Neurocritical Care Milestones

The Accreditation Council for Graduate Medical Education



Implementation Date: July 2022 First Version: March 2022

Neurocritical 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 competency, nor are they designed to be relevant in any other context.

Neurocritical Care Milestones Work Group

Pierre Fayad, MD
Anna Finley Caulfield, MD
Laura Edgar, EdD, CAE
S. Alan Hoffer, MD
Debbie Madhok, MD
David McDonagh, MD
Soojin Park, MD
Alejandro Rabinstein, MD
Angela Shapshak, MD
Saralyn Williams, MD
Chris Zacko, MD

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 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 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 3: Neurocritical Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Manages neurologically unstable patients requiring a higher intensity of care, with substantial guidance	Manages neurologically unstable patients with single system disease Provides neurocritical	Manages neurologically unstable patients with multisystem disease Provides neurocritical	Independently manages neurologically unstable patients with multisystem disease and coordinates interdisciplinary care plans	Serves as a role model for managing unstable neurological patients with multisystem disease and coordinating interdisciplinary care plans
Provides neurocritical care consultation, with substantial guidance	care consultation for patients with single system disease	care consultation for patients with multisystem disease	Independently provides comprehensive neurocritical care consultation for patients with complex multisystem disease	Serves as a role model for providing comprehensive neurocritical care consultation for patients with complex multisystem disease
			\supset \Box	
Comments:			Not Yet Co	ompleted Level 1 ssessable
middle of milestone	a response box in the a level implies that in that level and in lower been substantially ated.	be in de	electing a response box on a stween levels indicates that lower levels have been subsemonstrated as well as som ilestones in the higher level	milestones estantially ne

Patient Care 1: History and Physical Examination				
Level 1	Level 2	Level 3	Level 4	Level 5
Obtains specialty- specific, detailed, and accurate history from patients with common disorders, with substantial guidance	Obtains specialty-specific, detailed, and accurate history from patients with common disorders	Obtains specialty-specific, detailed, and accurate history from multiple sources for patients with complex disorders	Independently and efficiently obtains a specialty-specific, detailed, and accurate history from multiple sources for patients with complex disorders	Serves as role model in obtaining an efficient specialty-specific, detailed, and accurate history from multiple sources for patients with complex disorders
Performs a specialty- specific, detailed, and accurate physical exam on patients with common disorders, with substantial guidance	Performs a specialty- specific, detailed, and accurate physical exam on patients with common disorders	Elicits specialty-specific signs while performing a detailed and accurate physical exam on patients with complex disorders	Independently and efficiently elicits specialty-specific signs while performing a detailed and accurate physical exam on patients with complex disorders	Independently elicits specialty-specific signs while performing a detailed and accurate physical exam on patients with complex or rare disorders in clinically difficult circumstances
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 2: General Critical Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes clinical conditions that necessitate escalation to critical care	Manages unstable patients with single-system disease	Manages unstable patients with multisystem disease	Independently manages unstable patients with multisystem disease and coordinates interdisciplinary care plans	Serves as a role model for managing unstable patients with multisystem disease and coordinating interdisciplinary care plans
Identifies the long-term consequences of critical illness, with substantial guidance	Identifies the long-term consequences of critical illness, with minimal guidance	Anticipates long-term consequences of critical illness	Anticipates and acts independently to minimize the long-term consequences of critical illness	Independently leads and directs transition to post-intensive care unit care
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 3: Neurocritical Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Manages neurologically unstable patients requiring a higher intensity of care, with substantial guidance	Manages neurologically unstable patients with single-system disease	Manages neurologically unstable patients with multisystem disease	Independently manages neurologically unstable patients with multisystem disease and coordinates interdisciplinary care plans	Serves as a role model for managing unstable neurological patients with multisystem disease and coordinating interdisciplinary care plans
Provides neurocritical care consultation, with substantial guidance	Provides neurocritical care consultation for patients with single-system disease	Provides neurocritical care consultation for patients with multisystem disease	Independently provides comprehensive neurocritical care consultation for patients with complex multisystem disease	Serves as a role model for providing comprehensive neurocritical care consultation for patients with complex multisystem disease
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 4: Diagnostic Evaluation (General)					
Level 1	Level 2	Level 3	Level 4	Level 5	
Describes indications for radiographic, laboratory, and bedside diagnostic procedures	Selects radiographic, laboratory, and bedside diagnostic procedures	Independently interprets and integrates results of radiographic, laboratory, and bedside diagnostic procedures into the patient care plan	Independently reconciles divergent data from multiple diagnostic modalities	Designs and implements a clinical pathway for utilizing diagnostic evaluation tools	
Comments: Not Yet Completed Level 1 Not Yet Assessable					

Patient Care 5: Neurodiagnostic Evaluation (Neuromonitoring, Neuroimaging, etc.)					
Level 1	Level 2	Level 3	Level 4	Level 5	
Describes indications for neurodiagnostic procedures	Selects neurodiagnostic procedures	Independently interprets and integrates the results of neurodiagnostic procedures into the patient care plan	Independently reconciles divergent data from multiple neurodiagnostic modalities	Designs and implements a clinical pathway for utilizing neurodiagnostic evaluation tools	
Comments:			Not Yet Co	ompleted Level 1	

Patient Care 6: Procedures				
Level 1	Level 2	Level 3	Level 4	Level 5
Assists in performing common intensive care unit (ICU) procedures and recognizes complications	Performs common and assists with advanced ICU procedures	Performs advanced ICU procedures and troubleshoots common complications	Performs common and advanced ICU procedures and troubleshoots complex complications in patients with complex multisystem illness	Serves as a role model for performing difficult procedures
Comments:				ompleted Level 1

Medical Knowledge 1: Prognosis in Critical Care Conditions				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes clinical course and natural history, 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				

Medical Knowledge 2: Pathophysiology and Therapeutics for General Critical Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of pathophysiology, pharmacology, and therapeutics for common diseases	Applies knowledge of pathophysiology, pharmacology, and therapeutics for common diseases	Demonstrates knowledge of pathophysiology, pharmacology, and therapeutics for complex diseases	Applies knowledge of pathophysiology, pharmacology, and therapeutics for complex diseases	Advances knowledge of pathophysiology, pharmacology, and therapeutics
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of pathophysiology, pharmacology, and therapeutics for common neurocritical care diseases	Applies knowledge of pathophysiology, pharmacology, and therapeutics for common neurocritical care diseases	Demonstrates knowledge of pathophysiology, pharmacology, and therapeutics for complex neurocritical care diseases	Applies knowledge of pathophysiology, pharmacology, and therapeutics for complex neurocritical care diseases	Performs research on the pathophysiology, pharmacology, or therapeutics for neurocritical care disease
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 4: Determination of Death by Neurologic Criteria					
Level 1	Level 2	Level 3	Level 4	Level 5	
Lists the components for determining death by neurologic criteria and performs bedside neurologic maneuvers	Demonstrates knowledge of medical and legal significance of death by neurologic criteria	Accurately performs determination of death by neurologic criteria	Describes supplemental testing used to determine death by neurologic criteria	Educates others in the determination of death by neurologic criteria, including appropriate use of supplemental testing, as well as controversies	
Comments:	Comments: Not Yet Completed Level 1				

Systems-Based Practice 1: Patient Safety				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of commonly reported patient safety events	Identifies system factors that lead to patient safety events	Participates in analysis of patient safety events	Conducts analysis of patient safety events and offers error prevention strategies	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	Participates in disclosure of patient safety events to patients and patients' families	Discloses patient safety events to patients and patients' families	Role models or mentors others in the disclosure of patient safety events
Comments: Not Yet Completed Level 1				

Systems-Based Practice 2: Quality Improvement					
Level 1	Level 2	Level 3	Level 4	Level 5	
Demonstrates knowledge of basic quality improvement methodologies	Describes local quality improvement initiatives	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 C	ompleted Level 1	

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	Develops projects to improve quality of transitions of care into and out of the
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 transitions of care by other team members	Role models safe and effective transitions of care/hand-offs within and across health care delivery systems	neurocritical care setting 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 and community	Effectively uses local resources to meet the needs of a patient population and community	Adapts practice to provide for the needs of specific populations	Leads innovations in adapting practice and systems for populations and communities with health care inequities

Systems-Based Practice 4: Physician Role in Health Care Systems					
Level 1	Level 2	Level 3	Level 4	Level 5	
Describes basic health care delivery systems	Describes how components of a complex health care delivery system are interrelated, and how this impacts patient care	Discusses how individual practice affects the broader system	Advocates for patient care needs (e.g., community resources, patient assistance resources) with consideration of the limitations of each patient's payment model	Advocates for or leads systems change that enhances high-value, efficient, and effective patient care	
Comments:			Not Yet C	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 to the care of a routine patient	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	Critically appraises and applies evidence, even in the face of uncertainty, and interprets conflicting evidence to guide care tailored to the individual patient	Coaches others to critically appraise and apply evidence for complex patients, and/or participates in the development of guidelines
Comments:			Not Yet C	ompleted Level 1

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates an openness to performance data (feedback and other input)	Demonstrates an openness to performance data and uses it to develop personal and professional goals	Seeks and accepts performance data for developing personal and professional goals	Using performance data, continually improves and measures the effectiveness of one's personal and professional goals	Acts as a role model for the development of personal and professional goals
	Identifies the factors that contribute to the gap(s) between expectations and actual performance	Analyzes and reflects on the factors that contribute to gap(s) between expectations and actual performance	Analyzes, reflects on, and institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance	Coaches others on reflective practice

Level 1	Level 2	Level 3	Level 4	Level 5
Identifies and describes potential triggers for professionalism lapses	Demonstrates insight into professional behavior in routine situations and takes responsibility for personal lapses	Demonstrates professional behavior in complex or stressful situations	Intervenes to prevent professionalism lapses in oneself and others	Coaches others when their behavior fails to meet professional expectations
Demonstrates knowledge of ethical principles related to patient care	Analyzes straightforward situations using ethical principles	Analyzes complex situations using ethical principles	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

Professionalism 2: Accountability/Conscientiousness				
Level 1	Level 2	Level 3	Level 4	Level 5
Takes responsibility for failure to complete tasks and responsibilities, identifies potential contributing factors, and describes strategies for ensuring timely task completion in the future	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations	Recognizes situations in which one's own behavior may impact others' ability to complete tasks and responsibilities in a timely manner	Develops or implements strategies to improve system-wide problems to improve ability for oneself and others to complete tasks and responsibilities in a timely fashion
Responds promptly to requests or reminders to complete tasks and responsibilities	Recognizes situations that may impact one's own ability to complete tasks and responsibilities in a timely manner	Proactively implements strategies to ensure that the needs of patients, teams, and systems are met		
Comments:			Not Yet C	ompleted Level 1

Professionalism 3: Well-Being					
Level 1	Level 2	Level 3	Level 4	Level 5	
Recognizes importance of personal and professional well-being	Independently recognizes status of personal and professional well-being	With assistance, proposes a plan to optimize personal and professional well-being	Independently develops a plan to optimize personal and professional well-being	Coaches others when emotional responses, behaviors, or interpersonal interactions raise concerns about personal and professional well-being	
Comments:			Not Yet C	ompleted 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
Uses language and non- verbal behavior to demonstrate respect and establish rapport	Establishes a therapeutic relationship in straightforward encounters using active listening and clear language	Establishes a therapeutic relationship in challenging patient encounters	Easily establishes therapeutic relationships, with attention to the patient's/patient's family's concerns and context, regardless of complexity	Mentors others in situational awareness and critical self-reflection to consistently develop positive therapeutic relationships
Identifies the need to individualize communication strategies based on the patient's/patient's family's expectations and understanding	Communicates compassionately with the patient/patient's family to clarify expectations and verify understanding of the clinical situation	Communicates medical information in the context of the patient's/patient's family's values, uncertainty, and conflict	Uses shared decision making to align the patient's/patient's family's values, goals, and preferences with treatment options	Role models shared decision making in the context of the patient's/patient's family's values, uncertainty, and conflict
Comments: Not Yet Completed Level 1				

Interpersonal and Communication Skills 2: Barrier and Bias Mitigation					
Level 1	Level 2	Level 3	Level 4	Level 5	
Identifies common barriers to effective patient care and has knowledge regarding common human biases	Identifies complex barriers to effective patient care	Recognizes personal biases and mitigates barriers to optimize patient care, when prompted	Recognizes personal biases and proactively mitigates barriers to optimize patient care	Mentors others on recognition of bias and mitigation of barriers to optimize patient care	
Comments:			Not Yet C	ompleted Level 1	

Level 1	Level 2	Level 3	Level 4	Level 5
Identifies prognostic communication as a key element for shared decision-making	Assesses a patient's family's/caregiver's prognostic awareness and identifies preferences for receiving prognostic information	Delivers basic prognostic information and attends to emotional responses of a patient and patient's family/caregiver(s)	Tailors communication of prognosis according to disease characteristics and trajectory, patient consent/preference, patient's family's needs, and medical uncertainty, and is able to address intense emotional response	Coaches others in the communication of prognostic information

Interpersonal and Communication Skills 4: Interprofessional and Team Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Uses language that reflects the values all members of the health care team	Communicates information effectively with all health care team members	Engages in active listening to adapt to the communication styles of the team	Uses effective communication to lead or manage health care teams	Acts as a role model for communication skills necessary to lead or manage health care teams
Receives feedback in a respectful manner	Solicits feedback on performance as a member of the health care team	Communicates concerns and provides feedback to peers and learners	Communicates feedback and constructive criticism to superiors	In complex situations, facilitates regular health care team-based feedback
Comments: Not Yet Completed Level 1				

Interpersonal and Communication Skills 5: Communication within Health Care Systems				
Level 1	Level 2	Level 3	Level 4	Level 5
Documents accurate and up-to-date patient information	Demonstrates diagnostic reasoning through organized and timely notes	Communicates diagnostic and therapeutic reasoning in a clear manner	Demonstrates concise, organized written and verbal communication, including anticipatory guidance	Guides departmental or institutional communication policies and procedures
Communicates in a way that safeguards patient information	Communicates through appropriate channels as required by institutional policy	Selects optimal mode of communication based on clinical context	garaanee	
Comments: Not Yet Completed Level 1				