SCIENTIFIC WORKING GROUP FOR
MEDICOLEGAL DEATH INVESTIGATION

SWGMDI's Accreditation, Certification, Education and Training Committee's Report of the Minimal Educational Requirements for Medicolegal Death Investigation System Personnel

Introduction

The National Academy of Science's (NAS) "Strengthening Forensic Science in the United States: A Path Forward" report stresses the need for accreditation, certification, education and training for forensic practitioners and facilities. [1] Given the context of this report, one must assume there is an identified deficiency, or lack of standardized academic rigor associated with employment in the forensic science community. To better understand the education currently required to hold employment in the broad field of forensic science, a cursory literature review was done to identify common "job titles" that exist nationally for forensic practitioners. The literature review produced a list of 38 job titles for forensic positions that participate in overall death investigation. A survey was developed to assess the minimum educational requirements for each job title found.

Background

Medicolegal death investigation jurisdictions include medical examiner (county, state or district), coroner (appointed or elected), Justice of the Peace, and sheriff-coroner systems. Statutes define authority in each jurisdiction. Many systems are fraught with inconsistent practices associated with leadership changes (i.e., elections), have budget restrictions, are oftentimes underfunded and oftentimes understaffed.

Accreditation establishes minimum standards for improving the quality of medicolegal death investigation and applies to systems, offices, and agencies that certify individuals, but not to individual practitioners. Medicolegal system or office accreditation is achieved after a thorough review of published office policies and procedures, observed office practices, review of credentials held by forensic practitioners and quality assurance verifications provided by laboratory and ancillary disciplines that provide services to forensic systems. Initial accreditation is established through on-site inspection, followed by annual reporting requirements and fees. Accreditation also incorporates adherence to a code of ethics.

Certification is achieved after an independent professional certification body recognizes that a practitioner has acquired specialized knowledge and demonstrated proficiency in the standards and practice necessary to properly perform job duties.[2] Certification provides general confidence by identifying individuals who comply with established professional requirements. Certification includes assessment of education, training and experience; written and/or practical testing in

validated domains of knowledge and skill; adherence to a code of ethics; and continuing education requirements.

Forensic education includes formal training offered within various undergraduate and graduate programs. The content, length and quality of programs vary. Because of this, the Forensic Education Programs Accreditation Council (FEPAC) was established in 2000 to promote academic quality through formal accreditation of forensic science programs in the United States.[3] All programs that FEPAC accredits are located within institutions that are accredited by a regional accreditation organization.[3] The FEPAC accreditation process and policies employ rigorous consensus standards that assure and advance academic quality at accredited institutions.[3]

There are many training courses available in forensic science; from basic informational training offered on the job within agencies that investigate death to specialized training of skills needed to perform specific tasks (i.e., bloodstain pattern analysis; trace, hair or fiber analysis; entomology, etc.) Training is delivered through various methods, including online or traditional classroom, and through job shadowing and mentorship programs, which may include hands on and field experience. Training is offered by colleges, universities, consultants and forensic systems (medical examiner/coroner offices) by individuals qualified to teach a particular topic. The length and style of training is dependent upon the institution, agency and in many cases, the individual trainer.

Methodology

To better understand the formal education currently required to work as a forensic practitioner and the knowledge requirements a single job title may draw from other specific domains of knowledge, it was determined a survey might produce the "best" snapshot of the current educational landscape. The simple survey asked respondents to identify their jurisdictional size served (by population range), the medicolegal administrative title (i.e., coroner or medical examiner) and the job title from the list of 38 that "best" described their own job title. These demographic items would be used to categorize response by job title and determine if population size and administrative title might play a role in the application of educational requirements for employment as a forensic practitioner. The first major item on the survey was designed to identify skill combinations required by forensic practitioners and the estimated amount of time spent applying those skills annually. The second major item asked respondents to indicate the current level of formal educational required to hold each of the 38 identified job titles within the jurisdiction or office. The final question attempted to identify changes in employment requirements by asking respondents to indicate if they would qualify for their current job "today"?

MDI Organization Sample

Survey respondents were selected from three organizations identified as primary employers and certifiers of medicolegal death investigators in the United States: the American Board of Medicolegal Death Investigators (ABMDI), the International Association of Coroners and Medical Examiners (IAC&ME) and the National Association of Medical Examiners (NAME).

Mailing lists of active members with email addresses was obtained from each of the organizations and a 20% random sample was drawn. A total of five hundred thirty one (531) surveys were deployed using the Survey Monkey online service yielding 182 responses (35%).

The survey distribution by organization is as follows:

- American Board of Medicolegal Death Investigations (212)
- International Association of Coroners and Medical Examiners (110)
- National Association of Medical Examiners (209)

Results

Nearly two-thirds of respondents were employed in medical examiner jurisdictions (63%) while (34%) were employed in coroner jurisdictions (appointed and elected). The population of the jurisdiction served varied in size with the largest majority serving populations less than 2 million (85%).

Small	0 – 250,000 (44/37%)
Medium	250,000 – 500,000 (17/14%)
Large	500,000 – 1.5M (36/31%)
Extra Large	Greater than 1.5M (21/18%)

Many forensic positions encompass numerous duties, requiring a combination of skills as depicted in the following chart.

Table 1: "Average" amount of time spent performing each task annually

Job Title	**<5%**	**10%**	**25%**	**50%**	**75%**	**100%**	**Response Count**
Administrator/Manager	15.8%	15%	20.8%	24.2%	20%	4.2%	120
Autopsy Technician	62.7%	21.6%	9.8%	5.9%	0%	0%	51
Bloodstain Pattern Analyst	75.0%	16.7%	4.2%	4.2%	0%	0%	24
Body Transport	59.2%	14.8%	7.4%	3.7%	7.4%	7.4%	27
Crime Scene Investigator	31.8%	22.7%	25.8%	7.6%	4.5%	7.6%	66
Digital and Multimedia Analyst	83.3%	16.7%	0%	0%	0%	0%	18
DNA Analyst	90%	0%	5%	0%	0%	5%	20
EMS/EMT	81%	9.5%	0%	0%	0%	9./5%	21
Epidemiologist	88.2%	11.8%	0%	0%	0%	0%	17
Evidence Technician	52.6%	31.6%	5.3%	5.3%	2.6%	2.6%	38
Firearms Examiner	88.9%	11.1%	9%	0%	0%	0%	18

Footwear Examiner	94.1%	5.9%	0%	0%	0%	0%	17
Forensic Anthropologist	77.4%	19.4%	3.2%	0%	0%	0%	31
Forensic Artist	94.1%	5.9%	0%	0%	0%	0%	17
Forensic Engineer	94.1%	5.9%	0%	0%	0%	0%	17
Forensic Entomologist	94.1%	5.9%	0%	0%	0%	0%	17
Forensic Nurse	72.2%	13.6%	4.5%	0%	4.5%	4.5%	22
Forensic Odontologist	90.0%	5.0%	0%	0%	5.0%	0%	20
Forensic Pathologist	21.2%	1.5%	4.5%	9.1%	37.9%	25.8%	66
Forensic Photographer	70.3%	16.2%	2.7%	2.7%	5.4%	2.7%	37
Forensic Psychiatrist	94.4%	5.6%	0%	0%	0%	0%	18
Forensic Radiologist	92.0%	8.0%	0%	0%	0%	0%	25
Forensic Toxicologist	85.7%	14.3%	0%	0%	0%	0%	21
Forensic Veterinarian	100%	0%	0%	0%	0%	0%	18
Jurisprudence (Defense/DA)	88.2%	11.8%	0%	0%	0%	0%	17
Latent Print Examiner	75.0%	15%	0%	10%	0%	0%	20
Medicolegal Death Investigator	6.9%	11.5%	16%	22.9%	16.8%	26%	131
Mortician	87%	0%	0%	4.3%	4.3%	4.3%	23
Questioned Document Examiner	100%	0%	0%	0%	0%	0%	19
Social Worker	75%	12.5%	12.5%	0%	0%	0%	24
Toolmark Examiner	94.1%	5.9%	0%	0%	0%	0%	17
Trace, Hair and Fiber Examiner	94.1%	5.9%	0%	0%	0%	0%	17
X-ray/CT Technician	86.4%	0%	9.1%	4.5%	0%	0%	22

Table 2**:** Job Titles Identified

Job Title	**Response Percent**	**Response Count**
Administrator/Manager	**9.0%**	**16**
Autopsy Technician	**0.6%**	**1**
Bloodstain Pattern Analyst	**0.0%**	**0**
Coroner (appointed)	**2.8%**	**5**
Coroner (elected)	**15.2%**	**27**
Crime Scene Investigator	**0/0%**	**0**
Criminalistic (state/county crime lab)	**0.0%**	**0**
Criminalistic (consultant)	**0.6%**	**1**
Digital and Multimedia Analyst	**0/0%**	**0**
DNA Analyst	**0.6%**	**1**
EMT/EMS	**0/0%**	**0**
Epidemiologist	**0/0%**	**0**

Evidence Technician	**0.6%**	**1**
Firearms Examiner	**0/0%**	**0**
Footwear Examiner	**0.0%**	**0**
Forensic Anthropologist	**0.0%**	**0**
Forensic Artist	**0.0%**	**0**
Forensic Engineer	**0.0%**	**0**
Forensic Entomologist	**0.0%**	**0**
Forensic Nurse	**0.0%**	**0**
Forensic Odontologist	**0.0%**	**0**
Forensic Pathologist	**19.1%**	**34**
Forensic Photographer	**0.6%**	**1**
Forensic Psychiatrist	**0.0%**	**0**
Forensic Radiologist	**0.0%**	**0**
Forensic Toxicologist	**0.0%**	**0**
Forensic Veterinarian	**0.0%**	**0**
Funeral Director	**0.0%**	**0**
Jurisprudence (Defense/PA)	**0.0%**	**0**
Latent Print Examiner	**0.0%**	**0**
Medical Examiner	**10.7%**	**19**
Medicolegal Death Investigator (full-time)	**33.7%**	**60**
Medicolegal Death Investigator (part-time)	**6.7%**	**12**
Mortician	**0.0%**	**0**
Questioned Document Examiner	**0.0%**	**0**
Toolmark Examiner	**0.0%**	**0**
Trace Hair and Fiber Examiner	**0.0%**	**0**
X-ray/CT Technician	**0.0%**	**0**
Other (please specify)	**0.0%**	**0.0%**

Table 3: Minimum requirement(s) for each job title

Job Title	HS	1 Yr Certification	AS	BA/ BS	MA/ MS	PhD	MD/ DO	JD	DDS/ DDM	Forsic Cert	Board Cert	Response Count
Administrator/ Manager	**24**	**2**	**9**	**31**	**12**	**0**	**4**	**0**	**0**	**3**	**8**	**84**
Autopsy Practitioner	**8**	**2**	**3**	**4**	**0**	**0**	**20**	**0**	**0**	**4**	**13**	**43**
Autopsy Technician	**46**	**4**	**17**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**79**
Bloodstain Pattern Analyst	**1**	**3**	**1**	**7**	**4**	**0**	**0**	**0**	**0**	**2**	**0**	**18**

Coroner (appointed)	**8**	**2**	**0**	**2**	**0**	**0**	**10**	**0**	**0**	**1**	**5**	**22**
Coroner (elected)	**27**	**3**	**3**	**5**	**0**	**0**	**11**	**0**	**0**	**3**	**6**	**47**
Crime Scene Investigator	**10**	**3**	**9**	**15**	**2**	**0**	**0**	**0**	**0**	**6**	**6**	**47**
Criminalist	**2**	**0**	**1**	**11**	**3**	**0**	**0**	**0**	**0**	**0**	**3**	**19**
Digital and Multimedia Analyst	**1**	**0**	**1**	**11**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**14**
DNA Analyst	**0**	**0**	**1**	**13**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**17**
EMT/EMS	**9**	**7**	**7**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**25**
Epidemiologist	**0**	**0**	**1**	**5**	**5**	**7**	**2**	**0**	**0**	**0**	**0**	**20**
Evidence Technician	**10**	**1**	**9**	**7**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**30**
Firearms Examiner	**2**	**1**	**2**	**9**	**3**	**0**	**0**	**0**	**0**	**1**	**1**	**19**
Footwear Examiner	**2**	**1**	**2**	**9**	**2**	**1**	**0**	**0**	**0**	**0**	**1**	**18**
Forensic Anthropologist	**0**	**2**	**2**	**2**	**12**	**17**	**1**	**0**	**0**	**0**	**3**	**37**
Forensic Artist	**2**	**1**	**3**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**12**
Forensic Engineer	**0**	**0**	**2**	**5**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**12**
Forensic Entomologist	**0**	**0**	**2**	**2**	**4**	**9**	**1**	**0**	**0**	**0**	**0**	**18**
Forensic Nurse	**0**	**1**	**6**	**8**	**2**	**1**	**0**	**0**	**1**	**1**	**2**	**19**
Forensic Odontologist	**0**	**0**	**2**	**1**	**1**	**3**	**3**	**0**	**15**	**1**	**8**	**29**
Forensic Pathologist	**0**	**0**	**0**	**2**	**0**	**3**	**52**	**0**	**0**	**5**	**33**	**71**
Forensic Photographer	**10**	**2**	**7**	**8**	**1**	**0**	**0**	**0**	**0**	**2**	**2**	**28**
Forensic Psychiatrist	**0**	**0**	**2**	**1**	**0**	**5**	**9**	**0**	**0**	**1**	**1**	**16**
Forensic Radiologist	**1**	**0**	**2**	**2**	**0**	**3**	**5**	**0**	**0**	**1**	**3**	**14**
Forensic Toxicologist	**0**	**0**	**2**	**10**	**3**	**9**	**3**	**0**	**0**	**2**	**1**	**27**
Forensic Veterinarian	**1**	**0**	**2**	**2**	**0**	**3**	**2**	**0**	**0**	**2**	**1**	**10**

Funeral Director	**8**	**5**	**12**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**27**
Jurisprudence (Defense/PA)	**1**	**0**	**2**	**3**	**1**	**0**	**0**	**9**	**0**	**0**	**0**	**16**
Latent Print Examiner	**2**	**0**	**2**	**8**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**16**
Medical Examiner	**2**	**0**	**3**	**0**	**0**	**4**	**43**	**0**	**0**	**1**	**25**	**62**
Medicolegal Death Investigator (full-time)	**26**	**7**	**17**	**32**	**1**	**0**	**0**	**0**	**0**	**6**	**43**	**104**
Medicolegal Death Investigator (part-time)	**22**	**5**	**15**	**17**	**0**	**0**	**0**	**0**	**0**	**5**	**24**	**76**
Mortician	**7**	**1**	**13**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**24**
Questioned Document Examiner	**1**	**0**	**2**	**8**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**13**
Toolmark Examiner	**1**	**0**	**2**	**9**	**2**	**0**	**0**	**0**	**0**	**1**	**1**	**15**
Trace Hair and Fiber Examiner	**1**	**0**	**2**	**9**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**14**
X-ray/CT Technician	**4**	**5**	**9**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**21**

Discussion

Facilities are often accredited by the American Society of Crime Lab Directors (ASCLD), NAME or IAC&ME. Accreditation requires that personnel be trained and certified in their respective field, thus increasing the education of forensic personnel. It is difficult to identify all forensic service providers because of the multifaceted systems which exist across the country. For example, forensic units consist of 1-2 people within a police department while forensic labs are large entities typically funded by state governments. Forensic labs are easier to identify and monitor. The estimated number of publicly funded crime labs is 600, with approximately 9,000 forensic scientists working in the labs.[4] The estimated number of forensic units is 6,900, employing approximately 34,500 forensic scientists.[4]

The IAC&ME lists 15 accredited offices on their website and NAME lists 60 accredited offices.
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Best practices and guidelines have been published by the National Institutes of Justice (NIJ) for most forensic disciplines. A literature review produced multiple certifications that could be held by individuals who play a role in medicolegal death investigation, including, but not limited to, the following:

- American Board of Criminalistics (ABC)
- American Board of Forensic Anthropology (ABFA)
- American Board of Forensic Document Examiners (ABFDE)
- American Board of Forensic Entomology (ABFE)
- American Board of Forensic Odontology (ABFO)
- American Board of Forensic Toxicologist (ABFT)
- American Board of Medicolegal Death Investigators (ABMDI)
- American Board of Pathology (ABP)
- American Board of Radiologists (ABR)
- Association of Firearm and Toolmark Examiners (AFTE)
- International Association for Identification (IAI)
- International Association of Forensic Nurses (IAFN)
- International Association of Property and Evidence (IAPE)

Because of the variability and complexity of medicolegal death investigation systems, education requirements range from a high school diploma coupled with on-the-job training to post graduate degrees. The survey revealed that most job titles require a minimum of a baccalaureate degree. However, the minimum educational requirement sought may actually be a high school diploma with a preference for a secondary degree as multiple candidates apply for the same position. Agencies often use the educational requirement to weed out applicants from the pool in an effort to seek the best qualified candidate for the position. Certification is often encouraged and must be obtained with a specified time period after hiring to enhance professional qualifications, growth and career progression.

It is expected that larger jurisdictions seek individuals with higher educational backgrounds and/or certifications for specific skills. Forensic certifications exist for all disciplines, with the exception of autopsy technicians, forensic artists and epidemiologists, although epidemiologists have an advanced degree. Jurisdictions that have larger budgets based on larger populations may be better able to choose the type of applicant they specifically desire. Rural jurisdictions tend to have smaller budgets and draw from a narrower applicant pool, prompting their personnel to lack certification and most likely receive their education through on the job training experience in a variety of forensic skills, possibly by individuals who themselves lack formal forensic certification. Numerous undergraduate and graduate forensic science programs exist across the country, although there are no programs specifically for medicolegal death investigation. Course delivery is readily available online but most institutions still deliver content via traditional classroom learning. Curriculum content varies and there is criticism among the forensic science community that many of the programs do not have enough science classes.[3] As of February

2012, 18 undergraduate and 20 graduate forensic science programs have been accredited by the FEPAC.[3]

Training courses exist for each of the forensic science disciplines, but there is an absence of criteria to establish the content and quality of training conducted. Training is dependent upon the competency of the trainer; an experienced trainer may not necessarily be a good educator.

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