Infectious Disease Milestones



ACGME International, Inc. (ACGME-I)



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Infectious Disease Milestones

The Milestones are designed only for use in evaluation of residents and fellows in the context of their participation in ACGME-I-accredited residency and fellowship programs. The Milestones provide a framework for the assessment of the development of the resident or 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.

Understanding Milestone Levels and Reporting

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

Milestones are arranged into levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert resident or 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, more junior residents/fellows may achieve higher levels early in their educational program just as more senior residents/fellows may be at a lower level later in their educational program. There is no predetermined timing for a resident or fellow to attain any particular level. Residents and 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 resident/fellow.

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

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 the Milestones as a sole assessment in high-stakes decisions. Level 5 is designed to represent an expert resident or 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. ACGME-I and its partners will continue to evaluate and perform research on the Milestones to assess their impact and value.

Examples are provided for some milestones within this document. Note: The examples are not the required element or outcome; they are provided as a way to share the intent of the element.

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

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

The diagram below presents an example set of milestones for one subcompetency in the same format as the ACGME-I Report Worksheet. For each reporting period, a resident's/fellow's performance on the milestones within each subcompetency will be indicated by selecting the Milestones Level that best describes that individual's performance in relation to those milestones.

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 patien 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)	Role models or 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., community vaccination rate, infection rate, smoking cessation)	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	Completed Level 1
Selecting a res	ponse box in the	Selecting a response	e box on the line in	
middle of a level implies that		between levels indicates that milestones		
milestones in that level and in lower			in lower levels have been substantially	
demonstrated.	en substantially	demonstrated as we milestones in the high		

Patient Care 1: History and Physical Examination				
Level 1	Level 2	Level 3	Level 4	Level 5
Acquires a foundational history for common infectious diseases and syndromes	Acquires a complete history, including specific host and environmental factors	Acquires a detailed history incorporating pertinent supplemental information	Acquires a tailored history that incorporates epidemiology, past clinical data, and nuances specific for suspected pathogens or syndromes	Serves as a role model in obtaining a history that identifies subtle details and resolves ambiguity in the patient history
Performs a foundational physical examination	Performs an examination that elicits common or straightforward infectious diseases and syndromes	Performs an examination that elicits uncommon or complicated infectious diseases and syndromes	Performs a tailored examination that elicits subtle findings of infectious diseases and syndromes	Serves as a role model who has mastered the art of examination that helps in making a definitive diagnosis
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 2: Management of Patients with Possible and Proven Infectious Diseases				
Level 1	Level 2	Level 3	Level 4	Level 5
Develops an initial assessment for patients with low-complexity conditions	Develops initial and follow-up management plans for patients with low-complexity conditions	Develops an initial and follow-up plan for patients with moderate-complexity conditions and adjusts the plan over the course of clinical care	Develops a comprehensive management plan, including contingency plans for patients with complex conditions	Develops customized management plans for all patients, regardless of the complexity of the condition, and incorporating diagnostic uncertainty and cost effectiveness
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Patient Care 3: Consultative Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Respectfully responds to a consultation request and conveys recommendations, with supervision	Identifies and clarifies the clinical questions and recommendations for the consultation	Seeks and integrates input from different members of the health care team and provides recommendations to the primary team in a clear and timely manner	Provides comprehensive and prioritized recommendations, including assessment and rationale to all necessary health care team members	Leads the health care team in the provision of effective consultative services across the spectrum of disease complexity and acuity
Recognizes consult acuity and urgency, with supervision	Recognizes consult acuity and urgency independently	Prioritizes workflow in response to consult acuity and urgency	Mobilizes resources to provide care in an urgent situation	
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 1: Diagnostic Reasoning				
Level 1	Level 2	Level 3	Level 4	Level 5
Integrates patient- specific information to generate a limited differential diagnosis	Provides a limited prioritized differential diagnosis using supporting rationale	Formulates a prioritized differential diagnosis; demonstrates the ability to modify a diagnosis based on a patient's clinical course and additional data	Formulates a differential diagnosis to include atypical presentations and uncommon disorders; recognizes sources of diagnostic error	Formulates a differential diagnosis to include newly recognized and emerging conditions
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 2: Diagnostic Evaluation				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates foundational knowledge of diagnostic evaluation for pathogens	Applies knowledge of diagnostic evaluation for common pathogens	Applies knowledge of indications for diagnostic evaluation of uncommon pathogens, antimicrobial resistance, and therapeutic drug monitoring	Interprets diagnostic evaluations for pathogens and clinical syndromes, considering performance characteristics, limitations, and nuances	Teaches others the nuances of directed diagnostic evaluation for pathogens and clinical syndromes
Demonstrates foundational knowledge of diagnostic evaluation for clinical syndromes	Applies knowledge of indications for diagnostic evaluation for common clinical syndromes	Applies diagnostic testing in consideration of risks, benefits, and consequences for clinical syndromes		
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 3: Treatment and Therapeutics including Anti-Infectives, Immunoprophylaxis, and Adjunctive Therapies				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates foundational knowledge of common anti- infectives, including spectrum of activity, contraindications, and clinical indications	Demonstrates knowledge of common anti-infectives, immunoprophylaxis, and adjunctive therapies, including dosing, monitoring, and adverse effects	Demonstrates knowledge of common anti-infectives, immunoprophylaxis, and adjunctive therapies, including resistance mechanisms, drug interactions, and relative effectiveness	Demonstrates knowledge of uncommon anti- infectives, immunoprophylaxis, and adjunctive therapies, including dosing, monitoring, resistance mechanisms, drug interactions, adverse effects, and relative effectiveness	Teaches others the nuances of anti-infectives, immunoprophylaxis, and adjunctive therapies
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 4: Infection Control/Prevention, Antimicrobial Stewardship, and Epidemiology				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates foundational knowledge of the principles of infection prevention	Implements infection prevention measures for common situations	Implements infection prevention measures for uncommon situations	Teaches infection prevention practices to health care practitioners, patients, and the medical community	Demonstrates innovation and leadership in infection prevention practices
Demonstrates foundational knowledge of the principles of antimicrobial stewardship	Implements antimicrobial stewardship practices for common situations	Implements antimicrobial stewardship practices for uncommon situations	Teaches health care practitioners, patients, and the medical community antimicrobial stewardship practices	Demonstrates innovation and leadership in antimicrobial stewardship practices
	Demonstrates basic knowledge of the principles of epidemiology	Practices the basic principles of epidemiology, including identifying and responding to common epidemiological events	Teaches on the epidemiological impact of infectious diseases on population health	Leads a team in identifying and responding to epidemiological events
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 5: Pathophysiology and Foundational Science				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates basic knowledge of pathophysiological and foundational science pertaining to common infectious diseases and host response	Demonstrates advanced knowledge of pathophysiological and foundational science concepts pertaining to common infectious diseases and host response	Applies advanced knowledge of pathophysiological and foundational science concepts pertaining to common infectious diseases and host response	Applies advanced knowledge of pathophysiological and foundational science concepts pertaining to uncommon infectious diseases and host response	Applies comprehensive knowledge of pathophysiology and foundational science pertaining to new and emerging infectious diseases and issues of host response
Comments: Not Yet Completed Level 1 Not Yet Assessable				

Medical Knowledge 6: Scholarly Activity				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies areas worthy of scholarly activity	Plans a scholarly activity	Implements scholarly activity	Disseminates independent scholarly work, locally or regionally, that has generated new medical knowledge, educational programs, or process improvement	Disseminates independent scholarly work, nationally or internationally, that has generated new medical knowledge, educational programs, or process improvement
Comments: Not Yet Completed Level 1 Not Yet Assessable				

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)	Role models or 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., community vaccination rate, infection rate, smoking cessation)	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 care coordination	Coordinates care of patients in routine clinical situations, effectively utilizing the roles of the interprofessional teams	Coordinates care of patients in complex clinical situations, effectively utilizing the roles of the interprofessional teams	Role models effective coordination of patient- centered care among different disciplines and specialties	Analyzes the process of care coordination and leads 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, including outpatient settings	Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes
Comments: Not Yet Completed Level 1				

Systems-Based Practice	3: Physician Role in Health	n 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 this impacts 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 transition of care	Advocates for or leads systems change that enhances high value, efficient, and effective patient care and transition of care	
Describes the principles of cost-effective care	Delivers care with consideration of each patient's payment model	Engages with patients in shared decision making, informed by cost-effective care principles	Advocates for patient care needs (e.g., community resources, patient assistance resources) regardless of ability to pay	Participates in health policy advocacy activities	
Comments: Not Yet Completed Level 1					

Practice-Based Learning	and Improvement 1: Evide	nce-Based and Informed P	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 in order to take care of a routine patient	Articulates clinical questions and elicits patient preferences and values in order 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 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 Completed Level 1				

Practice-Based Learning	and Improvement 2: Reflec	ctive Practice and Commitr	ment 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) in order 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 which contribute to gap(s) between expectations and actual performance	Analyzes and reflects on the factors which 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	Challenges assumptions and considers alternatives in narrowing the gap(s) between expectations and actual performance	Coaches others on reflective practice	
Actively seeks opportunities to improve	Designs and implements a learning plan, with prompting	Independently creates and implements a learning plan	Uses performance data to measure the effectiveness of the learning plan and, when necessary, improves it	Facilitates the design and implementation of learning plans for others	
Comments: Not Yet Completed Level 1					

Professionalism 1: Professional Behavior and Ethical Principles				
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	Demonstrates professional behavior in complex or stressful situations	Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in self and others	Coaches others when their behavior fails to meet professional expectations
Describes when and how to appropriately report professionalism lapses, including strategies for addressing common barriers	Takes responsibility for own professionalism lapses	Recognizes need to seek help in managing and resolving complex ethical situations	Recognizes and utilizes appropriate resources for managing and resolving ethical dilemmas as needed (e.g., ethics consultations, literature	Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their
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	Analyzes complex situations using ethical principles	review, risk management/legal consultation)	resolution
Comments:	Comments: Not Yet Completed Level 1			

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 that may impact others' ability to complete tasks and responsibilities in a timely manner	Takes ownership of system outcomes	
Responds promptly to requests or reminders to complete tasks and responsibilities	Recognizes situations that may impact 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:	Comments: Not Yet Completed Level 1				

Professionalism 3: Self-Awareness and Help-Seeking					
Level 1	Level 2	Level 3	Level 4	Level 5	
Recognizes status of personal and professional well-being, with assistance	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 or limitations in knowledge/ skills do not meet professional expectations	
Recognizes limits in the knowledge/skills of self or team, with assistance	Independently recognizes limits in the knowledge/ skills of self or team and demonstrates appropriate help-seeking behaviors	With assistance, proposes a plan to remediate or improve limits in the knowledge/skills of self or team	Independently develops a plan to remediate or improve limits in the knowledge/skills of self or team		
Comments:	Comments: Not Yet Completed Level 1				

Interpersonal and Communication Skills 1: Patient and Family-Centered Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Uses language and nonverbal 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 patient/ family concerns and context, regardless of complexity	Mentors others in situational awareness and critical self-reflection to consistently develop positive therapeutic relationships
Identifies common barriers to effective communication (e.g., language, disability) while accurately communicating own role within the health care system	Identifies complex barriers to effective communication (e.g., health literacy, cultural)	When prompted, reflects on personal biases while attempting to minimize communication barriers	Independently recognizes personal biases while attempting to proactively minimize communication barriers	Role models self- awareness while identifying a contextual approach to minimize communication barriers
Identifies the need to adjust communication strategies based on assessment of patient/family expectations and understanding of their health status and treatment options	Organizes and initiates communication with patient/family by introducing stakeholders, setting the agenda, clarifying expectations, and verifying understanding of the clinical situation	With guidance, sensitively and compassionately delivers medical information, elicits patient/ family values, goals, and preferences, and acknowledges uncertainty and conflict	Independently, uses shared decision making to align patient/family values, goals, and preferences with treatment options to make a personalized care plan	Role models shared decision making in patient/family communication, including those with a high degree of uncertainty/conflict
Comments:	Comments: Not Yet Completed Level 1			

Interpersonal and Comm	nunication Skills 2: Interpro	fessional and Team Comm	unication		
Level 1	Level 2	Level 3	Level 4	Level 5	
Respectfully requests a consultation	Clearly and concisely requests a consultation	Checks own understanding of consultant recommendations	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	
Respectfully receives a consultation request	Clearly and concisely responds to a consultation request	Checks understanding of recommendations when providing consultation			
Uses language that values all members of the health care team	Communicates information effectively with all health care team members	Uses active listening to adapt communication style to fit team needs			
	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	Facilitates regular health care team-based feedback in complex situations	
Comments:	Comments: Not Yet Completed Level 1				

Level 1	Level 2	Level 3	Level 4	Level 5
Accurately records information in the patient record	Demonstrates organized diagnostic and therapeutic reasoning through notes in the patient record	Concisely reports diagnostic and therapeutic reasoning in the patient record	Communicates clearly, concisely, timely, and in an organized written form, including anticipatory guidance	Models feedback to improve others' written communication
Safeguards patient personal health information	Demonstrates accurate, timely, and appropriate use of documentation shortcuts Documents required data in formats specified by institutional policy	Appropriately selects direct (e.g., telephone, in- person) and indirect (e.g., progress notes, text messages) forms of communication based on context	Achieves written or verbal communication (e.g., patient notes, email) that serves as an example for others to follow	Guides departmental or institutional communication around policies and procedures
Communicates through appropriate channels as required by institutional policy (e.g., patient safety reports, cell phone/pager usage)	Respectfully communicates concerns about the system	Uses appropriate channels to offer clear and constructive suggestions to improve the system	Initiates difficult conversations with appropriate stakeholders to improve the system	Facilitates dialogue regarding systems issues among larger community stakeholders (institution, health care system, field)