

Rotation Name:

Newborn ICU (elective)

Preceptor:

Britta Bergstrom, PharmD

Tom Peterson, PharmD

Support Staff:

Ruth Ruble, RPh

Brooke LeMaster, PharmD

Duration: 4 weeks

Site Description:

The Neonatology rotation is in a 48 bed level IIIb newborn intensive care unit caring for very low birth weight (VLBW) and extremely low birth weight (ELBW) infants drawn from a diverse urban/rural population of approximately 2 million covering 5 states.

Role of the Pharmacist:

The NICU pharmacist's role includes pharmacokinetic dosing, parenteral nutrition, medication utilization review, medication decision making, patient counseling and education of pharmacy students, pharmacy residents and pediatrics residents.

Rotation Description:

This rotation provides an initial post-doctoral experience in the newborn intensive care unit. Upon completion the resident will be qualified as a beginning practitioner in the NBICU. During the rotation, the resident will provide pharmaceutical care to approximately 25 preterm neonates at various stages of development from very low birth weight infants to term infants with complications requiring intensive care. Disease states include newborn respiratory distress, sepsis and other infectious diseases, cardiovascular diseases, seizures and drug withdrawal. The experience consists of daily interdisciplinary patient rounds, daily drug utilization review and monitoring, providing drug information and consultation to the NBICU team, 1-2 in-services, a written drug information article for the unit newsletter, and participation in administrative and quality improvement activities. Specific skills emphasized during the rotation include pharmacokinetic drug dosing, infectious disease management, newborn resuscitation, sedation and analgesia, and management of parenteral nutrition.

Typical Daily/Weekly/Monthly Activities:

A typical day will be 07:00-15:30 but additional hours are usually necessary to complete rotation assignments and rotation responsibilities.

07:00-09:00: Perform pharmacist review/monitoring of NBICU patients

09:00-12:00: Participate in multidisciplinary rounds and therapeutic decision making

12:00-14:00: Review/correct total parenteral nutrition orders

14:00-15:00: Topic discussions/presentations

15:00-15:30: Sign out to swing shift pharmacist

Project/Presentation Description:

1. Patient Case with focus on one disease state
 - Formal handout and presentation
2. Journal Club
 - Formal handout and presentation
3. Pharmacy article for monthly unit newsletter

Expected Progression:

| | Assigned Patients | Topics to Cover (<i>subject to change</i>) | Assignment |
|--------|--------------------------------------|--|------------------------|
| Week 1 | Round with 1-2 teams | Infectious Disease Nutrition/Total Parenteral Nutrition (TPN) Pharmacokinetics | Patient case |
| Week 2 | Round with 3-4 teams | Fetal Circulation/Patent Ductus Arteriosus (PDA) Apnea Pulmonary Hypertension Respiratory Support | Journal Club |
| Week 3 | Round with all teams (independently) | Bronchopulmonary Dysplasia (BPD) Neonatal Abstinence Syndrome (NAS) Resuscitation/hypotension | Newsletter article |
| Week 4 | Round with all teams (independently) | Necrotizing Enterocolitis Interventricular Hemorrhage (IVH) Hypoxic Ischemic Encephalopathy (HIE) | Newsletter article due |

Activities Evaluated and Taught:

| Goals and Objectives | Teaching Method(s) | Related Rotation Activities |
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| Goal R1.1: In collaboration with the health care team, provide safe and effective patient care to a diverse range of patients, including those with multiple co-morbidities, high-risk medication regimens, and multiple medications following a consistent patient care process. | | |
| R1.1.1 Interact effectively with health care teams to manage patients' medication therapy | Modeling Coaching Facilitation | <ul style="list-style-type: none"> ▪ Learner will effectively collaborate with the various neonatal teams to provide patient care. |
| R1.1.2 Interact effectively with patients, family members, and caregivers | Modeling Coaching Facilitation | <ul style="list-style-type: none"> ▪ Learner will conduct at least one discharge teaching with a patient's family/caregiver. ▪ Learner will round daily with the healthcare team interacting with patients, family members, and |

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| | | caregivers |
| R1.1.3 Collect information on which to base safe and effective medication therapy | Modeling Coaching Facilitation | <ul style="list-style-type: none"> Learner will take into account patient's gestational age, weight, current disease states, respiratory support on which to base medication therapy |
| R1.1.4 Analyze and assess information on which to base safe and effective medication therapy | Modeling Coaching Facilitation | <ul style="list-style-type: none"> Learner will take into account each patient's comorbidities, allergies, weight, laboratory values, vitals, renal function, hepatic function, and current medications prior to recommending a new drug therapy. |
| R1.1.5 Design or redesign safe and effective patient-centered therapeutic regimens and monitoring plans (care plans) | Modeling Coaching Facilitation | <ul style="list-style-type: none"> Learner will adjust medication recommendations based on changes in patient's conditions (ie. CGA, weight, Cr, BP, BG, drug levels, labs, cultures) |
| R1.1.6 Ensure implementation of therapeutic regimens and monitoring plans (care plans) by taking appropriate follow-up actions | Modeling Coaching Facilitation | <ul style="list-style-type: none"> Learner will recommend therapeutic regimens on rounds and will follow patients over weeks of NICU care |
| R1.1.8 Demonstrate responsibility to patients | Coaching Facilitation | <ul style="list-style-type: none"> Learner will evaluate each patient thoroughly and follow-up on recommendations and medication management of the patient throughout the day. |
| R1.2 Ensure continuity of care during patient transitions between care settings | | |
| R1.2.1 Manage transitions of care effectively | Modeling Coaching Facilitation | <ul style="list-style-type: none"> Learner will update pharmacy pass-off notes daily to ensure continuity of care during transitions of care. |
| R3.1 Demonstrate leadership skills | | |
| R3.1.1 Demonstrate personal, interpersonal, and teamwork skills critical for effective leadership | Coaching Facilitation | <ul style="list-style-type: none"> Learner will make recommendations during rounds after formulating evidence-based therapeutic regimens for all patients on their team. Residents will present patients to the preceptor daily and make follow-up recommendations with their team if needed after rounds. |

Readings and Preparatory Work:

Avery's Diseases of the Newborn, 8th Edition

- Bacterial Sepsis and Meningitis, pp. 551-577
 - Parenteral Nutrition, pp. 1061-1071
 - Acid-base, Fluid and Electrolyte Management, pp. 372-397
 - Patent Ductus Arteriosus in the Premature Infant, pp. 816-826
 - Bronchopulmonary Dysplasia, pp. 723-736
 - Surfactant Treatment of Respiratory Disorders, pp. 670-686
 - Pharmacologic Principles and Practicalities, pp. 427-437
 - Renal Vascular Disease in the Newborn (Hypertension in the Newborn), pp. 1326-1331
Essentials of Obstetrics and Gynecology, 3rd Edition
 - Preterm Labor and Premature Rupture of Membranes, pp. 312-323
 - Antepartum Hemorrhage, pp. 187-195
- Readings from the literature as assigned

Evaluation:

The resident will be evaluated regularly by the preceptor based on daily observation and follow-up with the medical team. The resident will receive formative evaluation (feedback) on their recommendations, presentations and article. A snapshot will be completed at 2 weeks (midpoint). A final summative evaluation will be provided at the end of the rotation in PharmAcademic.