



Substance use in pregnancy and the number of infants requiring management for NAS continue to escalate across the United States and beyond. The VON designed and tested curriculum includes content from leading experts in NAS care.

The Neonatal Abstinence Syndrome Curriculum Catalog

#1. Improved Family-Centered Care at Lower Cost & Improvement Story: Using Standardization to Create a High Reliability

Credits: CME 0.25, CNE 0.25

Description: *Improved Family-Centered Care at Lower Cost: Rooming-in to treat NAS* presented by Dr. Bonny Whalen from Children's Hospital at Dartmouth, presents a multi-faceted improvement story focused on implementing rooming in to treat substance-exposed infants, in the wake of the opioid epidemic in New England. Their aim was to create a model of care where mothers were deeply engaged in providing non-pharmacologic care to their infants in a rooming in environment, thereby decreasing the need for additional drug exposures.

They implemented 11 PDSA cycles over an 18-month period and demonstrated decreased length of stay from M=16.9 days to M=12.3 days resulting in decreased costs per case from \$19,377 to \$8755. This project demonstrates the powerful impact of a less intensive but more humane model of care can improve the safe and highly reliable care over time.

Improvement Story: Using Standardization to Create a High Reliability System of NAS is presented by Dr. Robert DiGiuseppe from New Hanover Regional Medical Center. Dr. DiGiuseppe presents their application of the Model for Improvement, with an emphasis on standardization to improve the outcomes of infants and families affected by prenatal substance exposure. Using key interventions including deeper engagement with families, standardization of treatment protocols, and achieving high reliability scoring methods, and standardizing non-pharmacologic treatment strategies, this center was able to reduce their average LOS by 10 days per patient, resulting in cost savings of \$429,750 in 9 months.

Faculty: Bonnie Whalen MD & Robert DiGiuseppe MD

#2. The Prescription Opioid Epidemic and Neonatal Abstinence Syndrome - A Public Health Approach

Credits: CME 1.0, CNE 1.0

Description: This learning module reviews the history and patterns of opioid use in the United States. Dr. Stephen Patrick describes the spectrum of substance exposure in pregnancy, including illicit and legal substances. This module provides a thorough overview of Neonatal Abstinence Syndrome (NAS). He addresses the physiology, clinical features, diagnosis, scoring and treatment of NAS. He further drills down to the geographic and financial impact of NAS, including Length of Stay (LOS) and hospital charges.

Dr. Patrick also describes the prescription opioid epidemic and infant outcomes. He explores factors which may explain why some exposed infants experience NAS while others do not. Dr. Patrick reviews treatment options and the work of the Vermont Oxford Network NAS Quality Collaborative. The module also provides an overview of federal and state policies and proposed legislation addressing the current prescription drug abuse crisis.

He emphasizes the importance of utilizing a multi-tiered preventive public health approach; addressing access to contraception, responsible prescribing, tobacco cessation, access to treatment, decrease in treatment variability, and readmission prevention.

Faculty: Stephen Patrick MD, MPH, MS

#3. Virtual Video Visit Chapter 1: Linking Attitudes with Outcomes

Credits: CME 0.25, CNE 0.25

Description: Chapter 1 of the Virtual Video Visit transports you to Vancouver British Columbia, home of Sheway and FIR Square, where we will learn about a unique model of care with critical linkages from the “street” and community, to a hospital-based unit that specializes in the care of the substance-exposed mother-infant dyad. Learn about how attitudes and stigma towards patients with addiction have a profound affect and are a barrier to recovery from addiction. Learn how caregivers have a singular opportunity, through reflecting on attitudes and practices, to promote patient self-efficacy, treatment decision-making and recovery.

Faculty: Ronald Abrahams MD

#4. Substance Use 101: Mythbusters

Credits: CME 0.25, CNE 0.25

Description: Dr. Krisanna Deppen presents the scientific basis to further our understanding of addiction as a treatable chronic disease. She dispels many common myths regarding substance use and abuse, both in general and in pregnancy, and provides evidence-guided strategies to inform our practice.

Faculty: Krisanna Deppen MD

#5. Virtual Video Visit Chapter 2: The Face of Trauma

Credits: CME 0.25, CNE 0.25

Description: Substance dependent women have documented PTSD rates of 14% to 60%; these are linked to extremely high rates of physical, sexual and emotion abuse. Research demonstrates that providing comprehensive healthcare, drug and alcohol abuse treatment and social support improves pregnancy, birth and child development outcomes. In this micro-lesson Dr. Lenora Marcellus introduces the concept of universal trauma-informed care, providing a critical framework for structuring effective relationships and providing compassionate care.

In the virtual video in Chapter 2 you will meet Becci, a young women suffering from substance abuse and trauma. Becci’s story reveals the classic rapid evolution of addiction in women; moving from “partying and getting high” to simply “using” to avoid getting “dope sick” (a street term for profound withdrawal). Becci poignantly shares her “treatable moment”, a time she was living in a cardboard box. She describes the life-saving link to comprehensive and compassionate care through Sheway and Families in Recovery in Vancouver, and shares her current quest to stay clean and the ever-present reality of relapse. This video provides a human face of and context for addiction, highlights the importance of trauma-informed care, and provides sage advice for professional caregivers.

Faculty: Ronald Abrahams MD

#6. Substance Use 101: Frequency and Neonatal Impact by Agent

Credits: CME 0.25, CNE 0.25

Description: This overview examines the short-term physiologic effects of in utero substance exposure, with an emphasis on the most common agents: alcohol, nicotine, opioids, benzodiazepines, methamphetamines, cocaine, and SSRIs. Through a pharmacologic lens, the learner is urged to distinguish between drug effect versus drug withdrawal sequences, in which symptoms escalate after stopping the agent.

Faculty: Walter Kraft MS, MD

#7. Standardizing Care to Improve Outcomes

Credits: CME 0.25, CNE 0.25

Description: In the first part of this presentation Dr. Robert DiGiuseppe describes a quality improvement project to reduce the length of stay of Neonatal Abstinence Syndrome (NAS) patients at New Hanover Regional Medical Center by 10% to < 22.5 days by December 2014.

In the second part of the presentation Betsy Knappen and Jodi Jackson from Children’s Mercy Hospital, describe their quality improvement project, *Improving Care of the Infant at Risk for NAS through a Standardized Family Centered Protocol and Nursing Education*, to create a new Family Centered Process for high risk infants, decrease NICU admissions and need for pharmacologic treatment for NAS and create a standardized NAS education program.

Faculty: Robert DiGiuseppe MD, Betsy Knappen BNS, APRN & Jodi Jackson MD

#8. Screening and Obtaining a Complete Drug History for Substance Use in Pregnancy

Credits: CME 0.25, CNE 0.25

Description: Universal screening for substance abuse – be it via history or toxicology - is a complex and controversial topic. This brief reviews the importance of screening for identification in order to provide appropriate interventions and treatment, and for ongoing discharge planning. Dr. Ondersma reviews the evidence for various screening tools; as well as emphasizes the importance of confidential standardized verbal screening, conducted when possible during the preconception period, with a focus on multiple agents (alcohol, drugs, and tobacco). Learn new techniques and strategies to promote high-reliability systems of care.

Learn how to integrate the critical components of a substance use and abuse history as part of every medical and nursing history. Discerning risk factors, current versus past drug use, as well as integrating a social, psychiatric and trauma history, are key critical elements. Additionally, Dr. Deppen provides pragmatic strategies, techniques, and non-judgmental language that will improve your ability to communicate with patients and families around these sensitive issues.

Faculty: Krisanna Deppen, MD & Steven Ondersma PhD

#9. NAS: Presentation and Typical Course

Credits: CME 0.25, CNE 0.25

Description: The classic signs and symptoms of NAS are outlined in this presentation, with a focus on the typical timing, severity, duration and “typical course” of these symptoms. Dr. Patrick provides a system-based framework for the learner to recognize and classify the symptoms (i.e. GI, CNS, versus Autonomic) and highlights the influence of exacerbating substances such as nicotine. Video clips allow the learner view tremors and hyper-reflexia typical of a newborn manifesting NAS.

Faculty: Stephen Patrick MD, MPH, MS

#10. Non-Pharmacologic Strategies for Symptom Management

Credits: CME 0.25, CNE 0.25

Description: Dr. McGrath’s presentation focuses on dyadic mother infant management in the context of NAS. The goals of this model are both to support the infant while also engaging the mother as the primary caregiver. The learner is taught to systematically assess the dyad’s strengths and needs, and to use the mother / family member as a critical first-line non-pharmacologic intervention. Therapeutic handling, positioning and swaddling, a calming environment, and specific strategies such as swaying, vertical rocking, and firm patting are illustrated with video clips.

Faculty: Jacqueline McGrath PhD, RN, FNAP, FAAN

#11. Virtual Video Visit Chapter 3: The Birth Story

Credits: CME 0.25, CNE 0.25

Description: Dr. Abrahams discusses the positive outcomes that occur when treatment of Neonatal Abstinence Syndrome (NAS) takes place in mom’s care, not the NICU. These results are from the Families in Recovery Fir Square. Chapter 3 of the Virtual Video Visit transports you to Vancouver, British Columbia, home of Sheway and FIR Square and where you will witness a very important birth story. Witness this pivotal birth, where you will see how this young mother and father begin to connect with their baby, and reflect on the importance of these nascent and emerging parenting skills to the long-term development of this fragile and socially complex family.

Faculty: Ronald Abrahams MD

#12. Scoring Redux: Pitfalls and Perils

Credits: CME 0.50, CNE 0.50

Description: Dr. Linda Franck and Dr. Lenora Marcellus provide a history of the development of withdrawal scoring. This presentation provides a review of current scoring practices for Neonatal Abstinence Syndrome (NAS) and a discussion for the need of standardization. Benefits and challenges of scoring are discussed. Future direction of scoring tool development is also considered.

Faculty: Linda Franck RN, PhD, FRCPCH, FAAN & Lenora Marcellus RN, BSN, MN, PhD

#13. Scoring: Cases, Controversies

Credits: CME 0.25, CNE 0.25

Description: In the first part of the course, Dr. Marcellus identifies key scoring challenges commonly encountered by nurses. She reveals key contextual considerations from the each member of the interdisciplinary care team when confronted with an infant with what appears to be escalating NAS scores. The case study highlights how caregivers can intensify their non-pharmacologic care strategies to manage the infant's symptoms and avoid potential overuse of pharmacologic treatment.

The second part of the course begins with the presentation of a brief but critically important historical overview of the origins of screening tools developed to score infants with neonatal abstinence syndrome in the 1970s. These were tested in a small sample of primarily opiate-exposed infants, as a mechanism to objectify symptom severity and provide guidance for pharmacologic management. This tool, the "Finnegan", and later the "modified Finnegan" has now been widely adopted to a broader population of poly-substance exposed infants. The learner is carefully guided through the 3 key principles of good scoring instruments and what is known about the validity and reliability of NAS scoring tools. Additionally, key nursing, physician, and parental considerations are outlined.

Faculty: Lenora Marcellus RN, BSN, MN, PhD & Linda Franck RN, PhD, FRCPCH, FAAN

#14. Withdrawal, Toxidromes, and Confounders

Credits: CME 0.25, CNE 0.25

Description: In the first part of this presentation Dr. Kraft discusses the difference between withdrawal and toxidromes along with over lapping signs. The knowledge gaps in understanding when to treat and finding a standardized approach is discussed. In the second part Dr. Schumacher reviews the overall decision making process regarding pharmacologic treatment of Neonatal Abstinence Syndrome (NAS). A discussion of the consequences of selecting a particular score is included in this offering.

Faculty: Walter Kraft MD, FACP

#15. Lactation and the Substance-Exposed Mother-Infant Dyad

Credits: CME 0.25, CNE 0.25

Description: Explore issues related to lactation in the context of substance use, including benzodiazepines, alcohol, opioids and marijuana. A structured approach to providing the evaluation of each maternal infant dyad prior to initiating lactation using the best available published evidence is provided.

Faculty: Lauren Jansson MD

#16. Engaging Families in Feeding and Nutritional Support

Credits: CME 0.25, CNE 0.25

Description: This presentation highlights the importance of educating and supporting the mother before delivery, and coaching her after delivery to understand both the physiologic and neuro-excitabile features of NAS, and to provide supportive non-pharmacologic symptom-based support. The presentation highlights feeding and nutritional challenges such as state instability, atypical suck, hyperphagia, and increased caloric needs, and provides suggestions for feeding co-regulation, and other appropriate developmental and nutritional interventions.

Faculty: Jacqueline McGrath PhD, RN, FNAP, FAAN

#17. Developmental Outcomes of Substance-Exposed Infants

Credits: CME 0.25, CNE 0.25

Description: Dr. Kaltenbach provides an overview of key mechanisms associated with the effects of prenatal substance exposures including physiology, biology, genetics and epigenetics, as well as the dynamic relations between infants and their caregivers and their environment. A cogent review of the existing child development literature and suggests that strong emphasis on parenting interventions may be effective in mitigating this risk.

Faculty: Karol Kaltenbach PhD

#18. Virtual Video Visit Chapters 4 & 5: Two Stories of Recovery and The Long Road Home

Credits: CME 0.25, CNE 0.25

Description: In the first part of this presentation nurse practitioner Erin Keels NNP-BC provides an overview of the Nationwide Children's Hospital quality improvement initiative focused on decreasing length of stay and the cost for NAS infants. Learn how the Nationwide team used the Model for Improvement, developed a key driver diagram, and PDSAs of small tests of changes. They standardized NAS scoring procedures and standardized pharmacologic management; both strategies led to decreased variability allowing them to achieve lower lengths of stay without increasing 30-day hospital readmissions and demonstrating a cost savings of 3.5 million dollars.

The first virtual video featured visits Vancouver British Columbia, home of Sheway and FIR Square where we are invited to hear the journey of healing and recovery from addiction. The lessons learned here are critical to our work with substance-exposed infants, where we encounter women at many different stages of the substance use and recovery.

The second virtual video featured focuses on how women transition from hospital to home, including the key programs and services that support a safe transition back to the community. Viewers are encouraged to think "beyond the hospital walls" to develop collaborative relationships and programs to support fragile and socially complex families to be successful in their communities.

Faculty: Ronald Abrahams MD & Erin Keels RN, MS, NNP-BC