

Adult Cardiothoracic Anesthesiology Levels of Care

PROCEDURE/SKILL	LEVEL OF CARE	SUPERVISION	MILESTONE	COMPETENCY
Performs pre-procedural assessment and optimization of common cardiothoracic disease, with direct supervision	PGY 5 Fellow Level 1	Direct	PC	Patient Care
Safely manages transport of stable cardiothoracic patients, with indirect supervision	PGY 5 Fellow Level 1	Indirect	PC	Patient Care
Recognizes presence of early post-operative cardiopulmonary and hematologic complications	PGY 5 Fellow Level 1	Direct	PC	Patient Care
Independently obtains basic ultrasound images for cardiovascular monitoring, vascular access, and emergency evaluation	PGY 5 Fellow Level 1	Direct	PC	Patient Care
Performs standard lung isolation techniques with fiberoptic bronchoscopic guidance	PGY 5 Fellow Level 1	Direct	PC	Patient Care
Obtains vascular access in complex clinical situations, with conditional independence	PGY 5 Fellow Level 1	Direct	PC	Patient Care
Interprets basic pharmacologic principles of anesthetic, vasoactive, inotropic, and pulmonary drugs to routine patient management	PGY 5 Fellow Level 1	Indirect	MK	Medical Knowledge
Integrates knowledge of pathophysiology of common cardiopulmonary diseases into management of routine intra-thoracic procedures	PGY 5 Fellow Level 1	Indirect	MK	Medical Knowledge
Seeks constructive feedback from faculty members and colleagues	PGY 5 Fellow Level 1	Direct	Prof	Professionalism
Effectively communicates routine information in a respectful and culturally-sensitive manner	PGY 5 Fellow Level 1	Indirect	ICS	Interpersonal & Communication Skills
Obtains informed consent/assent for routine procedures, using language appropriate to the patient's and family's level of understanding	PGY 5 Fellow Level 1	Indirect	ICS	Interpersonal & Communication Skills
Recognizes situations where communication of information requires the assistance of another individual and asks for help	PGY 5 Fellow Level 1	Direct	ICS	Interpersonal & Communication Skills

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Recognizes that institutional resources are available to assist with disclosure of medical errors	PGY 5 Fellow Level 1	Indirect	ICS	Interpersonal & Communication Skills
Performs pre-procedural assessment and optimization of complex and less common cardiothoracic disease, with direct supervision	PGY 5 Fellow Level 2	Direct	PC	Patient Care
Safely manages transport of unstable cardiothoracic patients, with direct supervision	PGY 5 Fellow Level 2	Direct	PC	Patient Care
Identifies and manages early post-operative cardiopulmonary and hematologic complications, with direct supervision	PGY 5 Fellow Level 2	Direct	PC	Patient Care
Safely and accurately obtains images of the comprehensive peri-operative transesophageal echo (TEE) exam, with supervision	PGY 5 Fellow Level 2	Indirect	PC	Patient Care
Manages advanced lung isolation techniques with fiberoptic bronchoscopic guidance, with direct supervision	PGY 5 Fellow Level 2	Direct	PC	Patient Care
Demonstrates vascular access expertise at a broad range of anatomic sites, with direct supervision	PGY 5 Fellow Level 2	Direct	PC	Patient Care
Applies basic pharmacologic principles of anesthetic, vasoactive, inotropic, and pulmonary drugs to complex patient management	PGY 5 Fellow Level 2	Indirect	MK	Medical Knowledge
Integrates knowledge of pathophysiology of cardiopulmonary diseases into management of complex intra-thoracic procedures	PGY 5 Fellow Level 2	Indirect	MK	Medical Knowledge
Provides constructive feedback in a tactful and supportive way to residents and medical students	PGY 5 Fellow Level 2	Indirect	Prof	Professionalism
Accepts feedback from faculty members and incorporates suggestions into practice	PGY 5 Fellow Level 2	Direct	Prof	Professionalism

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Effectively uses appropriate resources (e.g., translator, patient representative) to optimize communication	PGY 5 Fellow Level 2	Indirect	ICS	Interpersonal & Communication Skills
Manages simple patient and family conflicts	PGY 5 Fellow Level 2	Indirect	ICS	Interpersonal & Communication Skills
Identifies situations where patient and family conflicts exist, and appropriately seeks assistance with resolution	PGY 5 Fellow Level 2	Indirect	ICS	Interpersonal & Communication Skills
Performs pre-procedural assessment and optimization of complex and less common cardiothoracic disease, with indirect supervision	PGY 5 Fellow Level 3	Indirect	PC	Patient Care
Safely manages transport of unstable cardiothoracic patients, with indirect supervision	PGY 5 Fellow Level 3	Indirect	PC	Patient Care
Identifies and manages early post-operative cardiopulmonary and hematologic complications, with indirect supervision	PGY 5 Fellow Level 3	Indirect	PC	Patient Care
Safely and accurately obtains images of the comprehensive peri-operative TEE exam, independently	PGY 5 Fellow Level 3	Indirect	PC	Patient Care
Manages advanced lung isolation techniques with fiberoptic bronchoscopic guidance, with indirect supervision	PGY 5 Fellow Level 3	Indirect	PC	Patient Care
Demonstrates vascular access expertise at a broad range of anatomic sites, with indirect supervision	PGY 5 Fellow Level 3	Indirect	PC	Patient Care
Applies advanced understanding of pharmacokinetics and pharmacodynamics of anesthetic, vasoactive, inotropic, and pulmonary drugs to complex patient management	PGY 5 Fellow Level 3	Indirect	MK	Medical Knowledge
Integrates advanced knowledge of pathophysiology of cardiopulmonary diseases into management of complex intra-thoracic procedures	PGY 5 Fellow Level 3	Indirect	MK	Medical Knowledge
Consistently seeks feedback from patients, family members, and other members of the care team (i.e., multisource feedback)	PGY 5 Fellow Level 3	Direct	Prof	Professionalism

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Correlates feedback with self-reflection, and incorporates it into lifelong learning to enhance patient care	PGY 5 Fellow Level 3	Indirect	Prof	Professionalism
With minimal supervision, manages patient and family conflicts in complex situations (e.g., cultural factors, end-of-life issues, custodial issues), including in communication with persons of different socioeconomic and cultural backgrounds	PGY 5 Fellow Level 3	Indirect	ICS	Interpersonal & Communication Skills
Understands the importance of disclosing medical errors or complications to patients and/or families	PGY 5 Fellow Level 3	Indirect	ICS	Interpersonal & Communication Skills
Effectively participates in multidisciplinary communication	PGY 5 Fellow Level 3	Indirect	ICS	Interpersonal & Communication Skills
Consults appropriate institutional resources (e.g., Risk Management, Bioethics Committee)	PGY 5 Fellow Level 3	Indirect	ICS	Interpersonal & Communication Skills
Performs pre-procedural assessment and optimization of complex and less common cardiothoracic disease, with conditional independence	PGY 5 Fellow Level 4	Indirect	PC	Patient Care
Safely manages transport of unstable cardiothoracic patients, with conditional independence	PGY 5 Fellow Level 3	Indirect	PC	Patient Care
Identifies and manages early post-operative cardiopulmonary and hematologic complications, with conditional independence	PGY 5 Fellow Level 4	Indirect	PC	Patient Care
Obtains TEE images to guide surgical decision-making for assessment of complex anatomy and circulatory assist devices, with conditional independence	PGY 5 Fellow Level 4	Indirect	PC	Patient Care
Demonstrates expert application of fiberoptic bronchoscopy to assess anatomy distal to the carina and use of bronchoscopy for lung isolation and tracheo-bronchial toilet, with conditional independence	PGY 5 Fellow Level 4	Indirect	PC	Patient Care
Demonstrates vascular access expertise at a broad range of anatomic sites, with conditional independence	PGY 5 Fellow Level 4	Indirect	PC	Patient Care

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Expertly applies advanced understanding of pharmacokinetics and pharmacodynamics of anesthetic, vasoactive, inotropic, and pulmonary drugs to complex patient management	PGY 5 Fellow Level 4	Indirect	MK	Medical Knowledge
Integrates advanced knowledge of pathophysiology of complex and less common cardiopulmonary disease into comprehensive management of complex intra-thoracic procedures	PGY 5 Fellow Level 4	Indirect	MK	Medical Knowledge
Provides constructive feedback in a tactful and supportive way to physician and non-physician members of the care team to enhance patient care	PGY 5 Fellow Level 4	Indirect	Prof	Professionalism
With conditional independence, manages patient and family conflicts in complex situations	PGY 5 Fellow Level 4	Indirect	ICS	Interpersonal & Communication Skills
Discloses medical errors or complications to patients and/or families with indirect supervision	PGY 5 Fellow Level 4	Indirect	ICS	Interpersonal & Communication Skills
Recognized as an expert resource in peri-procedural assessment and management	PGY 5 Fellow Level 5	Indirect	PC	Patient Care
Creates protocols and procedural guidelines for peri-procedural assessment and management	PGY 5 Fellow Level 5	Indirect	SBP	System Based Practice
Recognized as an expert resource in peri-operative TEE image acquisition	PGY 5 Fellow Level 5	Indirect	PC	Patient Care
Recognized as an expert institutional resource for challenging vascular access problems	PGY 5 Fellow Level 5	Indirect	PC	Patient Care
Recognized (through scholarship or education of others) as an expert resource in advanced understanding of pharmacokinetics and pharmacodynamics of anesthetic, vasoactive, inotropic, and pulmonary drugs to complex patient management	PGY 5 Fellow Level 5	Indirect	MK	Medical Knowledge

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Effectively seeks and provides constructive feedback in challenging situations (e.g., when there is resistance, when there are adverse outcomes, or when an experienced practitioner is involved)	PGY 5 Fellow Level 5	Indirect	Prof	Professionalism
Consistently ensures effective communication and resolution of concerns occur with patients and/or families	PGY 5 Fellow Level 5	Indirect	ICS	Interpersonal & Communication Skills
Independently manages patient and family conflicts in all situations	PGY 5 Fellow Level 5	Indirect	ICS	Interpersonal & Communication Skills
With conditional independence, discloses medical errors or medical complications to patients and/or families	PGY 5 Fellow Level 5	Indirect	ICS	Interpersonal & Communication Skills
Models cross-cultural communication and establishes therapeutic relationships with persons of diverse socioeconomic and cultural backgrounds	PGY 5 Fellow Level 5	Indirect	ICS	Interpersonal & Communication Skills
Understands the value of disseminating educational information to medical students, residents, and other health care team members Communicates plans for care and their rationale to other health care providers, with prompting	PGY 5 Fellow Level 1	Direct	PBL	Problem Based Learning & Improvement
With indirect supervision, effectively explains clinical decision making and its rationale to other members of the health care team Effectively presents relevant information at educational conferences	PGY 5 Fellow Level 2	Indirect	PBL	Problem Based Learning & Improvement
Seeks opportunities to provide thoughtful and relevant communication to other members of the health care team in the clinical setting and in presentations at educational conferences Coordinates conferences and case discussions	PGY 5 Fellow Level 3	Direct	PBL	Problem Based Learning & Improvement
Actively promotes education of all team members and other providers regarding clinical practice and optimizing patient care Disseminates educational research through presentations and/or publications	PGY 5 Fellow Level 4	Direct	PBL	Problem Based Learning & Improvement

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Develops patient-oriented educational materials to optimize communication with patients and families Develops an educational curriculum for members of the health care team to optimize understanding of clinical issues and quality of care Serves as a role model for teaching and mentoring	PGY 5 Fellow Level 5	Indirect	PBL	Problem Based Learning & Improvement
Completes assigned/recommended readings; reviews literature related to specific patient problems Participates in journal clubs, morbidity and mortality conferences, and other educational activities	PGY 5 Fellow Level 1	Direct	PBL	Problem Based Learning & Improvement
Critically evaluates the scientific literature and understands limitations in addressing clinical issues Uses self-directed literature review to modify patient care	PGY 5 Fellow Level 2	Indirect	PBL	Problem Based Learning & Improvement
Independently integrates evidence-based practices into clinical care Participates in clinical research projects within the subspecialty Analyzes and modifies practice based on self-directed learning Identifies resources to facilitate critical appraisal of the literature (e.g., data analysis, statistics, and research design)	PGY 5 Fellow Level 3	Indirect	PBL	Problem Based Learning & Improvement
Participates in development of evidence based clinical protocols and guidelines Identifies opportunities to improve personal clinical practices and learning from multiple sources	PGY 5 Fellow Level 4	Direct	PBL	Problem Based Learning & Improvement
Participates in editorial reviews and other scholarly activities for peer-reviewed medical journals Participates in professional society and other activities to advance scholarship	PGY 5 Fellow Level 5	Indirect	PBL	Problem Based Learning & Improvement

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Needs prompting to consistently incorporate patient safety principles into clinical practice Needs prompting to incorporate principles of continuous quality improvement into clinical practice	PGY 5 Fellow Level 1	Direct	SBP	System Based Practice
Identifies common causes of clinical errors and medical device-related hazards and complications, and communicates them to faculty and staff members Reports near-misses and complications associated with clinical care using incident reporting system	PGY 5 Fellow Level 2	Indirect	SBP	System Based Practice
Identifies opportunities and activities to optimize patient safety and quality of care, and initiates quality improvement processes to address them Collaborates with colleagues to identify ways to reduce the occurrence of near-misses and complications Participates in root cause analyses and sentinel event reviews	PGY 5 Fellow Level 3	Direct	SBP	System Based Practice
Substantially participates in a patient safety or quality improvement project Identifies opportunities to improve practice to optimize patient care Utilizes data about clinical practice to define opportunities to improve patient care	PGY 5 Fellow Level 4	Indirect	SBP	System Based Practice
Leads a patient safety or quality improvement initiative	PGY 5 Fellow Level 5	Direct	SBP	System Based Practice
Needs prompting to consider costs of medications, devices, tests, and procedures when making clinical decisions	PGY 5 Fellow Level 1	Direct	SBP	System Based Practice
Understands general concepts related to the economics of clinical practice, including to the costs of care, cost vs. charge relationships, and cost-benefit implications when selecting medications, devices, tests, and procedures	PGY 5 Fellow Level 2	Indirect	SBP	System Based Practice
Consistently integrates cost awareness and cost benefit analysis into clinical practice	PGY 5 Fellow Level 3	Indirect	SBP	System Based Practice

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Substantially contributes to programs to reduce costs and improve efficiency of clinical care Identifies opportunities to reduce total costs of care without compromising patient outcomes	PGY 5 Fellow Level 4	Indirect	SBP	System Based Practice
Leads a team or teams to determine the most cost-effective strategies for all aspects of a procedure Substantially contributes to LEAN and other reengineering projects to improve clinical care and reduce costs	PGY 5 Fellow Level 5	Direct	SBP	System Based Practice

Key
Supervision:
Direct -the supervising physician is physically present with the fellow and patient.
A faculty physician, other than another resident, is physically present during the key portions of the procedure or is immediately available.
Indirect -the supervising physician is physically within the hospital or other site of patient care and is immediately available to provide direct supervision.
Oversight - the supervising physician is available to provide review of procedures/encounters with feedback after care is provided.
Core Competencies:
1. Patient Care (PC)
2. Medical Knowledge (MK)
3. Practice-Based Learning & Improvement (PBL)
4. Systems-Based Practice (SBP)
5. Interpersonal & Communication Skills (IC)
6. Professionalism (P)