

Hematopathology Milestones

ACGME International, Inc. (ACGME-I)



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Hematopathology 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.

Hematopathology, ACGME-I Report Worksheet

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).

Version 2

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.

Version 2

Hematopathology, ACGME-I Report Worksheet

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.

Systems-Based Practice	e 1: Patient Safety and Qual	ity 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				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. Selecting a response box between levels indicates the in lower levels have been demonstrated as well as some milestones in the higher levels.			ntes that milestones been substantially I as some	

Patient Care 1: Interdisciplinary Consultation				
Level 1	Level 2	Level 3	Level 4	Level 5
For simple consultations, outlines next steps in basic hematology and hematopathology work-up and lists available resources useful in consultation	Manages consultations (e.g., obtains appropriate additional clinical information, accesses available resources, recommends next steps, documents appropriately), with assistance	Manages complex consultations, with assistance; manages simple consultations independently	Manages complex consultations independently	Is recognized as an expert in providing comprehensive consultations
Comments:			Not Yet C Not Yet F	Completed Level 1

Patient Care 2: Reporting				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies the importance of key elements of a report and timely reporting for optimal patient care	Generates a timely report including key elements for a simple case, with assistance	Generates a timely report for a complex case, with assistance; independently generates well-organized reports for simple cases	Independently generates a timely, well- organized, integrated report for complex cases	Independently generates a nuanced, integrated report that expresses the ambiguity and uncertainty for a complex case
Identifies the need for amended/addended reports when appropriate	Generates an amended/addended report that includes updated information, with assistance	Independently generates an amended/addended report that includes updated information	Generates an amended/addended report that includes updated information, and integrates findings into a final diagnosis	
Comments: Not Yet Completed Level 1 Not Yet Rotated				

Patient Care 3: Procedure: Bone Marrow Aspiration and Biopsy					
Level 1	Level 2	Level 3	Level 4	Level 5	
Describes the indications and contraindications of bone marrow aspiration and biopsy	Assists in the performance of bone marrow aspiration and biopsy	Performs bone marrow aspiration and biopsy, with supervision	Independently performs bone marrows aspiration and biopsy	Teaches others to perform bone marrow aspiration and biopsy	
Comments: Not Yet Completed Level 1 Not Yet Rotated					

Patient Care 4: Specimen Handling and Triaging				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes specimen handling and processing requirements for blood, bone marrow, and body fluid samples	Designates blood, bone marrow, and body fluid for required ancillary testing given indication for procedure	Prioritizes blood, bone marrow, and body fluid for required ancillary testing given indication for procedure, including limited samples, under supervision	Independently prioritizes blood, bone marrow, and body fluid for required ancillary testing given indication for procedure, including limited samples	Serves as a resource for specimen handling and triaging
Describes specimen handling and processing requirements for lymphoid tissue samples	Designates lymphoid tissue for required ancillary testing given indication for procedure	Prioritizes lymphoid tissue for required ancillary testing given indication for procedure, including limited samples, under supervision	Independently prioritizes lymphoid tissue for required ancillary testing given indication for procedure, including limited samples	
Not Yet Completed Level 1 Not Yet Rotated				

Medical Knowledge 1: Interpretation of Hematology Testing					
Level 1	Level 2	Level 3	Level 4	Level 5	
Describes basic methodology and pathophysiology of hematology disorders	Interprets testing results for common hematology disorders, with assistance	Independently interprets testing results for common hematology disorders and recognizes limitations of testing	Interprets testing results for complex hematology disorders and recognizes limitations of testing	Serves as an expert resource in hematology testing	
Comments:			Not Yet C Not Yet R	Completed Level 1	

Medical Knowledge 2: Interpretation of Coagulation Testing					
Level 1	Level 2	Level 3	Level 4	Level 5	
Describes basic methodology and pathophysiology of coagulation disorders	Interprets testing results for common coagulation disorders, with assistance	Independently interprets testing results for common coagulation disorders and recognizes limitations of testing	Interprets testing results for complex coagulation disorders and recognizes limitations of testing	Serves as an expert resource in coagulation testing	
Comments:			Not Yet 0 Not Yet F	Completed Level 1	

Medical Knowledge 3: Interpretation of Flow Cytometry					
Level 1	Level 2	Level 3	Level 4	Level 5	
Describes basic methodology of flow cytometry and patterns of antigen expression of hematopoietic cells	Interprets flow cytometry results for common disorders, with assistance	Independently interprets flow cytometry results for common disorders and recognizes pitfalls and limitations of testing	Interprets flow cytometry results for complex disorders and recognizes pitfalls and limitations of testing	Serves as an expert resource in interpretation of flow cytometry	
Comments:			Not Yet C Not Yet F	Completed Level 1	

Medical Knowledge 4: Morphologic Interpretation and Diagnosis				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates basic knowledge of peripheral blood, bone marrow, and body fluid morphology to identify simple pathologic diagnoses, with guidance	Independently applies knowledge of peripheral blood, bone marrow, and body fluid morphology to identify simple pathologic diagnoses	Applies knowledge of peripheral blood, bone marrow, and body fluid morphology to identify complex pathologic diagnoses, with guidance	Independently applies knowledge of peripheral blood, bone marrow, and body fluid morphology to identify complex pathologic diagnoses	Is recognized as an expert in the integration of hematolymphoid morphologic knowledge to pathologic diagnoses
Demonstrates basic knowledge of lymphoid tissue morphology to identify simple pathologic diagnoses, with guidance	Independently applies knowledge of lymphoid tissue morphology to identify simple pathologic diagnoses	Applies knowledge of lymphoid tissue morphology to identify complex pathologic diagnoses, with guidance	Independently applies knowledge of lymphoid tissue morphology to identify complex pathologic diagnoses	
Comments:			Not Yet (Not Yet F	Completed Level 1

Medical Knowledge 5: Selection of Molecular and Cytogenetics Testing and Interpretation of Reports					
Level 1	Level 2	Level 3	Level 4	Level 5	
Describes available ancillary tests, including cytogenetics and molecular testing, based on morphologic findings	Proposes appropriate ancillary tests for morphologic findings	Interprets simple ancillary test reports, considering technical limitations	Interprets complex ancillary test reports including diagnostic uncertainty and clinical ramifications	Serves as an expert resource for the interpretation of ancillary test reports	
Comments:			Not Yet Comp Not Yet Rotate		

Medical Knowledge 6: Clinical Reasoning in Hematopathology and Hematology				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates a basic framework for clinical reasoning	Demonstrates clinical reasoning to determine relevant information	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 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 Completed Level 1 Not Yet Rotated				

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				

Systems-Based Practice 4: Accreditation, Compliance, and Quality				
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 supervision	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	Independently formulates a response for proficiency testing failures
Comments:	Comments: Not Yet Completed Level 1			

Systems-Based Practice 5: Utilization				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies general hematopathology work practices and workflow (e.g., molecular diagnostic, immunohistochemistry, chemical tests)	Explains rationale for utilization patterns in own practice setting	Identifies opportunities to optimize utilization of pathology resources	Initiates efforts to optimize utilization	Completes a utilization review and implements change
Comments:			Not Yet 0	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 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: Reflective Practice and Commitment to Personal Growth				
Level 1	Level 2	Level 3	Level 4	Level 5
Accepts responsibility for personal and professional development by establishing goals	Demonstrates openness to performance data (feedback and other input) 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				

Level 1	Level 2	Level 3	Level 4	Level 5
Is aware of the need for patient privacy, autonomy, and consent as applied to clinical research	Develops knowledge of the basic principles of research (demographics Institutional Review Board, human subjects), including how research i evaluated, explained to patients, and applied to patient care	informed consent and research protocols to	Proactively and consistently applies knowledge of the basic principles of research such as informed consent and research protocols to clinical practice	Suggests improvements to research regulations and/or substantially contributes to the primary literature through basic, translational, or clinical research

	essional Behavior and Ethic		Laval 4	Lavel 5
Level 1 Identifies and describes potential triggers for professionalism lapses	Level 2 Demonstrates insight into professional behavior in routine situations	Level 3 Demonstrates professional behavior in complex or stressful situations	Level 4 Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in self and others	Level 5 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	Analyzes straightforward situations using ethical principles	Analyzes complex situations using ethical principles	review, risk management/legal consultation)	resolution
topics				
Comments:			Not Yet C	ompleted 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: Not Yet Completed Level 1				

Professionalism 3: Self-A	Awareness and Help-Seekir	ng		
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: 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				

Interpersonal and Communication Skills 3: Communication within Health Care Systems				
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, inperson) 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)
Comments: Not Yet Completed Level 1				