

Tennessee Efforts to Prevent Neonatal Abstinence Syndrome

Michael D. Warren, MD MPH FAAP
Division of Family Health and Wellness



Objectives

- Briefly review etiology, diagnosis, and treatment of Neonatal Abstinence Syndrome (NAS)
- Describe scope of NAS in TN and US
- Share TN efforts related to NAS prevention

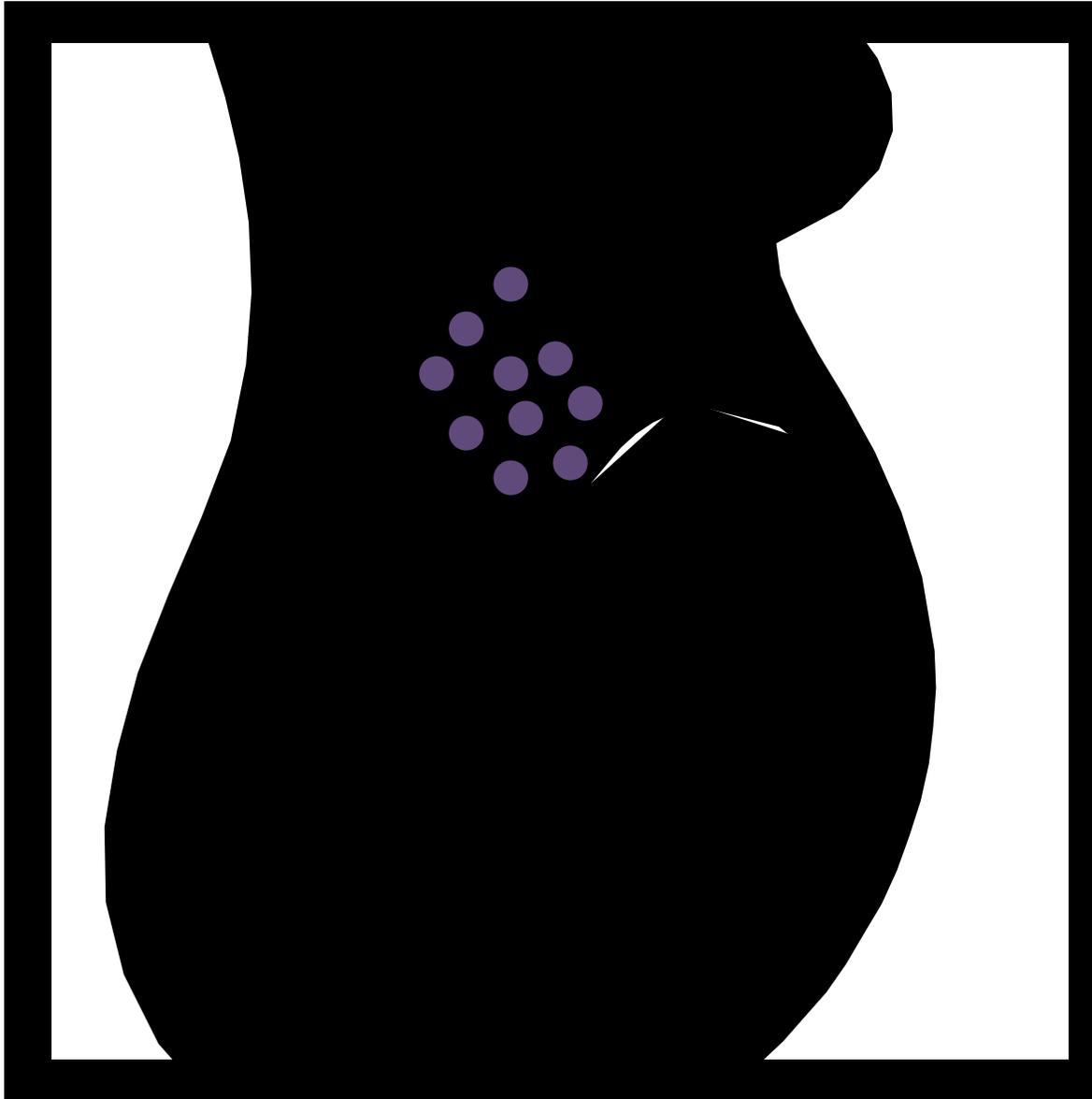


NAS Background

- Describes withdrawal symptoms in neonates associated with exposure to:
 - Alcohol
 - Barbiturates
 - Benzodiazepines
 - Opioids
 - Caffeine
 - Anti-depressants
 - Etc..



NAS Background



NAS Background

- NAS can be associated with:
 - Prescription drugs obtained with prescription
 - Includes women on pain therapy or replacement therapy
 - Prescription drugs obtained without prescription
 - Illicit drugs



NAS Background

- Opioid withdrawal symptoms primarily related to:
 - **Central Nervous System:**
 - Seizures
 - Tremors
 - Tremors
 - Hyperactivity
 - **Gastrointestinal System:**
 - Poor feeding
 - Vomiting
 - Poor weight gain
 - Diarrhea
 - Uncoordinated sucking



NAS Background

- Opioid withdrawal symptoms:
 - May appear as early as within the first 24 hours
 - May take as many as 4-5 days to appear
 - Occur in 55-94% of exposed infants



NAS Identification

- NAS is a clinical diagnosis
- NAS diagnosis based on:
 - History of exposure
 - Evidence of exposure:
 - Maternal drug screen
 - Infant urine, meconium, hair, or umbilical samples
 - Clinical signs of withdrawal (symptom rating scale)



NAS Treatment

- Initial treatment:
 - Minimize environmental Stimuli
 - Respond early to signals
 - Support adequate growth
- Pharmacologic therapy may be needed



NAS Outcomes

- No definitive long-term consequences of neonatal opioid withdrawal
- Limited studies show:
 - Normalization of developmental assessment scores
 - Resolution of seizures
- Confounding by social/environmental variables



NAS Epidemiology (US)

- Over the past decade:
 - 2.8-fold increase in NAS incidence
 - 4.7-fold increase in maternal opioid use
 - Increase in hospital costs \$39,400→\$53,400
 - 78% charges to state Medicaid programs

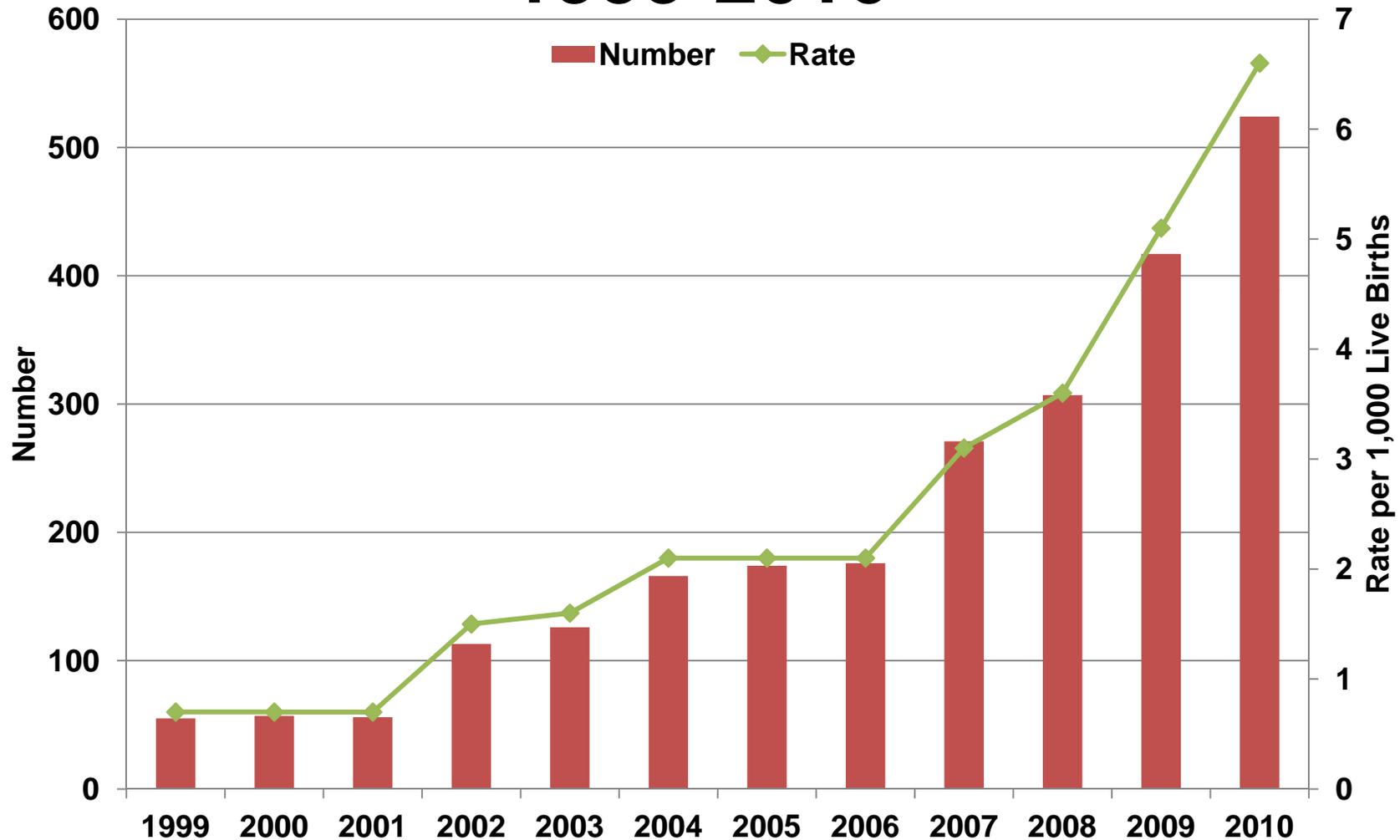


NAS Epidemiology (TN)

- Sharp increase in NAS incidence over past decade
- NAS incidence highest in East TN
- Nearly all NAS births covered by Medicaid
 - Average cost \$40,931 (compared to \$7,285 for all live births)
- Average length of stay = 16.4 days
- NAS infants over-represented in DCS custody



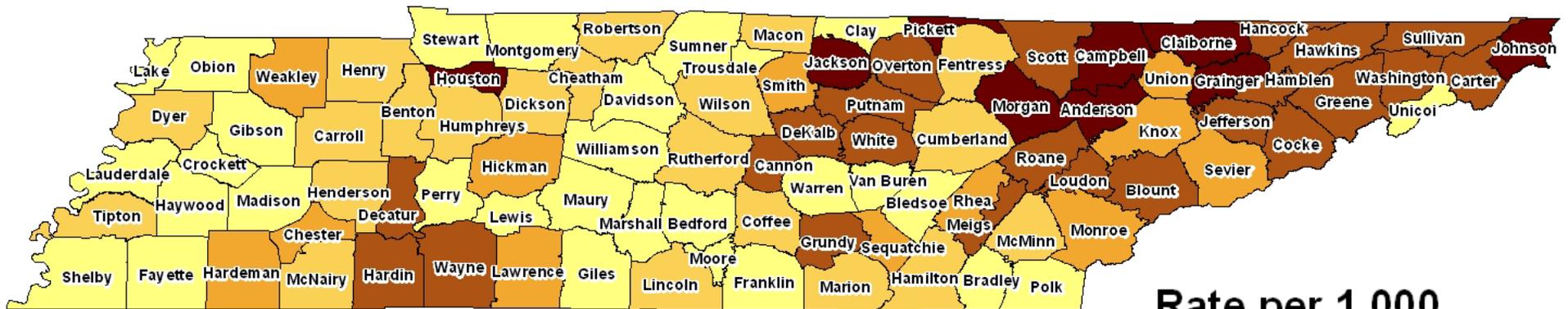
NAS Hospitalizations in TN: 1999-2010



Data sources: Tennessee Department of Health; Office of Health Statistics; Hospital Discharge Data System (HDDS) and Birth Statistical System. Analysis includes inpatient hospitalizations with age less than 1 and any diagnosis of drug withdrawal syndrome of newborn (ICD-9-CM 779.5). HDDS records may contain up to 18 diagnoses. Infants were included if any of these diagnosis fields were coded 779.5. Note that these are discharge-level data and not unique patient data.

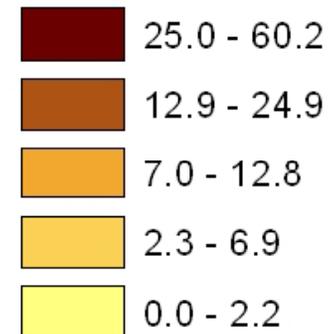


TN NAS Hospitalizations (2010)



Statewide Rate: 6.6/1,000

Rate per 1,000 Live Births



Data sources: Tennessee Department of Health; Office of Health Statistics; Hospital Discharge Data System (HDDS) and Birth Statistical System. Numerator is number of inpatient hospitalizations with age less than one and any diagnosis of neonatal abstinence syndrome (ICD-9-CM 779.5). HDDS records may contain up to 18 diagnoses. Infants were included if any of these diagnosis fields were coded 779.5. Note that these are discharge-level data and not unique patient data. Denominator is number of live births. For BSS data, county is mother's county of residence.



TN's Prescription Drug Problem

- Increase in TN deaths due to prescription drug overdose
 - 422 in 2001
 - **1,062 in 2011**
- More than deaths from:
 - Motor vehicle accidents, homicide, or suicide
- Opioids (methadone, oxycodone, and hydrocodone) are by far the most-abused prescription drugs



TN's Prescription Drug Problem



51 pills
per every
Tennessean
over age 12

275.5 Million Hydrocodone Pills



22 pills
per every
Tennessean
over age 12

116.6 Million Xanax Pills



21 pills
per every
Tennessean
over age 12

113.5 Million Oxycodone Pills



NAS Efforts in TN

- Spring 2012
 - “Prescription Safety Act” required prescribers to register with Controlled Substances Monitoring Database (CSMD)
 - Growing awareness of increasing NAS incidence among neonatal providers
 - Initial discussions between public health (TN Department of Health) and Medicaid (TennCare)



NAS Subcabinet Working Group

- Convened in late Spring 2012
- Committed to meeting every 3-4 weeks
- Cabinet-level representation from
Departments:
 - Public Health (TDH)
 - Children’s Services (DCS)
 - Human Services (DHS)
 - Mental Health and Substance Abuse Services (DMHSAS)
 - Medicaid (TennCare)
 - Children’s Cabinet



NAS Subcabinet Working Group

- Working principles:
 - Multi-pronged approach
 - Best strategy is primary prevention but clearly must address secondary and tertiary prevention
 - Each department progresses independently, keep group informed of efforts
 - Supportive rather than punitive approach



The Levels of Prevention

	PRIMARY Prevention	SECONDARY Prevention	TERTIARY Prevention
Definition	An intervention implemented before there is evidence of a disease or injury	An intervention implemented after a disease has begun, but before it is symptomatic.	An intervention implemented after a disease or injury is established
Intent	Reduce or eliminate causative risk factors (risk reduction)	Early identification (through screening) and treatment	Prevent sequelae (stop bad things from getting worse)
NAS Example	Prevent addiction from occurring Prevent pregnancy	Screen pregnant women for substance use during prenatal visits and refer for treatment	Treat addicted women Treat babies with NAS



NAS—Reportable Disease

- Previous estimates of NAS incidence came from:
 - Hospital discharge data (all payers but ~18 month lag)
 - Medicaid claims data (only ~9 month lag but only includes Medicaid)
- Need more real-time estimation of incidence in order to drive policy and program efforts



NAS—Reportable Disease

- Add NAS to state's Reportable Disease list
 - Effective January 1, 2013
- Collaborated with state perinatal quality collaborative (TIPQC) to define reporting elements
 - Align required reporting elements with same data elements reported in hospital QI projects



NAS—Reportable Disease

- Reporting hospitals/providers will submit electronic report
- Reporting Elements
 - Case Information
 - Diagnostic Information
 - Source of Maternal Exposure



Neonatal Abstinence Syndrome Surveillance Summary

For the Week of March 4-March 10, 2013 (Week 10)¹

Reporting Summary (Year-to-date)

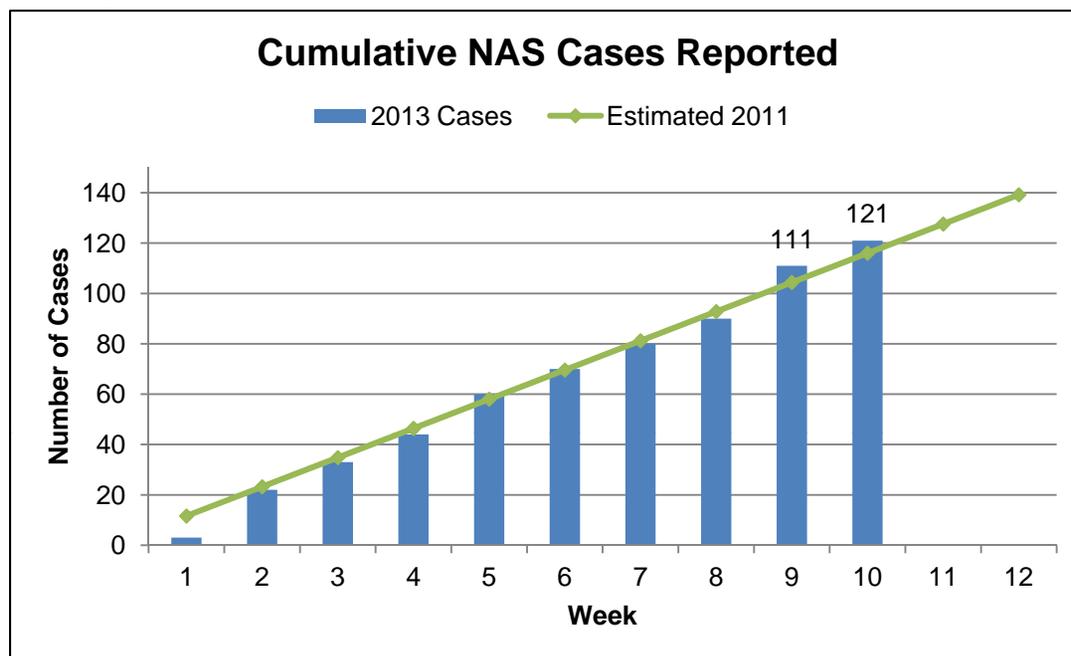
Cases Reported: **121**

Male: 63

Female: 58

Unique Hospitals Reporting: **25**

Maternal County of Residence (By Health Department Region)	# Cases	% Cases
Davidson	6	5.0%
East	30	24.8%
Hamilton	0	0%
Jackson/Madison	0	0%
Knox	17	14.0%
Mid-Cumberland	6	5.0%
North East	17	14.0%
Shelby	3	2.5%
South Central	6	5.0%
South East	0	0%
Sullivan	16	13.2%
Upper Cumberland	18	14.9%
West	2	1.7%
Total	121	100%



Source of Maternal Substance (if known) ²	# Cases*	% Cases
Supervised replacement therapy	45	37.2%
Supervised pain therapy	29	24.0%
Therapy for psychiatric or neurological condition	7	5.8%
Prescription substance obtained WITHOUT a prescription	44	36.4%
Non-prescription substance	38	31.4%
No known exposure but clinical signs consistent with NAS	4	3.3%
No response	5	4.1%

1. Summary reports are archived weekly at: http://health.tn.gov/MCH/NAS/NAS_Summary_Archive.shtml

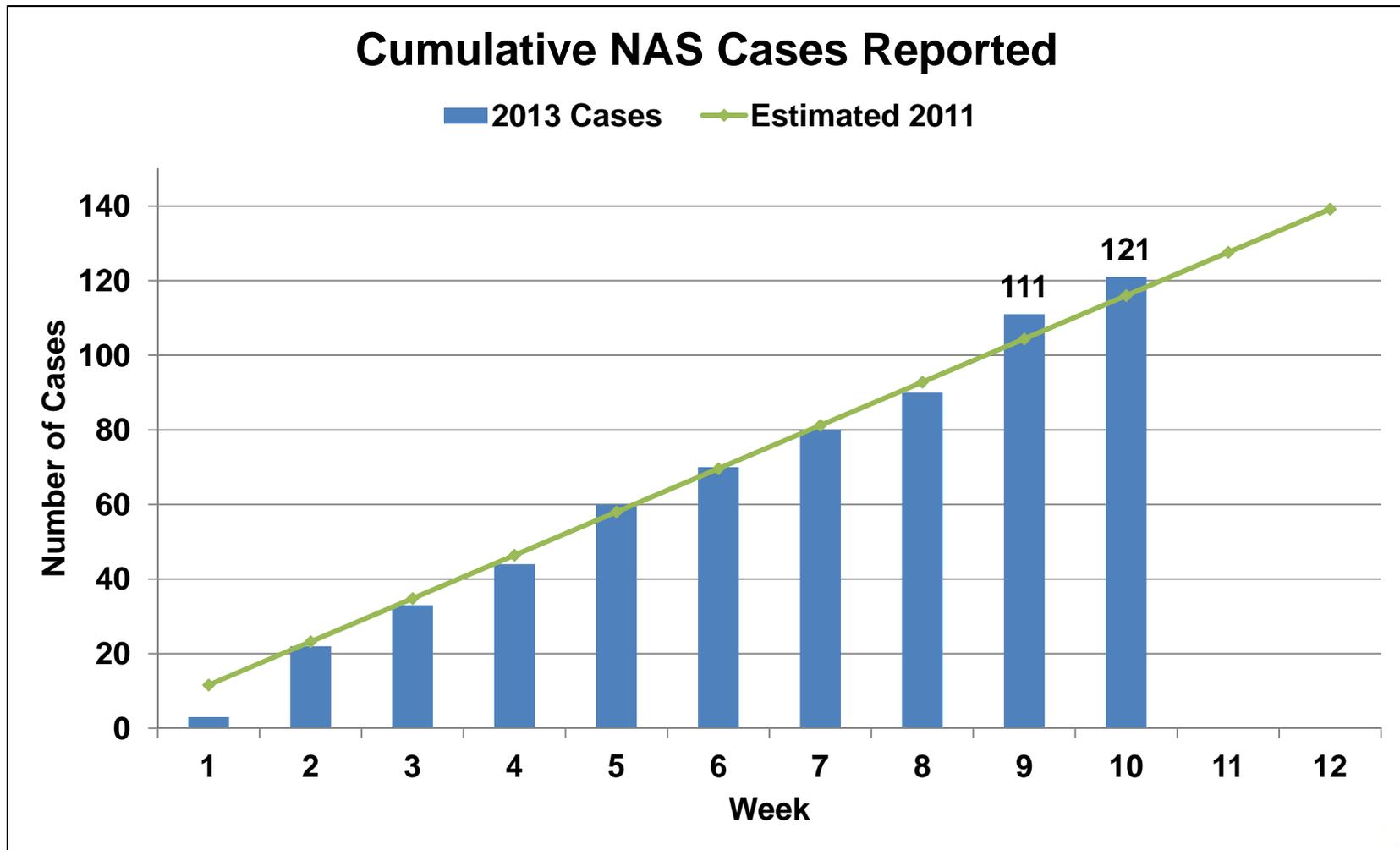
2. Multiple maternal substances may be reported; therefore the total number of cases in this table may not match the total number of cases reported.

NAS—Reportable Disease

- Through Week 10 (March 4-10, 2013)
 - **121 cases**
 - 63 male, 58 female
 - 25 unique reporting hospitals



NAS—Reportable Disease



NAS—Reportable Disease

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Upper Cumberland	18	14.9%
West	2	1.7%
Total	121	100%

66% of cases in East and Northeast TN

25% of cases in Middle TN and Plateau



NAS—Reportable Disease

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NAS—Reportable Disease

- Important caveat:
 - *Reporting is for surveillance purposes only.*
 - *Does not constitute a referral to any agency other than the Tennessee Department of Health.*
 - *Does not replace requirement to report suspected abuse/neglect.*



NAS—What Can You Do?

- Connection with primary care medical home
 - Growth monitoring
 - Nutritional status
 - Developmental screening/monitoring
- Help family enroll in TennCare or other insurance
 - Connect with case manager



NAS—What Can You Do?

- Developmental screening
 - Ages & Stages
 - PEDS
- Refer to TN Early Intervention Services (TEIS)
 - **NAS diagnosis is automatic qualification**
 - **Ideally happens before infant leaves hospital**



NAS—What Can You Do?

- Referral to health department services:
 - Help Us Grow Successfully (HUGS)
 - Children’s Special Services
 - **NAS is now a covered diagnosis**
 - Family Planning
 - WIC



NAS—What Can You Do?

- Decide whether referral to Department of Children's Services is appropriate
 - **State law requires all persons to make a report when they suspect abuse, neglect or exploitation of children**



NAS Resources

- NAS Main Page
 - <http://health.tn.gov/MCH/NAS/>
- Weekly Surveillance Summary Archive
 - http://health.tn.gov/MCH/NAS/NAS_Summary_Archive.shtml



Contact Information

- Michael D. Warren, MD MPH FAAP
 - Director, Division of Family Health and Wellness
 - Michael.d.warren@tn.gov

