UNIVERSITY OF CALGARY

Alberta Children's Hospital

Neonatal Intensive Care Unit – ROTATION DESCRIPTION AND EXPECTATIONS
Pediatric Emergency Medicine Subspecialty Residency - University of Calgary

ROTATION DESCRIPTION

Rotation Structure

The overall structure of the four-week rotation will be:

- First half at Rockyview General Hospital (RGH) Level 2 Nursery
- Second half at ACH NICU

Rotation Length

The NICU rotation is a four week rotation. Vacation is allowed per the PEM Vacation and Education and Leave Policy (https://docs.google.com/document/d/1pQddx9VLT74sny263koOMLAg_MWns9Au/edit?usp=sharing&ouid=100114742872973660072&rtpof=true&sd=true).

WEEKS 1/2: Rockyview General Hospital NICU

Prior to/at the beginning of the rotation:

- As educational opportunities will include delivery room experience with resuscitation, *all residents should complete NRP* prior to the start of their rotation.
- The resident should receive an orientation that will include a tour of the physical facilities, and discussion of usual practices in the NICU.
- The resident should meet with the neonatologist to review specific goals and objectives for the rotation (it is important that these be communicated to other attending neonatologists).

During the rotation:

- Responsibilities will include patient evaluation, establishment of an investigation and treatment plan, communication with parents and the health care team, delivery room care, and ensuring appropriate documentation and arrangements for long term care. Patients will be under the care of the attending neonatologist with additional supervision provided by the resident (fellow) in Neonatal-Perinatal Medicine, senior clinical associate (pediatrician) or fourth year pediatric resident or senior nurse practitioner.
- Graded responsibility will be provided through assignment of patients. The attending neonatologist or delegate will assign patients based upon the perceived ability of the resident, level of training, and patient load.
- Residents are expected to arrive early (745) on Fridays so that they can get handover from the night team and start their teaching on time
- Residents will be excused from service to attend academic teaching provided by their home program on Thursdays.
- Residents are **expected to arrive early (7.45 AM) on Tuesdays and Fridays,** so that they can get handing over from the night duty team and start their teaching on time.

Call:

- Residents are responsible for covering daytime shifts Monday through Friday, with occasional weekend day shifts. This schedule allows them to prioritize learning both during rounds and on shifts. Therefore, no post-call days are provided for this rotation.
- During call shifts, PEM residents will be paired with a senior learner but will be considered first call. They will be responsible for admitting and establishing initial care plans for babies. Residents will attend deliveries that require the presence of the neonatal resuscitation team (Code Green and Blue). The resident will inform the on-call neonatologist of all admissions to discuss management plans.

Formal teaching schedule:

	0800-0900	1600-1700
Tuesday		Neonatal Grand Rounds
Friday (1st & 3rd)	Neonatal Clinical Rounds (Telehealth)	
Friday (2nd & 4th)	Neonatal Seminars	

WEEKS 3/4: Alberta Children's Hospital NICU

Background

The ACH NICU specializes in the care of neonates requiring subspecialty/surgical evaluation or neurocritical care. The following is a list of types of presentations seen here:

- Surgical:
  - Bowel: gastroschisis, omphalocele, duodenal atresia, necrotizing enterocolitis
  - Congenital diaphragmatic hernia
  - Tracheo-esophageal fistula
- Neurocritical care: hypoxic-ischemic encephalopathy HIE), seizures, hydrocephalus
- Cardiac: congenital heart defects pre/post-surgery, arrhythmias
- Other complex medical:
  - Genetic abnormalities
  - Chronic premature infants (e.g. with chronic lung disease)
- Occasionally consults from ED for infants <7days of age

At the beginning of the rotation:

- The resident should receive an orientation that will include a tour of the physical facilities, and discussion of usual practices in the NICU. Arrive at 9am on the first day of the rotation. Every other day following, arrive at 745am to receive overnight handover.
- The resident should meet with the neonatologist to review specific goals and objectives for the rotation (it is important that these be communicated to other attending neonatologists).

During the rotation:

- The resident should have a 4-6 patient assignment. Responsibilities will include patient evaluation, establishment of an investigation and treatment plan, communication with parents and the health care team, and ensuring appropriate documentation and arrangements for long term care. Patients will be under the care of the attending neonatologist/s with additional supervision provided by the resident (fellow) in Neonatal-Perinatal Medicine.
- PEM residents will not be expected to do any evening/overnight call in favor of maximizing learning opportunities during weekdays/ weekend days on the unit.
- Residents are expected to arrive early (0745) on Fridays so that they can get handover from the night team and start their teaching on time
- Residents will be excused from service to attend academic teaching provided by their home program on Thursdays.

Formal teaching schedule:

	0800-0900	1600-1700
Tuesday		Neonatal Grand Rounds
Friday (1st & 3rd)	Neonatal Clinical Rounds(Telehealth)	
Friday (2nd & 4th)	Neonatal Seminars	

Assessment

During the rotation, the attending neonatologist(s) should provide formative evaluations and feedback to each resident. It is the resident's responsibility to seek performance feedback from the neonatologist s/he is working with on a weekly basis. The final ITAR performance will be collated by one of the attending neonatologists the resident worked with.

EPAs

The following EPAs have been mapped to this rotation and can be obtained:

**Refers to EPAs that must be prioritized on this rotation, very likely to occur*

FOD	**4**	Communicating with Patients and Families About Assessment Findings and Management Plans
*CORE	**1**	Providing Resuscitation for Patients who are Critically Ill
*CORE	**3**	Managing Patients with a Complex Presentation of an Acute Illness
*CORE	**8**	Performing the Procedures of Pediatric Emergency Medicine
*CORE	**11**	Managing Emotionally Charged Interactions with Patients, Families and/or Other Health Care Professionals
CORE	**12**	Coordinating Care with Other Services

The following procedural EPAs have been mapped to this rotation and can be obtained:
**Refers to EPAs that must be prioritized on this rotation, very likely to occur*

*Bag/Valve/Mask Ventilation (2)
Chest Tube Placement - Percutaneous (1)
Chest Tube Placement - Traditional (1)
*Endotracheal Intubations (3) *- Min 1 infant*
*Intraosseous Insertion (1) *
Lumbar Puncture in an Infant (1)
*Laryngeal Mask Airway Insertion (1)

ROTATION EXPECTATIONS (PEM Competencies 2023)
At the completion of training, the resident will have acquired the following competencies and will function effectively as:

Medical Expert

1. Practise medicine within their defined scope of practice and expertise

1.1. Demonstrate a commitment to high-quality care of their patients

1.2. Integrate the CanMEDS Intrinsic Roles into their practice of Pediatric Emergency Medicine

1.3. Apply knowledge of the clinical and biomedical sciences relevant to Pediatric Emergency Medicine

- 1.3.1. Growth and development, including physical, psychological, social, and sexual
- 1.3.2. Anatomy, physiology, and pathophysiology as related to clinical presentations in Pediatric Emergency Medicine
  - 1.3.2.1. Anatomy of the internal organs and the musculoskeletal and neurologic systems, including surface anatomy and sonoanatomy, to guide diagnostic and therapeutic procedures
  - 1.3.2.2. Physiology and pathophysiology as it applies to the cardiovascular, pulmonary, gastrointestinal and hepatobiliary, genitourinary, gynecologic, endocrine, neurological, musculoskeletal, hematologic, immunologic and integumentary systems, including pregnancy
  - 1.3.2.3. Pathophysiology of shock and infection
- 1.3.3. Etiology of community and hospital-acquired infections
- 1.3.4. Epidemiology of illness and injury
  - 1.3.4.1. Major causes of illness by age

1.3.4.2. Major causes of injury by age

1.3.4.3. Major causes of death by age

1.3.11. Acute care, including emergencies and critical care

1.3.11.1. Algorithms for neonatal resuscitation, including neonatal resuscitation program (NRP) guidelines or equivalent

1.3.11.4. Invasive and non-invasive mechanical ventilation

1.3.11.5. Indications for and techniques of cooling and warming procedures

1.3.11.6. Indications for and techniques of providing procedural sedation

1.3.11.7. Role and logistics of both inter- and intrahospital transport of acutely ill children

1.4. Perform appropriately timed clinical assessments with recommendations that are presented in an organized manner

1.5. Carry out professional duties in the face of multiple competing demands

1.5.1. Triage and prioritize when dealing with single or multiple critically ill patient(s)

1.5.2. Work efficiently in an environment with large patient volumes and rapidly changing priorities, including simultaneous performance of multiple tasks and appropriate change in focus

2. Perform a patient-centred clinical assessment and establish a management plan

2.1. Prioritize issues to be addressed in a patient encounter

2.1.1. Recognize and manage crisis situations and critical illness or injury

2.2. Elicit a history, perform a physical exam, select appropriate investigations, and interpret their results for the purpose of diagnosis and management, disease prevention, and health promotion

2.2.6. Perform clinical assessments in a manner that recognizes and minimizes pain and distress

2.2.7. Perform timely and selective clinical reassessments to optimize and facilitate patient care

2.2.8. Perform specialized examination techniques when indicated, including

2.2.8.1. Newborn examination

2.3. Establish goals of care in collaboration with children and their families, which may include slowing disease progression, treating symptoms, achieving cure, improving function, and palliation

3. Plan and perform procedures and therapies for the purpose of assessment and/or management

3.1. Determine the most appropriate procedures or therapies

3.2. Obtain and document informed consent, explaining the risks and benefits of, and the rationale for, a proposed procedure or therapy

3.3. Prioritize procedures or therapies, taking into account clinical urgency and available resources

3.4. Perform procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances

3.4.1. Neonatal and pediatric resuscitation

3.4.1.1. Oxygen delivery and suctioning

3.4.1.2. Airway adjuncts and positioning techniques

3.4.1.3. Bag and mask ventilation

3.4.1.4. Placement of laryngeal mask airway (LMA)

3.4.1.5. Rapid sequence intubation

3.4.1.6. Direct and indirect laryngoscopy

3.4.1.7. Management of the difficult airway

3.4.1.10. Initiation of mechanical ventilation

3.4.1.11. Chest compressions

3.4.1.12. Cardiacpacing, external

3.4.1.13. Cardioversion: vagal maneuvers, chemical, and electrical

3.4.1.14. Defibrillation

3.4.3. Vascular access

3.4.3.1. Peripheral

3.4.3.2. Central

3.4.3.4. Umbilical vessel catheterization

3.4.3.5. Venipuncture for sampling

3.4.3.6. Arterial puncture for sampling

3.4.3.7. Arterial puncture for line placement

4. Establish plans for ongoing care and, when appropriate, timely consultation

4.1. Implement a patient-centred care plan that supports ongoing care, follow-up on investigations, response to treatment, and further consultation

4.1.2. Determine the need for consultation with another physician

4.1.3. Determine the need for referral to mental health or psychological services

4.1.4. Determine the need for referral for social supports

4.1.5. Coordinate outpatient care and follow-up for a discharged patient

4.1.6. Provide follow-up for diagnostic test results that become available after a patient's discharge from the emergency department

For Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional competencies, please review the appropriate section of the Pediatric Emergency Medicine Competencies document at: https://www.royalcollege.ca/content/dam/documents/ibd/pediatric-emergency-medicine/pem-competencies-e.pdf