

Critical Care – Neurosurgery and Neurology: PGY1 Rotation

Preceptor(s):

- Gary Davis, PharmD
- Chad Condie, PharmD, BCCCP

Duration: 4 weeks

Site Description:

The Neurocritical Care Unit (NCCU) located on the third floor of University of Utah Hospital is a 23-bed critical care and step-down unit including neurology, neurosurgery, and medicine patients.

Rotation Description:

The pharmacist functions as part of a multidisciplinary team comprised of a Neurointensivist, neurology and neurosurgery residents, nurse practitioner, medical students, clinical dietician and neuroscience nurses. Pharmacists in the NCCU are expected to round daily on all patients, provide drug information, counsel patients, and facilitate medication delivery. Didactic and experiential training includes a focus in the following areas: ischemic and hemorrhagic stroke, meningitis, closed head injury, spinal cord injury, seizure prophylaxis, status epilepticus, brain tumors, myasthenia gravis, epilepsy, Guillain-Barre syndrome, anticoagulation management, and other medical and neurological disorders. In addition, training will include DVT prophylaxis, stress ulcer prophylaxis, nutritional support, antibiotic therapy, increased intracranial pressure monitoring, cerebral physiology, neuromuscular blockade, etc.

Role of the Pharmacist:

The role of the Neurocritical Care pharmacist includes rounding with the multidisciplinary team in the critical care unit, reviewing appropriateness of therapy, addressing adverse drug reactions, reviewing labs, recommending drug therapy as indicated. The pharmacist completes a comprehensive treatment plan for each patient and documents interventions appropriately. The pharmacist ensures that a medication reconciliation has been completed on each patient and recommends appropriate home medications as indicated.

Progression of the Residents:

Residents will be evaluated during the rotation utilizing active feedback provided by the preceptor.

Pre-rotation and Day 1:

- Email preceptor to confirm rotation dates, time to meet on the first day and suggested introductory reading material.
- Review calendar of rotation requirements and topic discussions.
- The resident will prioritize daily activities throughout the rotation with an emphasis on patient care in a professional manner.
- The resident should come prepared with 3 specific goals which should incorporate their areas for improvement.
- The resident will strive to take full ownership of their patients and recommendations.
- The resident will take initiative to discuss their ideas for learning with the pharmacist preceptor

Week 1:

- Resident will model the preceptor participation on rounds with the Neurocritical Care team.
- The resident will start by working up 2-3 patients and by the end of week one the resident will be expected to provide comprehensive care for 5-6 patients including medication reconciliation, data collection, assessment and plan to be implemented.

- The resident will present patients daily in an organized manner to the pharmacist before rounds.
- The resident will continue to assess the patient throughout the day by observing, interacting with patient as well as periodic communication with the nursing staff.
- The resident will document pertinent pharmacist information in the "Neurosciences Pharmacist Pass Off" tool as well as the electronic medical record as indicated.
- The resident will come prepared for topic discussions, but understand that discussions may be adjusted due to urgent patient care issues.

Week 2:

- By the end of week 2, the resident should strive to work up and assess 6-8 patients and round independently.
- The resident is expected to retain knowledge throughout the rotation and be able to apply this knowledge to subsequent patients.
- The resident is expected to communicate with all healthcare providers by the end of week 2 without assistance of the preceptor.
- The resident will continue to model the preceptor in regard to their role on the health care team.
- The resident will provide pass off to the evening pharmacist for any therapeutic issues related to their patients.
- Resident will write accurate notes with assessment and follow-up issues using the "Neurosciences Pharmacist Pass Off" tool with preceptor provided feedback.
- The resident will present patients daily in an organized manner to the pharmacist before rounds as time permits.
- The resident will continue to assess the patient throughout the day monitoring their clinical status and communication with the nursing staff for any new therapeutic issues.

Week 3:

- By the end of week 3 the resident should be able to comprehensively cover 15 patients with minimal preceptor input.
- The resident will continue to discuss patients prior to rounds with minimal coaching required.
- The resident will continue to document in the "Neurosciences Pharmacist Pass Off" tool and electronic medical record as indicated including appropriate discharge notes and anticoagulation education for the patient
- The resident will take on more responsibilities as the primary pharmacist on the team.
- The resident will take full ownership of the patients they are actively covering and are expected to follow-up on all daily recommendations.
- The resident will continue to relay any pertinent information to the evening pharmacist.

Week 4:

- By the last week of the rotation, the resident will be expected to cover 15 patients with little to no preceptor input with the exception of the most critically ill patients
- The resident is expected to be able to round independently on all patients they are covering.
- The resident is expected to take full ownership of the patients they are covering.
- The resident will continue to model professional behavior as a member of the Neurocritical Care team.
- The resident will continue to document in the "Neurosciences Pharmacist Pass Off" tool and the electronic medical record in addition to giving succinct pass-off to the evening pharmacist.

RLS Goals: ICU 1

- R1.1.1 Interact effectively with health care teams to manage patients' medication therapy
- R1.1.3 Collect information on which to base safe and effective medication therapy
- R1.1.4 Analyze and assess information on which to base safe and effective medication therapy

- R1.1.5 Design or redesign safe and effective patient-centered therapeutic regimens and monitoring plans (care plans)
- R1.1.6 Ensure implementation of therapeutic regimens and monitoring plans (care plans) by taking appropriate follow-up actions
- R1.1.8 Demonstrate responsibility to patients
- R1.2.1 Manage transitions of care effectively
- R3.1.2 Apply a process of on-going self-evaluation and personal performance improvement
- R4.2.1 When engaged in teaching, select a preceptor role that meets learners' educational needs
- R4.2.2 Effectively employ preceptor roles, as appropriate

RLS Goals: ICU 2

- R1.1.1 Interact effectively with health care teams to manage patients' medication therapy
- R1.1.3 Collect information on which to base safe and effective medication therapy
- R1.1.6 Ensure implementation of therapeutic regimens and monitoring plans (care plans) by taking appropriate follow-up actions
- R1.1.8 Demonstrate responsibility to patients
- R1.3.3 Manage aspects of the medication-use process related to oversight of dispensing
- R3.1.2 Demonstrate personal, interpersonal, and teamwork skills critical for effective leadership
- R3.2.4 Manages one's own practice effectively
- R4.1.1 Design effective educational activities

Expectations of the Resident:

Teaching Methods include: I=direct instruction, C=coaching, M=modeling, and F=facilitation

Activities Evaluated:

Rotation Activity	RLS Goal	Teaching Method
Participate in interdisciplinary team rounds	R1.1.1	C, M, F
The resident is expected to compose a pharmacy pass-off using the "handoff" note in EPIC for each of the patients that they follow. The note will contain the following at a minimum: <ul style="list-style-type: none"> • A brief synopsis of why the patient was initially admitted to the hospital in addition to why they were admitted to the NCCU. • A pharmacy specific problem list with a history of what happened in the ICU and follow up requirements for each of these problems • A detailed antibiotic history for each patient • DVT prophylaxis • If the patient's medication/vaccination history is incomplete, the reason why it was not completed and the information needed to complete the medication reconciliation. The resident is expected to update these notes on a daily basis. A section at the bottom of the handoff will include interventions/discussion that is initiated by the resident. It is also expected that the resident will note pertinent issues for follow-up.	R1.1.3 R1.2.1	I, C, F
For each patient that the resident follows (up to 6-10 patients by the end of the rotation), the resident is expected to, at a minimum, create an individualized therapeutic plan that incorporates patient-specific information obtained from the patient, family members, other health care members, outpatient pharmacy records, and the medical record. Disease and drug information obtained from previous experiences, topic discussions, and literature reviews are also expected to be incorporated into the individualized therapeutic plan. The integration of the patient's goals of care, ethical considerations, and quality of life concerns are expected to be included in each plan. The preceptor will assess the resident's ability to perform adequate literature searches (primary, tertiary literature, various other medication databases, etc.) and assist the resident through direct	R1.1.1 R1.1.3 R1.1.4 R1.1.5 R1.1.6 R1.1.8	I, C, F

<p>instruction on how to improve in their ability to obtain answers for clinical questions. When applicable, pharmacoeconomic and formulary considerations will be addressed. It will be expected that the resident will evaluate every medication for appropriateness, dosing based on individualized pharmacokinetic/dynamic considerations, route of medication administration (including formulation since this is a significant issue in the critically ill patient), drug interactions, and monitoring parameters. The resident will prepare these therapeutic plans on a daily basis prior to rounds; however, these plans are dynamic and will change throughout the day based on the patient's condition. These plans will be discussed with the MICU physicians and the patient's RN.</p>	<p>R3.1.1</p>	
<p>The resident will create patient-centered, evidence-based monitoring plans using their previous clinical experiences, review of the literature, and incorporation of consensus guidelines. The resident will be coached on ways to determine when it is feasible and useful to obtain laboratory markers for monitoring of their pharmacotherapy (Ex. Determining when it is appropriate to obtain a vancomycin level to assess dosing adequacy or when AED levels are appropriate. The preceptor(s) will aid the resident through direct instruction in regards to which sources of data are the most reliable (ex. Which blood pressure measurement is used when monitoring a patient on vasoactive medications) in addition to discussing what the desirable range for each parameter is.</p>	<p>R1.1.6 R1.1.8</p>	<p>I, C F</p>
<p>The resident will have ample opportunities to support the allocation of resources, particularly with regard to high-cost or high-risk drug items and wastage.</p> <p>The resident is expected to:</p> <ul style="list-style-type: none"> • Work with physicians and nurses to utilize high-risk or high-cost medications only when necessary and help recommend alternatives as necessary. • Recognize supply and shortage issues prior to recommending therapies. <p>Help address wastage issues in the ICU setting by working closely with physician and nursing staff</p>	<p>R1.3.3</p>	<p>C, F</p>
<p>The resident will be expected to:</p> <p>Present patients to preceptor daily (or more often if necessary) in concise and logical manner.</p> <ul style="list-style-type: none"> • Prepare and lead at least 4 topic discussions on various disease states and management. The resident will present to the preceptors and be prepared for post-presentation discussion. The resident is expected to use a combination of tertiary and primary literature to create topic discussions. • Time permitting, prepare and present a formal topic to the NCCU team. <p>Participate in development of NCCU protocols and research as needed if opportunities arise.</p>	<p>R4.1.1</p>	<p>M, F</p>
<p>The resident will:</p>	<p>R3.1.2 R3.2.4</p>	<p>M, F</p>

<ul style="list-style-type: none"> Continuously incorporate all feedback provided by preceptor and medical team to enhance performance and effectiveness in patient workups, rounds, communication, and other patient care activities. Recognize patterns and attempt to utilize past feedback to develop current and future processes to avoid need for repeat feedback from preceptor. Attempt answering patient care questions or general informational questions by exhausting tertiary and primary literature before asking preceptor for assistance, unless the situation is urgent and requires immediate action. Provide responses in a timely manner and take full responsibility for patients. Utilize and learn from the preceptors' styles during rotation, while beginning to develop their own process during rotation in order to most effectively learn to care for patients. <p>Become self-sufficient and independent throughout the course of the rotation, essentially able to function as the rounding pharmacist in the NCCU.</p>		
<p>The resident will:</p> <ul style="list-style-type: none"> Precept pharmacy students in basic therapeutic skills when a student rotation coincides with the resident rotation. The educational activity may include basics like assessing renal function, BP control, seizure control and proceed to more Neuro specific skills as indicated. The resident would select a preceptor role that meets the students educational needs 	<p>R4.2.1 R4.2.2</p>	<p>I, C, M</p>

Readings and Preparatory Work:

Readings will include relevant clinical studies which impact patient care as well as available clinical guidelines for stroke, epilepsy, meningitis, and other conditions. Other readings include: disease state reviews found within the medical and neurocritical care literature, chapters from *Pharmacotherapy*, as well as PSAP modules of interest.

Project/Presentation Description:

The trainee will present patient cases daily, inservices as needed, and conduct one journal club in which an article relevant to clinical practice is discussed and reviewed.

Typical Daily/Weekly/Monthly Activities:

Include following patients admitted to the Neurocritical Care service, participating in daily patient care rounds, outlining a pharmacotherapy care plan for a given disease states, patient medication education, and drug monitoring. The trainee will discuss patient cases daily and present one in-service and one journal club article.

Evaluations:

The resident will be assessed on their preparation for rounds and their use of the literature to develop recommendations. The preceptor will be available daily to observe the resident and will also receive feedback from the NCCU team. The resident will receive regular verbal feedback and a midpoint and final written evaluation.