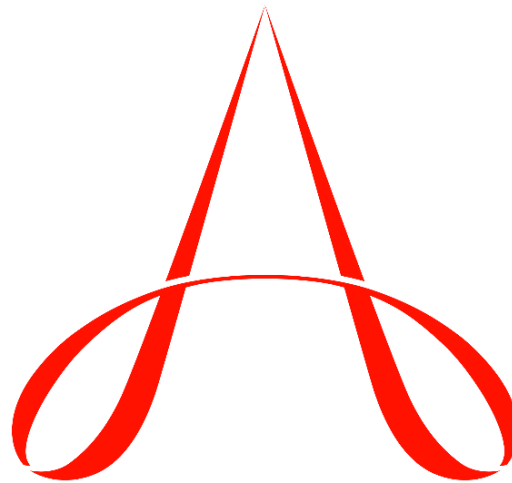




Supplemental Guide: Forensic Pathology



A C G M E

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Milestones Supplemental Guide

This document provides additional guidance and examples for the Forensic Pathology Milestones. This is not designed to indicate any specific requirements for each level, but to provide insight into the thinking of the Milestone Work Group.

Included in this document is the intent of each Milestone and examples of what a Clinical Competency Committee (CCC) might expect to be observed/assessed at each level. Also included are suggested assessment models and tools for each subcompetency, references, and other useful information.

Review this guide with the CCC and faculty members. As the program develops a shared mental model of the Milestones, consider creating an individualized guide (Supplemental Guide Template available) with institution/program-specific examples, assessment tools used by the program, and curricular components.

Additional tools and references, including the Milestones Guidebook, Clinical Competency Committee Guidebook, and Milestones Guidebook for Residents and Fellows, are available on the [Resources](#) page of the Milestones section of the ACGME website.

Patient Care 1: Death Investigation	
Overall Intent: To lead a scene investigation using appropriate materials for review and determining jurisdiction and extent of examination	
Milestones	Examples
<p>Level 1 <i>Explains the necessity and required aspects of a scene investigation</i></p> <p><i>Evaluates a medical record in preparation for an autopsy</i></p> <p><i>Identifies types of postmortem examinations and medical examiner/coroner notification criteria</i></p>	<ul style="list-style-type: none"> ● Outlines required steps of a scene investigation ● Evaluates the medical record to determine prescribed dosage of opioids ● Describes the external exam, limited autopsy, and complete autopsy ● Discusses local laws regarding medical examiner/coroner jurisdiction with the attending
<p>Level 2 <i>Assists with a scene investigation</i></p> <p><i>Identifies additional sources of information necessary for a death investigation</i></p> <p><i>Explains when cases fall under the jurisdiction of the medical examiner/coroner, including laws about religious and/or other objections to autopsy</i></p>	<ul style="list-style-type: none"> ● At a scene takes photographs, reviews medications, and talks with family and law enforcement ● Identifies the need for doll re-enactment based on Centers for Disease Control and Prevention (CDC) Guidelines ● During morning review, discusses the necessity for full autopsy despite family’s religious objections
<p>Level 3 <i>With supervision, leads a routine scene investigation</i></p> <p><i>Independently synthesizes pertinent information from multiple sources</i></p> <p><i>With supervision, determines which cases should be accepted for examination and what type of examination is most appropriate</i></p>	<ul style="list-style-type: none"> ● Makes decisions at the scene to determine how the body will be transported to preserve evidence ● Prepares death investigation narrative for review ● At morning report, identifies which cases need an external exam, limited autopsy, and complete autopsy
<p>Level 4 <i>Independently leads a routine scene investigation</i></p> <p><i>Independently identifies missing information that needs to be gathered</i></p>	<ul style="list-style-type: none"> ● Directs other personnel at the scene ● Independently completes the scene report ● Requests hospital blood specimens, taser logs, and video surveillance for a given case

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<p><i>Independently determines which cases should be accepted for examination and what type of examination is most appropriate</i></p>	<ul style="list-style-type: none"> • Determines which cases receive which type of exam
<p>Level 5 <i>Independently leads a complex scene investigation</i></p>	<ul style="list-style-type: none"> • Leads scene investigation for in custody death
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> • Case logs • Daily morning report • Direct observation • Multisource feedback • Scene photograph and report review
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> •
<p>Notes or Resources</p>	<ul style="list-style-type: none"> • American Board of Medicolegal Death Investigators. https://abmdi.org/. 2020. • Local laws regarding medical examiner/coroner jurisdiction • National Institute of Justice. Death Investigation: A Guide for the Scene Investigator. https://www.ncjrs.gov/pdffiles1/nij/234457.pdf. 2020.

Patient Care 2: Autopsy (External and Internal Examination)	
Overall Intent: To perform complete autopsy with specialized techniques, including documentation and evidence collection, based on circumstances of death	
Milestones	Examples
<p>Level 1 <i>With technical assistance, performs routine evisceration and dissection</i></p> <p><i>With supervision, collects and submits evidence for a routine case</i></p> <p><i>With supervision, documents autopsy findings (including photography) for a routine case</i></p>	<ul style="list-style-type: none"> ● Performs Virchow and Letulle eviscerations ● Collects DNA spot cards and clothing ● Completes accurate autopsy diagrams
<p>Level 2 <i>Independently performs routine evisceration and dissection, and identifies cases requiring special techniques</i></p> <p><i>Independently identifies, collects, and submits evidence for a routine case</i></p> <p><i>Independently documents autopsy findings for a routine case</i></p>	<ul style="list-style-type: none"> ● Determines which evisceration technique is appropriate for a specific case ● Identifies cases requiring posterior neck dissection ● Recovers bullet and submits as evidence in a suicide case ● Ensures appropriate photographic documentation highlighting relevant positive and negative findings
<p>Level 3 <i>With supervision, performs complex evisceration and dissection, including special techniques</i></p> <p><i>With supervision, identifies, collects, and submits evidence for a complex case</i></p> <p><i>With supervision, documents autopsy findings for a complex case</i></p>	<ul style="list-style-type: none"> ● Removes eyes of infant in suspected abuse case ● Collects and submits a sexual assault kit ● Uses appropriate specialized diagrams to document findings
<p>Level 4 <i>Independently performs complex evisceration and dissection, including special techniques</i></p> <p><i>Independently identifies, collects, and submits evidence for a complex case</i></p>	<ul style="list-style-type: none"> ● Performs vertebral artery dissection ● Recognizes locations for collection and submits neck swabs for DNA evidence

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<i>Independently documents autopsy findings for a complex case</i>	<ul style="list-style-type: none"> • Completes an accurate diagram in a case with multiple gunshot wounds
Level 5 <i>Reconstructs case findings from the documentation of others to form independent opinion for a complex case</i>	<ul style="list-style-type: none"> • Testifies on case for a colleague who has left the office • Reviews a cold case to assist investigators
Assessment Models or Tools	<ul style="list-style-type: none"> • Diagram, photograph, and report review • Direct observation • Multisource feedback
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • Basic forensic textbooks • Collins KA. <i>Autopsy Performance & Reporting</i>. 3rd ed. Northfield, IL: College of American Pathologists; 2017. • Collins KA. <i>Special Autopsy Dissections</i>. 1st ed. Northfield, IL: College of American Pathologists; 2010. • National Association of Medical Examiners. Forensic Autopsy Performance Standards. https://name.memberclicks.net/assets/docs/684b2442-ae68-4e64-9ecc-015f8d0f849e.pdf. 2020.

Medical Knowledge 1: Death Certification and Reporting	
Overall Intent: To complete a comprehensive autopsy report and formulate an opinion for cause and manner of death	
Milestones	Examples
<p>Level 1 <i>Identifies the differences between cause and manner of death</i></p> <p><i>Drafts a timely, organized written report for a routine case</i></p>	<ul style="list-style-type: none"> ● Lists different manners of death classifications ● Explains proximate cause of death ● Provides attending with a draft report for a natural death, understanding the need to allow time for editing
<p>Level 2 <i>Synthesizes findings to opine on cause and manner of death in routine cases</i></p> <p><i>Synthesizes and prioritizes findings for a routine case into a timely, written report</i></p>	<ul style="list-style-type: none"> ● Incorporates toxicology findings to certify the cause and manner of death in an overdose case ● Organizes final diagnoses by relevance in an overdose case with natural disease findings ● Writes report for an overdose case within office turnaround time
<p>Level 3 <i>Describes the subtleties in death certification in complex cases</i></p> <p><i>Synthesizes and prioritizes findings for a complex case into a timely written report with editorial assistance</i></p>	<ul style="list-style-type: none"> ● Recognizes a complex case and discusses the wording of the cause of death statement, including proximate, immediate, and contributory causes ● Discusses suicide versus accident as manner of death in a case with toxic drug levels ● Writes an organized report for a case with multiple injuries within office turnaround time
<p>Level 4 <i>Synthesizes findings to opine in complex cases with multiple competing causes and/or manners of death</i></p> <p><i>Synthesizes and prioritizes findings for a complex case into a timely written report that needs minimal editing</i></p>	<ul style="list-style-type: none"> ● Writes the cause and manner of death statement for an excited delirium case ● Determines when there is a competing mechanism of death and differentiates the level of significance ● Writes an organized report for a child abuse case
<p>Level 5 <i>Independently generates a nuanced report that expresses the ambiguity and uncertainty for a complex case</i></p>	<ul style="list-style-type: none"> ● Writes a report for a case of skeletal remains with circumstances suspicious of homicide
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Case-based discussion ● Case logs ● Presentations ● Review of report and death certificate
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●

Notes or Resources	<ul style="list-style-type: none">● Hanzlick R. <i>Cause of Death and the Death Certificate: Important Information for Physicians, Coroners, Medical Examiners, and the Public</i>. Northfield, IL: College of American Pathologists; 2006. https://www.health.state.mn.us/people/vitalrecords/physician-me/docs/capcodbook.pdf. 2020.● Hirsch C, Flomenbaum M. ASCP Check Sample FP95-1 (FP202). <i>American Society of Clinical Pathologists</i>. 1995;37:1-30.● NAME. Death Certification Resources. https://www.thename.org/death-certification. 2020.
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Medical Knowledge 2: Recognition and Interpretation of Autopsy Findings and Ancillary Studies Overall Intent: To recognize and interpret artifacts, categories of injury, and relevant ancillary studies	
Milestones	Examples
<p>Level 1 <i>Describes common artifacts (e.g., post mortem change, medical intervention, organ/tissue procurement)</i></p> <p><i>Describes categories of injuries (e.g., blunt force, sharp force, penetrating)</i></p> <p><i>Describes available ancillary studies (e.g., histology, microbiology, molecular, radiology, toxicology)</i></p>	<ul style="list-style-type: none"> ● Write characteristics of livor mortis on body diagram ● Prior to initiating case, list the possible categories of injuries from a motor vehicle accident ● Discuss available postmortem tests for possible infectious disease death
<p>Level 2 <i>Identifies distinguishing features of common artifacts</i></p> <p><i>Identifies distinguishing features of injuries (e.g., undermining, bridging)</i></p> <p><i>Performs proper specimen collection, preservation, and submission</i></p>	<ul style="list-style-type: none"> ● Describes appearance of postmortem insect activity in contrast to an abrasion ● Describe the distinctions between lacerations and sharp force injuries ● Collects toxicology samples in an appropriate, properly labeled container and correctly completes the requisition
<p>Level 3 <i>Interprets common artifacts in the context of the case</i></p> <p><i>Identifies details and patterns of injuries (e.g., range of gunshot wound)</i></p> <p><i>Recognizes case scenarios in which ancillary studies are indicated</i></p>	<ul style="list-style-type: none"> ● Distinguishes surgical intervention from sharp force injury ● Recognizes soot and stippling and determines implications for range of fire ● Orders appropriate ancillary studies in a case of suspected meningitis
<p>Level 4 <i>Consistently differentiates injury patterns from artifacts</i></p> <p><i>Interprets multiple/variable injuries in a single case</i></p> <p><i>Independently orders and interprets ancillary study results and incorporates into report</i></p>	<ul style="list-style-type: none"> ● Differentiates blunt force injuries from artifact in decomposed cases ● Interprets overlapping ligature and sharp force injuries of the neck ● Recognizes patterned blunt force injuries in a background of multiple injuries ● Correlates influenza work-up with clinical history and histology in the report

<p>Level 5 <i>Interprets multiple, complex injuries with significant artifacts</i></p> <p><i>Independently identifies trends in ancillary study results that advance medical knowledge and public health</i></p>	<ul style="list-style-type: none"> ● Independently distinguishes animal predation from injury in skeletal remains ● Recognizes an outbreak of infectious disease based on recent cases
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Presentations ● Report and photograph review
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● Basso C, Aguilera B, Banner J, et al. Guidelines for autopsy investigation of sudden cardiac death: 2017 update from the Association for European Cardiovascular Pathology. <i>Virchows Arch.</i> 2017;471(6):691-705. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5711979/. 2020. ● Collins KA. <i>Autopsy Performance & Reporting</i>. 3rd ed. Northfield, IL: College of American Pathologists; 2017. ● Connolly AJ, Finkbeiner WE, Ursell PC, Davis RL. <i>Autopsy Pathology: A Manual and Atlas</i>. 3rd ed. Philadelphia, PA: Elsevier; 2016. ● DiMaio D, DiMaio VJM. <i>Forensic Pathology (Practical Aspects of Criminal and Forensic Investigations)</i>. 2nd ed. Boca Raton, FL: CRC Press; 2001. ● Dolinak D, Matshes E, Lew EO. <i>Forensic Pathology: Principles and Practice</i>. 1st ed. Burlington, MA: Elsevier; 2005. ● Fernández-Rodríguez A, Cohen MC, Lucena J, et al. How to optimise the yield of forensic and clinical post-mortem microbiology with an adequate sampling: a proposal for standardisation. <i>Eur J Clin Microbiol Infect Dis.</i> 2015;34(5):1045-57. https://link.springer.com/article/10.1007%2Fs10096-015-2317-x. 2020. ● Filograna L, Pugliese L, Muto M, et al. A practical guide to virtual autopsy: why, when and how. <i>Semin Ultrasound CT MR.</i> 2019;40(1):56-66. https://www.sciencedirect.com/science/article/abs/pii/S0887217118300945?via%3Dihub. 2020. ● Prahlow JA, Byard RW. <i>Atlas of Forensic Pathology: For Police, Forensic Scientists, Attorneys, and Death Investigators</i>. 2012th ed. New York, NY: Humana Press; 2011. ● Saukko P, Knight B. <i>Knight's Forensic Pathology</i>. 4th ed. Boca Raton, FL: CRC Press; 2016. ● Spitz WU. <i>Spitz and Fisher's Medicolegal Investigation of Death: Guidelines for the Application of Pathology to Crime Investigation</i>. 4th ed. Springfield, IL: Charles C Thomas; 2005.

Medical Knowledge 3: Clinical Reasoning	
Overall Intent: To approach a death investigation in an informed and logical manner using appropriate resources to guide decisions	
Milestones	Examples
<p>Level 1 <i>Demonstrates a basic framework for clinical reasoning</i></p> <p><i>Identifies appropriate resources to inform clinical reasoning</i></p>	<ul style="list-style-type: none"> ● Navigates medical and investigative records, internet, and literature to locate necessary information for a forensic pathology case ● Asks attending what their preferred resources are for a fatal stabbing
<p>Level 2 <i>Demonstrates clinical reasoning to determine relevant information</i></p> <p><i>Selects relevant resources based on scenario to inform decisions</i></p>	<ul style="list-style-type: none"> ● Extracts pertinent findings from the medical and investigative records and distinguishes between relevant and extraneous data ● Is aware of and uses appropriate forensic algorithms, consensus guidelines, and published literature
<p>Level 3 <i>Synthesizes information to inform clinical reasoning, with assistance</i></p> <p><i>Seeks and integrates evidence-based information to inform diagnostic decision making in complex cases, with assistance</i></p>	<ul style="list-style-type: none"> ● Employs consensus guideline data to appropriately establish cause or manner of death ● Uses published literature and recommendations to correctly direct work-up of patient who has a combination of toxic drug levels and multiple comorbidities
<p>Level 4 <i>Independently synthesizes information to inform clinical reasoning in complex cases</i></p> <p><i>Independently seeks out, analyzes, and applies relevant original research to diagnostic decision making in complex clinical cases</i></p>	<ul style="list-style-type: none"> ● Uses Sudden Unexplained Infant Death Investigation guidelines to complete an examination of a nine-month-old infant ● Uses clinical, laboratory, and epidemiologic data to guide work-up of a patient with infectious encephalitis
<p>Level 5 <i>Demonstrates intuitive approach to clinical reasoning for complex cases</i></p>	<ul style="list-style-type: none"> ● Attending consults fellow with an interest in cardiac pathology to resolve a difficult cardiac death
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Case based discussion assessment ● Direct observation ● Presentations ● Review of autopsy reports ● Review of daily cases
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● Clinical reasoning relies on appropriate foundational knowledge that requires the trainee to apply that knowledge in a thoughtful, deliberate, and logical fashion to forensic cases

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- Krehbiel K, Pinckard JK. The toolbox approach to forensic pathology. *Academic Forensic Pathology.* 2015;5(4):534-547. <https://journals.sagepub.com/doi/10.23907/2015.059>. 2020.
- NAME. Position Papers. <https://name.memberclicks.net/name-public-position-papers>. 2020.

Systems-Based Practice 1: Safety and Quality Improvement (QI)	
Overall Intent: To engage in the analysis and management of patient safety events, including relevant communication with families and communities; to conduct a QI project	
Milestones	Examples
<p>Level 1 <i>Demonstrates knowledge of common safety events (e.g., body or specimen misidentification/ mislabeling)</i></p> <p><i>Demonstrates knowledge of how to report safety events (e.g., release of wrong body, reportable infectious disease)</i></p> <p><i>Demonstrates knowledge of basic QI methodologies and metrics</i></p>	<ul style="list-style-type: none"> ● Has basic knowledge of patient safety events (e.g., specimen mislabeling, body misidentification), reporting pathways, and QI strategies, but has not yet participated in such activities
<p>Level 2 <i>Identifies system factors that lead to safety events</i></p> <p><i>Reports safety events through institutional reporting systems (simulated or actual)</i></p> <p><i>Describes departmental and institutional QI initiatives</i></p>	<ul style="list-style-type: none"> ● Identifies lack of standardized practice of labeling containers immediately as a factor for errors in labeling ● Identifies and reports a mislabeled body ● Identifies and reports a needle stick injury ● Is aware of improvement initiatives within their scope of practice
<p>Level 3 <i>Participates in analysis of safety events (simulated or actual)</i></p> <p><i>Participates in disclosure of safety events to clinicians, families, and community as appropriate (simulated or actual)</i></p> <p><i>Participates in departmental and institutional QI initiatives</i></p>	<ul style="list-style-type: none"> ● Participates in a root cause analysis to determine why a body was released to the wrong funeral home ● Participates in reporting postmortem injuries that occurred during transport to the family, per local guidelines ● Helps to implement a new barcoding system that was purchased by the department to decrease the incidence of specimen mislabeling
<p>Level 4 <i>Conducts analysis of safety events and offers error prevention strategies (simulated or actual)</i></p> <p><i>Discloses safety events to clinicians, families, and community as appropriate (simulated or actual)</i></p>	<ul style="list-style-type: none"> ● Collaborates with a team to lead the analysis of a series of postmortem injuries that occurred during transport ● Competently communicate with families about those events

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<p><i>Demonstrates the skills required to identify, develop, implement, and analyze a QI project</i></p>	<ul style="list-style-type: none"> • Initiates and completes a QI project, including communication with stakeholders
<p>Level 5 <i>Actively engages teams and processes to modify systems to prevent safety events</i></p> <p><i>Role models or mentors others in the disclosure of safety events</i></p> <p><i>Creates, implements, and assesses QI initiatives at the institutional or community level</i></p>	<ul style="list-style-type: none"> • Competently assumes a leadership role at the departmental or institutional level for patient safety and/or QI initiatives, possibly even being the person to initiate action or call attention to the need for action
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> • Direct observation • Documentation of QI or patient safety project processes or outcomes • Multisource feedback • Participation in office quality assurance meetings • Simulation • System documentation by fellow
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> •
<p>Notes or Resources</p>	<ul style="list-style-type: none"> • Institute of Healthcare Improvement. http://www.ihl.org/Pages/default.aspx. 2020. • NAME. Forensic Pathology-Relevant “Patient Safety” Course. https://www.thename.org/patient-safety-course. 2020.

Systems-Based Practice 2: Systems Navigation for Patient-Centered Care	
Overall Intent: To effectively navigate the health care system, including the interdisciplinary team and other care providers, to adapt care to a specific patient population to ensure high-quality outcomes	
Milestones	Examples
<p>Level 1 <i>Demonstrates knowledge of case coordination</i></p> <p><i>Identifies key elements for safe and effective transitions of care and hand-offs</i></p> <p><i>Demonstrates knowledge of population and community health needs and disparities</i></p>	<ul style="list-style-type: none"> ● Identifies the members of the interprofessional team, including autopsy technicians, death investigators, laboratory personnel, law enforcement, and consultants, and describes their roles ● Lists the essential components of an effective transfer of pertinent case information for organ and tissue transplantation ● Identifies components of social determinants that affect autopsy performance
<p>Level 2 <i>Coordinates routine cases effectively using interprofessional teams</i></p> <p><i>Performs safe and effective transitions of care/hand-offs in routine situations (e.g., transition from investigator to pathologist, release to funeral home)</i></p> <p><i>Identifies pathology’s role in population and community health needs and inequities for the local population</i></p>	<ul style="list-style-type: none"> ● With assistance, contacts necessary consultants including forensic odontology or anthropology ● Takes routine calls from death investigators but still needs assistance to triage cases that need to be brought in for an autopsy ● Identifies that the homeless population is more likely to have tuberculosis
<p>Level 3 <i>Coordinates complex cases effectively using interprofessional teams</i></p> <p><i>Performs safe and effective transitions of care/hand-offs in complex situations (e.g., transfer of materials for outside testing or consultation)</i></p> <p><i>Identifies opportunities for pathology to participate in community and population health</i></p>	<ul style="list-style-type: none"> ● Attends interdisciplinary meetings for a Child Death Review ● Coordinates with law enforcement to review body cam footage or surveillance footage in an in-custody death ● Coordinates transfer of heart, brain, and bones to an outside facility for consultation or additional testing ● Speaks to the community about the practice of forensic pathology or a specific public health issue
<p>Level 4 <i>Models effective coordination of cases among different disciplines and specialties</i></p>	<ul style="list-style-type: none"> ● Educates students and junior team members regarding the engagement of appropriate interprofessional team members, as needed for each case, and ensures the necessary resources have been arranged

<p><i>Models and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems (e.g., organ transplantation, genetic findings to family)</i></p> <p><i>Recommends and/or participates in changing and adapting practice to provide for the needs of communities and populations</i></p>	<ul style="list-style-type: none"> ● Proactively calls the family or referring agency to report conditions which may affect other family members ● Is involved in community safety campaign for safe sleep
<p>Level 5 <i>Analyzes the process of care coordination and leads the design and implementation of improvements</i></p> <p><i>Improves quality of transitions of care within and across health care delivery systems to optimize outcomes</i></p> <p><i>Leads innovations and advocates for populations and communities with health care inequities</i></p>	<ul style="list-style-type: none"> ● Works with team members or leadership to analyze case coordination and laboratory workflow and takes a leadership role in designing and implementing changes ● Works with the interdisciplinary team to develop a tool to improve communications when providing organs and tissue for transplantation ● Organizes a community outreach program to address an evolving infectious disease ● Designs an online resource for off-site death investigators and referring agencies to improve the quality of death certification
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Interdisciplinary rounds and case conferences ● Lectures/workshops on social determinants of health or population health with identification of local resources ● Multisource feedback
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● Aller RD. Pathology's contributions to disease surveillance: sending our data to public health officials and encouraging our clinical colleagues to do so. <i>Archives of Path Lab Med.</i> 2009;133(6):926-932. https://www.archivesofpathology.org/doi/10.1043/1543-2165-133.6.926?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed. 2020. ● College of American Pathologists. Competency Model for Pathologists. https://learn.cap.org/content/cap/pdfs/Competency_Model.pdf. 2020. ● Kaplan KJ. In Pursuit of Patient-Centered Care. http://tissuepathology.com/2016/03/29/in-pursuit-of-patient-centered-care/#axzz5e7nSsAns. 2020. ● Medeiros-Domingo A, Bolliger S, Grani C, et al. Recommendations for genetic testing and counselling after sudden cardiac death: practical aspects for Swiss practice. <i>Swiss Med Wkly.</i> 2018;148:w14638. https://smw.ch/article/doi/smw.2018.14638. 2020.

Systems-Based Practice 3: Physician Role in Health Care System	
Overall Intent: To understand the physician role in the complex health care system and how to optimize the system to improve performance	
Milestones	Examples
Level 1 <i>Identifies key components of the complex health care system (e.g., medical examiner, coroner, public health, laboratory)</i>	<ul style="list-style-type: none"> Recognizes the multiple, often competing forces, in the death investigation system (e.g., families, referring agencies, law enforcement, attorneys, funeral homes)
Level 2 <i>Describes how components of a complex health care system are interrelated, and how this impacts patient care</i>	<ul style="list-style-type: none"> Understands how law enforcement reports may conflict with information obtained by death investigators
Level 3 <i>Discusses how individual practice affects the broader system (e.g., test use, turnaround time)</i>	<ul style="list-style-type: none"> Understands, accesses, and analyzes own performance data; relevant data may include: <ul style="list-style-type: none"> Autopsy case log Scene log Testimony log
Level 4 <i>Manages various components of the complex health care system to provide efficient and effective patient care and transition of care</i>	<ul style="list-style-type: none"> Works with referring agencies to coordinate the death investigation
Level 5 <i>Advocates for or leads systems change that enhances high-value, efficient, and effective patient care and transition of care</i>	<ul style="list-style-type: none"> Works with referring agencies to improve death investigation procedures
Assessment Models or Tools	<ul style="list-style-type: none"> Direct observation Multisource feedback Review of case, scene, and testimony logs
Curriculum Mapping	<ul style="list-style-type: none">
Notes or Resources	<ul style="list-style-type: none"> Luzi SA, Melinek J, Oliver WR. Medical examiner’s independence is vital for the health of the American legal system. <i>Acad Forensic Pathol.</i> 2013;3(1):84-92. https://journals.sagepub.com/doi/abs/10.23907/2013.012?journalCode=afpa. 2020. Melinek J, Thomas LC, Oliver WR, et al. National Association of Medical Examiners Position Paper: medical examiner, coroner, and forensic pathologist independence. <i>Acad Forensic Pathol.</i> 2013;3(1):93-98. https://journals.sagepub.com/doi/abs/10.23907/2013.013?journalCode=afpa. 2020. NAME. Forensic Pathology-Relevant “Patient Safety” Course. https://www.thename.org/patient-safety-course. 2020.

Systems-Based Practice 4: Accreditation, Compliance, and Quality	
Overall Intent: To gain in-depth knowledge of the components of laboratory accreditation, regulatory compliance, and quality management	
Milestones	Examples
<p>Level 1 <i>Demonstrates knowledge of accrediting agencies and compliance for hospital-based laboratories</i></p> <p><i>Discusses the need for quality control</i></p>	<ul style="list-style-type: none"> ● Understands that hospital laboratories must be inspected and accredited by a Centers for Medicare & Medicaid Services (CMS)-approved accreditation organization, such as the College of American Pathologists (CAP), The Joint Commission (TJC), AABB, etc. ● Attends departmental quality assurance/quality control meetings, trauma conferences, morbidity and mortality conferences, and/or accreditation meetings; discusses with faculty/staff members afterwards
<p>Level 2 <i>Demonstrates knowledge of the accrediting agencies for death investigation offices and forensic laboratories</i></p> <p><i>Interprets quality data and charts and trends, with assistance</i></p>	<ul style="list-style-type: none"> ● Understands that National Association of Medical Examiners (NAME) inspection is for accreditation of medical examiner’s offices/coroner’s offices/autopsy facilities while toxicology laboratories are accredited by the American Board of Forensic Toxicology (ABFT) or the ANSI National Accreditation Board (ANAB) ● Participates in departmental quality assurance/quality control program ● Compares preliminary gross diagnoses to final diagnoses for own cases
<p>Level 3 <i>Identifies the differences between accreditation and regulatory compliance; discusses the process for achieving accreditation and maintaining regulatory compliance</i></p> <p><i>Demonstrates knowledge of the components of a laboratory quality management plan</i></p>	<ul style="list-style-type: none"> ● Reviews and discusses the components of the NAME Inspection and Accreditation Checklist ● Completes inspector training for accreditation agency to understand the process for achieving/maintaining regulatory/accreditation compliance
<p>Level 4 <i>Participates in an internal or external laboratory inspection (mock or actual)</i></p> <p><i>Reviews the quality management plan to identify areas for improvement</i></p>	<ul style="list-style-type: none"> ● Performs a mock or self-inspection using NAME checklist ● Assists in developing a strategy for handling quality control or proficiency testing failures
<p>Level 5 <i>Serves as a resource for accreditation at the regional or national level</i></p> <p><i>Creates and follows a comprehensive quality management plan</i></p>	<ul style="list-style-type: none"> ● Serves on a committee for a regional or national accreditation agency ● Performs accreditation inspection for outside facility ● Oversees laboratory quality management
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Assignment of duties for departmental quality assurance/quality control committees ● Direct observations

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	<ul style="list-style-type: none">• Documentation of inspector training and participation in portfolio• Presentation at trauma conferences
Curriculum Mapping	<ul style="list-style-type: none">•
Notes or Resources	<ul style="list-style-type: none">• CAP. Inspector Training Options. https://www.cap.org/laboratory-improvement/accreditation/inspector-training. 2020.• NAME. Inspection and Accreditation. https://www.thename.org/inspection-accreditation. 2020.

Systems-Based Practice 5: Utilization	
Overall Intent: To understand and apply principles of laboratory resource utilization	
Milestones	Examples
Level 1 <i>Identifies general pathology work practices and workflow (e.g., histology, immunohistochemistry stains, chemical tests)</i>	<ul style="list-style-type: none"> • Knows proper places to send various specimens for ancillary testing • Saves appropriate specimens for possible testing
Level 2 <i>Explains rationale for optimizing utilization</i>	<ul style="list-style-type: none"> • Understands the rough cost and turnaround time of each ancillary test
Level 3 <i>Identifies opportunities to optimize utilization of pathology resources</i>	<ul style="list-style-type: none"> • Recognizes that vitreous electrolytes and toxicology testing may be unnecessary for an individual with an extended hospitalization between injury and death • Recognizes submission of extensive tissues for histology is not necessary for some forensic autopsies
Level 4 <i>Initiates efforts to optimize utilization</i>	<ul style="list-style-type: none"> • Judiciously submits sections for histology on deaths due to trauma • Selectively determines which microbiology studies are most appropriate for a sudden, unexpected infant death
Level 5 <i>Completes a utilization review and implements change</i>	<ul style="list-style-type: none"> • Implements policy change modifying overuse of vitreous electrolyte, molecular, histology, and/or microbiology testing
Assessment Models or Tools	<ul style="list-style-type: none"> • Audit of testing usage • Direct observation • QI project
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • Hanzlick R. Forensic pathology and the utilization of histology: a brief review. <i>Academic Forensic Pathology</i>. 2011;1(1):22-27. https://journals.sagepub.com/doi/abs/10.23907/2011.004?journalCode=afpa. 2020. • NAME. Forensic Autopsy Reporting Standards. https://name.memberclicks.net/assets/docs/684b2442-ae68-4e64-9ecc-015f8d0f849e.pdf. 2020. • National Society of Genetic Counselors. Postmortem Genetic Testing FAQs. https://www.nsgc.org/postmortem. 2020.

Practice-Based Learning and Improvement 1: Evidence-Based Practice and Scholarship Overall Intent: To incorporate evidence into clinical practice and is involved in contributing to the body of knowledge in pathology	
Milestones	Examples
<p>Level 1 <i>Demonstrates how to access and select applicable evidence (e.g., literature, guidelines)</i></p> <p><i>Is aware of the need for patient privacy, autonomy, and consent as applied to clinical research</i></p>	<ul style="list-style-type: none"> ● Recognizes that molecular testing is useful in the work-up for cardiomyopathy ● Identifies the need for an Institutional Review Board (IRB) when collecting cases for a possible research project
<p>Level 2 <i>Identifies and applies the best available evidence to guide diagnostic work-up of simple cases</i></p> <p><i>Develops knowledge of the basic principles of research (demographics, Institutional Review Board, human subjects), including how research is evaluated, explained to patients, and applied to patient care</i></p>	<ul style="list-style-type: none"> ● Orders an appropriate microbiology study on cerebrospinal fluid specimen for meningitis work-up ● Drafts a research proposal for review with oversight
<p>Level 3 <i>Identifies and applies the best available evidence to guide diagnostic work-up of complex cases</i></p> <p><i>Applies knowledge of the basic principles of research such as informed consent and research protocols to clinical practice, with supervision</i></p>	<ul style="list-style-type: none"> ● Orders appropriate molecular testing to further classify cardiomyopathies based on current available publications ● Drafts a research protocol with minimal oversight or presents relevant current practice standards in the context of a case interdepartmentally
<p>Level 4 <i>Critically appraises and applies evidence to guide care, even in the face of conflicting data</i></p> <p><i>Proactively and consistently applies knowledge of the basic principles of research such as informed consent and research protocols to clinical practice</i></p>	<ul style="list-style-type: none"> ● Appropriately researches the primary literature to explain rare molecular findings that surface from additional molecular testing ● Submits an abstract for a national meeting or submits a paper for publication
<p>Level 5 <i>Teaches others to critically appraise and apply evidence for complex cases; and/or participates in the development of guidelines</i></p>	<ul style="list-style-type: none"> ● Moderates a discussion with family over disparate molecular, morphologic, and immunohistochemical findings of a cardiomyopathy to formulate the best course forward based on the primary literature

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<p><i>Suggests improvements to research regulations and/or substantially contributes to the primary literature through basic, translational, or clinical research</i></p>	<ul style="list-style-type: none"> • Submits a grant proposal
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> • Direct observation • Presentation • Research portfolio
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> •
<p>Notes or Resources</p>	<ul style="list-style-type: none"> • Institutional research guidelines • National Institutes of Health. Write Your Application. https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/write-your-application.htm. 2020. • U.S. National Library of Medicine. PubMed Tutorial. https://www.nlm.nih.gov/bsd/disted/pubmedtutorial/cover.html. 2020. • Various journal submission guidelines

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth Overall Intent: To seek clinical performance information with the intent to improve care; reflects on all domains of practice, personal interactions, and behaviors, and their impact on technologists, and colleagues (reflective mindfulness); develop clear objectives and goals for improvement in some form of a learning plan	
Milestones	Examples
<p>Level 1 <i>Accepts responsibility for personal and professional development by establishing goals</i></p> <p><i>Identifies the gap(s) between expectations and actual performance</i></p> <p><i>Actively seeks opportunities to improve</i></p>	<ul style="list-style-type: none"> ● Is aware of need to improve ● Begins to seek ways to determine where improvements are needed and makes some specific goals that are reasonable to execute and achieve
<p>Level 2 <i>Demonstrates openness to receiving performance data and feedback in order to inform goals</i></p> <p><i>Analyzes and reflects on the factors which contribute to gap(s) between expectations and actual performance</i></p> <p><i>Designs and implements a learning plan, with assistance</i></p>	<ul style="list-style-type: none"> ● Is increasingly able to identify performance gaps in terms of diagnostic skills and daily work; uses feedback from others ● After working with an attending on a case, asks him/her about performance and opportunities for improvement ● Uses feedback with a goal of improving communication skills with technologists, peers/colleagues, and staff members with a specified time frame in mind
<p>Level 3 <i>Seeks performance data and feedback with humility</i></p> <p><i>Institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance</i></p> <p><i>Independently creates and implements a learning plan</i></p>	<ul style="list-style-type: none"> ● Takes input from technologists, peers/colleagues, and supervisors to gain complex insight into personal strengths and areas to improve ● Acts on input, is appreciative and not defensive ● Documents goals in a more specific, measurable, and achievable manner, such that attaining them is reasonable
<p>Level 4 <i>Actively and consistently seeks performance data and feedback with humility</i></p> <p><i>Critically evaluates the effectiveness of behavioral changes in narrowing the gap(s) between expectations and actual performance</i></p>	<ul style="list-style-type: none"> ● Is clearly in the habit of making a learning plan for each rotation ● Consistently identifies ongoing gaps and chooses areas for further development

<p><i>Uses performance data to measure the effectiveness of the learning plan and improves it when necessary</i></p>	<ul style="list-style-type: none"> ● Reflects on own performance and makes request for specific types of cases
<p>Level 5 <i>Models seeking performance data and accepting feedback with humility</i></p> <p><i>Coaches others reflective practice</i></p> <p><i>Facilitates the design and implementing learning plans for others</i></p>	<ul style="list-style-type: none"> ● Actively discusses learning goals with supervisors and colleagues; may encourage other learners on the team to consider how their behavior affects the rest of the team ● Reflects on own education and drafts learning plans for future fellows
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Review of Case Logs ● Review of learning plan
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● Burke AE, Benson B, Englander R, Carraccio C, Hicks PJ. Domain of competence: practice-based learning and improvement. <i>Acad Pediatr</i>. 2014;14: S38-S54. https://www.academicpedsjnl.net/article/S1876-2859(13)00333-1/fulltext. 2020. ● Hojat M, Veloski JJ, Gonnella JS. Measurement and correlates of physicians' lifelong learning. <i>Academic Medicine</i>. 2009;84(8):1066-1074. https://journals.lww.com/academicmedicine/fulltext/2009/08000/Measurement_and_Correlates_of_Physicians_Lifelong.21.aspx. 2020. ● Lockspeiser TM, Schmitter PA, Lane JL, Hanson JL, Rosenberg AA, Park YS. Assessing residents' written learning goals and goal writing skill: validity evidence for the learning goal scoring rubric. <i>Academic Medicine</i>. 2013;88(10):1558-1563. https://journals.lww.com/academicmedicine/fulltext/2013/10000/Assessing_Residents_Written_Learning_Goals_and.39.aspx. 2020.

Professionalism 1: Professional Behavior and Ethical Principles	
Overall Intent: To recognize and address lapses in ethical and professional behavior, demonstrate ethical and professional behaviors, and use appropriate resources for managing ethical and professional dilemmas	
Milestones	Examples
<p>Level 1 <i>Demonstrates knowledge of the ethical principles underlying the practice of medicine</i></p> <p><i>Describes when and how to appropriately report professionalism lapses, including strategies for addressing common barriers; identifies and describes potential triggers for professionalism lapses</i></p>	<ul style="list-style-type: none"> ● Identifies and describes potential triggers for professionalism lapses, describes when and how to appropriately report professionalism lapses, and outlines strategies for addressing common barriers to reporting ● Discusses the basic principles underlying ethics (beneficence, nonmaleficence, justice, autonomy) and professionalism (professional values and commitments), and how they apply in various situations (e.g., religious objection to autopsy)
<p>Level 2 <i>Analyzes straightforward situations using ethical principles</i></p> <p><i>Demonstrates insight into professional behavior in routine situations; takes responsibility for own professionalism lapses</i></p>	<ul style="list-style-type: none"> ● Demonstrates professional behavior in routine situations and uses ethical principles to analyze straightforward situations, and can acknowledge a lapse without becoming defensive, making excuses, or blaming others ● Apologizes for the lapse when appropriate and taking steps to make amends if needed ● Articulates strategies for preventing similar lapses in the future ● Recognizes and responds effectively to the emotions of others
<p>Level 3 <i>Recognizes the need and uses appropriate resources to seek help in managing and resolving complex ethical situations</i></p> <p><i>Demonstrates professional behavior in complex or stressful situations</i></p>	<ul style="list-style-type: none"> ● Analyzes complex situations, such as how the medicolegal situation evokes strong emotions and conflicts (or perceived conflicts) between families/physicians/staff members ● Recognizes own limitations and reviews departmental policy to help manage and resolve religious objections to autopsy ● Analyzes difficult real or hypothetical ethics and professionalism case scenarios or situations, recognizes own limitations, and consistently demonstrates professional behavior ● Does not alter opinion during a discussion simply to appease outside sources
<p>Level 4 <i>Independently resolves and manages complex ethical situations</i></p> <p><i>Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in self and others</i></p>	<ul style="list-style-type: none"> ● Actively seeks to consider the perspectives of others ● Models respect for decedents and their families and expects the same from colleagues ● Recognizes and uses appropriate resources for managing and resolving ethical dilemmas (e.g., ethics consultations, literature review, departmental policies, legal consultation)
<p>Level 5 <i>Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution</i></p>	<ul style="list-style-type: none"> ● Identifies and seeks to address system-wide factors or barriers to promoting a culture of ethical and professional behavior through participation in a professionalism work group

<p><i>Coaches others when their behavior fails to meet professional expectations</i></p>	<ul style="list-style-type: none"> ● Coaches others when their behavior fails to meet professional expectations, either in the moment (for minor or moderate single episodes of unprofessional behavior) or after the moment (for major single episodes or repeated minor to moderate episodes of unprofessional behavior)
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Multisource feedback ● Oral or written self-reflection ● Simulation or discussion based
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● ABIM Foundation; American Board of Internal Medicine, ACP-ASIM Foundation, American College of Physicians-American Society of Internal Medicine, European Federation of Internal Medicine. Medical professionalism in the new millennium: a physician charter. <i>Ann Intern Med.</i> 2002;136:243-246. http://abimfoundation.org/wp-content/uploads/2015/12/Medical-Professionalism-in-the-New-Millennium-A-Physician-Charter.pdf. 2019. ● American Medical Association. Ethics. https://www.ama-assn.org/delivering-care/ama-code-medical-ethics. 2020. ● Brissette MD, Johnson K, Raciti PM, et al. Perceptions of unprofessional attitudes and behaviors: implications for faculty role modeling and teaching professionalism during pathology residency. <i>Arch Pathol Lab Med.</i> 2017;141:1349-1401. https://www.archivesofpathology.org/doi/10.5858/arpa.2016-0477-CP. 2020. ● Byyny RL, Papadakis MA, Paauw DS. <i>Medical Professionalism Best Practices</i>. Menlo Park, CA: Alpha Omega Alpha Medical Society; 2015. https://alphaomegaaalpha.org/pdfs/2015MedicalProfessionalism.pdf. 2019. ● Conran RM, Zein-Eldin Powell S, Domen RE, et al. Development of professionalism in graduate medical education: a case-based educational approach from the College of American Pathologists. <i>Acad Pathol.</i> 2018;5:2374289518773493. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6039899/. 2020. ● Domen RE, Johnson K, Conran RM, et al. Professionalism in pathology: a case-based approach as a potential education tool. <i>Arch Pathol Lab Med.</i> 2017; 141:215-219. https://www.archivesofpathology.org/doi/10.5858/arpa.2016-0217-CP?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed. 2020. ● Domen RE, Talbert ML, Johnson K, et al. Assessment and management of professionalism issues in pathology residency training: results from surveys and a workshop by the graduate medical education committee of the College of American Pathologists. <i>Acad Pathol.</i> 2015;2(3):2374289515592887. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5479457/. 2020.

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Professionalism 2: Accountability and Conscientiousness	
Overall Intent: To take responsibility for one’s own actions and the impact on decedents, families, and other members of the team	
Milestones	Examples
Level 1 <i>Responds promptly to instructions, requests, or reminders to complete tasks and responsibilities</i>	<ul style="list-style-type: none"> ● Responds promptly to reminders from program administrator to complete work hour logs ● Timely attendance at conferences ● Responds promptly to requests to complete preliminary report on an autopsy
Level 2 <i>Takes appropriate ownership and performs tasks and responsibilities in a timely manner with attention to detail</i>	<ul style="list-style-type: none"> ● Completes cases in a timely manner, with attention to detail, including reporting of ancillary testing ● Completes and documents safety modules, procedure review, and licensing requirements
Level 3 <i>Recognizes situations that may impact own ability to complete tasks and responsibilities in a timely manner and describes the impact on team</i>	<ul style="list-style-type: none"> ● Notifies attending of multiple competing demands, appropriately triages tasks, and asks for assistance from other fellows or faculty members, if needed ● Reviews Case Logs, Forensic In-Service Examination scores, evaluations, and portfolio and develops a learning plan to address gaps/weaknesses in knowledge, case exposure, and skills
Level 4 <i>Anticipates and intervenes in situations that may impact others’ ability to complete tasks and responsibilities in a timely manner</i>	<ul style="list-style-type: none"> ● Identifies issues that could impede other fellows from completing tasks and provides leadership to address those issues; escalates to communicating with program director if problem requires a system-based approach and needs addressing at a higher administrative level ● Takes responsibility for potential adverse outcomes from mishandled specimen and professionally discusses with the interprofessional team
Level 5 <i>Designs new strategies to ensure that the needs of patients, teams, and systems are met</i>	<ul style="list-style-type: none"> ● Sets up a meeting with the laboratory supervisor to address specimen mislabeling and follows through with a system-based solution
Assessment Models or Tools	<ul style="list-style-type: none"> ● Compliance with deadlines and timelines ● Direct observation ● Multisource feedback ● Quality metrics of turnaround time on cases ● Self-evaluations and reflective tools ● Simulation
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● Code of conduct from fellow/resident institutional manual ● Expectations of fellowship program regarding accountability and professionalism ● NAME. Forensic Autopsy Performance Standards. https://name.memberclicks.net/assets/docs/684b2442-ae68-4e64-9ecc-015f8d0f849e.pdf. 2020.

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Professionalism 3: Self-Awareness and Help-Seeking Overall Intent: To identify, use, manage, improve, and seek help for personal and professional well-being for self and others	
Milestones	Examples
<p>Level 1 <i>Recognizes limitations in the knowledge/skills/ behaviors of self or team, with assistance</i></p> <p><i>Recognizes status of personal and professional well-being, with assistance</i></p>	<ul style="list-style-type: none"> • Accepts constructive feedback
<p>Level 2 <i>Independently recognizes limitations in the knowledge/skills/ behaviors of self or team and seeks help when needed</i></p> <p><i>Independently recognizes status of personal and professional well-being and seeks help when needed</i></p>	<ul style="list-style-type: none"> • Identifies possible sources of personal stress or gaps in clinical knowledge and independently seeks help
<p>Level 3 <i>Proposes and implements a plan to remediate or improve the knowledge/skills/behaviors of self or team, with assistance</i></p> <p><i>Proposes and implements a plan to optimize personal and professional well-being, with assistance</i></p>	<ul style="list-style-type: none"> • With supervision, assists in developing a personal learning or action plan to address gaps in knowledge or stress and burnout for self or team
<p>Level 4 <i>Independently develops and implements a plan to remediate or improve the knowledge/skills/ behaviors of self or team</i></p> <p><i>Independently develops and implements a plan to optimize personal and professional well-being</i></p>	<ul style="list-style-type: none"> • Independently develops personal learning or action plans for continued personal and professional growth, and limits stress and burnout for self or team
<p>Level 5 <i>Serves as a resource or consultant for developing a plan to remediate or improve the knowledge/ skills/behaviors</i></p> <p><i>Coaches others when responses or limitations in knowledge/skills do not meet professional expectations</i></p>	<ul style="list-style-type: none"> • Mentors colleagues in self-awareness and establishes health management plans to limit stress and burnout
Assessment Models or Tools	<ul style="list-style-type: none"> • Direct observation

	<ul style="list-style-type: none"> ● Group interview or discussions for team activities ● Individual interview ● Institutional online training modules ● Participation in institutional well-being programs ● Self-assessment and personal learning plan
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● This subcompetency is not intended to evaluate a fellow’s well-being, but to ensure each fellow has the fundamental knowledge of factors that impact well-being, the mechanisms by which those factors impact well-being, and available resources and tools to improve well-being. ● ACGME. “Well-Being Tools and Resources.” https://dl.acgme.org/pages/well-being-tools-resources. Accessed 2022. ● Brondolo E, Eftekharzadeh P, Clifton C, et al. Work-related trauma, alienation, and posttraumatic and depressive symptoms in medical examiner employees. <i>Psychol Trauma</i>. 2018;10(6):689-697. https://psycnet.apa.org/record/2017-45101-001. 2020. ● Coleman JA, Delahanty DL, Schwartz J, et al. The moderating impact of interacting with distressed families of decedents on trauma exposure in medical examiner personnel. <i>Psychol Trauma</i>. 2016;8(6):668-675. https://psycnet.apa.org/record/2016-15312-001. 2020. ● Conran RM, Powell SZ, Domen RE, et al. Development of professionalism in graduate medical education: a case-based educational approach from the College of American Pathologists’ Graduate Medical Education Committee. <i>Acad Pathol</i>. 2018;5: 2374289518773493. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6039899/. 2020. ● Joseph L, Shaw PF, Smoller BR. Perceptions of stress among pathology residents: survey results and some strategies to reduce them. <i>Am J Clin Pathol</i>. 2007;128(6):911-919. https://academic.oup.com/ajcp/article/128/6/911/1764982. 2020. ● Local resources, including Employee Assistance programs ● National Suicide Prevention Lifeline: 1-800-273-8255

Interpersonal and Communication Skills 1: Family-Centered Communication	
Overall Intent: To deliberately use language and behaviors to form constructive relationships with families, to identify communication barriers including self-reflection on personal biases, and minimize them	
Milestones	Examples
<p>Level 1 <i>Uses language and nonverbal behavior to demonstrate respect and establish rapport</i></p> <p><i>Identifies common barriers to effective communication (e.g., language, disability) while accurately communicating own role within the health care system</i></p>	<ul style="list-style-type: none"> ● Self-monitors and controls tone, non-verbal responses, and language and asks questions to invite family participation ● Accurately communicates their role in the death investigation system to families ● Avoids medical jargon when talking to families, makes sure communication is at the appropriate level to be understood by a layperson
<p>Level 2 <i>Establishes a relationship in straightforward encounters using active listening and clear language</i></p> <p><i>Identifies complex barriers to effective communication (e.g., health literacy, cultural)</i></p>	<ul style="list-style-type: none"> ● Establishes a professional relationship with families, with active listening, attention to affect, and responsiveness to questions ● Prior to an autopsy, clearly explains what to expect with an understanding of the family's level of health literacy and sensitivity to their cultural concerns ● Understands that selected words may have a negative impact on family members when sharing autopsy results
<p>Level 3 <i>Sensitively and compassionately delivers medical information, with assistance</i></p> <p><i>When prompted, reflects on personal biases while attempting to minimize communication barriers</i></p>	<ul style="list-style-type: none"> ● Demonstrates respect for family members culturally opposed to autopsy (e.g., a Native American family member) with a thorough explanation of the relevant laws and potential alternatives to autopsy ● Shares autopsy findings with next of kin in a compassionate manner
<p>Level 4 <i>Independently, sensitively, and compassionately delivers medical information and acknowledges uncertainty and conflict</i></p> <p><i>Independently recognizes personal biases while attempting to proactively minimize communication barriers</i></p>	<ul style="list-style-type: none"> ● Leads the sharing of autopsy findings to families
<p>Level 5 <i>Mentors others in the sensitive and compassionate delivery of medical information</i></p>	<ul style="list-style-type: none"> ● Leads and models the sharing of autopsy findings in cases of disputed cause and/or manner of death ● Observes and assesses a team member in the sharing of sensitive information

<p><i>Models self-awareness while teaching a contextual approach to minimize communication barriers</i></p>	
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Self-assessment including self-reflection exercises ● Simulation ● Structured case discussions
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● Dintzis S. Improving pathologist’s communication skills. <i>AMA J Ethics</i>. 2016;18(8):802-808. https://journalofethics.ama-assn.org/article/improving-pathologists-communication-skills/2016-08. 2020. ● Ito T, Nobutomo K, Fujimiya T, Yoshida K. Importance of explanation before and after forensic autopsy to the bereaved family: lessons from a questionnaire study. <i>J Med Ethics</i>. 2010;36(2):103-105. https://jme.bmj.com/content/36/2/103.long. 2020. ● Laidlaw A, Hart J. Communication skills: an essential component of medical curricula. Part I: Assessment of clinical communication: AMEE Guide No. 51. <i>Med Teach</i>. 2011;33(1):6-8. https://www.tandfonline.com/doi/full/10.3109/0142159X.2011.531170. 2020. ● Scientific Working Group for Medicolegal Death Investigation. Principles for Communicating with Next of Kin during Medicolegal Death Investigations. https://www.nist.gov/system/files/documents/2018/04/25/swgmdi_principles_for_communicating_with_next_of_kin_during_medicolegal_death_investigations.pdf. 2020. ● Symons AB, Swanson A, McGuigan D, Orrange S, Akl EA. A tool for self-assessment of communication skills and professionalism in residents. <i>BMC Med Educ</i>. 2009;9:1. https://bmcmmededuc.biomedcentral.com/articles/10.1186/1472-6920-9-1. 2020. ● Wolf DA, Drake SA, Snow FK. Ethical considerations on disclosure when medical error is discovered during medicolegal death investigation. <i>Am J Forensic Med Pathol</i>. 2017;38:294-297. https://www.researchgate.net/publication/319435979_Ethical_Considerations_on_Disclosure_When_Medical_Error_Is_Discovered_During_Medicolegal_Death_Investigation. 2020.

Interpersonal and Communication Skills 2: Interprofessional and Team Communication	
Overall Intent: To effectively communicate with laboratory, investigators, law enforcement, faculty, learners, support staff members, and consultants including both inter- and intra-departmental, in both straightforward and complex situations	
Milestones	Examples
<p>Level 1 <i>Uses language that values all members of the team</i></p> <p><i>Describes the utility of constructive feedback</i></p>	<ul style="list-style-type: none"> ● Shows respect in team communications through words and actions such as in requests for medicolegal information ● Uses respectful communication to clerical and technical staff members ● Listens to and considers others' points of view, is nonjudgmental and actively engaged, and demonstrates humility
<p>Level 2 <i>Communicates information effectively with all team members</i></p> <p><i>Solicits feedback on performance as a member of the team</i></p>	<ul style="list-style-type: none"> ● Verifies understanding of communications within the team by using closed-loop communications ● Communicates clearly and concisely in an organized and timely manner during consultant encounters ● Seeks feedback at case conferences
<p>Level 3 <i>Uses active listening to adapt communication style to fit team needs</i></p> <p><i>Integrates feedback from team members to improve communication</i></p>	<ul style="list-style-type: none"> ● Demonstrates active listening by fully focusing on the speaker, actively showing verbal and non-verbal signs (i.e., eye contact, posture, reflection, questioning, summarization) ● Adapts communication strategies in handling complex situations following constructive feedback
<p>Level 4 <i>Coordinates recommendations from different members of the team to optimize patient care</i></p> <p><i>Communicates feedback and constructive criticism to superiors</i></p>	<ul style="list-style-type: none"> ● Offers suggestions to negotiate or resolve conflicts among team members; raises concerns or provides opinions and feedback, when needed, to superiors on the team ● Respectfully provides feedback to more junior members of the team for the purposes of improvement or reinforcement of correct knowledge, skills, and attitudes, when appropriate ● Raises concerns or provides opinions and feedback when needed to others on the team
<p>Level 5 <i>Models flexible communication strategies that value input from all team members, resolving conflict when needed</i></p> <p><i>Facilitates regular team-based feedback in complex situations</i></p>	<ul style="list-style-type: none"> ● Communicates with all team members, resolves conflicts, and provides feedback in any situation ● Organizes a team meeting to discuss and resolve potentially conflicting points of view on cause and/or manner of death certification
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Multisource feedback

	<ul style="list-style-type: none"> ● Simulation
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● Brissette MD, Johnson K, Raciti PM, et al. Perceptions of unprofessional attitudes and behaviors: implications for faculty role modeling and teaching professionalism during pathology residency. <i>Arch Pathol Lab Med.</i> 2017;141(10):1394-1401. https://www.archivesofpathology.org/doi/10.5858/arpa.2016-0477-CP. 2020. ● College of American Pathologists. Guidelines for Cooperation Between Pathologists and Funeral Professionals In Matters Pertaining to Autopsies. https://documents.cap.org/documents/2001-cap-national-funeral-directors-association-guidelines-for-cooperation.pdf. 2020. ● Conran RM, Zein-Eldin Powell S, Domen, RE, et al. Development of professionalism in graduate medical education: a case-based educational approach from the College of American Pathologists' graduate medical education committee. <i>Acad Pathol.</i> 2018;5:2374289518773493. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6039899/. 2020. ● Henry SG, Holmboe ES, Frankel RM. Evidence-based competencies for improving communication skills in graduate medical education: a review with suggestions for implementation. <i>Med Teach.</i> 2013;35(5):395-403. https://www.tandfonline.com/doi/full/10.3109/0142159X.2013.769677. 2020. ● Robertson K. Active listening: more than just paying attention. <i>Aust Fam Physician.</i> 2005;34(12):1053-1055. https://www.racgp.org.au/afp/200512/5780. 2020. ● Roth CG, Eldin KW, Padmanabhan V, Freidman EM. Twelve tips for the introduction of emotional intelligence in medical education. <i>Med Teach.</i> 2018:1-4. https://www.tandfonline.com/doi/full/10.1080/0142159X.2018.1481499. 2020.

Interpersonal and Communication Skills 3: Systems Communication	
Overall Intent: To appropriately communicate using a variety of methods	
Milestones	Examples
<p>Level 1 <i>Safeguards patient personal health information by communicating through appropriate means as required by institutional policy (e.g., cell phone/pager usage)</i></p> <p><i>Identifies institutional and departmental structure for communication of issues</i></p>	<ul style="list-style-type: none"> ● Identifies relevant laws and policies regarding public and private information in forensic cases (e.g., what information can be released, when information can be released) ● Identifies institutional and departmental communication hierarchy for concerns and safety issues
<p>Level 2 <i>Appropriately selects forms of communication based on context and urgency of the situation</i></p> <p><i>Respectfully communicates concerns about the system</i></p>	<ul style="list-style-type: none"> ● Identifies method for sharing results needing urgent attention ● Recognizes that a communication breakdown has happened and respectfully brings the breakdown to the attention of the supervising faculty member ● Reports an employee safety event following a needle stick injury
<p>Level 3 <i>Communicates while ensuring security of personal health information, with guidance</i></p> <p><i>Uses institutional structure to effectively communicate clear and constructive suggestions to improve the system</i></p>	<ul style="list-style-type: none"> ● Uses appropriate method when sharing results needing urgent attention ● Abides by relevant laws and policies regarding obtaining medical records ● Knows when to direct concerns locally, departmentally, or institutionally, i.e., appropriate escalation
<p>Level 4 <i>Independently communicates while ensuring security of personal health information</i></p> <p><i>Initiates conversations on difficult subjects with appropriate stakeholders to improve the system</i></p>	<ul style="list-style-type: none"> ● Participates in task force to update policy for sharing results in high-profile cases ● Improves methods for communicating system-wide call schedules and conference scheduling ● Talks directly to a colleague about breakdowns in communication in order to prevent recurrence
<p>Level 5 <i>Guides departmental or institutional communication around policies and procedures regarding the security of personal health information</i></p> <p><i>Facilitates dialogue regarding systems issues among larger community stakeholders (institution, health care system, field)</i></p>	<ul style="list-style-type: none"> ● Leads a task force to develop or update a plan around appropriate release of protected health information (e.g. photos) in forensic cases ● Works to facilitate improved mechanisms for transfer of investigative and autopsy information between government agencies at multiple levels (local, state, federal)

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	<ul style="list-style-type: none"> • Works to facilitate dialogue between coroners/medical examiners and state organ procurement services to ensure clear protocol that optimizes organ and tissue transplantation
Assessment Models or Tools	<ul style="list-style-type: none"> • Direct observation • Multisource evaluation • Record review for documented communications • Simulation
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • Fowler DR, MBChB, MMed. Public figures, professional ethics, and the media. <i>AMA Journal of Ethics</i>. 2016;18(8):839-842. https://journalofethics.ama-assn.org/article/public-figures-professional-ethics-and-media/2016-08. 2020. • Infanti Mraz MA. Required critical conversations between medical examiners/coroners and forensic nurses. <i>Journal of Forensic Nursing</i>. 2016;12(3):129-132. https://journals.lww.com/forensicnursing/Abstract/2016/09000/Required_Critical_Conversations_Between_Medical.6.aspx. 2020.

Interpersonal and Communication Skills 4: Medicolegal Communications	
Overall Intent: To effectively communicate information gathered and opinions generated during the death investigation and autopsy with relevant outside stakeholders (e.g., public health reporting, testimony in trials or other legal proceedings)	
Milestones	Examples
<p>Level 1 <i>Discusses the role of the forensic pathologist in the criminal justice system</i></p> <p><i>Discusses the role of the forensic pathologist in public health, safety, and disaster planning</i></p>	<ul style="list-style-type: none"> ● Describes appropriate relationships between death investigation and law enforcement agencies/prosecutors ● Identifies infectious diseases that require reporting to local, state, and/or federal public health agencies
<p>Level 2 <i>Observes a court proceeding after reviewing the case</i></p> <p><i>With assistance, reports findings related to public health or safety to appropriate agency</i></p>	<ul style="list-style-type: none"> ● Reviews case in advance of court proceeding, observes testimony of forensic pathologist, and discusses the features of effective testimony following court ● Accesses US Food and Drug Administration electronic site to report medical device malfunction detected at autopsy (e.g., embolized inferior vena cava filter)
<p>Level 3 <i>Meets with attorneys and/or law enforcement to discuss the case findings</i></p> <p><i>Independently reports findings related to public health or safety to appropriate agency</i></p>	<ul style="list-style-type: none"> ● Discusses gunshot wound findings related to range of fire with law enforcement ● Reports a case of Mycobacterium tuberculosis discovered at autopsy to the state health department
<p>Level 4 <i>Prepares and presents testimony for a routine case proceeding (actual or mock)</i></p> <p><i>Participates in a multidisciplinary team involving public health or safety (e.g., child death review, disaster planning)</i></p>	<ul style="list-style-type: none"> ● Discusses the general principles of blunt force trauma as an expert witness ● Presents findings from a sudden unexpected child death to the child death review team
<p>Level 5 <i>Prepares and presents testimony for a complex case proceeding</i></p> <p><i>Leads a multidisciplinary team involving public health or safety</i></p>	<ul style="list-style-type: none"> ● Testifies in an in-custody death case ● Leads a mass fatality exercise
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Court transcript review ● Direct observation ● Multisource feedback ● Simulation
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● Davis GG. The art of attorney interaction and courtroom testimony. <i>Arch Pathol Lab Med.</i> 2006;130:1305-1308. https://www.archivesofpathology.org/doi/pdf/10.1043/1543-2165%282006%29130%5B1305%3ATAOAI%5D2.0.CO%3B2. 2020.

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- Mitchell RA Jr, Diaz F, Goldfogel GA, et al. National Association of Medical Examiners position paper: recommendations for the definition, investigation, postmortem examination, and reporting of deaths in custody. *Acad Forensic Pathol.* 2017;7(4):604-618. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6474445/>. 2020.
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In an effort to aid programs in the transition to using the new version of the Milestones, the original Milestones 1.0 have been mapped to the new Milestones 2.0. Below it is indicated where the subcompetencies are similar between versions. These are not exact matches but include some of the same elements. Not all subcompetencies map between versions. Inclusion or exclusion of any subcompetency does not change the educational value or impact on curriculum or assessment.

Milestones 1.0	Milestones 2.0
PC1: Patient safety	No match
PC2: Procedure: Autopsy	PC2: Autopsy
MK1: Interpretation and Diagnostic Knowledge: Understands the types of cases most appropriate for examination by a forensic pathologist	PC1: Death Investigation MK3: Clinical Reasoning
MK2: Interpretation and Diagnostic Knowledge: Demonstrates attitudes, knowledge, and practices that support the interpretation and analysis of pertinent findings in determining the cause of death	MK1: Death Certification and Reporting
MK3: Recognition and Reporting of Autopsy Findings	MK2: Recognition and Interpretation of Autopsy Findings and Ancillary Studies
SBP1: Lab Management: Regulatory and compliance	SBP4: Accreditation, Compliance, and Quality
SBP2: Lab Management: Quality, risk management, and laboratory safety	SBP1: Safety and Quality Improvement (QI)
SBP3: Interagency Interaction	SBP2: Systems Navigation for Patient-Centered Care ICS4: Medicolegal Communication
SBP4: Scene investigation	PC1: Death Investigation
PBL1: Recognition of Errors and Discrepancies	SBP1: Safety and Quality Improvement (QI)
PBL2: Scholarly Activity	PBL1: Evidence-Based Practice and Scholarship
PROF1: Professionalism: Demonstrates honesty, integrity, and ethical behavior	PROF1: Professional Behavior and Ethical Principles PROF2: Accountability and Conscientiousness PROF3: Self-Awareness and Help-Seeking
PROF2: Professionalism: Demonstrates responsibility and follow-through on tasks	PBL2: Reflective Practice and Commitment to Personal Growth PROF2: Accountability and Conscientiousness
PROF3: Professionalism: Giving and receiving feedback	PBL2: Reflective Practice and Commitment to Personal Growth
PROF4: Professionalism: Demonstrates responsiveness to each patient's distinct characteristics and needs	No match
PROF5: Professionalism: Demonstrates personal responsibility to maintain emotional, physical, and mental health	PROF3: Self-Awareness and Help-Seeking

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ICS1: Intra- and Inter-departmental and Health Care Clinical/Investigative Team Interactions	ICS2: Interprofessional and Team Communication ICS3: Systems Communications
ICS2: Interaction with Others	ICS1: Family-Centered Communications

Available Milestones Resources

Milestones 2.0: Assessment, Implementation, and Clinical Competency Committees Supplement, 2021 - <https://meridian.allenpress.com/jgme/issue/13/2s>

Milestones Guidebooks: <https://www.acgme.org/milestones/resources/>

- *Assessment Guidebook*
- *Clinical Competency Committee Guidebook*
- *Clinical Competency Committee Guidebook Executive Summaries*
- *Implementation Guidebook*
- *Milestones Guidebook*

Milestones Guidebook for Residents and Fellows: <https://www.acgme.org/residents-and-fellows/the-acgme-for-residents-and-fellows/>

- *Milestones Guidebook for Residents and Fellows*
- *Milestones Guidebook for Residents and Fellows Presentation*
- *Milestones 2.0 Guide Sheet for Residents and Fellows*

Milestones Research and Reports: <https://www.acgme.org/milestones/research/>

- *Milestones National Report*, updated each fall
- *Milestones Predictive Probability Report*, updated each fall
- *Milestones Bibliography*, updated twice each year

Developing Faculty Competencies in Assessment courses - <https://www.acgme.org/meetings-and-educational-activities/courses-and-workshops/developing-faculty-competencies-in-assessment/>

Assessment Tool: Direct Observation of Clinical Care (DOCC) - <https://dl.acgme.org/pages/assessment>

Assessment Tool: Teamwork Effectiveness Assessment Module (TEAM) - <https://team.acgme.org/>

Improving Assessment Using Direct Observation Toolkit - <https://dl.acgme.org/pages/acgme-faculty-development-toolkit-improving-assessment-using-direct-observation>

Remediation Toolkit - <https://dl.acgme.org/courses/acgme-remediation-toolkit>

Learn at ACGME has several courses on Assessment and Milestones - <https://dl.acgme.org/>