

Options for Modernizing the Ontario Coroner System

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Disclaimer: The opinions expressed herein should not be construed to represent those of the Fulton County Government, Emory University School of Medicine, the National Association of Medical Examiners, or the Inquiry into Pediatric Forensic Pathology in Ontario.

Introduction

This paper was commissioned by the Inquiry into Pediatric Forensic Pathology in Ontario, which is considering ways to improve its medico-legal death investigation system. In Ontario, medico-legal death investigations are conducted by coroners who are appointed and who must be legally qualified medical practitioners (physicians).¹ They have the legal authority to conduct medico-legal death investigations and the holding of inquests. In the United States, there has been a trend to replace coroner systems with medical examiner systems administered by appointed pathologist physicians who are specifically trained in forensic pathology and death investigation.² The same has happened to various extents in Canada in the provinces of Alberta, Manitoba, Newfoundland, and Nova Scotia, thus setting a possible precedent for similar change in Ontario.³ This report describes the current status of medico-legal death investigation in Ontario and provides examples of medical examiner systems in the United States that might be used as a framework to modernize the death investigation system in Ontario.

The more archaic or anachronistic death investigation systems that provide for election of lay coroners with minimal educational or training requirements, a common occurrence outside of Canada, will only be briefly discussed.⁴ It is assumed that the Ontario coroner system will be improved. It is also assumed that the coroner (or medical examiner equivalent) in Ontario will have duties that are focused on, and limited mainly to, official medico-legal death investigation. Basic details about death investigation are included to assist in interpretation of other material presented and to make it accessible to the interested public.

¹ Ontario Coroners Act. R.S.O. 1990, CHAPTER C.37. Consolidated version, January 2005.

² Hanzlick R, Combs D. Medical examiner and coroner systems: history and trends. *JAMA* 1998;279:870–874.

³ CDC. Death Investigation System Descriptions. Available at: http://www.cdc.gov/epo/dphsi/mecisp/death_investigation.htm Accessed 9/14/2007.

⁴ Hanzlick R. Coroner training needs: a numeric and geographic analysis. *JAMA* 1996;276:1775–78.

This report is one of a number commissioned by the Inquiry into Pediatric Forensic Pathology in Ontario.⁵ The appointment of the public inquiry was prompted mainly by issues that relate to the deaths of children and pediatric forensic pathology. This report addresses issues of death investigation system structure, qualifications and credentials of the workers, and options for changing and improving the death investigation system in general terms, recognizing that issues of pediatric forensic pathology have primarily prompted the Commission's study of death investigation systems and issues.

Methods

Information about death investigation, population, demographics, and death statistics in Ontario were obtained from Internet sources such as Statistics Canada and the Coroners Act (R.S.O. 1990, CHAPTER C.37). More detailed information of coroner funding and distribution was obtained directly from the Institutional Report prepared by the Office of the Chief Coroner of Ontario (OCCO) and from counsel representing the OCCO.⁶ A review of literature and Internet resources was also conducted to provide appropriate reference citations for statements made within this report.

The following is an outline for this paper:

- A Brief History of Coroners
- Forensic Pathologists
- Relevant Features of Ontario and Its Coroner Death Investigation System
- Conversion of Coroner Systems to Medical Examiner Systems in the United States
- Model Medical Examiner Systems in the United States
- Reasons for Differing Death Investigation System Structures
- Parent or Umbrella Agencies Through Which Medical Examiner Systems Are Administered
- Inquests
- Similarities and Differences of Coroner and Medical Examiner Systems
- Desired Scope (Types of Deaths Investigated) of Medico-legal Death Investigations
- Roles of Coroners and Medical Examiners

⁵ Roach, Kent. Research Plan. Available at:
http://www.goudgeinquiry.ca/policy_research/pdf/Research_Program-Sept17.2007.pdf

⁶ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007.

- Potential Applications of Existing Professional Standards
- Studies of Ontario/Canadian Death Investigation
- Recommendations

A Brief History of Coroners

Although the concept of a “coroner” seems to have existed prior to the 12th century, the role of the coroner was formalized in the “Articles of Eyre” promulgated under Richard the Lionhearted by Hubert Walter in 1194.⁷ The articles provided that designated knights and a clerk would attend death scenes to investigate the circumstances and protect the interests of the Crown. These persons were known as *custos placitorum coronae* (keepers of the Crown pleas) and became known as “crowners” or “coroners.”

Through the centuries the coroner concept became part of English common law, and was brought to North America by the colonists. The Office of the Coroner was first established in Ontario in 1780⁸ and coroners in Ontario had until 1892 the power after an inquest to commit people for trial for murder.⁹ The original coroners were not required to be physicians or medical practitioners. Thus, even today where coroner systems remain, the qualifications to serve as coroner may be minimal and, in most of the United States, coroners are not required to be physicians.^{10,11} Following the traditional practices in England, it became commonplace in the United States for coroners to be elected officials.

Only four of the United States (Ohio, Kansas, North Dakota, and Louisiana) require their coroners to be physicians (at least in larger counties in North Dakota, and if a physician is available to run for

⁷ Fisher RS. History of Forensic Pathology and Related Laboratory Sciences. In: *Medicolegal Investigation of Death* (2nd Edition), Spitz WU and Fisher RS (eds). Charles C Thomas. Springfield, Illinois. 1980. Pages 3–11.

⁸ Office of the Chief Coroner of Ontario *Institutional Report*. November, 2007 at para 5.

⁹ *Ibid.* at para 5.

¹⁰ Hanzlick R, Combs D. Medical examiner and coroner systems: history and trends. *JAMA* 1998;279:870–874.

¹¹ Hanzlick R. *Death Investigation: Systems and Procedures*. CRC Press. Boca Ration, Florida. 2007. Pages 89–98.

election in Louisiana), and none require the coroner to be a pathologist or forensic pathologist.^{10,11} Kansas and North Dakota are similar to Ontario because their coroners are appointed. Kansas most closely parallels Ontario because the coroners in Kansas serve districts consisting of multiple counties and municipalities (see below). Thus, Ontario is not alone in the way its coroner system is structured.

Overall, Ontario has taken the “high road” in developing its Coroners Act because physician status is required to serve, and coroners are appointed and may remain in office (if there is no cause for removal), which fosters the accrual of experience and expertise in death investigation.¹² Thus, it seems reasonable that efforts to improve the Ontario death investigation system should consider raising further the requirements to serve as coroner or replacing coroners with other death investigation professionals required to have even greater qualifications, education, and experience.

Forensic Pathologists

“Forensic” (*forum*) means “public,” or of interest to debates or the court. “Pathology” is derived from *pathos* (suffering) which is due to disease and/or injury.¹³ Thus, “forensic pathology” is the study of disease and injury that is of interest to the public and/or the courts, where issues are often debated. Prior to 1959, there was no formal specialty area of forensic pathology, no formal forensic pathology training programs, and those physicians and pathologists who worked in death investigation basically acquired on-the-job training. There were “legal medicine” programs that arose in New York, Boston, and Virginia prior to 1959, but these were not specifically geared toward forensic pathology. In 1959, the America Board of Pathology recognized forensic pathology as a subspecialty area of pathology and began to offer a board certification examination in forensic pathology.¹⁴ Since that time, there have been about 1,300 persons certified in forensic pathology in the United States.¹⁵ In short, there have not been enough forensic pathologists produced to meet potential need. A recent survey indicates that

¹² Ontario Coroners Act. R.S.O. 1990, CHAPTER C.37. Consolidated version, January 2005.

¹³ New World Dictionary of the American Language. Second College Edition. Simon and Schuster. 1980.

¹⁴ Abell MR, Kirby NM. The America Board of Pathology: 50 years of Service. *Arch Pathol Lab Medicine*. 1986;110:1097–1110.

¹⁵ American Board of Pathology. Personal Communication. Betsy Bennett, Executive Director. Tampa, Florida. 2006.

about 10% of forensic pathologist positions in the United States are vacant at any given time, that 25% of offices have at least one vacancy, and that anticipated retirements provide a good job market for forensic pathologists coming out of training.¹⁶ Available data and guidelines indicate that there should be one forensic pathologist for every 250–300 bodily examinations performed.¹⁷ Accreditation and inspection criteria recommend a maximum annual caseload of no more than 250 complete autopsies per year per pathologist.¹⁸ The number of deaths investigated by medical examiners and coroners is about 500,000 (20% of all deaths) per year on average in the United States. Given that an autopsy is performed in about half of such cases, the annual projected autopsy load for medical examiners and coroners in the United States is about 250,000.¹⁹ These data suggest a need for approximately 800 to 1,000 full-time equivalent forensic pathologists. This nearly amounts to the total number of forensic pathologists ever certified in forensic pathology since 1959, many of which are deceased or no longer practice. Recent data suggest that there are about 500 forensic pathologists practising full-time in the United States.²⁰ Thus, data suggest that there are insufficient numbers of forensic pathologists in the United States, and population comparisons indicate that the situation in Ontario is even worse (see below).

Prior to 1999, qualification for forensic pathology board examination did not require completion of an accredited training program. Rather, it required only two years of experience equivalent to that which would be obtained in a program accredited by the Accreditation Council on Graduate Medical Education (ACGME). Since 1999, completion of training in an ACGME-accredited program has been

¹⁶ National Association of Medical Examiners Survey #3. Forensic Pathologist Job Vacancy and Survey Results. National Association of Medical Examiners, Atlanta, Georgia. September 2006.

¹⁷ National Association of Medical Examiners Survey #5. Forensic Pathologist Caseload Information. National Association of Medical Examiners, Atlanta, Georgia. October 2006.

¹⁸ National Association of Medical Examiners Inspection and Accreditation Policies, Procedures, and Checklist. Available at:
http://thename.org/index.php?option=com_content&task=view&id=71&Itemid=69
Accessed September 15, 2007.

¹⁹ Bureau of Justice Statistics. Medical Examiners and Coroners' Offices, 2004. Available at:
<http://www.ojp.usdoj.gov/bjs/pub/pdf/meco04.pdf>
Accessed September 23, 2007.

²⁰ National Association of Medical Examiners. Atlanta, Georgia. 2007.

required.^{21,22} Accreditation means that a training program is required to meet specific criteria to become accredited, so that accredited programs have common training goals and objectives and meet minimum standards as evaluated by a formal inspection. Thus, it is reasonable to assume that a graduate of an accredited program has been through a program that at least minimally meets required standards and has a true training curriculum and trainee and program evaluation process.

The definition of “forensic pathologist” varies based on the source. Some view only those who are board certified as forensic pathologists.²³ The College of American Pathologists (CAP) has defined a forensic pathologist as “a pathologist who has received special training or experience in forensic pathology and actively engages in death and inquiry investigations and medicolegal autopsies.”²⁴ The recent Forensic Autopsy Performance Standards of the National Association of Medical Examiners (NAME) has the following definition: “A physician who is certified in forensic pathology by the American Board of Pathology or who, prior to 2006, has completed a training program in forensic pathology that is accredited by the ACGME or its international equivalent or has been officially ‘qualified for examination’ in forensic pathology by the ABP.”²⁵ The different viewpoints can be partially explained by the fact that NAME, consisting primarily of medical examiners, emphasized excellence in forensic pathology, and views board certification as an indicator of formal training. In contrast, CAP prefers to be more inclusive because many pathologists who are not board certified in forensic pathology have practised forensic pathology at least part-time for many years. This also appears to be the case in some places in Ontario as well. A goal of NAME is to raise the bar so that all persons practising forensic pathology are fully trained and fully qualified over and above simple on-the-job experience.

²¹ American Board of Pathology. Booklet of Information 2004. Tampa, Florida.

²² American Board of Pathology. Booklet of Information 1996. Tampa, Florida.

²³ Hanzlick R, Graham M. Forensic Pathology in Criminal Cases, 2nd Edition. Lexis Publishing. 2000. Pages 1–9.

²⁴ Randall BB, Fierro MF, Froede RC, and the Forensic Pathology Committee of the College of American pathologists. Practice guideline for forensic pathology. *Arch Pathol Lab Medicine*. 1998;122:1056–1064.

²⁵ National Association of Medical Examiners Forensic Autopsy Performance Standards. Available at: <http://files.orainc.com/files/Standards10-16-06.pdf> Accessed September 15, 2007.

Ideally, all forensic pathologists would be board certified. However, this has not been feasible because of their relatively small number and the inability to attract board-certified forensic pathologists to some government jobs, which tend to have inadequate salaries for a highly trained physician.²⁶ In fact, a recent survey indicates that recruitment into forensic pathology training is not as productive as it could be, as only 51% of available training positions were filled in 2007 and nearly one-third of training programs had no forensic pathology fellow.²⁷ From Ontario's perspective, the availability of training positions could be good if Ontario could encourage its pathology residents to apply for and complete forensic pathology training in the United States should such programs not be available in Ontario.

As of 2003, the Royal College of Physicians and Surgeons of Canada (RCPSC) has recognized forensic pathology as a subspecialty area of pathology.²⁸ However, there are no accredited forensic pathology training programs in Canada²⁹ and the RCPSC does not offer a forensic pathology certification examination, although plans are being considered for these.³⁰ Thus, at present, Canadians who wish to become board certified in forensic pathology must train in the United States or other countries with an equivalent level of training, although board certification may not be available to those who train in places other than the United States.

During the forensic pathology fellowship training year, the fellow does a minimum of 200 medico-legal autopsies, investigates deaths, attends scene investigations, and spends time at the crime laboratory in the major forensic science areas such as toxicology, biology, firearms, and criminalistics, among others.³¹

²⁶ Hanzlick R, Prahlow JA, et al. Selecting forensic pathology as a career: a survey of the past with an eye on the future. *Am J Forensic Med Pathol*. In Press.

²⁷ National Association of Medical Examiners. Forensic Pathology Fellow Survey 2007–2008. Atlanta, Georgia.

²⁸ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 at para 138.

²⁹ *Ibid*. One such program is being planned for the University of Toronto.

³⁰ Royal College of Physicians and Surgeons of Canada. Objectives and Training and Specialty Training Requirements in Forensic Pathology. Available at: http://rcpsc.medical.org/residency/certification/training/forensic-pathol_e.html Accessed September 15, 2007.

³¹ Accreditation Council for Graduate Medical Education. Program Requirements for Graduate Medical Education in Forensic Pathology. Available at:

Ontario might consider establishing a training program and work with the RCPSC to develop a board-certification examination. An alternative would be to fund Ontario pathology residents to obtain forensic pathology training and certification in the United States or in an equivalent program elsewhere outside of Canada, with the idea of their returning to the province to practice. A major goal would be forensic pathology board certification for all “forensic pathologists” who practise in Ontario. At present, the average salary of a forensic pathology trainee in the United States is about \$50,000 per year plus benefits whereas the salary in Ontario is about \$70,000.³² It may be necessary for Ontario to subsidize some of the American fellowships to make them attractive to pathologists in Ontario.

The roster of the National Association of Medical Examiners indicates that it has 16 members from Ontario, and 5 of those have indicated that they are board-certified forensic pathologists.³³ The American Academy of Forensic Sciences membership includes 10 physician Pathology/Biology Section members from Ontario, of which 4 have indicated forensic pathology Board Status.³⁴ Information obtained directly from the Office of the Chief Coroner of Ontario indicates that of 191 physicians (most or all of whom are pathologists) who do work for the coroner, 6 are forensic pathologists.³⁵ For comparison, the state of Georgia (which is not unlike other areas) has 23 forensic pathologists (nearly all board certified) serving a population of approximately 9,300,000 people or a ratio of 1 forensic pathologist for every 404,000 people. In Ontario, based on the 2006 Ontario population estimate of 12.69 million people,³⁶ and assuming a maximum of 16 board-certified forensic pathologists in Ontario, the ratio appears to be about 1 forensic pathologist for every 793,000 people. If the actual number of forensic pathologists in Ontario is 6, then the ratio is 1 forensic pathologist per

http://www.acgme.org/acWebsite/downloads/RRC_progReq/310forensicpath07012004.pdf
Accessed September 15, 2007.

³² Information supplied by the OCCO November 28, 2007.

³³ National Association of Medical Examiners Membership Database. Atlanta, Georgia. Accessed September 15, 2007.

³⁴ Nancy Jackson. American Academy of Forensic Sciences. Colorado Springs, Colorado. Personal Communication. July 9, 2007.

³⁵ Information obtained from the Office of Chief Coroner of Ontario, December 2007.

³⁶ <http://www.fin.gov.on.ca/english/economy/demographics/census/cenhi06-1.html>
Accessed September 29, 2007.

2,115,000 population. The actual ratio is difficult to determine because many of the pathologists do only occasional, part-time work for the coroner. Regardless, the available data indicate a need to recruit and/or train more forensic pathologists to work in Ontario if board-certified forensic pathologists are desired in the workforce.

Issues in Ontario have arisen regarding pediatric forensic pathology. A major problem is that there is not a single formal training program in pediatric forensic pathology, and there is no single board-certification examination offered for one to become a certified pediatric forensic pathologist in the United States or Canada. There are only seven persons who are board certified in pediatric pathology and forensic pathology by the American Board of Pathology.³⁷ In general, however, the emphasis of training differs between these areas. Pediatric pathology tends to concentrate on natural, congenital, developmental, and genetic disease processes, and many pediatric pathologists have not had specific forensic pathology training. Most have had some exposure to forensic pathology during basic anatomical pathology training, but many lack extensive knowledge of forensic pathology. Conversely, forensic pathologists have usually had exposure to pediatric pathology during basic anatomical pathology training, and their training involves the investigation of unexpected/unexplained infant and childhood deaths. Many lack, however, extensive knowledge of pediatric pathology.³⁸ Thus, there is a “disconnect” between these pathology subspecialties. Most “pediatric forensic pathologists” are self-proclaimed, or they assume this title because they have had training, and perhaps board certification, in both subspecialty areas. At present, however, there is no oversight body in the United States or Canada that certifies a person as a pediatric forensic pathologist or that accredits training programs in pediatric forensic pathology, as they do not formally exist. Although advantageous, it is probably not necessary or practical to require that forensic pathologists also be board certified in pediatric pathology, as long as fully trained and qualified pediatric pathologists are available for consultation or assistance.

Relevant Features of Ontario and Its Coroner Death Investigation System

³⁷ Betsy Bennett. Executive Director, American Board of Pathology. Tampa, Florida. Personal Communication. July 30, 2007.

³⁸ Accreditation Council for Graduate Medical Education. Pathology program Requirements. Available at: http://www.acgme.org/acWebsite/RRC_300/300_prIndex.asp
Accessed September 15, 2007.

Characteristics of Ontario

The Province of Ontario covers a very large area of 415,598 square miles. It is larger than any state in the continental United States and is about two-thirds the size of Alaska. It is roughly equivalent in size to the combined area of the States of Texas, Oklahoma, and New Mexico. In conjunction with its large size, the population density is about 36 persons per square mile, which is about half that of Texas (which has many rural areas), one-quarter that of the state of Georgia (also with many rural areas), and 36 times the population density of Alaska. Further, the population density is largely located in the southern part of Ontario near the United States. These features make direct comparison to any single state in the United States difficult. The concentration of population in the central to southern part of Ontario is positive in that most coroner's cases will come from these areas and the need to transport bodies (or personnel) long distances is less than it otherwise would be if the population were equally distributed throughout the province. The fact remains, however, that a very large area of the province is remote, and delivery of services in or for those areas does pose difficulties. Transport costs approximate one million dollars per year.

With an estimated 2006 population of 12.69 million people, Ontario has about 91,000 deaths per year. Its death rate is 7.2 per 1,000 population, in the mid-range of the death rates for the other Canadian provinces. The number of homicides each year now approximates 200, the homicide rate in 2005 was 1.74 per 100,000 population, and the average homicide rate over the previous 10 years was 1.49 per 100,000 population.³⁹ For comparison, the population of Fulton County, Georgia (USA) is about 900,000 and the number of homicides per year is similar to that of Ontario, which has about 13 times the number of people. Thus, the homicide rate is relatively low in Ontario, which lessens the burden for homicide investigations and time spent in criminal proceedings. This provides greater time to investigate the other types of death as mandated by the Ontario Coroners Act. Further, the statistics emphasize that most investigated deaths do not involve crime, which supports the contention that death

³⁹ <http://www.statcan.ca/Daily/English/061108/d061108b.htm>
Accessed September 30, 2007.

investigation systems need not, and should not, be within law enforcement agencies, which have other priorities.

The geopolitical structure of Ontario is complex, with single-tier municipalities, regional municipalities, counties, and districts that together account for about 50 geopolitical government units. Coroners may be appointed at any one of these levels, although they all report to the Chief Coroner. Of the 10 most populous metropolitan census areas, all are located south of Sudbury and 3 have populations of less than 200,000 people. Of the 10 most populous cities, 4 barely exceed 200,000 in population. These facts are important because a population of 200,000 is about the minimum that can support a local death investigation by virtue of the tax base and projected number of deaths requiring official investigation. Thus, centralization or regionalization of services is needed for many areas of Ontario.

Within the Public Safety Division of the Ministry of Community Safety and Correctional Services resides the Office of the Chief Coroner and the Centre of Forensic Science.⁴⁰ The Centre for Forensic Science has its main laboratory in Toronto and its northern branch lab in Sault Ste. Marie. Effective December, 2006, there is a Commissioner of Community Safety that has responsibility for the public safety agencies, which include the Office of the Chief Coroner.⁴¹ An Assistant Deputy Minister assists the Commissioner with oversight of several agencies, including the Centre for Forensic Science. Thus, the Chief Coroner reports to the Commissioner of Community Safety who, in turn, reports to the Deputy Minister of Community Safety and Correctional Services. There are monthly meetings on between the Chief Coroner, the Commissioner of Community Safety, and the Assistant Deputy Minister to review administrative resources and communications.⁴²

The Director of the Centre for Forensic Science reports to the Assistant Deputy Minister for Public Safety who then jointly reports to the Commissioner of Community Safety and Deputy Minister. It appears that the Chief Coroner is now administratively separate from the Centre for Forensic Science.

⁴⁰ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 at para 18.

⁴¹ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 at para 28.

⁴² Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 at para 28.

Although some medical examiner offices in the United States have in-house toxicology laboratories, few have an in-house, full-service crime laboratory. It must be remembered that most crime laboratories also process evidence related to the many more crimes that do not involve death. Thus, it is not atypical to have a crime laboratory that is separate from the death investigation facility and system. The critical element is to ensure that the death investigation system has access to a full-service crime laboratory that is accredited and meets professional standards regarding procedures and staffing. Ontario's forensic science laboratories have a very favourable reputation. Forensic pathologists receive general training about the scope of forensic science, the evidence that is important to each discipline, and the principles of evidence recognition, acquisition, preservation, and analysis. Coroners should have similar knowledge, but their formal training, if any, may not have included such subjects. This is another reason that fully trained forensic pathologists need to be an integral and major part of the death investigation system.

The Royal College of Physicians and Surgeons of Canada (RCPSC) now recognizes forensic pathology as a subspecialty of medicine as of 2003. However, there are currently no formal accredited forensic pathology training programs in Canada and the Royal College has no certification examination in forensic pathology. Plans are being developed to work on these issues.⁴³ Canada would serve itself well by establishing accredited forensic pathology training programs, and the Royal College could help by offering a certification examination equivalent to the forensic pathology certification offered by the American Board of Pathology (ABP) in Tampa, Florida. At present, Canadians must train in forensic pathology outside of Canada, which limits the number of Canadians who can become forensic pathologists. Pathologists who have trained in pathology residencies accredited by the RCPSC may become eligible for board certification in anatomic and/or clinical pathology as offered by the ABP, but the fact remains that, for forensic pathology board qualification, a Canadian must train in the United States, or perhaps the United Kingdom. The United States is the only place with forensic pathology programs either accredited by the Accreditation Council on Graduate Medical Education (ACGME), or equivalent to such programs, and training in an ACGME-accredited program or equivalent is now required to satisfy ABP board qualification requirements.

⁴³ Royal College of Physicians and Surgeons of Canada. Objectives and Training and Specialty Training Requirements in Forensic Pathology. Available at: http://rcpsc.medical.org/residency/certification/training/forensic-pathol_e.html Accessed September 15, 2007.

Funding of the Ontario Coroner System

The proposed 2007/08 budget for the Ontario coroner operations is \$25,595,300 or about \$2.01 per capita.⁴⁴ At the time of this writing, the Canadian and United States dollars were about equal in value. The per capita funding of the Ontario coroner system is marginal compared with averages in the United States (see below). At least \$346,500 of the budget is for transportation costs,⁴⁵ which may actually be closer to one million dollars per year, an understandable situation because of the large size of the province. All provincial funding for coroner operations is managed through the Office of the Chief Coroner.

Forensic sciences services are funded through the Centre for Forensic Sciences, which has a budget distinct from the Chief Coroner's budget. The Regional Centres of Excellence, which perform autopsies in all criminally suspicious cases including pediatric cases,⁴⁶ are funded via the Office of the Chief Coroner through transfer payment grants that total about \$1,070,000.⁴⁷ This figure has remained constant since 2000.⁴⁸

The Office of the Chief Coroner of Ontario employs three forensic pathologists, two of whom are funded at 0.80 full-time equivalents, while two more salaried positions remain unfilled.⁴⁹ Although it is difficult to determine the exact level of funding for pathologists' services, the sum of transfer payments to the Regional Centres of Excellence, Provincial Forensic Pathology Unit salary and benefits, and

⁴⁴ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 Appendix F.

⁴⁵ Budget information provided by the OCCO, November 30, 2007.

⁴⁶ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 at paras 146–147.

⁴⁷ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 Appendix F.

⁴⁸ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 at para 149.

⁴⁹ Information provided by the OCCO November 28, 2007.

pathologists fee-for-service payments is \$9,446,418.⁵⁰ This amounts to about 37% of the total money allocated to the OCCO annual budget. In comparison, for example, the Fulton County Medical Examiner in Atlanta, Georgia, which hires only board-certified forensic pathologists, spends about 32% of its annual budget on forensic pathology services where pathologist caseload is in compliance with NAME standards.⁵¹ Thus, it appears that Ontario's funding of pathology services is at a similar level, although many of the pathologists are not board certified in forensic pathology. A recent survey indicates that in the United States, medical examiner offices average about one full-time equivalent (FTE) forensic pathologist per 300,000 population.⁵² If Ontario's rate were similar, it would be expected to have about 42 full-time equivalent forensic pathologists. If Ontario's forensic pathologists were limited to 42 full-time positions, the per-position cost (including benefits) would be about \$225,000 per forensic pathologist, which is consistent with some areas of the United States. Thus, the question seems to be whether the money allocated for forensic pathologist services in Ontario should continue to be distributed among a large number of pathologists, many of whom are not board certified in forensic pathology, or whether a different strategy should be employed to hire fewer people, all working full-time, and being board certified in forensic pathology. These forensic pathologists could be placed regionally to perform all coroner's autopsies, while reducing the number (now 191) of pathologists involved in the death investigation system. For reasons outlined in other parts of this paper, such a plan would take considerable time to implement, mainly because of a shortage of forensic pathologists.

Conversion of Coroner Systems to Medical Examiner Systems in the United States

As mentioned, the colonists brought the English coroner concept with them when they settled in North America. In the United States, law changes paralleled, and lagged a few years behind, those that occurred in England. The formal involvement of physicians in official death investigation began in 1860 in Baltimore, Maryland, where laws were changed and allowed the coroner to require the presence of a physician at an inquest. The law seems to formally acknowledge that death involves

⁵⁰ Budget information provided by the OCCO, November 30, 2007.

⁵¹ 2007 Budget information, Fulton County Medical Examiner, Atlanta, Georgia, USA.

⁵² Office Funding Survey. National Association of Medical Examiners Survey #12. May 2007.

medical issues and that medical expertise is needed and appropriate. The title of “medical examiner” seems to have arisen in 1877 in Massachusetts when coroners were replaced with physicians referred to as “medical examiners.” Although there was no distinct specialty of forensic pathology at the time, New York City is credited with establishing the first formal medical examiner system in 1918.⁵³ Thus, the concept of a “medical examiner” preceded that of a “forensic pathologist.” Practically, there were forensic pathologists prior to 1959, but the American Board of Pathology did not recognize forensic pathology as a subspecialty of pathology until 1959. Even today, there are places in which the “medical examiner,” formally titled as such in law, are required only to be physicians, such as the state of Michigan. Thus, those “medical examiners” may still require the services of a forensic pathologist to perform autopsies. In other states such as Wisconsin and West Virginia, there may be non-physicians who have the title of medical examiner.⁵⁴ In such settings, these individuals essentially function as a lay coroner. Eventually, it would be desirable if the term “medical examiner” connoted that the person was also a forensic pathologist, but such a situation is unlikely anytime soon.

As physicians worked or trained in the northeast United States, the concept of a medical examiner system spread to various parts of the United States. Since 1918, various states and counties have established medical examiner systems in place of the traditional coroner system. As of 2007, about half of the United States population is now served by a medical examiner system, although there remain many more jurisdictions (especially counties) that still have a coroner. A full discussion of these systems is available elsewhere, and subsequent discussion will focus on those medical examiner systems that may have relevance to Ontario.^{55,56}

Model Medical Examiner Systems in the United States^{57,58}

⁵³ Fisher RS. History of Forensic Pathology and Related Laboratory Sciences. In: *Medicolegal Investigation of Death* (2nd Edition), Spitz WU and Fisher RS (eds). Charles C Thomas. Springfield, Illinois. 1980. Pages 3–11.

⁵⁴ Hanzlick R. *Death Investigation: Systems and Procedures*. CRC Press. Boca Ration, Florida. 2007. Pages 89–98.

⁵⁵ Hanzlick R, Combs D. Medical examiner and coroner systems: history and trends. *JAMA* 1998;279:870–874.

⁵⁶ Hanzlick R. Conversion of coroner systems to medical examiner systems in the United States: a lull in the action. *Am J Forensic Med Pathol*. In Press.

⁵⁷ CDC. Death Investigation System Descriptions. Available at: http://www.cdc.gov/epo/dphsi/mecisp/death_investigation.htm

Based on the characteristics of Ontario as described above, there are several types of medical examiner systems in the United States that could be considered as potentially applicable to Ontario.

One Office Serving the Entire State

The state of New Mexico has a single “Office of the Medical Investigator” in Albuquerque. Field investigators are located throughout the state but bodies are transported to Albuquerque for post-mortem examination. The major disadvantages are the costs to transport bodies and the cost and time involved for the medical examiners to travel to different parts of the state for legal proceedings.

Ontario, which is very large and has remote areas, would face similar problems. Delaware also has a system with a single office serving the entire state. The small size of Delaware makes a single state office quite manageable. Alaska, about 50% larger in geographic area than Ontario, has a single State Medical Examiner office in Anchorage. Alaska’s population density is much less than Ontario’s, and although transportation and access are definite issues, the requirement for body transport is probably less than that in Ontario.

State-Based System with Regional or District Offices Reporting to the State Office

The State of Virginia has a State Medical Examiner office based in Richmond. There are also autopsy facilities and offices in Roanoke, Fairfax, and Norfolk, which are staffed by forensic pathologist district medical examiners. However, there are physicians on the county or city level who serve as medical examiners locally and function as the local contact for receipt of death reports and for conducting scene investigations when needed. All medical examiners are appointed by the Chief Medical Examiner and report to the Chief Medical Examiner. The Virginia system is analogous to Ontario in many respects, but the local physicians (not necessarily pathologists) have the title of medical examiner instead of coroner.

Accessed September 14, 2007.

⁵⁸ Hanzlick R. *Death Investigation: Systems and Procedures*. CRC Press. Boca Ration, Florida. 2007.

Independent District Medical Examiner Systems with No State Office

The state of Florida has 24 District Medical Examiner offices that serve its 67 counties. Some districts include a single county only. The Florida Medical Examiner Commission is a multidisciplinary group within the Florida Department of Law Enforcement, and it oversees the appointment of District Medical Examiners, publishes reports, has certain disciplinary authority over medical examiner activities, and has promulgated practice guidelines for Florida medical examiners in conjunction with the Florida Association of Medical Examiners. There is, however, no State Medical Examiner. The Commission is responsible for improving death investigation services in the state through its work with the District Medical Examiners. In general, the District Medical Examiners and their Associate Medical Examiners are board-certified forensic pathologists. Each district is responsible for the funding of its medical examiner system. The Florida system differs from Ontario in that a Commission, rather than a Chief Medical Examiner (or Chief Coroner) oversees the district system, and the district offices are a bit more autonomous than the various coroner offices in Ontario.

The Florida Medical Examiner Commission is situated administratively within the Florida Department of Law Enforcement. The Commission comprises

- Two (2) licensed physicians who are active district medical examiners*
- One (1) licensed funeral director*
- One (1) state attorney*
- One (1) public defender*
- One (1) sheriff*
- One (1) county commissioner*
- The Attorney General or designated proxy
- The Secretary of Health or designated proxy

(* These members are appointed by the Governor.)⁵⁹

There are also medical examiner commissions (or equivalent bodies) in the states of Alabama, Connecticut, Maryland, Missouri, New Mexico, Oregon, and Washington.⁶⁰ Although the constituency of these commissions vary, they are typically multidisciplinary and include law enforcement, health department, medical school, prosecutorial, funeral, physician, governmental, and public representatives.

In Ontario, a three person Coroner's Council that considered the proposed appointment of coroners and heard complaints against coroners was formed in 1972 but abolished in 1998.^{61,62} There have also been proposals for a Coroner's Review Board that would hear complaints and sit in panels of three, which would include a superior court and a pathologist.⁶³ Further consideration of such proposals is probably warranted, especially in the context of a Commission similar to those described above.

Mixed System Approach

The State of Georgia (USA) has elected lay coroners in 154 of its 159 counties. Autopsies for these coroners are provided by forensic pathologists in one of six labs located in regionalized areas throughout the state. The Regional Medical Examiners are overseen by a Chief State Medical Examiner (forensic pathologist) located at the central lab near Atlanta. The Medical Examiner Division is within the Division of Forensic Sciences of the Georgia Bureau of Investigation. The state absorbs the cost of the autopsies, but the local coroners must provide transportation of bodies. One deficiency in the system is that referral for autopsy is dependent on the coroner, and there are sometimes cases where an autopsy should be performed but is not. If Ontario were to adopt such a system, it would be critical to involve the forensic pathologists in decision making or have uniform procedures for case

⁵⁹ <http://www.fdle.state.fl.us/cjst/MEC/index.html>
Accessed September 30, 2007.

⁶⁰ National Association of Medical Examiners Survey #14. Administrative Reporting of Medical Examiner Offices. August, 2007. National Association of Medical Examiners, Atlanta, Georgia.

⁶¹ The Coroners Act. 1972. S.O. 1972 c.98 s.6.

⁶² S.O. 1998 c.18 sch B s.3.

referrals. Having to pay for transportation can adversely impact on the decision to have an autopsy performed. It would be preferable if locals did not have to worry about per case costs and to have transportation paid for or provided by the province. Such a situation did exist in Georgia, but budget issues forced a change to the current system of body transport.

The law in Georgia allows counties to abolish the coroner and establish in its place a medical examiner.⁶⁴ Five counties have done so. In these counties, the cost of the medical examiner's office is paid for by the county. Crime Lab Services are provided by the Georgia Bureau of Investigation at no charge, however. The ability to have a local, population-, and geographically based death investigation system is a nice option for those counties that can fund such systems.

Regardless of the approach, it is important that records of investigations (or copies) from all offices be maintained in a central facility, and it is highly desirable that there be a statewide or province-wide database of case information that can be used for statistical, research, and public health and safety purposes. This is particularly relevant to the deaths of infants and children, for which standard data collection items have been developed and for which databases are being developed.⁶⁵

Funding of United States Medical Examiner Systems

Recent surveys conducted by the National Association of Medical Examiners indicate that medical examiner offices are funded within a range of \$0.44 to \$5.38 per capita.⁶⁶ For nine state systems, per capita funding ranged between \$0.64 and \$2.81 with a mean of \$1.76. However, funding of state systems, on average, is lower than county systems, which average \$2.58 per capita. Thus, Ontario, at a funding level of approximately \$2.01 per capita, is slightly above the mean for those nine state offices in the United States but is below average funding for all systems in general. Also, a much higher than

⁶³ Ontario Law Reform Commission *Report on the Law of Coroners* (Toronto: Ontario Law Reform Commission, 1995) at 218–219.

⁶⁴ Georgia Code 45-16-80

⁶⁵ CDC. Sudden unexplained infant death investigation: a systematic training program for the professional infant death investigation specialist. CDC. Atlanta, Georgia. 2007.

⁶⁶ National Association of Medical Examiners Survey #12. Office Funding. May, 2007. Atlanta, Georgia.

average portion (about 4%) of the Ontario Coroner's budget relates to transportation costs because of the large geographic area of Ontario. This leaves less funding for the other critical elements of death investigation.

Reasons for Differing Death Investigation System Structures⁶⁷

There are multiple factors that influence the type of death investigation system in a given area. These include legislative issues, geography/topography, population density and distribution, tax base, death rates, availability of facilities, transportation and accessibility, per capita funding, government funding priorities, availability of needed manpower, and political issues.

Legislative Issues

In some areas, the coroner is a constitutional officer and to convert to a medical examiner system may require amendment of the state constitution, which can be a complex and drawn-out process. Other laws requiring a threshold population level for conversion or not allowing "home rule" may also hamper conversion. "Home rule" legislation allows jurisdictions that exceed a specified population base to make certain governmental decisions without specific state approval or referendum, and has facilitated the conversion of coroner to medical examiner offices in some states such as Washington. Because the Ontario coroners are appointed physicians, the above issues are not particularly relevant. Effectively, the Ontario coroner system could become a medical examiner system simply by making word substitutions in the Ontario Coroners Act and renaming it the Ontario Medical Examiners Act. Whether doing so is actually necessary, based on the features of the current system and the issues discussed in this paper, would be a matter of some debate. A hybrid system seems feasible, if desired, in which coroners, for example, could continue to conduct inquests while a chief medical examiner or chief forensic pathologist might have primary responsibility for the actual death investigation in place of the coroner. Whether or not the coroner or the forensic pathologist would complete and sign the death certificate would have to be decided as a matter of policy. If the coroner signs the death

⁶⁷ Hanzlick R. Conversion of coroner systems to medical examiner systems in the United States: a lull in the action. *Am J Forensic Med Pathol*. In Press.

certificate, he or she should consider the recommendations of the medical examiner or forensic pathologist.

Geography/Topography

It is desirable to have death investigation systems available locally to facilitate on-scene investigation, body transport, and related activities involving law enforcement, the courts, and other agencies that would be impacted by the death. Some jurisdictions are so large, however, or they have such remote or virtually inaccessible areas that the provision of local services is difficult if not impossible. Thus, a central or regionalized system has been established in some areas. The Ontario coroners are “locals” (they serve relatively small areas near where they live), and centralizing a death investigation system regionally or province-wide could eliminate desirable local contact provided by the coroner. Regional forensic pathology centres of excellence could provide needed autopsy and investigative services to assist the local coroners, and the existing Centres of Excellence in Ontario is a framework upon which such a system could be built. A most critical factor would be the qualifications of the pathologists serving in the centres.

Population Distribution

Sparsely populated areas do not usually have the tax base to support a full-fledged, medically run death investigation system. If adequately trained forensic autopsy pathologists are available regionally or in a central facility, the physician coroner or similar medically trained investigator remains a valuable local contact in the county where the death or incidents occurred. In Missouri, counties that exceed a certain population are required by law to convert from a coroner to a medical examiner system, but such a law is not the norm. As mentioned previously, however, the title of the death investigation system is not so important as the need to have qualified personnel in the key positions. A combination of local medical expertise (physician coroners) and regionally available qualified forensic pathologists is a reasonable approach to addressing problems related to the population’s distribution. The physician coroners could serve as the local scene investigator (or oversee trained lay death scene investigators) while the forensic pathologists would determine the need for autopsy, conduct autopsies and other bodily exams

when needed, determine cause and manner of death, and, ideally, be available to attend death scenes as needed.

Tax Base

Because medical examiner systems are overseen by physicians, the cost of such systems may be higher than coroner systems that may be run by a lay coroner, who, because of sparse caseload, may be working part-time or on a fee-per-case basis (recognizing that some Ontario coroners also work part-time or fee-for-service). Ontario has addressed this problem for the most part because the system is funded as an activity of the province, so local funding and tax base become less of an issue. Certain municipalities or regions that have adequate tax base could opt, however, to fund their own system. For example, in the State of Georgia, the counties with adequate tax base and a desire to conduct death investigations locally (the advantages of which have been previously discussed) have abolished the office of coroner and established county-funded medical examiner systems in their place. Had they not done this, they could use the regional medical examiner services provided and funded by the state. Instead, however, they desired to fund and maintain their own local system. There is more local control, and services are close to where they are needed. This same scenario has occurred in a number of other counties in other states. If Ontario pursued such an approach, it would be desirable for such local systems to remain integrated with the provincial coroner system at least to the extent that death investigation records and data are maintained in a provincial database or record-keeping system.

Death Rates

In some counties or other geopolitical entities, the number of deaths or death rate is so small that a local death investigation system is impractical if not unnecessary. A regionalized or centralized approach has generally been used to address this issue, as is the case in Ontario.

Availability of Facilities

If no autopsy facilities are available, the only options are to build them or rely on the closest available facility. In many areas, the cost of building cannot be justified on the basis of caseload. This problem is addressed by regionalizing or centralizing services.

Transportation and Accessibility

Some states and provinces have remote, if not nearly inaccessible, areas. Deaths in such areas are typically uncommon because population is sparse. The most practical way to deal with such cases is to rely upon whatever local services exist, and transport bodies as needed to the nearest facility at which autopsy and further investigation may be conducted. Thus, this problem is addressed by regionalizing or centralizing services, and planning transportation strategies in advance.

Per Capita Funding⁶⁸

In the United States, per capita funding of death investigation systems ranges from about \$0.44 to \$9.19 and averages about \$2.58. The scope of funded services varies and some of the better funded systems also include funding for toxicology services, toxicology laboratories, or other forensic science laboratory services that are not included in the Ontario Coroner's budget for the most part. Obviously, systems with higher per capita funding can typically provide a broader scope of services and more complete investigation of individual cases. The tax base in some areas is insufficient to fund local services and facilities. Ontario has addressed this problem by funding the death investigation system on a provincial basis and working toward regionalized centres of excellence.

Government Funding Priorities

The perceived need by government to provide services for the living often outweighs the perceived need to support death investigation. A common anecdote is that "the dead do not vote and the living do." This adage fails to recognize that death impacts on living people, however. Death investigation is an essential service. Nevertheless, governments often give low priority to the funding of death

⁶⁸ National Association of Medical Examiners Survey #12. Office Funding. May, 2007. Atlanta, Georgia.

investigation, generally allocating much larger portions of their budgets to criminal justice, fire and police services, and human services. Much advocacy and many years can be required to obtain enough government funding to operate a quality death investigation service. In most areas, this has yet to occur. Ontario's funding of its death investigation system is, at present, about average compared to the United States in general, but is less than some of the good quality and busy systems found in New Mexico, New York City, Fulton County (Atlanta), Los Angeles, Detroit, Minneapolis, and San Diego.

When death investigation systems are within an umbrella or parent organization, there has been a trend to move away from health departments into (or to stay within) criminal justice/law enforcement organizations because funding of the latter is at a higher level. A recent example was the Oregon medical examiner's move from the Health Department to the Highway Patrol. The simple fact is that funding is better, despite the perceived potential conflicts of interest that, in fact, were publicly raised following an in-custody death.⁶⁹ The lack of medical examiner movement from law enforcement to health departments is further testimony to the funding disadvantage posed by health department affiliation.

Manpower

Fully trained and experienced forensic pathologists are not universally available. In some areas of the United States, there are none. In other areas they are available only on a regional basis or in a centralized state facility. The Ontario Office of the Chief Coroner reports that it has two vacant positions for full-time salaried forensic pathologists and that this work is being done by a person on a temporary contract basis and on a fee-for-service basis. In addition the position of Chief Forensic Pathologist was not filled from 2001 to 2006 because of challenges in recruitment.⁷⁰ The ability to have a forensic pathologist or even a willing or interested and appropriately trained physician in every district and county in the country does not exist at present, and is not feasible in certain areas because of the various factors described above. As previously mentioned, Ontario has relatively few forensic

⁶⁹ http://www.portlandtribune.com/opinion/story.php?story_id=115982211581512800
Accessed September 30, 2007.

⁷⁰ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 at paras 43–44, 35.

pathologists based on the size of the population. As has occurred in many areas, Ontario has addressed this through a regionalized approach using Centres of Excellence.

In the United States, the average salary of a forensic pathologist is less than \$150,000 per year even for some Chief Medical Examiners. This is far below the entry-level salary of the average pathologist and about half the average of an experienced pathologist.⁷¹ This fact surely accounts for difficulty in recruiting pathologists into the field of forensic pathology. The highest paid medical examiners have salaries far below the average pathologist's salary. From Ontario's standpoint, this information could be viewed positively in that forensic pathologists are relatively inexpensive compared with other physicians, probably due to their commitment to public service and the fact that many are government employees. The Office of the Chief Coroner of Ontario reports that the salaries that it provides for forensic pathologists are considerably lower than those provided to hospital pathologists and/or those who provide forensic pathology services on a fee-for-service basis.⁷²

Ontario could probably benefit by comparing the amount of money spent on physician coroners with the amount spent on forensic pathologists. It may be feasible to hire less expensive lay personnel to fulfil some of the coroner's duties and to apply any savings toward the hiring of additional and fully trained forensic pathologists. A pathologist in Ontario is currently paid \$1,000 on a fee-for-service basis for performing an autopsy and \$1,350 for complex autopsies, including pediatric autopsies.⁷³ Coroners are paid a \$300 investigation fee with a night premium of \$65.68. Both coroners and pathologists are paid \$650 per day for testifying at inquests, and coroners are paid \$1,000 for a full day presiding at an inquest.⁷⁴

Political

⁷¹ http://www.allied-physicians.com/salary_surveys/physician-salaries.htm
Accessed September 30, 2007.

⁷² Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 at para 43.

⁷³ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 Appendix H.

⁷⁴ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 Appendix H and I.

Coroners, as elected officers in the United States, have political ties. They exist on a grassroots level. To abolish a coroner system could require the support of other elected officials, who are sometimes reluctant to abolish other elected offices. Also, most coroners are authorized or required by law to hold inquests that involve jurors and the public, and some argue that this public involvement is essential to the integrity of the death investigation process. Others are more skeptical of jury-based systems when deciding cause or manner of death issues. In a number of counties, conversion to a medical examiner system has followed adverse publicity or legal proceedings involving the coroner's office, but the reverse has also happened, where a medical examiner system has reverted to a coroner system.

In general, medical examiner systems do not provide for inquests. However, this does not mean that the system is disinterested in public health and safety concerns such as risk factors for infant or other premature deaths. The lack of inquest does not preclude studying such issues or addressing such concerns. The use of child fatality review teams is one way to address issues in a forum other than an inquest, and this forum may perhaps be more effective because professionals are involved in these reviews.⁷⁵ The same principles of formal review teams can be applied to other types of deaths, such as deaths among the elderly.⁷⁶

Umbrella/Parent Organizations⁷⁷

Coroner and medical examiner systems are organized under various governmental bodies in the United States. Of course, elected coroners typically serve on the county level, and their budgets are usually determined by the governing board or executive of the jurisdiction. The overseeing agency or entity for appointed medical examiners varies among the states and within some states. There is an often-discussed philosophy that medical examiner systems should not be administratively within law enforcement or prosecutorial agencies because of potential conflicts of interest. That being said, there

⁷⁵ <http://www.dss.mo.gov/stat/mcfrp.htm>
Accessed September 30, 2007.

⁷⁶ <http://www.ican-ncfr.org/hmElderAbuseFatality.asp>
Accessed September 30, 2007

⁷⁷ National Association of Medical Examiners Survey #14. Administrative Reporting of Medical Examiner Offices. August, 2007. Atlanta, Georgia.

are some systems with such ties and, in fact, funding issues have resulted in some medical examiner systems moving to a law enforcement umbrella because law enforcement agencies often are better funded than other governmental entities such as health departments.

In the United States, a recent survey demonstrated that of 139 medical examiner systems, the “parent organizations” were as follows:

County Supervisors or Board of Commissioners	45
Health Department (or equivalent) Director or Subordinate	22
County Manager or Executive	14
Medical Examiner Commission (or equivalent)	13
Attorney General or State Attorney	7
Mayor	6
State Justice Department	4
Pathology Department Chairman	4
Sheriff	3
Governor	2
Dean or Chair of Medical School	2
Public Safety Department	2
Highway Patrol	1
State Bureau of Investigation (5 offices in one state)	1
District Attorney/Prosecutor	1
Director of Public Protection	1
University	1
Hospital Medical Director	1
Other/Unclear/Unknown/Combination	9*

*This includes things such as “elected coroner,” and combinations.

Reporting to the following entities occurred in the following numbers of states, provinces, or other geopolitical areas:

County Supervisors or Commission	16
Health Department	15
County Manager	8
Medical Examiner Commission (or equivalent)	7
Attorney General	7
Chairman of a Pathology Department	4
Mayor	4
State Department of Justice	2
Sheriff	2
Dean or Chair of Medical School	2
Governor	2
Forensic Science Lab	1
State Bureau of Investigation	1
Highway Patrol	1
District Attorney/County Prosecutor	1

Thus, it can be seen that most systems have stayed clear of organization within law enforcement or prosecutorial agencies, although exceptions occur. Most states that have a State Medical Examiner (equivalent to a Provincial Coroner) are organized within health departments, attorney-generals (which may be prosecutorial but are one step removed from the police), justice departments, or under the aegis of a medical examiner commission. The fact that the Ontario coroner system is administered through the Ministry of Community Safety and Correctional Services does give it a quasi-law enforcement tie, but this is less apparent or potentially adverse than would organization within a specific police agency, recognizing that the Ministry also includes the Ontario Provincial Police. However, death investigation is a necessary, regular, and important endeavour. Consideration should be given to housing the Ontario death investigation system within its own independent agency. Doing so may not be feasible, but the idea is worth further consideration. If a new independent agency cannot be established, perhaps further independence could be enabled by establishing a board, council, or commission within the Ministry. If death investigation must remain under a Ministry with other missions, putting potential funding problems aside, the Ministry of Health would be a reasonable place because public health agencies

typically include programs related to injury prevention and control, violence, and conditions that cause morbidity and mortality, each of these being directly relevant to death investigation.

Inquests

A major distinction between medical examiner and coroner systems is that coroners are usually authorized, as in Ontario, to hold inquests while medical examiners are not. An inquest usually (but not always) involves the assembly of a jury to hear facts and to draw conclusions about the cause and circumstances of death.

A common concern about inquests is that death investigations can be complex and involve medical issues, and that a lay jury may not render appropriate verdicts, especially when only a majority vote is required. A second concern is that the existence of a jury may result in some subjectivity rather than objectivity, especially when persons on the jury may have known the decedent and not wish to harm the decedent's or family's reputation. A third consideration is that inquests require the time of multiple people and expenditure of funds. A fourth consideration is that the recommendations of a coroner's inquest are not enforceable. A major positive aspect of an inquest is that it provides a mechanism to gather facts, present evidence, and to hear witness and other types of testimony in a public forum.

Inquests were the topic of a panel discussion held at the Interim Meeting of the American Academy of Forensic Sciences held in New York City in February 1997, at which discussion occurred as to whether a coroner or medical examiner system better serves the public, and whether medical examiner systems were handicapped by not being able to hold public inquests.⁷⁸ Discussion also took place as to whether elected or appointed officials were more subject to political pressure. Of course, Ontario coroners are appointed so that issue is moot. Potential conflicts of interest were cited for appointed medical examiners who were affiliated with and paid by a medical school. Most death investigation laws, such as those in Ontario, contain requirements that place some in-hospital deaths under the jurisdiction of the coroner or medical examiner. If the coroner, medical examiner, or forensic

⁷⁸ Wecht CH, Mills DH, Lee HC. Elected Coroner or Appointed Medical Examiner—What are the Strengths and Weaknesses of These Two Official Governmental Medicolegal Investigative Systems. American Academy of Forensic Sciences Annual Meeting Abstract Book. February 1997. Abstract D3. Page 82.

pathologists are on the medical school faculty and there are claims of negligence or malpractice against that medical school or any of its faculty or staff, there is a potential conflict of interest when the death investigation is conducted by faculty of the institution being sued. Provisions can be made to recuse such persons when such circumstances are known, but a problem can arise when legal issues surface after the investigation commences or has been completed, which is often the case. Another way to diffuse the problem is to ensure that death investigations are conducted in an office where the coroner, medical examiner, or forensic pathologists are not on the staff of the involved medical school or hospital. That would require advance arrangements and policy that may not be practical because in-hospital deaths are relatively common.

Major discussion occurred about the duties of both medical examiners and coroners to go beyond cause and manner of death determination and to speak out and address issues that have potential ramifications on public health, safety, and well-being, and whether the coroner has a stronger and more capable “bully pulpit” from which to act. It was further noted that coroners often have access to independent solicitors to assist them, while medical examiners may need to rely upon attorneys working for the same governing body that employs the medical examiner, posing potential conflicts. Many other issues were also raised and no definitive conclusions were drawn.

It is commonplace for medical examiners and coroners to have subpoena power to produce necessary records, documents, and witnesses. This evidence can be reviewed by professionals without holding an inquest. There are few, if any, laws that prohibit a medical examiner from making public statements or even revealing the nature of certain documents, evidence, other facts, witness accounts, or testimony. Thus, the added value of an inquest comes into question. In Ontario, the holding of an inquest is at the coroner’s discretion except for deaths of persons in custody and deaths due to work-related accidents in construction or mining settings. These regulations do not result in large numbers of inquests so whether or not inquests should be held at all is not a major issue. A reasonable approach would be maintain the ability to hold inquests, but to keep their occurrence to an absolute minimum. The fact that inquest jury verdicts are not legally binding provides alternatives when a jury’s verdict does not seem appropriate.

The inquest is not necessarily needed as long as there is some mechanism of administrative remedy through which a concerned public can challenge medical examiner decisions or have their concerns formally addressed in a public or governmental forum. A medical examiner commission or oversight body could provide such a vehicle, recognizing that such commissions are not without occasional controversy.^{79,80}

A recent report of the Ontario Chief Coroner indicates that there were 57 inquests held in 2004 and that 81% of those inquests were essentially required because of deaths in custody, mining or similar situations, or construction-related deaths.⁸¹ Utilization of the discretionary inquest is relatively infrequent and the burden of inquests is relatively low, overall, with there being about one inquest held per week, on average, in Ontario. Thus, the question of whether to continue to hold inquests may relate more to philosophical issues than practical ones. An interesting question is whether the inquests resulted in any information, actions, or policy, procedure, regulatory, or statutory changes that could not have been effected without an inquest.

Numerous articles have appeared that discuss the value and limitations of the coroner's inquest, and only a few are cited here as examples.^{82,83,84} The discussion above addresses the most important issues relating to inquests.

⁷⁹ Florida Medical Examiners Commission. Available at: <http://www.fdle.state.fl.us/cjst/mec/index.html>
Accessed September 15, 2007.

⁸⁰ WTSP. Stephen D. Price. Embattled Medical Examiner Fights for Job. Available at: <http://www.tampabay.com/news/state/article.aspx?storyid=60198>
Accessed September 15, 2007.

⁸¹ Office of the Chief Coroner. 2004 Report on Inquests. Available at: <http://www.tampabay.com/news/state/article.aspx?storyid=60198>
Accessed September 15, 2007.

⁸² Mellen PF, Bouvier EC. Nineteenth-century Massachusetts coroner inquests. *Am J Forensic Med Pathol.* 1996;17(3):207-210.

⁸³ Burton J. Is there any future for inquests and inquiries? *Med Leg J.* 1999;67:91-105.

⁸⁴ Dyer C. Coroners will deliver fuller verdicts after inquests. *BMJ.* 2003;326:1284.

Similarities and Differences of Coroner and Medical Examiner Systems

The similarities, differences, relative merit, and limitations of coroner and medical examiner systems have been discussed for decades.⁸⁵ For the purposes of this section, focus will be on the features of Ontario coroners who are required by law to be physicians, and who are appointed. A major criticism of coroner systems elsewhere is that coroners are elected and, in many areas, need not be physicians or have education greater than a high school equivalent. Such problems are not relevant in Ontario, and issues of politics, term limits, running unopposed, and loss of accumulated expertise when defeated in an election need no further mention.

Common Deficiencies

A significant deficiency common to physician coroners and medical examiners is that few have been formally trained in leadership, management, and business administration skills. Most have gathered

⁸⁵ National Research Council. Bulletin of the National Research Council, No. 64. The Coroner and the Medical Examiner. Washington, DC. 1928.

National Research Council. Bulletin of the National Research Council, No. 87. Possibilities and Need for Development of Legal Medicine in the United States. Washington, DC. 1932.

National Conference of Commissioners on Uniform State Laws. Model Postmortem Examinations Act. Chicago, Illinois, 1954. Available at:
<http://www.cdc.gov/epo/dphsi/mecisp/post-mortem.htm>
Accessed September 15, 2007.

Institute of Medicine. Medicolegal Death Investigation System: Workshop Summary. The National Academies Press. Washington, DC. 2003.

Curphey TJ. A comparison between the medical examiner's system and the coroner system in the United States. *Med Leg J.* 1951;19:129-135.

Turkel HW. Merits of the present coroner system; statistical comparison with the medical examiner system. *JAMA* 1953;153:1086-1092.

Fisher RS. Coroner vs. medical examiner system. *Am J Clin Pathol* 1956;26:519-521.

Childs RS. The passing of lay coroners. *J Forensic Sci* 1974;19:8-12.

Cordner SM, Loff B. 800 years of coroners: have they a future? *Lancet* 1994;344:799-801.

Pounder D. The coroner service. A relic in need of reform. *BMJ.* 1999;318:1502-1503.

Freckleton I. Coronial law reform: the new wave. *J Law Med* 2006;14:151-155.

whatever skill they have in these areas through experience, trial and error, self-study, or special course work. When physician coroners and medical examiners lose their jobs, seldom is it due to issues of competence. Rather, the reasons cited by those firing them relate to office administrative issues, sloppy practices, or not getting the work done in a timely manner. Recent events in the United States serve as prime examples of this problem, and some offices have developed plans that emphasize the need for administrative expertise.⁸⁶ For example, in the recent termination of the Massachusetts medical examiner, rightly or wrongly, lack of policy, procedure, and management skills were cited among the reasons for termination.⁸⁷ A reasonable approach would be to give preference to qualified coroner candidates who have a master's of business administration or demonstrable skills in leadership, management, and administration. At some point, these could become requirements to hold office. Regardless, the coroner needs to have competent administrative professionals at hand.

Another common deficiency among coroners and medical examiners is insufficient supply of fully trained and qualified forensic pathologists. As discussed earlier, neither the United States nor Canada (and especially Ontario) are producing an adequate supply of forensic pathologists to meet current needs.⁸⁸ Forcing a death investigation system to use under- or non-qualified forensic pathologists can lead to many problems that can adversely impact on justice and the public welfare, health, and safety. Strategies are needed to train and recruit more forensic pathologists to work in Ontario. This could include, but not be limited to, the funding (subsidizing) of training and the development of accredited training programs in Ontario.

⁸⁶ Executive Office of Public Safety, Commonwealth of Massachusetts. Preliminary Findings and Recommendations—Office of Chief Medical Examiner. Vance, Braintree, Massachusetts. July 24, 2007.

Government of the District of Columbia. Office of the Chief Medical Examiner. Strategic Business Plan, FY 2004–2005. August 25, 2004.

⁸⁷ http://www.usatoday.com/news/topstories/2007-08-03-451018443_x.htm
Accessed September 30, 2007.

⁸⁸ Hanzlick R, Prahlow JA, et al. Selecting forensic pathology as a career: a survey of the past with an eye on the future. *Am J Forensic Med Pathol*. In Press.

National Association of Medical Examiners. Forensic Pathology Fellow Survey 2007–2008. Atlanta, Georgia.

A third common deficiency is that most medical examiner and coroner offices are marginally funded. This results in an inability to attract fully qualified people, and can also have a directly adverse impact on the quality and scope of services provided. Governing bodies tend to give priority to services for living people, failing to recognize that death investigation activities also impact on citizens through the detection of public health and safety risks, evaluation of medical errors and complications or diagnostic and therapeutic procedures, the identification of familial or heritable conditions, and the outcome of civil and criminal legal proceedings. A strategy needs to be developed to emphasize the importance and impact death investigation has in regard to living people. An important point is that the death investigation system should not be funded through a ministry or agency that has huge financial obligations, programs, and political pressures that dominate policy and management decisions, such as those related to the provision of health care. An option might be to fund death investigation as an independent agency and free it from these constraints.

A fourth common deficiency is that coroners and medical examiners are subject to political pressures and agendas. Whether elected or appointed, each is ultimately responsible to some governing body that has elected politicians in charge. The appointed nature of Ontario coroners makes them less likely to be concerned about the opinions of the electorate they serve, but they remain subject to political pressures and issues. Establishing a separate and autonomous agency for death investigation could remove some such pressures and concerns.

A fifth common deficiency is that coroners and medical examiners often lack ready access to specialists in the areas of cardiac pathology, neuropathology, and pediatric pathology. Qualified assistance is also required when investigating deaths involving anesthesia. Such experts are often reticent to review or get involved in cases because they do not want to go to court or be deposed. A plan must be developed to ensure that such experts are willing and available to serve when needed. Providing funds for such experts will facilitate the process. As previously mentioned, few people have forensic pathology boards and additional subspecialty boards, and there is no board certification in cardiac pathology.

Similarities

Ontario coroners are physicians and they are appointed. Thus, they essentially serve in a capacity similar to many “medical examiners” in the United States. In some states, such as Michigan and Virginia, and in New York City among other places, “medical examiners” are not necessarily forensic pathologists and they may not perform autopsies. Rather, they serve as a local assistant or they actually are in charge of the local death investigation system much like an elected coroner would be. Thus, the Ontario coroner system is not unlike medical examiner systems in some areas of the United States. Only the title of “coroner” is different. It would be feasible to simply change the “Ontario Coroners Act” to the “Ontario Medical Examiners Act” and to re-title the various appointees accordingly to Chief Medical Examiner, Regional Medical Examiner, and so forth. Because the coroners are physicians, this seems like an appropriate option and it rids the system of the ongoing stigma of coroners and the associated philosophy that they are an outdated anachronism. Major questions, however, are whether physician coroners are worth the cost and whether money might be better spent on providing more qualified forensic pathologists in the death investigation system.

A second similarity is that Ontario coroners, like medical examiners in the United States, complete death certificates and certify the deaths they investigate. As physicians, the Ontario coroners have the requisite medical knowledge needed to sign death certificates that involve medical conditions. This gives them great advantage over the traditional elected lay coroner.

A third similarity is that both coroners and medical examiners have a duty to report certain types of deaths to entities such as health departments, consumer safety organizations, statistical agencies, and other registries or agencies that collect information about certain causes of death. The duties go beyond simple determination of the cause, manner, and circumstances of death and put the coroner or medical examiner in a position of being the public’s physician.

A fourth similarity is that coroners and medical examiners are each likely to become involved in criminal or civil legal proceedings that result from an investigated death. In the coroner system, however, it is likely that the coroner and his/her pathologist will be called to trial. In the medical examiner system, there is no coroner to be called and one person generally can address the issues that arise. The current Ontario coroner system sets the stage for having multiple people be involved in a trial when one might suffice.

Differences

The major difference between an Ontario coroner and the traditional, typical medical examiner in the United States is that Ontario coroners are not required to be pathologists. They need not have autopsy experience or have any special knowledge of pathology.⁸⁹ In the United States, most “medical examiners” in the true sense of the term are pathologists and often forensic pathologists who have subspecialty training in death investigation and the performance of medico-legal autopsies. It may be desirable to make pathologist status preferable when appointing coroners and eventually, if feasible, require forensic pathologist status to be eligible to be appointed as coroner. Because of supply and demand issues, such a scheme would probably take many years, especially since there are 9 regional supervising coroners, and 329 investigating coroners in the province, 65 of whom are also Inquest Coroners.⁹⁰ A starting goal could be to require the Chief, Deputy Chief, and Regional Coroners to be forensic pathologists. As discussed above, one problem is the availability of trained forensic pathologists. Even in Alberta, Manitoba, Nova Scotia, and Newfoundland, where medical examiner systems have been developed, only the latter requires that the person appointed as Chief Medical Examiner have “training and experience in forensic pathology.”⁹¹

Of course, as discussed above, Ontario coroners can hold inquests and medical examiners typically cannot. However, even if the Ontario coroners were re-titled as medical examiners, there is nothing to prevent the law from allowing Ontario medical examiners to hold inquests.

Desired Scope of Investigation

⁸⁹ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 at para 73.

⁹⁰ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 at para 19.

⁹¹ *Fatality Inquiries Act* R.S.A 2000 c. F-9, ss.5, 7; *Fatality Inquiries Act* C.C.S.M. c.F52 s.2. *Fatality Inquiries Act* R.S. N.S. c.164 ss.2, 3.

Fatalities Investigation Act S.N.L. 1995 c.F-6.1 s.3.

The Ontario Coroners Act requires that certain types of death be reported to, and investigated by, the coroner. The list of such deaths follows, and the list is consistent with the United States Model Postmortem Examinations Act of 1954, which put forth guidelines for the establishment of quality coroner and medical examiner systems.⁹²

The following types of death must be reported to and investigated by the coroner:

- Violence
- Misadventure
- Negligence
- Misconduct
- Malpractice
- Unfair means
- During or following pregnancy in which death may be due to complications
- Sudden and unexpected
- Disease or sickness not being treated by a legally qualified medical practitioner
- From any cause other than disease
- Other circumstances as may require investigation
- Inpatients of designated institutions such as charitable institutions, children's residences, developmental services facilities, psychiatric facilities, mental hospitals, or hospitalized patients transferred from such facilities
- Deaths of prison inmates or in custody of law enforcement
- Work-related accidents at construction or mining areas

Further, the following types of deaths must be reported to and are then investigated at the discretion of the coroner:

- Residents of homes for the aged and nursing homes

⁹² National Conference of Commissioners on Uniform State Laws. Model Postmortem Examinations Act. Chicago, Illinois, 1954. Available at:
<http://www.cdc.gov/epo/dphsi/mecisp/post-mortem.htm>
Accessed September 15, 2007.

These requirements are very similar to high-quality death investigation laws in some areas of the United States. They do impose a potentially demanding workload because of their wide scope. The requirement to investigate deaths involving misadventure, negligence, misconduct, and malpractice requires that necessary expertise be available to the coroner because the quality of medical care is being investigated and such investigations can be very demanding and complicated.

Not addressed in the Coroners Act is the extent to which scene investigation needs to be conducted or the extent to which autopsy and related tests are performed. These issues will be discussed below under “Potential Applications of Professional Standards and Guidelines.” It is a good goal and practice to ensure that the coroner or his/her representative at least views the body of all deaths to be certified, recognizing that this is not always possible. It is also good practice to attend the scene of all investigated deaths when the body is at the scene, and to attend the incident scene even if the body does not remain in instances such as unexplained infant deaths, workplace deaths, and other selected types of death in which circumstances are not clear. It will not be practical for forensic pathologists to attend all death scenes simply because there will not be enough pathologists available for many years to come. In the meantime, the best practical solution is to have scene investigation conducted by the physician coroners or trained medico-legal death investigators whom they supervise. Perhaps there could be fewer physician coroners, with their scene investigation duties replaced by those of medico-legal death investigators, which might be less expensive. It should be a goal, however, to develop strategies that enable a forensic pathologist to attend scene investigations when needed.

Roles of the Medical Examiner/Coroner

Whether or not the death investigation system is headed by a coroner or a medical examiner, certain basic functions need to be ensured.⁹³ These include:

⁹³ National Association of Medical Examiners Forensic Autopsy Performance Standards. Available at: <http://files.orainc.com/files/Standards10-16-06.pdf>
Accessed September 15, 2007.

CDC. Sudden unexplained infant death investigation: a systematic training program for the professional infant death investigation specialist. CDC. Atlanta, Georgia. 2007.

National Institute of Justice. Death Investigation: A guide for the scene investigator. National Institute of Justice, Washington, DC. 1999. Available at: <http://www.ncjrs.gov/pdffiles/167568.pdf>

- Scene investigation
- Ability to obtain and review needed medical and other records
- Ability to perform quality autopsies
- Ability to obtain needed laboratory tests
- Determination of cause and manner of death
- Clarification of the circumstances of death
- Certification of death
- Provision of quality cause-of-death information to vital statistics registrars so accurate and complete mortality statistics can be prepared
- Reporting of notifiable conditions to the health department
- Surveillance for bio- and chemical terrorism agents
- Surveillance for emerging infectious disease of public health import
- Collection and preservation of evidence
- Production of quality reports
- Provision of quality testimony in legal proceedings
- Alerting of government agencies concerned with public health, public safety, and workplace safety
- Reporting of fatal drug abuse patterns
- Providing feedback to assess the quality of medical care

The Ontario Coroners Act includes provisions that either explicitly or implicitly enable the above roles to be fulfilled, or at least the law does not preclude their execution. The major issues have to do with the qualifications, training, and experience of those people who are expected to assume various roles and perform specific job duties.

Accessed September 15, 2007.

College of American Pathologists. Prhalow J (ed). Basic Competencies in Forensic Pathology: A forensic Pathology Primer. College of American Pathologists. Northfield, Illinois. 2006.

Clark S, Ernst MF, Haglund W, Jenzten J. Medicolegal Death Investigator. Occupational Research and Assessment, Inc. Big Rapids, Michigan.

On a broader note, the roles of the medical examiner and coroner include activities that are not only important to the criminal justice system, but to public health, public safety, homeland security, quality of medical care, and education and research.⁹⁴

Potential Applications of Professional Standards and Guidelines

Inspection and Accreditation

The National Association of Medical Examiners (NAME) conducts an Inspection and Accreditation program for medico-legal death investigation offices.⁹⁵ An office must meet certain standards in order to receive full accreditation. The Inspection Checklist contains more than 300 items with which compliance is expected. If an inspection criteria is not met, either a Phase I Deficiency or Phase II Deficiency is assigned. Phase II deficiencies are serious and having even one precludes full accreditation. A number of Phase I deficiencies may exist but there must be demonstrated effort to correct such deficiencies.

The office desiring to undergo inspection and accreditation is provided with inspection policies and procedures as well as the full Inspection Checklist that the office is required to complete and submit to NAME. An assigned Inspector then reviews the material prior to on-site inspection. At the time of

⁹⁴Hanzlick R. *Death Investigation: Systems and Procedures*. CRC Press. Boca Ration, Florida. 2007.

Wecht CH, Weedn VW. Forensic Pathology. In: Wecht CH, Rago JT. *Forensic Science and the Law*. CRC Taylor and Francis. Boca Raton, Florida. 2006. Pages 387–399.

Hanzlick R. Medical Examiners, Coroners, and Public Health: A Review and Update. *Arch Pathol Lab Medicine* 2006; 130:12744–1282.

Hanzlick R, Parrish RG. Epidemiologic aspects of forensic pathology. *Clinics in Laboratory Medicine* 1998;18:23–37.

Hanzlick R, Parrish RG. The use of medical examiner/coroner data in public health surveillance and epidemiologic research. *Annual Review of Public Health* 1996;17:383–409.

⁹⁵ National Association of Medical Examiners Inspection and Accreditation Policies, Procedures, and Checklist. Available at: http://thename.org/index.php?option=com_content&task=view&id=71&Itemid=69 Accessed September 15, 2007.

actual inspection, the Inspector then completes his/her own Inspection Checklist after reviewing office operations and required policies, procedures, and other documentation. An office may then be denied accreditation, provisional accreditation, or full accreditation. Inspection is required every five years to maintain full accreditation. An inspection fee of \$2,500 is charged and the fee covers inspector travel and expenses. When a death investigation system contains multiple offices as may occur with district or regionalized offices, some provisions can be made to inspect the system as one “office” rather than multiple offices.

It is important to realize that the Inspection and Accreditation process applies to office practices, policies, procedures, and facilities, not to the professional practices of individual practitioners or staff. Performance Standards have been developed for that purpose and are discussed in the next section.

A general outline of topics addressed within the Inspection and Accreditation Checklist is shown below.

1. Facilities

- A. Body Handling Areas
- B. Autopsy Suites
- C. Administrative Space
- D. Storage Space
- E. Radiologic Facilities
- F. Histologic Laboratory Space
- G. Toxicologic Laboratory Space
- H. Maintenance
- I. Security

2. Safety

3. Personnel

- A. Medical Examiners
- B. Toxicologists
- C. Consultants
- D. Medical Investigators

- E. Other Personnel
- 4. Notification, Acceptance of, and Declining of Cases
- 5. Investigations
 - A. Scene Investigations
- 6. Body Handling
- 7. Postmortem Examinations
- 8. Identification
- 9. Evidence & Specimen Collection
 - A. Toxicology Specimens
 - B. Evidence Collection from Scenes
 - C. Chain of Custody
- 10. Support Services
 - A. Photography
 - B. Radiology
 - C. Histology
 - D. Toxicology
 - E. Clinical Chemistry
 - F. Microbiology
 - G. Criminalistics/Forensic Science Exams
 - H. Consultations
- 11. Reports and Records
 - A. Investigative Reports
 - B. Death Certificates
 - C. Reports of Postmortem Examinations
 - D. Consultation & Laboratory Reports
 - E. Annual Statistical Reports
 - F. Records Keeping
 - G. Release of Information
 - H. Organ and Tissue Donations
- 12. Mass Disaster Plan
- 13. Performance Improvement

- A. Professional Credentials & Privileges
- B. Training and Continuing Education
- C. Performance Evaluation & Monitoring

According to the National Association of Medical Examiners (NAME), there have been no coroner offices in Ontario that have been inspected and accredited by NAME. The OCCO has acknowledged that “[b]ased on inspection of the NAME accreditation standards it does not appear that we would have any chance of passing.”⁹⁶

Forensic Autopsy Performance Standards

NAME has also developed Forensic Autopsy Performance Standards.⁹⁷ These Standards were developed through a consensus approach and represent what are considered to be components of minimally acceptable forensic pathology practice. They apply to the professional practice of individual practitioners. The items covered within the Standards are shown below.

Medicolegal Death Investigation

- Responsibilities
- Initial inquiry

Forensic Autopsies

- Selecting deaths requiring forensic autopsies
- Forensic autopsy performance
- Interpretation and opinion

Identification

- Standard identification procedures
- Procedures prior to disposition of unidentified bodies

⁹⁶ Information supplied by the OCCO November 28, 2007.

⁹⁷ National Association of Medical Examiners Forensic Autopsy Performance Standards. Available at: <http://files.orainc.com/files/Standards10-16-06.pdf>
Accessed September 15, 2007.

External Examinations: General Procedures

- Preliminary procedures
- Physical characteristics
- Postmortem changes

External Examination: Specific Procedures

- Suspected sexual assault
- Injuries: General
- Photographic documentation
- Firearm injuries
- Sharp force injuries
- Burn injuries
- Patterned injuries

Internal Examination

- Thoracic and abdominal cavities
- Internal organs and viscera
- Head
- Neck
- Penetrating injuries including gunshot and sharp force injuries
- Blunt impact injuries

Ancillary Tests and Support Services

- Radiology
- Specimens for laboratory testing
- Histological examination
- Forensic pathologist's access to scientific services and equipment
- Content of toxicology laboratory report
- Evidence processing

Documentation and Reports

- Postmortem examination report

In addition, some state associations such as the Florida Association of Medical Examiners have developed their own forensic pathology practice guidelines.⁹⁸

Pediatric Forensic Pathology

Recently, the Centers for Disease Control and Prevention has developed new forms, procedures, and a training curriculum for the investigation of sudden unexplained infant deaths.⁹⁹ The topics covered in these training materials include:

- Types of sudden, unexplained infant deaths
- Infant growth and development
- Interviewing psychology
- Interviewing and investigative data collection
- Conducting witness interviews
- Conducting scene investigations
- Conducting doll reenactment
- The pre-autopsy investigative report
- Certification of unexplained infant deaths
- Report forms
- The “Top 25” investigative questions needing to be addressed

Autopsy protocols and practice guidelines also exist for infant and pediatric autopsies, but they are not in uniform or widespread use because they are often considered to be excessive in detail.¹⁰⁰ Some states such as California have also developed a “mandated” protocol but compliance in usage varies.

⁹⁸ Florida Association of Medical Examiners Practice Guideline for Forensic Pathology. Available at: http://fameonline.org/index.php?option=com_docman&task=cat_view&gid=41&Itemid=47
Accessed September 15, 2007.

⁹⁹ CDC. Sudden unexplained infant death investigation: a systematic training program for the professional infant death investigation specialist. CDC. Atlanta, Georgia. 2007.

¹⁰⁰ Bove KE and the Autopsy Committee of the College of American Pathologists. Practice guidelines for autopsy pathology: the perinatal and pediatric autopsy. *Arch Pathol Lab Med* 1997;121:368–376.

Although pediatric pathology was discussed above, it is worthy of mention that there are only 25 accredited pediatric pathology training programs in the United States—fewer than there are forensic pathology training programs—and the Royal College of Physicians and Surgeons of Canada has no information on pediatric pathology training in Canada.¹⁰¹

Presently, pediatric forensic autopsies are paid for on a per case fee of \$1,350¹⁰² and the Office of the Chief Coroner provides \$200,000 per year to a pediatric forensic unit in Toronto's Hospital for Sick Children.¹⁰³

The Ontario Office of the Chief Coroner reports that in criminally suspicious cases, only forensic pathologists with pediatric forensic experience or a pediatric pathologist with significant forensic experience will perform autopsies.¹⁰⁴

An alternative and perhaps more cost-effective and scientifically sound approach would be to have such autopsies performed by the salaried forensic pathologists in conjunction with pediatric pathologists who would be available based on an annual consultation fee or, perhaps, a per-case fee.

If cases were appropriately selected, such as sudden deaths in which medical history is lacking and there is no obvious cause of death, or when findings suggest abuse or neglect, the number of cases

Byard RW, Kraus HF. International Standardized Autopsy Protocol. In: Sudden Infant Death Syndrome: Problems, Progress, and Possibilities. Arnold. London. 2001. Pages 319–333.

Armed Forces Institute of Pathology. Histopathology Atlas for the Sudden Infant Death Syndrome. Appendix A. Autopsy Protocol Form. AFIP. Washington, DC. 1993. Pages 303–307.

¹⁰¹ Accreditation Council for Graduate Medical Education. Available at: <http://www.acgme.org/adspublic/>
Accessed September 15, 2007.

Royal College of Physicians and Surgeons of Canada. Information by Specialty or Subspecialty. Available at: <http://rcpsc.medical.org/information/index.php>
Accessed September 15, 2007.

¹⁰² Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 Appendix H.

¹⁰³ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 Appendix G.

¹⁰⁴ Office of the Chief Coroner of Ontario *Institutional Report* November, 2007 at para 164.

requiring joint effort could be minimized. Deaths due to obvious causes and circumstances such as traffic fatalities, gunshot wounds, or other unintentional injuries could be handled solely by the forensic pathologists. Such an approach would require the pediatric pathologists to be involved only in forensic cases with suspicion of foul play or without an obvious cause of death. The medical, non-forensic pediatric cases could be handled solely by the pediatric pathologists outside of the coroner's system.

Other Helpful Aids

NAME has also developed several other documents that can be used to guide death investigation practice. These have taken the form of white papers, position papers, and guidelines that are available at www.thename.org or from the NAME Home Office. The topics include:

- A Guide for Manner of Death Classification
- A Functional Approach to the Investigation of Sudden Unexplained Infant Death
- Heat related deaths
- Cocaine related deaths
- Abusive head trauma in children
- Guidelines for the use of Pathology Assistants in Medical Examiner Offices
- A Guide for Contaminated Deceased Body Management
- Release of Organs and Tissues for Transplantation
- Surveillance for Infectious Disease or Bioterrorism
- Mass Fatality Plan

The Ontario death investigation system should have compliance with the above standards as a major goal and it should also use the other documents to develop guidelines, policy, and procedure for death investigation in Ontario. Adherence to standards and guidelines will, in some cases, require additional funding of the death investigation system.

Several articles have been published regarding death investigation in Ontario and Canada. Parai and co-authors examined the validity of the manner of death certifications in Ontario and found that death certifications were more often incorrect in some categories of death than others.¹⁰⁵ Young and Wagner reported that differing information processing capabilities between the Ontario Office of the Chief Coroner and Statistics Canada result in discrepancies in the manner of death statistics provided by the two agencies.¹⁰⁶ Gushue reported on the conversion to a medical examiner system in Newfoundland and improvements in clarity about death investigation procedures and responsibilities.¹⁰⁷ Avis surveyed the various death investigation systems in Canada and concluded that that on a per capita funding basis, medical examiner systems were less expensive than coroner systems.¹⁰⁸ The Ontario Coroner's Association has a website containing relevant information about Ontario Coroners and their organization.¹⁰⁹

Recommendations

Based on the information and discussion provided above, it is recommended that further consideration be given to the following suggestions, in the designated order of priority.

Highest Priority

- Work with the Royal College of Physicians and Surgeons to establish an accredited forensic pathology fellowship training program in Ontario that would meet the requirements of the United State's Accreditation Council on Graduate Medical Education and board qualification requirements of the American Board of Pathology for certification in forensic pathology.

¹⁰⁵ Parai JL, Krieger N, Tomlinson G, Adlaf EM. The validity of the certification of manner of death by Ontario coroners. *Ann Epidemiol* 2006;16:805–811.

¹⁰⁶ Young JG, Wagner JM. Speaking for the dead to protect the living: the role of the coroner in Ontario. *Health Rep* 1994;6:339–352.

¹⁰⁷ Gushue J. Newfoundland pathologist driving force as province finally adopts medical examiner's act. *CMAJ* 1996;154:561–563.

¹⁰⁸ Avis S. Death investigation in Canada. *J Forensic Sci.* 1988;43:377–379.

¹⁰⁹ Ontario Coroners Association. Available at: <http://www.ontca.ca/> Accessed September 15, 2007.

- Consider the development of a hybrid training program and board certification by the RCPSC that could lead to board certification in pediatric forensic pathology.
- Fund the training of Ontario pathologists in accredited forensic pathology training programs in the United States, or elsewhere, if available and comparable to programs in the United States, with the requirement that they become board-certified forensic pathologists and return to Ontario to practise.
- Develop strategies to encourage forensic pathology training and recruitment of forensic pathologists to Ontario from elsewhere.
- Develop strategies to encourage pediatric pathology training and recruitment of pediatric pathologists to Ontario from elsewhere. Priority should be given to training and recruitment of forensic pathologists but integration of qualified pediatric pathologist consultants is critical.
- Develop a policy that autopsies performed on infants and children be conducted by persons board certified in forensic pathology and pediatric pathology (or ensure that a forensic pathologist and a pediatric pathologist work together in the performance of such autopsies) when the death is suspicious, sudden, or unexpected, and not clearly from the onset of investigation due to already documented disease or obvious and explainable injuries (such as a motor vehicle fatality).
- Develop policy and procedure and provide funding to ensure that each death investigation office is compliant with NAME Inspection, Accreditation, and Autopsy Performance Standards, and that similar procedures and approaches to cases are utilized in each region.
- Use existing NAME publications and position papers to guide the development of policy and procedure to be used throughout Ontario.
- Increase per capita funding of the Ontario death investigation system to exceed the average per capita funding level that exists in the United States.
- Ensure that death investigation offices are staffed with qualified administrators who can assist in policy and procedure development, management, and further development of the death investigation offices and systems through implementation of recommendations such as these.

Second-Level Priority

- For medical examiner (or coroner) positions, give preference to those who are board certified in forensic pathology, then to those who have had forensic pathology training or significant experience in forensic pathology. This will require time and recruitment strategies because of the current shortage of forensic pathologists not only in Canada, but elsewhere.
- Gradually raise the bar to require forensic pathology board certification of medical examiner/medico-legal autopsy pathologists.
- For Chief Medical Examiner (or Chief Coroner or the Chief position in regional Centres of Excellence), give preference to forensic pathologists who have education and skills in business administration or proven leadership and administrative skills in a death investigation office. At the very least, ensure that such people can hire trained and qualified subordinates with leadership and administrative skills to carry out directives of the Chief.
- Use the Centres of Excellence and develop them further to become formal “regional offices” staffed by fully qualified forensic pathologists. Funding, which has remained constant since 2000, may need to be increased to attract qualified forensic pathologists.
- Ensure that the Centres have access to skilled legal counsel who are knowledgeable in death investigation laws and issues. Legal issues surrounding casework, office policies, interpretation of death investigation and other laws, release of records and investigative information, retention of specimens, personnel problems, errors of omission or commission, and access to needed records often arise and skilled legal counsel can be invaluable in addressing problems and avoiding unnecessary problems.

Third-Level Priority

- Create an independent agency for Medico-legal Death Investigation to be free-standing from other governmental agencies with its own specific budget. Require the head of this agency to be a board-certified forensic pathologist.
- If the agency must ultimately be responsible to a Ministry, the Ministry should be other than a law enforcement or prosecutorial agency, or, it could be parallel to such agencies within a Ministry but not report through the law enforcement or prosecutorial administration. Whether within law enforcement or outside of it, adequate funding needs to be ensured and not be sacrificed by other parent agency priorities.

- Re-title the Coroner position to “Medical Examiner” as has been done in other provinces, and make appropriate word changes to allow the Ontario Coroners Act to become the “Ontario Medical Examiners Act.”
- Create a Medical Examiner Commission to assist the death investigation agency and to serve as a route of administrative remedy for public complaints, concerns, and hearings, thus eliminating the need for inquests with jurors. The composition of this Commission should be multidisciplinary and include persons with public health, law enforcement, medical school, prosecutorial, defence, judicial, and funeral industry affiliations. At least one practising forensic pathologist and representative from the public should also be included.
- Develop a tiered system for the province with a Chief Forensic Pathologist or Chief Medical Examiner overseeing all operations. Reporting to the Chief would be forensic pathologist Regional Medical Examiners who would oversee the regional Centres for Excellence that serve well-defined jurisdictions. Medical Examiners would be forensic pathologists whose primary duties are the performance of forensic autopsies with little or no administrative or management duties. Physician Investigators would be physicians who attend and investigate death scenes and otherwise assist with investigations but do not perform autopsies. Death Investigators could consist of lay investigators formally trained, registered, or certified to conduct investigations locally, following the model of the American Board of Medicolegal Death Investigators (ABMDI).¹¹⁰

¹¹⁰ American Board of Medicolegal Death Investigators. Available at: <http://www.slu.edu/organizations/abmdi/>
Accessed September 15, 2007.