Improving Standards of Care for Neonatal Abstinence Syndrome

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Populations of Abuse

- Illegal drugs
- Prescription drugs
- Populations merge
  - People can illegally acquire prescription drugs
  - Start with prescription drugs and devolve to illegal drugs
  - Start with illegal drugs, and evolve to programs using prescription drugs
    - Methadone
    - Subutex/Suboxone (Buprenorphine)
What is NAS?

- Infants born to mothers taking some medications during pregnancy may develop symptoms after delivery upon cessation of exposure.

- These symptoms (neurological, gastrointestinal, respiratory) are a complex known as Neonatal Abstinence Syndrome (NAS).

- Neonatal withdrawal symptoms have been noted to occur following prenatal exposure to several drug classes:
  - Opioids
  - Benzodiazepines
  - Mood-stabilizing medications
  - Selective serotonin reuptake inhibitors
  - Nicotine

Is NAS a Real Problem?

- Over the last decade, there has been increasing public health, medical, and political attention paid to the parallel rise in 2 trends:
  1) Increased prevalence of prescription opioid abuse
  2) Increased incidence of NAS

- Increase in the prevalence of NAS; varies by study and by state:
  - 1.2 - 5.9 per 1000 hospital births; 2000-2012
    - Patick, SW et al. J Perinatol 2015; 35:350-355
  - 7 - 27 per 1000 NICU admissions; 2004-2013
  - SMMC; 16 /1000 NICU admits, 2/1000 hospital admits; 80% up over 5 years

- National Average LOS for NAS requiring tx ~ 19 days
With efforts to quantify (confounded by charting) it seems that in Kansas some rural areas have a greater incidence than some urban; incidence per 1000 births, rural 0.2-3.1, urban 2.4-2.8.
Some states have more opioid prescriptions per person than others.

Number of opioid prescriptions per 100 people

- 52-71
- 72-82.1
- 82.2-95
- 96-143

SOURCE: IMS, National Prescription Audit (NPA™), 2012.
A. Annualized Neonatal Intensive Care Unit (NICU) Admission Rates for Neonatal Abstinence Syndrome

B. Median Length of Stay, According to Year. I bars in represent interquartile ranges

Abuse of Prescription Drugs

- Prescription drugs of abuse
  - Opioids
  - Stimulants
  - Central nervous system (CNS) depressants

- Factors contributing to severity of prescription drug crisis
  - Drastic increase in the number of prescriptions written
  - Greater social acceptability for using medications
  - Aggressive marketing by pharmaceutical companies
ED Visits, Legal vs Illegal Opioids

National

Number of ER visits/year

200,000

400,000

600,000

800,000

2004 2005 2006 2007 2008 2009

Hemine

Legal opioids

https://dawninfo.samhsa.gov/

legal vs illegal opioids, national

Gregory L. Kirk, MD Psychiatrist
addiction news, addiction opinion, and public health RMPC
Opioid Prescription Dispensed by US Retail Pharmacies

America’s Addiction to Opioids: Heroin and Prescription Drug Abuse
Overdose Deaths Involving Opioids, by Type of Opioid, United States, 2000-2015

Neonatal Abstinence Syndrome

- 55 – 94% of opiate exposed infants will have NAS symptoms
- 30% avoid treatment with comfort measures
- 30 to 70% may require pharmacological tx
- Pharmacological tx goal: symptom relief
  - Weight gain
  - Avoid seizures
How to Support Babies

- There is wide variation in which babies exposed to medications in utero will have NAS
- Many can be treated with “Comfort Measures” alone
- Key Factors in NAS Care:
  - Consistent care
  - Comfort Care
  - Consistent Scoring
- Caregiver education is essential, all members of care team
Supporting the Families Supports the Baby

- Family education during the pregnancy
- Collaboration between hospital care team and prenatal outpatient OB team prior to delivery is essential
- Family and provider education regarding non-narcotic treatment of pain before, during and after birth is crucial
- **Support of mothers during pregnancy regarding drug rehab, or just a stable environment can be beneficial to both mom and baby, and may result in the best outcome for both**
This video was created as the first in a series of Virtual Video Visits by the Vermont Oxford Network (VON) for use in an internet-based quality improvement collaborative, iNICQ 2013, focused on neonatal abstinence syndrome.

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For more information, contact Pam Ford at pford@vtoxford.org or (802) 865-4814 x204.
Key Factors in NAS Care

- NAS Protocol to Guide Consistent Care
- Nursing Education
- Family Education
- Comfort Care
- Scoring Consistency/Consistent Timing of Scoring
- Consistency in Treatment
  - Breast feeding and Pharmacologic Protocols
- **Education regarding non-narcotic methods of pain relief**
- **Family centered, trauma informed programming for women prior to giving birth, continuing in the post partum**
Aim

Develop an integrated process incorporating all key initiatives in the care of Neonatal Abstinence Syndrome (NAS) to decrease NICU admission and pharmacologic treatment from 25 to 20% or less in all infants at risk for NAS by December 2015; measured quarterly.

NAS FAMILY CENTERED PROTOCOL

NAS PERINATAL CONSULTS

NURSING EDUCATION

METHODS

The Plan Do Study Act (PDSA) standardized approach was utilized for implementation of key initiatives:

- NICU multidisciplinary task force created to establish NAS Protocol, Nursing Education, competencies, BREASTFEEDING POLICY

- Maternal/Child NAS educational tools developed, development tools, implement protocols

- PDSA cycle 1: Family Centered NAS Protocol Oct 2013

- Systematic NAS Educational Program for all nurses

- Scoring Competency and Consistency Monitoring Dec 2013 - present

- Scorers validated within 2 points

- NICU Taskforce: OB/Paratagology/Nobility

- Community Resources:
  - Health Departments: Clarksdale, Midsouth, Wyandotte
  - Follow-up services for infants: Kansas
  - YWIE, Wyandotte County
  - Parents as Teachers: Kansas
  - ESCC: Kansas City
  - Community Education: Kansas City
  - FMHC: Kansas City
  - Maternal Treatment: Kansas Heartland RAAC, Health Partnership Clinic Oth sua/Past
  - Missouri: First Step, CMHC SCCC

- PDSA cycle 2: Second Scorer Validation Jan 2014 - present

- PDSA cycle 3: Parent Education: NAS Pamphlets July 2014 - present

- Support Drug treatment referral Sept 2014 - present

- Prenatal NAS consult Sept 2014 - present

- PDSA cycle 4: Substance Abuse Breathing Protocol Nov 2014 - present

- PDSA cycle 5: Parent Education: SSRI and Pain Management Pamphlets April 2015 - present

- Obstetrician (OB) Education/Referral Phone Line May 2015 - present

- PDSA cycle 5: VON Universal Education-241 participants May 2015 - present

- Quarterly monitoring of all initiatives per chart review allowed for assessment, change, and reimplementation

- NAS Nursing Education monitored post evaluation after each presentation

- Standardized Pharmacological Treatment Protocol

- NAS infants transferred to NICU tx

- A: PDSA 1: Protocol initiation B: PDSA 1: Time of weaning to every 4 hours prior to DC of NICU

- PDSA 2: Change in protocol to every 8 hours before DC of NICU

- PDSA 3: Time of weaning to every 8 hours prior to DC of NICU

- PDSA 4: Change in protocol to every 4 hours before DC of NICU

- PDSA 5: Time of weaning to every 4 hours prior to DC of NICU

Discussion

The first year of working on the NAS program this Center’s focus was concentrated on individual initiatives with separate outcome measures.

The focus of the second year has been on integrating all of the NAS initiatives towards the ultimate goal of decreased NICU admissions and pharmacologic treatment.

Through a multifaceted approach this center met its initial goal of decreased admission/pharmacologic treatment rates of 25% and is currently striving to consistently maintain the rate of 20% or less.

See other posters from this center for more information regarding medication protocol and family education.
SMMC Data Showing the Benefits of the NAS Program
Decreased Treatment and NICU Admissions

NICU Admission/Pharmacologic Tx

% Transfer to NICU
% Requiring Tx
WHAT TO EXPECT AFTER YOUR BABY IS BORN
When your baby is born, we make every attempt to keep you together but your baby may need extra attention. If your baby needs extra support in the first few minutes/hours after delivery, he or she will be admitted to the NICU (Neonatal Intensive Care Unit) for monitoring. Otherwise, both you and your baby will be on the Mother & Baby unit for care.

WHAT IS WITHDRAWAL?
After birth, your baby is no longer being exposed to the medications/drugs in your bloodstream. When this exposure suddenly stops and the effects of the medications/drugs wear off, your baby can have withdrawal.

Each baby will show withdrawal differently. It is difficult to know how quickly, how severely or how long your baby will be affected. Because of this, he or she may need to remain in the hospital for a week or more while being monitored or treated.

WHEN DOES WITHDRAWAL START?
Withdrawal will usually begin within two to three days after birth. However, some infants can show symptoms in a matter of hours while others may take a week or more. How and when a baby withdraws depends on many things, including:

- What type of drug was taken
- How often it was taken
- How long the drug was used during pregnancy

WHAT ARE THE SYMPTOMS?
These are some common symptoms to watch for:
- Trembling or shaking; even when they are asleep
- Fussiness that is difficult to console
- Stuffy nose or a lot of sneezing
- Sensitive to noise and touch
- Diarrhea
- Excessive crying
- Diaper rash due to diarrhea
- Sweating
- Poor feeding
- Yawning
- Spitting up
- Fever
- Vigorous sucking but does not eat well
- Increased breathing rate

WHAT CAN I DO TO HELP MY BABY?
Your role in your baby's health care is very important. There are many things that you can do to help, including:
- Provide a quiet and calm environment – too many visitors, bright lights, loud noises and a lot of handling may be too much for your baby.
- Hold your baby swaddled in a blanket or skin-to-skin.
- Let your baby sleep, only waking when it is time to feed.
- Consider using a pacifier. Your baby may need a way to calm down.
- With the use of many medications, it is safe and even beneficial to breastfeed.
- With exposure to some drugs, breastfeeding may be harmful. Breastfeeding is not allowed if the baby will be exposed to cocaine, LSD, heroin or PCP due to severe risk to the baby. There is some concern with the use of marijuana. Recommendations continue to be updated about drugs/medications and the safety of breastfeeding. Be sure to discuss this with your baby's doctor.
- When you are ready to wean from breastfeeding, let your baby's doctor know. Withdrawal symptoms can become worse during this time.
- If you choose to formula feed, feeding smaller amounts more often may help.
Dear Parent,

Congratulations from Shawnee Mission Medical Center (SMMC)! We are committed to giving you and your baby the best care possible. This letter is to help you to know what to expect during your hospital stay. It will help you be prepared to care for your baby.

We know that a baby at risk for Neonatal Abstinence Syndrome (NAS) will have less problems when they are cared for by their family. It is best, for your baby, when you and your family can be here to comfort them. We also know that a quiet environment can help. We would like to keep you and your baby together during the hospital stay. This might be on the Mother/Baby unit or in the Neonatal Intensive Care Unit (NICU). It has been shown that babies need less medical treatment and may go home faster, when their parents provide care and comfort.

After delivery, we will monitor your baby. This is what you can expect:

1. Your baby will stay with you on the Mother/Baby unit.
2. The nurses will begin watching for signs of NAS by using a score system starting at about 4 hours of age.
3. The scoring will be done with a NAS scoring tool. Your baby will be scored every 2 to 4 hours. This will be done around feeding times. We would like you to participate in the scoring with your nurse, please keep your own log that we will provide.
4. We will monitor your baby for 3 to 5 days. The length will depend on the type of drug/medication used during your pregnancy.
5. If your baby needs medication for NAS, he or she will be transferred to the NICU. The NICU has private patient rooms so you will be able to continue to stay with your baby.
6. Once a baby is placed on medication, it may take at least 2 weeks or more to wean off the medication.

During your baby’s stay, it is best if you and your family provide comfort care to your baby. The staff will be here to help you, but it is best if you are the main caregiver. You can provide this care in the following ways:

**Provide comfort for your baby in a quiet, calm environment**

- Provide “skin to skin” care for your baby
- Place baby in a swaddle sac. This is to provide comfort when not skin to skin
- Keep room lights dim
- Keep room noise low
- Limit visitors
- Breastfeed, unless you are told not to by a provider for medical reasons
- If you choose to formula fed, a small volume more often may help
Other Centers’ NAS Work

St. Lukes South:
V Murthy, MD; L Thurlow, APRN

Overland Park Regional Medical Center:
L. Salder, RN; J Howlett, MD; A Longhibler, RN

Stormont-Vail Regional Health Center:
K Brey, MD; S Crouch, MD; M Navarro, MD; D Salsbury, APRN

Olathe Medical Center:
J Howlett, MD; L Neyens, RN

University of Kansas Medical Center:
C Weiner, MD; M Parrish, MD; P Vishal, MD; T Kilhenny DNP, APRN

Menorah Medical Center:
D Oberdorf, RN; J Howlett, MD; J Espy RN

Wesley Medical Center:
B Blume, MD; D Lyman RN; L Gwyn MD; S Kuhlmann DO; K Hommertzheim RN; F Hampton MSN, RN; P Delmore MSN, RN

• Prenatal consult program, standardized NAS protocol, pharmacologic protocol. Revisiting approach after completing site visit at Yale

• VON Designated Center of Excellence in NAS Training and Education, participated in VON NAS iNICQ, standardized NAS protocol, nursing education, pharmacologic protocol

• Staff education focused on Finnegan scoring and parent involvement, standard morphine weaning approach, NAS parenting letter encouraging participation. Data notes decreased LOS to 24 days in 2016

• Standardized NAS and pharmacologic protocols

• Multidisciplinary NAS taskforce formed with sub-committees focusing on the obstetrical patient, non pharmacologic treatment protocol, OT/speech involvement, standard NAS education

• Standardized NAS and pharmacologic protocols

• Standardized NAS protocol, broad based education, ongoing NAS data collection, participated in VON NAS iNICQ
Mothers’ Voices: Lessons Learned from Project NESST

Erica Asselin, Mentoring Mom
Amy Sommer, Clinical Coordinator
Center for Early Relationship Support
Jewish Family and Children’s Service of Greater Boston
October 31, 2014
Imani’s Story...

... How the system was experienced
   Wishes for care
A Universal Training Solution Aimed at Improving Outcomes for Infants and Families Affected by NAS

Internet-Based Newborn Improvement Collaborative for Quality
Vermont Oxford Network
Launched in 1989

VISION

To build a worldwide community of practice dedicated to providing every newborn infant and family with the best possible and ever improving medical care.
Statewide Collaboratives and NAS Demonstration Projects

The Vermont Oxford Network has the privilege of partnering with a growing number of states, who are deeply invested in improving outcomes for infants and families affected by NAS.

The states have been successful in identifying and partnering with hospitals that provide all levels of care, to provide a coordinated and synchronized network of improvement. Additionally, they have partnered with their state public health departments, and third party payers, to design effective strategies specific to their local and regional context. In 2015, the VON partner states will adopt the Universal NAS Curriculum, and aim to train 85% of their healthcare providers who encounter substance-exposed infants and families.

The current list of state collaboratives includes:

- Alaska – Alaska State Collaborative
- Massachusetts – Neonatology Quality Improvement Collaborative (NeoQIC)
- Michigan – Michigan Collaborative Quality Initiative (MICQI)
- New Hampshire/Vermont – Northern New England Perinatal Quality Improvement Network (NNEPQIN)
- Wisconsin – Wisconsin Neonatal Perinatal Quality Collaborative (WINpqc)

If you are interested in joining the VON INICQ collaborative, at a state level, please contact Pam@vtoxford.org for details and tips to support your statewide work.

A 20% discount applies to health systems and/or state QI collaboratives that register multiple NICUS. Special deeply discounted rates for Level 1 and 2 centers may apply when associated with participating statewide/regional quality improvement collaborative efforts. Please call for eligibility details. We also have modified fee schedules to coordinate with your budget cycle.
A Universal Training Solution: Improving Outcomes for Infants and Families Affected by Neonatal Abstinence Syndrome (NAS)

Substance use in pregnancy and the number of infants requiring management for NAS continue to escalate across the United States and beyond. In 2013 and 2014, over 200 leading teams from the Vermont Oxford Network focused on systematically implementing the AAP guidelines for the care of infants and families affected by NAS. Additionally, three states adopted the VON curriculum and addressed this challenge with comprehensive statewide efforts.

Working collaboratively these teams have made major strides in standardizing practice by adopting evidence-based policies. They have developed innovative service models for mothers and infants across the trajectory of care. However, given the complex nature of this epidemic, more work is needed.

In 2015, INICQ centers and statewide collaboratives will focus on adopting a standardized universal interdisciplinary curriculum in an effort to deliver highly reliable care to every patient, every time! The VON designed and tested universal training curriculum will include content from 35 of the leading experts in NAS care, including the author of the AAP Guidelines, Dr. Mark Hudak.

INICQ 2015: A Universal Training Solution

- Participate in three 90-minute Internet-based webinars, followed by 30-minute topical work sessions to assist your team in structuring success—no travel required!
- Learn from world-class faculty
- Measure progress using VON Day Quality Audits
- Compare your performance with participating centers worldwide
- Implement and test “potentially better practices” (PBPs)
- Structure your QI work using the VON Improvement Toolkits
- Spread the learning, using the 24/7 on-demand learning portal with access to session recordings, program materials, and pragmatic improvement stories
- Opportunity to be recognized as a “Center of Excellence” in NAS care.

Continuing Education Credits / Maintenance of Certification Part 4

VON is a Portfolio Provider for the American Board of Pediatrics (ABP) Maintenance of Certification Part 4. Individual physicians and physician groups can obtain source of MOC Part 4 credit for participation.

CME Approval Statement:
### State Perinatal Quality Collaboratives with NAS Programs

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<th>State</th>
<th>Collaborative</th>
<th>Notes</th>
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• Started [Florida’s Born Drug Free](http://health.usf.edu/publichealth/chiles/fpqc/index.htm) campaign  
• The Born Drug Free NAS Program is implemented through hospitals and is overseen by the Attorney General’s office |
| Kentucky          | Kentucky Perinatal Quality Collaborative Initiative [http://kentuckyperinatal.com/KPQCI.htm](http://kentuckyperinatal.com/KPQCI.htm) | • KY NAS Project is in the initial stages of data collection and site enrollment  
• Seeks to determine best practices and standardize treatment in Kentucky  
• Focuses on maternal-based, palliative care |
| Massachusetts     | Neonatal Quality Improvement Collaborative of Massachusetts [http://www.neogic.org/](http://www.neogic.org/) | • NAS program launched in 2013  
• 40 hospitals in the state have joined together to share practices, compare data, and develop local improvement projects  
• Part of a national NAS program (VON’s iNICQU) |
| Massachusetts     | Massachusetts Perinatal Quality Collaborative [http://www.mapqc.org/](http://www.mapqc.org/) | • NAS project in initial phases, with strategy developed in April 2014  
• Joint project with the Massachusetts Department of Children and Families (DCF)  
• Collaborative site provides [DCF NAS Fact Sheet](http://www.mapqc.org/) |
| Michigan          | MHA Keystone Center: Obstetrics [http://www.mhakeystonecenter.org/collaboratives/ob.htm](http://www.mhakeystonecenter.org/collaboratives/ob.htm) | • Part of a national program (VON’s iNICQ) that disseminates a standardized NAS toolkit to members of the Michigan collaborative  
• Has identified NAS as a problem and receives regular programmatic audits to ensure participating centers are implementing best practices |
• Provides updated guidelines for **screening** and **treating** NAS to contributing health centers within the collaborative |
• Initiated a quality Improvement project collecting data to determine a standard of care, while also implementing current best practices  
• 27 sites participate across the State  
• RN-driven |
| Ohio              | Ohio Perinatal Quality Collaborative [https://opqc.net/](https://opqc.net/) | • Well-established NAS Program  
• Standard, evidence-informed treatments implemented in 40 facilities across the state  
• Seeks to increase identification of and compassionate withdrawal treatment for full-term infants born with NAS  
• Seeks to reduce the length of stay of NAS infants by 20% across participating sites by June 30, 2015 |
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<th>State</th>
<th>Initiative/Network</th>
<th>Additional Information</th>
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| Tennessee  | Tennessee Initiative for Perinatal Quality Care                                      | - NAS Project: initiated in February 2013  
- Quality improvement project to decrease NAS infants admitted to NICU  
- Infant-focused, lacking acknowledgement of maternal/fetal dyad |
| Vermont    | Vermont Oxford Network                                                              | - VON is a national nonprofit voluntary collaboration of health care professionals working to improve neonatal care  
- NAS initiative (iNICQ) launched in 2013, partners with collaboratives in MA, MI and NH to help coordinate their states’ NAS quality improvement project  
- Participating state collaboratives adopt VON NAS toolkit and curriculum  
- VON regularly monitors state-wide progress through audits of collaborative work |
| Washington | Washington State Perinatal Collaborative                                             | - Serves as an information center for NAS treatment and screening guidelines  
- Primarily clinical information and protocol with little acknowledgement of maternal side of mother/infant dyad  
- No evidence of active dissemination of resources |
| West Virginia | West Virginia Perinatal Partnership                                                  | - WV Perinatal Partnership initiated the Drug-Free Moms and Babies program (DFMB) in 2012  
- DFMB offers funding for projects that provide comprehensive services for pregnant women  
- Seeks to identify programs that support healthy baby outcomes by providing prevention, early intervention, addiction treatment and recovery support services for pregnant and postpartum women  
- Provides RN-centered NAS Toolkit and model policy for substance screening of pregnant women |
| Wisconsin  | Wisconsin Association for Perinatal Care                                           | - Published 2011 report on opioid dependence and pregnancy and developed Newborn Withdrawal Project Educational Toolkit  
- Collaborative website is an information hub for providers, offering a factsheet and checklist, and referring providers to the Toolkit  
- Offers detailed resources for patients, including compassionate FAQ for mothers |

*This list is based on information available through each collaborative’s website and may not represent the full array of NAS programs. Click here to find out if your state has a collaborative and check in with contacts there to see what work they may be doing on this emerging issue.*


*Updated September 2014*
Click on a state in the map below to find the status and click through to their website.
ACOG Committee Statement on Opioid Use/Abuse in Pregnancy

- Early universal screening, referral for treatment of pregnant women with opioid use improve maternal and infant outcomes
- A coordinated multidisciplinary approach without criminal sanctions has the best chance of helping infants and families
- For pregnant women with an opioid use disorder, opioid agonist pharmacotherapy is the recommended therapy and is preferable to medically supervised withdrawal because withdrawal is associated with high relapse rates, which lead to worse outcomes. More research is needed to assess the safety (particularly regarding maternal relapse), efficacy, and long-term outcomes of medically supervised withdrawal

ACOG, Aug 2017
Objective: Prevent/Reduce the number of opioid deaths

Multi-faceted 3 year plan

- Reduce and prevent prescription opioid misuse
- Improve access to treatment for those dependent
- Provide alternative pain management treatment
- Identify those most vulnerable/greater risk for dependence
- Educate the public and providers about the crisis
- Measure the impact that interventions provide our community

Currently a task force including Shawnee Mission Medical Center's pain center, behavioral health is determining the feasibility of a Suboxone Integrative Pain Center
A Kansas NAS State Collaborative

- Would support woman and protect their unborn child
  - With informed health care
  - Knowledgeable state agents

- Bring Kansas to the National Stage
  - Issue of NAS
  - Perinatal Quality Collaborative

- First “TOP DOWN” strategy for full state involvement
  - Dedicates not just money, but shared ownership
  - May help with the final stage of implementation
    - Hospital and State collaboration on development of programs
Big Take Home

- Consistency of Care
- Education regarding non-narcotic methods of pain relief
- Family centered, trauma informed programming for women prior to giving birth, continuing in post partum and beyond

Need State’s Help

“Treat the Woman, Treat the Child”

Stop the cycle of abuse, family separation, deprivation

Use this magic window of time to Protect the Unborn child and change the trajectory of the entire family unit
Thank You

Questions?

SMMCC NAS Team

- Betsy Knappen, MSN, APRN (NAS Program Coordinator)
- Dr. Betsy Wickstrom (Perinatologist)
- Danielle Renyer, LMSW (NICU Social Worker)
- Kim Mason, RN, BSN (Discharge Planner)
- Dr. Julie Weiner (Neonatologist)
- Carrie Miner, MSN, RN, CCRN (Nursing Program Coordinator/Clinical Specialist)