Pathology Milestones for the Middle East



January 2019

The Milestones are designed only for use in evaluation of residents in the context of their participation in ACGME-I-accredited residency programs. The Milestones provide a framework for the assessment of the development of the resident in key dimensions of the elements of physician competency in a specialty. 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.

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## **Milestones Reporting**

This document presents milestones designed for programs to use in semi-annual review of resident performance and reporting to the ACGME-I. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME-I Competencies organized in a developmental framework from less to more advanced. They are descriptors and targets for resident performance as a learner moves from entry into their program through graduation.

For each period, review and reporting will involve selecting milestone levels that best describe each resident's current performance and attributes. Milestones are arranged in numbered levels. Tracking from "Level 1" to "Level 5" is synonymous with moving from novice to expert in the specialty. These levels do not correspond with time in the educational program. Dependent upon previous education and experience, residents may enter a program at varying points in the Milestones.

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

Level 1: The resident demonstrates milestones expected of one who has had some education in pathology such as pathologic basis of disease.

Level 2: The resident is advancing and demonstrating additional milestones.

**Level 3:** The resident continues to advance and demonstrate additional milestones; the resident consistently demonstrates the majority of milestones targeted for residency.

**Level 4:** The resident has advanced so that he or she now substantially demonstrates the milestones targeted for residency. This level is designed as the graduation target.

**Level 5:** The resident has advanced beyond performance targets set for residency and is demonstrating "aspirational" goals, which might describe the performance of someone who has been in practice for several years. It is expected that only a few exceptional residents will reach this level.

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## **Additional Notes**

The "Level 4" Milestones are designed as the graduation *target* and *do not* represent a graduation *requirement*. Making decisions about readiness for graduation is the purview of the program director. Study of Milestones performance data will be required before the ACGME-I and its partners will be able to determine whether milestones in the first four levels appropriately represent the developmental framework, and whether Milestone data overall are of sufficient quality to be used for high-stakes decisions.

Answers to Frequently Asked Questions about Milestones are posted on the ACGME-I website.

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

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 (actual or simulated)	Participates in disclosure of patient safety events to patients and families (simulated or actual)	Discloses patient safety events to patients and families (simulated or actual) Demonstrates the skills	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	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:	$\sim$ $\_$		Not y	ret achieved Level 1
Selecting a response box ir of a level implies that mile that level and in lower leve substantially demonstrate	stones in els have been	Selecting a response b between levels indicat lower levels have beer demonstrated as well the higher level(s).	es that milestones in a substantially	

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Patient Care 1: Reporting (Anatomic Pathology/Clinical Pathology [AP/CP])				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies the key elements of a report including proper patient/specimen and slide identification and demonstrates understanding of timely reporting	Generates a timely report for a simple case, with assistance	Generates a timely report that includes synoptic templates and/or ancillary testing for a complex case, with assistance; independently generates reports for a simple case	Independently generates timely integrated reports for complex cases	Independently generates a nuanced report that expresses the ambiguity and uncertainty for a complex case
		Generates an amended/addended report that includes updated information, with assistance	Generates an amended/addended report and documents communication with the clinical team, as appropriate	
Identifies the importance of a complete pathology report for optimal patient care	Identifies implications of the diagnosis in the report and makes simple recommendations	Generates a report that includes the language of uncertainty, as appropriate, with assistance	Independently generates a report that includes the language of uncertainty and complex recommendations	
Comments:			Not Yet Ad	chieved Level 1

Patient Care 2: Grossing (AP)				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies the importance of grossing and uses appropriate resources including updated protocols and guidelines for specimen handling	Triages, samples, and documents simple cases, including specimen photography as indicated, with assistance	Triages, samples, and documents complex cases, with assistance; independently triages, samples, and documents simple cases	Independently triages, samples, and documents complex cases	Applies innovative approaches of grossing to demonstrate optimal pathology in unique specimens
Maintains specimen integrity to avoid sample misidentification	Identifies specimen integrity issues (e.g., fixation, floaters, clinical- pathologic correlation with operating room reports)	Resolves specimen integrity issues, with assistance	Independently resolves specimen integrity issues, as needed	Serves as an expert for gross examination
Identifies the need for time management	Needs assistance to handle workload	Handles workload with minimal to no assistance	Efficiently finishes own workload and assists others as needed	
Comments:			Not Yet Ac	hieved Level 1

Patient Care 3: Clinical Consultation, including On-Call Interactions (AP/CP)				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes the utility of a consultation and lists available resources useful in consultation	For simple consultations, delineates the clinical question, obtains appropriate additional clinical information, accesses available resources, recommends next steps, and documents appropriately with assistance	For complex consultations, delineates the clinical question, obtains appropriate additional clinical information, applies relevant resources, and recommends next steps with assistance; manages simple consultations independently	Manages complex consultations independently	Recognized as an expert in providing comprehensive consultations
Comments:			Not Yet Ac	hieved Level 1

Patient Care 4: Interpretation and Diagnosis (AP/CP)				
Level 1	Level 2	Level 3	Level 4	Level 5
Discusses importance of diagnoses and test results in patient care	Identifies pertinent test results and correlates to clinical findings to develop a differential diagnosis	Consistently integrates test results with clinical findings to refine differential and propose a diagnosis	Makes accurate diagnoses and interpretations of test results	Is an expert diagnostician
Identifies normal states and reference ranges	Distinguishes normal from abnormal findings	Identifies confounding factors, artifacts, and pre- analytic issues	Gives consideration to confounding factors in formulating an interpretation(s) and diagnoses	
Describes indications for common tests	Proposes appropriate initial tests (e.g., special stains)	Proposes and interprets ancillary tests in clinical context	Recommends further work-up using diagnostic algorithms and recommends therapeutic options, as appropriate	Proposes optimal diagnostic and therapeutic strategies based on patterns within a population
Comments:			Not Yet Ach	nieved Level 1

Patient Care 5: Intra-Operative Consultation (IOC), including Frozen Section (FS) (AP)				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes appropriate channels for communication regarding IOC	Assesses requests for simple IOC and plans workflow, with assistance	For complex cases, addresses requests for IOC, with assistance; independently assesses and manages requests for simple IOC and plans workflow	For complex cases, independently manages and addresses requests for IOC	Expertly manages all IOC
Discusses specimen- dependent variability in approach to IOC	Procures tissue for diagnosis and prepares quality slides on simple specimens, with assistance	Procures tissue for diagnosis and prepares quality slides for complex specimens, with assistance and independently for simple specimens	Supervises junior residents and advises technical staff members in the performance of IOC	
Demonstrates understanding of utility and timeliness of IOC	Identifies broad diagnostic categories (i.e., benign versus malignant, normal versus abnormal) in routine IOC	Interprets and communicates routine IOC/FS and correlates with final diagnosis, with assistance	Independently interprets and communicates IOC/FS and correlates with final diagnosis in routine cases and in some complex cases	
Comments:			Not Yet Ac	hieved Level 1

Medical Knowledge 1: Diagnostic Knowledge (AP/CP)				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates basic medical knowledge of anatomy, cellular, and molecular systems	Applies anatomic, cellular, and molecular knowledge to identify pathologic processes	Applies advanced knowledge of anatomic, cellular, and molecular pathology to common diagnoses	Integrates advanced knowledge of anatomic, cellular, and molecular pathology to common and uncommon diagnoses	Recognized as an expert in the integration of anatomic, cellular, and molecular pathology knowledge to disease
Demonstrates knowledge of normal histology and cell biology	Identifies anatomic and cellular pathologic changes	Applies knowledge of classification systems and guidelines for diagnosis	Applies knowledge of classification systems and guidelines for diagnosis including relevant prognostic information	
Comments:			Not Yet Ac	hieved Level 1

Medical Knowledge 2: Clinical Reasoning (AP/CP)				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates a basic framework for clinical reasoning	Demonstrates clinical reasoning to determine information relevant to the case	Synthesizes information to inform clinical reasoning, with assistance	Independently synthesizes information to inform clinical reasoning in complex cases	Demonstrates intuitive approach to clinical reasoning for complex cases
Identifies appropriate resources to inform clinical reasoning	Selects relevant resources based on scenario to inform decisions	Seeks and integrates evidence-based information to inform diagnostic decision making in complex cases, with assistance	Independently seeks out, analyzes, and applies relevant original research to diagnostic decision making in complex clinical cases	
Comments:			Not Yet A	Achieved Level 1

Systems-Based Practice 1: Patient Safety and Quality Improvement (AP/CP)				
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 families (simulated or actual)	Discloses patient safety events to patients and 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 Achieved Level 1				

Systems-Based Practice 2: System Navigation for Patient-Centered Care (AP/CP)				
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 the interprofessional teams	Coordinates care of patients in complex clinical situations effectively using the roles of their 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
Demonstrates knowledge of population and community health needs and disparities	Identifies specific population and community health needs and inequities for their 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 Achieved Level 1				

Systems-Based Practice 3: Physician Role in Health Care Systems (AP/CP)				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies components of the complex health care system	Describes the physician's role and how the interrelated components of complex health care system impact patient care	Analyzes how personal practice affects the system (e.g., length of stay, readmission rates, clinical efficiency)	Manages the interrelated components of the complex health care systems for efficient and effective patient care	Advocates for or leads change to enhance systems for high-value, efficient, and effective patient care
Describes basic health payment systems, including government, private, public, and uninsured care and different practice models	Delivers care informed by patient specific payment model	Uses shared decision making in patient care, taking into consideration payment models	Advocates for patient care understanding the limitations of each patient's payment model (e.g., community resources, patient assistance resources)	Participates in advocacy activities for health policy to better align payment systems with high-value care
		Identifies resources and effectively plans for transition to practice (e.g., information technology, legal, billing and coding, financial, personnel)	Describes basic elements needed to transition to practice (e.g., contract negotiations, malpractice insurance, government regulation, compliance)	
Comments:			Not Yet	Achieved Level 1

Systems-Based Practice 4: Informatics (AP/CP)				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates familiarity with basic technical concepts of hardware, operating systems, and software for general purpose applications	Understands laboratory specific software, key technical concepts and subsystems on interfaces, workflow, barcode application, and automation systems (enterprise systems architecture)	Discusses the role of the pathologist in laboratory initiatives based on integrative bioinformatics (e.g., laboratory information system implementation and configuration, quality improvement initiatives)	Applies knowledge of informatics skills as needed in laboratory initiatives (e.g., data management and security, computational statistics)	Participates in operational and strategy meetings, troubleshooting with information technology staff members; able to utilize medical informatics in the direction and operation of the laboratory
Comments:			Not Yet	Achieved Level 1

Systems-Based Practice 5: Accreditation, Compliance, and Quality (AP/CP)				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge that laboratories must be accredited	Demonstrates knowledge of the components of laboratory accreditation and regulatory compliance (Clinical Laboratory Improvement Amendments and others), either through training or experience	Identifies the differences between accreditation and regulatory compliance; discusses the process for achieving accreditation and maintaining regulatory compliance	Participates in an internal or external laboratory inspection	Serves as a resource for accreditation at the regional or national level
Discusses the need for quality control and proficiency testing	Interprets quality data and charts and trends, including proficiency testing results, with assistance	Demonstrates knowledge of the components of a laboratory quality management plan	Reviews the quality management plan to identify areas for improvement	Creates and follows a comprehensive quality management plan
		Discusses implications of proficiency testing failures	Performs analysis and review of proficiency testing failures and recommends a course of action, with oversight	Formulates a response for proficiency testing failures
Comments: Not Yet Achieved Level 1				

Practice-Based Learning	and Improvement 1: Evide	nce-Based and Informed Pr	actice (AP/CP)	
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 care for 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 A	Achieved Level 1

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth (AP/CP)				
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 that contribute to 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	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 Achieved Level 1				

Professionalism 1: Professional Behavior and Ethical Principles (AP/CP)				
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	Analyzes complex situations using ethical principles	Recognizes and utilizes appropriate resources for managing and resolving ethical dilemmas as needed (e.g., ethics consultations, literature review, risk management/legal consultation)	Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution
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		
Comments: Not Yet Achieved Level 1				

Professionalism 2: Accountability/Conscientiousness (AP/CP)				
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:			Not Yet.	Achieved Level 1

Professionalism 3: Self-Awareness and Help-Seeking (AP/CP)				
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	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	
	Demonstrates appropriate help- seeking behaviors			
Comments:			Not Yet	Achieved Level 1

Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication (AP/CP)				
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 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 practice while identifying teaching 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 patients/families by introducing stakeholders, setting the agenda, clarifying expectations, and verifying an 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 in situations with a high degree of uncertainty/conflict
Comments: Not Yet Achieved Level 1				

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	Communicates feedback and constructive criticism to superiors	Facilitates regular health care team-based feedback in complex situations
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		

Interpersonal and Communication Skills 3: Communication within Health Care Systems (AP/CP)				
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, in a timely manner, 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	Appropriately selects direct (e.g., telephone, in-person) and indirect (e.g., progress notes, text messages) forms of communication based on context	Produces 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)	Documents required data in formats specified by institutional policy	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 (e.g., institution, health care system, field)
	Respectfully communicates concerns about the system			
Comments: Not Yet Achieved Level 1				