

# DEATH INVESTIGATION SYSTEMS

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## China

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### Introduction

The ancient Chinese forensic manual, translated as *Washing Away of Wrongs*, written by Song Ci in 1247 AD, is widely accepted as the first systematic manual on medicolegal death investigation. The topics covered are varied and some of the recommendations made, although crude, will still work today, although others are quite incomprehensible. It is important to point out that a thorough reading of the manual will reveal that the body examination referred to was merely an external examination. Postmortem dissection was not described and thus was not practiced. However, the manual did detail how deaths should be investigated at the scene and noted the signs an examiner should be looking for.

To appreciate fully the death investigation processes in modern-day China, the reader should understand that the legal framework is still undergoing rapid changes, and it would be prudent for practitioners to keep abreast of developments which could be at local, county, state, or national levels. To give a broad picture, the modern Chinese death investigation process is similar to the continental system, where the examining magistrate makes the decision as to how far to pursue an investigation.

### Death-Reporting Procedures

When a person dies, the death needs to be reported to the authorities. In urban cities, this would generally mean an office of the Public Security Bureau (PSB). In rural areas, the relevant authorities may well be the village elder or a party cadre charged with maintaining the population roll-call for the community. Where death is believed to be due to natural causes,

no further investigation is required and a death certificate can be issued. In urban areas, the death certificate would most likely be issued by a doctor, where available. In the absence of a doctor, a local official would issue the death certificate.

Where the circumstances of death are unnatural, the scene of death will be examined by PSB officials who may or may not be medically qualified. It is not uncommon for the scene to be attended by a large contingent of officers from the PSB, each performing a different task, such as fingerprinting.

The forensic doctor will often be a PSB officer required to attend the scene of death. The forensic doctor will often be involved in a scene of death assessment as well as performing a detailed external examination of the deceased person(s). In a large number of instances a conclusion is made, a cause of death is given, the case is closed, and a death certificate is subsequently issued.

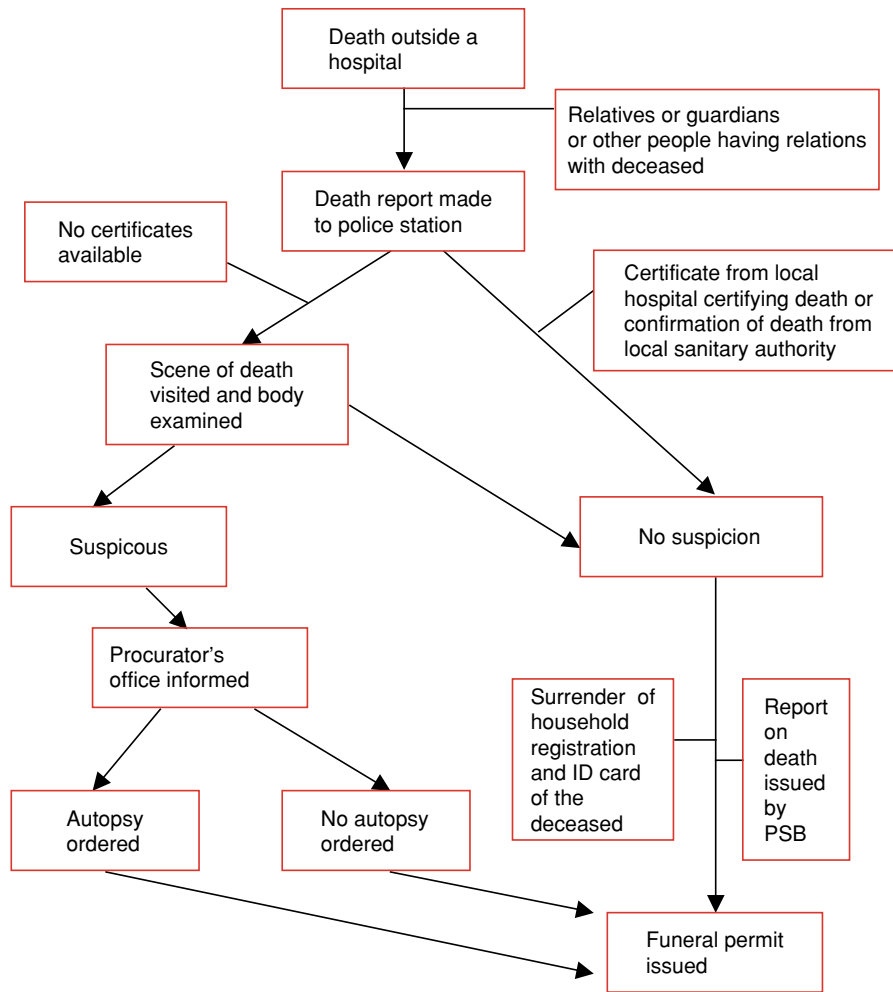
An autopsy examination can be required under the following circumstances:

1. a cause of death is uncertain but it is believed that the death is suspicious
2. a cause of death is certain, but the family disagrees with the conclusion and requests the procurator to order an autopsy
3. death in hospital where there is a dispute as to the cause of death between the doctor and the next of kin.

A diagrammatic representation is shown in [Figure 1](#).

### Autopsy Examination

Autopsy examination will be performed in mortuaries belonging to the PSB or in hospitals with autopsy facilities. Autopsies are performed by medically qualified doctors who are employed by the PSB, judiciary, or university (where there is a forensic medicine department/staff). It is a fact that autopsy examination is still widely viewed as taboo in China and unacceptable by the next of kin.



**Figure 1** Schematic of death investigation.

## Organization of Forensic Medical Staff

Most forensic doctors are employed by the PSB. They are tasked with the bulk of the front-line contact forensic work, which covers a wide spectrum of forensic pathology, clinical forensic medicine, and many aspects of forensic science as well. The scope of coverage of each individual outfit depends on the size of the population it serves and also on whether it is an urban or rural unit. Large centers in major cities such as Beijing, Shanghai, and Guangzhou have departments with well-equipped mortuaries and laboratories.

The judiciary/procurator's office also employs forensic medical personnel who are required to review the reports submitted by the PSB doctors. They can, and often do, ask for clarification or further investigation and are charged with deciding whether there is sufficient evidence to recommend or support further legal proceedings.

## The Academic Forensic Departments

There are currently 13 recognized centers of forensic teaching in China. These are listed in [Table 1](#). These institutions are tasked with training all forensic scientific and medical personnel. They offer the equivalent of undergraduate levels, such as a bachelors degree in forensic science and forensic medicine, and also masters and doctorate levels. The different institutions can be roughly divided into those that had their origins in the late 1950s and early 1960s and the newer ones, established in the mid-1980s. They have generally been strategically situated across China to cater to the needs of the surrounding regions. Despite an obvious shortage of trained forensic staff and a clear demand for these academic departments, they, too, are handicapped in their ability to compete for funding, particularly for setting up modern facilities. Most modern facilities are now found in the large cities and are under the umbrella of the PSB.

**Table 1** Death investigation in People's Republic of China: the 13 recognized centers of forensic teaching

<i>Name</i>	<i>Location</i>	<i>Period established</i>
Faculty of Forensic Medicine, Sun Yat Sen Medical College, Sun Yat Sen University	Guangzhou	1953
School of Basic and Forensic Medicine, Sichuan University	Chengdu	1953
School of Forensic Medicine, China Medical University	Shenyang	1952
Faculty of Forensic Medicine, Tongji Medical College, Huazhong University of Science and Technology	Wuhan	1957
Faculty of Forensic Medicine, Medical Center of Fudan University	Shanghai	1953
Faculty of Forensic Medicine, Xi'an Medical College, Xi'an University	Xi'an	1953
Department of Forensic Medicine, Shanxi Medical University	Taiyuan	1980
Department of Forensic Medicine, China Criminal Police Medical College	Shenyang	1960
Department of Forensic Medicine, Wan Nan Medical College	Wuhu	1984
Faculty of Forensic Medicine, Luoyang Medical College, Henan University of Science and Technology	Luoyang	1984
Faculty of Forensic Medicine, Kunming Medical College	Kunming	1984
Faculty of Forensic Medicine, Hebei Medical University	Shijazhuang	1984
Department of Forensic Medicine, South-West China University	Chongjing	1957

Despite this, academic staff are still highly regarded by the profession and play important roles in the Chinese Academy of Forensic Sciences and in the dissemination of academic literature in the field. Academic staff here are often called in as independent experts to resolve disagreements or conflicts between the reports from the PSB and the judiciary. In some areas, these academic staff are also involved in a small number of front-line forensic work.

Academic staff are of course responsible for training the forensic doctors of the future. The medical degree in China is a five-year course with a one-year internship. Since 2001, all medical undergraduates are required to sit for a common national licensing exam. The forensic doctors' medical degree is also a five-year course. However, one and a half years of this course are focused on forensic subjects and topics. There is also a required attachment period with PSB units.

There is still an extreme shortage of forensically trained doctors to meet the requirements of the

current system of practice. It is estimated that at least 12 000 full-time forensic doctors are required for China just to meet the current level of service provision and coverage.

### Postgraduate Training in Forensic Medicine/Pathology

There is currently no organized and structured postgraduate training in forensic pathology or any other branch of forensics in the sense that is familiar to those working in the British Commonwealth situation. Experience is gained on the job and professional recognition is gained from seniority and publication. Membership of the Chinese Academy of Forensic Sciences is also an accepted professional recognition. There are also many state-level professional societies. Formal postgraduate training is available but is organized in a similar way to research-based disciplines, i.e., in the form of research degrees such as MPhil and PhD, and such qualifications may have little relevance to practical forensic work.

### Hong Kong and Macau

Hong Kong and Macau are now Special Administrative Regions of China. A brief description of the death investigation processes in these two regions is described.

Hong Kong continues to work under the common-law system, and deaths are investigated under the provisions of the coroners' ordinance. Unlike UK coroners, Hong Kong coroners are full-time appointed magistrates who are legally qualified. In fact only legally qualified individuals can be coroners. Doctors in Hong Kong are required to report deaths to the coroner under 20 circumstances of death (Table 2). The family of the deceased will be interviewed by pathologists and/or forensic pathologists before the autopsy examination. Police are responsible for the investigation of the deaths, as directed by the coroners' office. Inquests with a jury are mandatory in deaths under official custody and are public. They are often held where it is deemed that there is public interest. Such inquests may or may not be in front of a jury.

The training of forensic pathologists requires six years post medical school and is overseen by the Hong Kong Academy of Medicine through its constituent Hong Kong College of Pathologists.

Death investigations in Macau follow the continental system and are similar to that as practiced in Portugal. Investigations are directed and decided upon by the prosecuting magistrate. This system too is currently retained in Macau. There are no medical

**Table 2** List of reportable deaths under the coroners' ordinance, laws of Hong Kong Special Administrative Region, China

1. Any death where a registered doctor is unable to state accurately the medical cause of death
2. Any death of a person who has not been seen by a doctor during his/her last illness within 14 days of the death (excluding terminal illness)
3. Any death where an accident or injury caused death
4. Any death where a crime or suspected crime caused the death
5. Any death of a person where:
  - a. an anesthetic caused the death
  - b. the person was under the influence of general anesthesia at the time of death or
  - c. death occurred within 24 h of the administration of general anesthesia
6. Any death of a person where:
  - a. an operation caused the death
  - b. the death occurred within 48 h of a major operation
7. Any death of a person where:
  - a. an occupational disease caused the death
  - b. death may be connected directly or indirectly with such occupation
8. Any stillbirth where:
  - a. there is doubt whether the fetus was born alive or dead
  - b. there is suspicion that the stillbirth might not have been a stillbirth
9. Any death of a woman where death occurred within 30 days of:
  - a. birth of a child
  - b. abortion
  - c. miscarriage
10. Any death of a deceased where:
  - a. septicemia is the cause of death and
  - b. the primary cause of the septicemia is not known
11. Any death of a person where there is a suspicion that death was caused by suicide
12. Any death whilst in official custody
13. Any death of a person where death occurred during the course of the discharge of his/her duty by a person having powers of arrest or detention
14. Any death in the premises of a government department
15. Any death of a person where:
  - a. a patient dies within a mental hospital under the Mental Health Ordinance
  - b. a patient is subject to a detention order under the Mental Health Ordinance
16. Any death of a person in a premise where care of the person is carried out for reward or other financial consideration
17. Any death caused by homicide
18. Any death caused by administration of drug or poison
19. Any death due to ill treatment, starvation, or neglect
20. Any death of a person outside Hong Kong but where the body is brought into Hong Kong

schools in Macau and very little postgraduate training activities.

## Conclusion

In summary, the situation of forensic medical training in China is a "growth area" but is still different from that in the West. The characteristics of death

investigation in China are also quite varied and only time will tell how the system will evolve.

## See Also

**Court Systems:** Law, China; Law, United Kingdom; Law, United States of America

## Further Reading

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## Japan

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## Report of Unusual Deaths and the Postmortem Inspection System

In Japan, a doctor must report a death to the local police station within 24 h when he/she inspects a cadaver and finds it "unusual," according to the Doctor's Law (Article 21). The Japanese Society of Legal Medicine (JSLM) has defined "unusual death" as "all deaths except those for whom clinicians have found the solid diagnostic evidence for natural death at the death scene." In 1994 the JSLM published detailed guidelines of reportable unusual death, including: (1) deaths from external causes; (2) deaths from the complications or sequelae of injuries; (3) deaths suspected to be extrinsic or from injury complications; (4) unexpected or suspected deaths associated with medical practice; and (5) death of unknown cause.

In the local police station receiving the report, the Traffic Department investigates traffic deaths, while the Robust Crime Investigation Department inspects the cause and manner (whether homicide, suicide, accident, natural, or unknown) of other deaths. The police classify the reported cases into: (1) noncriminal deaths; (2) criminal deaths; and (3) "unnatural deaths" that cannot be determined as either noncriminal or criminal by external examination. However, many concerned parties do not realize the difficulty of assessing criminality by external examination: there are many cadavers without surface injury or evidence of crime but with serious internal injuries, concealed intoxication, or other forms of crime involvement. Notably, the autopsy results that reveal the cause of death point to the crime or responsibility of a suspect, but before autopsy the inspector's professional

attitude and awareness of the possibility of crime do not always reveal that a crime was committed. Sufficient experience in death investigation and autopsy attendance in addition to forensic training and education are required for such crime disclosure and a judgment of the need for autopsy – apparently most Japanese investigators are not sufficiently experienced in these matters.

Note the difference between “unusual deaths,” in which natural deaths are excluded from a medical (medicolegal) viewpoint, and “unnatural deaths,” in which potentially criminal deaths are examined from a crime investigation viewpoint.

The postmortem inspection of unnatural deaths looking for criminality must be performed by the district prosecutor, according to the Criminal Procedure Act, but qualified police officers (or prosecuting officers, nominally) substitute for the prosecutors in most investigations. Obvious crime victims immediately undergo crime investigation. The preliminary reports of postmortem inspections are sent to the police headquarters where superintendent inspectors judge the necessity of on-the-scene investigation and criminal autopsy. There are 2–3 such senior inspectors in averagely populated prefectures with 1–2 million inhabitants, and several inspectors in Tokyo and large prefectures. The superintendent inspectors, who are very experienced in crime investigation, have only had a 2-month course of lectures and practice at the scene-of-death investigation and in autopsy rooms and thus may be inexperienced. Although they devote themselves to death investigation day and night, they usually leave the position after 2–3 years before they gain enough experience for proper judgment. Additionally, they can only investigate at the scene 10–15% of selected cases among all unusual deaths.

In Japan, police detectives who are not death investigation specialists perform death inspection for unusual deaths. The police require forensic pathologists to carry out crime autopsies. In contrast, in Tokyo metropolitan districts, it is the prosecutors who demand crime autopsies according to the Crime Procedure Act. Many inexperienced lay prosecutors are in charge of a death investigation. By contrast, by law in Scotland and in common practice in Munich, Germany, specialist prosecutors are in charge of autopsies or other death investigation processes as their only or principal practice, and often attend the autopsy.

It is a major drawback of the Japanese death investigation system that there is no experienced and responsible death investigation specialist, comparable to the US medical examiner or coroner in England and Wales, who takes charge of the entire process of death investigation.

Generally, death inspection doctors submit their inquest report to the bereaved. The format of the inquest report is the same as the death certificate. The death inspection doctors are usually general practitioners or salaried doctors serving voluntarily as police surgeons, while emergency hospital doctors who reported the death to the police often inspect at the request of police. Death inspection doctors have usually not experienced forensic practice and their primary duty is the medical care of individuals in police custody. Recently, the JSLM has begun submitting accreditations for death inspection doctors. However, the requirements for education and training are not enough because of the lack of human and financial resources. The Ministry of Health, Welfare and Labor is now preparing to provide a short intensive training course for police surgeons and death inspection doctors, in collaboration with the JSLM. It should also be borne in mind that there is neither a systematic review system on the death certificate or inquest report nor a correction system after finding the true cause of death on autopsy or other examinations. Thus, in Japan, an unusual cause and manner of death are not subjected to specialist review.

### **Criminal Autopsy System in Japan**

During the Meiji era of Japanese modernization, a German doctor, Wilhelm Doenitz, first gave a lecture in forensic medicine at the current University of Tokyo in 1875. In 1888, Kuniyoshi Katayama founded the first Department of Forensic Medicine at the same university and started criminal autopsies in Japan. The Japanese government of the time decided to introduce the German legal system of death investigation as well as medicine in general. Somehow that legal death investigation system has been modified into the present system, although the autopsy rate is much lower in Japan. After World War II, the ME system was also introduced under the guidance of the USA.

With the exception of administrative autopsies performed in a few densely populated ME areas and many other sparsely populated districts, most forensic autopsies are crime (legal) autopsies for the purpose of crime investigation of suspected persons, even in medical accident cases where the doctor’s criminality is often not evident. As such, there are difficulties in investigating medical accidents and deaths in jail or police custody.

In Japan, the autopsy rate is very low: about 1.3% for forensic (legal and administrative) autopsies, and about 3.0% for pathological autopsies (in the year 2000), though about one in four unusual deaths are

subjected to administrative autopsy following the ME's judgment in Tokyo metropolitan districts and Osaka city. Although the autopsy rate is not as high in the USA (e.g., 8–9% in Los Angeles and Florida), the MEs themselves investigate and determine whether to perform autopsy and the requirements for each autopsy. In Japan, forensic pathologists perform criminal autopsies at the request of the police or prosecutor with the court's permission. Crime autopsies are performed at Departments of Legal (Forensic) Medicine in the medical schools. There are more than 80 medical schools in Japan, with at least one school in a prefecture. Annual autopsy numbers vary greatly for each institution, from 20 to 200 per year, and many institutions perform many criminal and few administrative autopsies. In Japan, the Departments of Forensic Medicine suffer from human and financial resource deficit. In many national medical schools, that will be independent administrative corporations in 2004, there are 3–4 specialists (usually 1–2 medical doctors) and a parttimer with poor financial support from the government. It is also of concern that there are few young successors.

In Japan, no particular legal qualification is required to carry out a criminal autopsy. However, since 1999 the JSLM has submitted accreditations for qualified forensic pathologists. These requirements are 200 autopsies or death investigations, including more than 60 legal autopsies, affiliation to the forensic institution for more than 4 years and to the JSLM for more than 5 years, and more than five published original articles. Applicants also have to pass a written examination. This qualification will be required for promotion. In contrast, the requirement for an ME in the Tokyo Metropolitan Department of Medical Examiner is more than 100 death investigations at the scene and more than 50 administrative autopsies under the guidance and approval of experienced MEs and finally, with the governor's permission.

In the USA, forensic pathologists are required to fulfill 3 years' residency as general pathologists and a 1-year course as a forensic pathology specialist. A short forensic practice course is required for general pathologists. Although expert opinions must be submitted in Tokyo and other districts, there are many areas where expert opinions are not routinely submitted. In such districts, the police's attendant reports for autopsy are used for prosecution or litigation. Forensic pathologists are only occasionally summoned in the court as witnesses. There is no formal peer-review system for medicolegal expert opinion. However, prosecutors try to find a cooperative forensic pathologist if the original expert opinion does not meet the burden of proof on the part of the police or prosecutor.

## Medical Examiner System and Administrative Autopsy

In Japan, the ME system was introduced by the USA in 1946, after World War II, to elucidate the cause of unusual death in eight large cities under the Corpse Dissection and Preservation Law. Today in Tokyo metropolitan district, Osaka city, and Kobe city (and suburban area) districts, the ME organizations are substantially supported by provincial government, despite a financial deficit. All unusual deaths are investigated by MEs, except for traffic deaths in Osaka. MEs occasionally uncover murder or accident cases in which the police had overlooked criminality; this reinforces the need for the ME system and the involvement of forensic pathologists in screening unusual deaths.

In the 23 special Tokyo metropolitan districts (8 219 622 inhabitants), 2386 administrative autopsies (23.8% of unusual deaths) were performed at Tokyo Metropolitan Department of Medical Examiner, whereas 213 criminal autopsies were performed at five medical schools in 2001. The rate of unusual deaths to total deaths is about 16.7% (about 12% all over Japan), with a gradual increase due to an increase in homicide, suicide, and death of the elderly living alone. There are 10 fulltime MEs and 42 parttimers (predominantly forensic pathologists from medical schools). In Los Angeles county, USA (9 653 900 inhabitants), the rate of unusual deaths was almost twice that in Tokyo (30.6%), and MEs undertook 5094 forensic autopsies (27.3% of unusual deaths, July 2000–June 2001). The forensic (administrative and criminal) autopsy rate in Tokyo (4.3%) is much higher than the overall rate in Japan (1.3%), although it is still lower than the rate in Los Angeles and England and Wales, 8.5% and 24%, respectively. The death rates for accident, suicide, and homicide were 10.9%, 18.5%, and 1.4%, respectively, in Tokyo metropolitan district, while those in Los Angeles were 28.9%, 8.0%, and 10.9%, respectively. The homicide rate was much lower in Tokyo than in Los Angeles. However, homicide has increased due to the increase in shtarkers and illegal immigrants in Tokyo and other large cities. In Japan, the suicide rate of middle-aged workers has greatly increased (>30 000 annually), reflecting the economic depression.

In the disaster after the earthquake around Kobe districts in 1995, Kobe's MEs and voluntary forensic pathologists from other districts performed more than 6000 death inspections with police in conditions of fire, destruction, poor transport conditions, and malnutrition, while some attendant forensic pathologists lost their homes.

A few prefectures collaborate with local doctors' associations to support the administrative autopsy. In many other prefectures, 10–20 administrative autopsies annually are financially supported by prefectures, while the police support communication with the bereaved, transportation, and documentation. These administrative autopsies base their legal grounds on the Corpse Dissection and Preservation Law, and so require the consent of the bereaved, as do pathological autopsies. Although many more administrative autopsies should be performed, the financial deficit does not allow it. Further attempts are required to advocate the importance of administrative autopsy to the public.

### Medical Accidents and their Death Investigation

In Japan, controversy has arisen about the reporting of medical accidents since litigation in 1999 for an accident as a result of injection of an antiseptic instead of heparin. The hospital principal did not report the accident to the police according to the Doctor's Law, and he advised the attendant doctor to describe the cause of death as natural on the certificate.

In 2001, there were 18 criminal autopsies for medical accidents with a few doctor's voluntary reports in Tokyo metropolitan districts, and similar numbers supposedly underwent administrative autopsy. In Los Angeles, which has a similar population background, about 450 medical accident cases are reported annually to MEs and 33 were autopsied (July 2001–June 2002). Although the number of criminal autopsies on medical accidents has increased in our department, there are still many unreported medical accidents that require report and forensic investigation according to US standards. [Table 1](#) gives a comparison of medical accident investigations in the USA and Japan.

The guideline on reportable unusual death from the JSLM states that sudden unexpected deaths and deaths of unknown cause during or shortly after any medical practice, irrespective of error, should be reported to the police. This is because the judgment by the concerned party is misjudged as a concealment of doctor's error. In Japan, all reported medical accidents are examined by criminal autopsy to investigate for involuntary manslaughter due to malpractice by the medical practitioner, although there are many cases where autopsy is unnecessary or ineffective, but investigation by clinical specialists is required. According to the Japanese Criminal Procedure Act, the purpose of the report is to initiate the crime investigation. However, the purpose should be the fair determination of the cause of death, as in the USA and UK, particularly for medical accident cases.

The importance of the fair elucidation of the cause of medical accident and death by forensic autopsy following the report is not well appreciated by many doctors, the bereaved, and other concerned parties in Japan. As a result, autopsies are rarely performed in such cases.

In Japan, many doctors appear to hesitate to report because they fear unjustified criticism as a result of the police investigation, despite not knowing that the report ensures the credit on the doctor's side. There are many misconceptions on the part of the bereaved, despite the doctor's honest and sincere explanations. Thus, although a report is mandatory for the fair determination and legal or administrative management of medical accidents, many doctors and citizens do not properly understand the significance of the report and autopsy in Japan. This is largely because of the death investigation system in Japan.

Appropriate disclosure of the cause of unexpected death, which can be ensured by forensic autopsy and medicolegal investigation by a specialist such as an ME, is another important aspect of disclosure of

**Table 1** Comparison of US and Japanese systems for dealing with medical accidents

	<i>Japan</i>	<i>Los Angeles, CA, USA</i>
Unusual death	12% (of total death)	30.6%
Forensic autopsy	1.3%	8.5%
Reported by doctors	Rare	Many (450 annually)
To whom	Police	Medical examiner (ME)
Purpose	Crime investigation	Death-cause investigation
Audit	Police	ME, ME investigation
Who demands the autopsy	Police, prosecutor	ME
Institution	Medical school	Department of ME (administrative)
Check for certificate	No	ME, registrar
Autopsy results	Not disclosed	Disclosed
Accident prevention	Not available	Available

medical information, which the bereaved and public strongly demand from doctors. In fact, our preliminary investigation of citizens demonstrated that, unlike doctors, they could not discriminate between malpractice and an inevitable mishap in a model study. Additionally, it has been shown that low-tech autopsies disclose misdiagnoses in nearly half of clinical diagnoses. Moreover, autopsies were shown to be of benefit for doctors, even in malpractice cases diagnosed by autopsy, in an analysis of 99 appeal court cases in the USA. As stated, our experience clearly shows that autopsy can prevent dispute and litigation. Taken together, medicolegal death investigations following the report of a medical accident as an unnatural death are beneficial for all parties concerned, given that all accidents are properly investigated. However, this situation is far from the case in Japan.

Although autopsy and independent investigation are required for the fair determination of the causes of death and medical accident, there are many drawbacks in the criminal autopsy system in Japan. Many doctors feel that the police attitude to investigating crime impairs the social credibility and pride of doctors, though few doctors understand the necessity for the investigation. Pathologists often autopsy medical accident cases, but pathological autopsies are frequently not taken as fair processes because of the poor preservation of evidence and lack of neutrality of the autopsy operator. However, many clinical associations have encouraged pathological autopsy for medical accidents.

We can point out many difficulties in the criminal autopsy procedure for medical accidents in Japan. It is not doctors (forensic pathologists) but police detectives who audit the medical practitioners concerned in the accident. To maintain the confidentiality of the investigation, an autopsy operator cannot explain the results of the autopsy and examinations to the bereaved, and the feedback of information to the hospital is also prohibited. However, many bereaved family members have asked for the autopsy information. Additionally, forensic pathologists cannot always provide evidence in medical accident cases as expert opinion because of their inadequate clinical experience and cooperation with clinicians who tend to be reluctant to peer-review colleagues. Thus, the result of a criminal autopsy can only be used for prosecution or litigation, although the purpose of the death investigation is to reveal the truth, judge responsibility for the concerned parties, and improve medical practices. Additionally, there is no administrative alternative dispute resolution system for malpractice claims.

In conclusion, although medical accidents are a part of unusual deaths, it is urgent for reform of the

Japanese death investigation system for medical accidents aiming at disclosure of the cause of death. This innovation will increase the voluntary reporting of medical accidents and improve the correctness of the diagnosis, quality, transparency, and credibility of medical practice.

Recently, there have been movements toward reformation of the death investigation of medical accident cases in Japan. On April 2, 2004, the Japanese Society of Medicine, Surgery, Pathology, and Legal Medicine together announced on a new death investigation organization for potentially therapeutic deaths, which ceased the dispute and launched for the set up of the organization. On April 13, 2004, the Supreme Court judged that the attendant doctor must report such therapeutic deaths as the wrong injection as mentioned above. On September 30, 2004, 19 major medical academic societies including the aforementioned four societies extended the April announcement to accelerate setting up of the organization. Shortly afterwards, the Ministry of Health, Labor, and Welfare opened a budget for a pilot study in which about 200 "medical administrative autopsies" and medical appraisals will be performed by clinicians, pathologists, and forensic pathologists, as a team in 2005. This project will open a window to the reformation of Japanese death investigation system.

## See Also

**Court Systems:** Law, Japan

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## Nordic Countries

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### The Nordic Countries

The Nordic countries include the Scandinavian peninsula – Sweden and Norway – as well as Denmark, Finland, and Iceland. The Faroe Islands and Greenland belong to Denmark, whereas Spits Bergen is under Norwegian jurisdiction. Total population is approximately 25 million people. The Nordic countries have a common history and the borders between the countries have changed considerably over the centuries. The Viking age, from 700 to 1100 AD, was a period of external aggression and expansion. Moreover, Sweden also had an imperialistic period in the seventeenth century. In 1380, Sweden, Denmark, and Norway (including Iceland) were joined in a union. However, in the early 1500s, Sweden broke away from the union while Norway was under Danish political control until 1814. Finland was ruled by Sweden for a long period and under Russia from 1809. In 1814 the Vienna Congress gave Norway to the Swedish king to compensate for the loss of Finland and for Swedish support against Napoleon. The union between Sweden and Norway was terminated in 1905. Finland became independent from Russia in 1918. In 1943, Iceland gained its independence from Denmark.

Although Sweden, Norway, and Denmark have their own languages, the linguistic differences are relatively small. The Icelandic language is different, it is similar to the written language of Norway in the Viking age. In contrast, Finland has a completely different language, belonging to the same linguistic family as Hungarian (Finno-Ugric).

Socially, the Nordic countries are fairly similar. They are all among the richest countries in the world with very high standards of living. The Nordic

countries are welfare states, with “free” health care and education.

Norway, Sweden, and Denmark are kingdoms, whereas Finland and Iceland are republics. They are all western democracies with a relatively large number of political parties.

### Forensic Medicine in the Nordic Countries

Although the Nordic countries are relatively homogeneous with regard to their social organization, they vary in the regulation and organization of forensic medicine. It may be claimed that in all Nordic countries forensic medicine is organized following the Continental European university-based system, but no Nordic country adheres strictly to this tradition. The legislation may differ, but in terms of the practical organization of forensic medicine, all Nordic countries have a government connection. In Sweden and Finland, forensic medicine organizations are government-controlled: by the National Board of Forensic Medicine (*Rättsmedicinalverket*) in Sweden and through a less centralized model in Finland. In Denmark, the government connection is confined to the formal approval of the state forensic pathologist (*statsobducent*).

Legislation is sparse in Norway but complicated in Sweden. In Finland and Denmark legislation is unified, structured, and lucid. Sweden and Finland have a separate forensic medicine specialty. Denmark, Iceland, and Norway lack such a specialty, and in these countries, forensic medicine is more of a subspecialty of clinical pathology. In Finland, Sweden, and Denmark, experts in forensic medicine are involved in autopsies as well as in clinical forensic medicine (examining living persons at the request of legal authorities). The only common feature of all Nordic forensic medical systems is the fact that the police decide when a forensic autopsy should be performed.

In this article, the medicolegal systems in the Nordic countries are described with regard to regulations, medicolegal organization, criteria for medicolegal investigations, the different types of medicolegal death investigations, and training of specialists in forensic medicine.

#### Denmark

In Denmark, the provisions on death are regulated in one law, the Postmortem Examination and Transplantation Act (*Lov om ligsyn, obduktion og transplantation m.v. LOV nr 402 af 13/06/1990*). There are a number of guidelines relating to this law that help practitioners and the police to understand their responsibilities. Two guidelines are of special interest

for medicolegal investigation. The first is the Circular on Legal Postmortem Examinations and Autopsies (*Cirkulære om foretagelse af retslægelige ligsyn og obduktioner m.v.*, CIR nr 11 631 af 21/11/1995), which gives practical advice on medicolegal examination. This guideline is directed at forensic pathologists. The second relevant document is the Police Guideline on Postmortem Examinations and Transplantations (*Vejledning til politiet om ligsyn, obduktion og transplantation m.v.*, VEJ 60 305 af 08/02/1993), which gives practical advice for the police.

The Danish medicolegal organization has two parts: (1) the governmental *Embedslægevæsendet*; and (2) the institutes of forensic medicine. The *Embedslægevæsendet* employs *embedslægen*, doctors who have legal duties. One such duty is to perform a *retslægelig ligsyn*, which is a thorough external examination of the deceased, performed together with the police. After this examination, the police will decide whether to order a medicolegal autopsy. Such autopsies are performed at one of the institutes of forensic medicine, located at the universities of Copenhagen, Århus, and Odense. Only certain professionals are permitted to perform a forensic autopsy: these include the *statsobducent* and the *vicestatsobducent*, both of whom are employed at the institute as professor or assistant professor.

Death must always be pronounced by a practitioner – in principle any doctor – and the practitioner is then required to report certain deaths to the police.

A medicolegal death investigation, performed as a *retslægelig ligsyn* by the *embedslæge* and the police, is carried out after the practitioner has filed a report to the police declaring a person dead. The following deaths are to be reported: all unnatural deaths, persons found dead, sudden or unexpected deaths, work-related deaths, deaths associated with medical malpractice, deaths within the penal system, and when any of these criteria cannot be excluded.

If a death is caused by a crime, or when this cannot be excluded, or to allay suspicions of foul play, a medicolegal autopsy must be performed. The same applies for cases when a *retslægelig ligsyn* is insufficient to determine the cause of death with reasonable certainty. It is also possible to perform a medicolegal investigation whenever it is in the interest of the police.

In Denmark there are two types of medicolegal death investigation: medicolegal external examination (*retslægelig ligsyn*) and medicolegal autopsy (*retslægelig obduktion*).

Danish experts in forensic medicine are clinical pathologists who have specialized in forensic pathology. The Danish Society of Forensic Science has established a program of training and required knowledge

for candidates in forensic medicine, leading to certification in forensic medicine. At the time of writing, 11 pathologists have been certified.

## Finland

All rules relating to death are combined in one law, the Determination of Cause of Death Act (*Laki kuolemansyyn selvittämisestä* 459/1973 – *Lag om utredande av dödsorsak* Nr 459/1973) and one statute, The Determination of Cause of Death Statute (*Asetus kuolemansyyn selvittämisestä* 948/1973 – *Förordning om utredande av dödsorsak* Nr 948/1973). Guidelines also provide interpretations and recommendations regarding the legislation. The regulation defines different parties' responsibilities and what should be done when a death has occurred.

In Finland, regional authorities (*länsstyrelsema*) are responsible for medicolegal investigations. Autopsies are performed by a forensic pathologist who is employed by the regional authority. In turn the regional authorities can make an agreement with one of the four university departments of forensic medicine (Helsinki, Turku, Tampere, and Oulo) to conduct medicolegal autopsies in a specified geographic area. The forensic pathologist employed by a regional authority also scrutinizes all death certificates issued by other physicians. Moreover, in Finland all deaths initially have to be pronounced by a medical doctor.

When a death may be unnatural, and when the deceased during his/her last illness was not treated by a physician, the police have to initiate a medicolegal investigation. A medicolegal investigation must be performed if the death was caused, or may have been caused, by crime, suicide, accident, poisoning, work-related disease, or medical malpractice. In Finland there is only one category of medicolegal death investigation, the medicolegal autopsy.

Finland has a formal education and a medical specialty in forensic medicine, requiring at least 5 years of training. Candidates work in forensic medical centers and departments of clinical pathology, take courses, and finally have to pass an examination or an evaluation, before becoming a specialist.

## Iceland

There are three laws concerning death in Iceland: (1) the Human Death Act (*Lög um ákvörðun dauða* nr. 15. mars 1991); (2) the Transplantation Act (*Lög um brotnám vefja* nr. 16, 6. mars 1991); and (3) the Certificate of Death and Autopsy Act (*Lög um dánarvottorð, krufningar o.fl.* nr. 61 12. júní 1998). The Certificate of Death and Autopsy Act regulates the medicolegal investigation of death.

Most forensic autopsies are performed at the Department of Pathology at the University Hospital of Reykjavík, but some are performed in the town of Akureyri. There are only two experts practicing forensic medicine in Iceland, and together they perform almost all the forensic autopsies in the country. Very few medicolegal autopsies are performed by clinical pathologists.

The practitioner who declares a person dead must report to the police any death caused by crime, suicide, or accident. Furthermore, it is compulsory to report when a person is found dead, unexpected deaths, deaths associated with medical malpractice, and deaths within the penal system. In Iceland, permission from the next of kin is required to perform a medicolegal autopsy. If they refuse to give permission, a court can order an autopsy.

There are two types of medicolegal death investigation in Iceland: medicolegal external examination and medicolegal autopsy.

In Iceland, the experts in forensic medicine are clinical pathologists who have specialized in forensic pathology. Forensic medicine is not a recognized medical specialty in Iceland.

### Norway

Norway has four laws concerning death. These are: (1) the Transplantation, Clinical Autopsy, and Donation of Corpses Act (LOV 1973-02-09 nr 06: *Lov om transplantasjon, sykehusobduksjon og avgivelse av lik m.m.*); (2) the Treatment of Corpses Act (LOV 1898-06-04: *Lov inneholdende visse Bestemmelser om Behandlingen av lig*); (3) the Health Care Workers Act (LOV 1999-07-02 nr 64: *Lov om helsepersonell m.v.*); and (4) the Criminal Trial Act (LOV 1981-05-22 nr 25: *Lov om rettergangsmåten i straffesaker*). The first two laws regulate how to decide that death has occurred, while the last two dictate when a practitioner has to report a death to the police and when a medicolegal investigation has to be, or can be, performed. In Norway, there are guidelines for the different parties involved in the investigation of deaths.

There are four forensic medicolegal units connected to the universities in Oslo, Bergen, Trondheim, and Tromsø. These units perform about 85% of the forensic autopsies in Norway. The remaining 15% are performed by clinical pathologists at departments of pathology in regional hospitals.

A physician has to report all unnatural deaths to the police. Unnatural deaths are defined as deaths inflicted by murder or other physical assault, suicide or other self-inflicted actions, accidents, industrial

disease, medical malpractice, drug abuse, sudden or unexpected death, deaths within a penal institution, and unidentified bodies. The police will then decide whether a medicolegal investigation should take place. The medicolegal investigation can be made based on the same criteria that apply to the obligation to report to the police.

In Norway there are two types of medicolegal death investigation (*sakkyndig likundersøkelse*): medicolegal external examination (*likskue*) and medicolegal autopsy (*likåpning*).

There is no specialty in forensic medicine in Norway and no specified requirements for medical doctors who practice in forensic medicine; however, to obtain a permanent position in forensic medicine at one of the four universities, a doctoral degree is necessary. For several years, the Norwegian Society of Legal Medicine has been arguing for a training program and a specialty in forensic medicine. There has been great resistance from the health authorities which do not want too many specialties, and from clinical pathologists who do not want to lose the possibility of working for the police. The Norwegian Society of Legal Medicine has proposed a training program for specialist candidates and an official report (NOU 2001:12) has recommended that forensic medicine should become a separate specialty. This report suggests that all medical doctors and dentists should have some training in forensic medicine (level A), whereas doctors and biologists who work for the court regularly should have a level B qualification. Finally, full-time specialists in forensic medicine (pathologists, toxicologists, and geneticists) should be qualified to level C. In 2004, the first training course for B-level experts was held in Trondheim, arranged by the Commission of Legal Medicine. Forty candidates attended this course, which consisted of lectures and practical training in simulated court trials.

### Sweden

The regulations on how to handle a death are detailed in several laws and statutes. The Criteria for Determination of Human Death Act (*Lag 1987:269 om kriterier för bestämmande av människans död*) regulate the definition of a person's death. The Burial Act and the Burial Statute (*Begravningslagen 1990:1144 and Begravningsförordningen 1990:1147*) regulate how the practitioner reports to the police and how to write the death certificate. The Autopsy Act (*Lag 1995:832 om obduktion m.m.*) outlines the criteria for when to conduct a medicolegal

investigation. Sweden also has several guidelines for these laws.

A governmental authority organized under the Ministry of Justice, the Board of Forensic Medicine or *Rättsmedicinalverket*, is responsible for medicolegal death investigations in Sweden. This authority, which also organizes forensic toxicology, forensic genetics, and forensic psychiatry, is responsible for the six departments of forensic medicine located in Umeå, Uppsala, Stockholm, Linköping, Göteborg, and Lund, together with the university departments of forensic medicine. Physicians are employed by *Rättsmedicinalverket*, but a few are also employed by the universities as teachers and researchers. All forensic autopsies in Sweden are performed at these six departments.

Sweden is the only Nordic country where there is no definition of when a medicolegal death investigation must be performed. Instead, Swedish law details when a medicolegal death investigation may be performed. In short, it is possible to perform a medicolegal death investigation on the same grounds as in Denmark and Norway.

In Sweden *Rättsmedicinalverket* has made a request to the Ministry of Justice to simplify the complicated regulations on medicolegal death investigations. Among several requests, some are of particular interest. One is that all deaths that are required to be reported to the police should be medicolegally investigated. Another is that the Board would like a governmental mandate to act preventively, as an “early-warning system.”

Furthermore, a discussion was recently initiated regarding all Swedish forensic laboratory facilities merging into one authority – not just medical departments, but also the central crime laboratory.

Sweden has three types of investigation: (1) medicolegal external examination (*rättsmedicinsk likbesiktning*); (2) medicolegal autopsy (*rättsmedicinsk obduktion*); and (3) extended medicolegal autopsy (*utvidgad rättsmedicinsk obduktion*).

Sweden has a formal education and a medical specialty in forensic medicine, requiring at least 5 years of training. Candidates work in departments of forensic medicine (and departments of clinical pathology), take courses, and finally have to pass an evaluation.

### The Workload of Forensic Pathologists

The autopsy rate differs significantly between the Nordic countries, with Finland in a leading position (Figure 1). The numbers of practicing forensic pathologists in each country are shown in Table 1.

### Comparison of Medicolegal Death Investigations and Organization

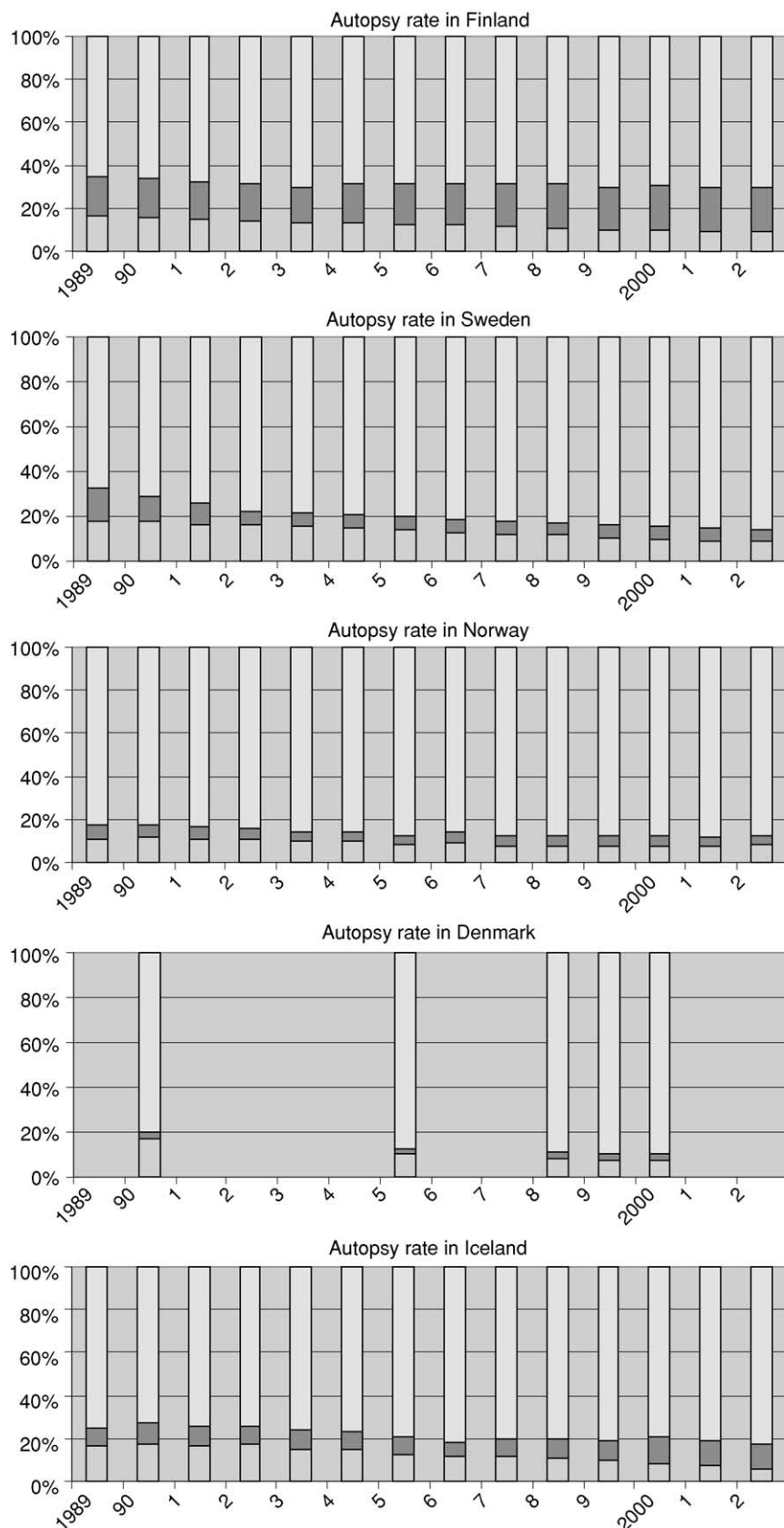
There are significant differences in how the Nordic countries legislate for and structure their medicolegal systems. Some Nordic countries have full government control while other systems are based more on the Continental European/generic criminal investigation and judicial tradition.

The Swedish system is controlled by the government through the National Board of Forensic Medicine (*Rättsmedicinalverket*), which employs all specialists and trainees in forensic medicine. This highly centralized system has had a positive effect on the implementation of national guidelines. However, the Swedish legislation concerning medicolegal autopsies is complex and in need of simplification.

Finland also has a government-based system, but is less centralized than that of Sweden. Many specialists are employed by regional authorities, and this has the advantage of a fairly widespread geographic distribution of specialists. Furthermore, the forensic pathologists employed by a regional authority scrutinize all death certificates issued by other physicians, a practice that enhances the quality and standardization of death certificates in general. The Finnish legislation is unified.

Denmark has a partly government-based system. The official external death examination (*retslægelig ligsyn*) is a thorough external examination of the deceased made by a government doctor (*embedslægen*). The medicolegal autopsy is performed by the state forensic pathologist (*statsobducent*), which reflects some governmental control; appointments must be approved by the government but there is no specific connection to a governmental body. Like Finland, Denmark has unified, clear, and well-structured legislation.

Norway's approach is unique compared to the other Nordic countries with respect to legal regulation and organization. Medicolegal autopsies are regulated in the Code of Criminal Procedure (*straffeprosessloven*), which is not the case in the other Nordic countries. The sparse legislation in Norway leaves some important areas uncovered, e.g., there is no certification of medical doctors who are qualified to perform medicolegal autopsies, and no certification of where these autopsies may be performed. This lack of regulation explains why about 15% of forensic autopsies are performed by clinical pathologists at hospital departments. Nevertheless, Norway is the only Nordic country with a system of comprehensive external quality control by the Commission



**Figure 1** Proportions of medicolegal autopsies (red) and clinical autopsies (blue) in relation to deaths not autopsied (yellow) in the Nordic countries.

**Table 1** Status and number of forensic pathologists and trainees, and number of deaths in the Nordic countries

Country	Specialty	Forensic pathologists in year 2004 (n)	Trainees in year 2004 (n)	Number of annual deaths (n)
Finland	Yes	28	5	49 000
Sweden	Yes	21	14	94 000
Denmark	No	18	6 <sup>a</sup>	58 000
Norway	No	8	3 <sup>a</sup>	45 000
Iceland	No	2	–	1800

<sup>a</sup>These countries do not have forensic medicine as a specialty and the trainees are often doctoral candidates and similar, working at a forensic medicine unit.

of Forensic Medicine (*den Rettsmedisinske Kommissjon*). This commission was established in 1900, and has a separate expert group which analyzes all autopsy reports and all clinical forensic medicine reports.

## Conclusion

Nordic medicolegal systems have a range of regulation and structure, dependent on country. In the authors' opinions the Swedish system is more difficult to understand than those of Finland and Denmark. The Danish system appears to be the best regulated and structured.

It may be claimed that the organization of forensic medicine in the Nordic countries is influenced by the generic criminal investigation and judicial system. In our opinion, however, none of these countries belongs strictly to this tradition, but to some extent they all have a government connection when it comes to their practical organization. The only common denominator is the fact that the police decide when a medicolegal autopsy is to be performed. In spite of this, Denmark has a markedly lower proportion of medicolegal autopsies than the other Nordic countries, perhaps as a result of more effective selection through *embedslægen*.

## Further Reading

This article draws heavily upon an earlier publication by the authors [Thid M, Rognum T, Eriksson A. Forensic Pathology in the Nordic Countries. *Scand. J. Forens. Sci.* 10:1, 4–7. 2004], with permission of the publishers. *Asetus kuolemansyyn selvittämisestä* 948/1973 – *Förordning om utredande av dödsorsak* Nr 948/1973. *Begravningsförordningen* 1990:1147. *Begravningslagen* 1990:1144.

*Lag* 1987:269 om kriterier för bestämmande av människans död.

*Lag* 1995:832 om obduktion m.m.

*Laki kuolemansyyn selvittämisestä* 459/1973 – *Lag om utredande av dödsorsak* Nr 459/1973.

*Lov inneholdende visse Bestemmelser om Behandlingen av lig*, LOV 1999-07-02 nr 64.

*Lov om helsepersonell m.v.*, and LOV 1981-05-22 nr 25.

*Lov om ligsyn, obduktion og transplantation m.v.* LOV nr 402 af 13/06/1990.

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*Lov om transplantasjon, sykehusobduksjon og avgivelse av lik m.m.*, LOV 1898-06-04.

*Lög um ákvörðun dauða* nr. 15. mars 1991.

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*Lög um dánarvottorð, krufningar o.fl.* nr. 61 12. júní 1998.

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## Certification of Death and the United Kingdom System

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## Background and History

In England, Wales, and Northern Ireland, a coroner system is in operation for the detailed investigation of all sudden, violent, or unnatural deaths, and this operates alongside a system for the certification of the medical cause of all other deaths, from which many of the referrals to the coroner system, in fact, also originate. The system for death investigation differs in Scotland, where another system operates, based upon the procurator fiscal system, which will also be discussed in this article.

It is clearly in the general interests of any community that all sudden, unnatural, or otherwise unexplained deaths should be investigated properly, and therefore, the role of the coroner has adapted over many centuries from being a form of medieval tax-gatherer to an independent judicial officer charged with the investigation of sudden, violent, or unnatural death.

At the present time, coroners respond to and investigate those deaths that have been referred to them for a wide variety of reasons (just over one-third of all deaths in England and Wales), rather than proactively examining all community or hospital deaths

that occur and then deciding which ones should be subjected to further scrutiny.

The latter approach is not allowed for by the law as it stands at the present time. However, in the wake of the activities of Dr. Shipman, a general medical practitioner who was convicted of the murder of 15 of his patients but is believed to have murdered 700 more over a long period of time, much attention has been paid to the fact that he was able to certify the deaths as natural himself, and thereby avoid referral to and scrutiny by the coroner service. At present the coroner service can only legally respond to referrals and does not have the legal powers to screen all deaths.

Since the trial and conviction of Dr. Shipman, there have been three separate inquiries into different aspects of the investigation and certification of sudden death, and it is likely that there will ultimately be new legislation and changes to the way in which all deaths are investigated and, as a consequence, the manner in which coroners carry out their duties. Some of these proposals will be discussed below, but initially, we will look briefly at how the office of coroner developed and the current processes of death certification and investigation.

Sudden death in the community had always been considered important and was the subject of investigation, although for very different reasons to those of today. After the Norman Conquest of England in 1066, to deter the indigenous population from a continuing habit of killing Normans after hostilities had ceased, a heavy fine was levied on any village where a dead body was discovered, on the assumption that it was presumed to be Norman unless it could be proved by the local population to be English.

The fine was known as the “murdrum,” from which the word “murder” is derived and, as the system developed, many of the early coroners’ inquests dealt with the “presumption of body’s Normanry,” which could only be rebutted by the local community (and a fine thus avoided) by the “presentment of body’s Englishry.”

The duties of the early coroners were entirely fiscal (rather than to further the cause of justice itself) and astonishingly varied, including the investigation of almost any aspect of medieval life that had the potential benefit of revenue for the crown. Medieval coroners investigated suicides, on the grounds that the goods and chattels of those found guilty of the crime of “self-murder” would then be forfeit to the crown, and also investigated fires, wrecks at sea, the catching of “royal fish” such as sturgeon and whales, and the discovery of buried treasure, a function still performed by coroners in England and Wales today, originally as “treasure trove” but now broadened by a recent Act of Parliament.

The coroner system continued to adapt to social and legal changes over the following centuries, but in the nineteenth century major developments relating to the investigation of death in the community occurred. In 1836, the first Births and Deaths Registration Act was passed, prompted by the public concern and panic caused by the inaccurate “parochial” recording of the actual numbers of deaths arising from epidemics of cholera and other diseases. There were also growing concerns that, given the combination of uncontrolled access to numerous poisons at that time and inadequate medical investigation of the actual cause of death, many homicides were not being detected.

The coroner’s fiscal responsibility gradually diminished, and the Coroners Act of 1887 made significant changes, repealing much of the earlier legislation. Coroners then became more concerned with determining the circumstances and the actual medical causes of sudden, violent, and unnatural deaths for the benefit of the community as a whole, rather than to benefit the royal coffers.

### Death Certification and Referral to the Coroner

At the present time, in England and Wales, Section 22 of the Births and Deaths Registration Act of 1953 provides that “In the case of the death of any person who has been attended during his last illness by a registered medical practitioner, that practitioner shall sign a certificate in the prescribed form stating to the best of his knowledge and belief the cause of death and shall forthwith deliver that certificate to the registrar.”

The registrar of births and deaths, a post created by the first Births and Deaths Registration Act in 1836, scrutinizes all medical certificates of cause of death, and has a statutory duty under Section 41(1) of the Registration of Births and Deaths Regulations 1987 to report the death to the coroner if it is one of the following:

1. in respect of which the deceased was not attended during his last illness by a registered medical practitioner; or
2. in respect of which the registrar
  - a. has been unable to obtain a duly completed certificate of the cause of death; or
  - b. has received such a certificate with respect to which it appears to him, from the particulars contained in the certificate or otherwise, that the deceased was not seen by the certifying medical practitioner either after death or within 14 days before death; or
3. the cause of which appears to be unknown; or

4. which the registrar has reason to believe to have been unnatural or to have been caused by violence or neglect or by abortion, or to have been attended by suspicious circumstances; or
5. which appears to the registrar to have occurred during an operation or before recovery from the effect of an anesthetic; or
6. which appears to the registrar from the contents of any medical certificate of cause of death to have been due to industrial disease or industrial poisoning.

Local arrangements often exist for notifying deaths that occur within 24 h of admission to hospital. This is not a statutory requirement, but the registrar may otherwise question a certificate if it appears that the patient may not have been in hospital long enough for the cause of death to be fully established, or if it appears that the patient was not attended during the last illness by a registered medical practitioner other than treatment given *in extremis* by hospital staff.

Section 41(1) of the Registration of Births and Deaths Regulations defines most of the instances when a death must be reported to the coroner. It does not cover absolutely every case; however, an exception is those deaths in custody which, rather than being notified by the registrar, will be reported directly to the coroner by the appropriate prison or police authority.

A thorough investigation into the circumstances of every death in prison or police custody, and a full public exploration of the facts in the subsequent coroner's inquest, together with the opportunity to learn lessons from any tragedy or avoidable death that has occurred, is clearly a vital function of the service. Its role and responsibilities here have been further emphasized by cases arising following passage of the Human Rights Act into English law, such as the recent decisions of the House of Lords in the Middleton and Sacker cases.

### **The Management of Deaths Not Referred to the Coroner**

At the present time, in England and Wales, as stated above, Section 22 of the Births and Deaths Registration Act 1953 provides for the completion of a medical certificate of cause of death by the doctor in attendance for the final illness, which is then subsequently delivered to the registrar of births and deaths.

Where the death is entirely natural and does not fall into any of the above categories of referral to a coroner, then to ensure that the medical certificate of cause of death is acceptable to the registrar of births and deaths, care must always be taken to ensure that

the certificate is completed correctly. Much unnecessary additional distress to grieving relatives waiting to register a death, and a great deal of subsequent anger directed at the individual doctor by those bereaved, can easily be avoided by care in the completion of the medical certificate of cause of death.

In the first instance, this involves a knowledge and recognition of those deaths that must be reported to the coroner, as outlined previously. Sadly, not all doctors recognized these deaths that must be reported; therefore, useful advice on correct certification of death was given in a letter to doctors from the Office of Population Censuses and Surveys in 1990. This letter reminded doctors that the certificates served both legal and statistical purposes, and pointed out some of the common errors that occur. It specifically mentioned that there is no need to record the mode of dying, as this does not assist in deriving mortality statistics, and stressed that it is even more important not to complete a certificate where the mode of dying, e.g., shock, uremia, or asphyxia, is the only entry.

It also emphasized the need to avoid the use of abbreviations at all times, which can clearly be a source of ambiguity and confusion, particularly where abbreviations are shared, such as "MI" (which might mean mitral incompetence or myocardial infarction), or "MS" (which might mean mitral stenosis or multiple sclerosis). Advice was also provided on the correct inclusion and positioning of any relevant antecedent diseases or conditions, to ensure that causes were filled in correctly and in a logical sequence.

At the present time, as stated previously, just over one-third of all deaths in England and Wales are reported to coroners. The rest are dealt with by medical certification alone, and in those cases, once the registrar has scrutinized the medical certificate of cause of death, if the case is not one deemed to require referral to a coroner, then the death is registered by the registrar and a disposal certificate is issued to allow for arrangements to be made to dispose of the body. There are additional procedures and safeguards before cremation in these "noncoroner" cases, requiring further examination of the body by a second doctor, who must also discuss the cause of death with the original certifying doctor before countersigning a form authorizing the cremation. Finally, this form must also be scrutinized and signed off by a further independent doctor at the crematorium. Sadly, these extra procedures failed to detect Dr. Shipman's activities until a great many deaths had occurred, and they were not initially considered suspicious or referred to a coroner until concerns arose much later. As stated above, reviews of the systems in place for the investigation and certification of sudden death have taken place following the Shipman murders.



The outcome of cases referred to coroners in the normal course of events is examined in the following.

### Natural Deaths

In those circumstances where further enquiry by coroners and their officers indicates that a reported death is due to natural causes and does not require a post-mortem examination, the coroner will issue a form (100A), notifying the registrar that the death was due to natural causes, and the attending doctor will be advised to complete a medical certificate of the cause of death in the usual manner. In the majority of cases reported to coroners, however, a postmortem examination is still required to ascertain the cause of death, although the proportion of cases requiring this has been declining slowly over the years. If the cause of death is found to be natural at autopsy, the coroner will issue a form (100B), which notifies the registrar of the cause of death and that no further action is to be taken. Upon receipt of either the medical certificate of the cause of death from the attending doctor, or form 100B from the coroner, the registrar is able to register the death and issue a disposal certificate to allow for arrangements to be made to dispose of the body.

In 2002, postmortem examinations were conducted on 117 700 of the cases reported to coroners, representing just over 58% of the 201 389 reported deaths and continuing a steady downward trend in the UK. There has, however, been a steady increase in the number of cases where neither a postmortem examination nor an inquest has been required.

### Unnatural Deaths and Inquests

In cases where the cause of death is found not to be natural, the coroner has a statutory duty to conduct an inquest under Section 8(1) of the Coroners Act 1988, which provides that:

Where a coroner is informed that a body of a person (“the deceased”) is lying within his district and there is reasonable cause to suspect that the deceased (a) has died a violent or unnatural death; (b) has died a sudden death of which the cause is unknown; or (c) has died in prison, or in such a place or in such circumstances as to require an inquest under any other Act, then, whether the cause of death arose within his district or not, the coroner shall as soon as practicable hold an inquest into the death of the deceased either with or, subject to subsection (3), without a jury.

The issue of what constituted an “unnatural death” for the purposes of an inquest was explored by the Court of Appeal in *R. (Touche) v. Inner North London Coroner* [2001] QB 1206, CA. Here a woman had died from severe hypertension and

cerebral hemorrhage following the delivery of twins by cesarean section, and there was medical evidence that the death would probably have been avoided had her blood pressure been monitored postoperatively. The Court of Appeal ruled that, even if a death arose from what was essentially a recognized natural cause, it should be considered as potentially “unnatural” for the purposes of an inquest if there was evidence that negligence could have contributed to the death.

Other cases in recent years have demonstrated the impact of the Human Rights Act 1998, particularly Article 2 dealing with the right to life, and have emphasized the importance of a thorough inquest in the investigation of deaths such as those in prison or police custody and the role of the coroner’s inquest in fulfilling the obligation of the state to ensure that there has been a suitable inquiry into all such deaths. Practice is evolving as the case law in this area develops.

### Juries

Prior to 1926, every inquest had to be held with a jury, but nowadays, in the majority of inquests, the coroner sits alone. Section 8(3) of the Coroners Act 1988 provides that:

If it appears to a coroner, either before he proceeds to hold an inquest or in the course of an inquest begun without a jury, that there is reason to suspect—

- that the death occurred in prison or in such a place or in such circumstances as to require an inquest under any other Act;
- that the death occurred while the deceased was in police custody, or resulted from an injury caused by a police officer in the purported execution of his duty;
- that the death was caused by an accident, poisoning or disease notice of which is required to be given under any Act to a government department, to any inspector or other officer of a government department or to an inspector appointed under Section 19 of the Health and Safety at Work etc. Act 1974; or
- that the death occurred in circumstances the continuance or possible recurrence of which is prejudicial to the health or safety of the public or any section of the public,

he shall proceed to summon a jury in the manner required by subsection (2).

### Procedures at an Inquest

The conduct of an inquest is governed by the Coroners Rules 1984, and the function and ambit of an inquest were usefully examined and clearly reaffirmed by the Court of Appeal in *R v. North Humberside Coroner, ex parte Jamieson* [1994] 3 WLR 82 CA.

Rule 36 (Matters to be Ascertained at Inquest) provides that:

1. The proceedings and evidence at inquest shall be directed solely to ascertaining the following matters, namely—
  - a. who the deceased was;
  - b. how, when and where the deceased came by his death;
  - c. the particulars for the time being required by the Registration Acts to be registered concerning the death.
2. Neither the coroner nor the jury shall express any opinion on any other matters.  
and Rule 42 (Verdict) provides that:  
No verdict shall be framed in such a way as to appear to determine any question of—
  - a. criminal liability on the part of a named person, or
  - b. civil liability.

It is important to appreciate that an inquest is a fact-finding inquiry rather than a fault-finding trial, and the proceedings are inquisitorial rather than adversarial in nature, but, as the Master of the Rolls indicated giving the judgment of the court in *R v. North Humberside Coroner, ex parte Jamieson*, it is the duty of the coroner to “ensure that the relevant facts were fully, fairly and fearlessly investigated.” The restriction in Rule 42 applies solely to the verdict, however, and to ensure that a thorough enquiry has been conducted, there are occasions when exploration of the evidence itself must unavoidably involve matters bearing on liability.

The coroner will initially examine a witness under oath, after which relevant questions may be put to the witness by any of those with a proper interest in the proceedings, either in person or by counsel or solicitor. Those people who have this entitlement to examine witnesses are defined in Rule 20 of the Coroners Rules.

Evidence given under oath before a coroner may subsequently be used in proceedings in other courts but, as in any other court, there is a right against self-incrimination. Rule 22 provides that:

1. no witness at an inquest shall be obliged to answer any question tending to incriminate himself, and
2. where it appears to the coroner that a witness has been asked such a question, the coroner shall inform the witness that he may refuse to answer.

This privilege does not allow a witness to refuse to enter the witness box, and the protection against self-incrimination that it offers applies only to criminal offenses, and not to possible civil or disciplinary proceedings.

Inquests were held on 26 430, or just over 13%, of deaths reported to coroners in 2002, continuing a reversal of the decline in inquests which had been taking place until the early 1990s. The most common

verdicts were death by accident or misadventure, which was recorded in 40% of cases; natural causes, recorded in 19% of cases and suicide, recorded in 14%. Verdicts of death from industrial diseases almost doubled in 10 years – from 5% in 1984 to 10% in 1994. This verdict was recorded in 11% of cases in 2002, largely reflecting the long latent period between contact with asbestos, usually acquired through employment, and the subsequent development of malignant mesothelioma, a very significant problem at this time.

Since the Coroners (Amendment) Act of 1926, coroners have had to be barristers, solicitors, or doctors of no less than five years’ standing. Coroner’s officers themselves have no statutory definition or requirement for any specified qualifications, but in practice, many of them are former police officers or have similar investigative experience.

### Treasure Trove

Apart from those duties relating to unnatural death that are provided by Section 8(1) of the Coroners Act 1988, one last vestige of the coroner’s medieval duties remains. Section 30 of the Coroners Act 1988 provides that a coroner shall continue to have jurisdiction to inquire into any treasure which is found in his/her district, although in modern times this has more to do with the preservation of antiquities rather than for any financial benefit to the crown. The Treasure Act of 1996 has introduced new requirements for reporting and dealing with finds.

### Northern Ireland

The coroner system in Northern Ireland is similar to that in England and Wales, although there are some significant differences. Coroners in Northern Ireland are appointed by the Lord Chancellor, unlike those in England and Wales, who are appointed by local authorities, that appointment then being subject to the approval of the Home Secretary. In Northern Ireland, only barristers and solicitors are eligible to become coroners, whereas in England and Wales doctors are also eligible.

In Northern Ireland, the medical practitioner is required to issue a medical certificate of cause of death if he/she has attended and treated the deceased within the last 28 days and is satisfied that the cause of death was natural, rather than the current 14-day limit before referral to the coroner in England and Wales. The medical practitioner in Northern Ireland also has a statutory duty to refer reportable deaths to the coroner, in addition to the registrar, and a statutory obligation not to issue a certificate in those cases.

In England and Wales, the doctor who has attended the deceased in the final illness has a statutory duty to issue a certificate in every case, and it is only the registrar in England and Wales who has the statutory duty to report deaths to the coroner at the present time. It is, of course, appropriate practice for doctors in England and Wales to report relevant deaths to the coroner themselves at the earliest opportunity, despite the lack of a statutory obligation to do so, although all of these areas are likely to change in any new system.

In Northern Ireland, the relevant statute, the Coroners Act (Northern Ireland) 1959 (as amended), states that the coroner “may” hold an inquest, thus introducing an element of discretion, whereas, when a death is reported in England and Wales, the coroner “shall” (i.e., must) hold an inquest if the death falls within Section 8(1) of the Coroners Act 1988, as discussed earlier.

The jurisdiction of the coroner in England and Wales arises from the presence of a body within his/her district, irrespective of where the death occurred, and therefore also covers deaths that occur abroad if the body is returned to the district. In Northern Ireland, however, the coroner only has jurisdiction if the death takes place, or the body is discovered, within the district itself.

## Scotland

In Scotland, Section 24 of the Registration of Births, Deaths and Marriages (Scotland) Act 1965 places a duty on a registered medical practitioner who has attended the deceased during the last illness to complete a medical certificate of cause of death. If no doctor has attended the deceased during the final illness, then any other doctor who knows the cause may complete the certificate.

In Scotland, there is no coroner system, and the law officer responsible for inquiring into all sudden and unexpected or unnatural deaths is the procurator fiscal, who has a statutory duty to investigate the following categories of death:

- deaths where the cause is uncertain
- deaths from accidents caused by any vehicle, air-plane, or train
- deaths from employment, whether from accident, industrial disease, or industrial poisoning
- deaths due to poisoning
- deaths where suicide is a possibility
- deaths occurring under anesthetic
- deaths resulting from an accident
- deaths following an abortion or attempted abortion
- deaths appearing to arise from neglect
- deaths in prison or police custody

- death of a newborn child whose body is found
- deaths occurring not in a house, and where the residence of the deceased is unknown
- deaths caused by drowning
- death of a child from suffocation, including overlying
- deaths from food poisoning or infectious disease
- deaths from burning or scalding, fire, or explosion
- deaths of foster children
- deaths possibly arising from defects in medicinal products
- any other violent, suspicious, sudden or unexplained deaths.

The medical practitioner in Scotland has a duty to report deaths in these categories to the procurator fiscal, as does any citizen under a general duty, and the registrar of births, deaths, and marriages also has a specific statutory duty to inform the procurator fiscal of these deaths under the Registration of Births, Deaths and Marriages (Scotland) Act 1965.

The jurisdiction of the procurator fiscal is the same as the civil jurisdiction of the sheriff in whose court he/she appears, although, where the death is criminal and the body has been moved from one jurisdiction to another, the area where the crime was originally committed will determine which procurator fiscal supervises the investigation.

The procurator fiscal’s inquiries are made in private, regardless of how the death was caused, although a public inquiry may be held if the relatives persuade the fiscal of the need for this. In practice, much of the investigation will be conducted by the police, but further opinion may also be sought from medical practitioners involved in the care of the deceased, from pathologists, and from independent experts on other technical matters if relevant.

The procurator fiscal has a common-law power to order a postmortem examination, but may apply for a warrant in suspicious cases granting authority to two named pathologists to conduct the examination. In nonsuspicious cases, the procurator fiscal will only instruct a postmortem examination if the circumstances justify it, and the postmortem rate for “natural” deaths is significantly lower than in England and Wales. If a death is expected to be natural and the deceased’s general practitioner cannot issue a certificate, another doctor may be asked to undertake an external examination and report the results of this to the procurator fiscal, who may then decide to accept a certificate from that doctor.

If a death occurred in custody or was caused by an accident in the course of employment, then, under the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976, the procurator fiscal must hold a fatal

accident inquiry in public before a sheriff. Such an inquiry may also be held in some discretionary circumstances where it appears to the Lord Advocate that it would be in the public interest, and this will include some sudden, suspicious, or unexplained deaths or where there was significant public concern.

### Proposals for Reform

The constraints of space do not allow for anything other than a very brief overview of some of the proposals from the inquiries set up in the aftermath of the Dr. Shipman's conviction, and cannot, therefore, do justice to the considerable time and effort that has been spent in examining current systems for death investigation. It is highly recommended that those with a particular interest in these matters read the original reports.

Both the Fundamental Review into Death Certification and Investigation and the Third Report of The Shipman Inquiry (Death Certification and Investigation of Deaths by Coroners) have recommended an increased level of medical input into the process of death investigation, coupled with organizational and structural reform to the service itself.

The Fundamental Review recommended that there should be a statutory medical assessor in each coroner's area who would appoint a panel of doctors to provide all community second certifications, and has recommended a regional structure to the coronership among other proposed changes.

The Third Report of the Shipman Inquiry proposes an alternative structural change, creating both judicial coroners and medical coroners for each region and a radically reformed coronership which will seek to establish the cause of all deaths, supported by trained investigators.

The Home Office, having received both reports, produced a position paper in March 2004 entitled *Reforming the Coroner and Death Certification Service*, which represents the government's response to the previous reviews and expresses the intention to introduce a new system combining an independent check on all deaths with professional oversight of death patterns which would be based on one national jurisdiction for England and Wales, divided administratively into local coroners' areas with one local coroner and deputies, coroner's officers with a more clearly defined and consistent investigative role, and a medical team to support each office.

There are still details to be established, funding issues to be resolved, and legislative changes that would need to be enacted before any new system could be put in place. It clearly remains in the general interest of the public that deaths are investigated in a

way that it is independent and thorough for the benefit of the community as a whole, and remains sensitive to the feelings, needs, and beliefs of those bereaved families most closely affected by the death itself.

### See Also

**Death Investigation Systems:** China; Nordic Countries; United States of America

### Further Reading

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## United States of America

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### Introduction

This article outlines the chronology of the development and history of the coroner and medical examiner systems in the USA. The institutional and postgraduate specialty requirements for a forensic pathology training program are described.

### The Early Development of Forensic Investigation

The written record indicates that the development of the field of forensic pathology began in Europe in 1507, in a volume known as the *Bamberg Code*. In 1530, a more extensive penal code, known as the *Constitutio Criminalis Carolina*, was issued by Emperor Charles V for all the lands included in his empire. These two documents portrayed the importance of forensic pathology by requiring that medical

testimony be an integral part of the proof and trials involving decisions about whether the manner of death was infanticide, homicide, abortion, or poisoning.

### The Coroner System in England and Wales

The present-day coroner system in the USA developed in England. The Charter of Privileges included a grant of the coroner's office by King Athelstane to an English noble, identified as St. John of Beverly, in the year 925. The office of the coroner was formally described in September 1194; the justices in Eyre were required to provide that three knights and one clerk were elected in every county as "keepers of the pleas of the crown." The appointment then listed the coroner's duties. The term coroner is derived from the Latin word for crowner (appointed by the King or Crown). The justices in Eyre, who were comparable to the traveling circuit court judges of modern day, could order the coroner to perform duties of an administrative or inquisitorial nature within the region for which he had been appointed. These duties were carried out either alone or with the sheriff. Among these were conducting inquests over dead bodies and appeals (inspection of an individual's wounds, recording the accusation against another individual, and, if the wounds appeared likely to be fatal, arresting the accused individual). The coroner was also authorized by the county courts to attach or arrest witnesses or suspects and to appraise and safeguard any lands or goods that might later be forfeited by reason of guilt of the accused. An 1194 ordinance established the coroner as a permanent office in England. The coroner was elected by all of the freeholders in the county court. He was elected for life, or at least as long as he acted in good behavior, and was able to perform the duties of the office.

There was little change in the role of the duty and function of the coroner until the middle of the nineteenth century. In 1860, the fee system was abolished and salaries were established for the county coroners. In 1877, a law was enacted requiring the inquest to be conducted whenever the coroner had reasonable cause to suspect violent or unnatural death or when the cause of death was unknown. This change had the effect of granting the coroner the widest authority to investigate cases. Over time the coroner system developed as a broad-spectrum investigative agency concerned with a large proportion of all deaths, including many nonviolent deaths. In 1888 the election of the coroner was abolished and replaced with an appointive system in which the head of the local governmental unit appointed the coroner. The minimum qualifications for the office were established in 1926, when a law was enacted requiring five

years; experience as a medical practitioner, barrister, or solicitor if the individual was to qualify as coroner.

In 1807, the University of Edinburgh established the first chair of legal medicine in the English-speaking world, occupied by Andrew Duncan Jr. The keystone textbook on medical jurisprudence *The Principles and Practice of Medical Jurisprudence* was published in 1836, and even today remains a standard. The British Association of Forensic Medicine was established in the twentieth century.

### The Coroner/Medical Examiners System in Early USA

The early American colonists from England brought the coroner system, as it existed in the early 1600s, to the new continent. There are records of a coroner's inquest in the colony of New Plymouth, New England, in 1635; in summary, the inquiry found that John Deacon died as a result of bodily weakness caused by fasting and extreme cold. At that time the coroner's office was one and the same as the sheriff's office, and while it did not carry any fixed stipend, it provided a substantial income because the sheriff was responsible for the collection of property taxes, poll taxes, and other levies, and he usually received 10% of his collection. A 1640 definition of the duties of the coroner included:

Upon notice or suspicion of any person that hath or shall come to his or her death entirely within the limits of that hundred to warn as many inhabitants of the said hundred as you conveniently may to view the dead body and to charge the said persons with an oath truly to inquire and true verdict to grant how the person viewed came upon his or her death according to the evidence.

Autopsy examinations of bodies were recorded in Massachusetts as early as 1647. The medicolegal application of an autopsy was recorded in Maryland on March 21, 1665, when Mr. Francis Carpenter was brought before the Talbot county court on suspicion of murdering one Samuell Yeoungman, a servant of his. The report stated that there were bruises about the head and body, and two depressions in the skull with blood between the dura and pia mater. The autopsy clearly revealed that the cause of the injuries was the result of the impact of a club and that the injuries were the cause of the demise of Samuell Yeoungman. However, the verdict that was handed down by the coroner and six lay jurors was that the servant had died because he had not gone to a doctor.

The earliest teaching of jurisprudence in the New World appeared to be by Benjamin Rush of Philadelphia, who presented lectures with titles such as *On the Study of Medical Jurisprudence*. The

first formal use of physicians in connection with the workings of the coroner's office was in 1860 in Maryland, where the code of Public General Laws authorized the coroner or his jury to require the attendance of a physician in cases of violent death. In 1877, the Commonwealth of Massachusetts adopted a statewide system requiring that the coroner be supplanted by a physician known as a medical examiner. At that time, the jurisdiction of the medical examiner was confined to "dead bodies of such persons only as are supposed to have come to their death by violence."

The science of pathology as a subspecialty of medicine involved with the investigation of deaths began in the latter part of the nineteenth century. In 1890, a city ordinance authorized the Board of Health in Baltimore, Maryland, to appoint two physicians with the title of medical examiner and assign them the duty of performing all autopsies requested by the coroner or the state's attorney. In 1915, New York City eliminated the coroner's office and created a medical examiner system, authorizing investigation of deaths resulting from criminal violence, casualties or suicide, or sudden death while in apparent health, or when not attended by a physician or imprisoned or in any suspicious or unusual manner. The medical examiner had the authority to make a decision as to the necessity of an autopsy. The first chief medical examiner, Dr. Charles Norris, was given the authority to order an autopsy when in his judgment it was necessary, thus establishing the essential responsibility and necessary authority of an effective medical examiner's system.

### **The Death Investigation Systems in Modern USA**

Each year approximately 20% of the 2 million deaths undergo a postmortem examination. This examination will take place in either a coroner's office or at a medical examiner's office dictated by the jurisdiction in which the office has been established. The type of system varies from municipality to municipality and from state to state. The USA is divided into over 2000 separate jurisdictions with responsibility for investigating unnatural deaths. State laws dictate when and how examinations should occur in 21 states, while local or regional rules take precedence in 29 states.

A 2002 survey of the medicolegal investigative system in the USA found that 22 states had a medical examiner system: 19 of these states have a state medical examiner, two have county medical examiners, and one state has district medical examiners. A total of 18 states have a mixed medical examiner and coroner system: 11 states have a mix of a county medical examiner and a coroner system, while seven

states have a mix of a state medical examiner and county medical examiner or coroners. A total of 11 states have a coroner system: nine of those states had county coroners and two had district coroners. In this century, medical examiner systems have gradually replaced coroner systems, but such change has slowed in recent years, with medical examiner systems now serving about 48% of the national population. Few states or counties have implemented medical examiner systems since 1990. A complete list of the type of death investigations system state by state is available at [www.cdc.gov/epo/dphsi/mecisp/death\\_investigation.htm](http://www.cdc.gov/epo/dphsi/mecisp/death_investigation.htm).

### **The Coroner's Death Investigation Systems**

Today, in states and counties utilizing a coroner as the medicolegal investigator, the coroner is elected for a four-year term. In addition, the coroner has to be 18 years of age or older, a US citizen, and a resident of the county while holding office and for at least one year prior to election. The coroner may appoint one or more deputies. This person is responsible for making rulings on the cause and manner of death in those cases that warrant investigation, including violent deaths, sudden and/or unexpected deaths, suspicious deaths, deaths involving drugs and toxic substances, deaths during medical treatment, deaths during employment, deaths during interaction with law enforcement agencies, and those cases in which a physician is not present at the time of death.

The coroner may or may not consult a physician, may or may not order an autopsy, and may or may not rule in agreement with the autopsy findings. In fact, the training that a coroner receives may range from absolutely none to a few weeks. A forensic pathologist, in contrast, must complete four years of undergraduate college. The coroner is responsible for determining the cause and manner of death that may have significant civil and criminal consequences. There is great variation as to the qualifications of the elected coroner. For example, in Pennsylvania the elected coroner of Allegheny County has medical and law degrees; board certified in anatomic, clinical, and forensic pathology; and is a nationally recognized forensic pathologist. In contrast, the surrounding counties have elected coroners who are primarily employed as funeral directors and are parttime coroners. The Cuyahoga County Coroner in Ohio is board-certified in anatomy, clinical, and forensic pathology. In a number of counties, such as in California, the coroner system is set up to combine the offices of both the sheriff and coroner. In some cases the same person is investigating death and arresting suspects at

the same time. The sheriff also investigates the deaths of inmates in his/her own jail. The counties that are smallest by population have the elected prosecuting attorney also serve as coroner. The requirements for the coroner vary from state to state.

### The Coroner's Inquest Systems

The coroner's office, unlike the medical examiner's office, is empowered to conduct a coroner's inquest. An inquest is generally used to describe the coroner's formal procedure for inquiry into the cause and manner of death, and circumstances of any death resulting from violence or occurring under conditions which give reason to suspect that the death may have been due to a criminal act or criminal negligence. Reasons to hold an inquest may also include cases in which an individual died during some interaction with law enforcement officers, and deaths during incarceration or in a mental hospital. A coroner may also hold inquests into the cause of fires where life or property has been lost or endangered or at the direction of the attorney general. The procedure is governed as a part of the coroner's general duties for the investigation of death. During the inquest the coroner has the power to examine persons under oath, subpoena witnesses, and require them to present papers and documents relevant to the investigation. At the conclusion of the inquest, the coroner must prepare a formal determination of the cause and manner of death and provide a written report for further legal proceedings and for public inspection.

There are two types of inquest: closed and open. Closed inquests, which are preliminary hearings, are initiated by the district attorney or a police officer. Normally, the process begins with the arraignment of the suspect(s) at the coroner's office, at which time formal charges are made and the propriety of bond is addressed. A date for the inquest is then set, usually within 3–10 days of the arraignment.

An open inquest is conducted by the coroner's solicitor. Evidence is presented by witnesses, law enforcement personnel, and medical experts. The hearings are fact-finding in nature and are open to the public. When a coroner's jury is empaneled at an open inquest, it is selected from the regular jury panel summoned by the jury commissioner in the Criminal Division of the Court of Common Pleas. At the conclusion of the hearing, the coroner's jury is instructed as to the law by the solicitor. The jury then retires to deliberate on the evidence presented and returns its own findings in the matter. These findings consist of a formal determination of the cause and manner of death. When there are identifiable persons determined to be criminally responsible for the death, such persons are held for further court proceedings.

A court reporter is in attendance at all inquests, during which the proceedings are transcribed. The coroner retains the original and a copy is forwarded to the Office of the District Attorney. If the coroner decides that a *prima facie* case exists against any person for an indictable offence, he/she can commit a person to trial in the District or Supreme Court.

Under state law, the coroner has the power of subpoena and attachment, and may compel the attendance of any witness at an open inquest into any death in the coroner's jurisdiction. The coroner is not bound by the strict rules of evidence and can summon witnesses to be questioned about relevant matters. In addition to establishing the cause and manner of death, and whether one is held criminally liable, the coroner may use the open inquest as a forum to bring about changes in laws and regulations and to create public awareness of health and safety issues.

The power of the open inquest to bring about changes which directly affect the health, safety, and welfare of the citizens of the county in which that coroner's office serves is one of the great strengths of this traditional system. Inquests have resulted in regulations controlling the safety of backyard swimming pools, and changes in safety features at sporting stadiums, transportation systems, nursing homes, hospitals, and playgrounds.

### The Medical Examiner's Death Investigation Systems

The medical examiner system was first introduced in the USA in 1877 in Massachusetts. The public was dissatisfied with lay coroners and the system changed to one of appointed physicians. One medical doctor was appointed in each district (similar to a county jurisdiction) to be the public official responsible for the investigation of sudden and unnatural deaths. Medical examinations were a part of the investigation and the term medical examiner has been in use ever since. The state was divided into a number of sectors in which a designated physician functioned as a medical examiner and determined the cause and manner of death. At that time the medical examiner did not have the right to order an autopsy of the deceased. This right did not appear in the state until the 1940s. The first true medical examiner system came into existence in New York City in 1918. An individual was designated as the Chief Medical Examiner and was a physician who was experienced in the field of pathology (forensic pathology did not become a board-certified subspecialty until 1959) with statutory authority to investigate death. He was provided with a dedicated facility, support staff, and toxicology laboratory. In the last several decades, the medical

examiner system has slowly replaced the coroner system in the USA.

For example, in the state of West Virginia the state Chief Medical Examiner is appointed by the Director of the Division of Health for a five-year term and appoints the County Medical Examiner for a three-year term. The state Chief Medical Examiner must be a licensed physician and a diplomat of the American Board of Pathology (ABP) in anatomic and forensic pathology with experience in forensic medicine and pathology. The Deputy Chief Medical Examiner must also be a licensed physician and have completed an ABP-approved fellowship in forensic pathology. The County Medical Examiner must be qualified to practice in the field of medicine as a duly licensed physician, registered nurse, physician's assistant, paramedic, or other licensed emergency medical technician, who has received training in the field of medicolegal death investigation and who holds certification from the American Board of Medicolegal Death Investigation. A statewide medical examiner system increased the quality of death investigation and forensic pathology services with presumed independence from population size, county budget variation, and politics. A statewide system theoretically creates uniformity, designed to insure credentialing, training, and continuing education of medical examiners, death investigative procedures, and the coding of deaths. These features enhance not only death investigation, but also public health, epidemiology, and overall community medical surveillance.

### The Forensic Pathologist

Forensic pathology is a specific branch of medicine that applies the principles and knowledge of medicine and related sciences to problems that concern the general public and related legal issues. A forensic pathologist is a physician with specialized medical and forensic science training and knowledge. In practice, forensic pathologists concentrate closely on the understanding of types and causation of injuries and causes of sudden and unnatural death. The ABP was established in 1936 and recognized forensic pathology as a formal subspecialty in 1958. Forensic pathologists are commonly involved in death scene investigations, the performance of forensic autopsies (forensic autopsies have a different focus than that of hospital autopsies conducted in cases of natural death), review of medical records, interpretation of toxicology and other laboratory studies, certification of sudden and unnatural deaths, and court testimony in criminal and civil law proceedings.

Since 1959, there have been 1172 pathologists in the USA certified in forensic pathology by the ABP.

The ABP requires the incorporation of forensic pathology training in all pathology programs, and 80% of medical school pathology courses offer an average of three hours of instruction in this discipline. Most forensic pathologists are members of the American Academy of Forensic Sciences (AAFS) and the National Association of Medical Examiners (NAME). The three main publications focused on forensics are the *Journal of Forensic Science*, started in 1956, the *American Journal of Forensic Medicine and Pathology* (1980), and *Forensic Science International*, which commenced publication in 1972.

### Training and Certification in Forensic Pathology

Training programs in forensic pathology are monitored by the Accreditation Council for Graduate Medical Education (ACGME), which confers accreditation of residency programs. ACGME carries out its functions through residency review committees, one of which is devoted to pathology. There are 41 forensic pathology training programs with full accreditation in the USA. Programs are conducted in larger metropolitan coroner or medical examiner offices.

**The institution** The coroner's or medical examiner's office participating in a residency training program in forensic pathology must have the following institutional resources:

1. Approximately 500 medicolegal autopsies should be conducted each year. Of these, 100 or more should be in cases in which death is due to the immediate and direct effects of physical or chemical injury.
2. The office should conduct about 300 additional autopsies for each additional resident position requested.
3. Facilities and competent personnel shall be available and properly unitized for the conduction of all bacteriological, biochemical, toxicological, firearms, trace evidence, physical anthropology, odontology, and other scientific studies as may be needed to ensure complete postmortem investigation.
4. If the resident is to spend parts of the training program at other laboratories or institutions, such training must be adequately supervised by qualified personnel.

**Residency program in forensic pathology** The program is one year and must be directed by a pathologist who is certified by the ABP in forensic pathology. The Residency Review Committee (RRC) for pathology is responsible for certification and accreditation of graduate medical education programs in pathology. The ABP is responsible for certification of individual physicians in pathology.



The requirements are as follows:

1. The resident should perform 250–350 autopsies in a year and should have experience in scene investigations, including examination of the body before it has been disturbed.
2. The resident should have responsibility for the performance of autopsies in cases that are likely to result in criminal prosecution or civil litigation, and it is desirable for residents to have opportunities to participate in the legal follow-up of cases if such occurs during the course of their year of training.
3. The resident should accompany staff pathologists when they testify in courts and give depositions.
4. During the year of approved training, the resident must have a period of four to eight weeks devoted exclusively to laboratory experience in toxicology, physical anthropology, and components of the crime laboratory, such as firearms, serology, and trace evidence.

### **Professional Associations for Medical Examiners and Coroners**

There are a number of professional associations for coroners, medical examiners, and forensic pathologists. These include the AAFS, NAME, and the American College of Legal Medicine (ACLM).

The AAFS, a nonprofit professional society organized in 1948, is devoted to the improvement, administration, and achievement of justice through the application of science to the process of law. The AAFS consists of 10 sections representing a wide range of forensic specialties with over 5000 members. The members are physicians, attorneys, dentists, toxicologists, physical anthropologists, document examiners, psychiatrists, engineers, criminalists, educators, and others who practice, study, and perform research in the forensic sciences. They represent all 50 states in the USA, Canada, and 50 other countries worldwide. As a professional society dedicated to the application of science to the law, the AAFS is committed to the promotion of education and the elevation of accuracy, precision, and specificity in the forensic sciences. It does so via the *Journal of Forensic Sciences*, newsletters, annual meetings, conducting seminars and meetings, and the initiation of actions and reactions to various issues of concern.

NAME, founded in 1966, is the national professional organization of physician medical examiners, medical death investigators, and death investigation system administrators who perform the official duties of the medicolegal investigation of deaths of public interest in the USA. NAME's purpose is to foster the

professional growth of physician death investigators and to disseminate the professional and technical information vital to the continuing improvement of the medical investigation of violent, suspicious, and unusual deaths. NAME has expanded its scope to include physician medical examiners and coroners, medical death investigators, and medicolegal system administrators throughout the USA and other countries. NAME members provide the expertise for medicolegal death investigation that is essential to the effective functioning of the civil and criminal justice systems. NAME is now the national forum for the interchange of professional and technical information in this important segment of public administration. NAME serves as a resource to individuals and jurisdictions seeking to improve medicolegal death investigation by continually working to develop and upgrade national standards for death investigation. The published NAME *Standards for a Modern Medicolegal Investigative System* provides a model for jurisdictions seeking to improve death investigation. NAME aims to involve competent professional medicolegal death investigators in every jurisdiction in the USA. Membership of the National Association of Medical Examiners is open to all physicians, investigators, and administrators who are active in medicolegal death investigation.

Founded in 1960, the ACLM is the official organization for professionals who focus on the important issues where law and medicine converge. The ACLM is a professional community of physicians, attorneys, dentists, healthcare professionals, administrators, scientists, and others with a sustained interest in medicolegal affairs. The ACLM is the organization of healthcare and legal professionals whose diverse education, training, and experience enable the College to promote interdisciplinary cooperation and an understanding of issues where law and medicine converge. Through its medicolegal resources, the College educates and assists healthcare and legal professionals, advances the administration of justice, influences health policy and improves healthcare, promotes research and scholarship, and facilitates peer group interaction.

### **Training and Certification in Death Investigation**

The origin of lay examiners who work for medical examiners can be traced back to the 1950s. Over time the training improved. In 1974, the first formal one-week training course was offered by St. Louis University. Seven states now mandate minimal training requirements for death investigators. The basic week-long course for death investigators includes death investigation, examination of the decedents at the scene, estimation of time of death, evidence

recognition, notification of the next of kin, legal issues, mass-casualty instant response, organ and tissue donation, and testifying in court. There are lectures on the ancillary forensic sciences, such as anthropology, odontology, toxicology, and forensic psychiatry. Credentialing of individual death investigators has advanced to the point that death investigators are recognized as affiliate members of NAME or members of the AAFS.

In 1995, the National Institute of Justice held the first technical working group to develop national guidelines, which were released in 1998, specifying 29 essential components of a thorough death scene investigation. Also in 1998, the American Board of Medicolegal Death Investigators was created to certify death investigators. It confers two levels of certification – registry and board certification.

### Who Can Pronounce a Death?

Only the coroner/medical examiner or a physician may pronounce an individual death. A registered nurse or licensed practical nurse may contact a doctor and advise him/her of the lack of vital signs and probable death. The physician may assume the responsibility of pronouncing death by telephone. No other medical personnel may give this information to a doctor. A physician can only complete death certificates where the manner of death is natural. A coroner may only make a pronouncement (via telephone) when notification of the lack of vital signs and probable death is received from a registered nurse or a physician. In the absence of either a registered nurse or a physician, the coroner must go to the scene of the death, examine the scene and the deceased, and make an on-scene pronouncement. In general, law enforcement personnel usually make the request, but EMTs (Emergency Medical Technicians), other caregivers, and family members can request that a coroner proceed to a death scene in the absence of police, a registered nurse, or a physician.

### The Death Certificate

After a thorough review of the death scene investigation reports, results of the postmortem examination, and the results of toxicological analysis of the body fluids, the certificate of death is completed by a forensic pathologist and reviewed by either the coroner or the medical examiner. The death certificate is a public record intended to inform the public and be utilized by a variety of agencies, but does not mandate, prevent, or preclude any other type of action by any other individual, agency, or public office. In other words, a death certificate is a legal statement of the

cause and manner of death, but is not otherwise legally binding for any other agency or any other individual. Guidelines for the completion of the death certification have been established by the National Center for Health Statistics of the Centers for Disease Control and Prevention (CDC). The coroner/medical examiner considers the CDC and state guidelines when certifying death. The National Center for Health Statistics has published statements regarding the “precision of knowledge required to complete death certificate items,” which include: “the cause-of-death section in the medical–legal officer’s certification is always an opinion; it represents the best effort of the medical–legal officer to reduce to a few words a synthesis of the cause of death; and a best estimate of the manner of death and the time and date of injury may also be required when neither investigation nor examination of the deceased provides definitive information.” The coroner/medical examiner should use reasonable medical probability in the formulation of opinions and in the certification of death in the same way that clinicians make diagnoses and plans for treatment. Published operational criteria for determination of suicide are considered in the designation of manner of death.

The death certificate is a civil law document, not a medical science document, and is specific to each state, but based on a national standard form. The standard death certificate is composed of three main sections: Section I (a), “the Immediate Cause and (b) the morbid conditions, giving rise to the immediate cause”; Section II, “Other Significant conditions contributing to death, but not related to the disease or condition causing it, and the Manner of Death. There are six manners of death: Natural, Accident, Suicide, Homicide, Pending Investigation, and Can Not Be Determined. Modes or mechanisms of death should not be entered on the death certificate. Conditions that existed, but that did not contribute to death, should not be entered.” All deaths of an unnatural cause fall under the jurisdiction of the coroner/medical examiner and are to be certified by the coroner/medical examiner. It is proper for “natural” deaths to be certified by one of the decedent’s attending physicians.

The death certificate must be issued within 72 h, even if the cause of death is unknown. If the cause of death is not established with reasonable certainty within 72 h, the coroner shall file a certificate of death, with the cause of death designated as “deferred or pending further action” or simply “pending.” As soon as the determination of the cause of death is made, the coroner shall file a supplemental or replacement death certificate indicating the cause of death.

**Definition: Medicolegal**

The term “medicolegal” includes very general and quite broad forensic issues, which include any interaction between medical health concerns and the law, claims of misdiagnosis, malpractice, wrongful injury or death, settlements of wills and estates, issues of paternity and custody, insurance claims, worker’s compensation issues, directives to physicians, living wills, defining brain death, and organ harvesting. Many individuals, private groups, corporations, government agencies, public officers, and attorneys are involved in dealing with medicolegal issues.

A potential civil law action, somehow related to a death, does not serve as sufficient reason by itself for the coroner/medical examiner to assume jurisdiction in a particular death case. The question still remains: is a death “unnatural” or of specific “general public” concern? It is not within the authority or the responsibility of the coroner/medical examiner’s office to investigate or be involved with all medicolegal issues. State law very narrowly defines the jurisdiction and authority of the medical examiner. It is clear that within the narrow spectrum of medical examiner cases, such deaths, due to their “sudden” or “violent” nature, will have many related criminal and/or civil legal ramifications. The work of the coroner/medical examiner’s office must remain focused on identifying and investigating deaths that are of immediate concern to the public as a whole.

No coroner/medical examiner case is ever considered to be irrevocably closed. New or additional information can be presented to the coroner/medical examiner’s office at any time for their consideration and evaluation. This new or additional information may or may not change the preponderance of evidence and previously arrived at conclusions and classifications. Opinions and classifications, however, can change if the new information does significantly alter the preponderance of evidence for a given case. The coroner/medical examiner’s office as a whole and each of its staff members must keep an open mind in all cases.

**Summary**

Whether a coroner or medical examiner system is being utilized, both systems must continue to evolve and keep up with the advancing technology of forensic science. Failure to do so would greatly hamper their primary function of accurately determining the

cause and manner of death. The field of forensic science has made rapid advances since the 1980s. The method of grouping blood evidence into the four ABO blood types has given way to DNA fingerprinting. What is science fiction today will be standard practice tomorrow.

**See Also**

**Death Investigation Systems:** China; Nordic Countries; Certification of Death and the United Kingdom System

**Further Reading**

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