ANST 709A - Anesthesiology
Rotation Information

Welcome to Anesthesiology!

Course Director
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Course Educational Materials:

- Understanding Anesthesia: A Learner's Guide (free e-book)
- For those who rotate in peds anesthesia: Chapter 34 of Miller's Basics of Anesthesia
- Flashcards

Orientation

On the first day of the rotation, please meet Emi Garcia for orientation at 7:30am, in conference room 5D03 *(Currently **Webex**, please see outlook appointment for link)* of the main hospital. Please wear OR scrubs and bring your stethoscope and a pen.

Course Grading:

This course is graded on a 5-tiered grade system: A (Honors), B (Near Honors), C (Satisfactory), D (Marginal), F (Fail).

Grade Component:	Percentage of Grade:	Submission mechanism:
Evidence-Based Medicine paper Due the 1st Friday of the rotation by 5pm	12.5% (5 pts)	Sakai
Professionalism Reflection paper Due the 2nd Friday of the rotation by 5pm	12.5% (5 pts)	Sakai
Final Examination Due the 3rd Friday of the rotation by 5pm	25% (10 pts)	Sakai
Clinical Performance Evaluations If no evaluations are submitted, the student will receive an incomplete. If fewer than three evaluations are submitted, the highest grade possible will be Satisfactory.	50% (20 pts)	MedHub See instructions on next page

Professionalism Expectations:

1.Have pager on and functioning each day.

2.Read the appropriate chapters in your textbook.

3.Submit assignments by their deadlines.

4.Complete your MedHub "Student Identified Supervisor" prompt each week, in order to generate evaluations to the faculty members/residents with whom you work.

5.Evaluate patients for the next day's cases, and contact the assigned faculty/resident prior to leaving each day.

6. If planned absences during the rotation are necessary, email Dr. Dillman and Emi Garcia as soon as possible with your Request for Time Off From Clinical Experience form. Emergency absences should be emailed and paged to Dr. Dillman.

Attendance Expectations:

1. Attend departmental Grand Rounds – Mondays, 7:00-7:45am, UHS 8B60 (**Currently WEBEX**, Link is sent out weekly in didactic schedule email)

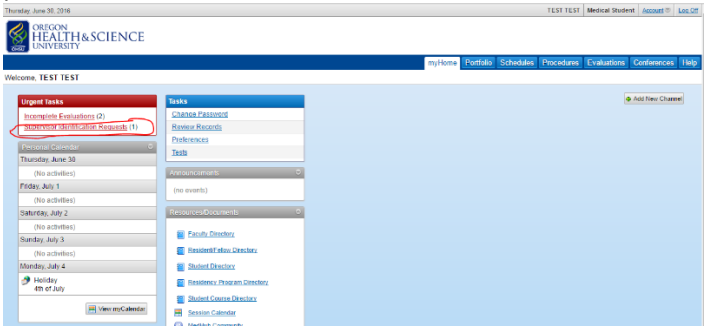
2. Attend medical student lectures – Schedule to be provided via Outlook appointments

3. Participate daily in OR activities as directed by the faculty/resident. Arrive in time in the morning to prepare for the day's cases (set up room with medications, airway equipment, IV trays.) The time will depend on the complexity of the case and the experience of the student.

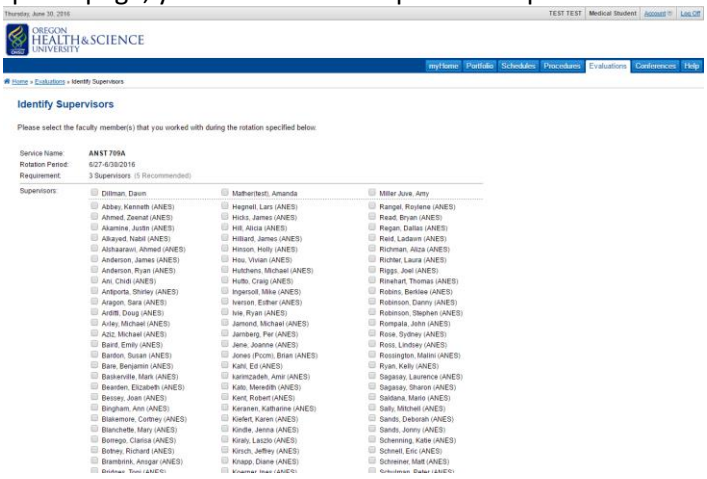
Example of a Typical Day:
6:30am – Arrive to set up room
7:00-7:30am – Discuss cases with staff, meet patient, place IV
7:30am-4:30pm – Cases in OR
2:00-3:00pm (or as scheduled) – Attend lecture
4:30pm – See pre/post-ops, call staff for next day

Evaluation, Project & Exam Instructions:

Clinical Performance Evaluations – Student must identify faculty & residents with whom they work during the rotation
Each week during the rotation, you will receive a prompt in MedHub to identify which faculty and residents you have worked with. It is crucial that you complete these "SIS" requests in a timely fashion, in order to generate your clinical performance evaluations to the correct individuals. This will show up on your MedHub home page "Urgent Tasks":



Follow the circled link to Supervisor Identification Requests (also known as Student-Identified Supervisors or SIS). This will bring up your queue, showing any completed or outstanding SIS requests. Once a SIS request is opened from the queue page, you will see a list of possible supervisors to select:



Click the checkboxes next to the names of those you have worked with, or scroll to the bottom of the supervisor list to get to the search box. When you are finished, click "Submit" and you will be returned to your Evaluations queue.

If you have any questions or cannot find the name of someone you have worked with/would like to generate an evaluation to, please contact Emi Garcia (garciaem@ohsu.edu).

Please note that the evaluation process for visiting students is handled differently. Visiting students will be sent supplementary instructions at the start of the rotation.

Evidence-Based Medicine project – due the 1st Friday of the rotation **2 pages length + article**

This project is designed to give you practice in Evidence-Based Medicine (EBM) and answering your clinical questions. EBM is the use of current medical literature to guide clinical care. It requires practitioners to be able to formulate clinical questions, find evidence that addresses the question, and critique its usefulness. Follow these steps:

1. Find an article that addresses the question you formulated last week. The OHSU library web site is excellent, and provides access to many journals online. OVID and Pub Med are good places to start your search. In your write-up, briefly state how you found the article you came up with.
2. Evaluate the article you found for study design (including strengths and weaknesses), potential sources of bias, and applicability to your clinical question and how it would guide your answer to the question. There are several worksheets that are available to help you in your analysis on the JAMA Evidence web site (http://www.jamaevidence.com). If you access through a campus computer or WTS, you can make your own personal login to get to the worksheets. The worksheets vary depending on what sort of article you choose, and help you make a logical analysis of the article's meaning.
3. Discuss the implications for your clinical question, given the evidence you found.

Professionalism reflection – due the 2nd Friday of the rotation **1-2 pages length**

Professionalism is an integral part of any physician's practice, and cultivation of professionalism takes deliberate attention. Please think about your experiences on the rotation and choose one to describe and reflect on that is particularly relevant to the topic of professionalism. It could be an experience in which you were a main participant, or one that you observed happening. It may be a challenging situation and went less than perfectly, or went perfectly despite the challenges. Describe the situation fully, including the challenges and ways they were addressed well or not, and then what do you think the lessons are for you as you move forward as a physician, and whether there could be any means of supporting or improving the situation to help address future challenges. (See assessment rubric on following page.)

Final Examination – due the 3rd Friday of the rotation

The exam will be administered through Sakai, and can be taken during any 2-hour period of your choice during the final week of the rotation. It is a closed-book examination and you may not use references of any kind. The exam will consist of 2 parts:

1. A single answer multiple-choice exam based on the textbook and lecture series.
2. An essay examination based on a case study. Students will be expected to comment on preoperative assessment, prepare an anesthetic plan, and develop a postoperative plan for pain control.

Reflection Rubric

*Modified from *Fostering And Evaluating Reflective Capacity in Medical Education: Developing the REFLECT Rubric for Assessing Reflective Writing*.

	Level 1	Level 2	Level 3	Level 4
Criterion	Habitual action (Nonreflection)	Thoughtful action or introspection	Reflection	Critical reflection
Writing spectrum	Superficial descriptive writing approach (fact reporting, vague impressions) without reflection or introspection	Elaborated descriptive writing approach and impressions without reflection	Movement beyond reporting or descriptive writing to reflecting (ie, attempting to understand, question or analyze the event)	Exploration and critique of assumptions, values, beliefs, and/or biases, and the consequences of action (present and future)
Description of conflict or disorienting dilemma	No description of the disorienting dilemma, conflict, challenge, or issue of concern	Absent or weak description of the disorienting dilemma, conflict, challenge, or issue of concern	Description of the disorienting dilemma, conflict, challenge, or issue of concern	Full description of the disorienting dilemma, conflict, challenge, or issue of concern that includes multiple perspectives, exploring alternative explanations, and challenging assumptions
Attending to emotions	Little or no recognition or attention to emotions	Recognition but no exploration or attention to emotions	Recognition, exploration and attention to emotions	Recognition, exploration, attention to emotions, and gain of emotional insight
Analysis and meaning making	No analysis or meaning making	Little or unclear analysis or meaning making	Some analysis and meaning making	Comprehensive analysis and meaning making

Clinical Training Schedule:

The global rotation schedule is posted on Sakai at the start of each rotation, so you will have a general sense of what to expect. All students are scheduled to rotate in the University Hospital operating rooms, and to spend a day with the inpatient pain service and a day with the regional anesthesia team. Capacity-permitting, many students also spend a week in the Doernbecher Children's Hospital operating rooms. Upon request, students may spend a day during the rotation in the outpatient Comprehensive Pain Clinic, in Obstetrics, and/or in a subspecialty case such as cardiac or neuro anesthesia. **Special requests should be submitted via email to Emi Garcia one week in advance of the rotation.** (Please note that many constraints influence the final clinical training schedule and as such, requests cannot be guaranteed.)

Each day around 1:00pm, you will receive the Anesthesia Master Schedule for the next day via email. If you are in South, Ambulatory North, or Doernbecher ORs, you can then use EPIC to find what the schedule is in your room for the next day by going to the Master Daily Schedule (MDS) for the next day (T+1). If you are not scheduled for somewhere, please page either Dr. Dillman or the D1 (11856).

Assignment	Abbreviation	Instructions
University Hospital	UH SOR NOR/AMB	The South Operating Rooms (SOR) are on the 6th floor of the main hospital. The North Operating Rooms (NOR or AMB) are on the 4th floor of Multnomah Pavilion. You will need to do preops for each day. Read the chapters in your book that pertain to the type(s) of cases you will be doing the next day.
Doernbecher Children's Hospital	DCH	The DCH ORs are on the 8th floor at the end of the hall, although you might be assigned to sedation service which travels throughout the hospital. There are no lockers there, so you will need to use your locker provided in SOR. You will need to do preops for each day, both to go over patient information and clarify where to meet. Read the Pediatrics chapter in Miller's "Basics of Anesthesia" text before arriving: https://ebookcentral.proquest.com/lib/ohsu/reader.action?docID=1431011
Acute Pain Service	APS	Meet in Sam Jackson Hall 4125 at 7AM. The double cubicle on the right upon entering is the APS office. Please wear your white coat – either scrubs or professional attire is acceptable. There is no need to do any preops for this day.
Regional Block Team	REG	Meet the block team at 6:30 AM. Usually you will meet in the back of 6A preop area, but please check with the team you will be working with to make sure. There is no need to do preops for this day, but when you check with the team, they may have an idea of what blocks you are likely to see so that you can read about them.

Mistreatment Reporting:

Students are encourage to report incidences of mistreatment by Faculty, Residents, Interns, Fellows, Nurses, other healthcare and non-healthcare personnel, students, patients, or others. All reports will remain confidential and separate from your course evaluations. Link to form for mistreatment reporting: http://bit.ly/Mistreatment

To report a complaint of prohibited discrimination and/or harassment (age, disability, Family Medical Leave Act and/or Oregon family Leave Act, gender, marital status, military/reserve status, national origin, pregnancy, race/color, religion, retaliation, sexual harassment, sexual orientation, veteran's status, whistle blower, worker's compensation system, and other), please contact the AAEO (http://www.ohsu.edu/xd/about/services/title-ix/index.cfm). To file a report with AAEO, go to http://www.ohsu.edu/xd/about/services/title-ix/reporting/submit-report.cfm .

Experiencing Difficulties?

Please refer to the Medical Student Handbook for full details of standards of conduct in the learner-teacher relationship and mistreatment. Please reach out if you are having trouble or have questions.

Resources are available for students experiencing difficulty, and include, but are not limited to:

1. Faculty teachers in clinical experiences
2. Clinical Experience Director

3. Assistant Deans for Student Affairs – Dr. Amy Garcia and Dr. Ben Schneider
4. Associate Dean for Undergraduate Medical Education – Dr. Tracy Bumsted
5. University Ombudsman – Merle Graybill (503-494-5397)
6. Student Health and Wellness Center
7. Center for Diversity and Inclusion

Student Health and Wellness Center
Baird Hall, Rm. 18 (Primary Care) and Rm. 6 (Behavioral Health)
503-494-8665; For urgent care after hours, 503-494-8311 and ask for the Nurse on call.
Wellness Center Information (mailto: SHW@ohsu.edu)
***Exceptions include Public Health students who have selected PSU as their primary providers and students whose home campus is a satellite campus or online. If your home institution is not on the Portland campus, contact your home institution student support services for more information.**

Frequently Asked Questions:

How do I find my patients?
The OR schedule in EPIC will have patient locations. The inpatients will be noted and you should see these patients for a preoperative evaluation prior to leaving for the day. Most of our patients are outpatients or AM admits, patients who are seen in our Preadmission Testing (PAT) clinic. Sometimes there is just the surgical H&P. All I ask is a diligent genuine effort to evaluate the patients prior to the day of surgery.

How do I contact my staff or resident?
Page your staff or resident (that is the name under anesthesiologists on the OR schedule) prior to leaving the hospital to introduce yourself and discuss the patients for the next day (or inform them that you were unable to obtain information about the patients). You may also call them at home if staff or resident is not available during the day, as the hospital operator has numbers for everyone. The OHSU directory, including text paging abilities, is available on network computers at: http://smartweb.ohsu.edu/smartweb/.

Where can I find the lecture schedule and slides?
The lectures for the rotation are sent to your OHSU calendar in the form of appointments.
The presenters who use PowerPoint have made their slides available here.

I'm a visiting student and I'm not receiving the daily schedule, and/or my Epic login doesn't seem to be working.
Temporary network, email, and EPIC accounts are set up for each visiting medical student; you will receive login and password information on the first day of your rotation. Daily schedules and other departmental info will be sent only to your OHSU email address; you can check this email from any computer using this link: https://mail.ohsu.edu.

Your EPIC access will not work until you have logged into the network for the first time and changed your initial password.

ROTATION GOALS
(Adapted from Society for Education in Anesthesia Recommendations for Medical Student Rotations)

I. Medical Knowledge

- **a.** Acquire an appreciation of the Anesthesiologist's considerations in preoperative evaluation of the patient, including common preexisting conditions that may affect perioperative management.
- **b.** Understand which medications should be continued in the perioperative period
- **c.** Understand what medications are commonly used as premedications and their indications, dosages and contraindications
- **d.** Understand common induction agents and their relative benefits or drawbacks
- **e.** Understand what inhalational anesthetics do, including side-effects, and dosages
- **f.** Understand how neuromuscular blockers work, and their side-effects
- **g.** Understand basic airway anatomy, and airway management techniques
- **h.** Be familiar with ASA standard monitors, including how to apply them to a patient
- **i.** Know indications for invasive monitoring
- **j.** Understand how to interpret the findings of invasive monitors
- **k.** Understand which fluids are commonly used in the operating room and why they are used
- **l.** Know common intraoperative complications and their possible etiologies
- **m.** Know local anesthetic pharmacology appropriate to the practice of general medicine
- **n.** Understand risks and benefits of regional anesthesia
- **o.** Be familiar with the types of patients and procedures that are appropriate for outpatient procedures, and the implications of ambulatory surgery on perioperative management
- **p.** Know how to assess postoperative pain and several modalities for treatment

II. Patient Care

- **a.** Develop the ability to form a basic management plan for an anesthetic, including choice of premedications, induction agents, monitors, and maintenance agents
- **b.** Develop the ability to prescribe a fluid management plan based on the patients history, procedure type and hemodynamics
- **c.** Develop the ability to perform basic airway management, including bag-mask ventilation and intubation
- **d.** Develop IV placement skills

III. Practice Based Learning

IV. Interpersonal and Communication Skills

- **a.** Function as a member of the anesthesia team, demonstrating effective communication skills with the attendings, residents and OR staff

V. Systems-Based Practice

VI. Professionalism

- **a.** Demonstrate care in developing an appropriate patient-physician relationship, and good bedside manner

ROTATION OBJECTIVES.

I. Preanesthetic Evaluation

A. Conduct several preanesthetic assessments, including (Ia)
   1. Taking and recording a pertinent history
   2. Performing an appropriate physical examination, including assessment of:
      airway
      cardiovascular system
      respiratory system
      other systems as indicated
   3. Reviewing pertinent laboratory data

4. Assigning appropriate ASA physical status

B. Discuss how the following factors may influence the patient's course during the perioperative period: (Ia)
   1. Age
   2. Nature of surgery, including minor versus major, peripheral versus central, and elective versus emergent, outpatient versus inpatient
   3. Cardiovascular disorders, including but not limited to:
      - coronary insufficiency
      - hypertension
      - myocardial failure
      - dysrhythmias
   4. Respiratory disorders
      - known or suspected difficult intubation
      - upper and/or lower respiratory infection
      - asthma
      - chronic obstructive pulmonary disease
      - lab work-up
   5. Central nervous system disorders
      - increased intracranial pressure
      - convulsive disorders
      - cerebrovascular insufficiency
      - quadriplegia or paraplegia
   6. Gastrointestinal disorders
      - pulmonary aspiration risks:
        - hiatal hernia/gastro-esophageal reflux/full stomach
        - functional or mechanical bowel obstructions
      - hepatitis, hepatic insufficiency, portal hypertension
   7. Renal insufficiency
   8. Hematologic disorders
      - anemias
      - coagulopathies
      - hemoglobinopathies
   9. Personal or family history of unusual response to anesthesia
      - malignant hyperthermia susceptibility
      - abnormal succinylcholine metabolism
   10. Lifestyle factors
      - obesity
      - substance abuse - tobacco, alcohol, chemicals
   11. NPO status, including ASA guidelines for NPO status

C. Discuss medication histories and the influence of chronic and current medications on the perianesthetic period, including: (Ib)
   1. Which drugs should be discontinued and why
   2. The rebound phenomena resulting from abrupt discontinuation of some classes of drugs, notably beta blockers, and clonidine
   3. Approaches to perioperative management of patients taking insulin or anticoagulants

II. Preoperative Medication

A. The student shall name effective preanesthesia medications and their indications for:(Ic)
   1. Relief of anxiety/Amnesia, specifically midazolam
   2. Analgesia

3. Drying secretions, specifically glycopyrrolate
4. Reducing gastric acidity and volume, specifically H2 antagonists, metoclopromide, and antacids
5. Prevention of exacerbation of reactive airway disease, specifically beta-2 agonists
6. Preventing infection at the surgical site or for SBE prophylaxis

III. The Operating Room

A. Induction

1. Identify several agents used on induction of general anesthesia and discuss their advantages and disadvantages: (Id,e,f)
    a. Intravenous agents
    b. Inhalation agents
    c. Neuromuscular blocking agents
2. Observe and practice airway management during several uncomplicated intravenous inductions (IIc)
3. Formulate a basic anesthetic plan for an ASA II patient undergoing a procedure (IIa)

B. Airway

1. Describe the indications, risks and benefits of airway management by mask or LMA versus intubation (Ig)
2. Identify basic oropharyngeal and laryngotracheal anatomy (Ig)
3. Identify and overcome upper airway obstruction with mask ventilation, using (IIc)
    a. Appropriate mask holding technique
    b. Jaw thrust
    c. Nasopharyngeal airway
    d. Oropharyngeal airway

C. Intraoperative monitoring:

1. Identify ASA standard monitors for all anesthetics (Ih)
2. Explain and demonstrate ECG lead placement and selection to optimize detection of dysrhythmias and ischemia (Ih)
3. Explain indications and risks for invasive methods for monitoring arterial and central venous pressure (Ii)
4. Correctly interpreting data from the following monitors of volume status: (Ij, IIb)
    a. Examination of the patient
    b. Pulse and blood pressure
    c. Urine output
    d. CVP
    e. PCWP
5. Interpret results of arterial blood gas analysis in terms of (Ij)
    a. Oxyhemoglobin dissociation curve
    b. Acid-base status

D. Fluid and electrolyte therapy:

1. Explain the rationales for establishing central and peripheral venous access (Ii)
2. Identify the common sites for venous access and the contraindications and indications for each (Ii)
3. Demonstrate skill at establishing venous access by: (IId)
    a. Using sterile technique and universal precautions
    b. Successfully inserting several peripheral catheters of various calibers
    c. Protecting the venipuncture site and immobilizing the catheter
4. Prescribe maintenance fluid and electrolytes (Ik, IIb)
    a. Predicting how the following preoperative conditions will alter requirements for perioperative maintenance therapy:
        1. NPO

2. Bowel prep
3. NG suction
4. Fever

b. Discussing intraoperative considerations which alter maintenance fluid and electrolyte therapy including:
1. Blood loss
2. "Third space" loss

c. Discussing indications, drawbacks and benefits of crystalloid, colloid and blood product replacement therapies:
1. Regarding the functions of:
blood volume
oxygen carrying capacity
coagulation
2. Regarding complications of each type of therapy

E. Identify several position-related injuries that patients may sustain while unconscious (II)

F. Discuss methods of recognizing and treating various perioperative problems, including: (II)
1. Dysrhythmias, including tachycardia or bradycardia
2. Hypotension
3. Hypertension
5. Low oxygen saturation
7. Endobronchial intubation
8. Esophageal intubation
9. High peak airway pressures
10. Low urine output

G. Identify risk factors for post-operative nausea and vomiting and several prophylactic interventions (Ic)

IV. Regional Anesthesia

A. Local anesthetics: (Im)
1. Classify commonly used agents according to amide or ester linkage
2. List commonly used local anesthetics for:
a. Topical use
b. Local infiltration
c. Peripheral nerve blocks
3. List acceptable doses of at least two agents used for topical and local infiltration anesthesia (lidocaine and bupivacaine.)
4. Describe and identify signs of impending local anesthetic and/or vasopressor toxicity vs. "allergic reaction"
5. Describe therapeutic steps necessary to prevent or treat local anesthetic toxicity in the event of an accidental intravascular injection

B. Neuroaxial (epidural or spinal) anesthesia: (In)
1. Describe basic anatomy of the spine
2. Describe hemodynamic changes associated with neuroaxial anesthesia
3. Identify contraindications to neuroaxial anesthesia

C. Peripheral Nerve Blocks: (In)
1. Describe advantages to peripheral nerve blocks for anesthesia or postoperative pain control
2. Identify potential risks to peripheral nerve blocks

V. Ambulatory anesthesia (Io)

A. Identify the types of procedures and patients appropriate for ambulatory surgery

B. Discuss assessment of the ambulatory patient with respect to:
1. ASA classification

2. NPO status
3. Appropriate lab work
4. Nausea/vomiting prophylaxis
5. Discharge criteria
6. Pain management

VI. Postoperative pain management (Ip)

A. Compare and contrast the following treatments of postoperative pain:
   1. IVPCA
   2. Epidural catheters
   3. Prn vs round-the clock dosing
   4. PO medications
      a. Narcotics
      b, Acetaminophen with or without codeine
      c. Ketorolac/NSAIDs
      d. COX-2 inhibitors

B. Describe methods to evaluate pain including
   1. Pain scales
   2. Visual analog scales

VII. Professionalism (VIa)

A. Patient Care:
   1. Introducing self to patient and as appropriate, patient family.
   2. Attending to patient concerns and questions
   3. Listening attentively
   4. Establishing rapport with patient
   5. Maintaining patient confidentiality in verbal and written communications

B. The student will be prompt and dressed appropriately as becoming of a medical professional—As per OHSU clinical staff policy, available on web or in the education office

C. Evaluates challenges to professionalism in self or others.

VIII. Interpersonal and Communication Skills: (IVa)

A. Attend to team activities, concerns, and issues respectfully
B. Exhibit polite inclusive language and behaviors.
C. Direct questions and concerns to appropriate team members and/or education faculty
D. Clarify questions and responsibilities in a timely manner
E. Know professional limitation and acting accordingly
F. Maintain ethical and professional boundaries with patients and team members

IX. Practice Based Learning (III)

A. Create and implement goals for improvement based on experience in the clinical setting
B. Create questions about patient care that can be used to further knowledge
C. Answer questions by finding and evaluating literature relevant to clinical questions.