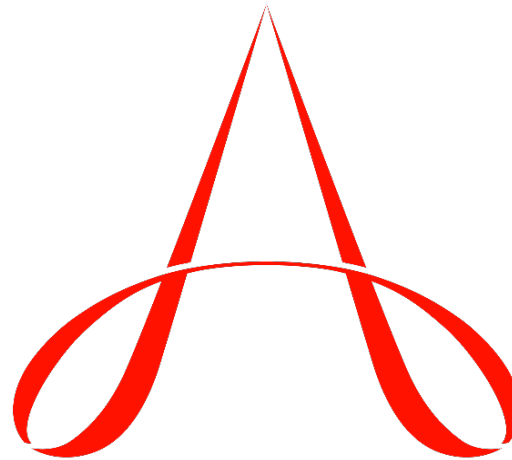




# Adult Cardiothoracic Anesthesiology Milestones

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](http://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><b>Comments:</b></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><b>Comments:</b></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"/>
<b>Comments:</b>				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"/>
<b>Comments:</b>			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
<p>Performs basic radial artery cannulation procedures</p> <p>Performs basic right internal jugular central venous cannulation procedures</p> <p>Identifies relevant vascular access anatomy and uses ultrasound in vascular access procedures</p>	<p>Performs complex radial artery cannulation procedures</p> <p>Performs complex right internal jugular central venous cannulation procedures</p> <p>Interprets ultrasound to optimize technique and reduce complications in vascular access procedures</p>	<p>Performs arterial cannulation at various locations (e.g., femoral, axillary)</p> <p>Performs central venous cannulation at various locations (e.g., subclavian, left internal jugular, femoral)</p> <p>Independently conducts and interprets complex vascular access ultrasound (e.g., intravenous)</p>	<p>Performs complex arterial cannulation at various locations (e.g., femoral, axillary)</p> <p>Performs complex central venous cannulation at various locations (e.g., subclavian, left internal jugular, femoral)</p> <p>Advises and supervises others with ultrasound for vascular access</p>	<p>Serves as a departmental resource for challenging arterial cannulation procedures</p> <p>Serves as a departmental resource for challenging central venous cannulation procedures</p> <p>Serves as a departmental resource for challenging vascular access ultrasound</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p><b>Comments:</b></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 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><b>Comments:</b></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"/>
<b>Comments:</b>				
				Not Yet Completed Level 1 <input type="checkbox"/>
				Not Yet Assessable <input type="checkbox"/>

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><b>Comments:</b></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"/>
<b>Comments:</b>				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"/>
<b>Comments:</b>				<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"/>
<b>Comments:</b>				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"/>
<b>Comments:</b>			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"/>
<b>Comments:</b>				<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"/>
<b>Comments:</b> <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"/>
<b>Comments:</b>				
Not Yet Completed Level 1 <input type="checkbox"/>				

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

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