
KPQC
Learning
Forum

Agenda

Presenter NAS Case Definition/ Criteria	Jodi Jackson, MD KPQC Chairperson Children's Mercy Hospital Neonatologist ADSM NICU Medical Director
Q&A	WSU Community Engagement Institute

KPQC
Kansas Perinatal Quality Collaborative

NAS Case Definition and Criteria

Jodi Jackson, MD
KPQC Chairman
Advent Health Shawnee Mission NICU Medical Director

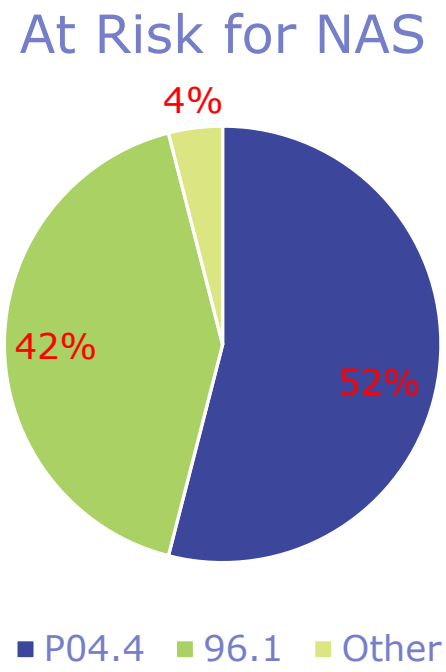
Kansas Perinatal Quality Collaborative

KPQC Coding, NAS Criteria CSTE Surveillance Statement

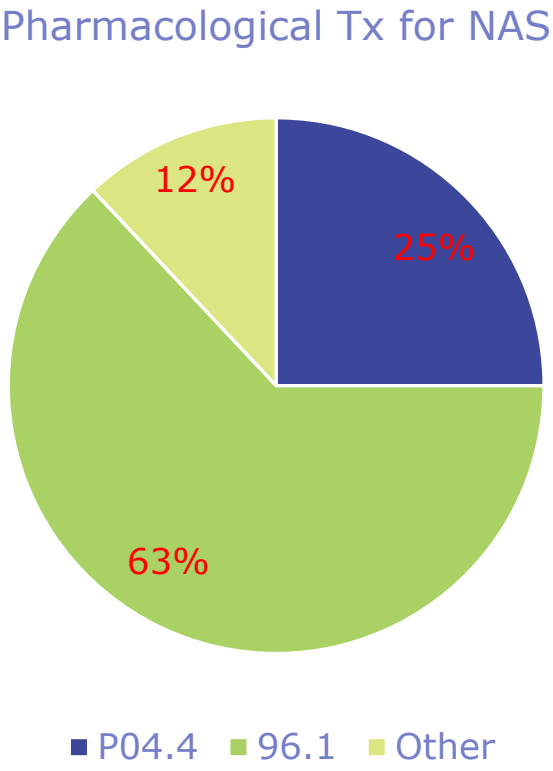
Jodi Jackson, MD

Laurin Kasehagen MA, PhD

KPQC Centers: At Risk for NAS



KPQC Centers: Infant treated for NAS



Definition of NAS

- CSTE defines **confirmed**, **probable** or **suspect NAS**
- There is a use of "diagnosis of NAS, or chief complaint of NAS, or a clinically compatible presentation of 3 or more signs of withdrawal" in the definition
- It is difficult for clinicians to be consistent with their diagnosis, when the actual diagnosis is used in the definition.
- We propose use of the Florida definition of NAS for Kansas.
- To be the true NAS code 96.1
  - Documented or known exposure to opioid, benzo or barbiturate
  - Signs of NAS requiring some care different than routine observation:
    - Medical treatment or
    - Prolonged hospital stay for comfort cares beyond normal observation period:
      - 72 hours : exposure to short acting opiate
      - 5 days: exposure to long acting opiate
    - Excessive need for comfort cares during hospitalization (i.e. 24/7 holding)
- Always start with the known exposure code

Exposure Codes

- These ICD-10-CM codes were new in October 2018 to designate in utero exposure:
  - P04.14 Newborn affected by maternal use of opiates
  - P04.17 Newborn affected by maternal use of sedative-hypnotics
  - P04.1A Newborn affected by maternal use of anxiolytics
  - P04.11 Newborn affected by maternal antineoplastic chemotherapy
  - P04.12 Newborn affected by maternal cytotoxic drugs
  - P04.13 Newborn affected by maternal use of anticonvulsants
  - P04.14 Newborn affected by maternal use of opiates
  - P04.15 Newborn affected by maternal use of antidepressants
  - P04.16 Newborn affected by maternal use of amphetamines
  - P04.17 Newborn affected by maternal use of sedative-hypnotics
  - P04.1A Newborn affected by maternal use of anxiolytics
  - P04.18 Newborn affected by other maternal medication
  - P04.19 Newborn affected by maternal use of unspecified medication
  - P04.41 Newborn affected by maternal use of cocaine
  - P04.3 Newborn affected by maternal use of Alcohol
  - P04.2 Newborn affected by maternal use of tobacco
  - P04.42 Newborn affected by maternal use of hallucinogens
  - P04.49 Newborn with exposure to methadone, at risk for methadone withdrawal
  - P04.9 Inrauterine drug exposure ------ write in drug if not one of the above

Which Codes to Use?

- P04.xx Codes to be used when:
  - There is a known exposure (history or drug screen)
  - No clinical signs of withdrawal
  - Classified as "suspect" (exposure) by CSTE
- P04.xx Codes to be used when:
  - There is a known exposure (history or drug screen)
  - Clinical signs of withdrawal
  - No exposure to narcotics, benzos or barbiturates
  - Classified as "suspect" (exposure) by CSTE
- P04.xx **and** 96.1 Codes to be used when:
  - There is a known exposure (history or drug screen)
  - Clinical signs of withdrawal
  - Yes exposure to narcotics, benzos or barbiturates
  - Classified as "possible or confirmed NAS" by CSTE

Which Exposures Could be 96.1 and P04.xx

- Could possibly be coded as 96.1:
  - P04.14 Newborn affected by maternal use of opiates
  - P04.17 Newborn affected by maternal use of sedative-hypnotics
  - P04.1A Newborn affected by maternal use of anxiolytics
  - P04.13 Newborn affected by maternal use of anticonvulsants
- Cannot be coded as 96.1:
  - P04.11 Newborn affected by maternal antineoplastic chemotherapy
  - P04.12 Newborn affected by maternal cytotoxic drugs
  - P04.15 Newborn affected by maternal use of antidepressants
  - P04.16 Newborn affected by maternal use of amphetamines
  - P04.18 Newborn affected by other maternal medication
  - P04.19 Newborn affected by maternal use of unspecified medication
  - Any others

CSTE Definitions

- Confirmed NAS; code 96.1
  - + infant drug screen for opioids, benzos or barbiturates
  - Symptoms requiring increased care (as defined slide 1)
- Probable NAS; code 96.1
  - History of exposure to above or + maternal drug screen for opiates, benzo or barbiturates
  - Negative infant drug screen
  - Symptoms requiring increased care (as defined slide 1)
- Suspected NAS; coded by exposure code P04.xx
  - All other drug exposures with or without symptoms
  - Exposure to opioids, benzo or barbiturates without significant symptoms
- See slides for many more details!

Neonatal Abstinence Syndrome (NAS) Standardized Surveillance Case Definition Position Statement

CSTE

Council of State and Territorial Epidemiologists

What is CSTE?

- Council of State and Territorial Epidemiologists (CSTE)
  - is an organization of member states and territories representing public health epidemiologists
  - works to advance public health policy and epidemiologic capacity
  - provides information, education, and developmental support of practicing epidemiologists
- CSTE members include
  - state epidemiologists – these are the representatives from the states who get to vote on position statements about how disease case definitions are determined and whether reporting of diseases should be recommended
  - applied public health epidemiologists and related professions
- CSTE members work in government, private-sector, non-profit, and academic contexts throughout the nation

Why is CSTE Interested in NAS?

- Variation in incidence of NAS of great concern
  - NAS incidence did not necessarily correspond to rates of opioid use disorder among pregnant women
- Uncertainty about how NAS is being defined
- No clear understanding of how NAS is being diagnosed / how a clinically compatible presentation is being made
- No clear understanding of what is documented in the newborn record
- ICD-9-CM and ICD-10-CM codes do not allow for clear cut case definitions
- Led to the formation of an epidemiologic workgroup at CSTE

- **Goal:** to promote uniformity in the identification of newborns with withdrawal from *in utero* exposure to opioids, benzodiazepines, or barbiturates using standardized case definitions (not identifying all substance-exposed newborns)

CSTE NAS Workgroup

Timeline	
June 2017	CSTE identified need for a workgroup on NAS and identifies co-leads for the workgroup
September 2017	CSTE convened NAS definition workgroup and leadership group
June 2018	CSTE conducted 50-state Environmental Scan on NAS definitions, data sources and reporting
December 2018	CSTE convened multi-state NAS Leadership group in-person meeting; state representatives vote to draft a position statement
January-March 2019	CSTE and state representatives consulted with CSTE staff, epidemiologists, neonatologists, obstetricians, addiction medicine specialists, laboratorians on aspects of NAS to come to a consensus on a case definition
March 2019	State representative CSTE members submitted position statement on a standardized case definition of NAS

Surveillance Goals

- Estimate incidence
- Track trends for planning and comparison across areas
- Evaluate effectiveness of neonatal interventions
- Monitor impact of *in utero* exposure on long-term health and development of infants
- Identify women with chronic opioid use and link to treatment
- Plan for public health and clinical resources for families
- Connect families with health and social services

Surveillance Challenges

- Develop case definition all states can use given needs and resources
- Advance definitions amidst lack of clinical consensus
- Advance definitions using current ICD-10-CM codes
- Address NAS in context of substance exposure in pregnancy
- Desire to not contribute to further stigmatization of women

Definition of NAS

Neonatal abstinence syndrome (NAS) is withdrawal in neonates following chronic *in utero* exposure to medications or illicit drugs, most commonly opioids, benzodiazepines and barbiturates

- Withdrawal signs:
  - central nervous system (high pitched cry, hypertonia, tremors, seizures, hyperactive Moro reflex, poor sleep, seizures, poor feeding)
  - autonomic nervous system (sneezing, nasal congestion, frequent yawning, fever, mottling)
  - gastrointestinal (regurgitation, vomiting, loose stools)
  - respiratory dysregulation (tachypnea, respiratory distress)

Draft Case Definition

- Two-tiered approach to accommodate state needs and resources
  - Tier 1
    - Case reporting to public health legal authorities
    - Based on clinical records
    - Reporting by providers, laboratories
  - Tier 2
    - Case reporting based on administrative data
    - Uses ICD-10-CM codes
    - Reporting by providers, facilities

PROPOSED CASE DEFINITIONS

Tier 1 NAS Case Definitions: CONFIRMED CASE

- **Hospitalized neonate <28 days of age**
- **Presentation / clinical signs not explained by another etiology***

In utero* exposure*	**Diagnosis, Chief Complaint or Clinically Compatible Presentation**	**Neonatal Confirmatory Laboratory Evidence**
opioids, barbiturates, benzodiazepines	Diagnosis of NAS	Positive
opioids, barbiturates, benzodiazepines	Chief complaint of NAS	Positive
opioids, barbiturates, benzodiazepines	Clinically compatible presentation of 3 or more signs of withdrawal***	Positive

Dx, CC or signs: Signs of NAS requiring some care different than routine observation
- Medical treatment
- Prolonged hospital stay for comfort cares
- Excessive need for comfort cares during hospitalization

*e.g., sepsis, intracranial hemorrhage, hypocalcemia
**opioids (any level) including natural (e.g., morphine, codeine), semi-synthetic (e.g., heroin), and synthetic (e.g., fentanyl, or fentanyl analogs), or opioid metabolites (e.g., 6-monoacetylmorphine), benzodiazepines (e.g., diazepam, alprazolam), or barbiturates (e.g., phenobarbital)
***Withdrawal signs:
central nervous system (high pitched cry, hypertonia, tremors, seizures, hyperactive Moro reflex, poor sleep, seizures, poor feeding)
autonomic nervous system (sneezing, nasal congestion, frequent yawning, fever, mottling)
gastrointestinal (regurgitation, vomiting, loose stools)
respiratory dysregulation (tachypnea, respiratory distress)

Tier 1 NAS Case Definitions: PROBABLE CASE – Types 1 & 2

- **Hospitalized neonate <28 days of age**
- **Presentation / clinical signs not explained by another etiology***

Type	Maternal History of Chronic Substance** Use in the 4 Weeks Prior to Delivery	Diagnosis, Chief Complaint or Clinically Compatible Presentation	Maternal Confirmatory Laboratory Evidence	Neonatal Confirmatory Laboratory Evidence
1	#	Diagnosis of NAS		No/unknown
1	#	Chief complaint of NAS		No/unknown
1	#	Clinically compatible presentation of 3 or more signs of withdrawal***		No/unknown
2		Diagnosis of NAS	Positive##	No/unknown
2		Chief complaint of NAS	Positive##	No/unknown
2		Clinically compatible presentation of 3 or more signs of withdrawal***	Positive##	No/unknown

*,**, ***See Tier 1 Confirmed Case Slide
#chronic opioid use (including Medication Assisted Therapy, illicit use, or pain medication), or benzodiazepine, or barbiturate use
##opioid, benzodiazepines or barbiturates

Dx, CC or signs: Signs of NAS requiring some care different than routine observation
- Medical treatment
- Prolonged hospital stay for comfort cares
- Excessive need for comfort cares during hospitalization

Tier 1 NAS Case Definitions: SUSPECT CASE – Types 1 - 5

- **Hospitalized neonate <28 days of age**
- **Presentation / clinical signs not explained by another etiology***

Type	Maternal History of Chronic Substance Use in the 4 Weeks Prior to Delivery	Diagnosis, Chief Complaint or Clinically Compatible Presentation/Clinical Presentation	Maternal Confirmatory Laboratory Evidence	Neonatal Confirmatory Laboratory Evidence
1	Non-opioid, non-benzodiazepine or non-barbiturate	Diagnosis of NAS	No/unknown	No/unknown
1	Non-opioid, non-benzodiazepine or non-barbiturate	Chief complaint of NAS	No/unknown	No/unknown
1	Non-opioid, non-benzodiazepine or non-barbiturate	Clinically compatible presentation of 3 or more signs of withdrawal***	No/unknown	No/unknown
2	Unknown type	Diagnosis of NAS	No/unknown	No/unknown
2	Unknown type	Chief complaint of NAS	No/unknown	No/unknown
2	Unknown type	Clinically compatible presentation of 3 or more signs of withdrawal***	No/unknown	No/unknown

*,***See Tier 1 Confirmed Case Slide

Dx, CC or signs: Signs of NAS requiring some care different than routine observation
- Medical treatment
- Prolonged hospital stay for comfort cares
- Excessive need for comfort cares during hospitalization

Tier 1 NAS Case Definitions: SUSPECT CASE – Types 1 – 5, cont.

- **Hospitalized neonate <28 days of age**
- **Presentation / clinical signs not explained by another etiology***

Type	Maternal History of Chronic Substance Use in the 4 Weeks Prior to Delivery	Diagnosis, Chief Complaint or Clinically Compatible Presentation/Clinical Presentation	Maternal Confirmatory Laboratory Evidence	Neonatal Confirmatory Laboratory Evidence
3		Diagnosis of NAS	Positive§	No/unknown
3		Chief complaint of NAS	Positive§	No/unknown
3		Clinically compatible presentation of 3 or more signs of withdrawal***	Positive§	No/unknown
4	Opioid, benzodiazepine or barbiturate	Clinical presentation of 1 or 2 signs of withdrawal***	No/unknown	No/unknown
5		Clinical presentation of 1 or 2 signs of withdrawal***	Positive§§	No/unknown

*,***See Tier 1 Confirmed Case Slide
§Non-opioid, non-benzodiazepine or non-barbiturate drug of abuse in the 4 weeks prior to delivery
§§Chronic opioid, benzodiazepine or barbiturate use in the 4 weeks prior to delivery

Dx, CC or signs: Signs of NAS requiring some care different than routine observation
- Medical treatment
- Prolonged hospital stay for comfort cares
- Excessive need for comfort cares during hospitalization

Proposed Laboratory Criteria

Confirmatory laboratory evidence -- NEONATE

Detection of opioids (any level) including natural (e.g., morphine, codeine), semi-synthetic (e.g., heroin), and synthetic (e.g., fentanyl, or fentanyl analogs), or opioid metabolites (e.g., 6-monoacetylmorphine), benzodiazepines (e.g., diazepam, alprazolam), or barbiturates (e.g., phenobarbital) in any clinical specimen from a screening or other laboratory test (See Appendix 3 for exact laboratory criteria). This would include positive immunoassay results as well as confirmatory testing based on liquid or gas chromatography-mass spectrometry.

Presumptive laboratory evidence – BIRTH MOTHER

Detection of opioids (any level) including natural (e.g., morphine, codeine), semi-synthetic (e.g., heroin), and synthetic (e.g., fentanyl, or fentanyl analogs), or opioid metabolites (e.g., 6-monoacetylmorphine), benzodiazepines (e.g., diazepam, alprazolam), or barbiturates (e.g., phenobarbital) in blood or urine from a screening or other laboratory test in the four weeks prior to delivery (See Appendix 3 for exact laboratory criteria). This would include positive immunoassay results as well as confirmatory testing based on liquid or gas chromatography- mass spectrometry.

Supportive laboratory evidence – BIRTH MOTHER

Detection of a non-opioid, non-benzodiazepine, or non-barbiturate drug of abuse, including cocaine, methamphetamine, amphetamine, or cannabinoid in blood or urine from a screening or other laboratory test in the four weeks prior to delivery (See Appendix 3 for exact laboratory criteria). This would include positive immunoassay results as well as confirmatory testing based on liquid or gas chromatography-mass spectrometry.