Congressional Addiction, Treatment and Recovery Caucus and the Bipartisan Task Force to Combat the Heroin Epidemic Hosts:

The Impact of Addiction on Infant Mortality

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Ten US States with most births: 2010

<table>
<thead>
<tr>
<th>#</th>
<th>State</th>
<th># Births: 2010:</th>
<th>2010 Overall IMR:</th>
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<tbody>
<tr>
<td>1</td>
<td>California</td>
<td>510,198</td>
<td>4.7</td>
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<tr>
<td>2</td>
<td>Texas</td>
<td>386,118</td>
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<tr>
<td>3</td>
<td>New York</td>
<td>244,375</td>
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<td>4</td>
<td>Florida</td>
<td>214,590</td>
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<td>5</td>
<td>Illinois</td>
<td>165,200</td>
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<tr>
<td>6</td>
<td>Pennsylvania</td>
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<tr>
<td>7</td>
<td>Ohio</td>
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<td>Georgia</td>
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<tr>
<td>9</td>
<td>North Carolina</td>
<td>122,350</td>
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<tr>
<td>10</td>
<td>Michigan</td>
<td>114,531</td>
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Opioid addiction has become more widespread geographically and demographically, crossing into affluent suburban and rural communities.

In communities with high opioid prescription and addiction rates, there will be higher rates of pregnant women with opioid dependence and neonatal abstinence syndrome.

These maps represent the % of Ohio clients in treatment for an Opiate-related diagnosis (heroin or prescription Opioid).

In 2001, the counties in red represented 6.8 to 14.3% of clients in treatment.

By 2011, not only had the geographical footprint of Ohio citizens in treatment for Opioid usespread, but the counties in red represent from 6.8 to 70.2% of clients admitted for substance abuse treatment.

This represents 1 infant born per hour in the US with signs of drug withdrawal.
Ohio had a **440%** increase in unintentional drug overdose from 1999 to 2011

![Graph showing the number of deaths and death rate per 100,000 from unintentional drug overdose by year, Ohio residents, 1999-2011](image)

*Source: Ohio Department of Health; Office of Vital Statistics, Analysis Conducted by Injury Prevention Program*
Ohio Data:
~ 5 fold increase in opioid distribution

Unintentional drug overdose death rates and distribution rates of prescription opioids in grams per 100,000 population by year, Ohio, 1997-2011

   a) All drugs other than fentanyl are taken orally; fentanyl is applied transdermally. b) These doses are approximately equianalgesic: morphine: 30 mg; codeine 200 mg; oxycodone and hydrocodone: 30 mg; hydromorphone: 7.5 mg; methadone: 4 mg; fentanyl: 0.4 mg; meperidine: 300 mg.
Ohio Data:
Unintentional Overdose Deaths by Specific Drug

Figure 2. Number of Unintentional Drug Overdoses Involving Selected Drugs by Year, Ohio, 2000-2012

Source: Ohio Department of Health Violence and Injury Prevention Program
Number of deaths from unintentional drug overdoses & motor vehicle traffic crashes, by year, Ohio, 2000-2012

For first time, in 2007 unintentional drug overdose exceeds MV traffic crashes as the overall leading cause of injury death in Ohio. This trend has continued through 2012.

Source: ODH Office of Vital Statistics
Opioid Use During Pregnancy

- As Opioid use has generally become more prevalent, use during pregnancy has also increased.
- For pregnant women who misuse and abuse drugs and alcohol, including prescription opioids, our shared goal must be a healthy outcome for both mother and baby.
- Safe prescribing during pregnancy includes medication-assisted treatment (MAT).
Opioid Use During Pregnancy

Detox during pregnancy is not recommended.

- Medically supervised tapered doses of opioids during pregnancy often result in relapse to former use & high risk of overdose

- Abrupt discontinuation of opioids in an opioid-dependent pregnant woman can result in:
  - preterm labor
  - fetal distress
  - fetal demise
Opioid Use During Pregnancy

Continued access to opioids for women during pregnancy

- Many women require medically-appropriate opioid use in pregnancy
- Opioids are often the safest and most appropriate treatment for a variety of medical conditions and severe pain during pregnancy
Neonatal Abstinence Syndrome

Increased Opioid use in pregnancy has led to national increase of Neonatal Abstinence Syndrome (from 1.2/1000 births to 5.8/1000 births)
The symptoms and severity of NAS vary,
- not all newborns exposed to opioids or other drugs in utero will experience NAS
- The severity of symptoms and the need for pharmaceutical treatment depend on a wide variety of factors
- Policy approaches must prioritize the mother-infant dyad (keeping mother and baby together).
Where Does ACOG Stand?

**ACOG’s policy** on illicit use of prescription drugs focuses on mother-infant health and safety, emphasizing a **public health approach** that

1. connects women with treatment,
2. maintenance medications,
3. and social support systems while anticipating and managing any complications for infants (NAS).
Neonatal Abstinence Syndrome (NAS)

NAS inpatient hospitalization rate per 10,000 live births, Ohio, 2004-2013

Source: Ohio Hospital Association
1,691 admissions in inpatient settings in 2013

- Average length of stay was 14.8 days
- 87% of these admissions were for Medicaid claims
Mortality Within the First 2 Years in Infants Exposed to Cocaine, Opiate, or Cannabinoid During Gestation
Enrique M. Ostrea, Jr, Anthony R. Ostrea, Pippa M. Simpson

Results: …Within the first 2 years of life, 44 infants died: 26 were drug negative (15.7 deaths per 1000 live births) and 18 were drug positive (13.7 deaths per 1000 live births). The mortality rate among cocaine, opiate, or cannabinoid positive infants were 17.7, 18.4, and 8.9 per 1000 live births, respectively.

Conclusion. We conclude that prenatal drug exposure in infants, although associated with a high perinatal morbidity, is not associated with an overall increase in their Mortality rate or incidence of SIDS during the first 2 years of life. However, a significantly higher mortality rate was observed among low birth weight infants (≤2500 g) who were positive for both cocaine and opiate.
Mortality Risk Associated with Perinatal Drug and Alcohol Use in California

Ellen L. Wolfe, DrPH, PNP, Thomas Davis, BA, Joseph Guydish, PhD, MPH, and Kevin L. Delucchi, PhD

OBJECTIVE
To analyze the relationship between perinatal drug/alcohol use and maternal, fetal, neonatal, and postneonatal mortality.

RESULTS
Among 4,536,701 birth records, 1.20% contained drug/alcohol discharge diagnostic codes (n = 54,290). The unadjusted RRs for maternal (RR = 2.7), fetal (RR = 1.3), neonatal (RR = 2.4), and postneonatal (RR = 4.3) mortality were increased for drug/alcohol-diagnosed births. After controlling for potential confounding, the odds of maternal death for cocaine use (OR = 2.15) remained significant as did amphetamine (OR = 1.77), cocaine (OR = 1.43), polydrug (OR = 2.01) and other drug/alcohol use (OR = 1.79) for postneonatal mortality.

CONCLUSIONS
The association of cocaine use with maternal mortality and any drug/alcohol use with postneonatal mortality supports screening and identifying women using illicit drugs and alcohol during pregnancy. Increased collaboration with drug treatment programs and closer follow-up for drug-using women and their children may improve mortality outcomes.
Neonatal Abstinence Syndrome (NAS)

- NAS was associated with nearly $100 million in costs to Ohio’s healthcare system in 2013:
  - Average cost per infant $57,897
Outcomes continue to be concerning for NAS babies:

- Low birth weight: 25.5%
- Respiratory problems: 24.8%
- Feeding difficulties: 15.3%
- Seizure & convulsions: 0.9%

While NAS is not directly linked to Infant Mortality, the associated issues that come with many of the women struggling with addiction and become pregnant are connected…

- For example: Franklin County FIMR started reviewing cases in 2016, and many of the cases involved drug use…not as a primary cause of infant deaths, but as an associated risk factor.
From 2004-2008 the discharge rate for babies diagnosed with NAS was 2.2 per 1000 live births.

From 2009-2013 the frequency of NAS diagnosis had increased to 8.8/1000 live births (4x increase from 2004-2008) AND the geographical distribution essentially involves all of Ohio.
MOMS Overview
• In August 2013, the Kasich Administration announced plans to address the NAS epidemic

• Maternal Opiate Medical Supports (MOMS) project is a $4.2 million quality improvement initiative that seeks to:
  • Improve maternal and fetal outcomes
  • Improve family stability
  • Reduce costs and length of stay associated NAS
Project Partners

State Sponsors
• Office of Health Transformation
• Department of Mental Health and Addiction Services
• Department of Medicaid

Clinical Advisory Panel
• Johns Hopkins University
• Meridian Community Care
• Nationwide Children’s Hospital
• Northeast Ohio Medical University
• Premier Health Specialists
• Thomas Jefferson University

Pilot Sites
• CompDrug (Columbus)
• First Step Home (Cincinnati)
• Health Recovery Services (Athens)
• MetroHealth Medical Center (Cleveland)

Project Management and Data Infrastructure
• Ohio Colleges of Medicine Government Resource Center

Quality Improvement Vendor
• Health Services Advisory Group
Pilot Site Activities

- Implement the **Maternal Care Home (MCH)** model, a patient-centered and team-based healthcare delivery model to engage/empower expecting mothers in coordinated care

- Identify best practices to develop, implement, and test a **clinical toolkit**

- Implement a **quality improvement structure** involving monthly technical assistance calls to share and discuss best practices, quarterly clinical learning sessions, and individual coaching calls

Implement rapid cycle quality improvement process
Basic Tenets of a MCH Model (con’t):

- A primary clinician who accepts responsibility for coordinating and/or providing all health care and related social services (wrap-around services) during a woman’s pregnancy, childbirth, and postpartum period.

- Commitment to utilize highest standards of care for newborns and provide appropriate pediatric/specialist referrals to ensure achievement of all developmental milestones.
Basic Tenets of a MCH Model (con’t):

- Medication Assisted Treatment (MAT) in combination with counseling (both individual and group) form the basis for opiate addiction treatment.
  - MAT medications include Methadone or Bupenorphine (Suboxone)
- Wrap-around services/care coordination/case management are all critical for these high-risk women/families
- Involvement of Child Protective Services during pregnancy may be important FOR EDUCATION and to help reduce anxiety about baby being taken away at delivery
  - Distinction between women testing + at delivery for Suboxone (appropriately) vs. street drug use
• Develop collaborative partnerships between MOMS pilot sites and child welfare agencies to assure safety, and support family preservation.
  • Create proactive teams to ensure best chance of successful outcome for clients
  • Jointly develop and monitor plan of safety
  • Identify actionable strategies for service coordination to facilitate recovery, ensure child safety, and promote family stability
Child Welfare Integration

• Goals (con’t)
  • Create new concepts about the role of child welfare in client care
  • Build awareness of the contributions MOMS pilot sites have to offer
  • Educate MOMS sites of legal requirements and opportunities for supporting child welfare
  • Educate child welfare agencies about Medication Assisted Treatment (MAT) and opportunities for supporting MOMS
How To Approach This Issue

✔ Do not criminalize or otherwise punish pregnant women who use drugs
✔ Do not routinely separate mother and baby

Solutions should focus on a comprehensive, non-punitive public health approach.
High Unintended Pregnancy Rates

- High unplanned pregnancy rate among women with opioid addiction
- Women who misuse prescription and other drugs and substances need access to reproductive health services that improve pregnancy outcomes
Summary:

1. National & State (Ohio) increase in use of Opiates: Drug Epidemic
   • Rx and street drugs

2. Above increase in general population associated with increased use during pregnancy and use during pregnancy associated with increased incidence of NAS

3. During pregnancy:
   • Need for “non-punitive” approach to provision of care
     • With punitive approach women more likely to avoid seeking care, making an already high-risk situation more risky.
   • Mother-infant dyad.
     • Try to keep family intact.
   • Clinical and non-clinical (wrap-around) services essential (and probably best when offered at same site).
     • CPS important for educational benefits
     • Stabilize housing/transportation/access to care
   • Medication Assisted Treatment is necessary, along with counseling
Summary: continued

4. In Ohio MOMS is a pilot program, epidemic requires that we find a way to scale up interventions consistent with the dimension of the problem

5. Post partum:
   • Medical Home
   • Continued treatment for substance use:
     • Weaning
     • Counseling
   • Maintaining family stability
   • Contraception (decreasing incidence of un-intended pregnancies)

6. Neonatal Abstinence Syndrome:
   • Incidence increased as general opioid use has increased
   • Standardized care (protocols) associated with decreased LOS, savings
   • Family stability important long term (attainment of childhood milestones, enhanced learning. Etc.)

7. Other: Control availability of Opiates (Rx and Street drugs),
   • War on Drugs has punished end user without doing much to interrupt supply-line of drugs. Cut the snake off at the head.
It always seems impossible until it’s done.

--Nelson Mandela
1918-2013
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- Dr. Mary Applegate (Ohio Dept. of Medicaid)
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- Mrs. Rachel Tetlow (ACOG)
- Mrs. Theresa Seagraves (ODH)

Organizations:
- ACOG: American Congress of Obstetrics and Gynecology
- OSU: Ohio State University
- NCH: Nationwide Children’s Hospital
- ODH: Ohio Department of Health
- OPQC: Ohio Perinatal Quality Collaborative
- CPH: Columbus Public Health
Time line of NAS. FDA, Food and Drug Administration.

1804: Morphine isolated
1817: Marketed as analgesic
1827: Commercial production

1853: Hypodermic needle developed
1874: Heroin synthesized
1898: Commercial production

1875: First reported case of neonatal withdrawal
1903: Morphine treatment for neonates reported
1892: Series of 12 infants, 9 died. Paregoric was tried
1971: Methadone withdrawal in 5 neonates
1997: First reported case of buprenorphine withdrawal
2001: Series of buprenorphine withdrawal in 13 infants

1967: Buprenorphine developed
1996: Buprenorphine use in France
2002: FDA approval for opioid dependence

Opioid analgesic medications:
- Vicodine (1984)
- Oxycontin (1989)
- Percocet (1999)

2002: First reported case of NAS due to oxycontin
2012: Epidemic of NAS

Prabhakar Kocherlakota Pediatrics 2014;134:e547-e561

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A schematic illustration of the mechanism of opioid withdrawal in neonates.

Prabhakar Kocherlakota Pediatrics 2014;134:e547-e561
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