FPQC’S NAS initiative & care of the NAS infant

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2nd Regional Summit for Substance Use Disorder in the Pregnant Woman & Substance Exposed Neonate

9/12/19

It takes a village...

1. Discuss the epidemiology of NAS
2. Describe issues associated with management of NAS infants & families
3. Describe FPQC’s interdisciplinary model of care

OPIOID EPIDEMIC STATISTICS

USA is 4.6% of the world’s population

116 Americans die every day from opioid overdoses

60% of all illegal drug use

80% of global opioid supply

99% of global hydrocodone supply

66% of all illegal drug use

Drug use remains a problem in the US

No change in overall amount of pain reported

4x as many opioid prescriptions written since 1999

14% privately insured US women filled at least 1 opioid prescription in pregnancy

2 in 5 Americans know someone addicted to prescription painkillers

Drug use remains a problem in the US

1 NAS infant born every 25 minutes (2012)

1 NAS infant born every 15 minutes (2012)

### NAS counts & rates by FL county 2014-2016

**89% NAS infants covered by Medicaid**

<table>
<thead>
<tr>
<th>FL County</th>
<th>NAS Infant Counts</th>
<th>NAS Rate per 1,000 live births</th>
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<tr>
<td>Nassau</td>
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<td>Baker</td>
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<td>Manatee</td>
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<td>Sarasota</td>
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### Substance exposed newborn (opiates)

AAP recommends in-hospital monitoring for 5-7 days.

### Infants with in utero substance exposure

**Suspected Neonatal abstinence syndrome (NAS)**

### Characteristics of NAS infants

- **COMMON DIAGNOSES**
  - Jaundice: ~32%
  - Respiratory complications: ~89%
  - Sepsis: ~1%
  - Feeding problems: ~17%

### Consequences of substance exposure

- 400,000 have NAS symptoms
- 55-94% have NAS requiring meds
- Drug misuse is a common reason for child removal

More likely to experience:
- Abuse or neglect
- Adverse neurodevelopmental outcomes
- Re-hospitalization after birth hospitalization

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Healthcare burden of NAS

Despite awareness of NAS management issues, there has been little difference in length of stay...


Why focus on length of hospital stay?

Often used as an indicator of efficiency

- Medication errors
- Adverse events
- Increased financial burden on families & society
- Impaired parent-infant attachment
- Increased stress on families

Healthcare burden of NAS

Incidence of antenatal drug use
Incidence of NAS
Healthcare expenditures

Increase public health measures
- Reduce antenatal exposures
- Improve NAS management strategies

Office of Drug Control Policy

Social workers
- Governor’s office
- Taskforce Representative

Medicaid or Private insurance

Mother

Lactation

Judicial systems

MENTAL HEALTH SERVICES

Hospital Associations
- Early intervention programs

EARLY CHILDHOOD EDUCATION

Medication assisted treatment facilities

Maternal & Child Health Department/Public Health services

AHCA

AAP

We have to stop treating addiction as a moral failing, and start seeing it for what it is: a chronic disease that must be treated with urgency and compassion.

Dr. Vivek H. Murthy
US Surgeon General

...and a team approach

https://www.surgeongeneral.gov/priorities/opioids/
VISION: All of Florida’s mothers & infants will have the best health outcomes possible through receiving high quality evidence-based perinatal care.

MISSION: Advance perinatal health care quality & patient safety for all of Florida’s mothers & infants through the collaboration of FPQC stakeholders in the development of joint quality improvement initiatives, the advancement of data-driven best practices, and the promotion of education & training.

Quality improvement in healthcare is defined...¹,²
What & how well something is done

**AND**
- Doing the right thing → delivering needed healthcare services
- At the right time → when patients need them
- In the right way → using appropriate tests/procedures

Consistency  Eliminate undesirable variation

Variation is everywhere

Goals
- Understand variation
- Control degree of variation
- Minimize its impact

*Decrease variation*
→ deliver service in a predictable manner
→ produce a predictable & reliable result
FPQC surveyed FL NICUs
There are many opportunities for hospitals to decrease practice variation

- Estimated average length of hospital stay (<10 days to >30 days)

Lack standardized processes
- Screening substance use among pregnant women
- How hospitals were resourced to effectively employ nonpharmacologic support
- Improve inter-rater reliability with NAS scoring
- Discharge with outpatient pharmacologic management
- Determining safe discharge

Generalizable scientific evidence
From empirical studies that try to eliminate effects of context

Particular Context
Characteristics of the local setting or environment

Knowledge systems for QI
Knowledge about applying, adapting evidence to context
Knowledge needed for execution, change

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Does this variation make it a suitable problem to address using QI methods?
Florida’s NAS problem

There is intra-hospital variation related to length of hospital stay for infants with prenatal opioid exposure. The average inpatient length of stay for these infants in Florida is 19 days (±14 days).

Average length of stay from Q1 2010 to Q3 2015 was 18.7 days ±13.6 days & the range is 11-34 days (DOH data interpreted & provided by Chinyere Reid).

Main opportunities for improvement

1. Caregiver engagement
2. Nonpharmacologic strategies
3. Pharmacologic management
4. Safe discharge care plan

Encourage caregiver engagement

- Provide anticipatory guidance
- Address staff attitudes

EDUCATION TOPICS
- Implications of opiate use in pregnancy
- NAS education
- Hospital stay expectations for the infant
- Importance of parent engagement in infant care, breastfeeding, interconception care
- Community resources

FREE provider education modules!
https://health.usf.edu/publichealth/chiles/fpqc/nas/toolbox

Encourage caregiver engagement

- Provide anticipatory guidance
- “You have the opportunity to impact someone’s life with education & words of encouragement or praise…”

**Characteristics of a Trauma Informed Approach**

- Recognize the survivors’ need to be respected, informed, connected, & hopeful about their recovery
- Understanding the interrelation between trauma and substance abuse
- Need to work collaboratively with the survivor, family, friends, and human service agencies in an empowering manner

**Encourage Caregiver Engagement**

- Provide anticipatory guidance
- Address staff attitudes
- Communicate effectively with parents of NAS infants
  - Trauma informed approach, Motivational interviewing
- Empower parents
  - Transfer responsibility of nonpharmacologic interventions to them

**Main Opportunities for Improvement**

1. Caregiver engagement
2. Nonpharmacologic strategies
3. Pharmacologic management
4. Safe discharge care plan

**Education Topics**

- General infant care
- Hospital stay expectations for the infant
- Importance of breastfeeding
- Post-discharge community resources
- Role of parent in NAS management
- Importance of nonpharmacologic interventions (skin-to-skin care, providing a low stimulation environment, rooming-in)

**Nonpharmacologic Management**

- Monitor infant nutrition
- Importance of mother’s own milk
- Resources to support milk supply (breast pumps & supplies)

  **No evidence to support use of donor human milk over formula for this population.**

- On-demand feeding

**BF*, Methadone Mothers, & the AAP**

**BF** rates in methadone-maintained mothers are lower than the national average

- AAP 1983: no BF* if methadone >20 mg/day
- AAP 2001: no dose restriction
  
  **Benefits of BF** outweigh any theoretical minimal risk from excretion in breast milk

- Barriers: mother, healthcare provider, community

**Healthy Start NAS Pamphlets Available!**

**BF**: Breastfeeding; **AAP**: American Academy of Pediatrics

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Compliance with a validated scoring tool

Many infants exhibit withdrawal symptoms, but not all require pharmacologic therapy

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<thead>
<tr>
<th>CNS</th>
<th>ANS</th>
<th>GI</th>
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<tr>
<td>• High pitched cry</td>
<td>• Temperature elevation</td>
<td>• Poor feeding</td>
</tr>
<tr>
<td>• Hyperactivity</td>
<td>• Sweating</td>
<td>• Excessive sucking</td>
</tr>
<tr>
<td>• Tremors</td>
<td>• Tachypnea</td>
<td>• Emesis</td>
</tr>
<tr>
<td>• Increased muscle tone</td>
<td>• Nasal flaring</td>
<td>• Weight loss</td>
</tr>
<tr>
<td>• Sleep disturbances</td>
<td>• Mottled color</td>
<td>• Loose stools</td>
</tr>
<tr>
<td>• Seizures</td>
<td>• Sneezing</td>
<td>• Nasal stuffiness</td>
</tr>
<tr>
<td>• Skin excoriation</td>
<td>• Nasal flaring</td>
<td>• Yawning</td>
</tr>
</tbody>
</table>

- CNS: Central Nervous System
- ANS: Autonomic Nervous System
- GI: Gastrointestinal System

Nonpharmacologic management

- Monitor infant nutrition
- Use an abstinence scoring system
- Optimize use of nonpharmacologic techniques

Nonpharmacologic management
Should be standard of care for all at risk for NAS

- Kangaroo care
- Music therapy
- Massage
- Acupuncture
- Non-oscillating water beds

Other alternatives

Main opportunities for improvement

1. Caregiver engagement
2. Nonpharmacologic strategies
3. Pharmacologic management
4. Safe discharge care plan

Pharmacologic management

- Consider pharmacologic management when necessary
- Prevent complications (moderate to severe NAS symptoms, unresponsive to nonpharmacologic therapies)
- Reached threshold to begin pharmacologic treatment based on chosen NAS assessment tool

Length of inpatient monitoring

55-94% have NAS symptoms
46 hours mean time to symptom onset

Need compliance with a standardized protocol

Predictors for length of stay & treatment duration
- Starting dose
- Escalation & weaning parameters
- Minimize ambiguity

"...it is not easy to alter medical practices or clinician behavior, even when there is compelling evidence to do so..."

Main opportunities for improvement

1. Caregiver engagement
2. Nonpharmacologic strategies
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4. Safe discharge care plan

"Safe" discharge plan

Safe discharge plan
- ALL education provided (safe sleep, shaken baby syndrome, postpartum depression, NAS, expectations of hospital stay)
- DCF report filed
- Discharge clearance determined
- Early Steps referral
- Healthy Start referral
- Pediatrician appointment

Spreading change

Tools
- Accepted & evidence-based change package or toolkit
- QI methodology
- Education
- Collaboration
- Infrastructure able to deliver tools & support (e.g. FPQC)

Support

Delivery system

Why join FPQC rather than address NAS on your own?
- Better results with multi-hospital QI initiatives
- Better results with repeat multi-hospital QI initiatives
- Standardization of practice alone improves outcomes
32 NAS Initiative Hospitals

Check out FPQC’s NAS website!
https://health.usf.edu/publichealth/chiles/fpqc/nas

Maternal Opioid Recovery Effort: MORE Initiative

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