WestVirginiaUniversity
SCHOOL OF MEDICINE

Advanced Clinical Track Curriculum
Department of Anesthesiology

Description of Rotation or Educational Experience

The goal of this multi-month, CA-3 level rotation is for residents to perfect advanced skills with particular emphasis on 5 primary areas including advanced airway management, geriatric anesthesia, offsite and office based anesthesia, vascular-thoracic anesthesia, and operative theater management. During the extent of the rotation residents should spend 3-5 days assisting the charge anesthesiologist with theater management and at least 2 weeks in the other defined areas, with the charge anesthesiologist assigning the ACT resident to the most difficult and challenging cases on the operative schedule. During the extent of the rotation, the resident should; 1) master the essential skills of difficult airway management for patients with expected or proven difficult airways, 2) gain the knowledge and skill base required for successful anesthetic management of patients with significant vascular and pulmonary disease, 3) learn to modify standard anesthetic techniques and tailor an anesthetic to the altered physiology of the geriatric patient, 4) learn how to anesthetize patients for Electroconvulsive Therapy (ECT), Magnetic Resonance Imaging (MRI), Electro-ablation Therapy, Cerebral coiling, Infertility procedures, and other procedures which occur in nontraditional sites, and to adapt their anesthetic technique to these new and different locations so as to provide safe patient care, and 5) gain exposure to and be expected to perform the duties of the charge anesthesiologist managing the Operating Suite at Ruby Memorial Hospital

During the course of the rotation residents will work primarily at WVU Ruby Memorial Hospital but will also be assigned to Chestnut Ridge Hospital, Robert C. Byrd Health Sciences Center, Monongalia General Hospital, and the WVU Center for Reproductive Medicine. Residents will be under the direct supervision of WVU departmental faculty at all locations.

Patient Care

Goals

Residents must be able to provide patient care that is compassionate, appropriate and effective for the treatment of health problems and the promotion of health. Residents are expected to:

- Evaluate difficult airways, prepare equipment for and perform successful difficult airway management
- Evaluate patients for vascular and thoracic procedures.
- Understand vascular and thoracic pathology and their clinical implications.
- To develop skills to perform specific procedures, pertinent to the vascular and thoracic patient.
- Manage the patient during a common vascular and thoracic procedure.
- Care for patients in nontraditional anesthetizing areas
- Assess the safety of and adapt to unusual environments.
- Evaluate and perform perioperative assessment geriatric patients
- Tailor anesthetics with regard to the geriatric patients altered physiology and pathology

- Become facile in the determining whether patient needs are met by the skills of the anesthesia providers
- Be conversant in giving directions and answering questions
- Recognize bottlenecks in patient care
- Manage the throughput of patients in the perioperative arena

Competencies

- Demonstrate familiarity with all difficult airway equipment
- Adequately prepare patients for difficult airway management
- Skillfully perform difficult airway management
- Appropriate valuation of patients for vascular and thoracic procedures.
- Understand vascular and thoracic pathology and their clinical implications.
- To develop skills to perform specific procedures, pertinent to the vascular and thoracic patient.
- Manage the patient during a common vascular and thoracic procedure.
- Evaluation of the geriatric patient with co-morbidities.
- Choosing the correct anesthetics in the correct amounts to accommodate their aging processes.
- Choose appropriate anesthetics in an appropriate amount to provide an adequate anesthetic without compromising the hemodynamic homeostasis of the geriatric patients.
- Provide specialty anesthetic care necessary in each nontraditional site.
- Extrapolate the experiences in one nontraditional site to others so as to be able to provide safe patient care in environments which are new to the resident
- Know the advantages and disadvantages of deep sedation versus general anesthesia in a nontraditional site.
- Appropriately assign the skills and educational needs of residents with the appropriate faculty who will meet the needs of the patients
- Develop appropriate schedule assignments to cover all of the patient
- Develop appropriate contingency plans for missing personnel
- Appropriate Placement and Management urgent surgical cases

Objectives

By the end of the rotation the resident will accomplish the following:

- Evaluate 10 patients with difficult airways and present the patient and anesthetic plan to the attending anesthesiologist.
- Prepare a minimum of 10 patients for difficult airway management with minimal intervention by the attending anesthesiologist.
- Perform a minimum of 10 difficult airway management cases that must include fiberoptic intubations and Bullard scope assisted intubations.
- Evaluate a minimum of 10 patients for vascular surgery.
- Evaluate a minimum of 10 patients for thoracic cases.
- Develop anesthetic plans that are validated by the attending physician.
- Evaluate and create an anesthetic plan for 10 geriatric patients
- Manage the anesthetic for a minimum of 10 geriatric patients
- Acquire an adequate evaluations of the weekly global rating scales

- Anesthetize patients at least 9 for electro convulsive therapy with a minimum of three assignments to this anesthetizing site
- Anesthetize at least 9 patients scheduled for the MRI unit with a minimum of three assignments to this anesthetizing site
- Provide both deep sedation and general anesthesia in offsite locations
- Anesthetize patients in another nontraditional site whether electro ablation therapy, cerebral coiling, an assignment in radiology or the infertility unit.
- Complete a minimum of three daily schedule assignments
- Manage three days of operating room management
- Meet the educational needs of the residents with case assignments for three days

Medical Knowledge

Goals

Residents are expected to:

- Develop an understanding of how to use all of the difficult airway equipment listed in the content outline addendum
- Demonstrate the ability to successfully use many of the items on the content outline addendum.
- Demonstrate an adequate knowledge of airway anatomy and innervation.
- Understand cardiovascular effects of anesthetic drugs
- Explain pharmacology, selection, use and complications of vasoactive drugs; selecting the drugs for the hemodynamically unstable patient.
- Know the medical disease process peculiar to each off site procedure and the anesthetic requirements peculiar to these procedures for each nontraditional site in which the resident works
- Understand why these specialized offsite procedures are necessary to diagnose or treat disease processes
- Learn the anatomical and physiologic changes that occur with aging.
- Learn the effects of anesthetic agents on geriatric patients.
- Learn techniques unique for fragile patients which make up a large number of the geriatric population.
- Detail patient needs
- List resident needs
- Demonstrate proficiency in assignments
- Recognize potential problems with assignments

Competencies

Residents will be able to achieve specific skills in the following areas:

- Airway management equipment use
- Airway innervation blocks
- Airway anatomy
- Disease processes which effect airways
- Preanesthetic evaluation of patients with significant vascular and thoracic disease; understanding preoperative testing (catheterization, vascular echo, stress testing, perfusion scans) and their value regarding conduction of anesthesia; ordering preoperative medication.
- Preparation of the appropriate vasoactive infusions.

- Fluid and blood products management during vascular and thoracic surgery; coagulation management during and after the cardiopulmonary bypass.
- Utilization of monitoring devices vascular and thoracic anesthesia: invasive blood pressure monitoring, pulmonary artery catheter, TEE and BIS monitor.
- Anesthesia induction for the vascular patient.
- Management of one-lung ventilation; use of double-lumen tubes.
- Post-op pain management for the vascular and thoracic patient.
- Techniques for placement of: arterial lines, central lines, pulmonary artery catheters, thoracic epidurals.
- Use of flexible fiberoptic bronchoscope.
- Transporting vascular surgical patients safely and efficiently to CTICU.
- Signing-out of the vascular surgical patient to the ICU staff.
- Know the affects of anesthetics on the ability to achieve a therapeutic seizure
- Know the interactions between psychotropic drugs and anesthetic agents
- Know the consequences of anesthetizing a patient in the presence of an electro-magnetic field
- Know how to select appropriate anesthetic methodology in remote sites like an MRI unit
- Know the conditions that need to be fulfilled when successfully anesthetizing a patient for a cerebral intervention whether with coils, glue, thrombolytics etc.
- Know the challenging conditions generally found in a radiology suite
- Know the complications that may be encountered during ablation of cardiac foci
- Know the best anesthetic approaches during various procedures in interventional cardiology
- Understand the use of drugs available for achieving deep sedation
- Understand the reasons anesthesia services are needed in off-sites.
- Preanesthetic evaluation of the geriatric patient.
- Understanding of the aging process an the anatomy and physiology of patients.
- Understanding of the anesthetic requirements of geriatric patients
- Understand cardiovascular effects of anesthetics
- Understand the respiratory effects of anesthetics
- Be able to list what residents have what deficiencies for what educational needs
- Be able to list and describe the difficult patient problems
- Be able to list and describe the deadlines in assigning cases
- Be able to list and describe the urgent needs on any given day

Objectives

- Demonstrate adequate knowledge of the above listed medical knowledge competencies for an adequate rating on the Global Rating Scale.
- Demonstrate effective blocks of the innervation of airway on five patients.
- Successful knowledge acquisition as assessed by faculty on Written Formative Evaluations.
- Complete Portfolio Assignment: Faculty assessment of knowledge exhibited in resident casework up of one patient with a vascular or thoracic pathology. Assessment should include a summary of the pertinent evaluation of the patient

and anesthesia plan demonstrating evidenced based medical practice as documented with pertinent literature references.

- Discuss the guidelines suggested by the American society of Anesthesiologists for providing care in nontraditional locations
- List the basic monitoring standards required by the American society of anesthesiologists
- State the standards for personnel as established by the American Society of Anesthesiologists in their "practice guidelines for sedation and anesthesia by non anesthesiologists"
- Explain which medications are suitable for non anesthesiologists to administer and the rationale for this.
- State that minimum standards for recovery care as defined by the American Society of Anesthesiologists
- Discuss the various drugs that could possibly be used for sedation of patients in various locations
- Discuss the possible reactions to and treatment of reactions to iodinated contrast media
- List the various procedures which may require anesthesia in the C. T. scanner
- Discuss the advantages of an MRI scan and the mechanism by which this technology functions
- Discuss the hazards created by the magnetic technology utilized by an MRI scan
- Discuss the rationale for patients selection for an MRI scan
- Discuss the difficulties encountered monitoring a patient in the MRI scanner
- Discuss the decision-making process to determine whether a patient should have light to deep sedation versus general anesthesia
- Compare and contrast the surgical approach versus the radiological approach to cerebral vascular pathology
- Discuss the need to be able to control blood pressure and the mechanisms to do so
- Describe the cardiovascular implications of carotid angioplasty/stenting
- List the indications for thrombolysis during acute occlusive stroke
- Discuss techniques for sedation and general anesthesia for patients undergoing electro-magnetic ablation
- Discuss various complications possible during electro-magnetic ablation
- Discuss the indications for electroconvulsive therapy
- Discuss the contraindications and relative contraindications for electroconvulsive therapy
- Discuss the procedure necessary to initiate therapy for a new patient
- Discuss the physiologic consequences of ECT
- Discuss the consequences of antidepressant drugs with regard to anesthetics and electroconvulsive therapy
- Discuss potential anesthetic and regiments which will lead to a suitable therapeutic effect.
- Demonstrate adequate knowledge of the above listed medical knowledge competencies for an adequate rating on the Global Rating Scale.
- For one day, be able to list what residents have what deficiencies for what

educational needs to the charge anesthesiologist
- For one day, be able to list and describe the difficult patient problems to the charge anesthesiologist
- For one day, be able to list and describe the deadlines in assigning cases to the charge anesthesiologist
- For one day, be able to list and describe the urgent needs to the charge anesthesiologist

Practice- Based Learning and Improvement

Goals

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life long learning. Residents are expected to develop skills and habits to be able to:

- To be able to identify and access appropriate references to solve difficult airway management problems.
- Independently seek answers clinical questions and incorporate this knowledge acquisitions into appropriate management and care plans
- Review the post-anesthetic hospital course of their patients receiving anesthesia for complications or suboptimal and devise alternative management plans that could have improved outcomes
- To be able to access “on-line “ reference sources pertinent to the anesthetic management of patients.
- To be able to identify and access appropriate references to solve vascular and thoracic management problems.
- Independently seek answers clinical questions and incorporate this knowledge acquisitions into appropriate management and care plans
- Review the post-anesthetic hospital course of their patients receiving anesthesia for complications or suboptimal and devise alternative management plans that could have improved outcomes
- To be able to access “one –line “ reference sources pertinent to the anesthetic management of patients.
- Be able to choose anesthetic techniques which are safe and effective for the patient in challenging environments. This requires the ability to analyze the environments using prior experiences, whether good or bad, from other nontraditional environments.
- To be able to identify and access appropriate references to solve geriatric management problems.
- Independently seek answers clinical questions and incorporate this knowledge acquisitions into appropriate management and care plans for geriatric patients.
- Review the post-anesthetic hospital course of their patients receiving anesthesia for complications or suboptimal and devise alternative management plans that could have improved outcomes
- To be able to access “on-line:” reference sources pertinent to the anesthetic management of geriatric patients.
- Identify personal strengths, deficiencies and limits in knowledge and expertise

related to the OR Management
- Set learning and improvement goals based on patient and colleague feedback
- Actively participate and seek educational opportunities
- Systematically analyze anesthesia practice, peri-operatively and through post-anesthetic assessment of patients and restructure anesthetic practice based on improved patient outcomes

Competencies
- Identify personal strengths, deficiencies and limits in knowledge and expertise related to the field of difficult airway anesthesia.
- Set learning and improvement goals based on patient and colleague feedback
- Actively participate and seek educational opportunities.
- Systematically analyze anesthesia practice, perioperatively and through post-anesthetic assessment of patients and restructure anesthetic practice based on improved patient outcomes.
- Incorporate formative evaluation feedback into daily practice.
- Incorporate pertinent findings and conclusions of scientific studies to improve cardiac anesthesia outcomes.
- Use information technology to optimize learning.
- Disseminate knowledge acquired for the further education of patients, families, students, residents and other health professionals.
- Identify personal strengths, deficiencies and limits in knowledge and expertise related to the field of vascular and thoracic anesthesia.
- Set learning and improvement goals based on patient and colleague feedback
- Actively participate and seek educational opportunities.
- Systematically analyze anesthesia practice, perioperatively and through post-anesthetic assessment of patients and restructure anesthetic practice based on improved patient outcomes.
- Incorporate formative evaluation feedback into daily practice.
- Incorporate pertinent findings and conclusions of scientific studies to improve vascular anesthesia outcomes.
- Use information technology to optimize learning.
- Disseminate knowledge acquired for the further education of patients, families, students, residents and other health professionals.
- Systematically analyze practice, using quality improvement methods, and implement changes with the goal of practice improvement
- Identify personal strengths, deficiencies and limits in knowledge and expertise related to the field of geriatric anesthesia.
- Set learning and improvement goals based on patient and colleague feedback
- Actively participate and seek educational opportunities.
- Systematically analyze anesthesia practice, perioperatively and through post-anesthetic assessment of patients and restructure anesthetic practice based on improved patient outcomes.
- Incorporate formative evaluation feedback into daily practice.
- Incorporate pertinent findings and conclusions of scientific studies to improve

cardiac anesthesia outcomes.
- Use information technology to optimize learning.
- Disseminate knowledge acquired for the further education of patients, families, students, residents and other health professionals.
- To be able to identify and access the necessary information to make out a schedule
- Independently seek answers to previously unencountered
- Review the previous day's work and analyze any problems
- To be able to access 'on-line' reference sources pertinent to the making the schedule
- Incorporate formative evaluation feedback into daily practice
- Incorporate pertinent findings and conclusions of scientific studies to improve OR Management techniques
- Use information technology to optimize learning
- Disseminate knowledge acquired for the further education of patients, families, students, residents and other health professionals

Objectives

- Provide satisfactory performance on the Global Rating Scale.
- Portfolio: Case Management: Residents will identify one patient with a vascular and thoracic related co-morbidity, perform a literature search, identify at least 2 references pertinent to the patient and produce a 1 page synopsis of the evaluation, alternatives, their proposed management of the patient, and anticipated possible complications. The resident will review the case with the attending physician and submit copies for inclusion in their portfolio.
- Portfolio: Post-Anesthetic Rounds: Residents will identify 2 patients on post-anesthetic rounds that they feel had suboptimal outcomes. Residents will summarize the anesthetic management of each patient in writing and submit a brief synopsis of alternative management techniques that might have produced more optimal outcome. Residents will review the plans with the attending physician and submit copies for their portfolio.
- Successful demonstration of adequate practice- based learning and improvement as assessed by faculty on Written Formative Evaluations
- The resident will be able to describe how anesthetics are designed to assure that the patient has an effective electroconvulsive therapy.
- The president will be able to analyze a nontraditional environment and choose and rationalize the anesthetic methodology.
- Performs satisfactorily on the weekly Global Rating Scale .
- Portfolio: Case Management: Provide all the worksheets used to make out a day's OR schedule
- Portfolio: Provide a copy of the day's OR schedule which you made out.
- Successful demonstration of adequate practice- based learning and improvement as assessed by faculty on Written Formative Evaluations of your work

Systems Based Practice

Goals

Residents must demonstrate an awareness of and responsiveness to the larger context and

system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Residents are expected to:

- Be able to prioritize the delivery of anesthesia and analgesia based on the particularities of the difficult airway patient.
- Coordinate the care of the patient with the surgeons and nurses.
- Be able to prioritize the delivery of anesthesia and analgesia based on the particularities of the vascular and thoracic patient.
- Function as a member of a vascular team with nurses, surgeons, cardiologists and perfusionists
- After analyzing a nontraditional environment, that the president should be able to determine if anesthetic care can be safely provided.
- Based upon prior experience, the resident is able to enter a nontraditional environment in which they have never worked before; assess that the specific needs, obtain necessary equipment and assure that there is sufficient backup to provide safe patient care.
- Understand the interactions of billing for procedures, staffing and the community's needs for service.
- Be able to prioritize the delivery of anesthesia and analgesia based on the particularities of the geriatric patient.
- Function as a member of a intraoperative team with nurses, surgeons, cardiologists and other healthcare professionals.
- Be able to prioritize the delivery of patient care resources
- Function as a member of a care team with nurses, surgeons, administrators and anesthesia providers.

Competencies

- Coordinate patient care within the health care system relevant to difficult airway anesthesia
- Incorporate considerations of risk-benefit analysis in patient care
- Participate as part of inter-professional team to enhance patient safety and improve patient care quality
- Participate in identifying systems errors and in implementing potential systems solutions
- Work effectively with nurses, surgeons, cardiologists and perfusionists to deliver timely and effective anesthetic care
- Coordinate patient care within the health care system relevant to vascular anesthesia
- Incorporate considerations of risk-benefit analysis in patient care
- Participate as part of inter-professional team to enhance patient safety and improve patient care quality
- Participate in identifying systems errors and in implementing potential systems solutions
- Work effectively in various health care delivery settings and systems relevant to their clinical specialty
- Incorporate considerations of cost awareness and risk-benefit analysis in patient care

- Advocate for quality patient care and optimal patient care systems
- Coordinate patient care within the health care system relevant to geriatric anesthesia
- Incorporate considerations of risk-benefit analysis in geriatric patient care
- Participate as part of inter-professional team to enhance patient safety and improve patient care quality
- Participate in identifying systems errors and in implementing potential systems solutions
- Work effectively with nurses, surgeons, administrators and anesthesia providers to deliver timely and effective anesthetic care
- Coordinate patient care within the health care system relevant to OR Management
- Incorporate considerations of risk-benefit analysis in patient care.
- Participate as part of inter-professional team to enhance patient safety and improve patient care quality
- Participate in identifying systems errors and in implementing potential systems solutions

Objectives

- Provide satisfactory performance on the Global Rating Scale.
- Successful acquisition of patient information from hospital based systems as documented in the resident's Portfolio of patient case presentation.
- The resident will be able to describe the interactions of staffing and reimbursement on revenue
- The resident will be able to list the advantages and disadvantages of each nontraditional environment and how it affects patient care.
- The resident will be able to analyze each nontraditional environment and list changes that could be made to improve patient care and safety.
- Successful demonstration of adequate systems based practice as assessed by faculty on Written Formative Evaluations

Professionalism

Goals

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to:

- Provide the highest possible quality difficult airway care
- Provide a role model to students and related practitioners as to commitment and professional conduct in the care of patients
- Discuss ethical challenges in the care of the patient with a difficult airway
- Express sensitivity to the particular needs of the patient and their family.
- Provide the highest possible quality vascular and thoracic anesthesia care
- Provide a role model to students and related practitioners as to commitment and professional conduct in the care of patients
- Discuss ethical challenges in the care of the cardiothoracic patient
- Express sensitivity to the particular needs of the vascular patient and family
- The ability to be empathic with patients who are severely depressed
- Provide the highest possible quality geriatric anesthesia care
- Provide a role model to students and related practitioners as to commitment and

professional conduct in the care of patients
- Discuss ethical challenges in the care of the geriatric patients, especially those near end of life.
- Express sensitivity to the particular needs of the geriatric patient and family
- Provide the highest possible quality anesthesia care via appropriate assignments
- Provide a role model to students and related practitioners as to commitment and professional conduct in the care of patients
- Discuss ethical challenges in OR Management
- Express sensitivity to the particular needs of the surgeons and patients

Competencies
- Responsiveness to patient needs that supersedes self-interest
- Accountable to patients, society, and the profession
- Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in age, culture, race, religion, disabilities, and sexual orientation
- Demonstrates Courtesy and Respect for patients, nurses, physicians, and ancillary staff
- Demonstrates Compassion and Integrity for others
- Completes patient care tasks and provides appropriate follow-up and feedback to patient and staff
- Acts in the best interest of the patient
- Advocates quality and timely patient care
- Respects patient privacy and autonomy
- Accountable to patients, society, and the profession

Objectives
- Provide satisfactory performance on the Global Rating Scale.
- Successful demonstration of adequate professionalism as assessed by faculty on Written Formative Evaluations
- To be able to take a history in a sensitive manner from a patient who is severely depressed.

Interpersonal and Communication Skills

Goals

Resident must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families and professional associates. Residents are expected to:
- Effectively obtain pertinent medical history from the patient.
- Effectively describe available anesthetic options at appropriate age and education specific levels.
- Obtain informed consent for general anesthesia and regional anesthesia; explain related risks.
- Obtain informed consent for general vascular and thoracic anesthesia and regional anesthesia; explain related risks.
- Provide sensitive reassurance while performing regional anesthesia and any other procedures while the patient is awake. Effectively obtain pertinent medical history from the vascular patient.

- Communicate effectively with patients and families across a broad range of socioeconomic and cultural backgrounds
- Be able to communicate with diverse health care givers in these many nontraditional sites
- Work effectively as a member of the health care team
- Act in a consultative role to other physicians and health professionals
- Maintain comprehensive, timely, and legible medical records

Competencies

- Communicate effectively with the patient and their families across a broad range of socioeconomic and cultural backgrounds
- Communicate effectively with physicians, nurses, and ancillary staff.
- Work effectively as a member of the health care team
- Maintain comprehensive, timely, and legible medical records

Objectives

- Provide satisfactory performance on the Global Rating Scale.
- Successful demonstration of adequate of interpersonal and communication skills as assessed by faculty on Written Formative Evaluations
- Demonstrate effective written communication skills on Portfolio entries
- Successful demonstration of adequate interpersonal and communication skills as assessed by faculty on Written Formative Evaluations
- Demonstrate effective written communication skills on Portfolio entries
- Maintain paper records in offsite locations
- Establish good working relationships with the health care providers in remote locations unaccustomed to the administration of anesthesia.

Teaching Methods

- Didactic conferences
- Review and discussion of preoperative patient evaluations and anesthetic plans with the attending anesthesiologists.
- Intraoperative discussion of pertinent physiologic changes and case management
- Review and discussion of post-anesthetic evaluation
- Personal supervision of management decisions by the charge anesthesiologist
- Review and discussion of Perioperative “game” plans
- “On-the-fly” management of the OR schedule as changes occur
- Case scenario discussions
- Suggested readings

Assessment Method (residents)

- Global Clinical Performance Rating Scale
- Charge Faculty sign-off on checklist
- Focused Observation and Assessment
- Portfolio entries: Resident Experience Narrative
- Portfolio entries: Review of Patient Record

	Patient	Med	Practice Based	System Based	Profess-	Communi-
Global Clinical	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly

Ratings						
Portfolio	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Resident Experience Narrative	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Review of Patient Record	Monthly	Monthly	Monthly			Monthly
Focused Observation and Assessment	Weekly					Weekly

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Assessment Method (Program Evaluation)

How do you evaluate whether this educational experience is effective?

- Faculty evaluations of observations of clinical practice.
- Review of Resident Evaluations of Faculty Performance
- Review of Resident Program Evaluations
- Performance on subsets of the In-Service Examinations administered by the American Board of Anesthesiology
- Performance on subsets of Anesthesia Knowledge Test
- Performance of program graduates on subsets of the written examination of the American Board of Anesthesiology
- Post-graduate assessments of adequacy of training

Level of Supervision

During the rotation residents are supervised by faculty at a ratio of no more than 1:2. A close level of supervision is provided with extensive pre-operative discussion and the physical presence of the staff anesthesiologist for the critical portions of the case.

Educational Resources

Recommended readings and references:

- Geriatric Anesthesia – ASA, (pdf) available attached or via the website below.
- Hagberg CA (ed), MD, Benumof's Airway Management, 2nd edition, Mosby, February 2007
- Anesthesia, ed Miller R, Section 4, Chapter 69; Anesthesia at Remote Locations
- Handouts prepared by faculty members;
- A Practica1 Approach to Vascular Anesthesia. Hensley, Martin and Gravlee; Lippincott Williams & Wilkins 2003 especially chapters 2 and 5-9;
- Anesthesia for Adult Vascular Surgery by Nyhan and Johns chapter in 2005 Miller;
- Anesthesia for Thoracic Surgery by Wilson and Benumof chapter in 2005 Miller;
- Practical Perioperative Transesophageal Echocardiography (CD-Rom included) by Sidebotham, Merry and Legget, 2003 Elsevier;
- Transesophageal Echocardiography in the Operating Room CD-Rom, Acuson Educational Services.

IMPORTANT PAPERS:

- McIntosh C, Dexter F, Epstein RH, MD. The Impact of Service-Specific

Staffing, Case Scheduling, Turnovers, and First-Case Starts on Anesthesia Group and Operating Room Productivity: A Tutorial Using Data from an Australian Hospital. Anesth Analg 2006;103:1499-1516.

- Dexter F, Epstein RH, Traub RD, Xiao Y. Making management decisions on the day of surgery based on operating room efficiency and patient waiting times. Anesthesiology. 2004 Dec;101(6):1444-53.
- Dexter F, Ledolter J, Wachtel RE. Tactical decision making for selective expansion of operating room resources incorporating financial criteria and uncertainty in sub-specialties' future workloads. Anesth Analg. 2005 May;100(5):1425-32.
- O'Neill L, Dexter F. Tactical increases in operating room block time based on financial data and market growth estimates from data envelopment analysis. Anesth Analg. 2007 Feb;104(2):355-68.
- Epstein RH, Dexter F. Economic analysis of linking operating room scheduling and hospital material management information systems for just in time inventory control. Anesth Analg. 2000 Aug;91(2):337-43.
- Dexter F, Traub RD. How to schedule elective surgical cases into specific operating rooms to maximize the efficiency of use of operating room time. Anesth Analg. 2002 Apr;94(4):933-42.
- Dexter F, Abouleish AE, Epstein RH, Whitten CW, Lubarsky DA. Use of operating room information system data to predict the impact of reducing turnover times on staffing costs. Anesth Analg. 2003 Oct;97(4):1119-26.
- Dexter F, Epstein RH, Marcon E, de Matta R. Strategies to reduce delays in admission into a postanesthesia care unit from operating rooms. J Perianesth Nurs. 2005 Apr;20(2):92-102.
- Dexter F, Epstein RH. Optimizing second shift OR staffing. AORN J. 2003 Apr;77(4):825-30.
- Dexter F, Aker J, Wright WA. Development of a measure of patient satisfaction with monitored anesthesia care: the Iowa Satisfaction with Anesthesia Scale. Anesthesiology. 1997 Oct;87(4):865-73. A Comparison of the Sedative, Hemodynamic, and Respiratory Effects of Dexmedetomidine and Propofol in Children Undergoing Magnetic Resonance Imaging: Koroglu, A et al: Anesth Analg 2006;103:63-7
- Dexmedetomidine vs midazolam for monitored anesthesia care during cataract surgery: Alhashemi, J: BJA 96 (6): 722-6 (2006)

Internet Resources

- Practice Guidelines for Management of the Difficult Airway http://www.asahq.org/publicationsAndServices/Difficult%20Airway.pdf
- Current Concepts in the Management of the Difficult Airway, http://www.asahq.org/rcls/RCLS_SRC/331_Hagberg.pdf
- The Virtual Anesthesia Textbook: Airway Management, http://www.virtual-anaesthesia-textbook.com/vat/intubation.html
- Difficult Airway Society, http://www.das.uk.com
- ASA Syllabus on Geriatric Anesthesia, http://www.asahq.org/clinical/geriatrics/PDFSyllabus5-011002.pdf

- American Geriatric Society, http://www.geriatricsatyourfingertips.org/
- Society for the Advancement of Geriatric Anesthesia, http://10085.hostinglogin.com/saga1/
- Geriatric Anesthesia: The Online Book, http://www.geriatric-anesthesia.com/
- University of Iowa, Department of Anesthesiology, Division of Management Consulting **http://www.franklindexter.net**
- American Society of Anesthesiologists: web site: "Practice- guideline for sedation and analgesia by non anesthesiologists "
- American Society of Anesthesiologists: web site: " Practice- guidelines for post anesthetic care "
- American Society of Anesthesiologists: web site:" Continuum of depth of sedation: definition of general anesthesia and levels of sedation/analgesia
- American Society of Anesthesiologists: web site: "Distinguishing monitored anesthesia care from moderate sedation/analgesia (conscious addition) "
- American Society of Anesthesiologists: web site:"Non operating room anesthetizing locations, guidelines for "
- American Society of Anesthesiologists: web site:"Safe use of propofol, statement on "
- Practice Advisory for the Perioperative Management of Patients with Vascular Rhythm Management Devices: Pacemakers and Implantable Cardioverter-Defibrillators from ASA website; http://www.asahq.org/publicationsAndServices/CRMDAdvisory.pdf
- Practice Guidelines for Perioperative Transesophageal Echocardiography from ASA website; http://www.asahq.org/publicationsAndServices/standards/TEE.pdf
- Practice Guidelines for Pulmonary Artery Catheterization from ASA website; http://www.asahq.org/publicationsAndServices/standards/Intravascular.pdf
- Practice Advisory for Intraoperative Awareness and Brain Function Monitoring from ASA website; http://www.asahq.org/publicationsAndServices/AwareAdvisoryFinalOct05.pdf

Social Justice

West Virginia University is committed to social justice. We concur with that commitment and expect to maintain a positive learning environment based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color, or national group. Any suggestions as to how to further such a positive and open environment in this rotation will be appreciated and given serious consideration.

Attached Addenda

Addendum 1: OR Management Content Outline
Addendum 2: OR Management Guide
Addendum 3: OR Management Educational Experience Checklist
Addendum 4: Difficult Airway Skills Content Outline

Curriculum Timeline

Written: Gary Loyd, M.D., David Wilks, MD, Matthew Watkins, DO February 26, 2007
Approved by the Anesthesiology Education Committee on 2-26-2007
Edited and Revised by Richard Driver, MD June 2007
Approved by the Anesthesiology Education Committee on 6-29-2007

Addendum 1

ACT: OR Management
Content Outline

A. Operations Management
- a. Scheduling considerations
- b. Allocation of operating room time
- c. Ambulatory surgery scheduling
- d. Operating room schedules
- e. Preoperative evaluations
- f. Day of surgery considerations

B. Clinical services
- a. Surgical subspecialties
- b. Surgical practice
- c. Organization of the surgical service
- d. Anesthesia practice (including guidelines)
- e. Organization of the anesthesia service
- f. University Medical Centers
- g. Off-site services
- h. Other clinical services
- i. Other professional relationships

C. Information management: Evidence-Based Operating Room Management
- a. Information systems design
- b. Medical information system
- c. Operating room information system
- d. Operating room database
- e. Data entry
- f. Report generation
- g. Operating room utilization analysis
- h. Operating room cost analysis
- i. Miscellaneous reports from operating room databases
- j. Procedure codes
- k. Data integrity
- l. Data confidentiality and security
- m. Operating room scheduling procedures
- n. The operating room schedule as an electronic report
- o. Scheduling work hours of personnel
- p. Scheduling patient flow: Preoperative Use of Facility

D. Standards, Quality and Consent
- a. Standards
- b. Operating room safety and occupational health
- c. JCAHO requirements
- d. Medical device tracking

e. Quality improvement
f. Identifying opportunities for self-improvement in the system
g. Informed consent

E. Crisis management

Prepared by Gary E. Loyd, MD, MMM on February 20, 2007
Approved by the Anesthesiology Education Committee on 2-26-06

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Addendum 2
ACT: OR Management Orientation Guide

Daily Duties of the OR Manager

- Check the OR schedule first thing in the morning (6:30 AM) for changes in cases and call-offs of anesthesia providers
- Coordinate with the nurse charge for placement of add-on urgent cases
- Check for the arrival of the first start patients
- Plan for the breaks and lunches for anesthesia providers
- Anticipate the educational needs of the residents
- Acquire the OR schedule draft for the day after tomorrow
- Acquire the OR staffing schedule for the personnel for the day after tomorrow
- Acquire the educational needs of the residents

Short-term Responsibilities of the OR Manager

- Make out the OR schedule for the day after tomorrow, assigning request cases and assigning the residents to their educational needs
- Rearrange any cases to manage scheduling conflicts

Long-term Responsibilities of the OR Manager

- Look two weeks ahead for problems arising in the scheduling of cases and the number and type of anesthesia providers
- Seek resolution of conflicts anticipated in the future OR schedules
- Analyze the most recent performance data for efficiency.

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Addendum 3
ACT: OR Management Educational Experience Check List

Resident_____ Rotation Date_____

	Staff	Resident	Date
Materials:			
Orientation Guide	_____	_____	_____
Curriculum	_____	_____	_____
Educational Material:			
Assigned Reading	_____	_____	_____
Assessment:			
Day 1 Manager	_____	_____	_____
Day 2 Manager	_____	_____	_____
Day 3 Manager	_____	_____	_____
Portfolio (Schedule 1)	_____	_____	_____
Portfolio (Schedule 2)	_____	_____	_____
Portfolio (Schedule 2)	_____	_____	_____

Rotation Chief _____ Date_____

Addendum 4
ACT: Difficult Airway Skills
Content Outline

1) Airway Blocks
   a) Anterior Ethmoid Nerve (AEN)
   b) Sphenopalatine Ganglion Block (SGB)
   c) Superior Laryngeal Nerve (SLN)
   d) Lingual Branch Glossal Pharyngeal Nerve (LBGPN)
   e) Recurrent Laryngeal Nerve (RLN)
   f) 3 mg/kg Cocaine use
   g) 5 mg/kg Xylocaine use
   h) Atomizer/Nebulizer droplet size
   i) AEN/SGB with 4% xylocaine atomizer
   j) Extraoral SLN hyoid block, 1.5% xylocaine injection
   k) Extraoral SLN superior cornu thyroid block, 1.5% xylocaine injection
   l) Intraoral SLN block, pyriform fossa, 4% topical xylocaine
   m) Intraoral LBGPN, inferior tonsilar pole, 4% topical xylocaine
   n) Intraoral LBGPN, base of palato/pharyngeal arch, 1.5% xylocaine injection
   o) Transtracheal RLN block
   p) Intraoral 4% xylocaine atomizer
   q) Intraoral 2% xylocaine atomizer
   r) Mask 4% xylocaine nebulizer
   s) Mask 2% xylocaine nebulizer
   t) Lingual 5% Xylocaine Ointment

2) Induction
   a) Awake
   b) Conscious Sedation
   c) Inhalation
   d) IV

3) Ett
   a) PVC
   b) ILMA
   c) Endotrol
   d) Reinforced
   e) Anatomy
      (1) Anterior/Posterior/Left/Right
      (2) Radiopaque line
      (3) Letering
      (4) Relation to Murphy eye

4) Fiberscope
   a) Anatomy

i) Eyepiece
   (a) Depth of field
   (b) Field of view
   (c) Degrees of up/down and bending radius
ii) Tip Bending Lever
   (a) Working Above the Head vs Below
   (b) Which way the lever moves the tip
   (c) Rotation and inversion of the image
iii) Control Section
   (a) Coordinated vs. uncoordinated rotation
iv) Working Channel
   (a) Suction/inject drugs/insufflate O2/biopsy
   (b) Epidural catheter for spray as you go
   (c) Guide wire use
v) Insertion Cord/Tube
   (a) Working Channel
   (b) Light guide
   (c) Image transmission
      (i) Coherent bundle arrangement and individual fiber isolation
      (ii) Smaller fibers and more/bundle gives better optics
      (iii) Each fiber transmits to eyepiece like pixels on a television
      (iv) Fibers cause grainy appearance
      (v) Focus by objective lens in eyepiece
      (vi) Black spots are broken fibers
      (vii) Videobronchoscopes
         a. Distal CCD camera behind objective lens
         b. Transmitted digitally to screen; no eyepiece
      (viii) Tip bending control wires
         a. Hinged metal rings
         b. Flexible rubber covering and “accordion “effect
vi) Universal Cord
   (a) Incoherent bundles
   (b) Venting Connector
   (c) Light guide: push all the way in

b) Olympus LF-GP
c) Olympus LF-DP
d) Olympus LF-P
e) Olympus LF-2
f) Olympus 3C-Adult
g) Olympus 3C- 160
h) Olympus 3C-40
i) Olympus 3C-20
j) Thoracic Fiberscope Airway Cart and fiberscope adapters
k) Fiberscopes used on both anesthesia and thoracic airway cart
l) Berman Airway
m) Ovasappian Airway

n) Lma Unique/Classic cut down
o) LMA Unique/Classic epiglottic bars removed
p) Ett placed thru Proseal with # 19 Aintree AEC
q) Ett placed thru Proseal without Aintree AEC
r) Ett placed thru Unique/Classic with # 19 Aintree AEC
s) Ett placed thru Unique/Classic without Aintree AEC
t) Bullard assisted Fiberscope with Ett
u) Bullard assisted Fiberscope with Aintree AEC
v) # 19 Aintree AEC, 7.0 Ett and up
w) # 14 AEC placed into Aintree to lengthin Aintree
x) # 11 AEC inside the Aintree, remove Aintree, size down to ETT 4.0-6.5
y) Guide wire use in Fiberscope suction channel
z) Fiberscope Masks

5) Bullard
a) Child
b) Adult
c) Fiberscope guided Ett off MFS
d) Fiberscope guided Ett independent of Bullard
e) Bullard placed # 11 AEC thru MFS, then Ett over AEC from MFS
f) Bullard placed # 11 AEC thru MFS, Bullard removed, Ett over AEC
g) Bullard placed # 8 AEC thru Bullard suction, Bullard removed, Ett over AEC
h) Guide wire placed in Bullard suction channel
i) # 8/11 AEC placed over guide wire, then Ett placed over AEC
j) # 11 AEC, Ett 4.0-6.5
k) # 19 Aintree placed over # 11 AEC sizes Ett to 7.0 and above
l) # 14 AEC placed into Aintree to lengthen Aintree

6) ILMA
a) Original blind/tactile technique with ILMA ETT
b) Original blind/tactile technique with PVC/Endotrol ETT
c) Fiberscope assisted ILMA ETT
d) Fiberscope assisted PVC/Endotrol ETT
e) Lightwand assisted ILMA ETT
f) Lightwand assisted PVC/Endotrol ETT
g) Chandy maneuver
h) # 19 Aintree AEC with Fiberscope

7) LightWand
a) Original blind lightwand/tactile technique
b) Lightwand assisted rigid laryngoscopy

8) Cricothyrotomy
a) Elective
b) Emergent
c) 1% xylocaine injection

d) 4% topical xylocaine
e) Child Melker
f) Adult Melker
g) Vessel Dilator Crcothyrotomy (VDCT)
h) # 18 IV needle
i) # 16 IV needle
j) # 14 IV needle
k) Guide wire use # 8 dilator
l) # 6 dilator
m) # 5 dilator

9) One Lung Isolation
   a) Anatomy via fiberscope
   b) #11 EF 100 cm AEC
   c) Double Lumen Tube
      i) Anatomy
         (1) 35 is an id 5.0

10) Bronchial Blocker
   a) Univent
   b) Arndt

11) Jet Ventilation
   a) 100% O2
   b) o2 blender
   c) PSI vs CM H20
      i) 1 psi=70 cm H20

12) Special Larynscopes
   a) Trigger Blade
   b) Ent Tubular blade

13) Retrograde Intubation
   a) Original technique
   b) Fiberscope guided

14) Combitube