PUBLIC HEALTH INTERVENTIONS FOR NEONATAL ABSTINENCE SYNDROME

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DISCLOSURE

• No financial COI to disclose

OBJECTIVES

• To discuss the epidemiology and current scope of the Neonatal Abstinence Syndrome epidemic with specific state examples.
• To discuss how the Life-Course Perspective and Levels of Prevention relate to public health interventions for NAS.
• To discuss the current state public health responses to Neonatal Abstinence Syndrome.

EPIDEMIOLOGY
EPIDEMIOLOGY OF DRUG USE IN PREGNANCY

• 1991 Seminars in Perinatology
  • Incidence of drug-exposed newborns ranges from 3% to 50% depending on the specific patient population.
  • Urban centers tend to report higher rates

• Narcotic use reported in 7.5% of pregnancies

• 2007 study of 2200 patients in KY with risk factors.
  • Drug exposure in 9% of pregnancies


• Substance Abuse and Mental Health Services Administration (SAMHSA)

  • Results of 2009 Survey on Drug Use and Health: National Findings
    • 4.5% of pregnant women age 15-44 years used illicit drugs in the past month.
    • 11.9% report alcohol use.

  • Results of 2010-2011 Survey
    • I illicit Drug Use Among Pregnant Women: 5%
      • Not Pregnant rate 10.8%
      • Pregnant 15-17: 26.9% (15.8%)%
      • Pregnant 18-25: 8.2% (7.1%)%
      • Pregnant 26-44: 2.2% (2.3%)


A LITTLE MATH

• 235,000 / 100,000 = 2.35 g or 2350 mg / person

• Vicodin = 10 mg hydrocodone

• 235 pills / person
Nonmedical Use of Pain Relievers in the Past Year, Ages 12 and up, 2004-2006 NSDUHS

- Highest: Oregon: 6.37%, Colorado: 6.00%, Washington: 5.75%
- Lowest: Georgia 3.79%, South Dakota: 3.69%, Iowa: 3.62%
- 28 of 51 between 4% and 5%

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**EPIDEMIC**

- 2000-2009 the number of mothers using opiates increased from 1.19-5.63 per 1000 births
- Rate of NAS tripled
  - From 1.2 per 1000 to 3.39 per 1000
- NAS infants are:
  - 19% more likely than other infants to have low birth weight
  - 30% more likely to have respiratory complications

*Patrick et al. JAMA 2012;307(18):1934-1940*

**EPIDEMIC**

Through 3 quarters of 2013 = 714 (955)

**MICHIGAN**

*Figure 1. Rate of Neonatal Withdrawal Syndrome by Year among Michigan Infants, 2000-2009*

**TENNESSEE**

*NAS in TN: 1999-2010*
**NAS: STATE SURVEILLANCE**

- **TN**: 0.7 per 1000 in 1999, 8.5 per 1000 in 2011
- **KY**: 1.2 per 1000 in 2001, 13.2 per 1000 in 2011
- **FL**: 2.31 per 1000 in 2007, 7.52 per 1000 in 2011
- **VT**: 3 per 1000 in 2002, 26 per 1000 in 2010
- **WA**: 1.2 per 1000 in 2000, 3.3 per 1000 in 2008

**FINANCIAL COST**

- In 2009:
  - Cost of treating a single newborn with NAS was $53,400
    - Up from $39,400 in 2000
  - Total national cost $720 million, up from $190 million in 2000.
  - Medicaid paid for 78%.
  - “One infant every hour who will be affected by born with NAS”
    - Actually 1.5/hour

- Estimates from East Tennessee Children's Hospital
  - Cost of treating a well-baby in newborn nursery = $7,000
  - Cost of treating a baby with NAS = $41,000

Patrick et al. JAMA 2012;307(18):1934-1940

*Presented by Carla Saunders at a local NAS presentation in London, KY 2013.*
PUBLIC HEALTH AND NEONATAL ABSTINENCE SYNDROME

LIFE COURSE PERSPECTIVE

• Multidisciplinary paradigm for the study of people’s lives, structural contexts, and social change.
• Life Course suggests that a complex interplay of biological, behavioral, psychological, and social protective and risk factors contribute to health outcomes across the span of a person’s life.
• View that a person’s entire life offers opportunities to provide interventions that can improve health later in life.

LIFE COURSE PERSPECTIVE

For NAS, the time points for intervention are:
• Preconception
• During Pregnancy
• At Birth
• Postpartum or neonatal/infancy period
• Childhood and beyond
LEVELS OF PREVENTION

• Primary: No disease is present at the time of the intervention
  • Immunizations
• Secondary: Interventions to detect and address an existing disease before the symptoms have a detrimental effect.
  • Screening for cancer
• Tertiary: Treatment to ameliorate the symptoms and consequences of disease
  • Surgical procedure to eliminate a tumor

PRECONCEPTION PERIOD

• Primary Prevention to prevent opiate-exposed pregnancies
• Women of child-bearing age should be counseled about the risks of chronic opioid therapy during pregnancy
• Education and awareness efforts to increase provider-patient discussions about misuse, addiction and risks to exposed infants
• Discussions about ways to prevent unintended pregnancy for those who require chronic opioid therapy
• Secondary Prevention: Substance abuse screening and referral to treatment during routine medical visits.

DURING PREGNANCY

• Secondary Prevention
• Maternal screening for substance abuse and other risky behaviors
  • Hospital policies regarding universal screening for all pregnant women
  • Reporting positive screens to child protective services
  • Tracking outcomes of CPS referrals

• Tertiary Prevention
  • Medication Assisted Treatment during pregnancy
  • Counseling about the effects on the fetus/newborn
  • Coordination of care for opioid-dependent women
  • Estimated that 50-75% of opioid-dependent women have a mood disorder or major psychiatric disorder requiring ongoing services
  • 90% are smokers

Winklbaur et al. *Addiction*. 2008;103:1429-1440
AT BIRTH

• The birth of a child offers an opportunity for some new mothers to change their risky behaviors.
• Secondary Prevention: Neonatal Screening
  • Consistent and effective protocols for identification of NAS cases
  • Universal Screening, Reporting and Referral
  • Tracking of referral outcomes
• Tertiary Prevention: Treatment of NAS patients

INFANCY

• Tertiary Prevention
• Infant treatment
  • Standardized protocol for identification and treatment
  • Nonpharmacologic and pharmacologic methods
  • Developmental services
  • Ensure an environment safe from abuse and neglect
  • Tracking Outcomes
  • Length of Stay, Number of mothers with an antenatal consult with a pediatrician
  • Length of time from initiation of treatment to weaning, Number rooming-in with parents
• Tend to medical needs of other family members including treatment of the parent-child relationship.

CHILDHOOD FOLLOW-UP AND ONGOING SERVICES

• Tertiary Prevention (Primary Prevention for the next case)
• Treat persistent subacute symptoms of NAS and ongoing needs of affected infant, mother and family.
• Treat ongoing maternal substance abuse issues and increased risk for relapse in post-partum period
• Monitor for increased risk for SIDS and abusive head trauma
• Systems to track substance exposed infants, mothers and families as they transition between providers and provide appropriate education, screening and support as exposed infants approach school-age, adolescence and adulthood to prevent adoption of high-risk behaviors.

CURRENT STATE RESPONSES TO NEONATAL ABSTINENCE SYNDROME
PUBLIC HEALTH INTERVENTIONS

• State Responses to the NAS Epidemic
  • Contacted representative stakeholder in each state to participate in a survey to discuss state-wide public health interventions.
  • 31 have a formal or informal group looking at the problem
    • 19 >1 year, 7 <1 year, 5 planning
  • Organized various agencies/departments
    • MCH, Governor’s Office, Attorney General’s Office, Multidisciplinary Legislative Advisory Committee or Taskforce, Subcommittee of existing workgroup (SIDS, Infant Mortality, Prenatal Exposure), NGO (AAP, MGO), Quality Collaborative Group

• 15 have identifiable funding sources
  • Line item budget of Governor’s or Attorney General’s Office
  • Department of Public Health
  • Other Legislative Money
  • Title V Block Grant
  • Private or Industry Support

PUBLIC HEALTH INTERVENTIONS

• Programs
  • NAS as reportable disease
    • What is reported? All exposed or just those with symptoms
  • Prenatal Screening
    • Define “screening”. Mandatory treatment?
  • Neonatal Screening
    • Multiple methods...cost-effective
  • Educational and Intervention Programs
    • Increase awareness and offer help
  • State-wide enrollment in Quality Collaborative
    • VON, Reporting Groups
  • Guidelines for screening and treatment
PUBLIC HEALTH INTERVENTIONS

• Treatment needs of pregnant women with substance abuse
  • Met in 5 states, 44 responded no, 1 declined
    • “No waiting lists for pregnant women seeking treatment”
    • “Only 6 birthing hospitals and 1 handles 80% of deliveries in the state”
    • “If receiving prenatal care”

• Many felt that there were localized areas within the state with adequate resource but not true for whole state
• Some states- resources are just overwhelmed

PUBLIC HEALTH INTERVENTIONS

• Postdischarge policies
  • 21 yes, 28 no
    • CPS for positive toxicology screen on mother, baby or just if baby has symptoms.
    • Substance-exposure may fit definition of “abuse and neglect”

PUBLIC HEALTH INTERVENTIONS

• Postdischarge Programs
  • 17 yes, 30 no
    • Not usually specific to NAS.
    • Expansion of tobacco or FAS (Fetal Alcohol Syndrome) programs
    • IDEA Early Intervention Programs
    • Some states make programs contingent upon referral to CPS

• Link between NAS and Abusive Head Trauma or SIDS/SUID
  • Head Trauma: 0 yes, 6 no, 43 unknown
  • SIDS/SUID: 2 yes, 6 no, 41 unknown
    • Data systems not designed to link birth and death certificates
    • Anecdotal evidence not supported by statistics

PUBLIC HEALTH INTERVENTIONS

• Tennessee
  • NAS Subcabinet Working Group in Governor’s Office
    • Associated with the TIPQC.
    • In Jan 2013, NAS became a reportable disease in TN.
      • Real-time reporting of statistics
**PUBLIC HEALTH INTERVENTIONS**

**Florida**
- State-Wide Taskforce on Drug Abuse and Newborns in AG’s Office
- **Born Drug Free Florida** is an initiative by the Florida Department of Children and Families, Florida Office of the Attorney General and the Florida Department of Health to raise awareness about babies being born exposed to prescription drugs.
  - The campaign educates expectant mothers about the importance of discussing prescription drug abuse with their doctors and to offer assistance to the women.

**Kentucky**
- Project through the Department of Maternal and Child Health.
  - Work groups to evaluate: Identification and Definitions, In-Hospital Treatments Protocols, Maternal Prenatal and Postnatal Care, Community and Policy.
  - NAS is a reportable disease.
PUBLIC HEALTH INTERVENTIONS

• Ohio
  • M.O.M.S. (Maternal Opiate Medical Support)
    • Integrate maternal care practice, identify best practices, conduct study to model standard practices
  • House of Representatives passes bill to make NAS reportable to the State Health Department—Jan 2014
  • State-wide Quality Collaborative
    • Published study of protocol vs. no protocol for weaning
    • Having a protocol is better than not, regardless of treatment options.
      • *Pediatrics* 2014;134:e527-e534

• Arizona
  • “Guidelines for Identifying Substance-Exposed Newborns”
  • “Arizona Opioid Prescribing Guidelines”

• Maine
  • *Snuggle ME* Guidelines for maternal screening and management during the antepartum, intrapartum and postpartum periods

• Vermont
  • “Management of Neonatal Opioid Withdrawal”
  • “Opioid Prescribing in Emergency Departments”

• Washington
  • “Guidelines for Testing and Reporting Drug Exposed Newborns in Washington State”

• South Carolina
  • State-wide treatment protocol for Level 1 nurseries.
    • Estimates that for every 12 babies they can keep at a Level 1 instead of a Regional Perinatal Center, they will save $1,000,000.

• Association of State and Territory Health Organizations (ASTHO)
  • Challenge
SUMMARY

• The Neonatal Abstinence Epidemic continues to worsen.
• We have reviewed important tenants of Public Health approaches to the NAS problem:
  • Life Course Perspective
  • Levels of Prevention
• Many states have recognized the need for Public Health Interventions for NAS.