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# The Science and Culture of Forensic Pathology

The cases we examined at the Inquiry and from which many of our systemic lessons were drawn all involved the criminal justice system in some way. In a few, there was a criminal investigation but no criminal charge. Others proceeded to a criminal charge and some beyond that, to a preliminary hearing or trial. In each case, there had been the death of a young child and an autopsy done by a pathologist under a coroner's warrant. To allow a proper understanding of what happened in these cases, and what must be learned from them, I think it essential to provide at least a general overview of the relevant science: forensic pathology, and its subset, pediatric forensic pathology.

Forensic pathology is a branch of the field of medicine called pathology. Broadly speaking, pathology is the study of disease – of its causes and the ways in which disease processes affect the body.

A well-known medical textbook, *Robbins Basic Pathology*, describes pathology this way:

[I]t involves the investigation of the causes (*etiology*) of disease as well as the underlying mechanisms (*pathogenesis*) that result in the presenting signs and symptoms of the patient. Pathologists use a variety of molecular, microbiologic, and immunologic techniques to understand the biochemical, structural, and functional changes that occur in cells, tissues, and organs. To render diagnoses and guide therapy, pathologists identify changes in the gross or microscopic appearance (*morphology*) of cells and tissues, and biochemical alterations in body fluids (such as blood and urine).<sup>1</sup>

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<sup>1</sup> Vinay Kumar et al., *Robbins Basic Pathology*, 8th ed. (Philadelphia: Saunders Elsevier, 2007), 1.

As this quotation suggests, the objective of much of pathology is to serve patients by providing an important diagnostic step along the way to treatment and cure or control. In colloquial terms, this is often described as clinical pathology.

The route to forensic pathology is through one of two kinds of pathology: general or anatomical. General pathology is, as its name implies, concerned with all aspects of the laboratory investigation of disease. It incorporates techniques from the other laboratory sciences and pathology specialties, such as anatomical and hematological pathology. Anatomical pathology is more specific. It involves one particular kind of investigation: the study and diagnosis of disease based on the gross, microscopic, and molecular examination of organs, tissues, and whole bodies (as in an autopsy).

Although considered a subspecialty of both general and anatomical pathology, forensic pathology operates on an entirely different paradigm from clinical pathology. Its purpose is to assist the state in finding out why its citizens die. It is concerned with the examination of the dead body for forensic purposes. In forensic pathology, there is no patient. Rather, the medical dimension of forensic pathology involves the study of disease and injury in a deceased person using the basic principles and methodologies of pathology to determine, if possible, the cause of death, and to address the timing of injuries or other medical issues that help explain the death. Its legal dimension is to assist the state's legal systems, most importantly, the criminal justice system, to understand how the death occurred by explaining the relevant pathology.

To put this in practical terms, forensic pathology typically involves the performance of a post-mortem examination, also called an autopsy, which entails the dissection of the body, an examination of organs and tissues, and ancillary investigations including X-rays, laboratory examinations and toxicology testing. Forensic pathologists do more than just perform the post-mortem examination, however. They are called on to meet with other members of the death investigation team to discuss their work. And they must be able to communicate their findings effectively to various participants in the criminal justice system, including police, prosecutors, defence counsel, juries, and the court. In summary, the forensic pathologist focuses on interpreting the post-mortem findings to assist in the end point of the death investigation required by the state, which may include a criminal trial, an inquest, or a coroner's finding of cause and manner of death made without an inquest.

As noted above, the distinctiveness of forensic pathology can be seen by comparing it to clinical pathology. Although the fundamental scientific principles of pathology apply equally to forensic pathology and clinical pathology,

their analytical frameworks are very different. The clinical pathologist focuses on providing diagnostically useful advice to a clinician to assist in the medical management of a patient. The forensic pathologist focuses on providing diagnostically useful conclusions for the death investigation team and the judicial process.

It follows that, although every forensic pathologist needs to be a competent clinical pathologist, the opposite is not true. Many competent clinical pathologists will never have an interest in forensic work and will never need to obtain the requisite knowledge and expertise in forensic work. However, a forensic pathologist must be trained in, and develop an aptitude for, the requirements of the legal process. This requires an emphasis in the conduct of the post-mortem examination on identifying forensically significant findings such as injury, collecting potentially relevant evidence, and maintaining its continuity, all of which do not arise in clinical pathology. It requires that post-mortem documentation serve the needs of the participants in the justice system, including the coroner, police, Crown, defence, and court, which also do not arise in clinical pathology. And it is essential that forensic pathologists be able to testify fairly, objectively, and in language that clearly communicates their findings. Few medical practitioners have, or require, any detailed understanding of the legal system and the legal investigative method. Becoming proficient in these areas is thus one of the features distinguishing forensic pathologists from their clinical counterparts.

Today, the normal route to becoming a properly qualified forensic pathologist begins with completion of an undergraduate medical program. That is followed by a four- or five-year residency in one of the two main specialties within pathology, general pathology or anatomical pathology. Having completed either of these, a pathologist needs a further year or two of specialized training, not yet offered in Canada, to be accredited the subspecialty of forensic pathology.

Pediatric pathology is also a subspecialty of anatomical pathology. The additional training required for the subspecialty focuses on the study of disease in infants and children, which can differ substantially from disease in adults. Its objective is to assist in the treatment of living patients. The training and experience of a pediatric pathologist concentrates on natural, congenital development, and genetic disease processes. There is little focus on death investigation or on participation in the criminal justice system.

Pediatric forensic pathology encompasses the subset of cases within forensic pathology that involves the deaths of infants, children, and adolescents. Although training and experience in pediatric pathology can add great value to the forensic investigation of a pediatric death, forensic pathology remains the core discipline for death investigations in pediatric forensic cases.

Three aspects of forensic pathology should be highlighted at this stage. The first is that forensic pathology is an evolving science. Second, within the science, there are issues of significant controversy. Third, it is an interpretive science, often subject to limitations on the conclusions it can offer. These aspects assist us in understanding not only what went wrong in the cases we examined, but also the relationship between forensic pathology and the needs of the justice system.

## FORENSIC PATHOLOGY AS AN EVOLVING SCIENCE

Like other sciences, forensic pathology was evolving in the 1980s and 1990s, and it continues to evolve today. Time, research, and advances in technology yield new discoveries and knowledge grows. As a result of this progress, theories and diagnoses that were once thought correct or reasonable may be questioned or even rejected.

Two examples help to illustrate how the evolution of forensic pathology through time and research can affect a diagnosis. Traditionally, pathologists considered certain findings diagnostic of “asphyxia” (a deprivation of oxygen). These diagnostic criteria included petechial hemorrhages in the thoracic viscera, congestion and edema of the lungs, cyanosis of the fingernails, and cerebral edema.<sup>2</sup> For many years, pathologists diagnosed asphyxia based on these findings at autopsy. However, researchers eventually discovered that all of these findings are properly regarded as “non-specific.” In other words, they are not diagnostic of asphyxia. Indeed, in the 1970s, forensic pathology textbooks began to call these criteria obsolete or, as Lester Adelson described it in his seminal text, *The Pathology of Homicide*, the obsolete diagnostic quintet of asphyxia.

A second example is the evolution of the science and diagnosis of shaken baby syndrome (SBS). Shaken baby syndrome describes a head injury in an infant caused by violent shaking. Three pathology findings, referred to almost universally as the “triad,” were traditionally considered diagnostic of SBS: (1) *hypoxic-ischemic encephalopathy* (disease of the brain affecting the brain’s function and often associated with swelling), (2) *subdural hemorrhage* (bleeding into the space between the brain and the dura, which is adherent to the inner aspect of the skull), and (3) *retinal hemorrhages* (hemorrhages seen in the retina).

Over time, the presence of diffuse axonal injury (shearing of the axons or nerve fibres) also came to be considered part of the triad, as a subcategory of (1). Many in the medical community held the view that diffuse axonal injury

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<sup>2</sup> These medical terms and others used in this Report are defined in the medical glossary at the front of this volume.

occurred as a direct physical consequence of trauma at the time of the injury or very soon after.<sup>3</sup> In other words, they believed that shaking caused immediate neurological effects – either unconsciousness or rapidly deteriorating consciousness. That belief led to the view that, if there had been shaking, the last person with the healthy baby was the “shaker.”

As the research and literature on the topic grew, however, a heated debate emerged within the medical community as to the significance of the triad and what conclusions, if any, could be drawn from its presence. The “classic view” was that the presence of the triad was completely diagnostic of a violent shaking, and therefore homicide. However, a contrary view emerged, initially based on largely anecdotal evidence, that the presence of the triad did not necessarily mean that the baby was shaken; rather, the triad consisted of non-specific findings that could be caused by other conditions, including an impact injury to the head, as in an accidental fall.

Mirroring this debate within the literature, many in the pathology community divided into two camps: those who believed that the presence of the triad allowed for a definitive diagnosis of SBS (included within that group was a smaller faction of pathologists who believed that the presence of retinal hemorrhages alone was often sufficient for the diagnosis), and those who questioned whether the presence of the triad permitted such a definitive diagnosis.

A secondary debate also emerged as to whether a child could die from “pure shaking,” that is, shaking without impact. There was and continues to be a division of opinion on the issue: those who believe that pure shaking can kill, and those who believe that it cannot. The most controversial SBS cases involve young children with no objective pathological evidence of injury other than the triad.

The debate over SBS started in 1987 in a paper authored by Dr. Anne-Christine Duhaime, who reviewed the biomechanics involved and suggested that the forces required to produce the triad were not reproducible in experimental models of shaking. The debates continued following Dr. Duhaime’s article and peaked in 2001 with the publication of two papers written by Dr. Jennian Geddes et al. These papers have come to be known in the forensic pathology community as Geddes I and Geddes II. These studies looked at the descriptive neuropathology of head injuries in infants and children and concluded, in essence, that in the majority of the cases studied, diffuse axonal injury was due to lack of oxygen and blood to the brain, not trauma. As a result, there is no longer the same associa-

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<sup>3</sup> Stephen Cordner et al., “Pediatric Forensic Pathology: Limits and Controversies,” in *Controversies and Models in Pediatric Forensic Pathology*, vol. 1 of *Inquiry into Pediatric Forensic Pathology in Ontario*, Independent Research Studies (Toronto: Ministry of the Attorney General, 2008).

tion, as was previously believed, between diffuse axonal injury – one part of the triad – and SBS. This evolution in thinking has potential implications for the amount of force required to produce serious injury or death, and therefore on whether, or to what extent, shaking is inevitably non-accidental.

The debate continues today, as academics and pathologists around the world still query what, if any, conclusions can be drawn safely from the presence of the triad. The evolution of shaken baby syndrome and its inherent controversies has resulted in an extensive review of SBS cases in the United Kingdom, and a request by several parties at this Inquiry for a similar review in Ontario. I return to this issue in Chapter 19, Pediatric Forensic Pathology and Potential Wrongful Convictions, in Volume 3.

## **CONTROVERSIES IN FORENSIC PATHOLOGY**

As is obvious from the brief discussion above, the evolution of forensic pathology has often been accompanied by controversy, as pathologists debate whether new discoveries, research, or anecdotal information cast doubt on previously held opinions or modify the levels of confidence with which those opinions can be held. These controversies are particularly pronounced in pediatric forensic pathology.

I have already outlined, in the most basic terms, the SBS controversy. It has also led to related controversies – for example, whether subdural hemorrhages associated with birth or delivery might generate subdural hematomas which could later be discovered during autopsy or spontaneously generate re-bleeding and be wrongly attributed to inflicted injury.

The SBS controversy is also linked to the controversy surrounding “short falls.” The connection between the two arises from the fact that in some cases caregivers suspected of having shaken a baby have at times stated that the child was not shaken, but was rather the victim of a short household fall.

In the past, some literature expressed the view, often in absolute terms, that short falls cannot cause significant head injury leading to death. According to this literature, short falls were unable to generate sufficient force to cause serious injuries or death. Other experts, relying on biomechanical models or what was regarded as credible anecdotal information, contended that short falls could, on rare occasions, result in serious head injuries and death. In rejecting the view that short falls cannot kill, during his evidence at this Inquiry, Dr. Jack Crane, the state pathologist for Northern Ireland, placed the debate within a historical perspective:

[I]n the '90s there were different views on the amount of force that was required. And some people have been, perhaps, very strident in their views that you require a very considerable fall to do those. And I think what we have found more laterally, as our understanding increases – and Dr. [Christopher] Milroy mentioned these bio-mechanical models – we do know that comparatively low level falls may generate sufficient force – forces that we would expect to cause serious and fatal head injury. I think it's always very dangerous to be very dogmatic about these things, because, as I say, our knowledge does evolve over time and we may have to revise our views on this. But even in the '90s I think, certainly, I wouldn't be dogmatic in saying that you would have to fall a number of storeys before you would sustain a fatal head injury. Simply because from my own experience, I know that's not the case.

Dr. Stephen Cordner, director of the Victorian Institute of Forensic Medicine, together with his associates, in a study commissioned for this Inquiry, examined the existing medical literature (including primary, review, and simulation studies) to see if it allowed for any definite answer to the question of whether short-distance falls cause significant head injury leading to death. They conclude that the answer remains contentious. They note that “[l]arge population studies of childhood injuries on the whole indicate the likelihood of severe head injury is rare. This conclusion is, however, contrasted by anecdotal individual case reports that suggest it does occur.”<sup>4</sup>

## THE INTERPRETIVE NATURE OF FORENSIC PATHOLOGY

The third aspect of forensic pathology of particular relevance here is its interpretive nature. Many findings observed at autopsy are open to interpretation. Post-mortem artefacts provide an important example.

During the death process and even after death, the body can undergo many changes. These post-mortem changes, or “artefacts,” may be misinterpreted as injury or disease occurring in life. For instance, gravity combined with the position of the body at death may cause post-mortem staining (lividity) that can appear virtually indistinguishable from bruising. Resuscitation efforts or the handling of a body after death can similarly produce artefacts. And, in practice, the pathologist can leave marks on the body while performing dissections during the autopsy. It is the pathologist's task to interpret the autopsy

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<sup>4</sup> *Ibid.*, 42.

findings to determine if they occurred before or after death and if they are relevant to the cause of death or are irrelevant artefacts. There is no hard-and-fast rule for how that is done. It requires training, experience, and judgment. Misinterpretation of artefacts by Dr. Charles Smith and others figured prominently in the errors identified by the Chief Coroner's Review in a number of cases examined at this Inquiry.

For example, in Valin's case, post-mortem dilation of the anus was misinterpreted as evidence of sexual assault, as were observations of "ulceration, laceration, and hemorrhage" in the anus, which were properly attributable to the dissection of tissue or its preparation for microscopic work. Much of what was described as bruising to Valin's body represented artefacts relating to lividity. Similarly, facial petechial hemorrhages, relied on to support a diagnosis of mechanical asphyxia, may also have been explained by lividity, particularly in light of the fact that Valin's body was found face down.

Artefacts represent only one of the interpretive challenges associated with forensic pathology. Dr. Michael Pollanen, Chief Forensic Pathologist for Ontario, identified 16 separate areas in which these challenges arise. The study by Dr. Cordner referred to earlier also identifies a number of issues that raise interpretive challenges, including determinations as to the time of death or the precise aging of injuries.<sup>5</sup>

Moreover, the pathologist's ultimate opinion on the cause of death will often involve an element of interpretation. Whether the pathologist believes that a certain constellation of findings is sufficient to make a diagnosis is up to him or her. Although certain important sources of information ground the pathologist's diagnosis, there is almost invariably some interpretation involved in making that diagnosis. That is particularly true in difficult cases.

The interpretive nature of forensic pathology – both in evaluating the findings made at the autopsy and in determining what, if any, conclusions can be drawn from them – reinforces the limitations of the science. Even where controversy does not divide the pathology community, there are diagnostic challenges that limit what a pathologist can reasonably say about an individual case, and the level of confidence or certainty with which he or she can say it.

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<sup>5</sup> *Ibid.*

## **INTERACTION BETWEEN FORENSIC PATHOLOGY AND THE CRIMINAL JUSTICE SYSTEM**

The interaction between forensic pathology and the criminal justice system raises many systemic issues to which I will return in detail in Volume 3. Three areas can serve as examples:

- 1 **Communication:** Criminal cases are investigated, prosecuted, defended, and adjudicated by those who are not pathologists and who may have a limited understanding of pathology. It is therefore a challenge to ensure that forensic pathology opinions, and their limitations, are not only accurately communicated by the pathologist, but also understandable and understood by the criminal justice system.
- 2 **Levels of certainty:** The prosecution must prove criminality beyond a reasonable doubt. Although this burden of proof has application to the entirety of the evidence, not individual pieces of it, it is clear that the criminal justice system may make demands on forensic pathology for certainty, when the science may not reasonably permit such confidence. Even when the latter is acknowledged, forensic pathologists may have difficulty quantifying their levels of confidence in ways that not only have scientific validity but are easily utilized by the legal system.
- 3 **Reliability:** Opinion testimony represents an exception to the ordinary legal rule that confines witnesses to what they personally saw, heard, or did. Accordingly, it must meet certain preconditions for admissibility. The fact that scientific opinion evidence may be surrounded with an aura of infallibility provides a further impetus for the system to ensure that it receives “reliable” scientific opinion evidence. This situation, together with the demonstrated unreliability of some of the forensic opinion evidence considered at this Inquiry, invites consideration of the extent to which courts should evaluate the reliability of forensic pathology opinions as a precondition to admissibility.

These issues are intimately connected with a reality that must be recognized. The criminal justice system values finality. But as we have seen, forensic pathology is an evolving science in which controversies exist, and where findings and opinions often require interpretation. This tension underlies much of the discussion in Volume 3. As we have also seen, the evolution of scientific knowledge will often be accompanied by controversy – as pathologists debate whether the existing scientific knowledge permits certain opinions to be reasonably formed, and whether new scientific knowledge casts doubt on previously expressed opinions

or, at the very least, modifies the levels of confidence with which those opinions can reasonably be expressed.

In describing the evolution of forensic pathology, its controversies, and its limitations, I have largely focused on pediatric forensic pathology. That focus is driven not only by this Inquiry's mandate, but also by the recognition that pediatric forensic pathology raises unique and exceedingly difficult scientific issues. Sudden infant deaths are not uncommon. The cause of these deaths is often not obvious. Little or no pathology evidence may accompany child abuse. Equally troubling, natural disease in newborns or infants may mimic inflicted trauma. For instance, hemorrhagic disease of the newborn may have, as its first presentation, subdural hemorrhage. By contrast, it is rare for natural diseases to present as trauma in adults. Pediatric issues such as re-bleeding are on the margins of understanding. Others (such as shaken baby syndrome and accidental falls) remain, as we have seen, controversial.

However, an acknowledgement that forensic pathology is evolving, is sometimes accompanied by controversy, and has its limitations as an interpretive science does not reduce its continuing importance to the criminal justice system. This is so for several reasons. First, although difficult questions remain for forensic pathologists, the evolution of the science has increased their knowledge in many important areas and permitted them to provide evidence on which the justice system can rely. Time and research do not call into question all diagnoses. On the contrary, in many ways, the science is well settled.

Second, the fact that an opinion is interpretive and lacks a precisely calibrated expression of certainty does not diminish its importance in the death investigation. Rather, it places an onus on forensic pathologists to offer conclusions which carefully articulate any limitations that apply to them, including the level of certainty or confidence that the evidence and the science permit. The interpretive nature of forensic pathology should not reduce the reliance that coroners, police officers, Crown counsel, and triers of fact place upon it. Understanding the limitations of forensic pathology as a science helps police officers, Crown counsel, and triers of fact assess how much weight to place on an opinion and why. Forensic pathology, when practised properly, can offer methodologically valid, reasonable, and balanced conclusions on which the justice system can rely.

The reliability of forensic pathology opinions matters a great deal to the criminal justice system. In cases in which there are important issues of pathology, as often occurs in pediatric death cases, flawed pathology can lead to tragic outcomes. The cases we examined at this Inquiry provide graphic evidence of that reality. Flawed pathology can result in a parent, family member, or caregiver being wrongly entangled in the criminal justice system, and wrongfully convicted and

incarcerated, as happened to William Mullins-Johnson in Valin's case.

It is equally tragic, however, if flawed pathology steers the criminal justice system away from the true perpetrator, as happened in Jenna's case. In that case, the erroneous pathology failed to focus the criminal investigation on Jenna's babysitter. Instead, Brenda Waudby, Jenna's mother, became the focus of the investigation. As a result, the babysitter, who was the one responsible for Jenna's death, escaped detection for many years.

In either situation, whether the flawed pathology plays a part in a wrongful conviction or in allowing a criminal to escape detection, justice is not served and public confidence in the legal system is diminished. As we will see, both the science and the criminal justice system have important roles to play in ensuring against either possibility.

## **THE CULTURE OF PEDIATRIC FORENSIC PATHOLOGY**

With that outline of the science of forensic pathology, I turn now to an overview of the culture within which pediatric forensic pathology was practised in the 1980s and 1990s. Most important, there was a misplaced emphasis on who should lead the practice of pediatric forensic pathology. The prevailing view in Ontario was that pediatric pathologists were best situated to perform forensic autopsies on infants and children. As a result, expertise in pediatric pathology was emphasized over training and qualifications in forensic pathology.

This is exemplified by the experience of Dr. Smith. He was a pediatric pathologist and received training in that subspecialty. He had no forensic pathology training and, despite being appointed the director of the Ontario Pediatric Forensic Pathology Unit (OPFPU), he never obtained any such training. At the Inquiry, he admitted that, in the 1980s, he had virtually no knowledge of forensic pathology as a distinct discipline. And, although his knowledge of the subject began to grow in the 1990s, he continued to believe that pediatric, not forensic, pathology was most relevant to his work at the OPFPU. This view was not unique to Dr. Smith; it reflected the culture in Ontario at the time.

The focus on pediatric pathology was not entirely inexplicable because pediatric pathologists are trained and better situated to determine the presence of natural disease processes in infants and children. However, the failure to recognize the importance of forensic pathology expertise in the performance of post-mortem examinations on infants and children, particularly in criminally suspicious cases, was misguided and in some instances had very unfortunate consequences. The problems associated with having pediatric pathologists with no forensic training perform autopsies on infants and children can be severe. By

comparison to those with forensic training, they lack expertise in wound interpretation, have no training or experience in presenting their opinions in a legal setting, and may lack an understanding of the particular needs of the criminal justice system – including the importance of maintaining continuity of the evidence; the importance of documenting samples, procedures, and historical information; and what the system requires of an expert witness. The consequences of this misplaced focus were on full display in the cases examined at the Inquiry.

There was another problem with the culture in which pediatric forensic pathology was practised between 1981 and 2001: conclusions were often based on individual pathologists' experiences rather than on the available research and literature. This experience-based approach applied not only to forensic pathology; it was the traditional approach to expert opinion evidence preferred by the legal system in many circumstances.

This approach had several inherent limitations. Its ability to yield an accurate diagnosis depended on the experience of the pathologist. Anecdotal evidence and authoritative claims based largely on personal experience characterized the experience-based approach, making the opinions reached largely unquantifiable and shielding them from independent verification. And the approach overlooked the growing body of research and literature available on forensic pathology, particularly its more controversial areas. Without the benefit of the literature, pathologists risked lagging behind the evolution of the science.

In recent years, there has been a shift toward what is called an evidence-based approach.<sup>6</sup> Essentially, an evidence-based approach entails consideration of the autopsy findings in light of the medical literature and the use of logic to reason from the findings and the literature to a diagnosis. Unlike the traditional experience-based approach, evidence-based forensic pathology de-emphasizes anecdotal evidence and pathologists' personal experiences. Verifiable empirical data, rather than anecdote, serve as the foundation of an evidence-based opinion. Pathologists remain up to date on the state of the science and are thus able to give up-to-date opinions. The recent shift to an evidence-based approach is a commendable one, and I note that Dr. Pollanen has been instrumental in advocating its adoption in Ontario.

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<sup>6</sup> Gary Edmond, "Pathological Science? Demonstrable Reliability and Expert Forensic Pathology Evidence," in *Pediatric Forensic Pathology and the Justice System*, vol. 2 of Inquiry into Pediatric Forensic Pathology in Ontario, Independent Research Studies (Toronto: Ministry of the Attorney General, 2008).

## A NOTE ON TERMINOLOGY

This description of the science and culture of forensic pathology has involved a number of generic terms. It is important at this point to explain precisely how I use several of these terms through the balance of this report.

First, I use the term “forensic pathology” to mean the pathology related to post-mortem examinations done under coroner’s warrant. The science required by these examinations is the science of forensic pathology that I have described.

During the period of my review, most of the pathologists performing these examinations in Ontario were not accredited in forensic pathology. Nevertheless, I refer to all those actually doing forensic pathology as forensic pathologists. And I refer to the autopsies they did as forensic autopsies or coroner’s autopsies.

I use the term “certified forensic pathologists,” where it is important to the context, to refer to those who have received accreditation in the subspecialty of forensic pathology. As of September 2008, certification can only be acquired abroad, typically in the United States or the United Kingdom.

In Volume 3, I recommend the creation of a Registry of those who are considered competent to perform post-mortem examinations under coroner’s warrant. I refer to them as “approved forensic pathologists” because, pursuant to my recommendation, they would be seen as sufficiently skilled to do forensic pathology, whether they are “certified,” as I use that term.

I use the term “pediatric forensic pathology” to apply to the practice of forensic pathology in cases where the deceased person is under the age of 18 years. That is the cut-off used by the Office of the Chief Coroner for Ontario’s Paediatric Death Review Committee, with some exceptions. That said, the large majority of pediatric forensic pathology cases has always involved the deaths of infants or very young children. That was certainly true of the cases examined at the Inquiry.

Finally, the distinction between criminally suspicious and non-criminally suspicious cases must be kept in mind. Only a small proportion of deaths in which a post-mortem examination is ordered by the coroner are criminally suspicious, which the OCCO defines as a death that may be related to the action of another person or persons. The others are cases in which the coroner determines for other reasons that an autopsy is necessary to permit the coroner to properly answer the questions posed by the legislation – namely, the identity of the deceased and how, when, where, and by what means the deceased came to his or her death.

As I have explained, our terms of reference focused our work on the cases that were the subject of the Chief Coroner’s Review, all of which were criminally suspicious. It is clear that these kinds of cases provide forensic pathology with some

of its most difficult challenges. However, we also heard much about the practice and oversight of forensic pathology generally, in both criminally suspicious and non-criminally suspicious cases. In framing my recommendations, I remain mindful of the fact that there are considerably more non-criminally suspicious forensic pathology cases in Ontario than criminally suspicious ones, and that my recommendations must apply to both. Having said that, however, I emphasize that criminally suspicious cases present pediatric forensic pathology with its most difficult challenges, and that systemic failures in criminally suspicious cases can lead to tragic individual consequences. It is vital that the public have confidence in the future use of pediatric forensic pathology in the criminal justice system. This explains why the focus on these cases is so important.