UMCH NICU

UMCH FIRST YEAR ROTATION

Goals: The goal of the first year UMCH rotation is to learn and be able to demonstrate basic competency in providing quaternary neonatal care and family support for newborn infants with severe and/or complex medical needs. This includes coordinating the care provided by multiple subspecialty consultants, for infants with complex conditions and rare disorders. Fellows are also expected to learn the collaborative approach to managing an entire NICU. Milestone ratings should be at least 3 by the end of the year.

Objectives: Following completion of the required first year UMCH, NICU clinical rotations (n=2-3), NPM fellows should be able to:

- Demonstrate basic competency in neonatal Patient Care by being able to:
  - Diagnose, stabilize and transport a critically ill-neonate from an outside hospital (Completion of transport scenario simulation course required).
  - Resuscitate newborn infants with a variety of common neonatal illnesses, including extreme prematurity.
  - Coordinate and participate in the multidisciplinary care of infants with common neonatal illnesses.
  - Coordinate and participate in the multidisciplinary care of infants with complex or rare neonatal illnesses.
  - Coordinate and participate in the multidisciplinary care of neonates requiring surgical procedures and effectively manage common postoperative complications.
  - Provide appropriate ventilatory and cardiovascular/inotropic support to critically ill neonates, including appropriate monitoring.
  - Provide complex neonatal nutritional support, both enteral and parenteral, including demonstrating an understanding of breast-feeding and lactation.
  - Perform common basic neonatal intensive care procedures including, but not limited to, venous and arterial access (umbilical and percutaneous), endotracheal intubation, thoracentesis, chest tube placement, pericardiocentesis and peritoneal taps.
  - Diagnose the need for ECMO, with staff supervision.
  - Provide daily management for a neonate on ECMO, with staff supervision.

- Demonstrate competency in Medical Knowledge by being able to:
  - Take and obtain a level-specific passing score on the annual NPM subspecialty in-service examination offered by the ABP.
  - Obtain/maintain NRP certification.
  - Describe the anatomy, physiology, clinical presentation and rationale for management of infants with common neonatal diseases during rounds and conferences.
  - Describe the most common neonatal ethical concerns.
• Participate in resident education on the NICU (Core lecture series/rounds/informal patient-initiated teaching).

• Demonstrate competency in Interpersonal & Communication Skills by being able to:
  ♦ Perform and record an accurate and thorough neonatal admission assessment, including development of an appropriate initial plan.
  ♦ Competently conduct work/teaching rounds in the manner of an academic neonatologist.
  ♦ Effectively communicate with referring physicians to determine the need for transport of a neonate and the status of an infant during the stabilization and transport process.
  ♦ Competently, compassionately and effectively communicate with the patients’ parents/families of different ages, educational levels, lifestyles and cultures – both in person and over the phone. This includes discussing the assessment and plan for a neonate with the extended family – both on a daily basis and in the form of a family conference (documentation of leading at least 2 family conferences required).
  ♦ Effectively recognize the need for and communicate with parents via a translator.
  ♦ Effectively communicate with consulting subspecialty faculty and coordinate the plan of care when multiple consultants are involved in the care of an NICU patient.
  ♦ Effectively and respectfully interact with the NICU staff (nurses, RTs, ECMO technicians, consulting physicians, social workers, pharmacists, nutritionists, occupational therapists, laboratory technicians, etc) to provide an adequate exchange of information and facilitate safe and efficient patient care.
  ♦ Effectively participate in Health Team Rounds.
  ♦ Teach the essentials of basic neonatal management and procedures (including documentation) to pediatric residents and medical students.
  ♦ Accurately prepare death certificates and summaries.

• Demonstrate competency in Practice-Based Learning & Improvement by:
  ♦ Accurately evaluating causes of death and morbidity through participation in and presentation of patients at Clinical Standards Conference (M&M).
  ♦ Staying current with the literature and discussing the evidence-based rationale for treatment of common neonatal illnesses encountered while on service.

• Demonstrate competency in Systems-Based Practice by:
  ♦ Participation in Collaborative Practice Council (multidisciplinary team)
  ♦ Participation in weekly Health Team Rounds (multidisciplinary team)
  ♦ Manage the planning of discharge and home care for basic/uncomplicated neonatal patients through working with families, nursing staff, social worker, home care professionals and referring physicians.
  ♦ Effectively coordinating transfer to other wards/physicians when necessary (general peds, PICU, dialysis, etc.)

Updated 6/26/14
Demonstrate competency in Professionalism by:
- Identifying and addressing the needs of individual patients with ethical concerns.
- Using appropriate resources (textbooks, journal articles, internet search engines) without prompting to effectively care for patients and maintain a current fund of knowledge regarding neonatal disorders.
- Exhibiting professional work habits - organizing daily activities to continue excellent patient care while attending conferences and adhering to duty hour regulations. Promptly completing all assignments and responsibilities attendant to providing patient care.
- Balancing personal life and professional obligations, putting patient care needs first while on duty in the NICU.

UMCH SECOND YEAR ROTATIONS
Goals: The goal of the second year UMCH rotations is to learn and be able to demonstrate advanced subspecialty proficiency in providing quaternary neonatal care and family support for newborn infants with severe and/or complex medical needs. Milestone ratings should be at least 3-4 by the end of the year.

Objectives: Following completion of the required senior UMCH, NICU clinical rotations (n=2-3), NPM fellows should be able to:
- Demonstrate competency in Patient Care by being able to:
  - Stabilize and transport a complex critically ill-neonate from an outside hospital.
  - Diagnose, stabilize and manage the neonate with an inborn error of metabolism.
  - Diagnose, stabilize and manage the infant with congenital heart disease.
  - Diagnose, stabilize and manage the infant with renal failure (+/- requiring peritoneal dialysis).
  - Diagnose and manage the infant with multiple complex or chronic problems (such as BPD).
  - Provide daily management for a neonate on ECMO.
  - Provide complex neonatal nutritional support, both enteral and parenteral, and demonstrate understanding of advanced neonatal nutritional needs.
- Demonstrate competency in Medical Knowledge by being able to:
  - Take and obtain a level-specific passing score on the annual NPM subspecialty in-service examination offered by the ABP.
  - Obtain/maintain NRP certification.
  - Complete the ECMO certification course.
  - Participate in curricular development of resident education on the NICU
  - Present one departmental 3M conference.
- Demonstrate competency in Interpersonal & Communication Skills by being able to:
  - Demonstrating leadership of the NICU health care team.

Updated 6/26/14
Effectively communicate with referring physicians during the hospitalization of complex patients.

 Competently and compassionately communicate with the parents of a critically ill infant to provide education and information.

 Effectively communicate with consulting subspecialty faculty and coordinating the plan of care when multiple consultants are involved in the care of an NICU patient.

 Effectively compile the care plan of multiple consultants - presenting the final assessment and plan to the extended family – both on a daily basis and in the form of a family conference.

 Demonstrate competency in Practice-Based Learning through:

 Participation in Clinical Standards Committee, including assessment of cases presented by peers.
 Participation in Vermont Oxford Network by serving as the lead at least one group projects that is successfully completed.
 Participating in one of the Hot Topics journal clubs

 Demonstrate compliance in Systems Based Practice by:

 Participation in Collaborative Practice Council and taking the lead on a committee
 Participation in weekly Health Team Rounds.
 Effectively participate in investigations of root cause analyses to improve systems of patient care

 Demonstrate competency in Professionalism by:

 Being a role model for first year fellows and residents.
 Function effectively under stress and proactively utilize available resources to maintain both physical and mental health.
 Balancing clinical and research/scholarly activity obligations.
 Taking responsibility for yourself and your own behavior

UMCH THIRD YEAR ROTATIONS

Goals: The goal of the senior UMCH rotations is to demonstrate advanced subspecialty proficiency in providing quaternary neonatal care and family support for newborn infants with severe and/or complex medical needs. By the last rotation, NPM fellows will be expected to function at the level of a junior academic attending physician in managing the entire NICU and coordinating the care provided by multiple consultants and multidisciplinary caregivers. If given the opportunity to attend on the gold service, the fellow will act in a “pre-attending” role and will be expected to be able to coordinate the discharge planning for any NICU patient. Milestone ratings should be at least 3-4 by the end of the year, and may be 5 in certain categories.
Objectives: Following completion of the required senior UMCH, NICU clinical rotations (n=2-3), NPM fellows should be able to:

- Demonstrate competency in Patient Care by being able to:
  - Diagnose the need for, initiate and terminate ECMO.
  - Provide daily management for a neonate on ECMO.
  - Coordinate the delivery room and subsequent multidisciplinary care of the infant diagnosed prenatally with complex or multiple congenital anomalies.
  - Be able to consult on neonatal patients not on the NICU.
  - Be able to coordinate the transfer/discharge of any NICU patient – complex or simple – especially on gold service.

- Demonstrate competency in Medical Knowledge by being able to:
  - Take and obtain a level-specific passing score on the annual NPM subspecialty in-service examination offered by the ABP.
  - Obtain/maintain NRP certification.
  - Complete the ECMO certification course.
  - Participate in curricular development of senior resident education on the NICU
  - Present one departmental 3M conference, if not done already.

- Demonstrate competency in Interpersonal & Communication Skills by being able to:
  - Demonstrating leadership of the NICU health care team.
  - Competently and independently conducting work/teaching rounds in the manner of an academic staff neonatologist.
  - Competently and independently communicate effectively with the parents of any NICU patient.
  - Interact with the NICU staff (nurses, RTs, ECMO technicians, consulting physicians, social workers, pharmacists, nutritionists, occupational therapists, laboratory technicians, etc) as the team leader to coordinate and to provide an adequate exchange of information and facilitate safe and efficient patient care.
  - Communicate discharge plans to the accepting physician and inform referring physicians of discharge plans – especially on gold service.

- Demonstrate competency in Practice-Based Learning through:
  - Participation in Clinical Standards Committee, including assessment of cases presented by peers.
  - Consistently completing monthly NeoReviews assessments.
  - Organizing one of the Hot Topics journal clubs.

- Demonstrate compliance in Systems Based Practice by:
  - Participation in Collaborative Practice Council and taking the lead on a committee.
  - Participation in weekly Health Team Rounds.
  - Manage the planning of discharge and home care for complex/ventilated neonatal patients, including hospice care, through working with families,
nursing staff, social worker, home care professionals and referring physicians.

- Effectively coordinating an investigation of root cause analyses to improve systems of patient care

- Demonstrate competency in Professionalism by:
  - Being a role model for first & second year fellows and residents.
  - Demonstrating mature, sensitive and effective relationships with your patients’ families, as well as all members of the medical community and healthcare teams.
  - Consistently display integrity, honesty, empathy, caring, fairness, respect for self and others, diligence and dedication.

**Evaluation tools:** Written evaluations (distributed via RMS) are completed by the faculty and other allied health professionals participating in NICU activities. Additional 360° professionalism checklist evaluations (distributed via RMS) will be completed by the faculty. Family 360° evaluations. NRP certification. SITE results. Simulation results. Feedback from faculty and program director. Fellows are required to distribute 360° professionalism evaluations on this rotation.

**Clinical Responsibilities:**

**University of Minnesota Children’s Hospital:**

**NICU Fellow Attending/Patient Care**

- Act as the Attending Physician – Neonatologist. (Direct supervision by the attending neonatologist will be available, but will decrease with each successive PL year.)
- Lines of supervisory responsibility. For all patients, the core pediatric resident will be supervised by the neonatal-perinatal medicine fellow, who will report directly to the attending neonatologist. The attending neonatologist is responsible for providing appropriate supervision to the NPM fellow. If the attending neonatologist is not immediately available, the NPM fellow is responsible for reporting to the program director or other available faculty.
- Conduct working and teaching rounds on the maroon team with the attending neonatologist daily.
  - The fellow is expected to be present no later than 7:15 a.m. daily to examine all new and unstable patients and adjust their care, if needed, before work/teaching rounds begin. In addition, before rounds start, the fellow must make certain that all patients who will be discharged, sent to surgery or transferred before early afternoon have a plan in place and ready to go.
  - Rounds begin daily at 8:00 a.m. with a review of current x-rays with a pediatric radiologist.
  - During rounds, a didactic discussion of each patient’s problems and management plans is conducted, emphasizing the appropriate use of
laboratory and radiologic procedures. The fellow will conduct rounds independently at least two days per week (fewer for new fellows, more for experienced fellows), generally under the observation of the attending neonatologist.

- Including other members of the health care team and the parents in rounds is critical to successful care and good communication.
- Teaching of house officers and nurses is extremely important during rounds. Rounds include examination of new x-rays and “streamlining” of laboratory studies.
- The attending neonatologist will always be available to answer questions and assist the fellow when needed.

- Write an admission note and management plan for all patients admitted to the neonatal service, whether the patient is admitted to the gold or maroon team.
- Assist the attending neonatologist in writing critical care and family conference notes in the chart, when indicated.
- Review the discharge planning and chart for all patients prior to their discharge. The fellow must be certain that these documents are complete and accurate, that all abnormal laboratory and diagnostic findings have been noted and addressed, and that discharge plans have been completed. Assist the residents with the discharge letter. Completing the “Dear Dr.” letters prior to discharge is a resident responsibility, but the fellow must encourage and assist them, as necessary. Every letter must be proofed/corrected by the fellow or attending neonatologist before the patient is discharged. The completed letter is generally sent via EPIC with appropriate routing to consulting and referring physicians. (If this cannot be done, the letter should be given to the discharge planner to be mailed or faxed to the referring physician and then sent to medical records in place of a “usual” dictation.
- Assist in parent education. This may take the form of informal bedside conversations or formal meetings with parents, other relatives and significant family support persons. Phone conversations may be necessary with out-of-town families. Communication should be made with EVERY family EVERY day by either the fellow or attending neonatologist. The fellow is usually the primary communicator with the family, given the continuity of 1-2 month rotations.
- Assist in maintaining telephone contact with referring physicians, especially on transported and newly admitted patients or those about to be discharged.
- Attend deliveries of very-low-birth-weight infants and of very-high-risk infants on the Birthplace, or whenever requested by the attending obstetrician.
- Perform invasive patient procedures as requested by the residents and practitioners, or as desired by the fellow, being careful not to excessively limit resident experience – or supervise residents as they perform procedures. All procedures must be appropriately documented in the chart. The fellow must also keep her/his own procedure list current in RMS.
- Maintain good communication with the entire healthcare team, including nurse practitioners, respiratory therapists, discharge planners, social workers and the charge nurse.
- Provide daily direct supervision of the pediatric residents and medical students, including an orientation to the NICU at the start of their rotation.

Updated 6/26/14
• Perform intra- and inter-hospital transports of critically ill infants as indicated.

**NICU On-Call**

Fellows will be on call ~6 nights per month while on the clinical service. Two of the nights will be on weekends, the remaining four are weeknights. Call during the week is from ~5:00 p.m. until rounds begin the next morning. Call on the weekend begins at ~4/5 p.m. on Friday and continues through the day on Saturday until work is completed or maximal work hours achieved (24+4 following in-house call). The fellow is then off on Saturday night, returning for call on Sunday morning until ~7/8 a.m. Monday when the clinical fellow resumes patient care. If the weekend call person is the clinical fellow and has taken in-house call, work hour regulations apply for Monday obligations. Fellows may conduct rounds independently on Saturday and Sunday, with direct supervision from the back-up attending neonatologist daily. Specific schedules, including holidays, will be made covering a one-year period, and requests may be submitted to Dr. Guiang.

Call is in-house for first year fellows and taken from home on a pager, with a staff neonatologist assigned as the backup, for second/third year fellows. While on call, fellows will be notified of all admissions, significant problems or questions that may arise. Fellows taking home call are expected to stay in or come in to supervise the care of any patients when requested by the nurse practitioners and/or house staff. Fellows should feel free to contact the attending neonatologist any time with questions or if help is needed with a difficult patient.

Call may include transport coverage. While the fellow is on transport, the attending neonatologist will then become the primary on-call physician for the NICU.

During scholarly activity rotations, on-call time will include the same weekend schedule as above and ~2/3 weeknights per month.

All fellows are expected to cover two holiday weekends a year (inclusive of both sites) consisting of 4 day shifts and two nights – the specifics of which may be negotiated with the attending sharing call.

**NICU Conferences and Teaching**

• Teach and supervise all residents performing invasive procedures in the NICU (i.e., intubations, UAC/UVC placement, etc.), review notes and provide feedback.
• On both clinical and scholarly activity rotations, fellows are expected to give at least one resident conference during each resident rotation. Resident teaching conferences are held at ~noon on Tuesdays. The fellows may also participate in the pre-rounds teaching opportunities offered by the faculty.
• In addition to teaching on rounds, informal teaching of residents and other staff is encouraged as time allows.
• Attend and participate in weekly health team rounds on Tuesdays.
• Fellows are required to attend divisional fellows’ conferences, which occur each Thursday afternoon from 3:15 to 5:15 p.m. and rotate among the following topics:

Updated 6/26/14

- Additional conferences at University of Minnesota Medical Center include Grand Rounds for the Department of Pediatrics, Pediatric 3-M Conference, the monthly Research Conference.

- All deaths and complex cases will be reviewed at Clinical Standards Conference (CSC) - fellows will be asked to present cases in which they were involved. Attendance is required for all fellows. Fellows are also invited to participate in the monthly NICU Collaborative Practice Council meeting, the Fetal Diagnosis and Treatment Center conference, and the quarterly ECMO case review conference.
CHILDREN’S HOSPITALS AND CLINICS OF MN-ST. PAUL NICU

CHCM-SP FIRST YEAR ROTATION

Goals: In addition to the overall goals above, the specific goals for the Children’s Hospital and Clinics – St. Paul NICU rotation are to become proficient at providing tertiary neonatal care in the setting of a private practice teaching hospital. NPM fellows are to become proficient in providing patient-specific ventilator management, delivery room management of the ELBW infant, the evaluation and management of infant apnea, as well as pre- and peri-natal maternal management, including prenatal consults.

Objectives: Following completion of the required CHCM-SP NICU first year clinical rotations, NPM fellows should be able to:

- Demonstrate competency in Patient Care by being able to:
  - Competently conduct work rounds in the manner of a staff neonatologist, with some supervision.
  - Provide appropriate ventilatory support of critically ill neonates.
  - Provide optimal, state of the art, delivery room management of the ELBW infant.
  - Diagnose and manage the neonate with apnea.
  - Interpret apnea studies (i.e. CR or MMU scan).
  - Identify the high-risk pregnancy.
  - Become proficient at prenatal counseling of families with high-risk pregnancies.

- Demonstrate competency in Medical Knowledge by being able to:
  - Accurately describe the physiologic reasons and indications for different modes of ventilation.
  - Accurately describe the methods used to evaluate fetal well-being and maturation.
  - Accurately describe factors involved in fetal compromise during the intrapartum period.
  - Provide intern level education on the NICU.

- Demonstrate competency in Interpersonal & Communication Skills by being able to:
  - Competently and compassionately conduct basic prenatal counseling sessions.
  - Effectively communicate with the maternal-fetal medicine staff to coordinate the delivery room care of preterm infants.
  - Effectively communicate the results of apnea evaluations to parents and referring physicians.
  - Effectively communicate with the nursing and other ancillary health care professionals on the NICU.

Updated 6/26/14
Teach the essentials of basic neonatal management and procedures (including documentation) to pediatric interns and medical students.

- Demonstrate competency in Practice-Based Learning & Improvement by:
  - Accurately evaluating causes of death and morbidity through participation in and presentation of patients at Morbidity and Mortality Conference.
  - Staying current with the literature and discussing the evidence-based rationale for treatment of common neonatal illnesses encountered while on service.

- Demonstrate compliance in Systems Based Practice by:
  - Manage the planning of discharge and home care for uncomplicated/basic neonatal patients through working with families, nursing staff, social worker, home care professionals and referring physicians.
  - Effectively participate in investigations of root cause analyses to improve systems of patient care.
  - Effectively coordinating transfer to other wards/physicians when necessary (general peds, PICU, etc.)

- Demonstrate competency in Professionalism by:
  - Identifying and addressing the needs of individual patients with ethical concerns.
  - Using appropriate resources (textbooks, journal articles, internet search engines) without prompting to effectively care for patients and maintain a current fund of knowledge regarding neonatal disorders.
  - Exhibiting professional work habits - organizing daily activities to continue excellent patient care while attending conferences and adhering to duty hour regulations.
  - Balancing personal life and professional obligations, putting patient care needs first while on duty in the NICU.

**CHCM-SP SECOND YEAR ROTATION**

**Goals:** The goal of the second year CHCM-SP rotation is for the NPM fellows to learn and be able to demonstrate advanced proficient in providing patient-specific ventilator management, delivery room management of the ELBW infant, the evaluation and management of infant apnea, as well as pre- and peri-natal maternal management, including prenatal consults.

**Objectives:** Following completion of the required CHCM-SP NICU second year clinical rotations, NPM fellows should be able to:

- Demonstrate competency in Patient Care by being able to:
  - Competently conduct independent work rounds in the manner of a staff neonatologist.
  - Provide appropriate advanced and non-conventional ventilatory support of critically ill neonates.

Updated 6/26/14
Provide optimal, state of the art, delivery room management of the ELBW or medically complex infant.
Diagnose and manage the neonate with apnea.
Identify the subsequent neonatal issues resulting from high-risk pregnancy.

- Demonstrate competency in Medical Knowledge by being able to:
  - Accurately describe the methods used to evaluate fetal well-being and maturation and teach this to pediatric interns and medical students.
  - Accurately describe factors involved in fetal compromise during the intra-partum period and teach this to pediatric interns and medical students.

- Demonstrate competency in Interpersonal & Communication Skills by being able to:
  - Demonstrating leadership of the NICU health care team.
  - Effectively communicate with the nursing and other ancillary health care professionals on the NICU.
  - Teach the essentials of basic neonatal management and procedures (including documentation) to pediatric interns and medical students.

- Demonstrate competency in Practice-Based Learning & Improvement by:
  - Participation in Morbidity and Mortality Conference, including peer assessment.
  - Staying current with the literature and discussing the evidence-based rationale for treatment of common neonatal illnesses encountered while on service.

- Demonstrate compliance in Systems Based Practice by:
  - Manage the planning of discharge and home care for complex or ventilated neonatal patients, including hospice care, through working with families, nursing staff, social worker, home care professionals and referring physicians.

- Demonstrate competency in Professionalism by:
  - Being a role model for first year fellows and residents.
  - Exhibiting professional work habits - organizing daily activities to continue excellent patient care while attending conferences and adhering to duty hour regulations –as well as integrating clinical care obligations with scholarly activity obligations.

**CHCM-SP THIRD YEAR ROTATION**

**Goals:** The goal of the third year rotation at CHCM-SP is for the NPM fellow to be able to demonstrate advanced proficient in providing patient-specific ventilator management, delivery room management of the ELBW infant, the evaluation and management of infant apnea, as well as pre- and peri-natal maternal management, including prenatal consults, as if they were a junior attending physician.
Objectives: Following completion of the required CHCM-SP NICU senior clinical rotations, NPM fellows should be able to:

- Demonstrate competency in Patient Care by being able to:
  - Independently conduct work rounds and manage the NICU in the manner of a staff neonatologist.
  - Interpret apnea studies (i.e. CR or MMU scan).
  - Demonstrate advanced proficiency at prenatal counseling of families with high-risk pregnancies.

- Demonstrate competency in Medical Knowledge by being able to:
  - Accurately describe the physiologic reasons and indications for different modes of ventilation and teach this to pediatric interns and medical students.

- Demonstrate competency in Interpersonal & Communication Skills by being able to:
  - Demonstrating leadership of the NICU health care team.
  - Competently and compassionately conduct advanced prenatal counseling sessions – i.e. when the situation involves complex fetal or maternal issues.
  - Effectively communicate with the maternal-fetal medicine staff to coordinate the delivery room care of extremely preterm infants, or those with complex medical situations.

- Demonstrate competency in Practice-Based Learning & Improvement by:
  - Participation in Morbidity and Mortality Conference, including peer assessment.
  - Staying current with the literature and discussing the evidence-based rationale for treatment of common neonatal illnesses encountered while on service.

- Demonstrate compliance in Systems Based Practice by:
  - Effectively leading investigations of root cause analyses to improve systems of patient care

- Demonstrate competency in Professionalism by:
  - Being a role model for first/second year fellows and residents.
  - Continuing to exhibit professional work habits - organizing daily activities to continue excellent patient care while attending conferences and adhering to duty hour regulations –as well as integrating clinical care obligations with scholarly activity obligations.
  - Balancing personal life and professional obligations, putting patient care needs first while on duty in the NICU.

Evaluation tools: Written evaluations (distributed via RMS) are completed by the faculty and other allied health professionals participating in NICU activities. Family and 360° evaluations. NRP certification. SITE results. Simulation results. Feedback from faculty and program director.

Updated 6/26/14
**Clinical Responsibilities:**

**NICU Fellows Attending/Patient Care**

Daytime responsibilities:

1. Usually the fellow gets here between 7-7:30am for signouts from the overnight fellow/staff. The expectation is that you have examined all babies on mechanical ventilation or CPAP/HFNC, have looked at x-rays to make sure lines/tubes ok, and scanned labs of all critical kids prior to rounds starting at 8:15am. The expectation is that you will address anything critical before rounds (e.g. ETT down right mainstem – pulled back, hyperventilated ABG – weaned vent). It is always good to check with the overnight staff to make sure they haven’t already remedied the issues.

2. During rounds, it is most efficient if you examine the patient we will be rounding on next while the attending is dictating the previous patient. The goal is that the attending and fellow examines each patient every day.

3. We expect that you will leave rounds for new admissions, to attend deliveries of babies <30 weeks/multiples/known anomalies, or for patients with “fires” that need to be addressed.
   a. On your post-call days after 8am, you are not expected to participate in any new clinical duties. You are not expected to participate in new admissions, deliveries, or maternal-fetal consults.

4. It is ideal if a baby needs a consultation by a sub-specialist that the consultant gets called and sent back to your phone during rounds to get the process rolling immediately. Most consultants have their pagers in AMION.COM (password: chcmn) It typically works best and is most efficient for the consultants to talk to the fellow or neonatologist b/c we actually know the brief pertinent history and exactly why we are actually calling for the consult. You can use amion.com to text page the consultant or ask a HUC to page Dr. “X” from Pediatric “Xology” to your phone and they usually do it rather promptly.

5. Fellows are responsible for dictating the admission history and physical for all new admissions during the day and reviewing the admission orders with the admitting NNP/resident.
   a. As stated in #3, this is not the case during your post-call time block.

6. Fellows are responsible for performing the maternal/perinatal consults on the L&D floors within 24 hours of the initial consult. If you are unable to get this done, please sign it out to the on-call MD at night to be done by them.
   a. Typically the call will come via a charge nurse who will let you know where the mother is and what the gestational age is. We have a data sheet
for outcomes and morbidities for 22-27 weeks that is good to glance at before you go over.

b. **The neonatologist should be present with you during the consultation of mother’s at <25 weeks.**

c. As stated in #3, this is not the case during your post-call block.

7. Fellows are responsible for directly overseeing the interns’ care of their patients, including reviewing their orders, following up on afternoon labs/x-rays/consults and making sure appropriate adjustments/management decisions were made, etc.

8. If we have a patient on the aEEG (BRAINZ) machine during your time on during the day or on-call overnight, please look at the tracing at least once every 4-6 hours and either dictate/type a quick note into the electronic medical record. It can be brief such as “reviewed aEEG from 0000 hours – 0000 hours and no seizure activity noted” or “reviewed aEEG from 0000 hours – 0000 hours, subclinical seizure activity noted, Dr. X from Pediatric Neurology made aware, plan to treat/not treat”.

Nighttime responsibilities:

1. Call starts at 4pm –either you were here during the day so you know what is going on for the night or if you are coming in for the night, the daytime fellow or staff will give you a signout.

2. Attend all deliveries for babies <30 weeks, multiples, known anomalies, or any other deliveries you are asked to attend.
   a. **Please call the in-house Neonatologist to be present at ALL deliveries for babies ≤26 weeks during the day or night**

3. Lead night “walk rounds” around the unit with NNPs/resident sometime around 9pm (or so) to review patient status/new labs/management decisions/etc.

4. If you get a call for a transport from an outlying facility, divert call to on-call attending to deal with – you don’t have to deal with these issues.

5. Review AM x-rays at around 4:30-5am to make sure lines/tubes/etc. are in the right spots and make appropriate interventions as necessary. If lines/tubes moved, then either document this or order a follow-up x-ray for documentation.

6. If you are the off-going fellow, signout to the oncoming fellow or staff when they get here and then leave.

Weekend responsibilities:

1. If you are on overnight on Friday, please look at morning labs/x-rays and make necessary adjustments, then give sign-out to the staff Saturday morning and leave.

2. When you are on call on Sunday, come in around 7:30-8am. Rounds will start at approximately 8am.

General rules of thumb:

1. Do as many procedures as you can. Feel free to tell the NNP that you want to do it instead of them – your education is important. The NNPs are great teachers for PICC lines, perc art line, etc. Many of them have been here for ages and have technical skills that are unmatched.

2. Be an intern advocate!! They should get the first shot at ALL procedures on their patients. This may mean stepping out of rounds with them to re-intubate a baby,
etc. That is fine. If we don’t advocate for them, they tend to get left out, especially during rounds because the NNPs will just do the procedures to get them done quickly (which is appreciated, but doesn’t do anything for the teaching of the residents). We also have to advocate for their patient assignments so they don’t just get stuck with feeders/growers and simple patients. We expect that they will have a diverse patient population during their month with us. It is up to us to make this happen. **You should direct if a new admit goes to the resident or NNP team.**

3. If you have issues with anything, any person, etc., please feel free to contact any of us. In particular, Erik Hagen is the medical director of our group, if there are any fundamental issues with how things are running in the unit. Mark Mammel is the educational contact person in our group, so any issues with personnel or fellow duties can be directed to him or me (Andrea Lampland), as I also help out with the resident/fellow orientation and education issues.

4. Per hospital policy, matching light blue hospital scrub top & bottom are required for entry into the delivery suites or one must cover non-scrub attire with a white “bunny suit”. Feel free to wear matching scrub tops & bottoms any/all shifts. Per hospital policy, no open toed shoes, finger nail polish, or jewelry on the hands/arms can be worn in the NICU.

5. It is the expectation that residents be allowed to attempt delivery room intubations on babies >30 weeks and attempt all non-emergent intubations on their own patients within the NICU.

6. It is the responsibility of the NPM fellow to provide oversight and help “co-manage” extremely premature infants with the residents, and ultimately it is the fellow’s responsibility to know the details of their management, including fluid status, TPN formulation, ventilator management, and overall care.

7. Have fun and thank you in advance for your hard work on our NICU team!
CARDIOLOGY ROTATION

Specific Goals and Objectives for the Neonatal Cardiology rotation (UMCH)

Goals: The goal of this rotation is for fellows to acquire knowledge of, and participate in, the care of neonates with congenital and acquired cardiac disease, particularly those requiring cardiac surgical procedures.

Objectives: The Pediatric Cardiology Rotation for NPM Fellows is designed to provide instruction in the evaluation and management of the fetus and neonate with congenital or acquired cardiac disease.

By the conclusion of this rotation the NPM Fellow will be able to:

- Understand the role of the neonatologist, along with the pediatric cardiologist and cardiovascular surgeon, in the team approach to caring for neonates with cardiac disease. (PC, SBP, ICS)
- Understand the components of the Cardiac Evaluation of the Fetus/Neonate (PC, MK):
  - Recognize the presentation of congenital heart disease and understand the hemodynamics and clinical features of congenital and acquired cardiac disease in the fetus and neonate
  - Understand the steps in stabilization and diagnosis of congenital heart disease.
  - Recognize the presentation of life-threatening cardiovascular disease in the fetus and neonate, including
    - Myocarditis/cardiomyopathy
    - Ductal-dependent anomalies
    - D-transposition of the great vessel
    - Arrhythmias
  - Understand the factors influencing pulmonary vascular resistance in the fetus and neonate
  - Accurately obtain a cardiac history of a neonate with suspected cardiac disease
  - Understand and apply the elements of a neonatal cardiac examination
  - Synthesize and communicate the history, clinical presentation and physical findings of neonates with suspected cardiovascular disease
  - Identify the features of a normal neonatal ECG and common abnormal findings
  - Identify the features of a normal neonatal chest x-ray
  - Identify the features of a normal neonatal cardiac ultrasound. Understand the pathophysiology and interpret neonatal echocardiograms and common abnormal findings.
  - Identify the features of a normal fetal cardiac ultrasound
- Demonstrate effective Cardiac Intervention in the Fetus/Neonate (PC, MK):
  - Know the indications for treatment of arrhythmias in the fetus and neonate
  - Identify therapies used in treatment of symptomatic arrhythmias in the
fetus and neonate
- Know the indications for the use of prostaglandin-E1 in neonates
- Know the indications for interventional catheterization in neonates
- Know the indications for operative intervention in neonates
- Understand and describe the common post-operative complications following neonatal cardiac surgery.
- Identify normal values of the physiologic parameters followed in a neonate before and after operation
- Know the cardiac indications for ECMO and/or ventricular assist device
- Understand the fluid and nutritional requirements for neonates with cardiovascular disease both before and after operation
- Understand the therapies to alter pulmonary vascular resistance in the neonate

**Evaluation tools:** The NPM fellow will be required to give a presentation on a neonatal cardiac topic of their choice at the cardiology conference, with feedback from the cardiology faculty. A written evaluation of performance (distributed via RMS), including an assessment of this presentation will be completed by the pediatric cardiology fellowship PD, with input from any faculty who worked with the NPM fellow. A professionalism checklist evaluation (distributed via RMS), will also be completed by the pediatric cardiology fellowship PD. Fellows may distribute 360° professionalism evaluations on this rotation, if they desire.
UMCH FOLLOW-UP CLINIC

Specific Goals and Objectives for the NICU Follow-up Clinic Rotation (UMCH)

Goals: The goal of participation in this clinic is for the NPM fellow to learn about longitudinal nutritional and neurodevelopmental follow-up care of the high-risk neonate, including how to assess the infant for both cognitive and motor deficits, proper forms of intervention and how to counsel the family.

Objectives: Following completion of the required NICU Follow-up Clinic rotations the NPM will be expected to:

- Describe and perform the appropriate components of the follow-up exam to assess the neurodevelopmental progress of infants/children born prematurely. (CB)
- Understand the rationale for follow-up at specific corrected gestational ages (4, 12, 24 months, 5 years) is to rule out major/minor handicaps and assess school readiness. (MK)
- Describe and diagnose the common adverse long-term sequelae to premature birth (i.e., spastic diplegia, cerebral palsy, extrapyramidal cerebral palsy, etc.). (CB, MK)
- Describe the special services available for developmentally delayed infants/children. (SBP)
- Understand the role of the neonatologist as consultant to the primary care provider in recognizing/diagnosing problems specific to prematurity. (SBP, ICS)
- Demonstrate the ability to coordinate outpatient follow-up care for the NICU graduate with ongoing medical needs including management of chronic lung disease in the outpatient setting. (SBP)

Evaluation tools: Written evaluations (distributed via RMS) are completed by the faculty, coordinator and other allied health professionals participating in the clinic. Fellows may distribute 360° professionalism evaluations on this rotation, if they desire.

Clinical Responsibilities:
Fellows are required to attend and participate in the NICU Follow-up Clinic (held each Friday from 1:00 to 4:30 p.m. in the Pediatric Clinic, 10th Floor, Riverside East Building).

Fellows will join Drs. Georgieff, George, Osterholm and Ramel in the NICU Follow-up Clinic to learn about neuro-developmental and physical outcomes of NICU graduates. Responsibilities include examination of the patients, reviewing progress with the families and dictation of letters to referring physicians. A schedule of specific assignments will be provided.

Updated 6/26/14
ELECTIVE PEDIATRIC SURGERY ROTATION

Specific Goals and Objectives for the Elective Pediatric Surgery rotation (UMCH)

Goals: The goal of rotating with the pediatric surgeons is to become proficient at the placement of central venous catheters, other than umbilical and PICC lines.

Objectives: Following completion of the elective Pediatric Surgery rotation NPM will be expected to:

- To demonstrate competency in the placement of percutaneously placed central venous catheters (IV, subclavian, femoral) in the neonate. (PC)
- To demonstrate competency in the placement of cut-down lines. (PC)
- To understand the indications for placement of a CUC or cut-down line in a neonate and attendant complications. (MK, PC)

Evaluation tools: Written evaluations (distributed via RMS) are completed by the surgical faculty participating in the rotation. Fellows may distribute 360° professionalism evaluations on this rotation, if they desire.
ELECTIVE MATERNAL FETAL MEDICINE ROTATION

Specific Goals and Objectives for the Elective Maternal-Fetal Medicine Rotation (UMMC)

Goals: The goal of rotating with the maternal-fetal medicine physicians is to provide exposure to and gain an appreciation of the prenatal diagnostic tests available, as well as the management of high-risk pregnancies and preterm labor.

Objectives: Following completion of the elective Perinatal rotation the NPM fellow will be expected to:

- Provide basic genetic counseling. (PC, ICS)
- Understand the components of a level II consultation with ultrasound. (MK)
- Describe the components of the biophysical profile and the significance of the composite score. (PC, MK)
- Participate in the coordination of care for the delivery of the high-risk infant. (PC, ICS, SBP)
- Understand ACOG guidelines for the management of preterm labor, prolonged and/or premature rupture of membranes, and the indications for cesarean section delivery. (MK)
- Demonstrate proficiency in prenatal counseling regarding neonatal outcomes. (PC, ICS)
- Demonstrate an understanding of the CDC guidelines for the management of GBS and/or pregnant women. (PC, MK, SBP)

Evaluation tools: Written evaluations (distributed via RMS) are completed by the MFM faculty and allies health professionals participating in the rotation. Fellows may distribute 360° professionalism evaluations on this rotation, if they desire.
RESEARCH GOALS & OBJECTIVES

SCHOLARLY ACTIVITY/RESEARCH GOALS AND OBJECTIVES

The “research” rotations of the Neonatal-Perinatal Medicine Fellowship at University of Minnesota Medical Center are designed to teach the fundamentals required to facilitate a career in academic medicine. Fellows will work with the program director and their mentor, once an area of interest is identified, to develop an individualized learning plan (ILP) along one of the available tracks – however, the research track is the preferred training track. The goals and objectives will then be individualized to address the specific area of scholarly investigation.

Overall Goals

- To gain the capacity to conceive, formulate and carry out an independent clinical or basic science research project (or participate in a project of substantive scholarly exploration) in the field of neonatal medicine, which will serve as a basis for a career as an academic neonatologist.
- To learn the essentials of proper data collection and analysis, including the proper use of statistical methodology.
- To learn to write medical literature coherently in order to facilitate communication of scientific information.
- To be able to present original research in an open forum (P.R.E.S.S., Pediatric Academic Societies annual meeting, regional meetings).
- To understand the fundamentals of grant applications and administration.

Objectives

By the end of training, the NPM fellow will have demonstrated competency in scholarly activity by:

- Completing the Pediatric Core Curriculum For Subspecialty Residents requirements
- Submitting original abstracts to:
  - The Department of Pediatrics Annual Fellows’ Research Symposium
  - Regional pediatric/neonatal meetings (i.e., MWSPR, WSPR)
  - National pediatric/neonatal meetings (i.e., PAS, Perinatal Section meetings, AAP, ECMO, etc.)
- Presenting original projects annually at Fellows’ Conference
- Generating a specific written scholarly activity work product approved by the individual’s Scholarship Oversight Committee. Examples include, but are not limited to:
  - A peer-reviewed publication in which the fellow played a substantial role
  - An in-depth manuscript describing a completed project
  - A thesis or dissertation written in connection with the pursuit of an advanced degree

Updated 6/26/14
A progress report for projects of exceptional complexity, such as a multi-year clinical trial

**Standard Research/Clinical Scholar Track:** The goal of the pathway for Research Scholar is to train fellows to become highly productive, methodologically strong, independent laboratory-based or clinical investigators, as well as excellent clinical neonatologists. Participation in a training grant program, such as the local Translational Research in Neurobiology of Disease (TRINOD) or the national Physician Scientist Development Program (PSDP), should be considered early in the training period.

Guidelines for expectations of progress for fellows on this pathway include:

**Year 1** A scholarly activity project should be formalized with the mentor and the ILP developed. Specific questions should be identified, hypotheses formulated, the protocol written, Human or Animal Subjects Committee approval obtained (if applicable), pertinent techniques learned and initial trials started. First meetings with the fellow’s Scholarship Oversight Committee should occur.

**Year 2** The scholarly activity should be well underway with analysis of preliminary data completed and possible secondary projects developed, based on the initial findings. ILP should be updated/revised. Preliminary data should be presented at Neonatal Research Conference with abstract(s) submitted to a the departmental PRESS conference, as well as a regional meeting (i.e., Midwestern or Western SPR) and/or the national meeting (PAS). Local grant applications (Viking or other) should be submitted with the mentor’s guidance. Appropriate graduate-level coursework should be completed. SOC input continues.

**Year 3** The original scholarly project should be nearing completion, with secondary projects underway as indicated. Two to three abstracts should be submitted for presentation at the national meeting (PAS) by the end of the third year, with one or two first-author papers sent to major refereed journals. Submission of an abstract to PRESS is required. During the third year, a grant application may be submitted to a major funding agency, if possible. Local grant application must be submitted if not done during Year 2. Scholarly activity “work product” must be generated and approved by SOC, as well as presented to the entire division.

As an alternate to the research scholar tract, fellows may choose between two clinical scholar pathways – with the pre-approval of the fellowship program director.

**Clinical Investigation in Neonatal-Perinatal Medicine Track.** This option should be chosen at the time the fellow is accepted into the fellowship and only with pre-approval of the fellowship director as it requires some rearrangement of the overall curriculum, as well as additional fees and may extend training for a fourth year.

The goal of the pathway for Clinical Investigation is to combine graduate/advanced degree training, such as a Masters in Clinical Research Masters in Public Health (MPH)

Updated 6/26/14
from the University of Minnesota with excellent training in clinical neonatology.

Guidelines for expectations of progress for fellows on this pathway include:

**Year 1:** The fellow will submit an application for the Masters program and begin coursework. A neonatal mentor will be chosen. Human subjects’ certification will be obtained, if appropriate. An independent project will be selected and the fellow should start to write a proposal and IRB application. First meetings with the fellow’s Scholarship Oversight Committee should occur.

**Year 2:** Coursework should continue this year. IRB permission should be secured if not already done. If funding is required, the fellow may write a fellows’ grant (or outside grant application) and begin to conduct the study. If sufficient data are collected, data analysis may begin in this year. Submission of an abstract to PRESS is required. SOC input continues.

**Year 3:** Coursework should be completed. Data analysis should be completed and the results of the study submitted in abstract form. A manuscript should be submitted for publication by the end of the year. Having completed coursework, the senior fellow will be expected to present a session to the junior fellows on study design or basic statistics for the neonatal research conference. Scholarly activity “work product” must be generated and approved by SOC, as well as presented to the entire division.

**Advanced Clinical Scholar Track:** This track is designed for fellows who plan to focus on clinical service, teaching and participation in research projects – but not necessarily as the PI. The goal of this track will be to gain additional experience in clinical care of convalescent infants and to develop a focused area of clinical expertise. Fellows will still need to complete an ABP approved work product in order to graduate (preferably a first author manuscript), but the research experience will be a bit less intense than on the Research Track. Fellows on this track will not be trained for independent research after graduation so if this is the goal, the Research Track should be chosen.

Fellows on this track will take 3 additional clinical months (an elective month, and two additional NICU convalescent months). There is no additional call associated with this activity. The elective month should be taken to enhance the fellow’s expertise within an area of clinical neonatology (developmental medicine, nutrition, etc.). A certificate/course in a clinical area, such as ethics or education, or a university course could also count as this elective.

Fellows on this track will be expected to become NRP instructors and to teach classes to the division of neonatology. Senior fellows on this track will participate in some medical student teaching.

Guidelines for expectations of progress for fellows on this track include:

*Updated 6/26/14*
Year 1: The fellow will select a research mentor and plan a clinical focus in addition to a research project. The elective rotation will be done this year. The fellow should become NRP certified. Human subjects’ certification will be obtained. An independent project will be selected and the fellow will participate in writing a proposal and IRB application. First meetings with the fellow’s Scholarship Oversight Committee should occur.

Year 2: IRB permission should be secured if not already done. If funding is required, the fellow may write a fellows’ grant (or outside grant application) and begin to conduct the study. If sufficient data are collected, data analysis may begin in this year. The fellow will rotate on one convalescent month of service this year. Medical student teaching may be instituted. SOC input continues.

Year 3: Data analysis should be completed and the results of the study submitted in abstract form. A manuscript should be submitted for publication by the end of the year. Having completed coursework, the senior fellow will be expected to present a session to the junior fellows on study design or basic statistics for the neonatal research conference. One additional convalescent month will be done this year. Scholarly activity “work product” must be generated and approved by SOC, as well as presented to the entire division.

Mechanisms for Guidance/Evaluation
Because the Division of Neonatology is committed to the excellence of our fellows, the following mechanisms for guidance for the research fellow have been put in place:

- Semi-annual advisory session with the NPM program director, including review of evaluations, personal goals and objectives, and progress in the program—both clinical and scholarly.
- At the beginning of the first year of training in the NPM fellowship program, fellows are assigned a faculty mentor/advisor. The mentor/advisor will receive copies of the fellow’s evaluations and any other information concerning performance and progress. The mentor/advisor serves as an advocate for the fellow.
- The fellow chooses their own research mentor based on specific research interests. Fellows are not assigned to research areas, but encouraged to interview faculty members with similar interests and then develop a research plan with the individual who agrees to be their mentor. The research mentor will generally also serve as the chair of the Scholarship Oversight Committee for the fellow and will report to the fellowship director.
- Scholarship Oversight Committee (see SOC section in “Subspecialty Training Requirements for Fellows”)
- Lectures by each member of the Division of Neonatology on reading, writing and critiquing of the medical literature and grants.
- Sponsored tutorials on statistical analysis, grant-writing, study design, etc., in addition to programs integrated on common themes by the Department of Pediatrics—the Pediatric Core Curriculum for Subspecialty Residents (See Core Curriculum section in “Subspecialty Training Requirements for Fellows”)

Updated 6/26/14
VERMONT OXFORD NETWORK  
ROTATION

Specific Goals and Objectives for the required Vermont Oxford Network (VON) rotation (UMCH)

Goals: The goal of rotating on the VON is to understand their mission statement (The mission of the Vermont Oxford Network is to improve the quality and safety of medical care for newborn infants and their families through a coordinated program of research, education and quality improvement projects.) and how it applies to the work group on a specific NICU to improve quality and safety on our NICU. This rotation serves as a major method for learning about Practice-Based Learning & Improvement and some about Systems-Based Practice.

Objectives: Following completion of the required VOM rotation the NPM fellow will be expected to:
- Describe the components of a QI project and how to implement one. *(PBL)*
- Have developed, participated in and completed a quality improvement (QI) project on the NICU that will meet ABP certification requirements. *(PBL)*
- Understand the basic workings of the VON and how to utilize this network on the NICU. *(PBL, SBP)*

Evaluation tools: Written evaluations (distributed via RMS) are completed by the faculty, nurse manager and other allied health professionals participating in VON. Fellows also have the opportunity to distribute 360° evaluations to any team members they have worked with on the committee.