

NICU – Children’s Hospital and Medical Center Goals & Objectives  
Neonatology Fellowship

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Where to Meet: Children’s NNP office daily at 6:30am. Check-out begins at 4:30pm  
Trainee Level: Fellow Year 1, 2 and 3

### **GOALS**

By the conclusion of fellow’s rotations at Children’s Hospital and Medical Center NICU during their 3-year fellowship, fellows will:

- Build a strong foundation to diagnose and manage problems seen in the continuum of development from the prenatal, intrapartum and neonatal periods. The fellows will organize and prioritize responsibilities to provide patient care that is safe, effective and efficient.
- Identify high-risk obstetrical patients to anticipate fetal and neonatal complications via consultation. Upon delivery, fellows will execute resuscitation, procedures and stabilization of neonates and infants based on their severity of illness. Fellows will also recognize the psychological implications of a sick newborn on the family
- Understand the physiology, altered structure and function of the fetus and the neonate in an acute illness to complex and chronic patients.
- Fellows will integrate into the interprofessional team to enhance patient safety and improve patient care. Fellows will coordinate care with numerous subspecialists to optimize patient care including complex general surgical and cardiac patients.
- Fellows will demonstrate skill, knowledge and judgement in performing medical transports of critically ill neonates via air and ground transport.
- Fellows will demonstrate interpersonal and communication skills effective exchange of information to collaborate with patients, their families and other health care professionals.
- Fellows will lead the multidisciplinary team in a way that utilizes the team members’ specific roles and capabilities, eliciting and valuing the perspective and contribution of others.

### **CHILDREN’S NICU:**

The NICU is located on the 6<sup>th</sup> and 7<sup>th</sup> floors of the Hubbard Tower of Children’s Hospital & Medical Center. There is a total of 52 beds, most commonly rooms 6001-6020 and 7001-7020 are used

### **Team structure**

- Patient teams are divided geographically by floors (one team on 6<sup>th</sup> floor, one on 7<sup>th</sup> floor), and every attempt is made to balance numbers/acuity.
- The neo's alternate days on call, when they will receive all calls for admissions/transfers.
- There is a neo, RT and NNPs assigned to each patient (often 2 per floor, occasionally 3 NNPs total, with one NNP splitting patients on both floors) to round on each floor
- Fellows, residents and medical students round on one floor.
- Social workers, dieticians, and nurse case managers are assigned to each floor
- The entire unit shares one pharmacist, who alternates days rounding with each floor
  - The pharmacist will write TPN for the floor they're rounding with. Otherwise the NNP will write the TPN.

### **Rounding process**

- Pre-rounding begins at 0730 in the 7<sup>th</sup> floor conference room. The MD/NNP/RT/Learners team reviews films together on their respective floors.
- After x-ray rounds, we examine patients, prep notes and round with the cardiac and peds surgery teams
- Bedside NICU rounds begin at 9:30 on each floor.
- The MD adds the NNP note or resident note, signs it, and submits charges during rounds.
- Families are updated after rounds by the attending or fellow.

### **Admissions**

- Calls for transports/admissions generally come through the Children's priority line/call center/transport dispatch (402-955-8089). The Neonatologist is connected on all calls, but when on service, the fellow will be on all calls too.
- Fellows will be connected to the referring physician to review the patient, offer advice if needed.
- The transport dispatch will remain on the line, and dispatch the team once you've agreed to accept the patient.
  - Transport has an algorithm for mode of transport (ground, heli, fixed wing) based on distance and severity of illness
  - Some referring hospitals (UNMC, Lincoln, South Dakota hospitals) may use their own transport team.
  - Make sure to notify dispatch if special equipment (iNO, cooling blanket) is needed for transport
  - Occasionally families will bring the patient by private vehicle (ie babies who have been discharged home but need phototherapy). They need to stop at the Access desk in the main hospital lobby before coming up to the NICU.
- The neo/fellow is responsible for updating the rest of the NICU team (charge RN, NNP, RT) of the admission. The charge RN will determine, in conjunction with the neo, where to admit the baby. Ideally, the patient will be admitted to the same floor as the attending on call.

- If for some reason the call for an admission does not come through the call center, the neo/fellow is responsible for calling them (402-955-8089) to set up transport, etc.
- Once the patient arrives, the attending/fellow/residents and NNPs will be called to the bedside to complete handoff between the transport team and the NICU team.
  - Majority of Gastroschisis patients are admitted directly to the FCC operating room for reduction/silo placement. See gastroschisis protocol for details on those admissions.

### **Discharges**

- The attending orders home meds/completes discharge orders, including DME supplies and equipment.
- The nurse case managers will assist with PCP and other follow up appointments.
- Many families will complete rooming-in prior to discharge, and the discharge orders should be done prior to rooming in.
- Please enter discharge orders as early as possible, as many families have long drives home.
- The neonatologist is responsible for contacting the PCP at discharge for hand-off.

### **Special considerations**

- Management guidelines exist for certain diagnoses such as CDH, gastroschisis, HIE, seizures, myelomeningocele, and neonatal opiate withdrawal (NOW). These can be found in the K drive—NICU unit protocols.
- Other protocols for initiating/weaning therapies include:
  - Enteral feeds for infants on PGE
  - iNO weaning
  - PRBC and platelet transfusions
  - Screening and management of pulmonary hypertension in infants with BPD
  - Osteopenia
- Newborn cardiac patients are generally cared for in the NICU until surgery, then they transition to the CICU post-op. Occasionally we have preterm infants or those with other major congenital anomalies who will return to the NICU after recovering from cardiac repair. Single ventricles will not come back to the NICU.

### **ECMO**

- ECMO is done in the PICU/CICU. The CT surgeons cannulate cardiac patients, and peds surgeons cannulate non-cardiac patients.
- ECMO criteria for CDH patients can be found in the CDH guidelines; criteria for cardiac patients is under development.
- If ECMO is a potential consideration in any patient, contact the PICU/CICU attending as soon as possible to discuss candidacy and criteria for when to initiate ECMO.
- Once a non-cardiac patient has been decannulated from ECMO, they return to the NICU for ongoing care.

## **FELLOW OBJECTIVES:**

### **CORE DOMAIN: PATIENT CARE**

Fellow Year 1 are expected to:

- Understand High-risk obstetrical principles.
- Attend and manage resuscitation of the pre-term and full-term infant.
- Provide initial stabilization of sick infants of any gestational age.
- Perform common procedures in the NICU.
- Understanding and identifying the types of infants who may or will require intensive care in a referral center, including those in which maternal problems may be greater than those of the infant.
- Consult subspecialists for additional care for infants.
- Experience with surgical, cardiac, and cardiovascular surgical conditions.
- Manage critically ill infants, including those post-operative recovery.
- Manage infants who are recovering from acute illness and now growing in preparation for discharge to a less intense community facility or home.
- Identify needs for transport to another facility or further care.
- Work towards a succinct and pertinent sign-out to the night team.
- Discuss all patient decisions with nurse practitioners and/or attendings for guidance and feedback.
- Listen to rounds and begin the process of running rounds, contributing to the attending's plan.

Second Year Fellows are expected to:

- Anticipate changes in patient status
- Focus on long term plans for complex neonatal patients
- Effectively run interdisciplinary rounds
- Discussion with nurse practitioners with collegial decision making while keeping them up to date with changes.
- Run rounds with the attending present, but who stays quiet unless needed.
- Provide consultants and attending updates with concise and succinct information.
- Teach and coach on rounds, adjusting to level of training and topics of the learners interest.
- Provide succinct and pertinent sign-out to night team with anticipation of issues and contingency plans.
- Attend at least 2 Fetal Care Center (FCC) prenatal consults with Dr. Zeidan in an observatory role.

Third Year Fellow:

- Lead the team with patient decision making with input from the nurse practitioner team.
- Lead rounds with the attending present remotely or review plans after rounds.

- Tailor communication to the audience/consultant for the attended purpose.
- Teach learners physician exam findings and clinical skills.
- Provide succinct, pertinent and contingency hand-offs to your night team with minimal addition from the attending.
- As fellows are able to master the goals of the first and second year fellow, the senior fellow will focus to balance and oversee care of the entire NICU service including critically infants and infants in intensive care nearing discharge.
- Attend at least 2 FCC prenatal consults with Dr. Zeidan leading the consultation with limited addition from your attending.

## **CORE DOMAIN: MEDICAL KNOWLEDGE**

The ABP has a content specifications for Neonatal-Perinatal Medicine which identifies areas of study neonatology fellows will, by the conclusion of the fellowship, be familiar and able to manage as an independent neonatologist. Each fellow should be aware of the variety of subjects for which they are responsible and keep track of areas to which they have not been exposed directly. These areas will need to be covered via self-study or during fellow curriculum. Fellows will attend all scheduled division education sessions.

First year fellows should:

- focus on understanding the basic pathophysiology of common neonatal diseases: prematurity, RDS, PPHN, sepsis, IVH, HIE, etc.

Second year fellows should:

- focus on the pathophysiology behind complex neonatal disease processes like BPD, multisystem organ failure, multiple congenital anomalies, complex congenital heart disease.

Third year fellows should:

- focus on fetal diagnostics and therapeutics, integration of complex disease and treatment strategies while accumulating and expanding current literature related to neonatal care.

## **CORE DOMAIN: PRACTICE-BASED LEARNING & IMPROVEMENT**

The fellow learns through investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, and improvements in patient care. They will focus on identifying strengths, deficiencies in knowledge and expertise to help improve patient care.

- Involvement with the quality assurance process (including, but not limited to, morbidity and mortality). Assisting in identification in systems errors.

Procedures:

- The following represents some specific skills a fellow must acquire in order to care for infants not requiring intensive or specialty care and to stabilize and initiate management on those who do. These are primarily mechanical skills. **Bold** includes required skills.
  - **Intubation**
  - **Peripheral Arterial Line (PAL)**
  - **Umbilical Arterial Line (UA)**
  - **Umbilical Venous Line (UV)**
  - **Neonatal Resuscitation**
  - **Code Resuscitation**
  - **Lumbar Puncture**
  - Peripheral inserted central catheter (PICC)
  - **Thoracentesis**
  - **Chest tube placement**
  - Pericardiocentesis
  - Abdominal Paracentesis
  - aEEG interpretation
  - Ventricular Tap
  - Double Volume Exchange Transfusion
  - Partial Volume Exchange Transfusion
  - ECMO Rounding
  - Circumcision
  
- The second group of skills is more cognitive yet represents important functions. There is no attempt to define the complete range of intellectual skills necessary for the diagnostic and management process.
  - Gestational age assessment
  - Growth classification
  - Thermal management
  - X-ray interpretation of the chest and abdomen
  - Oxygen administration by hood and nasal cannula
  - Ventilator Management including conventional, high-frequency oscillator, high-frequency jet ventilator
  - Fluid and electrolyte management
  - Nutrition
  - Arterial blood gas interpretation and management
  - Discharge Planning

First-year fellows will:

- do all procedures involving umbilical lines, airway, chest tubes and arterial lines, and join residents and APPs for procedures like lumbar punctures and arterial sticks, depending on you need.

Second Year fellows will:

- do the majority of complex procedures and join/coach any procedures you are not performing.

Third year fellows will:

- evaluate procedural needs, and advocate for specific ones you need while coaching any procedures you are not doing. As a leader, offer to run simulations for learners who are unable to do procedures.

## **CORE DOMAIN: INTERPERSONAL & COMMUNICATION SKILLS**

The fellow will demonstrate communication and interpersonal skills that result in effective information exchange and teaming with patients, their families, and other health professionals.

- Pre-delivery counseling.
- Communication with families on a daily basis and giving bad news.
- Consultation and effective communication with community physicians and subspecialists.
- Communication with pediatricians, family practitioners, obstetricians, nurses, nurse practitioners, transport staff, respiratory therapists (RTs), social workers (SWs), nutrition, house officers, medical students and other members of the care team.

First year fellows will:

- Focus on establishing effective work relationships with our interprofessional NICU team.
- Discuss all patient decisions with nurse practitioners for guidance and feedback.
- Listen to rounds and begin the process of running rounds, contributing to the attending's plan.
- Assist the neonatologist in updating families each day.
- Call the majority of new consultations and communicate their recommendations with your team.
- Teach learners topics of your choice.
- Work towards a succinct and pertinent sign-out to the night team.
- Arranging and attending all family meetings.
- When delivering bad news, they should review with the attending beforehand and attending together.
- On transport calls, focus on gathering the history and pertinent details of the patient. Communicate any incoming admission to the NICU charge nurse and NNPs.

Second year fellows will:

- Focus on cultivating your established relationships by understanding and appreciating all the members on our interdisciplinary team.
- Discussion with nurse practitioners with collegial decision making while keeping them up to date with changes.
- Run rounds with the attending present, but who stays quiet unless needed.

- Provide consultants and attending updates with concise and succinct information.
- Teach and coach on rounds, adjusting to level of training and topics of the learners interest.
- Provide succinct and pertinent sign-out to night team with anticipation of issues and contingency plans.
- Run family meetings with the attending as back up.
- When delivering bad news, fellows should have the attending as back-up for coaching.
- Begin focusing on long-term care planning and communication skills.
- On transport calls, you should be gathering the history and data collection and be able to provide recommendations for the referring facility without significant interruption/addition from the attending.

Third year fellows will:

- Focus on providing leadership skills, team building and coaching for our interdisciplinary team by facilitating group discussions and problem-solving.
- Lead the team with patient decision making with input from the nurse practitioner team.
- Lead rounds with the attending present remotely or review plans after rounds.
- Tailor communication to the audience/consultant for the attended purpose.
- Teach learners physician exam findings and clinical skills.
- Provide succinct, pertinent and contingency hand-offs to your night team with minimal addition from the attending.
- Run family meetings without the attending present.
- When delivering bad news, fellows should be able to delivery bad news without direct supervision.
- Focus on communication skills and nuances of patient care.
- On transport calls, should complete the entire transport call without any addition from the attending for most straightforward and complex cases.

## **CORE DOMAIN: PROFESSIONALISM**

The fellow will demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. The fellow will provide accurate and adequate check out to the on-call resident or NNP before leaving for education or post call. Fellows will be prompt for all of their clinical and educational sessions.

First Year Fellow will:

- Conduct yourself with professionalism with high standards of ethical behavior.
- Build your trustworthiness for patient care with your team by building your foundation of knowledge, understanding your patients and communication skills.
- Build your leadership skills by creating a foundation of open communication, discussion and engagement in your team for decision making.
- Recognize the uncertainty and limited control in certain aspects of patient care.



Second Year Fellow will:

- Conduct interactions with a professional mindset and sense of duty.
- Continue to build your trustworthiness by following up on tasks, identifying insight into you limits and anticipate your patient's needs.
- Lead your team in an organize manner and open communication.
- Utilize uncertainty and ambiguity and help patient's families and care team to understand.

Third Year Fellow will:

- Have insight into your professional and ethical behaviors to identify areas for yourself and your team's improvement.
- You have built your trustworthiness with your team and need little prompting for follow-up. Assume full responsibility for your patients and anticipate problems.
- Provide leadership skills to enhance the team function, learning environment and ultimately improving patient care.
- Anticipate uncertainty in patient care.

#### **CORE DOMAIN: SYSTEMS-BASED PRACTICE**

The fellow will demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. The fellow will learn appropriate use of diagnostic and screening labs and imaging, as well as appropriate use of consultants. Basic training in utilization management, ethics, cost of care, treatment options, medical-legal issues, and effective documentation.

First Year Fellow will:

- Begin to understand and integrate yourself into the NICU's systems incorporating our referral base, consultants, workflow and hospital.
- Understand the patient care coordination within our division.

Second Year Fellow will:

- Using your knowledge of our system, be able to shift easily between health care systems.
- Involve patient's family with the care coordination and assist in the transition of care for our patients into home and post-hospital follow-up.
- Allow optimization of a patient's work-up with cost effectiveness and risk/benefit in mind.

Third Year Fellow will:

- Help families navigate the complex health care system in the NICU and prepare for being discharge from the NICU with a complex infant.

- Provide complete transition of care to the primary care physician for our simple and complex neonatal patients.
- Utilize cost-effectiveness and risk/benefit not just for single patients, but the population/system as a whole.

## **EVALUATION**

- Fellows should receive in-the-moment feedback throughout their rotation with specific feedback at the end of the week with your attending.
- The fellow will be evaluated at the conclusion of the month and receive a formal evaluation in regard to the fellow's abilities in patient care, professionalism, medical knowledge, interpersonal and communication skills, systems-based practice, and problem-based learning and improvement.