ROTATION DESCRIPTION

ROTATION TITLE
Medical Intensive Care Unit (PGY1)

PURPOSE
The purpose of this rotation is to allow the PGY1 resident to develop pharmacotherapeutic skills in the identification and resolution of drug therapy problems in a critically ill patient population. In doing so, the resident will develop a baseline comfort with critical care issues, and will begin to assume responsibility for patient care with one of the goals of ensuring positive drug therapy outcomes.

LEARNING EXPERIENCE DESCRIPTION
The Medical Intensive Care Unit (MICU) rotation should serve as a foundation for future hospital and ambulatory experiences in that it encompasses a wide variety of therapeutic issues and demands in treating the critically ill patient. The ultimate goal is to expose various critical care pharmacotherapeutic concepts to a resident, in order for them to be able to care for a critically ill patient in various clinical scenarios (on-call, on other services, future career paths).

The typical day begins with preparation for attending rounds which commence promptly at 8 am, and last roughly 3-4 hours. The service is typically more intense in the MICU with a census of around 15-25 patients. The patient problem lists and work up of new admissions, along with literature retrieval/evaluation occurs commonly between 11 am - 3 pm daily. Then the resident meets with the preceptor for afternoon rounds discussing either all patients or 1-2 major problem patients. This is then followed by topic discussions or a primary literature journal article review on topics pertinent to direct patient care. The resident should provide prompt feedback to the preceptor of topics not being properly explained to them, and areas of improvement for the preceptor/resident.
The following goals and objectives will be taught and formally evaluated during this rotation – not from the PGY2 Critical Care ASHP Residency Goals and Objectives.

1. **Goal R2.4 Collect and analyze pertinent patient information**
   - **OBJ R2.4.1: (Analysis)** Collect and organize all patient-specific information needed to identify, prevent, and resolve medication related problems in order to provide appropriate evidence-based recommendation in critically ill patients.
   - **OBJ R2.4.2: (Evaluation)** Assess the information based created for a critically ill patient for adequacy to identify problems and design a therapeutic regimen.
   - **OBJ R2.4.3: (Analysis)** Determine the presence of any of the following problems in a critically ill patient’s current medication or specialized nutrition support therapy:
     1. Medication used with no medical indication.
     2. Patient has acute or chronic (eg. steroid dependence) medical conditions for which there is no medication support prescribed.
     3. Medication prescribed inappropriately for a particular medication condition.
     4. Current medication therapy regimen contains something inappropriate (dose, dosage forms, duration, schedule, route of administration, method of administration).
     5. There is therapeutic duplication.
     6. Medication to which the patient is allergic has been prescribed.
     7. There are adverse drug or device-related events or potential for such events.
     8. There are clinically significant drug-drug, drug-disease, drug-nutrient, or drug-laboratory test interactions or potential for such interactions).
     9. Medical condition is complicated by social, recreational, nonprescription, or nontraditional (eg. herbal) drug use by the patient.
     10. Patient not receiving full benefit of prescribed medication therapy (eg. system error).
2. **Goal R2.5: Design evidence-based therapeutic regimens for critically ill patients.**
   - **OBJ R2.5.1: (Synthesis)** Specify therapeutic goals for a critically ill patient incorporating the principles of evidence-based medicine that integrate patient-specific information, ethics, and when possible, quality-of-life considerations.
   - **OBJ R2.5.2: (Synthesis)** Design a regimen that meets the evidence-based therapeutic goals established for a critically ill patient; integrates patient-specific information, disease and drug information, ethical issues, and when possible, quality-of-life issues; and considers pharmacoeconomic principles.

3. **Goal R2.7: Recommend regimens and monitoring plans for critically ill patients.**
   - **OBJ R2.7.1: (Application)** Recommend an evidence-based therapeutic regimen and corresponding monitoring plan in a way that is systematic, logical, accurate, timely and secures consensus from the critical care interdisciplinary team.

4. **Goal R2.10: Communicate ongoing patient information.**
   - **OBJ R2.10.1: (Application)** When given a patient who is transitioning out of a critical care setting, communicate pertinent pharmacotherapeutic information to the receiving health care professionals.

5. **Goal R5.1: Participate in the management of medical emergencies.**
   - **OBJ R5.1.1: (Application)** Exercise skill as a team member in the management of medical emergencies by certification in the American Heart Association Advanced Cardiac Life Support and, if applicable, Pediatric Advanced Life Support.

The following goal objective will be taught and evaluated for rotations where the PGY1 resident is involved in teaching PharmD candidates on this rotation:
6. Goal R3.1: Provide effective education or training to health care professionals in training.

LEARNING EXPERIENCE REQUIRED ACTIVITIES (correlated with Goals and Objectives for a PGY1 and other PGY2 sub-specialty residents). Additional possible activities will be possibly assigned during the month as deemed necessary by the preceptor.

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<tr>
<th>REQUIRED LEARNING ACTIVITY</th>
<th>Goals</th>
<th>Objectives</th>
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<td>The PGY1 resident will be expected to cover the some MICU service throughout the month dependent on their comfort level, be able to work-up the patients in the morning, develop pharmacotherapy problem lists and pay attention to detail, as well as follow through on interventions made either before, during, or after formal rounds with the multidisciplinary team. (The average MICU census is between 15-25 patients at any one time). The number of patients followed will be left up to the discretion of the preceptor and the skill set level of the resident during the month.</td>
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<td>The PGY1 resident will be expected to generate and maintain patient-specific databases which contain data for making drug therapy recommendations. This will include and not be limited to the appropriateness for drug, dosage, dosage regimen, route/method of administration, regimen, compliance, therapeutic duplications, therapeutic outcomes, cost and avoidance of adverse drug reactions and negative interactions.</td>
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<td>The PGY1 resident will be expected to communicate their recommendations either verbally or in written format to the multidisciplinary team, and be able to develop their own personalized skills of negotiation from either modeling it after their preceptor or from previous experiences.</td>
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<td>The PGY1 resident will be expected to document their key clinical interventions into eMeds, report a minimum of 2 PSN’s during the month, and respond to all levels, complex medication regimens, and nutrition requests by writing pharmacokinetic,</td>
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pharmacotherapy, or nutrition support notes to be placed in the patients' medical record.

The PGY1 resident will be expected to provide a minimum of 2 in-services to the physicians, nurses, and other clinical practitioners as topics of interest arise.

The PGY1 resident will be expected to effectively manage their time by balancing their patient census with additional residency responsibilities on a daily basis.

The PGY1 resident will be expected to ensure that there is excellent continuity of pharmaceutical care on patients being discharged from the MICU to other services by either written or verbal hand-offs to fellow pharmacy practitioners.

**Possible Learning Activity**

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<td>The PGY1 resident will be expected to lead topic discussions at least three times per week with their preceptor after a certain time frame.</td>
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<td>The PGY1 resident will respond to and participate in the management of medical emergencies for patients in the MICU. (This learning activity is contingent on volume of Maydays in the unit).</td>
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<td>The PGY1 resident may be expected interact in a professional and courteous manner with other PharmD candidates, PGY1 residents or PGY2 residents while on the MICU rotation.</td>
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**Requirements of Learning Experience**

**Required hours**
6:00 AM to 6:00 PM
As patient care requires, the above listed times may vary.

**Required meetings**
Daily meetings with preceptor in am and pm.
Pulmonary conference – Monday's and Friday's – 12 noon - optional
Seminar – 1 pm every Monday
RITE – 12 noon every Friday
Critical Care Journal Club – 1 pm – 4th Tuesday every month
Required presentations
1-2 short presentations to the MICU team on a topic to be decided by the resident and the preceptor

Required readings
Please see the preceptor for suggested readings to be shared with the resident during the rotation on a case-by-case/topic discussion basis.

ROTATION PRECEPTOR
Joe Mazur, PharmD, BCPS, BCNSP
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METHOD OF EVALUATION
Evaluation of residents will be based on the learning experience objectives outlined by the Residency Program Director (RPD). The RPD will identify the specific goals and objectives on which the resident will be evaluated (available in Resitrak). The preceptor and resident will review the resident’s customized plan and the learning experience introduction document on the first day of rotation. Feedback will include, but not be limited to, verbal and written mid-point and end of rotation evaluations.

TOPIC DISCUSSIONS [*Key introductory discussions]
Topic discussions will be assigned during the month, and the resident will be expected to lead after a predetermined time frame these discussions by performing the required self-directed readings and research any supplemental articles that is deemed necessary for learning the topic.

- Sedation, Analgesia, and Neuromuscular Blockade in the ICU Patient*
- ICU Delirium*
- Mechanical Ventilation*
- Acid-Base Problem Solving*
- Acute Respiratory Distress Syndrome/Acute Lung Injury*
- Hemodynamic Monitoring & Shock, Sepsis, Sepsis Syndrome, SIRS with the Use of Vasopressors/Inotropes*
- The Appropriate Use of Antimicrobials (Dosing, Protocols, Resistance Issues)*
• The Appropriate Use of Antifungals (Dosing, Protocols, Resistance Issues)*
• Cardiac Arrhythmias
• Hypertension Emergencies
• Status Epilepticus
• Acute Stroke
• Acute and Chronic Pancreatitis
• Acute and Chronic Liver Failure
• Gastrointestinal Bleeds
• Fluid/Electrolytes & Nutrition in the Critically Ill Patient
• Acute Renal Failure (dialysis modalities, drug dosing)
• Antithrombotic Treatments in the ICU
• Drug Interactions in the ICU
• Toxicology Primer
• Medication Safety in the ICU