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## Persevering in the Face of the Opioid Epidemic

Banner Children's
Diamond Children's Medical Center

A Passion for Family Centered Neonatal Abstinence Syndrome Care

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No relevant financial or nonfinancial relationships exist.

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## Objectives

| | |
|---|---|
| Identify | Identify opportunities for program development of a family centered NAS care program in other units |
| Describe | Describe the benefits of keeping families unified for positive long-term outcomes. |
| List | List current biases and changes needed in hospital culture to support families in transition to allow for individualized care. |

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## Definition of Neonatal Abstinence Syndrome

- Constellation of symptoms and signs of withdrawal in the newborn due to intrauterine exposure to addictive substances, usually opioids
- Peak symptoms 3-4 days

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## The National Epidemic

- Data from 2014 indicates a 5 fold increase in NAS from 2000-2012
- Estimated 20 per 1000 live births
- 1 baby every 15 seconds
- Average hospitalization length: 23 days
- Average hospitalization charge: $93,400
- Medicaid costs: $1.2 billion

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## The Regional Problem

- "Arizona currently ranks 6th highest in the nation for individuals misusing and abusing prescription drugs"
  - National Survey on Drug Use and Health, 2012
- In 2017, Arizona Governor Ducey declared a Public Health State of Emergency due to opioid epidemic (www.azdhs.gov)
- Any suspected case of NAS, regardless of treatment with medication, is reportable to the state

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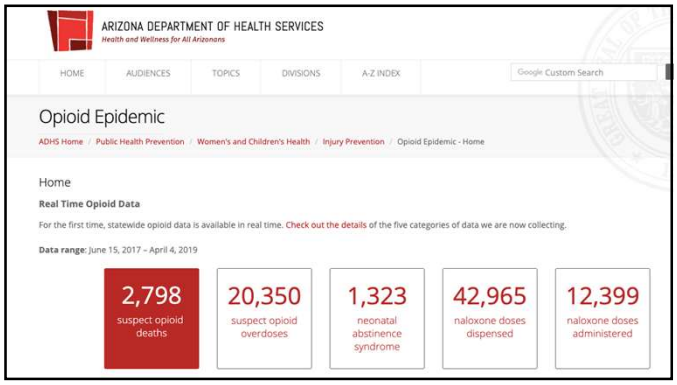


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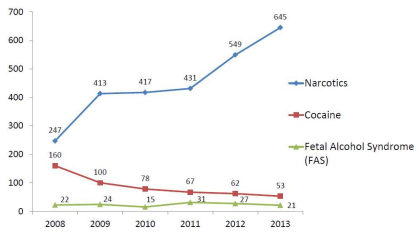
## Number of AZ newborns exposed to drugs

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Family Centered NAS Care

Family is the treatment

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## Program Development

- Standard of care was previously pharmacological treatment
- In early 2017, visited Yale New Haven, Dr. Grossman's program: Eat, Sleep, Console method
- First baby admitted into the program in summer 2017

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TABLE 1. Research on Eat, Sleep, and Console

| Study | Study Design | Subjects | Results | Implications |
|---|---|---|---|---|
| Grossman et al 2018 | Implementation of several PDSA cycles from 2010 to 2015 that focused on standardizing nonpharmacologic treatment coupled with (1) involving parents in treating their infant, (2) infants were cared for on a pediatric unit, (3) development of a novel approach to assessing NAS, and (4) using morphine on an as-needed basis. | Opioid-exposed infants N = 287 | Average length of stay decreased from 22.4 to 5.9 d. Pharmacologic treatment with morphine decreased from 98% to 14%. Costs decreased from $44,824 to $10,289 per patient. | Provides evidence that length of stay and costs are significantly reduced by (1) sending an empowering message to the parents, (2) training staff that nonpharmacologic interventions are equivalent to pharmacologic treatment, and (3) developing a novel tool that simplifies NAS assessment and management. The long-term impact on these infants and our healthcare system is yet to be studied. |
| Wachman et al 2018 | Utilized stakeholder interviews and PDSA cycles. Compared pre- and postintervention on NAS outcomes after a Q1 initiative that included: A nonpharmacologic care bundle, function-based assessments consisting of symptom prioritization, use of early version of ESC, or a switch to methadone for pharmacologic treatment. | Opioid-exposed infants ≥36 wk N = 240 | Decreases were found in: • Pharmacological treatment from 87.1% to 40.6% • Adjunctive agent use from 33.6% to 2.4% • Hospitalization rates down from 17.4 to 11.3 d • Opioid treatment days from 16.2 to 12.7 d | Provides evidence that models of care that promote parental engagement and other nonpharmacological care measures should be implemented in hospitals to improve NAS outcomes. Also implicates a need for the current NAS assessment tool to be reevaluated and that function-based approaches should be considered. |
| Grossman et al 2018 | All subjects were managed using the ESC method. FNASS scores were simultaneously collected every 4-6 h. Treatments using the ESC approach were compared with what treatment decisions would have been selected on the basis of the FNASS scores. | Opioid-exposed infants at the Yale New Haven Children's Hospital N = 50 | Six infants (12%) were treated with morphine using the ESC approach compared with 31 infants (62%) who would have been treated with morphine using the FNASS approach. There were no readmissions or adverse effects reported. | Provides evidence that the ESC method shows decrease in opioid-exposed infants being treated with morphine. Reevaluating the FNASS system should be considered in the management of NAS. |

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## Collaboration is key

| Antepartum | Inpatient | Post-Discharge |
|---|---|---|
| • OB/GYN<br>• Social work<br>• Family Medicine<br>• Medication Assisted Treatment (MAT) Centers | • L&D<br>• Postpartum<br>• Newborn Nursery<br>• NICU<br>• DCS | • DCS<br>• ADHS<br>• Inpatient Rehab<br>• Developmental follow up clinic |

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## Prenatal Identification

- High Risk OBGYN Social Worker
- Identification of the family as a candidate
  - Prenatally if possible
  - NAS team notified at time of delivery
  - Ideally multiple family members are available

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## Labor and delivery

- At birth both Mother and Baby drug tested
- **Routine newborn care – non-judgmental care for mother and education on infant care**
- When Finnegan scores exceed threshold then transfer infant to NICU
- Once mother is discharged, she stays in the NICU with her infant in nesting room

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## NICU stay

- Family education continues
  - 5 S's
  - Holding/ Baby Wearing
  - Feeding
  - Immediate intervention when crying
  - Low stimulation environment
  - Ensure safe sleep environment
- Manage infants with ESC and prn Morphine

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## Eat Sleep Console Method

- **Eat**
  - Able to eat at least 1 ounce/feed or breast feed well. If unable to eat (too sleepy or uncoordinated), consider placing a NG tube for feeding
- **Sleep**
  - Able to sleep for at least 1 hour undisturbed (may have to be held to sleep)
- **Console**
  - Should be able to be consoled within 10 minutes. Another person should try to console baby after 10 minutes. If still not able to console, a one-time dose of morphine can be given (0.05mg/kg). Baby will be on pulse oximetry for 4 hours after morphine dose.

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## NICU stay

- Remove barriers to family's presence:
  - Provide meals
  - Visitation of other children
  - Coordinate trips to the MAT centers
  - Provide breaks
  - Dedicated cuddlers

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## Everyone pitches in

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## Role of Therapy Team

- Developmental assessment
- Feeding assessment and intervention
- Assist with providing breaks for families
- Functional tools for calming/soothing
- Discharge education

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## Discharge

- When baby is past the peak of withdrawal symptoms
- Family shows competency in caring for their NAS infant.
- Disposition oversight is controlled by DCS

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## Follow up

- Developmental Follow Up Clinic
  - TIMP or BAYLEY Assessment
- Incentives built in through research partners
- Follow up phone calls

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## Key Points for Family Success

- Family needs to feel welcomed
- Empower the caregiver
- Culture of acceptance and teamwork
- Encourage breastfeeding

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## Outcomes

| Family Centered Care | Traditional treatment |
|---|---|
| • Length of Stay<br>  • 5.94 days for uncomplicated babies<br>  • 6.5 days for complex babies<br>  • phototherapy<br>  • IV fluids<br>  • prematurity | • Length of Stay<br>  • Morphine: 26 days<br>  • Morphine and clonidine: 22 days |
| • Cost per day: $3,432 | • Cost per day: $5,545 |

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## Outcomes since June 24, 2017

**33 babies were uncomplicated patients**

- Average LOS 5.94 days, Range: 4-11 days
- Average number of morphine rescue doses: 0.12

**42 babies including complex patients**

- Average LOS 6.5 days, Range: 4-30 days
- Average number of morphine rescue doses: 5.43

**Disposition for all 42 babies**

- 33 with mother/father
- 4 with family members
- 3 with adoptive parents
- 2 with foster care

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## Cost Savings

- Pharmacologically managed infant – daily charge $5,545 x average stay of 22 days = $121,990
- Family Centered NAS managed infant – daily charge $3,432 x average stay of 6 days = $20,592

**Mean savings for 1 NAS infant=$101,398**

**33 Infants though FC-NAS equals a cost savings=**

**$3,346,134.00**

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## Lessons Learned

- Importance of early program contact with mothers
- Meaningful historical information
- Recognizing biases
- Normalization
- Importance of initial and continuing contact for attachment
- Significance of before and after care for these families
- Community partnerships
- Pharmacological treatment may still be needed

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## Continuing Challenges

- TIME
- Ability to have early program contact with families
- Difficulty with extending program to all substance exposed infants
- Room and unit constraints
- Continuing staff education and ongoing bias
- Establishing community partnerships

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## Continuing Challenges: Therapy specific

- Tight inpatient stay timeline
  - Completing TIMP
  - Pertinent education
  - Coordination of timing for multiple providers
- Getting families to return for follow up
  - Communication with family
  - Multiple research studies and many follow up visits
  - Transportation issues
  - Financial constraints

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## Parent Comments

- "She was taken care of so good, because the medicine we gave her was love instead of medicating her"
- "The staff of the hospital was amazing. They taught us everything we need to know as first time parents. Although our stay was a bit longer than anticipated, they made us feel welcome and involved us entirely in our son's care. They took not only his needs, but our worries and concerns in to consideration and found the best outcome we all agreed to. I am truly blessed and extremely thankful to have had the option to have our baby here at Banner UMC. Not every hospital offers the chance to stay/room in with your baby while needing to be treated in the NICU and have the option to have your baby off medicine and use hands on treatment, which I felt bonded us to the baby even more than if we had just chosen the other way. I also taught us how to deal and comfort our son at home without the help of hospital staff. Absolutely loved it!!"

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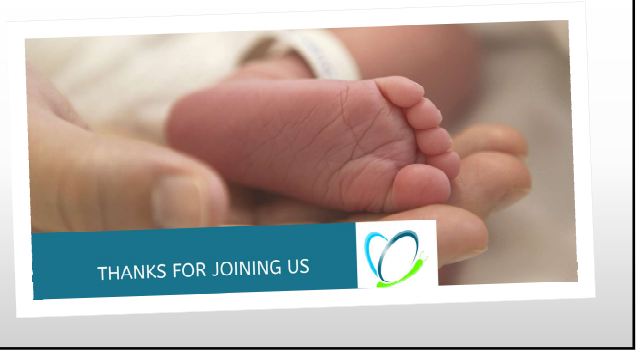


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