Neonatology encompasses the care of the infant during the first 28 days of life. This critical period is marked by a time of transition, tremendous growth, and a potential for disaster, both for the infant and the family. The Family Medicine physician must develop the knowledge and skills appropriate to manage the medical, physical, social and emotional problems in patients of all ages. Family Medicine physicians have the unique opportunity to treat all members of a family and to appreciate the influences of family and siblings on the individual newborn, and vice versa. This rotation will provide the PGY-1 resident with experience caring for patients in the newborn nursery.

At the end of the rotation, the PGY-1 residents will be able to demonstrate the following competencies.

**Patient Care**

**Goal**

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health in the newborn period. Residents are expected to:

**Competencies**

- Gather essential and accurate information about patients.
- Make informed decisions about diagnostic and therapeutic interventions.
- Develop and carry out appropriate patient management plans.
- Counsel and educate patients’ families.
- Use information technology to support patient care decisions.
- Perform all medical procedures considered essential to the specialty of Family Medicine.
- Provide preventive health care consistent with the philosophy of health maintenance and disease prevention.
- Work with other health care professionals to provide patient-focused care.
- Demonstrate ability to effectively care for newborn patients.
- Refer newborn patients to a neonatologist when appropriate.

**Objectives**

At the conclusion of the rotation, the resident will demonstrate competence in the following
areas:

1. Caring for the normal newborn, from the time of delivery through the first month of life. Specifically, residents will be able to:

   - Provide care for the normal newborn during the transition period and the first few days of life.
   - Demonstrate competency in performing a thorough newborn admission and discharge physical examination, including assessment of the gestational age.
   - Demonstrate proficiency in providing anticipatory guidance to the newborn’s parents, and appropriate instructions at the time of discharge from the nursery, including:
     - care of the newborn at home
     - family and social relationships
     - feeding options and variations
     - safety issues, including prevention of SIDS and child abuse
     - skin care and hygiene
     - care of the umbilical cord stump
     - circumcision care
     - appropriate follow-up for normal baby and the high-risk neonate
   - Perform an appropriate initial outpatient newborn visit to include obtaining an appropriate history and physical examination of the infant, providing anticipatory guidance for the parents, and plotting the height, weight, and head circumference on the growth chart.

2. Recognizing the relationship between prenatal problems and maternal risk factors and the outcome of the neonate. Specifically, they will be able to:

   - Accurately obtain a history of pregnancy and perinatal events relevant to the newborn and understand the unique aspects of the physical examination of the pre-term and full-term infant, including:
     - gestational age determination (Dubowitz scoring)
     - assessment and management of large-for-gestational age (LGA) and small-for-gestational age (SGA) infants
   - Describe normal prenatal growth and the effect of maternal disease (e.g., diabetes) and medication and drug use on fetal outcomes

3. Demonstrating knowledge of indications for, risks, benefits, and methods of performance of noninvasive and invasive diagnostic and therapeutic procedures. Specifically, residents will be able to:

   - Participate in neonatal resuscitation, including stabilization and transport of the distressed newborn.
   - Observe and perform (as applicable) the following procedures:
     - obtain blood from the newborn: heel stick, venipuncture, arterial blood gas, cultures
Medical Knowledge

Goal

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to newborn patient care.

Objectives

1. Residents will have a clear understanding of neonatal physiology and how it differs from the physiology of the older child and adult. Specifically they will be able to:

   • Demonstrate competence in assessing and managing the newborn in the delivery room, with an understanding of transitional physiology (e.g., cardiopulmonary, metabolic, and temperature changes) and the effects of labor and delivery on the infant.
   • Assign Apgar scores accurately.
   • Understand the normal anatomy, physiology, growth and development of the newborn, and the adaptations the newborn makes to extrauterine life.
   • Calculate maintenance and replacement fluid and electrolyte requirements.
   • Demonstrate awareness of potential problems that may occur during the first month of life, and outline the management of those problems, to include:
     • fever and sepsis
     • feeding difficulties
     • colic
     • family stress
     • respiratory distress with/without cyanosis
     • shock
     • bleeding
     • neurologic abnormalities
   • Understand the nutritional needs of the newborn, including breast and formula feedings, and recognize and treat problems of newborn feeding.
   • List the screening tests for inborn errors of metabolism and discuss the
management of abnormal screening results.

- Outline the evaluation of the newborn cardiac murmur.
- Describe the diagnosis and management of acute respiratory disorders in the newborn, including:
  - perinatal asphyxia
  - pneumothorax
  - hyaline membrane disease
  - diaphragmatic hernia
  - apnea
  - pleural effusions
  - meconium aspiration
  - congenital pulmonary disorders
  - pneumonia
  - persistent pulmonary hypertension
  - bronchopulmonary dysplasia
  - transient tachypnea of the newborn
  - pulmonary interstitial emphysema
- Describe the diagnosis and appropriate management of other acute disorders in the newborn, including:
  - neonatal jaundice (physiologic vs. pathologic)
  - Rh and blood type incompatibility
  - infections – GBS, sepsis, meningitis, HIV, TORCH syndrome, conjunctivitis
  - hypoglycemia
  - seizures
  - hypo- and hypercalcemia
  - pallor, cyanosis, bradycardia or jitteriness
  - anemia or polycythemia, including sickle cell disease
  - birth-related injuries
  - acid-base imbalance
  - gastrointestinal disorders

2. Recognizing and describing the differences between the health and needs of full-term and pre-term infants. Specifically, residents will be able to:

- Understand the broad medical, social, and economic consequences of pre-maturity, including factors related to, or influencing, its incidence, and the disorders unique to preterm infants
- Understand the nutritional needs of the pre-term newborn, including breast and formula feedings.
- Outline the care of the pre-term newborn from the time of delivery to the first clinic visit, and understand how it differs from that of a normal term newborn.
- Describe the broad medical, social, and economic consequences of congenital defects including factors related to, or influencing, their incidence.
- Recognize major congenital defects, such as:
  - significant neurological disease, including neural tube defect
Trisomy 21, Turner’s syndrome
- cyanotic/acyanotic heart disease – atrial septal defect, ventricular septal defect, tetralogy of Fallot, total anomalous pulmonary venous return, transposition of the great vessels, patent ductus arteriosus, persistent pulmonary hypertension, coarctation of the aorta
- genitourinary: hypospadius, urethral prolapse, fused labia, undescended testis
- orthopedic: developmental dysplastic hip (congenital hip dislocation), club foot
- umbilical hernia

Practice-Based Learning and Improvement

Goal
Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life long learning. Residents are expected to develop skills and habits to be able to:

Competencies
- Identify and perform appropriate newborn care activities
- Incorporate formative evaluation feedback into daily practice.
- Locate, appraise and assimilate evidence from newborn care literature and journal clubs related to their patients’ health situation and daily practice.
- Use information technology to optimize learning.

Objectives
At the conclusion of this rotation, the residents will be able to:
- Utilize evidence-based medicine to determine appropriate strategies for newborn care.
- Understand the importance of patient education and demonstrate the ability to facilitate the learning of others.
- Analyze ones own practice for needed improvement.

Systems-Based Practice

Goal
Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Residents are expected to:
Competencies

- Work effectively in various health care delivery settings and systems relevant to their clinical specialty
- Coordinate patient care within the health care system relevant to their clinical specialty
- Work on interprofessional teams to enhance patient safety and improve patient care quality

Objectives

By the conclusion of this rotation, residents will be able to:

- Discuss issues related to impact of managed care and early newborn discharge.
- Reflect upon the difficulty of decisions related to resource utilization and care of the infant who has congenital anomalies or other difficulties.

Professionalism

Goal

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

Competencies

- Compassion, integrity, and respect for others
- Respect for patient privacy and autonomy
- Accountability to patients, society, and the profession

Objectives

At the conclusion of the rotation, residents will be able to discuss ethical principles as they apply to newborns. Specifically, they will be able to:

- Understand the handling of infants of single mothers and psychosocial aspects of adoption.
- Understand the impact that family, cultural beliefs, societal factors, and economic resources have upon the care of the newborn.
- Demonstrate familiarity with birth weight and gestational age-related neonatal morbidity and mortality statistics and comparisons of perinatal, neonatal, and infant mortality rates, regionally, nationally and internationally.
- Demonstrate sensitivity to parents’ desires relative to the medical care of their newborn infant.
- Recognize families with high risk for parent-child interaction or psychiatric problems.
## Interpersonal and Communication Skills

### Goal
Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates. Residents are expected to:

### Competencies

- Communicate effectively with patients’ families across a broad range of socioeconomic and cultural backgrounds regarding newborn care issues.
- Communicate effectively with physicians, other health professionals, and health related agencies
- Maintain comprehensive, timely, and legible medical records using the electronic medical record.

### Objectives

By the conclusion of this rotation, the residents will demonstrate the ability to:

- Work effectively with other physicians and nurses to provide comprehensive care to the newborns.
- Create and sustain a therapeutic and ethically sound relationship with patients’ families.
- Effectively and compassionately communicate with patients’ families, including being sensitive to multicultural beliefs and habits.
- Accurately and concisely present findings to the attending physicians and consultants

### Teaching Methods

1. During this rotation the resident spends his/her time in the normal newborn nursery at Mount Carmel St. Ann’s, supervised by board-certified neonatologists. The family medicine resident is expected to care for all of the newborn infants in the nursery assigned to the neonatologist they are working with. They perform histories, physicals, and any procedures on these patients. They discuss management with both the attending physician and families and give guidance to the parents. The role of the attending neonatologists is to provide education and procedural supervision on a patient-by-patient basis to cover as many of the goals and objectives as possible. Remember that not all of the goals and objectives will be covered in the nursery, depending on the patients and diseases that present within a given month. Therefore, the resident will be responsible for supplementing their own learning experience through reading through the educational resources listed below as well as those that may be recommended by the attending neonatologists.

2. Experience in the NICU is not a required part of this rotation, but is optional and can
be incorporated or taken later as an elective.

3. The resident will be expected to set up follow-up appointments as appropriate with newborn patients in the FPC following their discharge from the hospital. There, the family medicine attending will be responsible for teaching initial outpatient assessment of the newborn as outlined in the objectives.

4. In addition to the teaching provided during the newborn rotation, this topic is also taught didactically as part of the residency program’s 18-month curriculum. Attending neonatologists teach the residents on a quarterly basis during didactics.

5. Certification in Pediatric Advance Life Support (PALS) must be successfully completed during the 1st-year of residency training. This is provided free of charge to residents and is taught by qualified PALS trainers.

**Assessment Method (Residents)**

1. At the end of the rotation, the neonatologist(s) on the service will provide an evaluation of the residents’ performance, using the competency-based evaluation form developed by the Family Medicine residency program. To successfully complete this rotation, the resident will demonstrate competence in all areas outlined in the curriculum. Cognitive competence must include not only familiarity with the factual aspects of neonatology, but also the ability to integrate such factual knowledge into the daily practice of family medicine.

2. Towards the end of the rotation, the resident will meet with their faculty advisor to review the goals and objectives in the rotation description and determine areas which still need further training and/or exposure.

3. The annual Family Medicine in-training examination will also assess the cognitive aspects of neonatology.

**Assessment Method (Program Evaluation)**

1. The resident will evaluate the faculty and the rotation upon its completion using the evaluation form developed by the Family Medicine residency program.

2. Both residents and faculty will complete annual standard program evaluation towards the end of the academic year.

**Level of Supervision**

Supervision of residents is accomplished through both direct and indirect observation by the attending physicians on the service.
### Educational Resources

#### LEARNING RESOURCES

1. *Care of the High Risk Neonate*
2. PALS course material
4. American Family Physician Topic Module: Neonatology/Newborn Issues

#### Breastfeeding

- Primary Care Interventions to Promote Breastfeeding: Recommendation Statement [U.S. Preventive Services Task Force] (05/15/2010)
- Primary Care Interventions to Promote Breastfeeding [Putting Prevention into Practice] (05/15/2010)
- Strategies for Breastfeeding Success (07/15/2008)
- Why Can't I Get My Patients to Exclusively Breastfeed Their Babies? [Curbside Consultation] (07/15/2008)
- AAP Releases Updated Breastfeeding Recommendations [Practice Guidelines] (05/01/2005)
- Initial Management of Breastfeeding (09/15/2001)
- Promoting and Supporting Breast-Feeding (04/01/2000)

#### Circumcision

- Does Lidocaine-Prilocaine Cream (EMLA) Decrease the Pain of Neonatal Circumcision? [FPIN's Clinical Inquiries] (02/15/2004)
- The Gomco Circumcision: Common Problems and Solutions (08/15/1998)

#### Examination of a Newborn

- Newborn Skin: Part II. Birthmarks (01/01/2008)
- Newborn Skin: Part I. Common Rashes (01/01/2008)
- The Newborn Foot (02/15/2004)
- The Abnormal Fontanel (06/15/2003)
- The Undescended Testicle: Diagnosis and Management (11/01/2000)

#### General

- Common Issues in the Care of Sick Neonates (11/01/2002)

#### Heart Disease (Congenital) in Infants

- Caring for Infants with Congenital Heart Disease and Their Families (04/01/1999)
Hip Dysplasia (Congenital)

- Screening for Developmental Dysplasia of the Hip [Putting Prevention into Practice] (09/15/2006)
- Developmental Dysplasia of the Hip (10/15/2006)
- AAP Develops Guidelines for Early Detection of Dislocated Hips [Practice Guidelines] (02/01/2001)

Infections

- Ocular Prophylaxis for Gonococcal Ophthalmia Neonatorum [Putting Prevention into Practice] (01/15/2012)
- CDC Updates Guidelines for the Prevention of Perinatal GBS Disease [Practice Guidelines] (05/01/2011)
- Prevention of Group B Streptococcal Disease in the Newborn (03/01/2005)
- Management of Newborns Exposed to Maternal HIV Infection (05/15/2002)
- Neonatal Herpes Simplex Virus Infections (03/15/2002)

Intestinal Obstruction

- Failure to Pass Meconium: Diagnosing Neonatal Intestinal Obstruction (10/01/1999)

Jaundice

- A Practical Approach to Neonatal Jaundice (05/01/2008)
- Neonatal Jaundice [Clinical Evidence Handbook] (03/01/2005)

Postpartum Counseling/First Well Child Visit

- Discharge Procedures for Healthy Newborns (03/01/2006)
- Proper Use of Child Safety Seats (05/15/2002)

Premature Infant/Outpatient Care of Former Premature Infant

- Outpatient Care of the Premature Infant (10/15/2007)

Respiratory Distress

- Respiratory Distress in the Newborn (10/01/2007)

Resuscitation of a Newborn

- Neonatal Resuscitation: An Update (04/15/2011)
- Room Air vs. Oxygen for Resuscitating Infants at Birth [Cochrane for Clinicians] (09/01/2005)

Screenings for Newborns

- Expanded Newborn Screening: Information and Resources for the Family Physician (04/01/2008)
• **Universal Screening for Hearing Loss in Newborns: Recommendation Statement** [U.S. Preventive Services Task Force] (01/15/2010)
• **Universal Screening for Hearing Loss in Newborns** [Putting Prevention into Practice] (01/15/2010)
• **Universal Newborn Hearing Screening** (05/01/2007)
• **Screening for Sickle Cell Disease in Newborns** [Putting Prevention into Practice] (03/15/2009)
• **Screening for Sickle Cell Disease in Newborns: Recommendation Statement** [U.S. Preventive Services Task Force] (05/01/2008)

8. Other readings as provided by the attendings on newborn nursery and pediatric ambulatory pediatric clinic

Last Revision 2/20/12 (TPG)

I, ________________________ hereby attest I have read the above goals and objectives of the Neonatology - Newborn Nursery Rotation and have reviewed them with ____________________________, who acts as my faculty advisor. I hereby attest that I understand these goals and objectives, how they relate to the 6 core competencies set forth by the ACGME, and agree to work diligently within their constructs.

________________________________________               ______________
resident signature                                                                                         date

________________________________________               ______________
faculty advisor signature                                                                                   date