The Pathology Milestone Project

The Milestones provide a framework for the assessment of the development of the resident physician in key dimensions of the elements of physician competency in a specialty or subspecialty. The Milestones are designed only for use in evaluation of resident physicians in the context of their participation in Accreditation Council for Graduate Medical Education (ACGME)–accredited residency or fellowship programs. They neither represent the entirety of the dimensions of the 6 domains of physician competency, nor are they designed to be relevant in any other context.

Milestone Reporting

This document presents Milestones designed for programs to use in semiannual review of resident performance and reporting to ACGME. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME competencies organized in a developmental framework from less to more advanced. They are descriptors and targets for resident performance as a resident moves from entry into residency through graduation. In the initial years of implementation, the Review Committee will examine Milestone performance data for each program's residents as 1 element in the Next Accreditation System (NAS) to determine whether residents overall are progressing.

For each reporting period, review and reporting will involve selecting the level of Milestones that best describes each resident's current performance level in relation to the Milestones. Milestones are arranged into numbered levels. Selection of a level implies that the resident substantially demonstrates the Milestones at that level, as well as those in lower levels (see FIGURE). A general interpretation of each level for pathology is below:

Level 1: The resident is a graduating medical student/experiencing first day of residency.

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 most of the 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 that 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.

Additional Notes

Level 4 is designed as the graduation *target* but does *not* represent a graduation *requirement*. Making decisions about readiness for graduation is the purview of the residency program director. (See the NAS Frequently Asked Questions for educational Milestones on the ACGME's website for further discussion of this issue: "Can a resident graduate if he or she does not reach every Milestone?") Study of Milestone performance data will be required before the ACGME and its partners will be able to determine whether Level 4 Milestones and Milestones in lower levels are at the appropriate level within the developmental framework and whether Milestone data are of sufficient quality to be used for high-stakes decisions.

Some Milestone descriptions include statements about performing independently. These activities must follow the ACGME supervision guidelines. For example, a resident who performs a procedure or takes independent calls must, at a minimum, be supervised through oversight.

ACGME Milestone Report Form

The FIGURE presents an example set of Milestones for 1 subcompetency in the same format as the Milestone Report Form. For each reporting period, a resident's performance on the Milestones for each subcompetency will be indicated by:

- selecting the level of Milestones that best describes the resident's performance in relation to the Milestones, or
- selecting the "Has Not Achieved Level 1" option.

DOI: http://dx.doi.org/10.4300/JGME-06-01s1-09

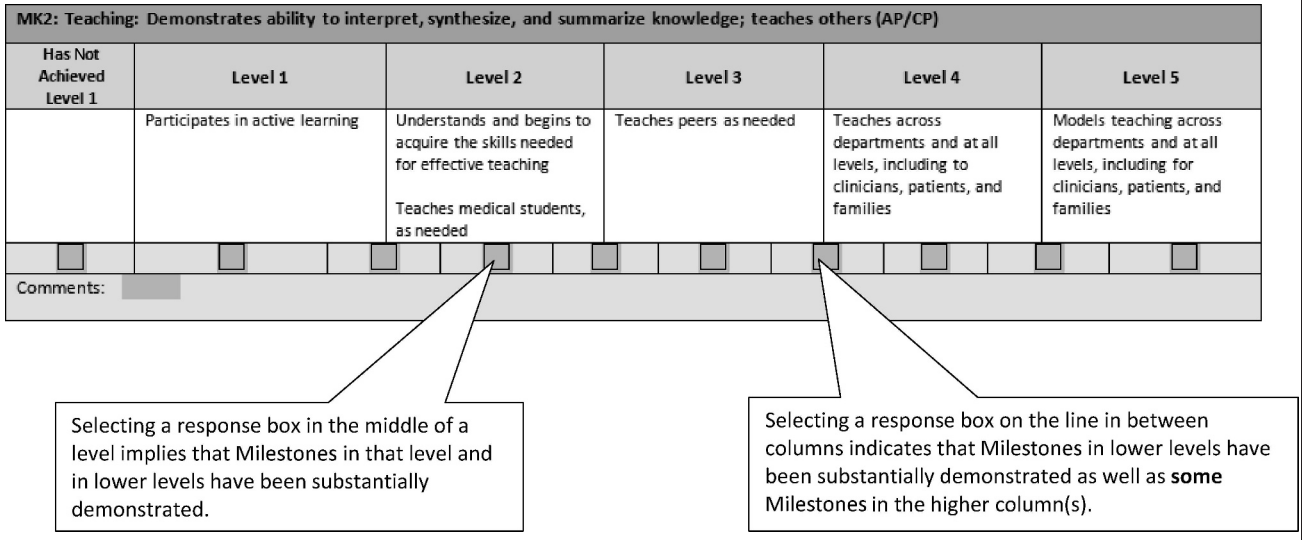

FIGURE **Example Set of Milestones for 1 Subcompetency in the ACGME Milestone Report Form**

Pathology Milestones

Patient Care (PC)

TABLE 1 **PC1. Consultation: Analyzes, Appraises, Formulates, Generates, and Effectively Reports Consultation (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Understands the implications of, and the need for, a consultation Observes and assists in the consultation Understands the concept of a critical value and the read-back procedure Understands and applies electronic health record (EHR) to obtain added clinical information Understands that advanced precision diagnostics and personalized medicine (eg, molecular diagnostic testing) may be applied to patient care for genetic, neoplastic, and infectious disorders and for population health	Prepares a draft consultative report (verbal or written) Performs timely, clinically useful consultation for requests for products or additional testing Understands rationale for the critical value list Knows the critical value list and participates in the critical value callback of results Understands the importance of accurate, timely, and complete reporting of laboratory test results Understands the role of specific advanced precision diagnostics and personalized medicine assays and how results affect patient diagnosis and prognosis and overall patient care	Prepares a full consultative report with a written opinion for common diseases Prioritizes and presents patient care issues for report after call Answers routine pathology questions, drawing on appropriate resources Applies the escalation procedure for failed critical value callbacks Effectively communicates preliminary results on cases in progress Understands preanalytic issues and quality control for advanced precision diagnostics and personalized medicine	Independently prepares a full consultative written report with comprehensive review of medical records on common and uncommon diseases Runs report conference after call Develops a portfolio of clinical consultation experience Recommends new or alternate escalation procedures for failed critical value callbacks as needed Suggests evidence-based management, prognosis, and therapeutic recommendations based on the consultation Provides consultation, as needed, to clinicians about use and interpretation of advanced precision diagnostics and personalized medicine	Proficient in pathology consultations with comprehensive review of medical records Demonstrates an expanded portfolio of clinical and patient care experience with pathology consultation Participates in intuitional processes of generating the critical value list Is proficient in consultation regarding test use and treatment decisions based on advanced precision diagnostics and personalized medicine

Suggested Evaluation Methods: Direct observation, retrospective peer review, portfolio, feedback from clinical colleagues (360 evaluations), peer review, Health Insurance Portability and Accountability Act (HIPAA) training documentation provided.

TABLE 2 **PC2. Interpretation and Reporting: Analyzes Data and Appraises, Formulates, and Generates Effective and Timely Reports (Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Identifies key elements in the health care record Observes and assists in the interpretation and reporting of the diagnostic test Understands indications for common tests	Uses clinical correlation to interpret and report test results Describes the test platform and methodology Accurately interprets and reports the results Understands and applies algorithms in the workup for common diagnoses	Limits and focuses a differential diagnosis Knows the current and up-to-date literature about the test result Prepares a differential diagnosis for abnormal results Understands and applies algorithms in the workup for common and uncommon diagnoses	Able to lead discussion on developing a differential diagnosis based on clinical information Interfaces with clinical team to recommend tests based on current literature Knows potential confounding factors that may contribute to erroneous results Understands and prudently applies justification for approval of costly testing	Proficient in using health care records and clinical information to develop a limited and focused differential diagnosis Critically evaluates and applies the current literature Proficient in the interpretation and reporting of clinical pathology test results in the context of the patient's medical condition Proficient in algorithms in the workup for all diagnoses Writes policies on algorithms for testing

Suggested Evaluation Methods: Direct observation, simulation, feedback from clinical colleagues (360 evaluations), retrospective peer review, quality management results.

TABLE 3 **PC3. Interpretation and Diagnosis: Demonstrates Knowledge and Practices Interpretation and Analysis to Formulate Diagnoses (Anatomic Pathology [AP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Recognizes the importance of a complete pathology report for patient care	Begins to make connections between clinical differential diagnosis, gross, and microscopic pathologic findings Generates a list of next steps (ancillary testing; has awareness of options available) needed to refine differential in the clinical context Distinguishes normal from abnormal histology and recognizes confounding factors	Correlates the clinical differential diagnosis with gross and microscopic pathologic findings Recognizes appropriate ancillary tests and refines knowledge of "next steps" and proper use for application to differential diagnoses Consistently recognizes and correctly identifies common histopathologic findings (develops a "good eye"); able to troubleshoot (eg, tissue artifacts and processing and sampling issues)	Analyzes complex cases, integrates literature, and prepares a full consultative written report with comprehensive review of medical records Interprets ancillary testing results in clinical context Makes accurate diagnoses reliably, appreciates the nuances of diseases, and is able to independently troubleshoot confounding factors	Assesses, analyzes, and is able to distinguish subtle differences in difficult cases Proficient in interpretation with comprehensive review of medical records Seeks appropriate consultations

Suggested Evaluation Methods: Direct observation, simulation, feedback from clinical colleagues (360 evaluations), examination.

TABLE 4 **PC4. Reporting: Analyzes Data and Appraises, Formulates, and Generates Effective and Timely Reports (Anatomic Pathology [AP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Applies prior knowledge and draws on resources to learn normal gross anatomy, histology, and special techniques Recognizes the role of the surgical pathologist in the management of patients, including the use of cancer staging	Attends and contributes to gross and microscopic conferences Brings clinical/ancillary information to sign-out (eg, radiology, prior cases, reading about case) Generates preliminary report and/or preliminary autopsy diagnosis (for autopsy) before sign-out with attending staff/ responsible physician Is aware of accepted standards for turnaround time Becomes familiar with synoptic reporting	Reliably applies knowledge of gross and histologic features in formulating a diagnosis for common entities; able to present at gross conference Selects, orders, and interprets clinical/ancillary information to refine a differential diagnosis Composes a complete and accurate report on common specimens Able to generate a cause of death and manner of death for autopsy Completes routine preliminary and final reports within standards for turnaround time Knows when synoptic reporting/ template required	Reliably applies knowledge of gross and histologic features in formulating a diagnosis for common and uncommon entities Seeks appropriate consultations Integrates clinical/ancillary information into report Composes a complete and accurate report on common and uncommon specimens, including autopsies Completes complicated preliminary and final reports within standards for turnaround time Communicates effectively with family members, when applicable Able to complete synoptic report accurately	Participates in intradepartmental peer review consultation with colleagues Manages ambiguity and uncertainty in result interpretation and ancillary testing Produces timely reports with complete, accurate gross and histopathologic findings, including ancillary studies; integrates evidence-based medicine/current literature and knowledge Ensures communication of results to appropriate audiences Keeps current with evolving standards of synoptic reporting

Suggested Evaluation Methods: Direct observation, narrative, feedback from clinical colleagues (360 evaluations), retrospective peer review.

TABLE 5 **PC5. Procedure: Surgical Pathology Grossing: Demonstrates Attitudes, Knowledge, and Practices that Enable Proficient Performance of Gross Examination (Analysis and Appraisal of Findings, Synthesis and Assembly, and Reporting) (Anatomic Pathology [AP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Understands common surgical procedures and the resultant specimens Recognizes the importance of grossing for the interpretation of histology and management of patients Applies prior knowledge and draws on resources to learn normal gross anatomy	Demonstrates familiarity with the gross manual or a similar reference book Ensures and maintains the integrity of specimens to avoid cross-contamination or identity mix-up Correctly describes and appropriately samples common surgical specimens, including necessary tissues for ancillary studies in correct media/fixative Correlates clinical and/or radiologic information Understands the components of an appropriate and complete report Develops time management skills	Applies principles of grossing to newly encountered specimen types Correctly describes and appropriately samples common and uncommon surgical specimens Recognizes when additional gross sampling is necessary for diagnosis or staging Produces reports that contain all the necessary information for patient management; edits transcribed reports effectively Demonstrates increasing efficiency in grossing specimens	Has a portfolio of grossed specimens that demonstrates competency across a range of complex specimens Correctly describes and appropriately samples all specimen types Dictates complete, logical, and succinct descriptions Efficient in grossing surgical specimens	Demonstrates an expanded portfolio of competency in grossing specimens of a widely diverse and complex specimen type Proficient in the performance of surgical pathology gross examination Proficient in the production of complete, logical, and succinct descriptions

Suggested Evaluation Methods: Direct observation, 360 evaluation, periodic self-assessment, narrative, portfolio, quality management.

TABLE 6 **PC6. Procedure: Intraoperative Consultation/ Frozen Sections: Demonstrates Attitudes, Knowledge, and Practices that Enables Proficient Performance of Gross Examination and Frozen Section (Analysis and Appraisal of Findings, Synthesis and Assembly, and Reporting) (Anatomic Pathology [AP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Understands common surgical procedures and the resultant specimens and potential intraoperative consultation/ frozen section/intraoperative cytology (IOC/FS)	Is aware of indications and contraindications for IOC/FS and follows protocols and regulations Procures tissue for diagnosis under supervision Prepares IOC/FS that are of good interpretive quality Understands and follows correct callback guidelines Aware of limitations of techniques and interpretation	Discusses with pathology attending staff member(s) any requests that are contraindicated Correctly selects tissue for frozen section diagnosis independently Able to perform high-quality IOC/FS on technically difficult and multiple specimens; performs IOC/FS within turnaround time standards Effectively communicates the diagnosis and is cognizant of the impact of diagnosis on patient care, even in ambiguous situations Demonstrates knowledge of the limitations of techniques and interpretation	Appropriately and professionally discusses with requesting provider any IOC/FS that is contraindicated Responds appropriately to the concerns of the surgeon Given discussion of the case with the attending staff member(s), communicates appropriately with surgeon, asking appropriate questions that influence diagnosis Communicates limitations of techniques and interpretation to clinicians	Proficient in the performance of IOC/FS Able to manage competing tasks, especially in time-sensitive situations

Suggested Evaluation Methods: Direct observation, narrative, feedback from clinical colleagues (360 evaluations), retrospective peer review, portfolio, quality management.

TABLE 7 **PC7. Procedures: If Program Teaches Other Procedures (eg, Bone Marrow Aspiration, Apheresis, Fine-Needle Aspiration (FNA) Biopsy, Ultrasound-Guided FNA, etc) (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Recognizes the role of the procedure	Participates in simulated experience of the procedure, including slide preparation and staining, if applicable Observes and assists on the procedure Observes or participates in providing support to other service providers performing the procedure Is aware of potential complications of the procedure and the need to obtain informed consent	Discusses with pathology attending staff member(s) any requests that are contraindicated, obtains informed consent, and is able to assess specimen and procedure adequacy Performs a "time-out" according to standard procedures; performs the procedure; procures adequate specimens, if applicable Provides an accurate adequacy assessment and triages specimens for appropriate ancillary studies, if applicable Obtains informed consent Recognizes and understands the management of complications of the procedure	Appropriately and professionally documents procedure; discusses with clinical team and manages complications Able to perform the procedure with minimal supervision Understands indications for, and/or performs, ultrasound-guided FNA biopsy and/or core needle biopsy, if applicable Provides appropriate provisional assessment Manages complications of the procedure or refers to the appropriate health care professional	Proficient in the performance of the procedure

Suggested Evaluation Methods: Direct observation, simulation.

TABLE 8 **MK1. Diagnostic Knowledge: Demonstrates Attitudes, Knowledge, and Practices that Incorporate Evidence-Based Medicine and Promote Lifelong Learning (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Identifies the resources for learning in pathology	Assimilates medical knowledge in pathology from various learning sources Demonstrates textbook-level diagnostic knowledge for pathology	Performs scientific literature review and investigation of clinical cases to inform patient care (evidence-based medicine) and to improve diagnostic knowledge of pathology	Applies and synthesizes medical knowledge from scientific literature review and investigation to inform patient care (evidence-based medicine) Presents and discusses cases Demonstrates competence in diagnostic knowledge of pathology	Contributes to medical knowledge of others and participates in lifelong learning through literature review, continuing medical education, and self-assessment modules (SAMs) Demonstrates proficiency in knowledge of pathology

Suggested Evaluation Methods: Direct observation, pretest and posttest, rotation examinations, narrative, 360 evaluation, Board examination, maintenance of certification/SAMs, Resident In-Service Examination (RISE) and Pathologist Recertification Individualized Self-Assessment Examination (PRISE).

TABLE 9 **MK2. Teaching: Demonstrates Ability to Interpret, Synthesize, and Summarize Knowledge; Teaches Others (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Participates in active learning	Understands and begins to acquire the skills needed for effective teaching Teaches medical students as needed	Teaches peers as needed	Teaches across departments and at all levels, including to clinicians, patients, and families	Models teaching across departments and at all levels, including for clinicians, patients, and families

Suggested Evaluation Methods: Direct observation, 360 evaluations, teaching evaluations, student performance on examinations, simulations, conference presentation evaluation portfolio.

TABLE 10 **MK3. Procedure: Autopsy: Demonstrates Knowledge and Practices that Enable Proficient Performance of a Complete Autopsy (Analysis and Appraisal of Findings, Synthesis and Assembly, and Reporting) (Anatomic Pathology [AP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Understands the principles of confidentiality, universal precautions, chemical hazards, and personal protective equipment Understands the value of an autopsy	Properly identifies the decedent and verifies consent and limitations to extent of the autopsy Able to perform all 7 aspects of a routine autopsy Concisely reviews and presents clinical records/history; contacts the clinical team in advance of the case and summarizes questions posed by the clinical team Is aware of reporting regulations, such as legal jurisdiction, statutes regarding authorization to perform autopsy (medical examiner), device reporting, communicable diseases	Able to plan and perform complex/difficult cases Assists in preparation of presentations for morbidity and mortality (M&M), Clinical Pathologic Conference (CPC), or other conferences Understands chain of custody, the elements of scene investigation, trace evidence, and court testimony	Performs uncomplicated gross dissection within 4 h Presents results at M&M, CPC, or other conferences, and effectively answers clinical questions Assesses and applies chain of custody; interprets the elements of scene investigation, trace evidence, and court testimony	Proficient in the performance of a complete autopsy and in reporting the results in a timely manner Proficient in the presentation of results at M&M, CPC, or other conferences, and in answering clinical questions Proficient in the discussion of the chain of custody, and interpretation and assessment of the elements of scene investigation, trace evidence, and giving court testimony

Suggested Evaluation Methods: Direct observation, feedback from clinical colleagues (360 evaluations), narrative, portfolio review, quality management, peer evaluation.

TABLE 11 **SBP1. Patient Safety: Demonstrates Attitudes, Knowledge, and Practices that Contribute to Patient Safety (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Understands the importance of identity and integrity of the specimen and requisition form and verifies the identity Understands the risk inherent in handovers	Consistently checks identity and integrity of specimen Independently obtains clinical information when needed Explores other resources, such as in EHR and radiology Handles deviations from policies (waivers) with supervision Performs handovers in an appropriate manner according to guidelines (eg, situation-background-analysis-recommendation [SBAR] or local guidelines)	Troubleshoots preanalytic problems, as needed, with minimal supervision, including deviations from policies (waivers) Follows patient safety policies and accreditation requirements	Troubleshoots patient safety issues (including preanalytic, analytic, and postanalytic), as needed, without supervision	Models patient safety practices Writes and implements policies on patient safety, as needed Completes an advanced maintenance of certification (MOC) patient safety module

Suggested Evaluation Methods: Direct observation, narrative, quality assurance (QA) reports (misidentification rates, amended report rates), transfusion committee results/workups, documentation provided.

TABLE 12 **SBP2. Laboratory Management: Regulatory and Compliance: Explains, Recognizes, Summarizes, and is Able to Apply Regulatory and Compliance Issues (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Knows that laboratories must be accredited Can define appropriate disclosure of protected health information (PHI) as defined by HIPAA	Knows accrediting agencies of the laboratory Is aware of requirements for institutional review for human experimentation (research) and biospecimen donation Understands and applies policies and procedures in PHI as defined by HIPAA	Understands the components of laboratory accreditation and regulatory compliance (Clinical Laboratory Improvement Amendments [CLIA] and others), either through training or experience Confirms IRB approval before biospecimen procurement Completes laboratory inspector training Understands International Classification of Disease (ICD) 9 (ICD10) coding and the need to document appropriately in reports Teaches allied health professionals and clerical staff as necessary about the policies and procedures of PHI as defined by HIPAA	Understands the components and processes for credentialing and privileging Participates in an internal or external laboratory inspection Able to correctly use Current Procedural Terminology (CPT) and ICD9 (ICD10) codes for billing purposes; understands elements of a compliance plan Assists colleagues as needed with policies and procedures of PHI as defined by HIPAA	Participates in and complies with ongoing and focused competency assessment Participates in or leads internal or external laboratory inspections Participates in institutional review process, as needed Creates and follows a compliance plan Uses best practices for billing compliance

Suggested Evaluation Methods: Direct observation, portfolio, simulation, examination, team leader performance evaluation, portfolio review, quality management, peer evaluation.

TABLE 13 **SBP3. Laboratory Management: Resource Use (Personnel and Finance): Explains, Recognizes, Summarizes, and Is Able to Apply Resource Use Principles (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Interprets an organizational chart and is aware of employment contracts and benefits Describes a budget	Knows the personnel and lines of reporting in the laboratory Recognizes different budget types (ie, capital versus operating budget) Understands the basics of pathology practice finance (eg, Part A and Part B, Centers for Medicare & Medicaid Services [CMS])	Understands and describes the process of personnel management and employment laws (eg, interview questions, Family and Medical Leave Act, termination policies) Understands key elements of hospital and laboratory budgets	Creates a basic job description and participates in employee interviews/performance evaluation (real or simulated experiences) Participates in a budget cycle exercise (drafts, defends, and proposes logical cuts and/or additions)	Manages personnel effectively Develops and manages a laboratory budget

Suggested Evaluation Methods: Direct observation, portfolio, simulation, 360 evaluation, analysis of resident evaluations (meeting, employee interview, difficult conversations).

TABLE 14 **SBP4. Laboratory Management: Quality, Risk Management, and Laboratory Safety: Explains, Recognizes, Summarizes, and Is Able to Apply Quality Improvement, Risk Management, and Safety Issues (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Participates in basic safety training (eg, Occupational Safety and Health Administration [OSHA], blood-borne pathogen, personal protective equipment)	Participates in laboratory-specific safety training (eg, sharps disposal, proper equipment use) Understands when and how to file an incident or safety report Understands the concept of a laboratory quality management plan	Interprets quality data and charts and trends Understands continuous improvement tools, such as Lean and Six Sigma Understands serious reportable events (SREs) and appropriate reporting, and participates in root cause analysis (RCA) Demonstrates a knowledge of proficiency testing and its consequences Attends and participates in quality improvement meetings	Has completed a quality improvement project Reviews and analyzes proficiency testing results Participates in department and hospital-wide quality, risk management, and safety initiatives	Uses continuous improvement tools, such as Lean and Six Sigma Manages laboratory quality assurance and safety

Suggested Evaluation Methods: Direct observation, portfolio, simulation, narrative, examination, 360 evaluations.

TABLE 15 **SBP5. Laboratory Management: Test Use: Explains, Recognizes, Summarizes, and Is Able to Apply Test Use (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Is aware of the test menu and rationale for ordering	Organizes basic data for use review Identifies key elements of ordering practices Able to understand appropriate ordering or inappropriate ordering and overuse	Able to interpret charts and graphs that demonstrate use patterns Intervenes in inappropriate or overuse situations	Able to create charts and graphs that demonstrate use patterns (simulated or real experiences) Maintains a portfolio that includes experience in test use reviews and interventions that drive change	Demonstrates a broad portfolio of analyses for use reviews in complex scenarios and team management to drive change in areas both within and outside of the department

Suggested Evaluation Methods: Direct observation, portfolio, 360 analysis, simulation.

TABLE 16 **SBP6. Laboratory Management: Technology Assessment: Explains, Recognizes, Summarizes, and Is Able to Apply Technology Assessment (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Understands the value of new technology	Understands the need for a process in implementing new technology Aware of cost-benefit analysis for new technology	Understands and describes the process of implementing new technology Able to perform a cost-benefit analysis	Participates in new instrument and test selection, verification, implementation, and validation (including reference range analysis) and maintains a portfolio of participation in these experiences	Acts as primary assessor for new technology and is able to lead efforts to optimize test use and resource management

Suggested Evaluation Methods: Direct observation, portfolio, simulation.

TABLE 17 **SBP7. Informatics: Explains, Discusses, Classifies, and Applies Clinical Informatics (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	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)	Applies informatics skills as needed in project management (data management, computational statistics)	Participates in operational and strategy meetings, apprentice troubleshoots with information technology (IT) staff, and applies informatics skills in laboratory management and integrative bioinformatics (able to aggregate multiple data sources and often multiple data analysis services)	Is proficient in medical informatics systems Able to assess and purchase a laboratory information system for anatomic and/or clinical pathology laboratories Able to use medical informatics in the direction and operation of the laboratory

Suggested Evaluation Methods: Direct observation, 360 evaluation, portfolio data.

Practice-Based Learning and Improvement (PBLI)

TABLE 18 **PBLI1. Recognition of Errors and Discrepancies: Displays Attitudes, Knowledge, and Practices That Permit Improvement of Patient Care From Study of Errors and Discrepancies (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Acknowledges and takes responsibility for errors when recognized	Recognizes limits of own knowledge Initiates self-reflection process, (eg, as evidenced in self-assessment interviews with program director)	Reflects on errors in a group setting (such as Morbidity and Mortality [M&M] type conference setting) Participates in root cause analysis (RCA)	Demonstrates significant awareness of own blind spots Participates in, or leads communication of, error/discrepancies to clinicians	Models use of errors and discrepancies to improve practice Provides immediate communication of error/discrepancies to clinicians

Suggested Evaluation Methods: Self-assessment (written and verbal), direct observation, narrative.

TABLE 19 **PBLI2. Scholarly Activity: Analyzes and Appraises Pertinent Literature, Applies Scientific Method to Identify and Interpret Evidence-Based Medicine and to Apply It Clinically (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Uses and applies basic texts Uses presentation software, online literature databases, and searches, as needed Demonstrates working knowledge of basic statistical analysis	Develops knowledge of the basic principles of research (demographics, Institutional Review Board [IRB], human subjects), including how research is conducted, evaluated, explained to patients, and applied to patient care	Critically reads and incorporates the medical literature into presentations and lectures Applies knowledge of the basic principles of research Adds to a portfolio of scholarly activities, which may include manuscript preparation; abstract presentation at a local, regional, or national meeting; or other scientific presentation	Critically examines literature for study design and use in evidence-based clinical care Identifies gaps in the currently available knowledge Has a well-developed portfolio of scholarly activities	Proficient in critical evaluation of the literature and participates in lifelong learning

Suggested Evaluation Methods: Direct observation and evaluation of presentations by participants, portfolio, examination.

Professionalism (PROF)

TABLE 20 **PROF1. Licensing, Certification, Examinations, Credentialing: Demonstrates Attitudes and Practices That Ensure Timely Completion of Required Examinations and Licensure (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Completes and passes Step 2CK and 2CS of United States Medical Licensing Examination (USMLE)	Completes and passes Step 3 of USMLE Performs at expected level on objective examinations Begins assembling portfolio of experiences, including case log and participation in administrative tasks	Performs at expected level on objective examinations Demonstrates expanded portfolio and reviews with program director at semiannual evaluation	Applies for full and unrestricted medical license Demonstrates complete portfolio and reviews with program director at semiannual evaluation	Obtains full and unrestricted medical license Board-eligible/board-certified and begins to participate in maintenance of certification (SAMS, etc) Maintains portfolio

Suggested Evaluation Methods: Documentation provided.

TABLE 21 **PROF2. Professionalism: Demonstrates Honesty, Integrity, and Ethical Behavior (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Behaves truthfully and understands the concepts of ethical behavior, occasionally requiring guidance; seeks counsel when ethical questions arise Understands the concepts of respect, compassion, and empathy	Is truthful, acknowledges personal near misses and errors, and puts the needs of patients first Engages in ethical behavior Observes patient confidentiality Manifests sensitivity to patient's fears and concerns Demonstrates respect, compassion, and empathy to all	Demonstrates truthfulness to all members of the health care team Identifies, communicates, and corrects errors Demonstrates respect, compassion, and empathy, even in difficult situations	Exemplifies truthfulness to all members of the health care team Serves as a role model for members of the health care team in accepting personal responsibility Puts the needs of each patient above his or her own interests Promotes respect, compassion, and empathy in others	Models truthfulness to all members of the health care team; is viewed as a role model in accepting personal responsibility by members of the health care team; and always puts the needs of each patient above his or her own interests Models respect, compassion, and empathy in complex situations

Suggested Evaluation Methods: Direct observation, 360 evaluation.

TABLE 22 **PROF3. Professionalism: Demonstrates Responsibility and Follow-Through on Tasks (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Completes assigned tasks on time	Dependably completes assigned tasks in a timely manner Assists team members when requested Respects assigned schedules	Anticipates team needs and assists as needed	Anticipates team needs and takes leadership role to independently implement solutions	Exemplifies effective management of multiple, competing tasks, including follow-through on tasks Is source of support/guidance to other members of health care team

Suggested Evaluation Methods: Direct observation, 360 evaluation, portfolio data (eg, autopsy turnaround time).

TABLE 23 **PROF4. Professionalism: Gives and Receives Feedback (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Receives feedback constructively	Accepts feedback constructively and modifies practice in response to feedback	Able to provide constructive feedback	Exemplifies giving and receiving constructive feedback Encourages and actively seeks feedback to improve performance	Models giving and receiving constructive feedback Encourages and actively seeks feedback to improve performance

Suggested Evaluation Methods: Direct observation, 360 evaluation, role-play or simulation, resident experience narrative.

TABLE 24 **PROF5. Professionalism: Demonstrates Responsiveness to Each Patient's Unique Characteristics and Needs (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Respects diversity, vulnerable populations, and patient autonomy	Embraces diversity and respects vulnerable populations Is aware of potential for bias or cultural differences to affect clinical care	Demonstrates cultural competency Identifies and avoids biases and recognizes cultural differences that may affect clinical care	Exemplifies cultural competency Identifies and avoids biases and recognizes cultural differences that may affect clinical care	Models cultural competency Works with peers to avoid biases Recognizes cultural differences that may affect clinical care

Suggested Evaluation Methods: Direct observation, 360 evaluation, role-play or simulation, resident experience narrative.

TABLE 25 **PROF6. Professionalism: Demonstrates Personal Responsibility to Maintain Emotional, Physical, and Mental Health (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Is aware of importance of emotional, physical, and mental health and issues related to fatigue/sleep deprivation Exhibits basic professional responsibilities, such as timely reporting for duty rested, readiness to work, and being appropriately dressed	Manages emotional, physical, and mental health and issues related to fatigue/sleep deprivation Recognizes signs of impairment, and seeks appropriate help when needed	Manages emotional, physical, and mental health and issues related to fatigue/sleep deprivation, especially in stressful conditions	Recognizes signs of impairment in self and others, and facilitates seeking appropriate help when needed Anticipates and avoids behaviors that might lead to impairment	Accesses institutional resources to address impairment and initiates seeking appropriate help when needed

Suggested Evaluation Methods: Direct observation, 360 evaluation, role-play or simulation, resident experience narrative.

Interpersonal and Communication Skills (ICS)

TABLE 26 **ICS1. Intradepartmental Interactions and Development of Leadership Skills: Displays Attitudes, Knowledge, and Practices That Promote Safe Patient Care Through Team Interactions and Leadership Skills Within the Laboratory (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Demonstrates respect for, and willingness to learn from, all members of the pathology team Is aware of the significance of conflict in patient care	Works effectively with all members of the pathology team Attends laboratory, departmental, or institutional committee meetings Is aware of the mechanisms for conflict resolution Participates in a cytopathology team, with cytopathologists, cytotechnologists, and laboratory assistants, or a surgical pathology team with surgical pathologists, histotechnicians, and laboratory assistants, or a clinical pathology team, with the pathologist, clinical laboratory scientists, and laboratory assistants	Understands own role on the pathology team, and flexibly contributes to team success through a willingness to assume appropriate roles as needed Understands the basics of running a meeting Uses mechanisms for conflict resolution and helps to defuse and ameliorate conflict Participates in groups to accomplish goals	Helps to organize the pathology team to facilitate optimal communication and coeducation among members Demonstrates the ability to lead and run an effective meeting Participates effectively in conflict resolution Demonstrates ability to lead groups to reach a consensus and accomplish goals	Leads the pathology team effectively Models respect for others Models effective conflict prevention and resolution skills

Suggested Evaluation Methods: Direct observation, 360 evaluation, narrative.

TABLE 27 **ICS2. Interdepartmental and Health Care Clinical Team interactions: Displays Attitudes, Knowledge, and Practices That Promote Safe Patient Care Through Interdisciplinary Team Interactions (Anatomic Pathology [AP] and Clinical Pathology [CP])**

Has Not Achieved Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
	Recognizes the importance of clinical input in formulating a differential diagnosis and composing a final diagnosis Is aware that multidisciplinary conferences are used to further appropriate patient care Is aware of pathologist's role in the clinical team Understands the utility of communication with other members of the clinical team	Participates through observation and active interaction with clinicians to obtain relevant clinical and/or radiologic data Attends multidisciplinary conferences Recognizes the importance of timely production of a final diagnosis and the role it plays in patient care Appropriately triages requests for information from the clinical team Is aware of the limitations of own knowledge	Assesses, analyzes, and interprets pathology reports and is able to discuss findings in consultation with clinical colleagues Prepares and presents cases at multidisciplinary conferences Responds to inquiries from the clinical team to contribute to patient care Effectively communicates clinically significant or unexpected values, including critical values Is aware of the limitations of medical knowledge	Routinely interfaces with clinical colleagues to formulate a narrow differential diagnosis and arrive at a final diagnosis Can lead multidisciplinary conferences Knows how subtleties may affect or alter patient care; recognizes and uses nuances in the proper wording during the discussion of pathology findings Participates in, or leads, communication with the clinical team to contribute to patient care Communicates the limitations of medical knowledge	Fully participates as a member of the health care team and is recognized as proficient by peers and clinical colleagues Organizes and is responsible for multidisciplinary conferences Serves as a consultant to the health care team

Suggested Evaluation Methods: Direct observation, 360 evaluation, narrative.