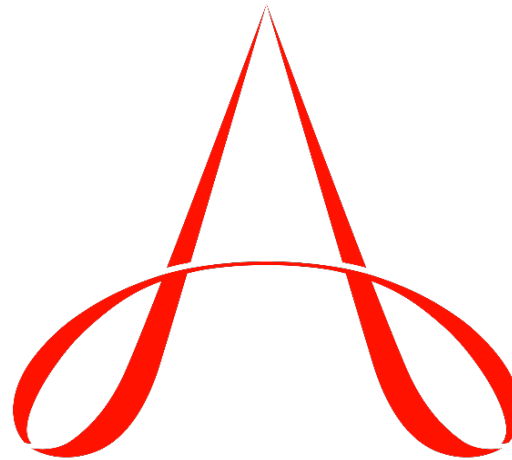




Adult Cardiothoracic Anesthesiology Milestones

The Accreditation Council for Graduate Medical Education



ACGME

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Second Revision: April 2022
First Revision: July 2014

Adult Cardiothoracic Anesthesiology Milestones

The Milestones are designed only for use in evaluation of fellows in the context of their participation in ACGME-accredited residency or fellowship programs. The Milestones provide a framework for the assessment of the development of the fellow in key dimensions of the elements of physician competence in a specialty or subspecialty. They neither represent the entirety of the dimensions of the six domains of physician competency, nor are they designed to be relevant in any other context.

Adult Cardiothoracic Anesthesiology Milestones Work Group

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American Board of Anesthesiology

Review Committee for Anesthesiology

Understanding Milestone Levels and Reporting

This document presents the Milestones, which programs use in a semi-annual review of fellow performance, and then report to the ACGME. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME Competencies organized in a developmental framework. The narrative descriptions are targets for resident/fellow performance throughout their educational program.

Milestones are arranged into levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert fellow in the specialty or subspecialty. For each reporting period, the Clinical Competency Committee will review the completed evaluations to select the milestone levels that best describe each learner's current performance, abilities, and attributes for each subcompetency.

These levels *do not* correspond with post-graduate year of education. Depending on previous experience, a junior fellow may achieve higher levels early in the educational program just as a senior fellow may be at a lower level later in the educational program. There is no predetermined timing for a resident to attain any particular level. Fellows may also regress in achievement of their milestones. This may happen for many reasons, such as over scoring in a previous review, a disjointed experience in a particular procedure, or a significant act by the fellow.

Selection of a level implies the fellow substantially demonstrates the milestones in that level, as well as those in lower levels (see the diagram on page v).

Additional Notes

Level 4 is designed as a graduation *goal* but *does not* represent a graduation *requirement*. Making decisions about readiness for graduation and unsupervised practice is the purview of the program director. Furthermore, Milestones 2.0 include revisions and changes that preclude using Milestones as a sole assessment in high-stakes decisions (i.e., determination of eligibility for certification or credentialing). Level 5 is designed to represent an expert fellow whose achievements in a subcompetency are greater than the expectation. Milestones are primarily designed for formative, developmental purposes to support continuous quality improvement for individual learners, education programs, and the specialty. The ACGME and its partners will continue to evaluate and perform research on the Milestones to assess their impact and value.

Some milestone descriptions include statements about performing independently. These activities must occur in conformity to ACGME supervision guidelines as described in the Program Requirements, as well as to institutional and program policies. For example, a fellow who performs a procedure independently must, at a minimum, be supervised through oversight.

A Supplemental Guide is also available to provide the intent of each subcompetency, examples for each level, assessment methods or tools, and other available resources. The Supplemental Guide, like examples contained within the Milestones, is designed only to assist the program director and Clinical Competency Committee and is not meant to demonstrate any required element or outcome.

Supplemental Guides and other resources are available on the Milestones page of each specialty section of the ACGME website. One www.acgme.org choose the applicable specialty under the “Specialties” menu, then select the “Milestones” link in the lower navigation bar.

The diagram below presents an example set of milestones for one sub-competency in the same format as the ACGME Report Worksheet. For each reporting period, a resident's performance on the milestones for each sub-competency will be indicated by selecting the level of milestones that best describes that resident's performance in relation to those milestones.

| Patient Care 1: Peri-Procedural Assessment and Management | | | | |
|--|--|--|---|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <p>Performs pre-procedural evaluation of patients with common cardiothoracic disease</p> <p>Identifies the components of a pain management plan for patients undergoing cardiothoracic surgery</p> | <p>Performs pre-procedural evaluation of patients with complex and less common cardiothoracic disease</p> <p>Implements a simple peri-operative pain management plan</p> | <p>Performs and interprets the pre-procedural evaluation and makes recommendations for optimization of patients with complex and less common cardiothoracic disease</p> <p>Identifies patients with a history of chronic pain who require a modified peri-operative pain management plan</p> | <p>Serves as the consultant anesthesiologist in pre-procedural care</p> <p>Implements the anesthetic plan for patients with complex pain history and polypharmacy</p> | <p>Leads the interprofessional care team in the peri-operative management of patients with complex and less common cardiac conditions for cardiac and non-cardiac surgery</p> <p>In collaboration with other specialists, develops protocols for multimodal analgesia plan for patients with a complex pain history and substance use disorder (SUD)</p> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>Comments:</p> <p style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/> Not Yet Assessable <input type="checkbox"/></p> | | | | |

Selecting a response box in the middle of a level implies that milestones in that level and in lower levels have been substantially demonstrated.

Selecting a response box on the line in between levels indicates that milestones in lower levels have been substantially demonstrated as well as **some** milestones in the higher level(s).

| Patient Care 1: Peri-Procedural Assessment and Management | | | | |
|--|--|--|---|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <p>Performs pre-procedural evaluation of patients with common cardiothoracic disease</p> <p>Identifies the components of a pain management plan for patients undergoing cardiothoracic surgery</p> | <p>Performs pre-procedural evaluation of patients with complex and less common cardiothoracic disease</p> <p>Implements a simple peri-operative pain management plan</p> | <p>Performs and interprets the pre-procedural evaluation and makes recommendations for optimization of patients with complex and less common cardiothoracic disease</p> <p>Identifies patients with a history of chronic pain who require a modified peri-operative pain management plan</p> | <p>Serves as the consultant anesthesiologist in pre-procedural care</p> <p>Implements the anesthetic plan for patients with complex pain history and polypharmacy</p> | <p>Leads the interprofessional care team in the peri-operative management of patients with complex and less common cardiac conditions for cardiac and non-cardiac surgery</p> <p>In collaboration with other specialists, develops protocols for multimodal analgesia plan for patients with a complex pain history and substance use disorder (SUD)</p> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>Comments:</p> <p style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></p> <p style="text-align: right;">Not Yet Assessable <input type="checkbox"/></p> | | | | |

| Patient Care 2: Technical/Procedural Skills – Transesophageal Echocardiography (TEE) | | | | |
|--|---|---|--|---|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Acquires a basic TEE exam using basic ultrasound modalities | Acquires a comprehensive 2D TEE exam, with assistance | Acquires a comprehensive 2D TEE exam | Acquires a comprehensive TEE exam, including use of advanced modalities | Serves as a departmental resource for challenging TEE exams |
| Identifies normal anatomy and basic pathology on TEE imaging | Performs broad quantification of TEE imaging | Performs and interprets a comprehensive quantified TEE exam | Integrates TEE exam to guide standard surgical decision-making and clinical care | Integrates TEE exam within clinical context and existing patient data to guide complex surgical decision-making and clinical care |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | Not Yet Completed Level 1 <input type="checkbox"/> |
| | | | | Not Yet Assessable <input type="checkbox"/> |

| Patient Care 3: Technical/Procedural Skills – Fiberoptic Bronchoscopy and Lung Isolation Techniques | | | | |
|---|--|---|--|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Performs a basic bronchoscopic exam and identifies the anatomy | Performs a bronchoscopic exam and identifies complex anatomy and basic pathology | Performs bronchoscopic evaluation to diagnose and manage airway pathology | Advises and supervises others with bronchoscopy in routine clinical situations | Advises and supervises others with difficult bronchoscopy in complex clinical situations |
| Establishes lung isolation in standard situations | Establishes lung isolation in standard situations and troubleshoots problems | Manages complex lung isolation, with assistance | Manages complex lung isolation using multiple modalities | Advises and supervises others with complex lung isolation strategies |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | Not Yet Completed Level 1 | <input type="checkbox"/> |
| | | | Not Yet Assessable | <input type="checkbox"/> |

| Patient Care 4: Technical/Procedural Skills – Vascular Access | | | | |
|--|--|---|---|---|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Performs basic radial artery cannulation procedures | Performs complex radial artery cannulation procedures | Performs arterial cannulation at various locations (e.g., femoral, axillary) | Performs complex arterial cannulation at various locations (e.g., femoral, axillary) | Serves as a departmental resource for challenging arterial cannulation procedures |
| Performs basic right internal jugular central venous cannulation procedures | Performs complex right internal jugular central venous cannulation procedures | Performs central venous cannulation at various locations (e.g., subclavian, left internal jugular, femoral) | Performs complex central venous cannulation at various locations (e.g., subclavian, left internal jugular, femoral) | Serves as a departmental resource for challenging central venous cannulation procedures |
| Identifies relevant vascular access anatomy and uses ultrasound in vascular access procedures | Interprets ultrasound to optimize technique and reduce complications in vascular access procedures | Independently conducts and interprets complex vascular access ultrasound (e.g., intravenous) | Advises and supervises others with ultrasound for vascular access | Serves as a departmental resource for challenging vascular access ultrasound |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: <div style="text-align: right;"> Not Yet Completed Level 1 <input type="checkbox"/> Not Yet Assessable <input type="checkbox"/> </div> | | | | |

| Patient Care 5: Cardiac Procedures not Involving Extracorporeal Circulation | | | | |
|---|--|--|---|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <p>Demonstrates a basic understanding of catheter-based structural heart procedures, including electrophysiology procedures</p> <p>Identifies abnormal echocardiographic findings commonly treated with transcatheter interventions</p> | <p>Creates an appropriate care plan for a patient presenting for catheter-based structural heart/electrophysiology interventions</p> <p>Performs qualitative and quantitative echocardiographic assessment of pathology for transcatheter procedures</p> | <p>Manages patient pathophysiology and anesthetic support for transcatheter procedures</p> <p>Describes the necessary echocardiographic support for the technical aspects of the catheter-based procedure and predictors for successful transcatheter procedures</p> | <p>Responds to intra-operative events/complications specifically associated with a given catheter structural heart intervention/advanced electrophysiology procedure</p> <p>Assesses (interprets) echocardiographic imaging relevant to the transcatheter procedure</p> | <p>Consults with multidisciplinary teams for selection and peri-operative planning for patients undergoing structural heart intervention (e.g., transcatheter aortic valve insertions, mitral valve clipping)</p> <p>Utilizes intra-operative echocardiography to guide and lead catheter-based procedures (e.g., advising on device deployment)</p> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>Comments:</p> <p style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></p> <p style="text-align: right;">Not Yet Assessable <input type="checkbox"/></p> | | | | |

| Patient Care 6: Aortic Surgery | | | | |
|--|--|---|--|---|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Demonstrates appropriate hemodynamic management of acute and chronic aortic pathology | Creates an appropriate anesthetic plan for both endovascular and open aortic surgical interventions | Manages the intra-operative care of aortic surgical patients for open and endovascular aortic surgical procedures | Manages the intra-operative care of complex aortic surgical patients, including anesthetic planning | Consults for multidisciplinary peri-operative best practices for management of aortic surgical patients |
| Identifies the need for and basic components of spinal cord and cerebral protection during aortic surgery | Identifies the specific indicators for risk to spinal cord perfusion and cerebral ischemia during endovascular and open aortic surgical procedures | Integrates neuromonitoring and spinal cord perfusion techniques into patient care during open and endovascular aortic surgeries | Analyzes neuromonitoring information and spinal cord perfusion optimization to manage peri-operative ischemic events during aortic surgery | Contributes to planning and utilizing advanced techniques to prevent spinal and cerebral protection during aortic surgery |
| Identifies the potential of coagulopathy during aortic surgery | Understands utilization of laboratory data in diagnosing coagulopathy during aortic surgery | Manages peri-operative coagulopathy by integrating laboratory data and appropriate therapy | Manages coagulopathy during aortic surgery with goal-directed therapy, and utilizes progressive therapies, such as concentrates, during aortic surgery | Creates protocols for goal directed management of coagulopathy and transfusion during aortic surgery |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: <div style="text-align: right;"> Not Yet Completed Level 1 <input type="checkbox"/> Not Yet Assessable <input type="checkbox"/> </div> | | | | |

| Patient Care 7: Circulatory Support Transitions | | | | |
|--|---|---|--|---|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <p>Discusses the basic principles and indications for cardiopulmonary bypass (CPB)</p> <p>Discusses the basic principles and indications for circulatory assist devices</p> | <p>Guides a patient on and off CPB with assistance</p> <p>Uses available hemodynamic data to guide a patient on and off circulatory assist devices, with assistance</p> | <p>Guides a patient on and off routine CPB</p> <p>Integrates available hemodynamic and echocardiographic data to guide a patient on and off circulatory assist devices, with assistance</p> | <p>Guides a patient on and off complex CPB</p> <p>Integrates available hemodynamic and echocardiographic data to guide a patient on and off circulatory assist devices</p> | <p>Develops policies with the interdisciplinary team to guide institutional CPB protocols</p> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>Comments:</p> <p style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></p> <p style="text-align: right;">Not Yet Assessable <input type="checkbox"/></p> | | | | |

| Medical Knowledge 1: Extracorporeal Circulation and Circulatory Assist Device Principles | | | | |
|--|--|--|--|---|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Describes components and physiology of CPB | Describes components and physiology of extracorporeal circulation and ventricular assist devices | Demonstrates knowledge of CPB, extracorporeal membrane oxygenation (ECMO), and ventricular assist device (VAD) management in standard situations | Demonstrates knowledge of CPB, ECMO, and VAD management in atypical situations | Is recognized as a departmental resource in extracorporeal circulation |
| Describes physiologic effects of intra-aortic balloon counter-pulsation | Describes the components and physiology of percutaneous circulatory assist devices | Demonstrates knowledge of percutaneous circulatory assist device management in standard situations | Demonstrates knowledge of percutaneous circulatory assist device management in atypical situations | Is recognized as a departmental resource for complex circulatory assist devices |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | Not Yet Completed Level 1 <input type="checkbox"/> Not Yet Assessable <input type="checkbox"/> |

| Medical Knowledge 2: Non-Ultrasound-Based Cardiovascular/Pulmonary Imaging and Monitoring | | | | |
|--|--|---|---|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <p>Interprets data from non-invasive cardiac imaging and monitoring (e.g., electrocardiogram (ECG), stress testing, magnetic resonance imaging (MRI), computed tomography (CT) scans) to guide routine clinical decision-making</p> <p>Interprets data from invasive cardiac imaging and monitoring to guide routine clinical decision-making</p> <p>Interprets data from pulmonary imaging and monitoring to guide routine clinical decision-making</p> | <p>Interprets data from non-invasive cardiac imaging and monitoring to guide intermediate complexity clinical decision-making</p> <p>Interprets data from invasive cardiac imaging and monitoring to guide intermediate complexity clinical decision-making</p> <p>Interprets data from pulmonary imaging and monitoring to guide intermediate complexity clinical decision-making</p> | <p>Integrates data from non-invasive cardiac imaging and monitoring to guide advanced clinical decision-making</p> <p>Integrates data from invasive cardiac imaging and monitoring to guide advanced clinical decision-making</p> <p>Integrates data from pulmonary imaging and monitoring to guide advanced clinical decision-making</p> | <p>Integrates data from non-invasive cardiac imaging and monitoring, including tools used infrequently outside of cardiothoracic surgery, to guide advanced clinical decision-making</p> <p>Integrates data from invasive cardiac imaging and monitoring, including tools used infrequently outside of cardiothoracic surgery, to guide advanced clinical decision-making</p> <p>Integrates data from pulmonary imaging and monitoring, including tools used infrequently outside of cardiothoracic surgery, to guide advanced clinical decision-making</p> | <p>Is recognized as a departmental resource for cardiovascular/pulmonary imaging and monitoring</p> <p>Develops departmental protocols for cardiovascular/pulmonary imaging and monitoring</p> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | <p>Not Yet Completed Level 1 <input type="checkbox"/></p> <p>Not Yet Assessable <input type="checkbox"/></p> |

| Medical Knowledge 3: Ultrasound-Based Imaging and Monitoring | | | | |
|--|--|--|--|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Recognizes all views of a comprehensive TEE exam | Demonstrates knowledge of ultrasound physics sufficient to optimize TEE image quality and limit artifacts, and performs a comprehensive exam | Interprets quantitative and qualitative findings on TEE images within a comprehensive exam | Interprets quantitative and qualitative findings on TEE images using advanced modalities and describes their use when integrated with a clinical picture to form a diagnosis | Is recognized (through scholarship or education of others) as an expert resource in peri-operative TEE |
| Demonstrates knowledge of standard TTE views | Differentiates normal findings from pathology on standard TTE images | Interprets abnormal findings on targeted TTE images | Integrates multiple complimentary TTE views with the clinical picture to form a diagnosis | Serves as a departmental resource for complex TTE exam interpretation |
| Demonstrates knowledge of typical non-cardiac point-of-care ultrasound (POCUS) views | Recognizes normal structures and basic pathology on targeted POCUS exams | Interprets abnormal findings on POCUS | Integrates POCUS findings to form a diagnosis | Participates in the development of institutional protocols for POCUS |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | Not Yet Completed Level 1 <input type="checkbox"/> |
| | | | | Not Yet Assessable <input type="checkbox"/> |

| Medical Knowledge 4: Cardiovascular/Thoracic Pathophysiology | | | | |
|--|---|---|---|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Demonstrates knowledge of common cardiothoracic pathophysiology and applies this knowledge during non-cardiac and cardiac surgical peri-operative patient care | Demonstrates knowledge of complex cardiothoracic pathophysiology, including adult congenital heart disease, during non-cardiac and cardiac surgical peri-operative patient care | Applies advanced understanding of complex cardiothoracic pathophysiology, including adult congenital heart disease, during cardiac and non-cardiac surgical peri-operative care | Analyzes the impact of advanced cardiothoracic pathophysiology while preparing patient-specific peri-operative patient management plans | Demonstrates expertise in the field of advanced cardiothoracic pathophysiology confirmed by scholarly activity, including publication, presentation, or the advanced education of others |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | Not Yet Completed Level 1 | <input type="checkbox"/> |
| | | | Not Yet Assessable | <input type="checkbox"/> |

| Medical Knowledge 5: Diagnostic and Therapeutic Interventions | | | | |
|--|---|--|---|---|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <p>Interprets information from common pre-operative cardiothoracic diagnostic studies</p> <p>Recognizes anesthetic implications of routine cardiothoracic therapeutic procedures</p> | <p>Interprets and integrates information from common pre-operative cardiothoracic diagnostic studies to guide anesthetic management</p> <p>Anticipates anesthetic implications of cardiothoracic therapeutic procedures</p> | <p>Interprets and integrates information from pre- and intra-operative advanced cardiothoracic diagnostic studies to anticipate procedural decision-making, and to guide anesthetic management</p> <p>Anticipates anesthetic implications of cardiothoracic therapeutic procedures and assesses risks and benefits of different techniques</p> | <p>Interprets and integrates complex information from pre- and intra-operative advanced cardiothoracic diagnostic studies to anticipate and influence procedural decision-making, and to guide anesthetic management</p> <p>Anticipates anesthetic implications of complex and less common cardiothoracic therapeutic procedures, and assesses risks and benefits of different techniques in collaboration with the interventional team</p> | <p>Is recognized (through scholarship or education of others) as an expert resource in advanced understanding of complex cardiothoracic diagnostic studies and/or in collaboration and influence on procedural planning and conduct</p> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | <p>Not Yet Completed Level 1 <input type="checkbox"/></p> <p>Not Yet Assessable <input type="checkbox"/></p> |

| Systems-Based Practice 1: Patient Safety and Quality Improvement | | | | |
|---|---|--|---|---|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Demonstrates knowledge of common events that impact patient safety | Identifies system factors that lead to patient safety events | Participates in analysis of patient safety events (simulated or actual) | Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual) | Actively engages teams and processes to modify systems to prevent patient safety events |
| Demonstrates knowledge of how to report patient safety events | Reports patient safety events through institutional reporting systems (simulated or actual) | Participates in disclosure of patient safety events to patients and patients' families (simulated or actual) | Discloses patient safety events to patients and patients' families (simulated or actual) | Role models or mentors others in the disclosure of patient safety events |
| Demonstrates knowledge of basic quality improvement methodologies and metrics | Describes divisional quality improvement initiatives | Participates in divisional quality improvement initiatives | Demonstrates the skills required to identify, develop, implement, and analyze a quality improvement project | Creates, implements, and assesses quality improvement initiatives at the institutional level or above |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: <div style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></div> | | | | |

| Systems-Based Practice 2: System Navigation for Patient-Centered Care | | | | |
|---|---|---|---|---|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Demonstrates knowledge of care coordination | Coordinates care of patients in routine clinical situations effectively using the roles of interprofessional team members | Coordinates care of patients in complex clinical situations effectively using the roles of interprofessional team members | Role models effective coordination of patient-centered care among different disciplines and specialties | Analyzes the process of care coordination and participates in the design and implementation of improvements |
| Identifies key elements for safe and effective transitions of care and hand-offs | Performs safe and effective transitions of care/hand-offs in routine clinical situations | Performs safe and effective transitions of care/hand-offs in complex clinical situations | Role models and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems | Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes |
| Demonstrates knowledge of population and community health needs and inequities | Identifies specific population and community health needs and inequities for the local population | Uses institutional resources effectively to meet the needs of a patient population and community | Participates in changing and adapting practice to provide for the needs of specific populations | Advocates for populations and communities with health care inequities in the peri-operative setting |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: <div style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></div> | | | | |

| Systems-Based Practice 3: Physician Role in Health Care Systems | | | | |
|--|---|---|--|---|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Identifies key components of the complex health care system (e.g., hospital, skilled nursing facility, finance, personnel, technology) | Describes how components of a complex health care system are interrelated, and how they impact patient care | Discusses how individual practice affects the broader system (e.g., length of stay, readmission rates, clinical efficiency) | Manages various components of the complex health care system to provide efficient and effective patient care and transitions of care | Advocates for or leads systems change that enhances high-value, efficient, and effective patient care |
| States factors impacting the costs of anesthetic care | Documents anesthetic detail to facilitate accurate billing and reimbursement | Explains the impact of documentation on billing and reimbursement | Practices and advocates for cost-effective patient care | Engages in external activities related to advocacy for cost-effective care |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: <div style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></div> | | | | |

| Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice | | | | |
|---|--|--|--|---|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Accesses and uses current evidence in routine patient care | Articulates clinical questions and elicits patient preferences and values to guide evidence-based care | Locates and applies the best available evidence, integrated with patient preference, to the care of complex patients | Appraises and applies evidence, even in the face of uncertainty and conflicting evidence, to guide individualized care | Coaches others to appraise and apply evidence for complex patients and/or participates in the development of guidelines |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: <div style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></div> | | | | |

| Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth | | | | |
|--|--|---|---|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Accepts responsibility for personal and professional development by establishing goals | Demonstrates openness to performance data (feedback and other input) to inform goals | Seeks performance data episodically, with adaptability and humility | Intentionally seeks performance data consistently, with adaptability and humility | Role models consistently seeking performance data with adaptability and humility |
| Identifies the factors that contribute to performance deficits | Analyzes and acknowledges the factors that contribute to performance deficits | Institutes behavioral change(s) to improve performance | Considers alternatives to improve performance | Models reflective practice |
| Actively seeks opportunities to improve | Designs and implements a learning plan, with prompting | Independently creates and implements a learning plan | Integrates performance data to adapt the learning plan | Facilitates the design and implementation of learning plans for others |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | |
| Not Yet Completed Level 1 <input type="checkbox"/> | | | | |

| Professionalism 1: Professional Behavior and Ethical Principles | | | | |
|---|---|---|--|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Identifies potential triggers for professionalism lapses | Demonstrates insight into professional behavior in routine situations | Demonstrates professional behavior in complex or stressful situations | Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in oneself and others | Coaches others when their behavior fails to meet professional expectations |
| Describes when and how to report lapses in professionalism | Takes responsibility for one's own professionalism lapses | Recognizes the need to seek help in managing and resolving complex interpersonal situations | Actively solicits help and acts on recommendations to resolve complex interpersonal situations | |
| Demonstrates knowledge of the ethical principles underlying patient care | Analyzes straightforward situations using ethical principles | Analyzes complex situations using ethical principles | Recognizes and utilizes resources for managing and resolving ethical dilemmas | Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: <div style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></div> | | | | |

| Professionalism 2: Accountability/Conscientiousness | | | | |
|---|--|---|--|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <p>Responds promptly to requests or reminders to complete tasks</p> <p>Takes responsibility for failure to complete tasks</p> | <p>Performs tasks and responsibilities in a timely manner</p> <p>Recognizes situations that may impact one's own ability to complete tasks and responsibilities in a timely manner</p> | <p>Performs tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations</p> <p>Takes responsibility for tasks not completed in a timely manner and identifies strategies to prevent recurrence</p> | <p>Prioritizes tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations</p> <p>Proactively implements strategies to ensure that the needs of patients, teams, and systems are met</p> | <p>Designs and implements an institutional systems approach to ensure timely task completion and shared responsibility</p> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>Comments:</p> <p style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></p> | | | | |

| Professionalism 3: Well-Being | | | | |
|---|--|--|--|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Recognizes the importance of addressing personal and professional well-being | Lists available resources for personal and professional well-being Describes institutional resources that are meant to promote/support well-being | With assistance, proposes a plan to promote personal and professional well-being Recognizes which institutional factors affect well-being | Independently develops a plan to promote personal and professional well-being Describes institutional factors that positively and/or negatively affect well-being | Creates institutional-level interventions that promote colleagues' well-being Describes institutional programs designed to examine systemic contributors to burnout |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: <div style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></div> | | | | |

This subcompetency is not intended to evaluate a fellow's well-being. Rather, the intent is to ensure that each fellow has the fundamental knowledge of factors that affect well-being, the mechanisms by which those factors affect well-being, and available resources and tools to improve well-being.

| Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication | | | | |
|---|---|--|---|---|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| <p>Communicates with patients and their families in an understandable and respectful manner</p> <p>Provides timely updates to patients and patients' families</p> | <p>Customizes communication in the setting of personal biases and barriers with patients and patients' families</p> <p>Actively listens to patients and patients' families to elicit patient preferences and expectations</p> | <p>Explains complex and difficult information to patients and patients' families</p> <p>Uses shared decision-making to make a personalized care plan</p> | <p>Facilitates difficult discussions with patients and patients' families</p> <p>Effectively negotiates and manages conflict among patients, patients' families, and the health care team</p> | <p>Mentors others in the facilitation of crucial conversations</p> <p>Mentors others in conflict resolution</p> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>Comments:</p> <p style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></p> | | | | |

| Interpersonal and Communication Skills 2: Interprofessional and Team Communication | | | | |
|--|---|---|---|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Respectfully requests or receives consultations | Clearly, concisely, and promptly requests or responds to a consultation | Uses closed-loop communication to verify understanding | Coordinates recommendations from different members of the health care team to optimize patient care | Role models flexible communication strategies that value input from all health care team members, resolving conflict when needed |
| Uses language that values all members of the health care team | Communicates information effectively with all health care team members | Adapts communication style to fit team needs | Maintains effective communication in crisis situations | Leads an after-event debrief of the health care team |
| Respectfully receives feedback from the health care team | Solicits feedback on performance as a member of the health care team | Communicates concerns and provides feedback to peers and learners | Communicates constructive feedback to superiors | Facilitates regular health care team-based feedback in complex situations |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | |
| Not Yet Completed Level 1 <input type="checkbox"/> | | | | |

| Interpersonal and Communication Skills 3: Communication within Health Care Systems | | | | |
|---|---|---|---|--|
| Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
| Accurately records information in the patient record; demonstrates judicious use of documentation shortcuts | Accurately records information in the anesthetic record for basic cases | Accurately records information in the anesthetic record and communicates complex care decisions for complex cases | Uses medical record functionality to highlight challenges in anesthetic care to facilitate future peri-operative management | Explores innovative uses of the medical record to facilitate peri-operative management |
| Safeguards patients' personal health information | Documents required data in formats specified by institutional policy | Appropriately selects direct and indirect forms of communication based on context | Models exemplary written or verbal communication | Guides departmental or institutional policies and procedures around communication |
| Communicates through appropriate channels as required by institutional policy | Respectfully communicates concerns about the system | Respectfully communicates concerns about the system and contributes to solutions | Uses appropriate channels to offer clear and constructive suggestions to improve the system | Initiates difficult conversations with appropriate stakeholders to improve the system |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: <div style="text-align: right;">Not Yet Completed Level 1 <input type="checkbox"/></div> | | | | |