

## **Exempla Saint Joseph's Hospital Cardiac Anesthesia Practice Site**

Approximately 400 cardiopulmonary bypass cases are performed annually at Exempla Saint Joseph's Hospital (ESJH). The majority of the anesthetic care for these cases is provided by the Colorado Permanente Medical Group, PC - Cardiac Anesthesia Group.

1. **ORIENTATION:** All residents will complete an orientation prior to being assigned clinical cases at ESJH.

### **ID AND PARKING:**

An Exempla ID has been provided for the cardiac anesthesia residents. This badge will be kept at the University by Dr. Ferenc Puskas. Please arrange to get the badge the day before you are scheduled to be at St. Joe's so you will have access to parking and the hospital.

### **LOCKERS:**

Day use lockers are provided:

Male locker room: locker #88, combination; 1-7-21

Female locker room: locker #317b combination; 30-16-34

### **OPERATING ROOM ORIENTATION:**

Once you are settled with your ID card and locker you will change into hospital scrubs and report to the main OR desk and ask to have one of the cardiac anesthesiologists on duty paged. You will then meet with that individual and get a brief orientation to the preoperative area, pharmacy procedures and operating room layout.

2. **CLINICAL ASSIGNMENTS:** As the UCHSC schedule permits UCHSC scheduling personnel will assign residents to the ESJH cardiac anesthesia practice site. Once assigned it is the resident's responsibility to contact CPMG schedulers for more details regarding the scheduled case and assigned CPMG staff.

Please contact the CPMG schedulers (prior to 5:00 PM) at **303-764-4402**. They will be able to provide you with the cardiac surgery schedule and the names of the assigned CPMG cardiac anesthesia staff. Please attempt to call the CPMG staff the night before (contact roster attached).

If assignments are made after 5:00 PM the ESJH main OR personnel may be able to provide case details (Main OR **303-837-7640** or **Scheduling Desk 303-837-7631**).

Residents should be in scrubs and ready to set up the OR and prep the patient one hour before the scheduled start time (typically 6:30 AM on Mondays and

Wednesdays and 7:30 on Tuesday, Thursday and Friday). Plan to set up the OR, interview the patient and start the arterial line before the scheduled start time of the case. Narcotics will be signed out by the attending Anesthesiologist. Be prepared to discuss any and all aspects of planned anesthetic care and relevant TEE aspects of the planned procedure.

If last minute UCHSC clinical assignments conflict with your ESJH assignment please make every reasonable attempt to notify the CPMG staff of this conflict. This can be done either by paging the staff member directly or leaving a message with the main OR desk (303-837-7640) or the scheduling desk (303-837-7631).

Following the completion of the scheduled procedure plan to debrief the case with the CPMG staff and review the TEE for a formal report.

**3. OPTIONAL CONFERENCES:** UCHSC residents are welcomed to attend but are not required to attend monthly TEE conferences. The anesthesiologist conduct a monthly TEE conference held in the OR area (7:30 am on the second Friday of the month) and a TEE CQI conference (7:30am on 4<sup>th</sup> Friday of the month).

**4. CONTACT INFORMATION:**

**ESJH MAIN/OPERATOR NUMBER: 303-837-7640**

**MAIN OPERATING ROOM NUMBER: 303-837-7111**

**PARKING/ID OFFICE: 303-837-7343 (POC Kevin or Donna)**

**CPMG SCHEDULING OFFICE NUMBER: 303-764-4402 (POC Dee or Susan)**

**CPMG CARDIAC ANESTHESIOLOGISTS**

**BILL BEAMGARD  
BILLBEAMGARD@SPRINTMAIL.COM  
P 203-1527**

**MARK CALKIN  
MTCALKIN@COMCAST.NET  
P 203-0634**

**PAUL M. CHETHAM  
PCHETHAM@MSN.COM  
P 203-4809**

**GREG DEWERD  
GDEWERD@GMAIL.COM  
P 203-5922**

**SANDRA FRITZ  
SANDRAFRITZ90@GMAIL.COM  
P 203-1605**

**ERIC HELANDER  
EHELANDER@COMCAST.NET  
P 203-5190**

**PETER HESSION  
PMHESSION@GMAIL.COM  
P 203-4175**

**EDWIN LEE  
EDWLEE@POL.NET  
P 203-1579**

**LUKE OSBORNE  
LUKE200200@YAHOO.COM  
P 203-4897**

**SCOTT SWARTZ  
SCOTTSWRTZ1@GMAIL.COMH (303)  
P 203-6179**

**MISCELLANEOUS NUMBERS:**

**ESJH MAIN NUMBER: 837-7111  
MAIN OR DESK: 837-7640  
SCHEDULING DESK: 837-7631  
ANESTHESIA OFFICE:  
831-6792,3,5  
PREOP: 837-7649  
PACU: 837-7650  
OR 14: 837-6654  
OR 15 837-6655  
ADMISSIONS: 837-7155  
ER: 831-6700  
MEDICAL RECORDS:  
837-6638  
OR PHARMACY: 837-7684**

**DENVER CARDIAC SURGERY**

**MARK AMMONS, MD  
STAN CARSON, MD  
KEVIN MILLER, MD  
JASON SHOFNOS, MD**

**2005 FRANKLIN STREET  
SUITE 700  
DENVER, CO 80208  
303-832-6165**

# CARDIOTHORACIC ANESTHESIA ROTATION FOR CA-2 RESIDENTS

## Goals and Objectives

**Definition** – The rotation for adult cardiothoracic anesthesiology is a two month rotation in the CA-2 year for cardiothoracic anesthesiology. The rotation focuses on all elements of the perioperative care of patients for all forms of cardiac surgery. In the CA2 year, the emphasis will be on exposure to coronary revascularization, valve replacement, valve repair, and interventional cardiology experiences such as atrial fibrillation ablation procedures. Some exposure to ventricular remodeling procedures, left ventricular aneurysm repairs, thoracic aortic surgery, and cardiac transplantation will also occur, however these experiences will be targeted more at the CA-3 resident rotation. In addition, the rotation focuses on all elements of anesthesiology for thoracic surgery, including bronchoscopy, mediastinoscopy, thoracotomy, lung resection, pneumonectomy, lung volume reduction and lung transplantation. The emphasis is to identify the special elements of anesthesia in different types of cardiothoracic surgery.

**Curriculum** – The goal is to provide a broad exposure to all elements of anesthesia for adult cardiac surgery. The clinical experience is supplemented by a manual, a book, a weekly subspecialty conference and a monthly journal club. In addition, the rotation provides clinical experiences with all elements of thoracic anesthesiology including: preoperative assessment, consultation, placement of arterial and pulmonary artery catheters, use of hemodynamic monitoring to make bedside decisions, obtaining and using basic transesophageal echocardiography views, management of thoracic epidural analgesia, double lumen endotracheal tube placement with confirmation of the position, fiberoptic bronchoscopy, and one-lung ventilation. The emphasis is to establish appropriate anesthesia plan for different types of cardiothoracic procedures based on clinical and laboratory data.

**Medical Knowledge** – At the conclusion of this rotation, the resident should be able to:

1. Describe the anatomy and physiology of the normal heart.
2. Discuss pharmacology pertinent to the cardiovascular system.
3. Identify inotropic and vasoactive drugs and their role in anesthetic management of cardiac cases.
4. Describe coronary artery anatomy and disease
5. Understand and describe myocardial oxygen supply and demand.
6. Describe valvular heart diseases.
7. Explain anesthetic implications of coronary artery and valvular heart diseases.
8. Describe the pathophysiology and the anesthesia implications of thoracic aortic surgery.
9. Discuss and explain the rationale of induction and maintenance of anesthesia techniques for cardiothoracic surgery.
10. Discuss the basic physiology and mechanics of mechanism of cardiopulmonary bypass and anesthetic management during cardiopulmonary bypass.
11. Explain the sequential steps in cardiopulmonary resuscitation.

12. List the indications, and potential complications of:
  - a. arterial catheterization
  - b. central venous catheterization
  - c. pulmonary artery catheterization
  - d. bronchoscopy
  - e. double lumen tube placement
  - f. epidural catheters
13. Describe common problems and their treatment during postoperative recovery of the uncomplicated cardiac surgery patient.
14. Describe the pharmacology of Heparin and Protamine.
15. Describe the TEG and other coagulation laboratory parameters used for evaluate the coagulation system during cardiac surgery.
16. Describe the role of different anti-fibrinolytic agents in cardiac surgery.
17. Describe the management of ventilation of the uncomplicated cardiac/thoracic surgery patient.
18. Describe preoperative assessment for thoracic surgery including the use of arterial blood gases and pulmonary function tests to predict short-term and long-term postoperative patient outcomes.
19. Describe risks of prolonged intubation.
20. Describe indications for lung isolation.
21. Describe one-lung ventilation and the management of hypoxemia during one lung ventilation. .
22. Describe physiological responses to major lung resection and pneumonectomy.
23. Describe chest tube placement and rationale.
24. Describe different techniques of analgesia for thoracic surgery.
25. Describe the expected postoperative recovery of the uncomplicated thoracic surgery patient.
26. Understand the basics of TEE, find the basic views and recognize normal anatomy.
27. Understand the problems associated with transporting critically ill patients to and from the operating rooms.

**Patient Care** – At the conclusion of this rotation, the resident should be able to:

1. Insert, manage, and interpret the results of arterial catheterization, central venous catheterization and pulmonary artery catheterization with faculty assistance.
2. Prepare the patient for cardiopulmonary bypass.
3. Manage the patient care during cardiopulmonary bypass.
4. Prepare the patient for coming off cardiopulmonary bypass.
5. Prepare patients for transport to the SICU after cardiac surgery in a safe and timely manner.
6. Transport the patient into the SICU safely.
7. Give detailed report about the patient with continuous vigilance about the patient's hemodynamic status.
8. Perform fiberoptic bronchoscopy with faculty assistance.

9. Insert and manage double lumen endotracheal tubes with diminishing faculty assistance over the course of the rotation(s).
10. Place and manage epidural catheters for patients having cardiothoracic surgery.
11. Identify patients who are at high risk for perioperative complications such as cardiogenic shock and respiratory failure.
12. Conduct one lung ventilation with minimal staff assistance.
13. Recognize acute respiratory failure.
14. Safely reintubate patients after thoracotomy when indicated.
15. Recognize massive intrathoracic bleeding.
16. Initiate appropriate analgesia after thoracic surgery.
17. Transfer thoracic patients to the PACU and ICU with minimal staff assistance.

**Communication and Interpersonal Skills** – At the conclusion of this rotation, the resident should be able to:

1. Identify the relevant preoperative information needed for a specific anesthesia plan for cardiac surgery.
2. Communicate effectively with the anesthesia attending and the cardiac surgery team to establish effective management for the patient.
3. Identify the stage of the cardiac surgical procedure quickly by observation of the surgical field, and by interaction with the surgical team to prepare for the next step.
4. Collect the relevant preoperative information needed to plan anesthesia for thoracic surgery.
5. Identify the stage of the thoracic surgical procedure quickly by observation of the surgical field, and by interaction with the surgical team to prepare for the next step.
6. Give detailed report about the patient in PACU or SICU.

**Professionalism** – At the conclusion of this rotation, the resident will be able to:

1. Respect the patient's needs during preparation for anesthesia.
2. Prepare the patient for cardiothoracic surgery and invasive monitoring.
3. Properly perform consultative and preoperative assessments.
4. Act as a member of the cardiac anesthesia team.
5. Effectively communicate with the surgical team.

### **Systems based practice**

1. Complete the appropriate paperwork and computer work for preoperative, intraoperative, and postoperative documentation.
2. Understand billing and collections for transesophageal echocardiography

## EVALUATION OF CA-2 ANESTHESIOLOGY RESIDENTS IN THE CARDIOTHORACIC ROTATION

Evaluator:

Subject:

### PROFESSIONALISM

- Respectful for patients, families and other members of the health care team.
- Properly performs consultative and preoperative assessments.
- Communicates effectively with the anesthesia attending to establish the anesthesia management.
- Communicates effectively with the cardiothoracic surgery team to establish the best patient care.
- Safely prepares the patient for invasive monitoring.

### MEDICAL KNOWLEDGE

- Exhibits knowledge that is up to date and appropriate to level of training.
- Investigates topics needed for clinical assignments.
- Considers range of potential anesthetic plans for different cardiothoracic surgery cases.
- Understands the normal anatomy and physiology of the heart.
- Understands pharmacology pertinent to the cardiovascular system.
- Understands coronary artery and valvular heart diseases and their anesthesia implications.
- Understands the pathophysiology and the anesthesia implications of the diseases of the aorta.
- Understands the mechanism and anesthesia implications of cardiopulmonary bypass.
- Knows sequential steps in cardiopulmonary resuscitation.
- Manages the ventilation of the uncomplicated cardiac/thoracic surgery patient.
- Makes assessment of patients for thoracic surgery.
- Understands the physiological responses to major lung resection and pneumonectomy.

### PATIENT CARE

- Gathers appropriate pre-procedure information, orders tests and interprets data properly.
- Inserts, manages, and interprets the results of arterial catheterization, central venous catheterization and pulmonary artery catheterization with minimal staff assistance in the majority of cases.
- Follows the surgery and the patient status during cardiopulmonary bypass.

- Prepares the patient for transport after cardiopulmonary bypass in an organized and timely manner.
- Transports the patient to SICU safely with vigilance to the clinical parameters.
- Gives report in SICU with vigilance to the clinical parameters.
- Places and manages epidural catheters for patients having cardiothoracic surgery.
- Performs fiberoptic bronchoscopy with minimal staff assistance in the majority of cases.
- Insert and manage double lumen endotracheal tubes with minimal staff assistance in the majority of cases.
- Conduct one lung ventilation with minimal staff assistance.
- Responds appropriately to changes in patients' clinical parameters.
- Transfer thoracic patients to the PACU and ICU with minimal staff assistance.

### CLINICAL/TECHNICAL SKILLS

- Appropriate and rapid room preparation and machine testing.
- Safe performance of general anesthesia with appropriate airway management skills.
- Careful and timely placement of invasive monitors.
- Prepare the patient for cardiopulmonary bypass.
- Timely preparation for separation from cardiopulmonary bypass.
- Active participation in the process of separation from cardiopulmonary bypass.
- Effective preparation of the patient for the transport to the SICU.
- Performs double lumen tube placement.
- Change double lumen tube to single lumen tube.
- Performs regional anesthesia including drug and technique selection.
- Placement of invasive monitors.
- Understands the basics of TEE, finds the basic views and recognizes normal anatomy.

### INTERPERSONAL AND COMMUNICATION SKILLS

- Communicates effectively with patients including gaining informed consent.
- Communicates effectively with colleagues and other health care professionals.
- Identifies the relevant preoperative information needed to plan anesthesia for cardiothoracic surgery.
- Recognizes the stage of the surgical procedure quickly by observation and interaction with the anesthesia attending.
- Medical records are legible, comprehensive and timely.

### PRACTICE-BASED LEARNING AND IMPROVEMENT

- Uses information technology effectively; able to perform a literature search.
- Constant self-evaluation; uses feedback from patients and other care givers.



- Incorporates principles of evidence-based medicine into anesthesia practice (e.g. practice guidelines).
- Knows basic articles in connection with the effect of cardiopulmonary bypass on coagulation, cardiovascular and cerebral system.
- Knows basic articles about administration of antifibrinolytic and coagulation agents.

#### SYSTEMS-BASED PRACTICE

- Practices cost-effective medicine that does not compromise quality of care.
- Knows the indications of administration of especially expensive medications.
- Uses resources and consults appropriately.
- Uses protocols and practice guidelines to reduce error, improve outcome.