Department of Health

MCH Symposium

Supplementary Slides

Cynthia C. Thomas, DO, MPH, Assistant Health Officer, Northeast Regional Health Office

Substance Use - Terminology

- Substance use: The consumption of a substance
- Substance misuse: The use of a substance for a purpose other than that for which it is intended or was prescribed, use of a substance prescribed to someone else, or use of a dose other than that intended or prescribed
- Substance abuse: The use of illegal drugs or use of legal drugs inappropriately (the repeated use of drugs to produce pleasure, alleviate stress, and/or alter or avoid reality)
- Addiction: A chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences

Substance Use - Terminology

- Tolerance: increasing amounts of a substance are required to achieve the same response
  - Occurs when certain substances are used repeatedly over time
  - Repeated use of alcohol, stimulants, opioids and barbituates can lead to tolerance
- Dependence: continued use of a substance is required for normal physiologic functioning
  - May occur with the regular use of any substance, legal or illegal, even when taken as prescribed
  - Occurs because the body naturally adapts to regular exposure to a substance
  - When that substance is taken away, symptoms can emerge while the body re-adjusts to the loss of the substance (withdrawal syndrome)
  - Physical dependence can lead to craving the drug to relieve the withdrawal symptoms

Opiates and Opioids

- Natural, semi-synthetic and synthetic
  - Four naturally occurring derivatives of the opium poppy (morphine, codeine, papaverine , thebaine)
  - Semi-synthetic opioids (dihydrocodeine, buprenorphine, oxycodone)
  - Synthetic opioids (butorphanol, methadone, fentanyl)
- Opioid receptor agonists, partial agonists and antagonists
  - Agonists – maximal response (morphine)
  - Partial agonists – partial functional response regardless of amount of drug administered (buprenorphine)
  - Antagonists – no functional response and prevent binding of agonists (naloxone)

Pathan H, Williams J. Basic opioid pharmacology: an update. *British Journal of Pain*. 2012;6(1):11-16. doi:10.1177/2049463712438493.

Neonatal Abstinence Syndrome

- Neonatal opioid withdrawal symptoms:

- High pitched crying
- Excessive crying, inconsolability
- Difficulty sleeping
- Jerks, tremors, jitters, irritability
- Sweating
- Fast breathing, nasal flaring
- Excessive sneezing, yawning
- Fever
- Mottled color (patchy colored skin)
- Frantic, uncoordinated sucking (not in response to hunger)
- Difficulty feeding
- Vomiting
- Diarrhea
- Skin breakdown from loose stool/diarrhea
- Skin breakdown on knees, elbows, chin, nose
- Seizures

Modified Finnegan's Neonatal Abstinence Scoring Tool.

NEONATAL ABSTINENCE SCORING SYSTEM

SYSTEM	SIGNS AND SYMPTOMS	SCORE	AM						PM						COMMENTS
CENTRAL NERVOUS SYSTEM DISTURBANCES	Continuous High Pitched (or other) Cry	2													Daily Weight:
	Continuous High Pitched (or other) Cry	3													
	Sleeps <1 Hour After Feeding	3													
	Sleeps <2 Hours After Feeding	2													
	Sleeps <3 Hours After Feeding	1													
	Hyperactive Moro Reflex	2													
	Markedly Hyperactive Moro Reflex	3													
	Mild Tremors Disturbed	1													
	Moderate-Severe Tremors Disturbed	2													
	Mild Tremors Undisturbed	3													
	Moderate-Severe Tremors Undisturbed	4													
	Increased Muscle Tone	2													
	Excoriation (Specific Area)	1													
	Myoclonic Jerks	3													
	Generalized Convulsions	5													
METABOLIC/VASOMOTOR/RESPIRATORY DISTURBANCES	Sweating	1													
	Fever 100.4°-101°F (38°-38.3°C)	1													
	Fever > 101°F (38.3°C)	2													
	Frequent Yawning (>3-4 times/interval)	1													
	Mottling	1													
	Nasal Stuffiness	1													
	Sneezing (>3-4 times/interval)	1													
	Nasal Flaring	2													
	Respiratory Rate >60/min	1													
	Respiratory Rate > 60/min with Retractions	2													
GASTRO-INTESTINAL DISTURBANCES	Excessive Sucking	1													
	Poor Feeding	2													
	Regurgitation	2													
	Projectile Vomiting	3													
	Loose Stools	2													
	Watery Stools	3													
	TOTAL SCORE														
	INITIALS OF SCORER														

Hudak M L et al. Pediatrics 2012;129:e540-e560

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Opioid Withdrawal in Adults

- Clinical Opiate Withdrawal Scale (COWS)
  - Heart rate, sweating, restlessness, pupil size, bone or joint aches, runny nose or tearing, GI upset, tremor, yawning, anxiety or irritability, gooseflesh skin

Wesson, D. R., & Ling, W. (2003). The Clinical Opiate Withdrawal Scale (COWS). J Psychoactive Drugs, 35(2), 253–9.

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APPENDIX 1
Clinical Opiate Withdrawal Scale

For each item, circle the number that best describes the patient's signs or symptom. Rate on just the apparent relationship to opiate withdrawal. For example, if heart rate is increased because the patient was jogging just prior to assessment, the increase pulse rate would not add to the score.

Patient's Name:_____ Date and Time ___/___/___:_____

Reason for this assessment:_____

Resting Pulse Rate: _____beats/minute *Measured after patient is sitting or lying for one minute* 0 pulse rate 80 or below 1 pulse rate 81-100 2 pulse rate 101-120 4 pulse rate greater than 120	**GI Upset:** *over last 1/2 hour* 0 no GI symptoms 1 stomach cramps 2 nausea or loose stool 3 vomiting or diarrhea 5 multiple episodes of diarrhea or vomiting
Sweating: *over past 1/2 hour not accounted for by room temperature or patient activity.* 0 no report of chills or flushing 1 subjective report of chills or flushing 2 flushed or observable moistness on face 3 beads of sweat on brow or face 4 sweat streaming off face	**Tremor** *observation of outstretched hands* 0 no tremor 1 tremor can be felt, but not observed 2 slight tremor observable 4 gross tremor or muscle twitching
Restlessness *Observation during assessment* 0 able to sit still 1 reports difficulty sitting still, but is able to do so 3 frequent shifting or extraneous movements of legs/arms 5 unable to sit still for more than a few seconds	**Yawning** *Observation during assessment* 0 no yawning 1 yawning once or twice during assessment 2 yawning three or more times during assessment 4 yawning several times/minute
Pupil size 0 pupils pinned or normal size for room light 1 pupils possibly larger than normal for room light 2 pupils moderately dilated 5 pupils so dilated that only the rim of the iris is visible	**Anxiety or Irritability** 0 none 1 patient reports increasing irritability or anxiousness 2 patient obviously irritable or anxious 4 patient so irritable or anxious that participation in the assessment is difficult
Bone or Joint aches *If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored* 0 not present 1 mild diffuse discomfort 2 patient reports severe diffuse aching of joints/muscles 4 patient is rubbing joints or muscles and is unable to sit still because of discomfort	**Gooseflesh skin** 0 skin is smooth 3 piloerrection of skin can be felt or hairs standing up on arms 5 prominent piloerrection
Runny nose or tearing *Not accounted for by cold symptoms or allergies* 0 not present 1 nasal stuffiness or unusually moist eyes 2 nose running or tearing 4 nose constantly running or tears streaming down cheeks	Total Score _____ The total score is the sum of all 11 items Initials of person completing assessment _____

Score: 5-12 = mild, 13-24 = moderate, 25-36 = moderately severe, more than 36 = severe withdrawal

This version may be copied and used clinically.

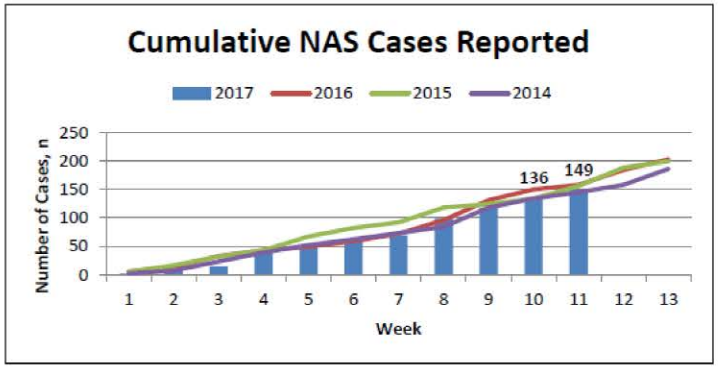
Source: Wesson, D. R., & Ling, W. (2003). The Clinical Opiate Withdrawal Scale (COWS). *J Psychoactive Drugs*, 35(2), 253–9.

NAS Summary Report

Neonatal Abstinence Syndrome Surveillance Summary
Week 11: March 12– March 18, 2017

Year to Date Reporting Summary		
Total Cases Reported:		149
Sex	Male	84
	Female	65

Maternal County of Residence	# Cases	% Cases[2]
Davidson	11	7.4
East	16	10.7
Hamilton	6	4.0
Jackson/Madison	2	1.3
Knox	14	9.4
Mid-Cumberland	11	7.4
North East	35	23.5
Shelby	6	4.0
South Central	12	8.1
South East	4	2.7
Sullivan	16	10.7
Upper Cumberland	13	8.7
West	3	2.0
TOTAL	149	99.9



Source of Exposure	# Cases[3]	% Cases
Medication assisted treatment	108	72.5
Legal prescription of an opioid pain reliever	7	4.7
Legal prescription of a non-opioid	10	6.7
Prescription opioid obtained without a prescription	35	23.5
Non-opioid prescription substance obtained without a prescription	22	14.8
Heroin	10	6.7
Other non-prescription substance	28	18.8
No known exposure	0	4.0
Other[4]	6	3.7

1. *Summary reports are archived weekly at: http://tn.gov/health/article/nas-summary-archive*
2. *Total percentage may not equal 100.0% due to rounding.*
3. *Multiple maternal substances may be reported; therefore the total number of cases in this table may not match the total number of cases reported.*
4. *Other exposure may include cases reported to the archived surveillance system with classifications not captured in the current system.*

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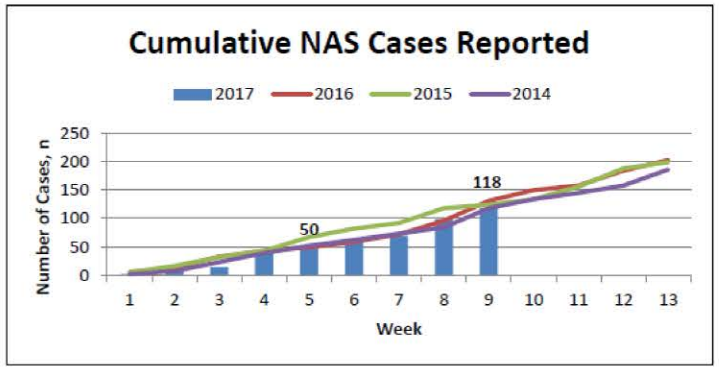
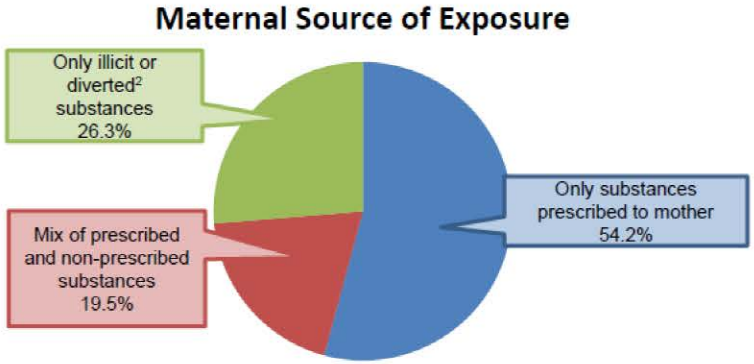
NAS Monthly Update

Neonatal Abstinence Syndrome Surveillance
February Update (Data through 03/04/2017)

TN Department of Health





Quick Facts: NAS in Tennessee

- **118 cases** of Neonatal Abstinence Syndrome (NAS) have been reported since January 1, 2017
- In the majority of NAS cases (**73.7%**), at least one of the substances causing NAS was **prescribed to the mother by a health care provider.**
- The highest rates of NAS in 2017 have occurred in the Northeast and Upper Cumberland Health Regions, and Sullivan County.

NAS Prevention Highlight – A new task force has been formed in Knoxville to address opioid and drug issues in Knoxville and east Tennessee. One goal will be to encourage people with addiction to get help. The Knoxville Police Department is the lead agency and will be joined by the Knox County District Attorney's Office, Medical Examiner, Sheriff's Office, Tennessee Bureau of Investigation and other stakeholders. Leaders in East Tennessee are worried about the alarming rate of NAS compared to the rest of the state. The High Intensity Drug Traffic funds support NAS public service awareness and the coalition. For more information, email chiefofpolice@knoxvilletn.gov.

NAS Monthly Update

Additional Detail for Maternal Sources of Exposure

Source of Exposure	# Cases[3]	% Cases
Medication assisted treatment	83	70.3
Legal prescription of an opioid pain reliever	6	5.1
Legal prescription of a non-opioid	8	6.8
Prescription opioid obtained without a prescription	30	25.4
Non-opioid prescription substance obtained without a prescription	18	15.3
Heroin	8	6.8
Other non-prescription substance	24	20.3
No known exposure	0	0
Other[4]	0	0

NAS Cases by County/Region

Maternal County of Residence (By Health Department Region)	# Cases	Rate per 1,000 births
Davidson	8	5.3
East	13	10.1
Hamilton	3	4.4
Jackson/Madison	1	5.2
Knox	9	11.3
Mid-Cumberland	9	3.7
North East	29	51.2
Shelby	6	2.9
South Central	10	13.3
South East	3	5.2
Sullivan	13	56.5
Upper Cumberland	11	19.1
West	3	3.1
Total	**118**	**9.3**

NAS Prevention Opportunities

Everyone

- Dispose of unwanted or outdated medications. Find local drop sites at: http://tn.gov/environment/article/sp-unwanted-pharmaceuticals

Health Care Providers

- Check the Controlled Substance Monitoring Database before dispensing an opioid or benzodiazepine.
- Refer to **New 2017** Chronic Pain Guidelines for recommendations on the appropriate treatment of chronic non-malignant pain for women of childbearing age.
- Talk with patients who are women of childbearing age about how to prevent an unintended pregnancy.
- Screen patients for substance abuse risk and refer to mental health treatment resources as appropriate.
- Discourage women from smoking during pregnancy; nicotine dependence appears to increase the risk of development of NAS in the baby. 1-800-QUIT-NOW.

For further information: Visit the Tennessee's Department of Health's NAS website.

Notes

1. *Individual weekly summary reports are archived at: http://www.tn.gov/health/article/nas-summary-archive*
2. *"Illicit" means drugs which are illegal or prohibited. "Diverted" means using legal/prescribed drugs for illegal purposes. For example, using a prescription drug purchased from someone else or using a prescription drug that was prescribed for someone else.*
3. *Multiple maternal substances may be reported; therefore the total number of cases in this table may not match the total number of cases reported.*

For questions or additional information, contact Dr. Angela Miller at angela.m.miller@tn.gov

Regional NAS Rates 2013-2015

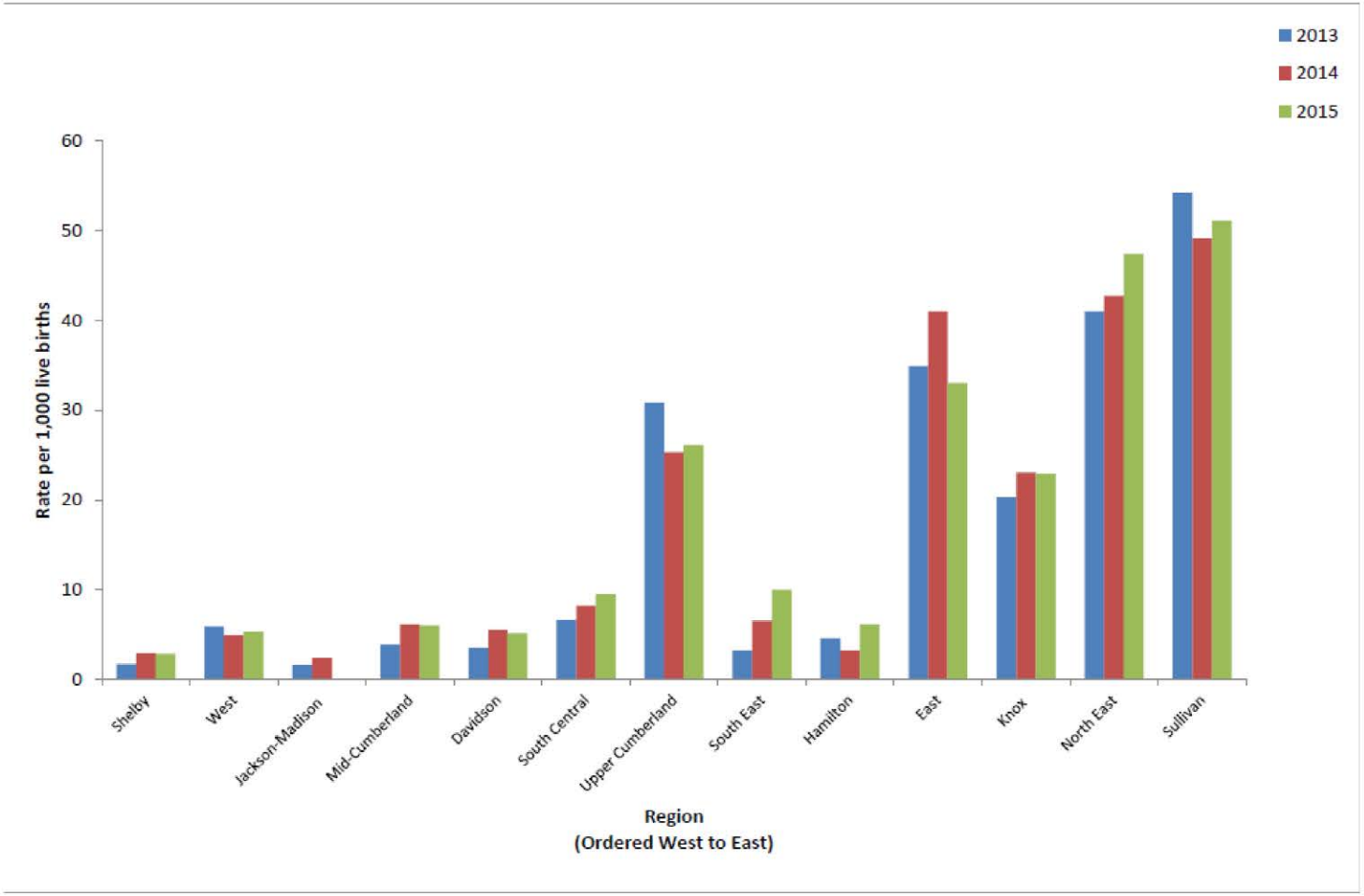


Figure 4: Annual Neonatal Abstinence Syndrome Case Rate by Tennessee Health Region, 2013-2015 Trends were statistically significant only for South Central and South East Health Regions.