

Surgical Critical Care Milestones

The Accreditation Council for Graduate Medical Education



Implementation Date: July 1, 2021 Second Revision: May 2021 First Revision: February 2014

Surgical Critical Care 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 competence, nor are they designed to be relevant in any other context.

Surgical Critical Care Milestones Work Group

Raeanna Adams, MD, MBA

William Chiu, MD, FACS, FCCM

Brian Daley, MD, MBA, FACS, FCCP, CNSC

Laura Edgar, EdD, CAE

Alok Gupta, MD, FACS

Krista L. Kaups, MD, MSc, FACS

Daniel Kendrick, MD

Dennis Kim, MD, FRCSC, FACS, FCCP, FCCM,

Mmed

Anna Liveris, MD

Melina Mann

Alicia M. Mohr, MD, FACS, FCCM

Abhijit Pathak, MD, FACS, FCCM

David Poliner, DO, MPH

Alan Sori, MD, MA, FACS

Nicole Stassen, MD

Tina Toms, BS, HCM

Charles Vasquez, MD

Daniel Vazquez, MD, MSc, FACS

Cassandra Q. White, MD, FACS

The ACGME would like to thank the following organizations for their continued support in the development of the Milestones:

American Board of Surgery

Review Committee for Surgery

Surgical Critical Care Program Directors Society

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 his/her educational program just as a senior fellow may be at a lower level later in his/her 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 vi).

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. On 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 fellow's performance on the milestones for each subcompetency will be indicated by selecting the level of milestones that best describes that fellow's performance in relation to those milestones.

Systems-Based Practice 2: System Navigation for Patient-Centered Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of indications and resources for care coordination	Coordinates multidisciplinary care of patients in routine critical care situations	Coordinates and/or leads multidisciplinary care of patients in complex critical care situations	Coordinates care of patients with barriers to health care access or other disparities in care	Leads the design and implementation of improvements to care coordination
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	Supervises safe and effective transitions of care/hand-offs of junior residents	Resolves conflicts in transitions of care between teams	Leads in the design and implementation of improvements to transitions of care
			p C	
Comments: Not Yet Completed Level 1				
Selecting a response box in the middle of a level implies that milestones in that level and in lower levels have been substantially demonstrated.		between leve in lower level demonstrated	esponse box on the line in ls indicates that milestones is have been substantially d as well as some the higher level(s).	

Patient Care 1: Respiratory Failure				
Level 1	Level 2	Level 3	Level 4	Level 5
Requires direct supervision in basic management of patients with respiratory failure	Manages patients with respiratory failure	Recognizes the need for and initiates advanced ventilator techniques for patients with respiratory failure	Independently manages patients with respiratory failure, including use of advanced ventilator techniques	Is recognized as a resource or completes a quality improvement or research project regarding management of patients with respiratory failure
Comments:				
			Not Yet C Not Yet A	ompleted Level 1 Ssessable

Patient Care 2: Nutritional Support				
Level 1	Level 2	Level 3	Level 4	Level 5
Requires direct supervision in assessment and initial management of nutritional support in critically ill patients	Recognizes the need for nutritional support in critically ill patients but still requires indirect supervision in the assessment and initial management	Independently performs assessment of nutritional needs and initiates nutritional support in critically ill patients	Independently performs nutritional assessment and manages nutritional support for special populations of critically ill patients, including traumatic brain injury, immunodeficient, extracorporeal membrane oxygenation (ECMO), complex gastrointestinal surgical patients	Is recognized as a resource or completes a quality improvement or research project in nutritional assessment and support of critically ill patients
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 3: Shock/Resuscitation				
Level 1	Level 2	Level 3	Level 4	Level 5
Independently recognizes shock and initiates indicated resuscitation in critically ill patients	Individualizes resuscitation based on the type of shock and assessment of the response to therapy, and employs monitoring for critically ill patients	Employs advanced monitoring techniques to guide resuscitation for critically ill patients, including special patient populations	Performs complex resuscitation, including use of advanced monitoring techniques, particularly in special patient populations	Is recognized as a resource or completes a quality improvement or research project or develops a protocol for shock resuscitation
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 4: Renal Disorders of Critically III Patients					
Level 1	Level 2	Level 3	Level 4	Level 5	
Recognizes and categorizes patients with renal disorders	Initiates treatment of renal disorders based on stage and etiology	Directs management and assesses response to treatment	Provides comprehensive management of patients with renal disorders, including management of patients requiring renal replacement therapy	Recognized by peers as a resource, completes quality improvement or research project regarding management of patients with renal disorders	
Comments: Not Yet Completed Level 1 Not Yet Assessable					

Patient Care 5: Trauma a	and Thermal Injury			
Level 1	Level 2	Level 3	Level 4	Level 5
With direct supervision, initiates appropriate management of the critically injured patient	With indirect supervision, assesses critically injured patients and prioritizes and initiates management	Independently assesses and manages critically injured patients and prioritizes management in the treatment of common injuries and complications	Independently assesses and manages critically injured patients, including treatment of complex injuries and complications through initial evaluation and into the operating room/intensive care unit (ICU)	Is recognized as a resource in the assessment and management of critically injured patients or completes a quality improvement or research project regarding management of critically injured patients
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 6: Cardiovascular Disorders of Critically III Patients				
Level 1	Level 2	Level 3	Level 4	Level 5
Requires direct supervision in the assessment and initial management of common cardiovascular disorders in critically ill patients	Requires indirect supervision in the assessment and management of common cardiovascular disorders in critically ill patients	Independently performs assessment and manages common cardiovascular disorders in critically ill patients	Independently diagnoses and provides comprehensive management of complex cardiovascular disorders in critically ill patients	Is recognized as a resource or completes a quality improvement or research project regarding management of critically ill patients with cardiovascular disorders
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 7: Neurologic Disorders of Critically III Patients				
Level 1	Level 2	Level 3	Level 4	Level 5
Requires direct supervision to recognize the stages and treatment of coma, delirium, seizures, and other neurologic disorders	Requires indirect supervision to assess and treat patients with coma, delirium, seizures, and other neurologic disorders	Independently recognizes and manages multiple etiologies of coma, delirium, and other neurologic disorders	Provides comprehensive management of multiple etiologies of coma, delirium, seizures, and other neurologic disorders	Is recognized as a resource or completes a quality improvement or research project regarding management of patients with coma, delirium, seizures, and other neurologic disorders
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 8: Gastrointestinal (GI) Disorders of Critically III Patients					
Level 1	Level 2	Level 3	Level 4	Level 5	
Requires direct supervision to diagnose and manage acute GI disorders	Requires indirect supervision to diagnose and manage acute GI disorders	Independently diagnoses and manages acute GI disorders	Provides comprehensive management of acute GI disorders	Is recognized as a resource or completes a quality improvement or research project regarding management of patients with acute GI disorders	
Comments: Not Yet Completed Level 1 Not Yet Assessable					

Patient Care 9: Infectious Diseases of Critically III Surgical Patients				
Level 1	Level 2	Level 3	Level 4	Level 5
Requires direct supervision to diagnose common infections and infectious complications (e.g. pneumonia, bacteremia)	Demonstrates the ability to diagnose and initiate management for frequently encountered infectious diseases and infectious complications	Diagnoses and manages atypical infectious diseases and infectious complications and demonstrates appropriate antimicrobial stewardship	Provides comprehensive management (prevention, diagnosis, and treatment) of infectious diseases, infectious complications, and multi-drug resistant organisms	Is recognized by peers as a resource or completes quality improvement or research project regarding management of an infectious complication
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 10: Procedural Competence				
Level 1	Level 2	Level 3	Level 4	Level 5
Requires direct supervision to perform common ICU procedures (e.g., peripheral arterial or central venous catheterization) and recognize complications	Independently performs routine ICU procedures	Performs routine ICU procedures in patients at high risk for procedural complications	Performs specialized ICU procedures (e.g., transvenous pacing, inferior vena cava filter placement)	Independently performs advanced ICU procedures (e.g., ECMO, intra-aortic balloon pump), and appropriately manages their complications
, , , , , , , , , , , , , , , , , , ,	Recognizes and manages straightforward procedural complications	Assesses patients at high risk for procedural complications and describes management	Independently manages procedural complications	
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 1: Pathophysiology, Pharmacology, and Therapeutics in Critical Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of pathophysiology, pharmacology, therapeutics, and complications of common critical care conditions	Demonstrates knowledge of pathophysiology, pharmacology, therapeutics, and complications of complex critical care conditions	Synthesizes and applies knowledge of pathophysiology, pharmacology, therapeutics, and complications of complex critical care conditions	Serves as a resource for knowledge of pathophysiology, pharmacology, therapeutics, and complications of complex critical care conditions	Advances knowledge of pathophysiology, pharmacology, therapeutics, and complications of complex critical care conditions
Synthesizes and prioritizes differential diagnosis for common critical care conditions, with indirect supervision	Synthesizes and prioritizes differential diagnosis for common critical care conditions	Independently synthesizes and prioritizes differential diagnosis for complex critical care conditions	Synthesizes and prioritizes differential diagnosis and anticipates potential complications for complex critical care conditions	Is recognized by peers as an expert in synthesizing and prioritizing differential diagnosis complex critical care conditions and anticipating potential complications
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 2: Prognosis in Critical Care Conditions				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes clinical course, including prognosis, of common critical care conditions	Identifies clinical course for patients with complex critical care conditions, including prognostic uncertainty	Formulates anticipated clinical course for patients with complex critical care conditions by integrating prognostic factors, tools, and models	Facilitates consensus of prognosis for patients with complex critical care conditions in collaboration with other care providers	Advances knowledge of application of tools for prognostication in complex critical care conditions
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 3: Clinical Reasoning in Critical Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates sound clinical reasoning in common critical care problems	Identifies errors in clinical reasoning within critical care	Applies clinical reasoning principles to direct patient care in complex critical care problems	Reviews the clinical decision-making of oneself and the team to identify areas for improvement	Coaches and mentors others in clinical reasoning and helps them to recognize and avoid cognitive errors
Comments:			Not Yet C Not Yet A	ompleted Level 1 ssessable

Systems-Based Practice 1: Patient Safety and Quality Improvement				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of common patient safety events	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 their families (simulated or actual)	Discloses patient safety events to patients and their families (simulated or actual)	Mentors others in the disclosure of patient safety events
Demonstrates knowledge of basic quality improvement methodologies and metrics	Describes local quality improvement initiatives (e.g., infection rate, hand hygiene, opioid use)	Participates in local 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 or community level
Comments: Not Yet Completed Level 1				

Systems-Based Practice 2: System Navigation for Patient-Centered Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of indications and resources for care coordination	Coordinates multidisciplinary care of patients in routine critical care situations	Coordinates and/or leads multidisciplinary care of patients in complex critical care situations	Coordinates care of patients with barriers to health care access or other disparities in care	Leads the design and implementation of improvements to care coordination
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	Supervises safe and effective transitions of care/hand-offs of junior residents	Resolves conflicts in transitions of care between teams	Leads in the design and implementation of improvements to transitions of care
Comments: Not Yet Completed Level 1				

Systems-Based Practice 3: Community and Population Health				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of population and community health needs and disparities	Identifies specific population and community health needs and inequities for the local population	Uses local 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	Leads innovations and advocates for populations and communities with health care inequities
Comments:			Not Yet C	ompleted Level 1

Systems-Based Practice 4: Physician Role in Health Care Systems				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes basic health payment systems, including government, private, public, and uninsured care, as well as different practice models	Describes how working within the health care system impacts patient care	Analyzes how personal practice affects the system	Uses shared decision making in patient care, taking into consideration patient risks and benefits	Advocates or leads change to enhance systems for high-value, efficient, and effective patient care
Describes and identifies administrative roles in a surgical critical care unit	Identifies the key components and responsibilities of an ICU director for administration for a surgical critical care unit	Demonstrates knowledge of administrative leadership activities for the surgical critical care unit	Participates in key activities of administrative leadership for surgical critical care unit	Demonstrates proficiency in administrative leadership, including knowledge of regulatory requirements
Comments: Not Yet Completed Level 1				

Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access and use available evidence, and incorporate patient preferences and values into the care of critically ill patients	Articulates clinical questions and uses scientific literature, guidelines, and algorithms integrated with patient preference to guide care of critically ill patients	Locates and applies the best available evidence, integrated with patient preference, to the care of critically ill patients with complex conditions	Critically appraises and applies evidence, even in the face of uncertain and/or conflicting evidence, to guide care of critically ill patients	Coaches others to critically appraise and apply evidence to the care of critically ill patients with complex conditions, and/or participates in the development of guidelines
Comments: Not Yet Completed Level 1				

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth				
Level 1	Level 2	Level 3	Level 4	Level 5
Establishes goals for personal and professional development	Identifies opportunities for performance improvement; designs a learning plan	Integrates performance feedback and practice data to develop and implement a learning plan	Revises learning plan for personal growth based on performance data	Coaches others in the design and implementation of learning plans
Comments: Not Yet Completed Level 1				

Professionalism 1: Ethical Principles				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of the ethical principles underlying informed consent, surrogate decision making, advance directives, confidentiality, error disclosure, stewardship of limited resources, and related topics	Analyzes straightforward situations using ethical principles	Recognizes need to seek help in managing and resolving complex ethical situations	Independently recognizes and uses appropriate resources for managing and resolving ethical dilemmas as needed	Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution
Comments: Not Yet Completed Level 1				

Professionalism 2: Professional Behavior and Accountability				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes when and how to appropriately report lapses in professional behavior	Takes responsibility for one's own professional behavior	Demonstrates professional behavior in complex or stressful situations and reports lapses in professional behavior	Intervenes to prevent and correct lapses in professional behavior in oneself and others	Coaches others when their behavior fails to meet professional expectations
Recognizes limits in one's own knowledge/skills and seeks help	Recognizes limits in the team's knowledge/skills and seeks help	Exhibits appropriate confidence and self-awareness of limits in knowledge/skills	Aids junior learners in recognition of limits in knowledge/skills	
Comments: Not Yet Completed Level 1				

Professionalism 3: Self-Awareness and Help-Seeking				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies the institutional resources available to manage personal, physical, and emotional health	Monitors personal health and wellness and appropriately mitigates fatigue and/or stress	Promotes healthy habits and creates an emotionally healthy environment for colleagues	Recognizes and appropriately addresses signs and symptoms of burnout, depression, suicidal ideation, potential for violence, and/or substance abuse in other members of the health care team	Coaches others when emotional responses or limitations in knowledge/skills do not meet professional expectations
Demonstrates knowledge of the principles of physician well-being and fatigue mitigation	Manages personal time and assures fitness for duty	Models appropriate management of personal health issues, fatigue, and stress	Proactively modifies schedules or intervenes in other ways to assure that those caregivers under one's supervision maintain personal wellness and do not compromise patient safety	
Comments: Not Yet Completed Level 1				

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, avoiding personal biases and communication barriers, with patients and families	Delivers complex and difficult information to patients and their families	Facilitates difficult discussions specific to patient and patient's family needs	Coaches others in the facilitation of crucial conversations
Provides timely updates to patients and their families	Actively listens to patients and their families to elicit preferences and expectations	Uses shared decision making to make a personalized care plan	Effectively negotiates and manages conflict among patients, their families, and the health care team	Coaches others in conflict resolution
Comments: Not Yet Completed Level 1				

Level 1	Level 2	Level 3	Level 4	Level 5
Clearly and concisely requests and responds to a consultation	Verifies understanding of recommendations when providing or receiving a consultation	Coordinates recommendations from different members of the health care team to optimize patient care	Resolves conflict within the interdisciplinary team	Coaches flexible communication strategies that value input from all health care team members
Uses language that values all members of the health care team	Communicates information effectively to all health care team members	Uses active listening to adapt communication style to fit team needs	Maintains effective communication in a crisis situation	Facilitates regular health care team-based feedback in complex situations
	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	

Interpersonal and Communication Skills 3: Communication within Health Care Systems							
Level 1	Level 2	Level 3	Level 4	Level 5			
Verifies and accurately records current and relevant information in the patient's chart	Concisely documents diagnostic and therapeutic reasoning, accurately reflecting patient course for common conditions	Concisely documents diagnostic and therapeutic reasoning, accurately reflecting patient course for complex conditions	Concisely documents diagnostic and therapeutic reasoning, accurately reflecting patient course for all conditions while satisfying institutional billing needs and compliance	Mentors others in documenting diagnostic and therapeutic reasoning, and accurately reflecting patient course			
Comments: Not Yet Completed Level 1							