Neonatal NAS Initiative Webinar

Your line has been placed on mute. The webinar will begin shortly.

July 9, 2019
2:00-3:00pm
The Ohio Perinatal Quality Collaborative:

Standardization of NAS Protocols

Susan Ford, MSN, CPNP
July 9, 2019

Through collaborative use of improvement science methods, reduce preterm births & improve perinatal and preterm newborn outcomes in Ohio as quickly as possible.
Objectives

• Identify potentially better practices, including pharmacological and non-pharmacological treatment for infants with NAS

• Describe the statewide Ohio Perinatal Quality Collaborative methodology to improve treatment of infants with NAS

• Discuss the practice of standardized care and the impact on decreasing duration of opioid treatment and length of stay for NAS
Age-adjusted drug overdose death rates, by state: United States, 2016

NOTES: Deaths are classified using the International Classification of Diseases, Tenth Revision. Drug-poisoning (overdose) deaths are identified using underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14.

SOURCE: NCHS, National Vital Statistics System, Mortality
Total Opioid Overdose Deaths

- Ohio’s opioid overdose death rate increased 325 percent in five years (2009 to 2014).
- Unintentional opioid overdoses caused 2,590 Ohio deaths in 2015 and accounted for 85% of all drug overdose deaths in the state.
- This is equivalent to six Ohioans dying every day or one Ohioan dying every four hours from an opiate overdose.

Source: statistics are from the Kaiser Family Foundation State Health Facts Website, including Opioid Overdose Death Rates and Opioid Overdose Deaths by Type of Opioid, and from the 2015 Ohio Department of Health Unintentional Overdose Death Report.
Incidence of Maternal Opiate Use and NAS Since 2004

- From 2004 to 2014, the rate of U.S. infants diagnosed with opioid withdrawal symptoms, known as neonatal abstinence syndrome (NAS), increased 433%, from 1.5 to 8.0 per 1,000 hospital births.

- However, the increase was even more stark in state Medicaid programs -- rising from 2.8 to 14.4 per 1,000 hospital births. Medicaid, a public health insurance program, covered more than 80% of NAS births nationwide in 2014.
Drug Use or Dependence at Time of Delivery

![Graph showing drug use or dependence at time of delivery from 2006 to 2017.](image)

- Marijuana
- Opioid
- Cocaine
- Other (Amphetamine Psychostimulant, Hallucinogens and Sedatives)
- Total Number Delivering Mothers Diagnosed with Dependence

Source: Ohio Hospital Association
From 2006 to 2017, there were approximately 15,441 hospital discharges due to NAS among Ohio residents in Ohio hospitals; 1,935 were in 2017.

The hospital discharge rate for NAS in 2017 (140 per 10,000 live hospital births) was approximately 6.3 times the rate in 2006 (20 per 10,000).
NAS Treatment and Cost

• Cost of Inpatient Hospitalizations
  – In 2015, Medicaid was the payer for approximately 89.7% of NAS inpatient hospitalizations.

• Cost of Treating NAS
  – In 2015, treating newborns with NAS was associated with over $133 million in charges and over 30,000 days in Ohio’s hospitals.
NEONATAL ABSTINENCE SYNDROME:
Standardizing care in Ohio for the NAS infant
Why standardize?
Why standardize?

Committee Opinion

Number 629, April 2015

Committee on Patient Safety and Quality Improvement
Committee on Professional Liability

This document reflects emerging concepts on patient safety and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Clinical Guidelines and Standardization of Practice to Improve Outcomes

ABSTRACT: Protocols and checklists have been shown to reduce patient harm through improved standardization and communication. Implementation of protocols and guidelines often is delayed because of lack of health care provider awareness or difficult clinical algorithms in medical institutions. However, the use of checklists and protocols clearly has been demonstrated to improve outcomes and their use is strongly encouraged. Checklists and protocols should be incorporated into systems as a way to help practitioners provide the best evidence-based care to their patients.

Recommendations

The American College of Obstetricians and Gynecologists (the College) makes the following recommendations regarding clinical guidelines and standardization of practice to improve outcomes:

- Protocols and checklists should be recognized as a guide to the management of a clinical situation or process of care that will apply to most patients. For any patient whose care cannot be managed by standardized protocols because of special circumstances, a case conference should be called.

PDF Format
CONCLUSIONS: Use of a stringent protocol to treat NAS, regardless of the initial opioid chosen, reduces the duration of opioid exposure and length of hospital stay. Because the major driver of cost is length of hospitalization, the implications for a reduction in cost of care for NAS management could be substantial. *Pediatrics* 2014;134:e527–e534.
Ohio Children's Hospital Association
NAS Consortium

- September 2012 – September 2014
- Six children’s hospitals and their affiliates (20 total hospitals)
- Funded by Office of Governor John Kasich
- Goals:
  - Understand epidemiology of mothers and infants with NAS by following longitudinal cohort
  - Determine the “potentially better practice” for NAS treatment
  - Identify variation and areas for future research
Descriptors: 553 neonates (2012 - 2013)

- Young, white and single
- 80% mothers public insurance
- 85% had pregnancy complications
- 26% Hepatitis C positive
- 82% used tobacco products

## Infant Treatment Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms Started (mean)</td>
<td>46.1 hours</td>
</tr>
<tr>
<td>Opioid Treatment Days (mean)</td>
<td>20.5 days</td>
</tr>
<tr>
<td>DOL at discharge (mean)</td>
<td>22.4 days</td>
</tr>
<tr>
<td>Number of Drugs Used (mean)</td>
<td>1.5</td>
</tr>
<tr>
<td>Drugs used</td>
<td></td>
</tr>
<tr>
<td>Morphine only</td>
<td>50.8%</td>
</tr>
<tr>
<td>Methadone only</td>
<td>41%</td>
</tr>
</tbody>
</table>

Hall et. al. *Pediatrics.* 2014;134(2):e527
Impact of Ohio OCHA Weaning Protocol

- In July 2013 a standard “Potentially Better” weaning protocol was adopted by all six groups.
- We documented management of 462 infants prior to statewide adoption of the weaning protocol, and 392 infants after adoption.
  - We removed infants who completed therapy as an outpatient, as this center did not adopt the protocol.
Impact of Standardization at a participating OCHA Site

Neonatal Abstinence Syndrome Length of Stay
2012-2014

- Standardized inter-rater reliability begins Oct 2012
- Decreased average length of treatment to 38 days
- New standardized treatment protocol initiated
- Decreased to average length of treatment 17 days

Number of Days

Infants Treated for NAS through 2014

- length of treatment
- Avg length of stay
- Average length of treatment
Spreading OCHA learnings through Ohio

- 54 sites:
  - 26 Level III NICU’s
  - 26 Level II Special Care Nurseries
  - 2 Normal Newborn Nurseries
- Funded by Ohio Department of Medicaid to start January 2014
**Key Driver Diagram**

**Project Name: OPQC Neonatal NAS**

**GLOBAL AIM**

To reduce the number of moms and babies with narcotic exposure, and reduce the need for treatment of NAS.

**SMART AIM**

By increasing identification of and compassionate withdrawal treatment for full-term infants born with Neonatal Abstinence Syndrome (NAS), we will reduce length of stay by 20% across participating sites by June 30, 2015.

**KEY DRIVERS**

- Prenatal Identification of Mom
- Improve recognition and non-judgmental support for Narcotic addicted women and infants
- Attain high reliability in NAS scoring by nursing staff
- Optimize Non-Pharmacologic Rx Bundle
- Connect with outpatient support and treatment program prior to discharge
- Partner with Families to Establish Safety Plan for Infant
- Partner with other stakeholders to influence policy and primary prevention.

**STANDARDIZE NAS Treatment Protocol**

- Initiate Rx if NAS score > 8 twice.
- Stabilization/ Escalation Phase
- Wean when stable for 48 hrs by 10% daily.
- Swaddling, low stimulation.
- Encourage kangaroo care
- Feed on demand- MBM if appropriate or lactose free, 22 cal formula

**INTERVENTIONS**

- All MD and RN staff to view “Nurture the Mother- Nurture the Child” Vermont Oxford Network’s DVD
- Monthly education on addiction care.
- Fulltime RN staff at Level 2 and 3 to complete D’Apolito NAS scoring training video and achieve 90% reliability.
- Establish agreement with outpatient program and/or Mental Health
- Utilize Early Intervention Services
- Collaborate with DHS/ CPS to ensure infant safety.
- Engage families in Safety Planning.
- Provide primary prevention materials to sites.
Key Strategies to Accomplish our AIM

• Develop and implement *standardized processes* for the identification, evaluation, treatment and discharge management of an infant with neonatal abstinence syndrome.
  – **Standardization** of Finnegan Scoring—improve consistency in use of Modified Finnegan Tool with D’Apolito video
  – **Standardization** of pharmacologic and non-pharmacologic care

• Create a culture of compassion, understanding, and healing for the mother infant dyad affected by the problem of neonatal abstinence syndrome.
  – Addiction as a chronic illness
  – Nurture the Mother-Nurture the Child video
  – Attitudes Survey
Attain high reliability in NAS scoring

- All sites use same tool

- Train RN staff to 90% reliability in scoring using D’Apolito Training System

- In Pilot work, we were able to see drop in max score when training completed

- OPQC has sent out DVD/workbook’s to each site
Assessment: why use a tool?

• 2005 study: 81% centers surveyed use assessment tool, 52% have guidelines

• Allows for “common language”, decrease variability, improve parent communication/involvement

• Based on opiate withdrawal
  – One tool for all substance withdrawal?

• Confounding factors
  – Term vs preterm vs beyond neonatal period
  – Staff training and competency maintenance
  – Subjectivity
About the Finnegan

• Originally developed in 1975; “Modified” in 1986

• 200 term, opiate exposed newborns

• Assessed from the beginning of one feeding until the beginning of the next feeding, Q 3-4 hrs
  – Challenging with breastfed neonates

• Recommended: start scoring at 2 hours of age; if score= 8, continue to score Q2 hrs until less than 7

• OPQC treatment protocol: begin treatment for 2 consecutive scores of >8 or one score ≥12
  (recommended treatment protocol in 2014)
Maintaining Inter-Rater Reliability

2013 Site Staff Survey on Finnegan Scoring:
• 67% of RN staff responded
• 15.2 % felt somewhat or not comfortable
  – concerns: scoring of sleep for older babies, excoriation
• 37% wanted more education/training
• 26% of staff were not conducting inter-rater reliability scoring properly
Maintaining Inter-Rater Reliability

- 2013 all RNs watched: “Assessing signs and symptoms of Neonatal Abstinence using the Finnegan Scoring Tool” video from NeoAdvances

- Unit-based NAS Super Users re-educated all staff

- Lunch n’ Learns with 2013 VON iNICQ NAS Webinars

- Dual score minimally once every 12 hours with an NAS Super User or an NNP

- 2013 reliability scores= 98%
NeoAdvances Training Program

Inter-Observer Reliability Program

Objectives of the program:

Health care professionals will be able to:

1. Accurately assess opioid-exposed infants for the presence of withdrawal signs and symptoms.
2. Implement appropriate examination techniques required to evaluate opioid-exposed infants for clinical signs and symptoms of withdrawal.
4. Achieve 90% reliability in using the FNAST.

The program can be used individually or in groups to increase the reliability in assessing infants for signs and symptoms of opioid withdrawal.

Components of the Program:

1. A manual which includes program instructions, definitions of the signs and symptoms of withdrawal, and scoring guidelines for the FNAST.
2. A CD-ROM containing the FNAST software and scoring sheets.

Assessing Signs & Symptoms of Neonatal Abstinence Using the Finnegan Scoring Tool
An Inter-Observer Reliability Program
Video presentation on OPQC website

- https://vimeo.com/107043060
Standardize Pharmacological Treatment Bundle

Ohio Potentially Better Protocol

<table>
<thead>
<tr>
<th>Initiate</th>
<th>Treatment should be initiated if infant has:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• 2 consecutive scores $&gt; 8$ or</td>
</tr>
<tr>
<td></td>
<td>• 1 score $&gt; 12$</td>
</tr>
<tr>
<td></td>
<td>Drug: Morphine/ Methadone</td>
</tr>
<tr>
<td></td>
<td>0.05 mg/kg PO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Escalate</th>
<th>If $\geq 12$, increase dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stabilize</td>
<td>No increase for 48 hrs</td>
</tr>
<tr>
<td>Wean</td>
<td>10% of max dose daily</td>
</tr>
</tbody>
</table>

  | Discharge                        |
  |                                 |
  | • 48 hours off Morphine         |
  | • 72 hours off Methadone       |
Standardize Non-Pharmacological Treatment Bundle
Non-Pharmacological Treatment

• Decreased stimulation
• Rooming in for mom and baby
• Swaddling
• Skin to skin or Kangaroo care
• Breastfeeding is safe and effective!
  – Promotes bonding
  – Very little MAT medications in breastmilk
  – Can potentially reduce length of hospital stay for NAS infants
• Low lactose formula when infant not breastfeeding
Improve recognition and non-judgmental support for Narcotic addicted women and infants

Attitude Measures Survey

This resource is focused on people’s attitudes towards alcohol and other drug use and is designed to encourage health professionals to explore and evaluate their attitudes towards drug users - particularly perceptions about a client’s or patient’s deservingness of medical care.
OPQC Interventions Focused on Attitude Change

• Unit wide training for all NICU staff about living with OUD—"Nurture the Mother-Nurture the Child" video

• Sharing stories of pregnant women with SUD—session with panel of mother of infants with NAS

• Education about addiction as a chronic disease—lectures by addiction specialist

• Community resources outreach—NICU teams identified community resources available to support mother-infant dyad and examined barriers to accessing resources
<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Desired Direction of Change</th>
<th>Adjusted Mean Time point 1</th>
<th>Adjusted Mean Time point 2</th>
<th>Adjusted Mean Time point 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent do you feel angry towards people using drugs?</td>
<td>Down</td>
<td>2.41</td>
<td>2.27*</td>
<td>2.29*</td>
</tr>
<tr>
<td>To what extent is an individual personally responsible for their problematic drug use?</td>
<td>Down</td>
<td>4.21</td>
<td>4.02*</td>
<td>3.98*</td>
</tr>
<tr>
<td>To what extent do you feel disappointed towards people using drugs?</td>
<td>Down</td>
<td>3.11</td>
<td>2.92*</td>
<td>2.95*</td>
</tr>
<tr>
<td>To what extent are adverse life circumstances likely to be responsible for a person's problematic drug use?</td>
<td>Up</td>
<td>3.65</td>
<td>3.71</td>
<td>3.72</td>
</tr>
<tr>
<td>To what extent do you feel sympathetic towards people using drugs?</td>
<td>Up</td>
<td>2.95</td>
<td>3.13*</td>
<td>3.14*</td>
</tr>
<tr>
<td>To what extent do people who use drugs deserve the same level of medical care as people who don't use drugs?</td>
<td>Up</td>
<td>4.49</td>
<td>4.56</td>
<td>4.57*</td>
</tr>
<tr>
<td>To what extent do you feel concerned towards people using drugs?</td>
<td>Up</td>
<td>4.15</td>
<td>4.13</td>
<td>4.19</td>
</tr>
</tbody>
</table>

*Denotes a significant difference from the mean of timepoint 1 after adjusting for site and multiple comparisons
Phase I Results

After 9 months of improvement work, length of treatment decreased by 9% from 13.4 to 12 days

...and LOS decreased by 9% from 18.3 to 17 days in September 2014
CONCLUSIONS: Standardized approaches to the identification and non-pharmacologic and pharmacologic care were associated with a reduced length of opioid exposure and hospital stay in a large statewide collaborative. Other states and institutions treating opioid-exposed infants may benefit from the adoption of these practices.
Variation and Uncertainty in Non-Pharmacologic Care

Distribution of Compliance with Non-Pharmacologic Bundle Components

Survey Responses Regarding Certainty in Non-Pharmacologic Bundle Components (7 = Least Sure)
Orchestrated Testing (OT)

• OT involves planned testing across multiple sites (within or across institutions)

• Can use factorial design to…
  – Be more systematic about simultaneous testing of different change ideas
  – Look at the independent and combined effects of different changes

• Standardization of practices and reliable implementation is necessary

• Can result in faster and more efficient learning
Wide scale test of change examining the role of formula in non-pharmacologic care across 54 NICU/SCN sites

Two change ideas (factors):
- Type of formula
  - Standard Lactose vs. Low-Lactose
- Calorie content of formula
  - Standard Calorie vs. Higher Calorie

Factorial Design
OPQC Factorial Design ($2^2$)

<table>
<thead>
<tr>
<th>Group</th>
<th>Low Lactose Standard</th>
<th>22 kcal/oz Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Sites self-selected into 1 of 4 formula groups based on their practice culture
Measures

- LOS (pharmacologically treated infants)
- Treatment failure—percent infants requiring dose escalation, failed wean, and/or secondary medication
- Weight Loss >10%
Overall, the Orchestrated Testing data suggest that use of 22 kcal/oz could be a beneficial practice for NAS non-pharmacologic support.

- Consistent benefit of 22 kcal/oz feeds on weight loss, treatment failure, and length of stay
  - 22 kcal/oz formula is associated with less treatment failure and shorter length of stay, though only explains a very small amount of the variation

- Benefit of LLF is not consistent across outcome measures--possible synergistic effect with 22 kcal/oz on weight loss and length of stay, but not on treatment failure
OPQC NAS Recommendations  
Non-Pharmacologic Treatment

• All infants are treated with decreased stimulation, swaddling, continuous holding, and frequent feedings.

• Encourage breastfeeding if mother is in treatment program.

• If breast milk not used, give 22 kcal/oz formula. Low-lactose formula may be used at the discretion of the unit.
Updates to Recommended Standardized NAS Protocol

- “Potentially Better Practices Protocol” came from the pilot work of the OCHA NAS Project based on cohort of 553 infants in 20 participating sites.

- Updating recommendations based on OPQC NAS Project cohort of 6819 infants in 54 participating sites.
  - Including feeding recommendations based on Orchestrated Testing results.
  - Updates to the Methadone protocol are based upon testing of the pharmacokinetic-driven protocol that resulted in both a shorter length of treatment and hospitalization.
  - Changes to initiation of treatment:
    - >8 x3 or >12 x2
    - Morphine escalation doses to be score dependent.
### OPQC NAS Recommendations

**Pharmacologic Treatment**

**Overview of Stages of treatment:**

<table>
<thead>
<tr>
<th>Non-pharmacologic bundle:</th>
<th>Swaddle, skin to skin, decreased stimulation breast feed or 22kcal formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacologic bundle:</td>
<td></td>
</tr>
<tr>
<td>• Initiate</td>
<td>• Select Methadone or Morphine PO</td>
</tr>
<tr>
<td></td>
<td>• Finnegan scores &gt;8 q3hrs THREE times</td>
</tr>
<tr>
<td></td>
<td>• or scores ≥ 12 TWO times in a row</td>
</tr>
<tr>
<td>• Escalate</td>
<td>• If Finnegan scores remain elevated, increase dosage based on infant’s score</td>
</tr>
<tr>
<td>• Stabilize</td>
<td>• Maintain dose for 24 hrs (Methadone)</td>
</tr>
<tr>
<td></td>
<td>• Maintain dose for 48 hrs (Morphine)</td>
</tr>
<tr>
<td>• Wean</td>
<td>• Wean every 24 hrs based on Finnegan scores</td>
</tr>
<tr>
<td></td>
<td>• Wean by step daily (Methadone)</td>
</tr>
<tr>
<td></td>
<td>• Wean by 10% stabilizing dose daily (Morphine)</td>
</tr>
<tr>
<td>• Discharge</td>
<td>• Discharge 48 hrs off of Methadone or Morphine</td>
</tr>
</tbody>
</table>
Phase II Improvement

We saw increases in the use of 22 kcal/oz and low lactose feeding.

![Graph showing percentage of infants receiving 22 Kcal Formula Most Frequently with 55% increase.]

![Graph showing percentage of infants receiving Low Lactose Formula Most Frequently with 74% increase.]

OPQC NAS Project Collaborative Aggregate
Percent of Infants Receiving 22 Kcal Formula Most Frequently

OPQC NAS Project Collaborative Aggregate
Percent of Infants Receiving Low Lactose Formula Most Frequently
Phase II Improvement (cont’d)

Further reductions in LOS were seen with implementation of findings from OT

OPQC NAS Project
Collaborative Aggregate
Average Length of Stay for Pharmacologically Treated Babies

OT Ends

Prelim Results Reported

Final Results Reported

Reductions in LOS
18.3 → 17 days (Phase I)
17 → 16.3 days (Phase II)

Total reduction of 2 days!
Partner with Families to Establish Plan of Safe Care for Infant

- Collaborate with DHS/ CPS to ensure infant safety.

### Mandated Reporter Guide for Plan Of Safe Care

The below information is needed when referrals are made to Child Protective Services regarding infants who have been identified as being affected by substance abuse at the time of their birth. Mandated Reporters need to attempt to gather all information prior to making a referral to Child Protective Services.

<table>
<thead>
<tr>
<th>Parent(s), Legal Guardian, Custodian or Caretaker Name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include the guardian or custodian of the child if different from the child's parent.</td>
</tr>
</tbody>
</table>

| Parent(s), Legal Guardian, Custodian or Caretaker Address(es) |

| Parent, Legal Guardian, Custodian or Caretaker Contact Information (home phone & Cell phone &) |

<table>
<thead>
<tr>
<th>Infant Name</th>
<th>Infant DOB</th>
<th>Infant Weight/Height</th>
</tr>
</thead>
</table>

| Infant Diagnosis (i.e. toxicity results, withdrawal symptoms, medication administered, and any other pertinent medical history) |

| Hospital or medical center providing care to the infant (Name, address, phone & contact person) |

| Parent medication prescribed list | Parent non-prescribed substances in use |

| Medical Diagnosis & Toxicology Results (if positive toxicity result due to a valid prescription) | Mental Health Diagnosis of parent |

| Substance abuse information on the parent(s) (treatment plan – past & current, medication administered treatment parent is receiving treatment, compliance with treatment, long-term plan, etc.) |

| Contact information on past substance abuse treatment providers (center, counselor and/or therapist, name, phone number, contact person, etc.) |

| Information on legal or illegal substance abuse history (i.e. past involvement with CPS due to abuse, past births affected by substances, drug of choice, past placements due to substance abuse) |

| Detail the interaction between the mother/caregiver and the infant (i.e. what does the interaction “look like” – comforting, holding infant, responsive to needs, etc.) |

| Detail the discharge plan of parent(s)/caregiver(s)/infant (i.e. Where the family resides, with whom, information provided to mother/caregiver) |

| Detail the plan of safe care & Medical Doctor Information including infant pediastian (Who will be monitoring, names, contact information, treatment plan, etc.) |

| Health Insurance or Managed Care Information & Medicaid Number (Carrier name, address, phone, fax, contact person) |

| Mandated Reporter Information: |

<table>
<thead>
<tr>
<th>Name</th>
<th>Professional Capacity</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
</table>
Thank you! Any questions?
It takes a village…

The NAS Project was funded by the Medicaid Technical Assistance and Policy Program (MEDTAPP) and administered by the Ohio Colleges of Medicine Government Resource Center. The views expressed in this meeting are solely those of the authors and do not represent the views of state or federal Medicaid programs.
Reminders

• Remember that your VON Day Audit period has begun
  – 11% of hospitals have submitted data
  – Email Kaitlyn.Kopp@dph.ga.gov or BGray@VTOXFORD.org for assistance

• LMS Access
  – Most hospitals have received access

• Please submit your SMART Aims by the next webinar

• The next webinar is August 13th from 2-3pm
  – Topic: NAS and the effects of In-utero exposure (Deepa Ranganathan)