General Description:

The purpose of the PGY2 Cardiothoracic surgery rotation is to allow the resident to develop expertise in all aspects of critical care medicine, especially as it relates to the care of the cardiothoracic surgery, cardiac/thoracic transplant and vascular patient. Emphasis will be placed on developing a working knowledge of primary literature relevant to the critically ill patient as well as developing autonomy as a critical care pharmacist.

Cardiothoracic Surgery rotation is to develop the resident’s skills in the identification and resolution of pharmacotherapeutic issues in critically ill patients, especially as it relates to the care of cardiac, thoracic and vascular surgery patients. The resident will develop a baseline knowledgebase of fundamental critical are concepts and pharmacotherapy while learning to assume responsibility for medication therapy outcomes.

The Cardiothoracic Surgery rotation is an experience-based integrated problem-solving course designed to introduce residents to the skills necessary to become an active participant in providing contemporary patient care services to critically ill patients. Residents will integrate their knowledge of pharmacotherapy, disease states, dosage formulations and pharmacokinetics to develop and assess therapeutic plans and evaluate drug selection for patients. In addition to pharmacotherapy, the individual will learn about drug delivery systems, distribution issues, and management strategies relevant to the critically ill patient. Attendance and participation at physician rounds/interdisciplinary team meetings, conferences and discussions, monitoring and presenting assigned patients, and interaction with patients and health care professionals is expected. Over the course of the experience, residents will learn to develop recommendations and participate in decisions about drug therapy considering factors involving efficacy, toxicity, cost, and unique methods of delivery.

The cardiothoracic surgery rotation at Emory University Hospital consists of two 9 bed ICUs servicing post operative cardiac, thoracic and vascular surgery patients. Critical care services are coordinated by the Anesthesia Critical Care Service. This interdisciplinary team consists of members from anesthesia, pharmacy, nursing, midlevel practitioners, respiratory therapy and nutrition.

Rounding times will vary depending on the attending for the week. Notification of specific rounding times will be provided. Following rounds the resident is expected to attend any meetings required, follow up on specific patient issues and work on projects assigned for the rotation.
Pharmacy resident responsibilities include but are not limited to:

- Daily interdisciplinary rounds with the Anesthesia Critical Care team.
- Attendance at ICU conference every Wednesday.
- Daily review of patient data (medications, labs, microbiology data, etc).
- Maintaining an active pharmacotherapy problem list for each patient.
- Serving as a resource for drug information inquiries.
- Therapeutic drug monitoring of applicable medications with corresponding documentation in the patient’s medical record.
- Communication and adequate pass off of pharmacokinetics to the pharmacist covering the area where the patient is transferred to when discharged from the ICU.
- Providing assistance with CPOE when applicable.
- Coordination of high risk / high cost therapies.
- Participation in Dr. 99 codes that occur in 4A or 5A.

**Disease States**

Specific topics to be discussed during the rotation will be decided based on the resident’s prior and future experiences during their residency. Individualization of these topics to meet the needs of each resident is desired. The following list of topic areas will be utilized to prove the core discussions.

I. General Critical Care
   A. Nutrition support of the critically ill patient
   B. Venous thromboembolic disease prophylaxis
   C. Stress ulcer prophylaxis
   D. Sedation and analgesia
   E. Glycemic control
   F. Infectious diseases
   G. Hemodynamics and vasopressors
   H. Sepsis and septic shock
   I. Advanced Cardiac Life Support (ACLS)

II. Cardiac Surgery
   A. Coronary artery bypass grafting
      a. Antiplatelet therapy
      b. On versus off pump surgery
      c. Minimally invasive surgery
      d. Anticoagulation
      e. Graft thrombosis / vasospasm
      f. Post-op atrial fibrillation
      g. Secondary prevention
   B. Heart Transplantation
      a. Induction therapy
      b. Immunosuppression
      c. Antimicrobial prophylaxis
      d. Outcomes
   C. Ventricular assist devices
      a. Indications
      b. Devices
      c. Anticoagulation
      d. Social issues
      e. Outcomes
   E. Misc. Cardiac Surgery
      a. Valve replacement/repair
      1. Endocarditis
      b. Ventricular reconstruction
      c. Congenital defect repair
      d. Surgeries for atrial fibrillation

III. Thoracic Surgery
   A. Thoracotomies
      a. Pain control
   B. Esophagectomies
   C. Aortic Dissection
      a. Hypertensive urgency/emergency
   D. Lung Transplantation
      a. Induction therapy
      b. Immunosuppression
      c. Antimicrobial prophylaxis
      d. Outcomes

IV. Vascular Surgery
   A. Aortic aneurism repair
   B. Aortic dissection repair
   C. Peripheral bypass
**Goals Selected**

Goal R1.1: Exhibit essential personal skills of a practice leader.

Goal R2.1: Establish collaborative professional relationships with other members of the interdisciplinary critical care team.

Goal R2.2: Prioritize the delivery of care to critically ill patients.

Goal R2.3: Act in accordance with a covenantal relationship with the patient.

Goal R2.4: Collect and analyze pertinent patient information.

Goal R2.5: Design evidence-based therapeutic regimens for critically ill patients.

Goal R2.6: Design evidence-based monitoring plans for critically ill patients.

Goal R2.7: Recommend regimens and monitoring plans for critically ill patients.

Goal R2.8: When appropriate, implement selected aspects of critical care patients’ regimens and/or monitoring plans.

Goal R2.9: Evaluate critically ill patients’ progress and redesign regimens and monitoring plans.

Goal R2.10: Communicate ongoing patient information.

Goal R2.11: Document direct patient care activities appropriately.

Goal R3.1: Provide effective education or training to health care professionals and health care professionals in training.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Goal</th>
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<tbody>
<tr>
<td>Daily interdisciplinary rounds with the Anesthesia Critical Care team.</td>
<td>R2.1, R2.7, R2.10</td>
</tr>
<tr>
<td>Daily review of patient data (medications, labs, microbiology data, etc.)</td>
<td>R2.4, R2.5, R2.6, R2.7</td>
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<td>Maintaining an active pharmacotherapy problem list for each patient.</td>
<td>R2.2, R2.3, R2.4, R2.5, R2.6, R2.7, R2.8, R2.9</td>
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<tr>
<td>Serving as a resource for drug information inquiries from the team and patients</td>
<td>R2.1, R3.1</td>
</tr>
<tr>
<td>Therapeutic drug monitoring of applicable medications with corresponding documentation in the patient's medical record.</td>
<td>R2.5, R2.6</td>
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<tr>
<td>Communication and adequate pass off of pharmacokinetics to the pharmacist covering the area where the patient is transferred to when discharged from the ICU and on weekends.</td>
<td>R2.10</td>
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<tr>
<td>Coordination of high risk / high cost therapies.</td>
<td>R2.3</td>
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<td>Assist in the education of pharmacy students, resident physicians, nurses and midlevel practitioners when applicable.</td>
<td>R3.1</td>
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<tr>
<td>Balance patient care and other residency responsibilities.</td>
<td>R1.1</td>
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<tr>
<td>Discuss time management strategy with preceptor.</td>
<td>R1.1</td>
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<td>Document ADRs and interventions in Pharmacy One Source</td>
<td>R2.11</td>
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<tr>
<td>Document medication variances in STARS Event Reporting System</td>
<td>R2.11</td>
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**Preceptor Interaction**

Daily: The preceptor and resident will meet daily to present patients, answer questions and follow up on ongoing patient issues. The time and location of each meeting will be based on the resident and preceptors daily schedule. A calendar will be provided at the beginning of the rotation.

Expected progression of resident responsibility on this learning experience:

Day 1: Orientation to service and expectations.
Week 1: Resident will begin to follow new patients in 4A OR 5A (decision to be made based on current patient load, diversity, etc). The preceptor will follow the other floor and will attend and participate in rounds for both floors.

Week 2: Resident will follow all patients in both 4A and 5A. Preceptor will attend rounds and serve as a resource to the resident depending on the comfort of the resident and preceptor.

Weeks 3-4: Resident will continue to follow patients in both 4A and 5A. The resident is to present patients and therapeutic plan to preceptor in the afternoons. Preceptor will always be available for questions and will follow patients independently to monitor resident skill development in all aspects of the learning experience (facilitating the resident as the pharmacist on the health care team).

Note: the length of time the preceptor spends in each of the phases of learning will depend BOTH on the resident’s progression in the current rotation and when the rotation occurs in the residency program.

**Evaluation Strategy**

ResiTrak will be used for documentation of formal evaluations. For formative evaluations, residents will perform the activity appropriate to the snapshot with the preceptor. Resident and preceptor will then independently complete the snapshot. After both have signed the evaluation, the resident and preceptor will compare and discuss the evaluations. This discussion will provide feedback both on their performance of the activity and the accuracy of the self-assessment. Formative evaluation will also occur as verbal or written feedback on a daily basis.

<table>
<thead>
<tr>
<th>What</th>
<th>Who</th>
<th>When</th>
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<tr>
<td>Midpoint Summative Self-Evaluation</td>
<td>Resident</td>
<td>End of week 2</td>
</tr>
<tr>
<td>Midpoint Summative Evaluation</td>
<td>Preceptor</td>
<td>End of week 2</td>
</tr>
<tr>
<td>Summative Self-Evaluation</td>
<td>Resident</td>
<td>End of learning experience – deadline: to be signed and submitted the end of the day following rotation completion.</td>
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<tr>
<td>Summative Evaluation</td>
<td>Preceptor</td>
<td>End of learning experience – deadline 7 days post final day of rotation to meet with resident to discuss.</td>
</tr>
<tr>
<td>Preceptor &amp; Learning Experience Evaluation</td>
<td>Resident</td>
<td>End of learning experience – deadline 7 days post final day of rotation.</td>
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