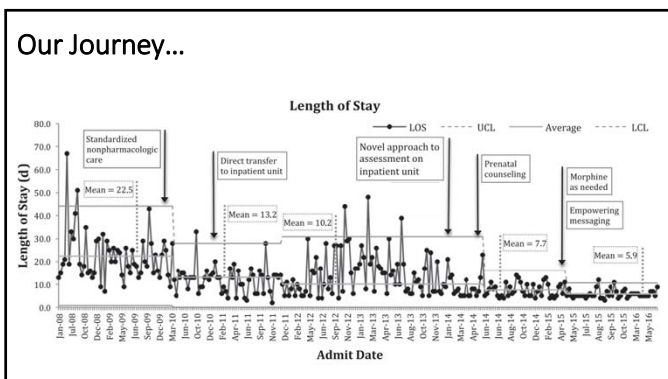
- Delivery Room → NICU
- Finnegan Scores
- Medications Started
- Long Weaning Process




MAIN OBJECTIVES

Question the Traditional Model of Care for NAS
& Share Our Changes in Approach

- Delivery Room → NICU??
- Finnegan Scores??
- Medications Started??
- Long Weaning Process??

- ### 4 Key Points to Embrace the Changes
1. **Non-Pharm Care is 1st Line Therapy – Parents Do This Best at the Bedside**
 2. **Medications are 2nd Line Therapy – Not Needed if 1st Line Therapy Works**
 3. **Stop Treating Numbers and Assess Functional Status**
 4. **80 Doses of Morphine for Sneezing 4 Times Instead of 3 is Extreme**
- 



?Medications?

Medication Studies

- Opium vs. Opium plus clonidine: 17 days vs. 12 days
- Opium vs. Opium plus Phenobarbitone: 79 days vs. 38days
- Opium vs. Morphine: 27 days vs. 30 days
- Phenobarbitone vs. Morphine: 12 days vs. 8 days
- Methadone vs. Morphine: 17 days vs. 24 days
- Subutex vs Morphine: 21 days vs. 33 days

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HOW DO WE EXPLAIN THIS VARIATION?

- Our Theory – Maybe The Meds Aren't Solely Responsible for the Outcomes?



AAP Clinical Report on Neonatal Drug Withdrawal

Drug therapy is indicated to relieve moderate to severe signs of NAS if an infant does not respond to a committed program of nonpharmacologic support.

Unnecessary pharmacologic treatment will prolong drug exposure and the possible detriment of maternal-infant bonding.

The AAP Says...

- Intensive, Non-Pharm Care is 1st Line Therapy & Can Limit Unnecessary Pharmacologic Treatment
- ***Flaw*** - None of Previous Evidence Controls for 1st Line Therapy!!!
- Were We Offering an Intensive, “Committed Non-Pharm Support Program”?

What Does a Committed Non-Pharm Program Look Like?

- **What Is Non-Pharm Care?**
 - Quiet, Low Light
 - Feeding On Demand!!!
 - 5 S's Vs. Lasers
 - U of Mich
- **Who's There To Provide This Care?**
 - **The Parents!!!**
 - Rooming-In is Key
 - Constant & Immediate Care For the Infant



Harnessing the Full Power of the Maternal-Infant Bond



Culture Change : We are now Coaches, Cheerleaders, & Support

There is a Serious Stigma to Overcome

- **How Do Moms Feel?**
 - Misunderstood
 - Guilty
 - Judged
 - Mistrusting of staff
- "His nurse said '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 even go."

Parents Should Not Feel This Way!!!

- **Overcoming Provider Bias and Stigma To Deliver an Empowering Message**
- Families Not Just "Visiting," but "Caring" for Their Infant
- "You are the Best Treatment for Your Child"
- Preparation w/ Prenatal Counselling



What We Noticed...

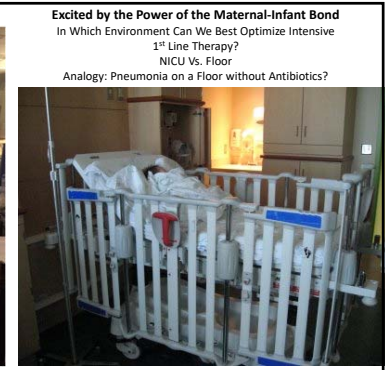
- **The AAP Don't Lie – Power of the Maternal-Infant Bond**
 - Majority Respond to an Intensive, "Committed Non-Pharm Program"
 - Don't Require 2nd Line Therapy → Becomes "Unnecessary"
- **Helping Strengthen the Bond**
 - Parents More Prepared for Transition Home
- **It Works**
 - Felt Good About What We Were Doing

AAP Clinical Report on Neonatal Drug Withdrawal

for the mother and management of neonatal withdrawal and support of the infant. The clinical approach to neonatal withdrawal is based on the clinical presentation, severity, and duration of symptoms. The clinical approach to neonatal withdrawal is based on the clinical presentation, severity, and duration of symptoms. The clinical approach to neonatal withdrawal is based on the clinical presentation, severity, and duration of symptoms.

Excited by the Power of the Maternal-Infant Bond

In Which Environment Can We Best Optimize Intensive 1st Line Therapy?
NICU vs. Floor
Analogy: Pneumonia on a Floor without Antibiotics?

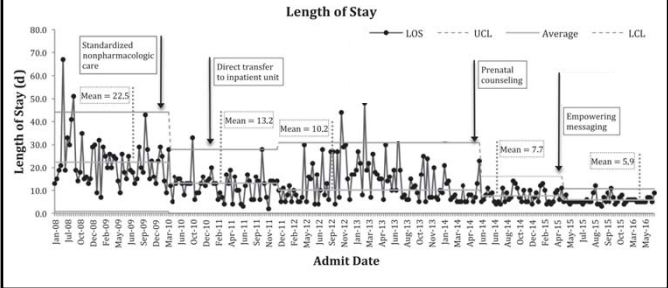


Why The NICU?



- **What's So Intensive About NAS?**
 - Safety Concern → Seizures
 - 70's 2-11% → Herzlinger → "Not sure actually seizures"
 - 0 in 10 Years
- **Compared to other NICU patients**
 - Bigger
 - Not Premature
 - Not as Sick
- **Eminence-Based Medicine** → What was done yesterday...

The Blueprint...



4 Key Points to Embrace the Changes

1. Non-Pharm Care is the 1st Line Therapy – Parents Do This Best at the Bedside
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Finnegan Scoring Tool

SYSTEMS	SIGNS AND SYMPTOMS	SCORE	DAILY WT.																	
			1	2	4	6	8	10	12	1	2	4	6	8	10	12				
CENTRAL NERVOUS SYSTEM DISTURBANCES	High Pitched Cry	2																		
	Continuous High Pitched Cry	3																		
	Sleeps < 1 Hour After Feeding	3																		
	Sleeps < 2 Hours After Feeding	2																		
	Hyperactive Moro Reflex	2																		
	Markedly Hyperactive Moro Reflex	3																		
	Mild Tremors (Disturbed)	2																		
	Moderate Severe Tremors (Distur)	3																		
	Mild Tremors (Un disturbed)	1																		
	Moderate Severe Tremors (Un disturbed)	2																		
RESPIRATORY SYSTEM DISTURBANCES	Increased Muscle Tone	3																		
	Excitation (specify area)	3																		
	Apnoeic Jerks	3																		
	Generalized Convulsions	3																		
	Sweating	3																		
Gastrointestinal Disturbances	Poor Feeding	3																		
	Regurgitation	3																		
	Projectile Vomiting	3																		
	Loose Stools	3																		
	Watery Stools	3																		
TOTAL SCORE																				
SCORER'S INITIALS																				
STATUS OF THERAPY																				



Why The Finnegan? Problems

1. Disturbing Infants to get Finnegan Scores
 - Actually Inducing Symptoms of Withdrawal ... Do No Harm!
 - How do you Observe for an Exaggerated Moro?
2. Slow to Respond – 8 Hours Before Intervene
3. Significance of Yawning 4 times vs. 3?
4. Why Do We Use 8 As The Cutoff? Did Anyone Here Decide to Use 8 As The Cutoff?



Changing The Way We Assess Infants

"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. Assessment and treatment of abstinence in the infant of the drug-dependent mother. Int Clin Pharmacol Biopharm. 1975;12(1-2):19-32

More Eminence Based Medicine

In Our Experience, What We Really Care About For Any Baby...

- 1) Can this Baby Eat?
- 2) Can this Baby Sleep?
- 3) Can this Baby be Consoled?



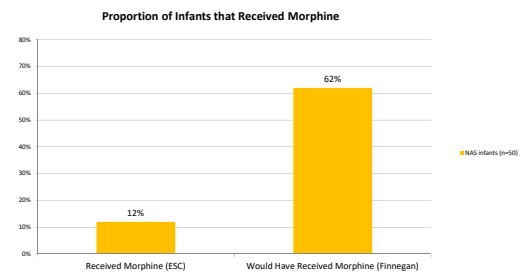
ESC Study

- Analyzed 50 Consecutive NAS Babies from March 2014 to August 2015
- Management Decisions Based on ESC
- Also Assessed Every 2-6 hours Using The Finnegan, But Did Not Guide Management

Outcomes

1. Proportion of Infants Treated with Morphine vs. Proportion Predicted to be Treated with Morphine using The Finnegan
2. Days the Two Approaches Disagreed
3. Finnegan Scores the Day After the Two Approaches Disagreed

Results



Results

- On 78 days (26.4%) the ESC Led to **LESS** Morphine than Predicted by The Finnegan
 - The following day, the Average **Finnegan Score Decreased by 0.9 Points**, and Decreased in 69% of Cases.
- On 2 days (0.7%) the ESC Led to **MORE** Morphine than Predicted by The Finnegan
 - In Both Cases the Average **Finnegan score increased by 1.7 Points** the Next Day

Results

- No readmissions
- No seizures
- No ICU transfers
- Max avg. weight loss 8%, weight loss at d/c 7%
- Successfully Reduced Exposure to Medication with a Functional Assessment Rather Than Treating A Number

The ESC in Action... Function vs. Number

- | | | |
|--|-----|---|
| <ul style="list-style-type: none"> • Baby A Sneezes & Yawns 4 Times, hypertonic, tremors • Baby is Eating, Sleeping and Consolable • 1st Line Therapy is Working • Continue Current Plan & Discharge if stable at 5 DOL | VS. | <ul style="list-style-type: none"> • Baby B Sneezes & Yawns 4 Times, hypertonic, Finn = 10 • Baby is Eating, Sleeping and Consolable • Give Medications • At 10% Wean/Day, Minimum 80 Doses of Morphine & Added 10 Days in Hospital!!! WHY?!! |
|--|-----|---|

A Different Approach...PRN 2nd-Line Therapy

- 3 PM: Baby Screaming, Irritable for 10 minutes
- Can We Calm Him? Where's Mom? Can She Come Back? Volunteer Baby Whisperers?
- No → Give 2nd Line Therapy (PRN Morphine - 0.05mg/kg x 1)
 - Reassess Need for Further Dosing Based on ESC Status
- 2 Hours Later → Mom Back & Baby Calm
 - 1st Line therapy is Again Working
 - Does not need 80 more doses of meds!!!
 - No Further Medications Unless Failing 1st Line Therapy

The New Model of Care for NAS

- Delivery Room → NICU
- Finnegan Scores
- Medications Started
- Long Weaning Process

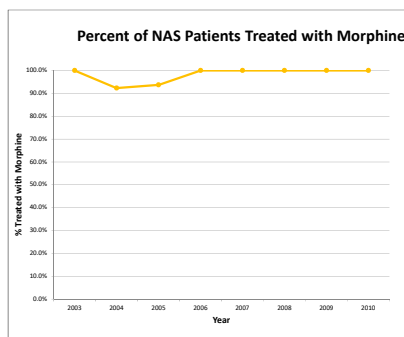


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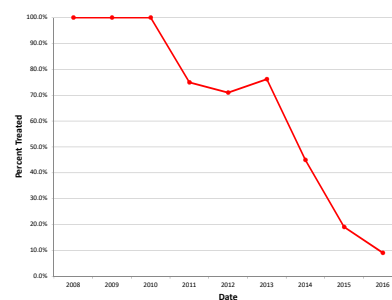
- Delivery Room → WB → Floor
- ESC
- Rooming-in, non-pharm measures, coaching
- Meds 2nd-Line, PRN med usage



Our Results

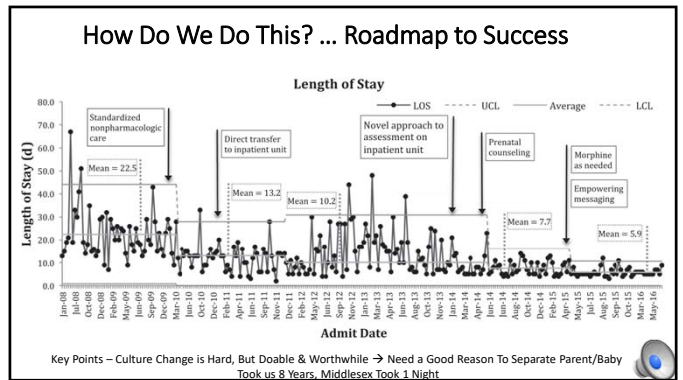
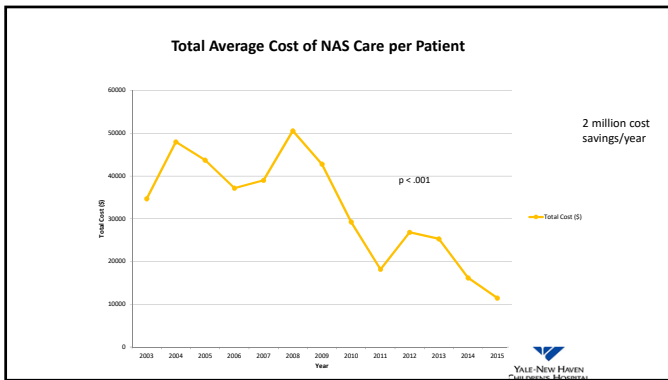
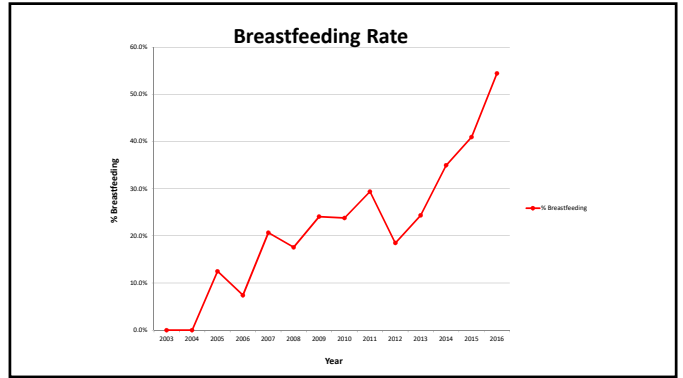
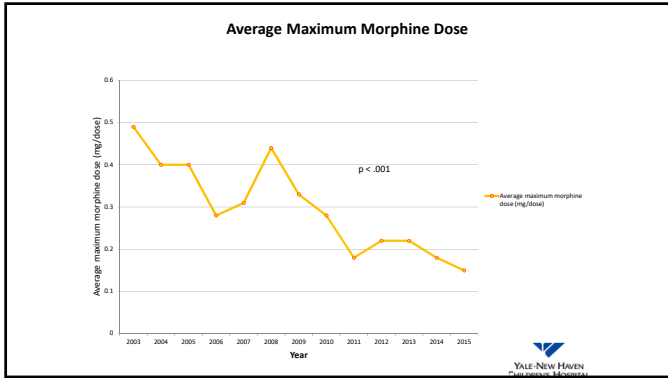


Percent Treated with Morphine



Trick Question:
What % of Infants are we treating for NAS in 2016?

Answer:
Treating 100% patients with Intensive, Committed Non-Pharm Program focused On Rooming In & Functional Assessment



Next Steps

- Need Data About What Happens When They Go Home
 - Neurodev Status
- Furthering the Movement

Thank You & Questions

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