

Supplemental Guide: Forensic Pathology



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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.

Independently identifies missing information that

needs to be gathered

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** Level 1 Explains the necessity and required • Outlines required steps of a scene investigation aspects of a scene investigation Evaluates a medical record in preparation for an • Evaluates the medical record to determine prescribed dosage of opioids autopsy • Describes the external exam, limited autopsy, and complete autopsy Identifies types of postmortem examinations and medical examiner/coroner notification • Discusses local laws regarding medical examiner/coroner jurisdiction with the attending criteria • At a scene takes photographs, reviews medications, and talks with family and law Level 2 Assists with a scene investigation enforcement Identifies additional sources of information Identifies the need for doll re-enactment based on Centers for Disease Control and Prevention (CDC) Guidelines necessary for a death investigation Explains when cases fall under the jurisdiction • During morning review, discusses the necessity for full autopsy despite family's religious of the medical examiner/coroner, including laws objections about religious and/or other objections to autopsy Level 3 With supervision, leads a routine scene • Makes decisions at the scene to determine how the body will be transported to preserve investigation evidence Independently synthesizes pertinent information • Prepares death investigation narrative for review from multiple sources With supervision, determines which cases At morning report, identifies which cases need an external exam, limited autopsy, and should be accepted for examination and what complete autopsy type of examination is most appropriate Level 4 Independently leads a routine scene • Directs other personnel at the scene • Independently completes the scene report investigation

Requests hospital blood specimens, taser logs, and video surveillance for a given case

Independently determines which cases should be accepted for examination and what type of examination is most appropriate	Determines which cases receive which type of exam
Level 5 Independently leads a complex scene investigation	Leads scene investigation for in custody death
Assessment Models or Tools	 Case logs Daily morning report Direct observation Multisource feedback Scene photograph and report review
Curriculum Mapping	
Notes or Resources	 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
Level 1 With technical assistance, performs routine evisceration and dissection	Performs Virchow and Letulle eviscerations
With supervision, collects and submits evidence for a routine case	Collects DNA spot cards and clothing
With supervision, documents autopsy findings (including photography) for a routine case	Completes accurate autopsy diagrams
Level 2 Independently performs routine	Determines which evisceration technique is appropriate for a specific case
evisceration and dissection, and identifies cases requiring special techniques	Identifies cases requiring posterior neck dissection
Independently identifies, collects, and submits evidence for a routine case	Recovers bullet and submits as evidence in a suicide case
Independently documents autopsy findings for a routine case	Ensures appropriate photographic documentation highlighting relevant positive and negative findings
Level 3 With supervision, performs complex evisceration and dissection, including special techniques	Removes eyes of infant in suspected abuse case
With supervision, identifies, collects, and submits evidence for a complex case	Collects and submits a sexual assault kit
With supervision, documents autopsy findings for a complex case	Uses appropriate specialized diagrams to document findings
Level 4 Independently performs complex evisceration and dissection, including special techniques	Performs vertebral artery dissection
Independently identifies, collects, and submits evidence for a complex case	Recognizes locations for collection and submits neck swabs for DNA evidence

Independently documents autopsy findings for a	
complex case	Completes an accurate diagram in a case with multiple gunshot wounds
Level 5 Reconstructs case findings from the	Testifies on case for a colleague who has left the office
documentation of others to form independent	Reviews a cold case to assist investigators
opinion for a complex case	
Assessment Models or Tools	Diagram, photograph, and report review
	Direct observation
	Multisource feedback
Curriculum Mapping	
Notes or Resources	Basic forensic textbooks
	• Collins KA. Autopsy Performance & Reporting. 3rd ed. Northfield, IL: College of American
	Pathologists; 2017.
	 Collins KA. Special Autopsy Dissections. 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 Level 1** Identifies the differences between Lists different manners of death classifications. cause and manner of death • Explains proximate cause of death • Provides attending with a draft report for a natural death, understanding the need to allow Drafts a timely, organized written report for a routine case time for editina Level 2 Synthesizes findings to opine on cause • Incorporates toxicology findings to certify the cause and manner of death in an overdose and manner of death in routine cases. case Organizes final diagnoses by relevance in an overdose case with natural disease findings Synthesizes and prioritizes findings for a routine • Writes report for an overdose case within office turnaround time case into a timely, written report • Recognizes a complex case and discusses the wording of the cause of death statement, **Level 3** Describes the subtleties in death certification in complex cases including proximate, immediate, and contributory causes • Discusses suicide versus accident as manner of death in a case with toxic drug levels Synthesizes and prioritizes findings for a • Writes an organized report for a case with multiple injuries within office turnaround time complex case into a timely written report with editorial assistance Level 4 Synthesizes findings to opine in • Writes the cause and manner of death statement for an excited delirium case complex cases with multiple competing causes • Determines when there is a competing mechanism of death and differentiates the level of and/or manners of death significance Synthesizes and prioritizes findings for a • Writes an organized report for a child abuse case complex case into a timely written report that needs minimal editing Level 5 Independently generates a nuanced • Writes a report for a case of skeletal remains with circumstances suspicious of homicide report that expresses the ambiguity and uncertainty for a complex case Assessment Models or Tools Case-based discussion Case logs Presentations Review of report and death certificate **Curriculum Mapping**

Notes or Resources	Hanzlick R. Cause of Death and the Death Certificate: Important Information for
	Physicians, Coroners, Medical Examiners, and the Public. Northfield, IL: College of
	American Pathologists; 2006.
	https://www.health.state.mn.us/people/vitalrecords/physician-me/docs/capcodbook.pdf.
	<u>2020</u> .
	Hirsch C, Flomenbaum M. ASCP Check Sample FP95-1(FP202). American Society of
	Clinical Pathologists. 1995;37:1-30.
	• NAME. Death Certification Resources. https://www.thename.org/death-certification . 2020.

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** • Write characteristics of livor mortis on body diagram Level 1 Describes common artifacts (e.g., post mortem change, medical intervention, organ/tissue procurement) • Prior to initiating case, list the possible categories of injuries from a motor vehicle accident Describes categories of injuries (e.g., blunt force, sharp force, penetrating) • Discuss available postmortem tests for possible infectious disease death Describes available ancillary studies (e.g., histology, microbiology, molecular, radiology, toxicology) Level 2 Identifies distinguishing features of • Describes appearance of postmortem insect activity in contrast to an abrasion common artifacts Identifies distinguishing features of injuries (e.g., • Describe the distinctions between lacerations and sharp force injuries undermining, bridging) Performs proper specimen collection. Collects toxicology samples in an appropriate, properly labeled container and correctly preservation, and submission completes the requisition Level 3 Interprets common artifacts in the • Distinguishes surgical intervention from sharp force injury context of the case Identifies details and patterns of injuries (e.g., • Recognizes soot and stippling and determines implications for range of fire range of gunshot wound) Recognizes case scenarios in which ancillary • Orders appropriate ancillary studies in a case of suspected meningitis studies are indicated Level 4 Consistently differentiates injury • Differentiates blunt force injuries from artifact in decomposed cases patterns from artifacts Interprets multiple/variable injuries in a single • Interprets overlapping ligature and sharp force injuries of the neck • Recognizes patterned blunt force injuries in a background of multiple injuries case

Independently orders and interprets ancillary study results and incorporates into report	Correlates influenza work-up with clinical history and histology in the report
Level 5 Interprets multiple, complex injuries with significant artifacts	Independently distinguishes animal predation from injury in skeletal remains
Independently identifies trends in ancillary study results that advance medical knowledge and public health	Recognizes an outbreak of infectious disease based on recent cases
Assessment Models or Tools	Direct observation
	Presentations
	Report and photograph review
Curriculum Mapping	
Notes or Resources	 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. Virchows Arch. 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. Autopsy Pathology: A Manual and Atlas. 3rd ed. Philadelphia, PA: Elsevier; 2016.
	DiMaio D, DiMaio VJM. Forensic Pathology (Practical Aspects of Criminal and Forensic Investigations). 2nd ed. Boca Raton, FL: CRC Press; 2001.
	Dolinak D, Matshes E, Lew EO. Forensic Pathology: Principles and Practice. 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. Semin Ultrasound CT MR. 2019;40(1):56-66. https://www.sciencedirect.com/science/article/abs/pii/S0887217118300945?via%3Dihub.
	 2020. Prahlow JA, Byard RW. Atlas of Forensic Pathology: For Police, Forensic Scientists, Attorneys, and Death Investigators. 2012th ed. New York, NY: Humana Press; 2011. Saukko P, Knight B. Knight's Forensic Pathology. 4th ed. Boca Raton, FL: CRC Press;
	2016.

 Spitz WU. Spitz and Fisher's Medicolegal Investigation of Death: Guidelines for the Application of Pathology to Crime Investigation. 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** • Navigates medical and investigative records, internet, and literature to locate necessary **Level 1** Demonstrates a basic framework for information for a forensic pathology case clinical reasoning Identifies appropriate resources to inform Asks attending what their preferred resources are for a fatal stabbing clinical reasoning Level 2 Demonstrates clinical reasoning to • Extracts pertinent findings from the medical and investigative records and distinguishes determine relevant information between relevant and extraneous data Selects relevant resources based on scenario to • Is aware of and uses appropriate forensic algorithms, consensus guidelines, and inform decisions published literature • Employs consensus guideline data to appropriately establish cause or manner of death **Level 3** Synthesizes information to inform clinical reasoning, with assistance Seeks and integrates evidence-based • Uses published literature and recommendations to correctly direct work-up of patient who information to inform diagnostic decision making has a combination of toxic drug levels and multiple comorbidities in complex cases, with assistance Level 4 Independently synthesizes information • Uses Sudden Unexplained Infant Death Investigation guidelines to complete an to inform clinical reasoning in complex cases examination of a nine-month-old infant Independently seeks out, analyzes, and applies Uses clinical, laboratory, and epidemiologic data to guide work-up of a patient with relevant original research to diagnostic decision infectious encephalitis making in complex clinical cases Level 5 Demonstrates intuitive approach to • Attending consults fellow with an interest in cardiac pathology to resolve a difficult cardiac clinical reasoning for complex cases death Assessment Models or Tools Case based discussion assessment Direct observation Presentations Review of autopsy reports Review of daily cases **Curriculum Mapping** • Clinical reasoning relies on appropriate foundational knowledge that requires the trainee Notes or Resources to apply that knowledge in a thoughtful, deliberate, and logical fashion to forensic cases

lobst WF, Trowbride R, Philibert I. Teaching and assessing critical reasoning through the use of entrustment. *J Grad Med Educ*. 2013;5(3):517-8.
 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3771188/. 2020.
 Jones RM. Complexity and forensic pathology. *Forensic Sci Int*. 2015;257:e38-e43.
 https://www.sciencedirect.com/science/article/pii/S0379073815003709?via%3Dihub.
 https://www.sciencedirect.com/science/article/pii/S0379073815003709?via%3Dihub.
 <a href="https://www.sciencedirect.com/science/article/pii/S0379073815003709?via%3Dihub.
 <a href="https://www.sciencedirect.com/science/article/pii/S0379073

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
Level 1 Demonstrates knowledge of common safety events (e.g., body or specimen misidentification/ mislabeling)	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
Demonstrates knowledge of how to report safety events (e.g., release of wrong body, reportable infectious disease)	
Demonstrates knowledge of basic QI methodologies and metrics	
Level 2 Identifies system factors that lead to safety events	Identifies lack of standardized practice of labeling containers immediately as a factor for errors in labeling
Reports safety events through institutional reporting systems (simulated or actual)	 Identifies and reports a mislabeled body Identifies and reports a needle stick injury
Describes departmental and institutional QI initiatives	Is aware of improvement initiatives within their scope of practice
Level 3 Participates in analysis of safety events (simulated or actual)	Participates in a root cause analysis to determine why a body was released to the wrong funeral home
Participates in disclosure of safety events to clinicians, families, and community as appropriate (simulated or actual)	Participates in reporting postmortem injuries that occurred during transport to the family, per local guidelines
Participates in departmental and institutional QI initiatives	Helps to implement a new barcoding system that was purchased by the department to decrease the incidence of specimen mislabeling
Level 4 Conducts analysis of safety events and offers error prevention strategies (simulated or actual)	Collaborates with a team to lead the analysis of a series of postmortem injuries that occurred during transport

Discloses safety events to clinicians, families, and community as appropriate (simulated or actual)	Competently communicate with families about those events
Demonstrates the skills required to identify, develop, implement, and analyze a QI project	Initiates and completes a QI project, including communication with stakeholders
Level 5 Actively engages teams and processes to modify systems to prevent safety events	 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
Role models or mentors others in the disclosure of safety events	
Creates, implements, and assesses QI initiatives at the institutional or community level	
Assessment Models or Tools	 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
Curriculum Mapping	•
Notes or Resources	 Institute of Healthcare Improvement. http://www.ihi.org/Pages/default.aspx. 2020. NAME. Forensic Pathology-Relevant "Patient Safety" Course. https://www.thename.org/patient-safety-course. 2020.

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
Level 1 Demonstrates knowledge of case coordination	 Identifies the members of the interprofessional team, including autopsy technicians, death investigators, laboratory personnel, law enforcement, and consultants, and describes their roles
Identifies key elements for safe and effective transitions of care and hand-offs	Lists the essential components of an effective transfer of pertinent case information for organ and tissue transplantation
Demonstrates knowledge of population and community health needs and disparities	Identifies components of social determinants that affect autopsy performance
Level 2 Coordinates routine cases effectively using interprofessional teams	With assistance, contacts necessary consultants including forensic odontology or anthropology
Performs safe and effective transitions of care/hand-offs in routine situations (e.g., transition from investigator to pathologist, release to funeral home)	Takes routine calls from death investigators but still needs assistance to triage cases that need to be brought in for an autopsy
Identifies pathology's role in population and community health needs and inequities for the local population	Identifies that the homeless population is more likely to have tuberculosis
Level 3 Coordinates complex cases effectively using interprofessional teams	 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
Performs safe and effective transitions of care/hand-offs in complex situations (e.g., transfer of materials for outside testing or consultation)	Coordinates transfer of heart, brain, and bones to an outside facility for consultation or additional testing
Identifies opportunities for pathology to participate in community and population health	Speaks to the community about the practice of forensic pathology or a specific public health issue
Level 4 Models effective coordination of cases among different disciplines and specialties	 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

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)	Proactively calls the family or referring agency to report conditions which may affect other family members
Recommends and/or participates in changing and adapting practice to provide for the needs of communities and populations	Is involved in community safety campaign for safe sleep
Level 5 Analyzes the process of care coordination and leads the design and implementation of improvements	Works with team members or leadership to analyze case coordination and laboratory workflow and takes a leadership role in designing and implementing changes
Improves quality of transitions of care within and across health care delivery systems to optimize outcomes	Works with the interdisciplinary team to develop a tool to improve communications when providing organs and tissue for transplantation
Leads innovations and advocates for populations and communities with health care inequities	 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
Assessment Models or Tools	 Direct observation Interdisciplinary rounds and case conferences Lectures/workshops on social determinants of health or population health with identification of local resources Multisource feedback
Curriculum Mapping	
Notes or Resources	 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=Z39.88-2003𝔯_id=ori:rid:crossref.org𝔯_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. https://exzz5e7nSsAns. 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** • Recognizes the multiple, often competing forces, in the death investigation system (e.g., Level 1 Identifies key components of the families, referring agencies, law enforcement, attorneys, funeral homes) complex health care system (e.g., medical examiner, coroner, public health, laboratory) Level 2 Describes how components of a • Understands how law enforcement reports may conflict with information obtained by complex health care system are interrelated, death investigators and how this impacts patient care Level 3 Discusses how individual practice • Understands, accesses, and analyzes own performance data; relevant data may include: affects the broader system (e.g., test use, Autopsy case log turnaround time) o Scene log o Testimony log • Works with referring agencies to coordinate the death investigation Level 4 Manages various components of the complex health care system to provide efficient and effective patient care and transition of care Level 5 Advocates for or leads systems change • Works with referring agencies to improve death investigation procedures that enhances high-value, efficient, and effective patient care and transition of care Assessment Models or Tools Direct observation Multisource feedback • Review of case, scene, and testimony logs **Curriculum Mapping** • Luzi SA, Melinek J, Oliver WR. Medical examiner's independence is vital for the health of Notes or Resources the American legal system. Acad Forensic Pathol. 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. Acad Forensic Pathol. 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.

Assessment Models or Tools

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** Level 1 Demonstrates knowledge of accrediting • Understands that hospital laboratories must be inspected and accredited by a Centers for agencies and compliance for hospital-based Medicare & Medicaid Services (CMS)-approved accreditation organization, such as the laboratories College of American Pathologists (CAP), The Joint Commission (TJC), AABB, etc. • Attends departmental quality assurance/quality control meetings, trauma conferences, Discusses the need for quality control morbidity and mortality conferences, and/or accreditation meetings; discusses with faculty/staff members afterwards • Understands that National Association of Medical Examiners (NAME) inspection is for Level 2 Demonstrates knowledge of the accrediting agencies for death investigation accreditation of medical examiner's offices/coroner's offices/autopsy facilities while toxicology laboratories are accredited by the American Board of Forensic Toxicology offices and forensic laboratories (ABFT) or the ANSI National Accreditation Board (ANAB) Interprets quality data and charts and trends, • Participates in departmental quality assurance/quality control program • Compares preliminary gross diagnoses to final diagnoses for own cases with assistance Level 3 Identifies the differences between • Reviews and discusses the components of the NAME Inspection and Accreditation accreditation and regulatory compliance; Checklist discusses the process for achieving accreditation and maintaining regulatory compliance • Completes inspector training for accreditation agency to understand the process for Demonstrates knowledge of the components of a laboratory quality management plan achieving/maintaining regulatory/accreditation compliance **Level 4** Participates in an internal or external • Performs a mock or self-inspection using NAME checklist laboratory inspection (mock or actual) • Assists in developing a strategy for handling quality control or proficiency testing failures Reviews the quality management plan to identify areas for improvement • Serves on a committee for a regional or national accreditation agency **Level 5** Serves as a resource for accreditation • Performs accreditation inspection for outside facility at the regional or national level • Oversees laboratory quality management Creates and follows a comprehensive quality management plan

Assignment of duties for departmental quality assurance/quality control committees

	Direct observations
	Documentation of inspector training and participation in portfolio
	Presentation at trauma conferences
Curriculum Mapping	
Notes or Resources	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 Identifies general pathology work practices and workflow (e.g., histology, immunohistochemistry stains, chemical tests)	Knows proper places to send various specimens for ancillary testing Saves appropriate specimens for possible testing
Level 2 Explains rationale for optimizing utilization	Understands the rough cost and turnaround time of each ancillary test
Level 3 Identifies opportunities to optimize utilization of pathology resources	 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 Initiates efforts to optimize utilization	 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 Completes a utilization review and implements change	 Implements policy change modifying overuse of vitreous electrolyte, molecular, histology, and/or microbiology testing
Assessment Models or Tools	 Audit of testing usage Direct observation QI project
Curriculum Mapping	
Notes or Resources	 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. 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** Level 1 Demonstrates how to access and select • Recognizes that molecular testing is useful in the work-up for cardiomyopathy applicable evidence (e.g., literature, guidelines) Is aware of the need for patient privacy, Identifies the need for an Institutional Review Board (IRB) when collecting cases for a possible research project autonomy, and consent as applied to clinical research Level 2 Identifies and applies the best available Orders an appropriate microbiology study on cerebrospinal fluid specimen for meningitis evidence to guide diagnostic work-up of simple work-up cases Develops knowledge of the basic principles of • Drafts a research proposal for review with oversight research (demographics, Institutional Review Board, human subjects), including how research is evaluated, explained to patients, and applied to patient care Level 3 Identifies and applies the best available Orders appropriate molecular testing to further classify cardiomyopathies based on evidence to guide diagnostic work-up of current available publications complex cases Applies knowledge of the basic principles of • Drafts a research protocol with minimal oversight or presents relevant current practice research such as informed consent and standards in the context of a case interdepartmentally research protocols to clinical practice, with supervision Level 4 Critically appraises and applies • Appropriately researches the primary literature to explain rare molecular findings that evidence to guide care, even in the face of surface from additional molecular testing conflicting data Proactively and consistently applies knowledge • Submits an abstract for a national meeting or submits a paper for publication of the basic principles of research such as informed consent and research protocols to clinical practice

Level 5 Teaches others to critically appraise and apply evidence for complex cases; and/or participates in the development of guidelines	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
Suggests improvements to research regulations and/or substantially contributes to the primary literature through basic, translational, or clinical research	Submits a grant proposal
Assessment Models or Tools	Direct observation
	Presentation
	Research portfolio
Curriculum Mapping	
Notes or Resources	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 I	mprovement 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	
Level 1 Accepts responsibility for personal and professional development by establishing goals	Is aware of need to improve	
Identifies the gap(s) between expectations and actual performance	Begins to seek ways to determine where improvements are needed and makes some specific goals that are reasonable to execute and achieve	
Actively seeks opportunities to improve		
Level 2 Demonstrates openness to receiving performance data and feedback in order to inform goals	Is increasingly able to identify performance gaps in terms of diagnostic skills and daily work; uses feedback from others	
Analyzes and reflects on the factors which contribute to gap(s) between expectations and actual performance	After working with an attending on a case, asks him/her about performance and opportunities for improvement	
Designs and implements a learning plan, with assistance	Uses feedback with a goal of improving communication skills with technologists, peers/colleagues, and staff members with a specified time frame in mind	
Level 3 Seeks performance data and feedback with humility	Takes input from technologists, peers/colleagues, and supervisors to gain complex insight into personal strengths and areas to improve	
Institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance	Acts on input, is appreciative and not defensive	
Independently creates and implements a learning plan	Documents goals in a more specific, measurable, and achievable manner, such that attaining them is reasonable	
Level 4 Actively and consistently seeks performance data and feedback with humility	Is clearly in the habit of making a learning plan for each rotation	
Critically evaluates the effectiveness of behavioral changes in narrowing the gap(s) between expectations and actual performance	Consistently identifies ongoing gaps and chooses areas for further development	

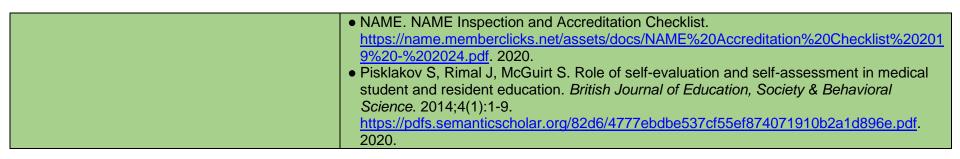
Uses performance data to measure the effectiveness of the learning plan and improves it when necessary	Reflects on own performance and makes request for specific types of cases
Level 5 Models seeking performance data and accepting feedback with humility	Actively discusses learning goals with supervisors and colleagues; may encourage other learners on the team to consider how their behavior affects the rest of the team
Coaches others reflective practice	
Facilitates the design and implementing learning plans for others	Reflects on own education and drafts learning plans for future fellows
Assessment Models or Tools	Direct observation Review of Case Logs Review of learning plan
Curriculum Mapping	•
Notes or Resources	 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	
Level 1 Demonstrates knowledge of the ethical principles underlying the practice of medicine	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	
Describes when and how to appropriately report professionalism lapses, including strategies for addressing common barriers; identifies and describes potential triggers for professionalism lapses	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)	
Level 2 Analyzes straightforward situations using ethical principles	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	
Demonstrates insight into professional behavior in routine situations; takes responsibility for own professionalism lapses	 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 	
Level 3 Recognizes the need and uses appropriate resources to seek help in managing and resolving complex ethical situations	 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 	
Demonstrates professional behavior in complex or stressful situations	 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 	
Level 4 Independently resolves and manages complex ethical situations	 Actively seeks to consider the perspectives of others Models respect for decedents and their families and expects the same from colleagues 	
Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in self and others	• Recognizes and uses appropriate resources for managing and resolving ethical dilemmas (e.g., ethics consultations, literature review, departmental policies, legal consultation)	

Level 5 Identifies and seeks to address system- level factors that induce or exacerbate ethical problems or impede their resolution	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
Coaches others when their behavior fails to meet professional expectations	 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)
Assessment Models or Tools	 Direct observation Multisource feedback Oral or written self-reflection Simulation or discussion based
Curriculum Mapping	
Notes or Resources	 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-Millenium-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://alphaomegaalpha.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/. 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=Z39.88-2003𝔯_id=ori:rid:crossref.org𝔯_dat=cr_pub%3dpubmed. 2020.

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 <a href="https://www.archivesofpathology.org/doi/10.1043/0003-9985(2000)124%3C1485:POTEAO%3E2.0.CO;2?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed.2020.
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- https://www.researchgate.net/publication/319435979 Ethical Considerations on Disclosure When Medical Error Is Discovered During Medicolegal Death Investigation. 2020.

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 **Examples Milestones** • Responds promptly to reminders from program administrator to complete work hour logs **Level 1** Responds promptly to instructions, requests, or reminders to complete tasks and • Timely attendance at conferences responsibilities Responds promptly to requests to complete preliminary report on an autopsy Level 2 Takes appropriate ownership and • Completes cases in a timely manner, with attention to detail, including reporting of performs tasks and responsibilities in a timely ancillary testing manner with attention to detail • Completes and documents safety modules, procedure review, and licensing requirements Level 3 Recognizes situations that may impact • Notifies attending of multiple competing demands, appropriately triages tasks, and asks own ability to complete tasks and for assistance from other fellows or faculty members, if needed responsibilities in a timely manner and • Reviews Case Logs, Forensic In-Service Examination scores, evaluations, and portfolio describes the impact on team and develops a learning plan to address gaps/weaknesses in knowledge, case exposure, and skills **Level 4** Anticipates and intervenes in situations Identifies issues that could impede other fellows from completing tasks and provides that may impact others' ability to complete tasks leadership to address those issues; escalates to communicating with program director if and responsibilities in a timely manner 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 Designs new strategies to ensure that • Sets up a meeting with the laboratory supervisor to address specimen mislabeling and the needs of patients, teams, and systems are follows through with a system-based solution met Assessment Models or Tools • Compliance with deadlines and timelines Direct observation Multisource feedback • Quality metrics of turnaround time on cases Self-evaluations and reflective tools Simulation **Curriculum Mapping** Notes or Resources 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.



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 **Examples Milestones** Level 1 Recognizes limitations in the Accepts constructive feedback knowledge/skills/ behaviors of self or team, with assistance Recognizes status of personal and professional well-being, with assistance Level 2 Independently recognizes limitations in Identifies possible sources of personal stress or gaps in clinical knowledge and the knowledge/skills/ behaviors of self or team independently seeks help and seeks help when needed Independently recognizes status of personal and professional well-being and seeks help when needed Level 3 Proposes and implements a plan to • With supervision, assists in developing a personal learning or action plan to address gaps remediate or improve the knowledge/ in knowledge or stress and burnout for self or team skills/behaviors of self or team, with assistance Proposes and implements a plan to optimize personal and professional well-being, with assistance Level 4 Independently develops and • Independently develops personal learning or action plans for continued personal and implements a plan to remediate or improve the professional growth, and limits stress and burnout for self or team knowledge/skills/ behaviors of self or team Independently develops and implements a plan to optimize personal and professional well-being **Level 5** Serves as a resource or consultant for • Mentors colleagues in self-awareness and establishes health management plans to limit developing a plan to remediate or improve the stress and burnout knowledge/ skills/behaviors Coaches others when responses or limitations in knowledge/skills do not meet professional expectations

Assessment Models or Tools	Direct observation
	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	•
Notes or Resources	ACGME. Tools and Resources. https://www.acgme.org/What-We-Do/Initiatives/Physician-
	Well-Being/Resources. 2020.
	Brondolo E, Eftekharzadeh P, Clifton C, et al. Work-related trauma, alienation, and
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	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.
	Psychol Trauma. 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. Acad Pathol. 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. Am J Clin Pathol. 2007;128(6):911-
	919. https://academic.oup.com/ajcp/article/128/6/911/1764982 . 2020.
	Local resources, including Employee Assistance
	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 bia	ses, and minimize them Examples
Level 1 Uses language and nonverbal behavior to demonstrate respect and establish rapport	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
Identifies common barriers to effective communication (e.g., language, disability) while accurately communicating own role within the health care system	Avoids medical jargon when talking to families, makes sure communication is at the appropriate level to be understood by a layperson
Level 2 Establishes a relationship in straightforward encounters using active listening and clear language	 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
Identifies complex barriers to effective communication (e.g., health literacy, cultural)	Understands that selected words may have a negative impact on family members when sharing autopsy results
Level 3 Sensitively and compassionately delivers medical information, with assistance	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
When prompted, reflects on personal biases while attempting to minimize communication barriers	Shares autopsy findings with next of kin in a compassionate manner
Level 4 Independently, sensitively, and compassionately delivers medical information and acknowledges uncertainty and conflict Independently recognizes personal biases while	Leads the sharing of autopsy findings to families
attempting to proactively minimize communication barriers	
Level 5 Mentors others in the sensitive and compassionate delivery of medical information	Leads and models the sharing of autopsy findings in cases of disputed cause and/or manner of death

Models self-awareness while teaching a contextual approach to minimize communication barriers	Observes and assesses a team member in the sharing of sensitive information
Assessment Models or Tools	 Direct observation Self-assessment including self-reflection exercises Simulation Structured case discussions
Curriculum Mapping	
Notes or Resources	 Dintzis S. Improving pathologist's communication skills. AMA J Ethics. 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. J Med Ethics. 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. Med Teach. 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 King 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. BMC Med Educ. 2009;9:1. https://bmcmededuc.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. Am J Forensic Med Pathol. 2017;38:294-297. https://www.researchgate.net/publication/319435979 Ethical Considerations on Disclos ure 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
Level 1 Uses language that values all members of the team	 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
Describes the utility of constructive feedback	Listens to and considers others' points of view, is nonjudgmental and actively engaged, and demonstrates humility
Level 2 Communicates information effectively with all team members	 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
Solicits feedback on performance as a member of the team	Seeks feedback at case conferences
Level 3 Uses active listening to adapt communication style to fit team needs	Demonstrates active listening by fully focusing on the speaker, actively showing verbal and non-verbal signs (i.e., eye contact, posture, reflection, questioning, summarization)
Integrates feedback from team members to improve communication	Adapts communication strategies in handling complex situations following constructive feedback
Level 4 Coordinates recommendations from different members of the team to optimize patient care	Offers suggestions to negotiate or resolve conflicts among team members; raises concerns or provides opinions and feedback, when needed, to superiors on the team
Communicates feedback and constructive criticism to superiors	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 Provides a provides a pricional and feedback when a part of the team for the purposes of improvement or reinforcement of correct knowledge, skills, and attitudes, when
Level 5 Models flexible communication strategies that value input from all team members, resolving conflict when needed	 Raises concerns or provides opinions and feedback when needed to others on the team Communicates with all team members, resolves conflicts, and provides feedback in any situation
Facilitates regular team-based feedback in complex situations	Organizes a team meeting to discuss and resolve potentially conflicting points of view on cause and/or manner of death certification
Assessment Models or Tools	Direct observation

	Multisource feedback
	Simulation
Curriculum Mapping	
Notes or Resources	 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. Guideliens for Cooperation Between Pathologists and Funeral Professionals In Matters Pertaining to Autopsies. https://documents.cap.org/documents/2001-cap-national-funeral-directors-association-quidelines-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.
	 Quidelines-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/. 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

Interpersonal and Communication Skills 3: Systems Communication Overall Intent: To appropriately communicate using a variety of methods	
Milestones	Examples
Level 1 Safeguards patient personal health information by communicating through appropriate means as required by institutional policy (e.g., cell phone/pager usage)	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 structure for communication of issues	Identifies institutional and departmental communication hierarchy for concerns and safety issues
Level 2 Appropriately selects forms of communication based on context and urgency of the situation	 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
Respectfully communicates concerns about the system	Reports an employee safety event following a needle stick injury
Level 3 Communicates while ensuring security of personal health information, with guidance	 Uses appropriate method when sharing results needing urgent attention Abides by relevant laws and policies regarding obtaining medical records
Uses institutional structure to effectively communicate clear and constructive suggestions to improve the system	Knows when to direct concerns locally, departmentally, or institutionally, i.e., appropriate escalation
Level 4 Independently communicates while ensuring security of personal health information	 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
Initiates conversations on difficult subjects with appropriate stakeholders to improve the system	Talks directly to a colleague about breakdowns in communication in order to prevent recurrence
Level 5 Guides departmental or institutional communication around policies and procedures regarding the security of personal health information	Leads a task force to develop or update a plan around appropriate release of protected health information (e.g. photos) in forensic cases
Facilitates dialogue regarding systems issues among larger community stakeholders (institution, health care system, field)	Works to facilitate improved mechanisms for transfer of investigative and autopsy information between government agencies at multiple levels (local, state, federal)

	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	 Direct observation Multisource evaluation Record review for documented communications Simulation
Curriculum Mapping	
Notes or Resources	 Fowler DR, MBChB, MMed. Public figures, professional ethics, and the media. AMA Journal of Ethics. 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. Journal of Forensic Nursing. 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		
Level 1 Discusses the role of the forensic	Describes appropriate relationships between death investigation and law enforcement		
pathologist in the criminal justice system	agencies/prosecutors		
Discusses the role of the forensic pathologist in	Identifies infectious diseases that require reporting to local, state, and/or federal public		
public health, safety, and disaster planning	health agencies		
Level 2 Observes a court proceeding after	• Reviews case in advance of court proceeding, observes testimony of forensic pathologist,		
reviewing the case	and discusses the features of effective testimony following court		
With assistance, reports findings related to	Accesses US Food and Drug Administration electronic site to report medical device		
public health or safety to appropriate agency	malfunction detected at autopsy (e.g., embolized inferior vena cava filter)		
Level 3 Meets with attorneys and/or law enforcement to discuss the case findings	Discusses gunshot wound findings related to range of fire with law enforcement		
Independently reports findings related to public health or safety to appropriate agency	Reports a case of Mycobacterium tuberculosis discovered at autopsy to the state health department		
Level 4 Prepares and presents testimony for a routine case proceeding (actual or mock)	Discusses the general principles of blunt force trauma as an expert witness		
Participates in a multidisciplinary team involving public health or safety (e.g., child death review, disaster planning)	Presents findings from a sudden unexpected child death to the child death review team		
Level 5 Prepares and presents testimony for a complex case proceeding	Testifies in an in-custody death case		
Leads a multidisciplinary team involving public health or safety	Leads a mass fatality exercise		
Assessment Models or Tools	Court transcript review		
	Direct observation Multipoures feedback		
	Multisource feedback Simulation		
Curriculum Mapping	•		

Notes or Resources	 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%3ATAOAIA%5D2.0.CO%3B2. 2020. Melinek J, Thomas LC, Oliver WR. National Association of Medical Examiners position paper: medical examiner, coroner, and forensic pathologist independence. <i>Acad Forensic Pathol.</i> 2013;3(1). https://journals.sagepub.com/doi/abs/10.23907/2013.013?journalCode=afpa. 2020. 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. <i>Acad Forensic Pathol.</i> 2017;7(4):604-618. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6474445/. 2020. NAME. NAME Position Statement on Forensic Pathologist Courtroom Testimony In Outors-livrisdiction Legacy Cases https://name.memberolicks.pat/assats/docs/9065536b.fb3d-618.
	 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. <i>Acad Forensic Pathol.</i> 2017;7(4):604-618. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6474445/. 2020. NAME. NAME Position Statement on Forensic Pathologist Courtroom Testimony In Out-
	of-Jurisdiction Legacy Cases. https://name.memberclicks.net/assets/docs/9065536b-fb3d-435e-b987-d254ae91d3eb.pdf . 2020. • Perper JA, Juste GM, Schueler HE, Motte RW, Cina SJ. Suggested guidelines for the management of high-profile fatality cases. <i>Arch Pathol Lab Med.</i> 2008;132:1630-1634. https://www.archivesofpathology.org/doi/pdf/10.1043/1543-2165%282008%29132%5B1630%3ASGFTMO%5D2.0.CO%3B2 . 2020.

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	PC1: Death Investigation
types of cases most appropriate for examination by a forensic pathologist	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
PBLI1: Recognition of Errors and Discrepancies	SBP1: Safety and Quality Improvement (QI)
PBLI2: Scholarly Activity	PBLI1: Evidence-Based Practice and Scholarship
PROF1: Professionalism: Demonstrates honesty, integrity, and	PROF1: Professional Behavior and Ethical Principles
ethical behavior	PROF2: Accountability and Conscientiousness
	PROF3: Self-Awareness and Help-Seeking
PROF2: Professionalism: Demonstrates responsibility and follow-	PBLI2: Reflective Practice and Commitment to Personal
through on tasks	Growth
, and the second	PROF2: Accountability and Conscientiousness
PROF3: Professionalism: Giving and receiving feedback	PBLI2: Reflective Practice and Commitment to Personal
	Growth
PROF4: Professionalism: Demonstrates responsiveness to each	No match
patient's distinct characteristics and needs	
PROF5: Professionalism: Demonstrates personal responsibility to maintain emotional, physical, and mental health	PROF3: Self-Awareness and Help-Seeking

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

Available Milestones Resources

Clinical Competency Committee Guidebook, updated 2020 -

https://www.acgme.org/Portals/0/ACGMEClinicalCompetencyCommitteeGuidebook.pdf?ver=2020-04-16-121941-380

Clinical Competency Committee Guidebook Executive Summaries, New 2020 - https://www.acgme.org/What-We-Do/Accreditation/Milestones/Resources - Guidebooks - Clinical Competency Committee Guidebook Executive Summaries

Milestones Guidebook, updated 2020 - https://www.acgme.org/Portals/0/MilestonesGuidebook.pdf?ver=2020-06-11-100958-330

Milestones Guidebook for Residents and Fellows, updated 2020 -

https://www.acgme.org/Portals/0/PDFs/Milestones/MilestonesGuidebookforResidentsFellows.pdf?ver=2020-05-08-150234-750

Milestones for Residents and Fellows PowerPoint, new 2020 - https://www.acgme.org/Residents-and-Fellows/The-ACGME-for-Residents-and-Fellows

Milestones for Residents and Fellows Flyer, new 2020 https://www.acgme.org/Portals/0/PDFs/Milestones/ResidentFlyer.pdf

Implementation Guidebook, new 2020 - https://www.acgme.org/Portals/0/Milestones%20Implementation%202020.pdf?ver=2020-05-20-152402-013

Assessment Guidebook, new 2020 -

https://www.acgme.org/Portals/0/PDFs/Milestones/Guidebooks/AssessmentGuidebook.pdf?ver=2020-11-18-155141-527

Milestones National Report, updated each Fall -

https://www.acgme.org/Portals/0/PDFs/Milestones/2019MilestonesNationalReportFinal.pdf?ver=2019-09-30-110837-587 (2019)

Milestones Bibliography, updated twice each year -

https://www.acgme.org/Portals/0/PDFs/Milestones/MilestonesBibliography.pdf?ver=2020-08-19-153536-447

Developing Faculty Competencies in Assessment courses - https://www.acgme.org/Meetings-and-Educational-Activities/Other-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://dl.acgme.org/pages/assessment

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