

## PERINATAL ILLICIT SUBSTANCE EXPOSURE IN INFANTS & PREGNANT WOMEN

**Scope of the problem :** The National Survey on Drug Use and Health (NSDUH) reports that in 2002 and 2003, 4.3% of pregnant women aged 15 to 44 had used illicit drugs including opiates, marijuana, cocaine, hallucinogens, inhalants, tranquilizers, stimulants, and sedatives in the past month. Also 4.1% reported binge alcohol use and 18.0% reported smoking cigarettes.<sup>1</sup> The rate of drug use for pregnant teenagers was approximately 15%.<sup>2</sup> The NSDUH data also suggest that women increased their substance use during the year *after* giving birth.

Illicit substance use/abuse (and legal substance use/abuse including alcohol and tobacco) may impact a pregnant woman's health, the course of her pregnancy, and the development of her fetus. Fetal effects of illicit substances include teratogenesis, intrauterine growth retardation, prematurity, low birth weight, birth complications, central nervous system damage. Exposed newborns are at risk for neonatal abstinence effects and developmental and behavioral abnormalities.

Increasing rates of substance abuse during pregnancy translate into higher numbers of drug-exposed infants. In 2004 and 2005 DHS confirmed in utero drug exposure on 549 & 306 newborns, respectively, in Iowa.<sup>5</sup> However, this number is lower than the expected 1500-1750 newborns based on ~ 37,000 infants being delivered in Iowa annually. This discrepancy is mainly due to poor screening/testing practices. The unrecognized infants are discharged to their homes where mothers are likely to continue to use/abuse illegal substances. These infants continue to be exposed to illegal substances and the associated chaotic life style, health degradation, violence, child abuse and neglect, and family dysfunction.

Research shows that intervention works. Treatment for substance abuse during pregnancy is significantly more effective than at other times in a woman's life. Treatment also has a positive affect on fetal outcome (fewer intensive care admissions due to greater gestational age and birth weight).<sup>6</sup> Early recognition, early intervention, timely entry into treatment, and a sustained, long-term treatment regimen minimize the fetal impacts of perinatal maternal illicit drug use and improve a woman's prognosis for successful, ongoing recovery from addiction. A screening and intervention protocol developed by a panel of experts from across Iowa will help medical care providers to make objective decisions regarding their screening/testing/intervention practices for substance abuse in women during pregnancy and for their offspring.<sup>7,8</sup>

**Purpose :**

- \* Develop a community practice guideline for perinatal illicit substance use screening and testing
- \* Identify illicit substance using patients during pregnancy and their exposed infants
- \* Provide a screening tool to identify the patients and infants at risk for use and exposure

\* Provide guidelines for referral and intervention both for the mother and the infant

\* Increase secondary and tertiary prevention efforts to reduce pregnancy related illicit drug use/abuse

The sole goal of identification is to provide early access to assessment and treatment for the mother/infant dyads without application of punitive measures. Identification efforts should start at the first prenatal visit. Screening for maternal substance abuse must begin with a thorough but non-judgmental and compassionate interview. History taking should include questions about the pregnant woman's and her immediate family members' use of prescribed and un-prescribed drugs, tobacco, and alcohol.

**Consent for Testing :** Specific consent should be sought from the pregnant woman to perform urine toxicology testing if any risk factor is recognized via risk assessment form. Urine testing history including testing offer dates, maternal responses (consented versus declined), test dates, results, positive testing drug(s) should be documented in the chart. Any concerning result should be shared with the hospital Social Worker and the pediatric team.

Maternal consent is not needed to test a newborn as long as one or more of the risk indicators related to maternal and infant history or presentation are present, if the risk factors equate to the conditions stated in Iowa law that is “if a health practitioner discovers in a child physical or behavioral symptoms of the effect of exposure to cocaine, heroin, amphetamine, methamphetamine, or other illegal drugs including marijuana, **or** combination or derivatives that were not prescribed by a health practitioner or if the health practitioner has determined through examination of the natural mother of the child that the child was exposed in-utero”. However, the mother should be informed of the decision to test the newborn. Urine/meconium testing with testing dates and results should be documented in the chart.

**Risk assessment in Prenatal Clinic, Labor & Delivery, and Neonatal Units:** This tool consists of two forms one to assess the risk status of the pregnant/delivering woman, the other of the infant.

- Prenatal clinic/delivery room risk assessment form: Prenatal Clinic and Labor and Delivery staff will fill out this form. This risk assessment should take place at the first encounter with the pregnant woman and at delivery. At other encounters the staff should document that the pregnant woman continues to be abstinent.
- Neonatal risk assessment form: This form will be filled out by the newborn staff who will also review the above listed form and maternal drug testing results.
- Labor & Delivery staff should share the maternal risk assessment and testing results with the medical team providing care

to the newborn. If prenatal care and delivery take place at different hospitals, the delivery hospital should request maternal consent to obtain the prenatal records from where prenatal care was obtained.

- Each hospital is encouraged to either adopt these forms as in their attached form or develop a system to incorporate the risk assessment forms into the prenatal/neonatal records. Prenatal Clinic/Labor and Delivery staff, Hospital Substance Abuse Management Team, Hospital Social Worker(s), Psychiatry staff, and Pediatric team should review these forms in their assessment of their client (infant and/or the mother).

**Test specimens :**

- Urine: 10 ml urine; if submission to the lab is to be delayed it should be kept refrigerated until testing.
- Meconium: 5 gm of meconium is necessary. It may be refrigerated up to 48 hours after collection.
- Urine is the test of choice for the mother, both urine and meconium should be used to test the newborn.
- Every institution should have a procedure for documentation according to their policies and procedures in handling all specimens obtained for the purpose of newborn toxicology testing.

**Institutional response to addiction in Prenatal Clinic/Labor & Delivery Unit:** Hospitals are recommended to establish an in-house team to respond to the needs of pregnant women using illicit drugs. This team may include staff from Prenatal Clinic, Newborn Unit, Hospital Social Services, Hospital/Community Chemical Dependency Unit/Agency, and Psychiatry Department. Staff becoming aware of substance abuse or positive test results should have this team or the hospital social worker involved to improve the referral process for treatment at any time during pregnancy. Information on referral centers for substance abuse treatment can be found at [www.idph/state.ia.us](http://www.idph/state.ia.us) under Bureau of Substance Abuse/online Resources/Licensed Substance Abuse Treatment Programs.

**Notification Guidelines :** Any staff becoming aware of an infant testing positive for illicit substances as defined in Iowa code is required by law to file a report with DHS for “Presence of Illegal Drugs”. Any staff becoming aware of maternal substance abuse, positive test result and/or multiplicity of risk indicators for perinatal illicit substance exposure should have the hospital social worker get involved to assess for a need to file a report for “Denial of critical care” with DHS for child protection.

## References:

1. Substance Abuse and Mental Health Services Administration, Office of Applied Studies. *The National Survey on Drug Use and Health Report, Substance Use During Pregnancy: 2002 and 2003 Update*. Washington, DC: US Department of Health and Human Services; June 2005.
2. Substance Abuse and Mental Health Services Administration, Office of Applied Studies. *National Household Survey on Drug Abuse, 2001*. Washington, DC: US Department of Health and Human Services; February 2003.
3. Eyler, F. D., Behnke, M., Conlon, M., Woods, N. S., & Wobie, K. (1998). Birth outcome from a prospective, matched study of prenatal crack/cocaine use: II. Interactive and dose effects on neurobehavioral assessment. *Pediatrics*, 101(2), 237-241.
4. Walsh C, MacMillan HL, Jamieson E. The relationship between parental substance abuse and child maltreatment: findings from the Ontario Health Supplement. *Child Abuse Negl* 2003; 27(12):1409-25.
5. DHS database system: Personal communication.
6. Little BB, Snell LM, Van Beveren TT, Crowell RB, Trayler S, Johnston WL. Treatment of substance abuse during pregnancy and infant outcome. *Am J Perinatol*. 2003, 20(5):255-62.
7. American Academy of Pediatrics, Committee on Drugs. Neonatal drug withdrawal. *Pediatrics* 1998; 101(6): 1079-1088.
8. Greene, CM and Goodman, MH. Neonatal abstinence syndrome: strategies for care of the drug-exposed infant. *Neonatal Network* 2003; 22(4): 15-25.
9. Marwick, C. NIDA Seeking data on effect of fetal exposure to methamphetamine. *The Journal of the American Medical Association* 2000; 283(17): 2225-2226.
10. National Institute on Drug Abuse, National Institutes of Health. *Commonly Abused Drugs*. Washington, DC: US Department of Health and Human Services; May 2003.
11. Taeusch, H., Ballard, R., Gleason, C. *Avery's Diseases of the Newborn (8<sup>th</sup> Edition)*. Philadelphia: Elsevier, Saunders; 2005: 106-126.
12. Jennie Edmundson Hospital, Council Bluffs, Iowa. Policy: *Toxicology Screening for Presence of Illegal Drugs in Infants*. Revised: 05/04.
13. The Finley Hospital, Dubuque, Iowa. Policy: *Meconium Drug Testing in Infant*. Revised: 06/04.
14. St. Luke's Hospital, Cedar Rapids, Iowa. Policy: *Screening For Presence of Illegal Drugs in Infants*. Revised: 04/03.
15. Ottumwa Regional Health Center, Ottumwa, Iowa. Policy: *Protocol for Meconium Drug Screen*. Revised: 05/05.
16. Iowa Methodist Medical Center, Des Moines, Iowa. Policy: *Toxicology Screening: Neonatal*. Revised: 10/04.
17. Ebrahim SH, Gfroerer J. Pregnancy related substance use in the USA during 1996-1998. *Obstet. Gynecol* 2003; 101(2):374-70.

18. Hawthorne JL, Maier RC. Drug Abuse in an Obstetric Population of a mid sized city. *Southern Med J* 1993; 86(12): 1334-38. .
19. Lester BM, Elsohly M, Wright LL, Smeriglio VL, Verrter J, Bauer CR et al. The maternal life style study: Drug use by meconium toxicology and maternal self report. *Pediatrics* 2001; 107:309-317.
20. Kwong TC, Ryan RM. Detection of intrauterine illicit drug exposure by newborn drug testing. *Clinical Chem* 1997; 43(1):235-42.
21. O'Connor TA, Bondurant HH, Siddiqui J. Targeted perinatal drug screening in a rural population. *Matern Fetal Med* 1997; 6(2):108-10.
22. Ryan RM, Wagner CL, Schultz JM, Varley J, DiPreta J, Sherer DM et al. Meconium analysis for improved identification of infants exposed to cocaine in utero. *Pediatr* 1994; 125:435-40
23. Day NL, Cottreau CM, Richardson GA. The epidemiology of alcohol, marijuana, and cocaine use among childbearing age and pregnant women.
24. Hansen RL, Evans AT, Gillogley KM, Hughes CS, Krener PG. Perinatal toxicology screening. *J Perinatol* 1992; 12(3):220-4.
25. Ostrea EM, Brady M, Gause S, Raymundo AL, Stevens M. Drug screening of newborns by meconium analysis: A large scale, prospective, epidemiologic study. *Pediatr* 1992; 89(1):107-13.
26. Frank DA, Zuckerman BS, Amaro H, Aboagye K, Bauchner H, Cabral H et al. Cocaine use during pregnancy: prevalence and correlates. *Pediatr* 1988; 82(6):888-895.
27. Kempe Child Protection Center Drug Screening Protocol, Denver, Colorado
28. Dixon SD. Effects of transplacental exposure to cocaine and methamphetamine on the neonate. *West J Med* 1991; 150:436-42
29. Gillogley KM, Evans AT, Hansen RL, Samuels SJ, Batra KK. The perinatal impact of cocaine, amphetamine, and opiate use detected by universal intrapartum screening. *Am J Obstetr Gynecol* 1990; 163:1535-42.
30. Bell GL, Lau K. Perinatal and neonatal issues of substance abuse. *Pediatr Clin North Am* 1995; 42:261-81.
31. Huestis MA, Choo RE. Drug abuse's smallest victims: in utero drug exposure. *Forensic Sci Int.* 2002; 128(1-2):20-30.
32. Birchfield M, Scully J, Handler A. Perinatal screening for illicit drugs: policies in hospitals in a large metropolitan area. *J Perinatol.* 1995; 15(3):208-14.
33. Vaughn AJ, Carzoli RP, Sanchez-Ramos L, Murphy S, Khan N, Chiu T. Community-wide estimation of illicit drug use in delivering women: prevalence, demographics and associated risk factors. *Obstet Gynecol.* 1993;82(1):92-6.
34. Miles DR, Svikis DS, Kulstad And JL, Haug NA. Psychopathology in pregnant drug-dependent women with and without comorbid alcohol dependence. *Alcohol Clin Exp Res.* 2001 Jul;25(7):1012-7.
35. Miles DR, Kulstad JL, Haller DL. Severity of substance abuse and psychiatric problems among perinatal drug-dependent women. *J Psychoactive Drugs.* 2002 Oct-Dec;34(4):339-46.
36. Haller DL, Miles DR, Dawson KS. Factors influencing treatment enrollment by pregnant substance abusers. *Am J Drug Alcohol Abuse.* 2003;29(1):117-31.

37. Locke TF, Newcomb M. Child maltreatment, parent alcohol and drug-related problems, polydrug problems, and parenting practices: a test of gender differences and four theoretical perspectives. *J Fam Psychol.* 2004;18(1):120-34.
38. Stein JA, Leslie MB, Nyamathi A. Relative contributions of parent substance use and childhood maltreatment to chronic homelessness, depression, and substance abuse problems among homeless women: mediating roles of self-esteem and abuse in adulthood. *Child Abuse Negl.* 2002 Oct;26(10):1011-27.
39. Johnson K, Gerada C, Greenough A. Substance misuse during pregnancy.
40. Henry Co Health Center Protocol, Iowa
41. Genesis Health Center Protocol, Iowa
42. Mercy Medical Center protocol, Sioux City, Iowa
43. Marshalltown Medical and Surgical Center Protocol. Iowa
44. Arizona State Protocol
45. Management of Perinatal Substance Use and Abuse, Greater Toronto Child Health Network, Canada
46. University of South Carolina Protocol
47. Washington State Protocol
48. Indiana State Protocol
49. University of Iowa Hospitals and Clinics Protocol
50. Bar-Oz, B, Klein, J, Karaskov, T, and Koren, G. Comparison of meconium and neonatal hair analysis for detection of gestational exposure to drugs of abuse. *Archives of Disease in Childhood: Fetal and Neonatal Edition* 2003; 88(2): F98(3).
51. Ostrea, EM et al. Drug screening of meconium in infants of drug-dependent mothers: an alternative to urine testing. *Journal of Pediatrics* 1998; 115(3): 474-477.
52. Chasnoff, IJ et al. 4-Ps Plus as a screening tool for preinatal illicit drug use, *J Perinatol* 2005;25:368-374...