



*American Academy of Forensic Sciences
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International Association for Identification
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Society of Forensic Toxicologists/ American Board of Forensic Toxicology*

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The following information is provided by our strategic partners at the College of American Pathologists (CAP) through the Forensic Pathology Committee.

DO YOU KNOW THAT...

- There is a national shortage of forensic pathologists (FP).
- Forensic pathologists perform medicolegal autopsies.
- Forensic pathologists work with medical examiners/coroners (ME/C) offices to investigate unexpected, suspicious, and unnatural deaths.
- Without enough forensic pathologists, the public is at risk for wrongly diagnosed homicides, missed infectious disease deaths, and ultimately a collapse of the medicolegal death investigations system.

What is Pathology?

• Pathologists are physicians who work on the laboratory aspects of disease. Pathology involves two separate areas: anatomic pathology (making disease diagnosis based on evaluation of anatomic alterations of tissues, frequently using microscopic examination); and clinical pathology (making or aiding in disease diagnosis based on evaluation of various bodily fluids and other samples, such as blood, urine, or cultures). Most pathologists are employed in hospitals and private labs. The education and training of a pathologist includes a four-year undergraduate degree, a four-year medical degree, and 3-4 years of residency training.

What is Forensic Pathology:

- Forensic pathology is a subspecialty of pathology that requires an additional training year (fellowship in forensic pathology), after training and certification in general (anatomic/clinical) pathology.
- Most FPs are governmental employees in ME/C offices at the local (county) and state levels.
- Forensic pathologists (FPs) investigate all unexpected, suspicious, and unnatural deaths typically by performing medicolegal autopsies in ME/C offices.
- While a majority of FPs work within an ME/C office, some FPs provide consultation services to attorneys, families, and others.
- Forensic (medicolegal) autopsies are performed for many reasons, including documenting injuries and/or disease, collecting evidence, determining the cause of death, and assisting in the determination of the manner of death.

What are Medical Examiner/Coroner offices?

- ME/C offices operate under state/local statutes, investigating all unexpected, suspicious, and unnatural deaths across all stages of life: prenatal and sudden infant deaths, drug overdoses, motor vehicle deaths, suicides, homicides, suspected infectious disease deaths, and fatal injuries in all age groups, including the elderly.
- Coroners are elected officials who are charged with investigating such deaths. Depending on state/county laws, coroners may (occasionally) or may not (usually) have medical training.

- By law, if a death results from anything other than a natural disease, death certification must be completed by the ME/C office.

- Medical Examiners (MEs) are appointed officials who are charged with investigating such deaths. Most MEs are physicians, although, depending on the state, they may or may not be forensic pathologists.

- Most large and medium-sized ME/C offices employ FPs to perform medicolegal autopsies. Some jurisdictions require the ME to be a board certified FP.

- Smaller ME/C jurisdictions may send medicolegal autopsy cases to larger or more centralized offices which employ FPs; however, some rely on hospital-based or other non-forensic pathologists to perform autopsies.

What benefits do ME/C offices provide?

- Medical Examiners and Coroners (ME/C) provide essential services to the public health and the criminal justice systems.

- All health departments depend on the proper investigation and certification of deaths by ME/C offices.

- Many Federal agencies rely on accurate data from ME/C offices (CDC, FBI, Department of Transportation, FDA, NTSB, FAA, etc.).

Do ME/C offices function independently from law enforcement?

- By the very nature of an ME/C office's responsibilities, ME/C offices and FPs must work closely with law enforcement (LE) agencies.

- Despite this close working relationship, ME/C offices and FPs must maintain appropriate independence from LE agencies, providing objective, unbiased rulings and findings.

- For this reason, most ME/C offices operate structurally and functionally outside of the oversight/influence of LE.

- However, there are some notable exceptions to this, where the death investigation office is under the direct or indirect oversight of LE. In such situations, ME/Cs and FPs must remain especially vigilant in maintaining their independence from undue LE influence.

Why is there a shortage of FPs?

- There is a shortage because there is decreasing supply (i.e., not enough forensic pathologists) with an increasing demand (i.e., increasing workload).

Supply:

- There are currently about 500 FPs practicing full-time in the US, however, there would need to be over double that number to ensure a forensic pathologist performs these investigations in all jurisdictions of the US.

- There are fewer medical students entering the field of pathology which translates into fewer pathologists, and therefore fewer forensic pathologists. Beginning in 2015, the retirements and deaths

in all of pathology has outpaced the rate of new practitioners entering the specialty (resulting in a projected net deficit of 5700 pathologists practicing in 2030).

- Low salaries and medical school loan debt is a significant deterrent to choosing a career in forensic pathology.
- Salary data indicate that the average annual compensation for full-time private pathologists was \$333,889. In contrast, mean FP compensation (2014) for chief medical examiners was \$219,778, for deputy chief medical examiners was \$192,872, and for assistant medical examiners was \$183,597.

Demand:

- ME/C offices provide essential services that cannot be delayed and must be performed soon after death. Families need remains in a timely manner for funeral arrangements. In order to properly investigate and certify the cause of death, autopsies are required in many deaths such as homicides, sudden infant deaths, and drug intoxications.
- The opioid epidemic has further increased the demand on ME/C offices. Prior to the opioid epidemic, the US needed 1,000-1,100 FPs to provide coverage to the entire country. The increased mortality from the opioid epidemic alone, would require 400 forensic pathologists to investigate, autopsy, and certify these deaths.
- In many jurisdictions, more people die from accidental opioid intoxication than from the combined number of all homicides, suicides, and motor vehicle collisions.

What are the challenges for the forensic pathology workforce pipeline?

- Fewer medical students are entering the field of pathology which leads to fewer pathology residents going into forensic pathology. We need more pathologists and forensic pathologists.
- There are approximately 80 approved fellowship training slots for forensic pathology scattered across 44 programs in America, but many of these slots (nearly 50%) go unfilled each year.
- An average of 37 new FPs have been certified per year over the last 10 years; however, surveys of newly trained FPs indicate that only 21 net full time FPs remain in FP per year, a number too small to replace those leaving the field due to death, retirement, or burnout.
- Forensic pathology salaries need to increase. Forensic pathology is the only subspecialty in medicine in which the physician earns a lower salary after doing an additional year of specialized training than if they had not subspecialized and simply worked as a hospital pathologist.
- If governments cannot compete with the private market of pathology, or the larger market of heavily indebted medical students weighing a variety of career options, there will continue to be a shortage of FPs, and as these market forces continue to dissuade people from becoming forensic pathologists, the shortage will become worse.

What is the BIG PICTURE result of these shortages?

- Without new strategies and new investment, public health systems will be at risk because ME/C offices will be unable to fulfill their statutory obligations in death certification and investigation.
- FP shortages across the country—problematic before the opioid epidemic, and dire now—threatens the functioning and accreditation of ME/C offices. The medicolegal death investigation system in the US,

and the many federal public health and criminal justice system activities that depend on it, is on a path to collapse.

What can POLICY MAKERS do?

- Since the Federal government has no direct legal or financial role in the administration or funding of state/county ME/C offices, these offices are dependent on funding by the local or state governments. Underfunding of ME/C offices is a chronic and widespread problem that needs a national solution.
- There are numerous partial solutions that are best addressed federally, including loan forgiveness for practicing forensic pathologists, funding of forensic pathology fellowships, visa waivers, model medical examiner legislation, national licensure, and grants directly to the ME/C offices as opposed to just law enforcement or public health agencies.
- In jurisdictions where undue or inappropriate LE influence on the death investigation office exists, whether this is due to structural/functional/statutory or other reasons, policymakers should consider legislation or other means to eliminate the real or apparent conflict of interest.

What are the ACTION ITEMS to improve the shortage of Forensic Pathologists?

- As medical school loan debt is a significant deterrent to choosing a career as a government FP, funding loan forgiveness programs specifically geared toward forensic pathology would encourage medical students to choose forensic pathology as a career.
- Forensic pathology fellowship programs need to be fully funded.
- As modernization of ME/C is needed, underwriting model medical examiner legislation to provide a pathway to modernize death investigation systems and providing competitive grants targeted to ME/C systems to fund facilities, equipment, and staff in offices seeking accreditation to national standards is needed.
- Authorization of visa waivers for qualified FP practitioners will help to attract foreign FPs to help address the dire national shortage.
- Legislation to allow board-certified forensic pathologists with an active state medical license to work for a ME/C office for short durations (e.g., locum tenens) in other states without having to get a medical license in that state.

What is involved with Death Certification?

- By law, a death certificate must be filed for everyone who dies in the US.
- If the death is due solely to natural disease, and the decedent (dead person) was attended to by a physician, then that physician may complete the death certificate.
- If the death is the result of anything other than a natural disease, the ME/C must certify the death.
- The death certificate (DC) has two major components: the cause of death (COD) and the manner of death (MOD).
- In the COD portion of the DC, there are two parts (parts I and II) which may be used; however, part II is not required.

- The COD is the disease or injury that, in the opinion of the certifier, lead to death. It can be something that recently occurred, such as trauma, or it can be something that has existed for many years, such as underlying heart disease.
- Part II can be used to list “contributing factors” to death that are unrelated to what is listed in part I.
- Sometimes, the COD can be relatively complex, involving one or more “external” factors (such as trauma or drug toxicity), combined with one or more “internal” factors, such as underlying natural disease states.
- The MOD designates the circumstances by which the COD occurred; it typically has 5 options: natural, accident, homicide, suicide, and undetermined.
- In cases where death occurs as a result of injury, a section entitled “How injury occurred” must also be completed by the ME/C office.

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