Neonatal Abstinence Syndrome

4.5% of women of childbearing age (15 to 44 years) report prescription drug use and may be at higher risk of having a baby born with NAS.

Successful outcomes in treating infants with NAS are more likely when a substance abusing woman receives medical care early in her pregnancy.

Effective pharmacological treatment requires the inclusion of evidence-based behavioral interventions such as substance abuse counseling and additional recovery services.

Neonatal abstinence syndrome (NAS) is a condition in which a neonate experiences withdrawal symptoms following exposure to certain substances during the prenatal period. Substances may include prescription medications (such as opioids or benzodiazepines) that are obtained with or without a prescription or certain illicit drugs. NAS is a treatable condition and 100% preventable if a woman does not use these substances during pregnancy. Preliminary analysis shows recent increasing rates of NAS among Florida's infants. Clear differences in rates of NAS were also observed between race and ethnicity groups.

Public Health Implications of NAS

Infants with NAS have prolonged hospital stays, experience serious medical and social complications, and place a tremendous strain on health and human service systems. The substantial rise in the incidence of NAS and the associated public health consequences warrant additional analysis and implementation of targeted interventions, coordinated services, research, best practice methodology and training.

The 2012 Florida Legislature passed legislation establishing the statewide Task Force on Prescription Drug Abuse and Newborns to examine and analyze the emerging problem of neonatal withdrawal syndrome as it pertains to prescription drugs. A 15-member taskforce was assembled to investigate the scope of the problem, the costs associated with caring for babies with NAS, long-term effects of the syndrome and strategies for preventing prescription drug abuse by expectant mothers. The task force released a final report in February 2013 outlining recommendations addressing prevention, intervention and best practices and treatment issues. The final report can be viewed on the Florida Attorney General's website at myfloridalegal.com.

The Florida Department of Health is working on implementing recommendations from the Final Report, including adding NAS to the list of reportable diseases and conditions in Florida.

Substances Used or Misused

A large variety of substances may be used or misused by women of childbearing age. Many are known to cause neonatal behavior consistent with drug withdrawal. The incidence and severity of NAS varies depending on the type of drug. Some babies may have had in utero exposure to multiple drugs. In utero exposure to the following major classes of drugs may lead to signs of neonatal withdrawal or result in acute drug effects:

SIGNS OF WITHDRAWAL

- **Opioids (methadone, heroin, buprenorphine, oxycodone, hydrocodone)**
- **Hypnosedatives (barbituates, benzodiazepines)**

DRUG EFFECT

- **Central nervous system (CNS) stimulants (amphetamines, cocaine, selective serotonin reuptake inhibitors [SSRIs], serotonin noradrenaline reuptake inhibitors [SNRIs])**
- **Hallucinogens, including inhalants (glues, paint thinners, petrol)**

Florida HEALTH

Neonatal Abstinence Syndrome

POTENTIAL NAS ICD-9-CM CODES

779.5
—drug withdrawal syndrome in a newborn

760.72
—narcotics affecting fetus or newborn via placenta or breast milk

A COORDINATED PUBLIC HEALTH APPROACH MAY INCLUDE:

- **Designing and evaluating health protection materials that increase awareness about the dangers associated with prescription drug abuse, focusing on women of childbearing age and newborns**
- **Collecting, analyzing and disseminating data about NAS including the number of affected women and infants and associated health care costs**
- **Adding NAS to the List of Reportable Diseases/Conditions in Florida**
- **Identifying existing resources to assist health care providers and families**
- **Collecting, analyzing and disseminating data to facilitate research related to NAS**

Prenatal Care Is Vital

Adequate prenatal care often determines the difference between a routine versus high-risk pregnancy and between good versus poor pregnancy outcomes. Timely initiation of prenatal care remains a goal nationwide, and it is overrepresented among women with substance use disorders. In part, the concern and perceived threat of legal consequences for using drugs during pregnancy, coupled with limited substance abuse treatment facilities that offer special programs for pregnant women, are key obstacles to care.

Early Intervention

Brief interventions can provide an opening to engage women in a process that may lead toward treatment and wellness. Pregnancy creates a sense of urgency to:

- **Eliminate high-risk behaviors**
- **Enter treatment**

ICD-9-CM Codes and Florida Data

All 2008 through 2011 Agency for Health Care Administration (AHCA) inpatient hospital discharge records with a diagnosis code indicative of NAS (based on ICD-9-CM), among infants less than one year of age were included in the analysis. These infant records were unduplicated and linked to Florida birth certificate records. Rates were calculated per 10,000 live births using Florida live birth counts. Preliminary analysis shows increasing rates of NAS among Florida infants, and clear differences were observed between race and ethnicity groups. Further investigation into the limitations of NAS surveillance utilizing hospital discharge records is needed, including a discussion on selection bias.

Neonatal Abstinence Syndrome Frequencies and Rates per 10,000 Live Births, 2008–2011

		2008		2009		2010		2011		TOTAL	
		n	rate	n	rate	n	rate	n	rate	n	rate
NAS		592	25.8	937	42.6	1,212	57.0	1,411	66.2	4,152	92.4
MATERNAL RACE/ ETHNICITY	White NH	497	48.7	788	80.9	1,055	111.8	1,221	128.3	3,561	91.6
	Black NH	43	8.6	75	15.3	58	12.2	86	18.1	262	13.5
	Hispanic	38	5.8	57	9.2	73	12.3	81	13.8	249	10.1