
The Role of the Court

Judges play an important role in protecting the legal system from the effects of flawed scientific evidence. Although this objective will be greatly assisted by the use of rigorous quality assurance processes in preparing expert opinions, by the integrity and candour of expert witnesses, and by vigorous testing of expert evidence by skilled and informed counsel, the judge must bear the heavy burden of being the ultimate gatekeeper in protecting the system from unreliable expert evidence. Such evidence can, as we have seen, contribute to miscarriages of justice.

In the cases that led to the creation of this Inquiry, Dr. Charles Smith was allowed to give expert evidence in pediatric forensic pathology, often without challenge or with only limited review of his credentials. He was an apparently well-accredited expert from a world-renowned institution. He was a commanding presence who often testified in a dogmatic style. The evidence at this Inquiry demonstrated that the legal system is vulnerable to unreliable expert evidence, especially when it is presented by someone with Dr. Smith's demeanour and reputation. An expert like this can too easily overwhelm what should be the gatekeeper's vigilance and healthy skepticism, as we have seen. In fact, as we now know, Dr. Smith had none of the requisite training in forensic pathology and no reliable scientific basis for many of his opinions.

Because of concerns about the vulnerability of the legal system to flawed expert testimony, the Inquiry commissioned research studies and convened policy roundtables on issues relating to the admissibility of expert evidence in judicial proceedings. The authors and participants involved were asked to advise on the optimal manner in which expert evidence should be communicated to triers of fact – judges or juries – not only so that it will be properly understood, but also so that no false reliance will be placed on it. Our focus was primarily on expert evidence concerning pediatric forensic pathology, but we also considered issues of expert evidence more generally. The broader perspective is justified here

because the courts have devised tests for the admissibility of expert evidence in a generic manner. It is my hope that this chapter will assist in making the courts less vulnerable to unreliable expert evidence in cases involving both pediatric forensic pathology and other scientific evidence that may be controversial.

I first review the tests for the admissibility of expert evidence, with special attention to the problems created by qualified experts who stray from their expertise and to the gatekeeper role of judges in ensuring that expert evidence is sufficiently reliable to be admitted as evidence. This discussion includes an examination of the tools that judges can use to determine threshold reliability, the manner in which hearings can be conducted to determine the admissibility of expert evidence, the range of outcomes from the admissibility hearing, and the role of judicial education in meeting the demands placed upon trial judges in making threshold reliability decisions. I next examine the way that judges and the legal system should interact with expert witnesses, including the provision of codes of conduct for expert witnesses, the role of court-appointed or joint experts, and the role of the court in case managing forensic pathology matters, including the facilitation of the exchange of expert reports and meetings among experts. Finally, I examine charges to the jury on expert evidence. I have already examined report writing and the giving of evidence in Chapter 16, *Effective Communication with the Criminal Justice System*. The focus in this chapter is on how the legal system can regulate the behaviour of expert witnesses and, in particular, the vital gatekeeping role of trial judges.

THE ADMISSIBILITY OF EXPERT EVIDENCE

Defining the Limits of the Expertise

A starting point when considering the admissibility of expert evidence is to understand that the legal system, as a general rule, prohibits witnesses from testifying about their opinions, as opposed to facts they have observed. It is the trier of fact who must draw conclusions based on the evidence presented at trial. Expert witnesses are allowed to give opinion evidence as an exception to the general rule, but only to the extent that they have been properly qualified as experts. It is crucial that judges precisely define the nature and the limits of that expertise at the beginning of each trial. This description gives clarity to what the experts can properly opine on and allows the court to curtail the “roaming expert.”

The problem of expert witnesses offering opinion evidence outside their area of expertise was shown by the evidence at the Inquiry to be significant. These excesses most often occurred not in written reports but in testimony, and often at

the invitation of counsel. The challenge of roaming expert witnesses for the criminal justice system is substantial. All the admissibility safeguards (to which I turn in the next section) to ensure the relevance, necessity, and reliability of expert scientific evidence are for naught if experts are allowed to stray beyond their field of expertise and offer, under the guise of expertise, what are, in essence, only lay opinions that have no scientific value.

In Dr. Charles Smith's case, he strayed well beyond his expertise in a variety of ways. Four are illustrative. First, he testified about matters well outside the expertise of a pathologist. For example, he provided a sociological profile of the typical baby shaker, including an analysis based on gender, family status, motivation, and time of likely occurrence (as he put it, "the poison hours"). Second, he testified about matters that might normally fall within the expertise of a forensic pathologist, but which, by reason of his own deficit of knowledge, he was (as he acknowledged) unqualified to address. Dog bites in Sharon's case are one example. Third, he provided expert opinions about the cause or mechanism of death based not on pathology, but on non-pathology information he acquired. Properly understood, these opinions were not within a pathologist's expertise at all. Fourth, he speculated about matters that were not supported by any existing evidence.

The trial judge's first task as gatekeeper is to define clearly the subject area about which the proposed witness has the required expertise to offer opinion evidence to the court. As the Honourable Patrick LeSage, former Chief Justice of the Superior Court of Ontario and an experienced trial judge, emphasized at our policy roundtable, the trial judge must do so with clarity and precision, after coming to understand the expert's training and experience. The trial judge should insist at the outset that counsel confine with precision the proposed area of expertise and the issues to which the opinion will be directed. The trial judge, in the words of Mr. LeSage, should then make rulings

as to exactly what it is that they're going to be permitted to testify on, and the opinion upon which they are going to be able to comment, and nothing else. And you glare at them a bit as well. And if they stray, I think you, as the judge, even a non-interventionist judge, have an absolute obligation to step in and stop the person immediately in their tracks ... if it is in front of the jury, all the better. It's a more telling admonition when the judge gives it to the witness in front of the jury. But you have an obligation to do that and to ensure that they stay within those bounds.

Justice Marc Rosenberg of the Court of Appeal for Ontario agreed with Mr. LeSage that trial judges, in their rulings on the admissibility of expert evidence,

must be as clear as possible about both the area of expertise and the proper scope of the opinion. Justice Rosenberg also emphasized that, in criminal cases, trial judges should be even more vigilant, given that the liberty of the accused person is at stake.

Part of the task of defining the nature of a witness's expertise is to define its outer limits. As the expert testifies, the trial judge is then in a position to keep the witness from roaming beyond this area of expertise. As reflected above, participants at our roundtable fully supported the idea that trial judges should stop experts who strayed beyond their recognized expertise, even if there was little or no challenge from opposing counsel.

In her research study prepared for the Commission, "Pediatric Forensic Pathology as Forensic Science: The Role of Science and the Justice System," Professor Katherine Gruspier, a professor of forensic science at the University of Toronto, warns that, in pediatric cases, there is a particular danger that experts may testify outside of their area of expertise. She discusses a 1993 Supreme Court decision in *R. v. Marquard* in which a witness who was qualified as an expert in child abuse and pediatrics was allowed to testify that the burns she observed on a child were contact burns, as opposed to flame burns, even though she was not a medical specialist in burns.¹ In the same case, another medical doctor who was qualified as an expert in burns was nevertheless allowed to testify that passivity during examination was characteristic of abused children. The defence did not object at trial to the questions that elicited this testimony. This case exemplifies the difficulties that arise where the area of expertise is not properly defined at the beginning.

The trial judge in *Marquard* did not instruct the jury to disregard the experts' testimony but, rather, to weigh it "along with all the other evidence."² The Supreme Court found that this was not an error of law, noting that, as "important as the initial qualification of an expert witness may be, it would be overly technical to reject expert evidence simply because the witness ventures an opinion beyond the area of expertise in which he or she has been qualified." It reversed the conviction and ordered a new trial on other grounds relating to the prejudicial value of the expert evidence about alleged prior abuse of the child and with respect to the expert improperly testifying about the child's credibility.

I note that *Marquard* was decided in 1993. As will be seen, there have been significant developments in the test for the admissibility of expert evidence since that time. The Court now takes a more rigorous approach to the requirements

¹ [1993] 4 SCR 223.

² *Ibid.* at para. 34.

that the expert evidence be relevant and necessary, that its prejudicial effect not outweigh its probative value, and that it possess sufficient threshold reliability to justify its admission. The stringent test for the admissibility of expert evidence applies to all potential experts, no matter how distinguished, educated, and experienced they may be. No one should receive *carte blanche*.

Marlys Edwardh, a highly respected criminal lawyer, expressed the challenge pointedly at our roundtables. She said that the legal system has “tended to defer to medicine without subjecting it to as much scrutiny as other areas. So,” she continued, “I think we need now to stop doing that and to firmly put the trial judge as gatekeeper into the role of making sure that what is heard meets whatever we want to call reliable, in that it can be shown to be reliable.”

Considerable skepticism was articulated at the roundtables about one possible remedy – instructing the jury to give less weight to evidence that experts provide outside their area of expertise. Professor Erica Beecher-Monas of Wayne State University School of Law pointed out the problem with “unringing the bell” once the jury has heard the supposedly expert testimony. Both she and Professor Gary Edmond of the Faculty of Law at the University of New South Wales stressed the difficulty for the jury of disregarding such information. Professor Edmond also emphasized the need for gatekeeping “at the front end” and the systemic problems with allowing the evidence and then trying to correct it through rebuttal experts, cross-examination, and warnings. Justice Rosenberg and Mr. LeSage agreed that it is best to prevent witnesses from giving evidence beyond their expertise.

The importance of clearly defining the limits of the witness’s expertise is therefore vital. To put it in the context of forensic pathology, a number of clinicians who testified before this Inquiry, such as Dr. James Cairns, Deputy Chief Coroner for Ontario, readily conceded that it would be a mistake for clinicians to opine on the cause of death. They are simply not trained in pathology. I agree. Although clinicians may be able to give evidence in child death cases which satisfies the stringent admissibility requirements for expert evidence, the nature and limits of their expertise should, as with all expert witnesses, be defined with precision at the start of the trial and then vigilantly enforced by the judge.

In my view, many of the problems presented by the factual situation in *Marquard* could be avoided by requiring precise definitions of the nature of each expert witness’s expertise, and its limits, at the start of the trial and by effectively policing that person’s testimony thereafter. The very act of defining the precise limits of the witness’s expertise will have the salutary effect of ensuring that the evidence given is truly expert. Defining the limits of expertise is a key part of the trial judge’s role as gatekeeper.

Recommendation 129

When a witness is put forward to give expert scientific evidence, the court should clearly define the subject area of the witness's expertise and vigorously confine the witness's testimony to it.

The Test for Admissibility of Expert Evidence

Expert evidence is admitted as an exception to the general rule against allowing witnesses to provide opinion evidence. This exception arises when it is necessary for the trier of fact to be assisted by experts. The test for the admissibility of expert evidence has evolved to some extent during the period examined at this Inquiry and, no doubt, will continue to do so in the future.

One of the earliest cases involving expert testimony occurred in England in the late 18th century, where, to enable the trier of fact to evaluate the other evidence in the case, an engineer was asked to give his opinion on what had caused a harbour to fill in.³ For many years, the main basis for the qualification of an expert witness in court was that the subject matter was so specialized that an ordinary person would likely be unable to form an opinion without the assistance of an expert. The expert witness was seen to have special knowledge in the area through education or experience, or both.⁴ In recent years, however, the approach to expert witnesses has undergone considerable refinement, as we shall see by reviewing the *Mohan* case.

Mohan

In 1994, the Supreme Court in *R. v. Mohan*⁵ established a four-part test which requires that proposed expert evidence be (1) relevant, (2) necessary in assisting the trier of fact, (3) not otherwise subject to an exclusionary rule, and (4) given by a properly qualified expert. In the decision, Justice John Sopinka offered this warning:

There is a danger that expert evidence will be misused and will distort the fact-finding process. Dressed up in scientific language which the jury does not easily understand and submitted through a witness of impressive antecedents, this evi-

³ *Folkes v. Chadd* (1782), 99 ER 589.

⁴ *Kelliher (Village) v. Smith*, [1931] SCR 672; *R. v. Beland*, [1987] 2 SCR 398 at para. 16; *R. v. Marquard*, [1993] 4 SCR 223.

⁵ [1994] 2 SCR 9.

dence is apt to be accepted by the jury as being virtually infallible and as having more weight than it deserves. As La Forest J. stated in *R. v. Béland*, [1987] 2 S.C.R. 398, at p. 434, with respect to the evidence of the results of a polygraph tendered by the accused, such evidence should not be admitted by reason of “human fallibility in assessing the proper weight to be given to evidence cloaked under the mystique of science”. The application of this principle can be seen in cases such as *R. v. Melaragni* (1992), 73 C.C.C. (3d) 348, in which Moldaver J. applied a threshold test of reliability to what he described, at p. 353, as “a new scientific technique or body of scientific knowledge”. Moldaver J. also mentioned two other factors, *inter alia*, which should be considered in such circumstances (at p. 353):

(1) Is the evidence likely to assist the jury in its fact-finding mission, or is it likely to confuse and confound the jury?

(2) Is the jury likely to be overwhelmed by the “mystic infallibility” of the evidence, or will the jury be able to keep an open mind and objectively assess the worth of the evidence?⁶

The first *Mohan* criterion requires not simply relevance in the case (that is, “logical relevance”) but a more searching comparison of the probative value of the evidence in relation to its possible prejudicial impact on the trial process (that is, “legal relevance”):

Evidence that is otherwise logically relevant may be excluded on this basis, if its probative value is overborne by its prejudicial effect, if it involves an inordinate amount of time which is not commensurate with its value or if it is misleading in the sense that its effect on the trier of fact, particularly a jury, is out of proportion to its reliability. ... The reliability versus effect factor has special significance in assessing the admissibility of expert evidence.⁷

The second requirement is that the expert evidence must be necessary to assist the trier of fact in understanding the subject matter. In a case subsequent to *Mohan*, the Court explained this requirement as being met “only when lay persons are apt to come to a wrong conclusion without expert assistance, or where access to important information will be lost unless we borrow from the learning of experts.”⁸ In *Mohan* itself, the Court concluded that the necessity requirement

⁶ *Ibid.* at para. 19.

⁷ *Ibid.* at para. 18.

⁸ *R. v. D.D.*, [2000] 2 SCR 275 at para. 57.

helped to ensure that the role of the trier of fact on matters such as the credibility of witnesses or the ultimate issue in the case was not usurped.

The third requirement is the absence of any exclusionary rule. An important exclusionary rule with respect to the admissibility of expert evidence is that the prejudicial effect of the evidence not exceed its probative value. As I will suggest, another important exclusionary rule is that evidence that lacks sufficient threshold reliability should not be admitted. It is important to note, however, that concerns about threshold reliability can affect all four parts of the *Mohan* test. In other words, reliability's entrée to admissibility should be seen as broader than through the probative value versus prejudicial effect analysis.

The fourth requirement is that the proposed expert have special knowledge of the subject matter about which the expert proposes to testify. The best way to check this requirement is to examine the initial training of the proposed witness, the ongoing education and accreditation practices applicable to that witness, and how these two factors relate to the proposed subject matter of the expert's testimony.

Addressing Threshold Reliability

The trier of fact must determine the ultimate reliability of any admitted evidence, including expert evidence. The question is whether the law of evidence requires the court, as gatekeeper, to ensure that evidence proffered as scientific opinion meets a minimum threshold of reliability sufficient to warrant consideration by the trier of fact. In my view, the answer to that question is clearly in the affirmative.

Any attempt to reduce the admissibility of expert evidence to a narrow application of this four-part approach does not do full justice to *Mohan* and the risks of disregarding the important role of ensuring the threshold reliability of the proposed expert testimony. One constant factor in the law of evidence has been a concern about the reliability of expert evidence. That said, the case-by-case application of the law has not always given reliability the prominence it deserves in a system dedicated to accurate fact-finding.⁹

In *Mohan*, Justice Sopinka discussed threshold reliability in the context of novel science:

In summary, therefore, it appears from the foregoing that expert evidence which advances a novel scientific theory or technique is subjected to special scrutiny to determine whether it meets a basic threshold of reliability and whether it is essential

⁹ 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), 91.

in the sense that the trier of fact will be unable to come to a satisfactory conclusion without the assistance of the expert. The closer the evidence approaches an opinion on an ultimate issue, the stricter the application of this principle.¹⁰

In my view, this statement should not be interpreted to suggest that the judge's gatekeeper role in ensuring the threshold reliability of expert evidence is limited to "novel scientific theory or technique." The reference to novel science is best seen as a particular example where the reliability of the purported science from which the expert opinion is drawn will need to be evaluated. This example is not, however, the only circumstance where judges should be concerned about the reliability of proposed scientific evidence. In recent years, the jurisprudence has been moving in the direction of recognizing the importance of reliability standards for all expert evidence and, indeed, for all evidence.¹¹

Reliability as a fundamental organizing principle in the law of evidence is embedded in all parts of the *Mohan* test. In 1999, my former colleague the late Justice George Finlayson observed: "[I]t is important the trial judge serve as a gatekeeper and allow into evidence opinion evidence that is reliable and furthers the goal of accurate fact-finding while at the same time refusing to admit evidence that is irrelevant or prejudicial or not based on an adequate scientific foundation."¹²

Reliability is a factor that can play an important and indeed decisive role in each of the four steps in *Mohan*. As stated in *McWilliams' Canadian Criminal Evidence*:

Reliability may receive consideration as an aspect of relevance itself or as part of the application of the general exclusionary rule balancing probative value and prejudicial effect. It has also been treated as an integral part of the need for a properly qualified expert. On the question of necessity, evidence of questionable reliability will of course be of little assistance in assisting the trier of fact.¹³

Justice Louise Charron, formerly of the Court of Appeal for Ontario, indicated in *R. v. K.(A.)* how reliability plays a central role in at least two of the *Mohan* factors:

¹⁰ *R. v. Mohan*, [1994] 2 SCR 9 at para. 28.

¹¹ See *R. v. Khelawan*, [2006] 2 SCR 787.

¹² As quoted in Todd L. Archibald and Heather Davies, "Law, Science and Advocacy: Moving towards a Better Understanding of Expert Scientific Evidence in the Courtroom" (2007) *Annual Review of Civil Litigation* 2006, 2.

¹³ S. Casey Hill *et al.*, *McWilliams' Canadian Criminal Evidence*, looseleaf (Aurora: Canada Law Book, 2003), 12–27.

The evidence must meet a certain threshold of reliability in order to have sufficient probative value to meet the criterion of relevance. The reliability of the evidence must also be considered with respect to the second criterion of necessity. After all, it could hardly be said that the admission of unreliable evidence is necessary for a proper adjudication to be made by the trier of fact.¹⁴

Reliability must therefore be a constant concern of judges in their gatekeeping role, whether the science is classified as novel or not and even though reliability does not have its own separate label when *Mohan* is reduced to a four-part test for the admissibility of expert evidence.

In *Mohan*, the Court affirmed the trial judge's decision not to admit the expert evidence of a psychiatrist who was prepared to testify that the accused did not fit the psychiatric profiles of a doctor who would sexually abuse teenaged female patients. The trial judge noted that the proposed expert had interviewed and treated three doctors who had engaged in sexual misconduct with their patients, but that the psychiatrist "admitted that he was not aware of any scientific study or literature relating to the psychiatric make-up of doctors who sexually abuse their patients and that his experience with three admitted offenders who were doctors was not a sufficient basis to allow him to make any generalizations on the subject."¹⁵

The Supreme Court unanimously upheld the trial judge's decision to exclude the expert evidence, noting that "there is no acceptable body of evidence that doctors who commit sexual assaults" have characteristics "that are sufficiently distinctive to be of assistance in identifying the perpetrator of the offences alleged ... The expert's group profiles were not *seen as sufficiently reliable to be considered helpful*. In the absence of these indicia of reliability, it cannot be said that the evidence would be necessary in the sense of usefully clarifying a matter otherwise unaccessible, or that any value it may have would not be outweighed by its potential for misleading or diverting the jury."¹⁶ This statement provides a fine example of both the rejection of purported expert evidence that was based only on personal experience and a call for evidence-based expert evidence, if the requisite reliability is to be achieved.

This jurisprudence should make it clear that a concern about threshold reliability is an important part of the *Mohan* test for admissibility of expert evidence.

¹⁴ (1999), 137 CCC (3d) 225 (Ont. CA) at para. 84.

¹⁵ *R. v. Mohan*, [1994] 2 SCR 9 at para. 10.

¹⁶ *Ibid.* at para. 46 (emphasis added).

Although, as I have stated, it is not expressly articulated as one of the four points in the text, it is clearly embedded in them.¹⁷

Beyond the jurisprudence, the constantly evolving nature of science, even in established fields such as forensic pathology, suggests that judges should be concerned about the threshold reliability of all expert scientific evidence. As Justice Todd Archibald and Heather Davies have recently observed:

By its very nature, science is iterative and recursive and consequently, the pursuit of knowledge never comes to an end; any conclusions reached are provisional.... When evidence is labelled as “scientific”, there may be a tendency to assume that the result is absolute and authoritative. But science and technological knowledge is fluid in nature. It is constantly changing and evolving. Many theories once believed to be true and scientifically “definitive” have since proven false. Indeed the history of science is littered with flawed theories once believed to be accurate and reliable, including the belief that the world is flat.¹⁸

The authors also recognize that, “if a theory, hypothesis or propositions have passed many experimental tests without being disproved, it is usually considered to be accurate and valid.”¹⁹ These themes are picked up again in *R. v. Trochym*, described later in this chapter.

Daubert

Although it was not cited, the Supreme Court’s decision in *Mohan* was broadly consistent with that given by the United States Supreme Court in 1993 in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*²⁰ In that decision, the Court departed from the previous test in *Frye v. United States*,²¹ which rested on whether the expert evidence was generally accepted in the relevant scientific community. The majority of the Court stressed that the expert’s engagement with the scientific process of “proposing and refining theoretical explanations about the world that are subject to further testing and refinement ... establishes a standard of evidentiary reliability.”²²

¹⁷ David Paciocco, “Coping with Expert Evidence about Human Behaviour” (1999) 25 *Queen’s Law Journal* 315, 335; Hill *et al.*, *McWilliams’ Canadian Criminal Evidence*, 12–27ff.; Alan W. Mewett and Peter J. Sankoff, *Witnesses*, looseleaf (Toronto: Thomson Carswell, 1999), 10–5ff.; Alan D. Gold, *Expert Evidence in Criminal Law: The Scientific Approach* (Toronto: Irwin Law, 2003); Glenn R. Anderson, *Expert Evidence* (Markham: LexisNexis Canada, 2005), 81ff.; Edmond, “Pathological Science?” 106.

¹⁸ Archibald and Davies, “Law, Science, and Advocacy,” 21.

¹⁹ *Ibid.*, 21.

²⁰ 509 U.S. 579 (1993).

²¹ 293 F. 1013 (DC Cir. 1923).

²² *Ibid.*

In order to determine whether a theory or a technique constitutes scientific knowledge and has sufficient reliability, the Court in *Daubert* considered a number of factors, including (1) whether the theory or technique had been tested and found subject to falsification, (2) whether it had been subject to peer review and publication, (3) its known or potential error rate and the existence and maintenance of standards controlling its operation, and (4) whether the theory or technique has general acceptance.

Daubert has its detractors,²³ and the dissenting judges in the case raised concerns about whether judges were up to the task of applying its standards. However, I agree with those who argue that *Daubert* can have a beneficial effect in challenging judges, lawyers, and expert witnesses to relate proposed expert evidence to a scientific method that emphasizes testing and peer review as a means of attempting to ensure the reliability of expert evidence and that is conscious of known or potential error rates. As Professor Beecher-Monas has written: “No longer is it enough to obtain the approval of a cohort of the expert’s cronies willing to vouch for the technique ... *Daubert* has focused attention on the importance of examining the underlying theory and technique rather than just the proffered conclusions.”²⁴

Just how the kind of criteria discussed in *Daubert* can be applied to determine threshold reliability will depend on the type of evidence. Many types of expert evidence, including forensic pathology, are not easily amenable to empirical testing and the determination of precise error rates. The challenge for judges in exercising the gatekeeper function is to employ the necessary tools to rigorously determine threshold reliability.

As Professor Edmond said, testing and known or potential error rates will generally be better indicators of threshold reliability than general acceptance or peer review and publication, which may depend more on the expert’s reputation in a small field than the reliability of his or her opinions in a specific case.²⁵ Professor Mike Redmayne put it this way: “The claims of handwriting experts, forensic odontologists, and experts on hair and voice identification simply do not interest most scientists, and have been subjected to little empirical validation. Yet within their own domains, these techniques are generally accepted. ... A

²³ See Scott Brewer, “Scientific Expert Testimony and Intellectual Due Process” (1998) 107 *Yale Law Journal* 1535; Adina Schwartz, “A ‘Dogma of Empiricism’ Revisited: *Daubert v. Merrell Dow Pharmaceuticals, Inc.* and the Need to Resurrect the Philosophical Insight of *Frye v. The United States*” (1997) 10 *Harvard Journal of Law & Technology* 149.

²⁴ Erica Beecher-Monas, *Evaluating Scientific Evidence: An Interdisciplinary Framework for Intellectual Due Process* (Cambridge: Cambridge University Press, 2007), 11.

²⁵ Edmond, “Pathological Science?” 121ff.

testedness requirement would, in theory, do a far better job of screening out unreliable evidence.”²⁶

J.-L.J.

Any doubts about the relevance of *Daubert* or concerns about using reliability to determine the admissibility of expert evidence were dispelled by the Supreme Court of Canada’s decision in *R. v. J.-L.J.*²⁷ In that case, the Court upheld the decision of a trial judge to exclude the proffered expert evidence of a clinical psychiatrist that the accused did not satisfy the profiles of those who would sexually assault young males, based in part on the use of penile plethysmography²⁸ to measure whether the accused was sexually attracted to young boys. The Court stated:

In the course of *Mohan* and other judgments, the Court has emphasized that the trial judge should take seriously the role of “gatekeeper”. The admissibility of the expert evidence should be scrutinized at the time it is proffered, and not allowed too easy an entry on the basis that all of the frailties could go at the end of the day to weight rather than admissibility. ... *Mohan* kept the door open to novel science, rejecting the “general acceptance” test formulated in the United States in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923), and moving in parallel with its replacement, the “reliable foundation” test more recently laid down by the U.S. Supreme Court in *Daubert* ...²⁹

Although penile plethysmography was generally accepted as a therapeutic technique, it was not “sufficiently reliable to be used in a court of law to identify or exclude the accused as a potential perpetrator of an offence.”³⁰ The distinction between clinical judgments, which are made to treat and serve the best interests of living patients, and forensic judgments, which are made to assist the courts in determining what happened to dead patients, is critical in the field of forensic pathology. Although information derived from clinical studies may be useful, courts should always be cautious in determining whether they have sufficient reliability to be used in a forensic pathology context in a court of law. As suggested

²⁶ Mike Redmayne, *Expert Evidence and Criminal Justice* (Oxford, Oxford University Press, 2001), 116. Professor Redmayne is a professor of law at the London School of Economics and Political Science and has published several texts in the area of criminal evidence.

²⁷ [2000] 2 SCR 600.

²⁸ A penile plethysmograph is an instrument for measuring changes in volume within the penis.

²⁹ *J.-L.J.*, [2000] 2 SCR 600 at paras. 28, 33.

³⁰ *Ibid.* at para. 35.

above, clinicians should not generally be allowed to testify with respect to the cause of death, as that is usually a matter within the expertise of forensic pathologists but not clinicians.

Following the *Daubert* criteria, the Court in *J.-L.J.* emphasized the high error rate of the technique and concluded that its acceptance for forensic as opposed to clinical purposes had not been demonstrated. The manner in which the opinion was expressed was also problematic. The expert “offered a packaged opinion” and was unable or unwilling to share the data with the Court, thus frustrating the Court’s ability to form an independent opinion as to the value and reliability of the expert’s opinion. *J.-L.J.* thus makes the point that the opinion must not only be reliable, but capable of being presented in a way that permits the judge to exercise the gatekeeper function. In the end, the Court expressed the concern that “the trial judge was simply being offered a conclusory opinion that on cross-examination turned out to be short on demonstrated scientific support.”³¹ As this case exemplifies, Canadian courts have found the *Daubert* questions to be useful in deciding whether expert evidence has sufficient reliability to be admitted.³²

Trochym

In *R. v. Trochym*, the Supreme Court of Canada excluded the post-hypnosis testimony of a witness offered by the Crown who purported to identify the accused as having been in his former girlfriend’s apartment at the time she was likely killed.³³ Justice Marie Deschamps, speaking for the Court’s majority, stressed the responsibility of the trial judge to determine the threshold reliability of expert evidence. She warned that “reliability is an essential component of admissibility. Whereas the degree of reliability required by courts may vary depending on the circumstances, evidence that is not sufficiently reliable is likely to undermine the fundamental fairness of the criminal process.”³⁴ It is also noteworthy that Justice Deschamps connected concerns about unreliable evidence to the risk of miscarriages of justice.³⁵ Finally, in *Trochym*, the Court reiterated that a technique that is perfectly acceptable in a clinical setting may not be reliable enough to accept in a forensic setting.³⁶

³¹ *Ibid.* at para. 59.

³² See *R. v. Klymchuk* (2005), 203 CCC (3d) 341 (Ont. CA). See also Gold, *Expert Evidence*, chaps. 1–3; Erica Beecher-Monas, *Evaluating Scientific Evidence: An Interdisciplinary Framework for Intellectual Due Process* (Cambridge: Cambridge University Press, 2007), 11.

³³ [2007] 1 SCR 239.

³⁴ *Ibid.* at para. 27.

³⁵ *Ibid.* at para. 1.

³⁶ *Ibid.* at para. 37.

The majority judgment in *Trochym* is of particular relevance to expert evidence respecting evolving controversies in pediatric forensic pathology because of its recognition that “the admissibility of scientific evidence is not frozen in time.”³⁷ The Court observed that, “[w]hile some forms of scientific evidence become more reliable over time, others become less so as further studies reveal concerns. Thus, a technique that was once admissible may subsequently be found to be inadmissible.”³⁸ This variability suggests that there may be some aspects of controversial science, even within the most established disciplines, that need to be scrutinized for threshold reliability. As Justice Deschamps observed, “even if it has received judicial recognition in the past, a technique or science whose underlying assumptions are challenged should not be admitted in evidence without first confirming the validity of those assumptions.”³⁹ In general, “the scientific community continues to challenge and improve upon its existing base of knowledge. As a result, the admissibility of scientific evidence is not frozen in time.”⁴⁰ Indeed, the Court of Appeal for Ontario before *Trochym* had recognized the fluidity of scientific evidence and the effect this potential for change might have on admissibility.⁴¹ In my view, this approach is consistent with both the evolving nature of science and the responsibility of the trial judge as gatekeeper to exclude expert evidence that is insufficiently reliable. The justice system should place a premium on the reliability of expert evidence if it is to maximize the contribution of that evidence to the truth-seeking function and be faithful to the fundamental fairness required of the criminal process.

Trochym also affirms the continued utility of the *Daubert* criteria first endorsed by the Court in *J.-L.J.* The Court examined whether the technique has been tested, whether it has been subject to peer review and publication, its known or potential rate of error, and its general acceptance. It stressed that the testing of post-hypnotic memories had revealed that, “while hypnosis can result in the subject’s remembering a large number of details, these will include both accurate and inaccurate information.”⁴² Justice Deschamps concluded that, “[p]erhaps most troubling is the potential rate of error in the additional information obtained through hypnosis when it is used for forensic purposes. At the present time, there is no way of knowing whether such information will be

³⁷ *Ibid.* at para. 31.

³⁸ *Ibid.* at para. 32.

³⁹ *Ibid.* at para. 32.

⁴⁰ *Ibid.* at para. 31.

⁴¹ *R. v. A.K.* (1999), 137 CCC (3d) 225 (Ont. CA) at para. 86. See also *R. v. Chisholm* (1997), 8 CR (5th) 21 (Ont. Ct (Gen. Div.)) at 35.

⁴² *R. v. Trochym*, [2007] 1 SCR 239 at para. 37.

accurate or inaccurate. Such uncertainty is unacceptable in a court of law.”⁴³

Re Truscott

The recent decision of the Court of Appeal for Ontario in the *Stephen Truscott* reference relates concerns about the admissibility of expert opinions (including those of forensic pathology) to the importance of those opinions being grounded on evidence and the evolving scientific literature.⁴⁴ In that reference, the Court of Appeal heard the testimony of the Crown’s expert forensic pathologist, Dr. Werner Spitz, who had been a forensic pathologist for more than 50 years and had published a textbook on the subject. Dr. Spitz testified that the original expert’s determination that the deceased died by 7:45 p.m. was “admirably accurate” and rested “on solid scientific foundation.” The Court of Appeal then noted that “[i]t became abundantly clear during cross-examination, however, that the only basis for Dr. Spitz’s opinion was his own experience in conducting autopsies and his belief arising from this experience that if stomach contents are readily identifiable at autopsy, then death must have occurred within two hours of the last meal.”⁴⁵ The Court of Appeal went on to observe that “Dr. Spitz was unable to cite any recent scientific literature that would support his view” and that he “refused to concede that his opinion rested on faulty assumptions and misperceptions of the available primary evidence in this case.”⁴⁶ In the result, the Court of Appeal did not place any reliance on Dr. Spitz’s evidence.

The Court of Appeal accepted Dr. Michael Pollanen’s evidence that forensic pathology had evolved from a traditional approach in which “expert opinions were largely based on authoritative experience and anecdotal case reports” to an “evidence-based approach” that requires “a critical analysis of peer-reviewed literature and attention to primary reviewable evidence from the post-mortem examination.”⁴⁷ The literature that had been published since the 1959 trial and the 1966 reference to the Supreme Court of Canada indicated that there was less certainty and more variability than previously believed with respect to the time it takes for the contents of the stomach to empty. The Court of Appeal applied a similar approach to evidence given by an entomology expert, Dr. Neal Haskell, tendered by the Crown. It observed that he “was dogmatic and reluctant to admit obvious errors. He assumed an adversarial position as revealed by correspon-

⁴³ *Ibid.* at para. 55.

⁴⁴ (2007) 225 CCC (3d) 321 (Ont. CA).

⁴⁵ *Ibid.* at para. 165.

⁴⁶ *Ibid.* at para. 166.

⁴⁷ *Ibid.* at para. 169.

dence with the Crown that Crown counsel disclosed to the appellant's counsel. Several critical elements of his opinion were based on nothing more than his purported experience, which could not be verified and was not supported by any empirical work. He was unable to demonstrate that his experience had been replicated by other scientists."⁴⁸

These criticisms demonstrate the utility of subjecting expert evidence to the critical methodological analysis set out in *Daubert* and used in *J.-L.J.* and *Trochym*. Although admissibility at a reference based on purported fresh evidence is subject to different considerations, the Court stated that, "at a hypothetical new trial, the absence of evidentiary support for the factual assumptions on which Dr. Haskell's opinion are based could potentially lead to the exclusion of his opinion by the trial judge."⁴⁹ Finally, I note that the Court of Appeal applied its evidence-based reliability test to forensic pathology and to entomology, two disciplines that cannot be said to be novel science. In this respect, it is significant that U.S. courts as well do not restrict their *Daubert* analysis to matters involving novel science.⁵⁰

Bald assertion of conclusory opinions, dogmatism, and a failure to engage with the relevant literature on the topic or with the primary evidence were all identified in *Truscott* as indicators that expert scientific evidence might lack sufficient threshold reliability to be admissible in any hypothetical new trial. In my view, the jurisprudence is clear that exclusion of such expert opinions on this basis may be required to avoid the danger of a jury simply accepting expert evidence of "a witness of impressive antecedents" as "virtually infallible and as having more weight than it deserves."⁵¹

At the policy roundtable on expert evidence, I was struck by the statement of Mr. LeSage that the standards for experts to be qualified should be tightened. He recalled his own experience with typical candour and wisdom:

Did I ... question the expertise sufficiently? Did defence counsel, or Crown counsel as the case might be, question the expertise, the basis, the underpinnings of it as much as we ought to have? In many cases, no, we didn't.

Mr. LeSage indicated that, during his long career on the bench, he had rejected perhaps only half-a-dozen proffered experts on the grounds that they had no basis on which to come to their conclusion. He was clear about the danger of trial

⁴⁸ *Ibid.* at para. 313.

⁴⁹ *Ibid.* at para. 314.

⁵⁰ David Paciocco, "Context, Culture and the Law of Expert Evidence" (2001) 24 *Advocates Quarterly* 44–47.

⁵¹ *R. v. Mohan*, [1994] 2 SCR 9 at para. 19.

judges simply admitting the expert evidence, then leaving any misgivings about its reliability to counsel for cross-examination or to the trier of fact in assigning the appropriate weight to the evidence.

Recommendation 130

A concern about the reliability of evidence is a fundamental component of the law of evidence. Threshold reliability plays an important role in determining whether proposed expert evidence is admissible under the *Mohan* test. Reliability can be an important consideration in determining whether the proposed expert evidence is relevant and necessary; whether it is excluded under any exclusionary rule, including the rule that requires evidence to be excluded if its prejudicial effect exceeds its probative value; and whether the expert is properly qualified. Trial judges should be vigilant in exercising their gatekeeping role with respect to the admissibility of such evidence. In particular, they should ensure that expert scientific evidence that does not satisfy standards of threshold reliability be excluded, whether or not the science is classified as novel.

Tools for Judges to Use in Determining Threshold Reliability

It is one thing for jurisprudence to arm trial judges as gatekeepers, with threshold reliability as an admissibility screen for expert scientific evidence, and quite another to describe how the standard can be applied in particular cases. A variety of tools have been developed to assist judges in discharging this challenging task. Some of these tools will undoubtedly be more useful than others, depending on the nature of the case and the particular evidence being scrutinized. Although those considerations will be of great assistance to trial judges, they still need to exercise an element of judgment. The tools should, however, provide a reasonable basis for that judgment. It may therefore be helpful to outline a few of these tools and to provide some evaluation of their potential assistance to a trial judge in fulfilling the gatekeeper role.

In a 1992 decision on a *voir dire*⁵² to determine the admissibility of DNA evidence, Justice Kenneth Langdon addressed many of the factors that were relevant to the admissibility of what was then a novel science. He drew on American developments that were moving away from the *Frye*⁵³ test of general acceptability

⁵² *R. v. Johnston* (1992), 69 CCC (3d) 395 (Ont. Ct (Gen. Div.)) at 415.

⁵³ *Frye v. United States*, 293 F. 1013 (DC Cir. 1923).

to requiring expert evidence to be relevant and reliable.⁵⁴ While not dealing only with reliability, he provided a list of helpful criteria to assist in determining whether the evidence would be admissible, including

1. The potential rate of error.
2. The existence and maintenance of standards.
3. The care with which the scientific technique has been employed and whether it is susceptible to abuse.
4. Whether there are analogous relationships with other types of scientific techniques that are routinely admitted into evidence.
5. The presence of failsafe characteristics.
6. The expert's qualifications.
7. The existence of specialized literature.
8. The novelty of the technique in its relationship to more established areas of scientific analysis.
9. Whether the technique has been generally accepted by experts in the field.
10. The nature and breadth of the inference adduced.
11. The clarity with which the technique may be explained.
12. The extent to which basic data may be verified by the court and jury.
13. The availability of other experts to evaluate the technique.
14. The probative significance of the evidence.⁵⁵

Justice Langdon added that “[a] consideration of all of those factors should enable the court to decide if it is satisfied that the scientific technique in question exhibits a level of reliability sufficient to warrant its use in the court room.”⁵⁶ In other words, these factors are helpful in determining the threshold reliability of expert evidence. Many of them, including the existence and maintenance of scientific standards, the potential rate of error, the ability to verify the underlying data, and the availability of other experts to evaluate the technique, speak directly to the threshold reliability of the scientific evidence.

In another case decided in 1992, Justice Michael Moldaver, when he was a trial judge, admitted opinion evidence concerning the approximate point of entry of a bullet through a car window, based on an examination of fracture lines in the remaining pieces of glass. His decision confirms not only the trial judge's responsibility to determine the threshold reliability of expert evidence but also the jury's

⁵⁴ *R. v. Johnston* (1992), 69 CCC (3d) 395 (Ont. Ct (Gen. Div.)).

⁵⁵ *Ibid.* at 415.

⁵⁶ *Ibid.*

responsibility to determine ultimate reliability and to resolve disagreements among competing experts. Justice Moldaver concluded that the Crown's expert evidence could be given, in part because the defence "has already retained a leading expert" who could conduct his "own testing to confirm or cast doubt upon the scientific proposition in issue," including tests on the remaining portion of the fractured window. Hence, he was "convinced that the jury will not be overwhelmed by the 'mystic infallibility' of the evidence. If anything, just the opposite will occur."⁵⁷

In other words, in determining whether there is sufficient threshold reliability to justify the admission of expert evidence, one consideration is whether sufficient material exists, either from the proffered expert or from competing experts, to allow the jury to understand the relevant controversies and frailties that may surround the scientific evidence. I would add only that the presence of competing experts does not obviate the need for the trial judge to determine that all the expert evidence has sufficient threshold reliability to justify its admission as evidence.

In 1994, Justice Casey Hill articulated the following factors as relevant in determining the admissibility of psychological evidence regarding repressed memory:

1. whether there exists an acceptable body of evidence or acceptance of the theory to objectively validate the opinion;
2. whether the technique can be demonstrably tested;
3. the existence of peer review of the theory or technique;
4. the existence of publication;
5. the testing or validation employing control and error measurement; and
6. recognition or acceptance in the relevant scientific field.⁵⁸

In my view, it may be helpful to distinguish factors such as general acceptance, publication, and peer review, which may speak more generally to the discipline in which the expert operates, from factors such as controls, error measure, and the testing of the technique, which may relate more directly to the actual opinion that the expert proposes to provide to the court. This distinction underlines the important point that trial judges should be satisfied not only that the discipline used by the proposed expert witness has sufficient threshold reliability but also

⁵⁷ *R. v. Melaragni* (1992), 73 CCC (3d) 348 (Ont. Ct (Gen. Div.)) at 354. See also *R. v. B.M.* (1998), 130 CCC (3d) 353 (Ont. CA) at para. 94, noting that conflicting expert opinion does not in itself justify its exclusion.

⁵⁸ *R. v. J.E.T.*, [1994] OJ No. 3067 (Gen. Div.) at paras. 73 and 75.

that the actual application of the discipline in the particular case has sufficient threshold reliability to permit the witness to give the opinion.

Commentators have also contributed to the discussion of how threshold reliability of expert scientific evidence can be determined. In 1994, Professor David Paciocco provided a helpful list of factors. They include consideration of the reliability of the witness, including credentials or the prospect of bias; the reliability of the process used to generate the evidence, including the existence of a specialized literature; the novelty of the technique; the potential error rate, including whether the errors were false inclusions or exclusions; the maintenance of standards and fail-safe techniques; and the care with which the scientific technique was employed. Procedural safeguards, including the ability of cross-examination and disclosure to expose weaknesses in the process, are another factor.⁵⁹ Additional considerations include the probative value and prejudicial effect of the proposed evidence, and whether it would result in undue consumption of time.

In his research study prepared for the Commission, “Pathological Science? Demonstrable Reliability and Expert Forensic Pathology Evidence,” Professor Edmond provided the Inquiry with his indicia of reliability, which can be used to supplement and flesh out the *Daubert* criteria:

- What is the error rate – for the technique, as well as the equipment and practitioner?
- Has the technique or theory been applied in circumstances that reflect its intended purpose or known accuracy? Departures from established applications require justification.
- Does the technique or opinion use ideas, theories, and equipment from other fields? Would the appropriations be acceptable to those in the primary field?
- Has the technique or theory been described and endorsed in the literature? This should include some consideration of where it has appeared and the qualifications of the person who described and endorsed it.
- Is the reference in the literature substantial or incidental? Is it merely the author’s opinion or is it something more?
- Has the publication, technique, or opinion undergone peer review? Logically, peer acceptance of techniques and theories should take priority over peer review of individual results or applications. Where the reliability of a technique is unknown, positive peer review may be (epistemologically but not sociologically) meaningless.

⁵⁹ David Paciocco, “Evaluating Expert Opinion Evidence for the Purpose of Determining Admissibility: Lessons from the Law of Evidence” (1994) 27 CR (4th) 302 at 313–18.

- Is there a substantial body of academic writing approving the technique or approach?
- To what extent is the technique or theory accepted? Is the technique or theory discussed only in forensic scientific and forensic medical circles? In assessing the extent of *acceptance*, the judge should consider what evidence supports acceptance – opinions based on personal impression or hearsay and incidental references in the relevant literature may not be enough to support claims about wide acceptance. The fact that support comes from earlier judgments rather than scientists or scientific, technical, and biomedical publications will usually be significant.
- Is the expert merely expressing a personal opinion (*ipse dixit*)? To what extent is the expert evidence extrapolation or speculation? Is the expert evidence more than an educated guess? Is this point made clear?
- Does the expert evidence actually form part of a field or specialization? Judges should not be too eager to accept the existence of narrow specializations or new fields based on limited research and publication.
- Does the evidence go beyond the expert's recognized area of expertise?
- In determining the existence of a field or specialization, it may be useful to ascertain whether there are practitioners and experts outside the state's investigative agencies. If so, what do they think?
- Is the technique or theory novel? Does it rely on established principles? Is it controversial?
- Is the evidence processed or interpreted by humans or machines? How often are the machines tested or calibrated?
- Does the evidence have a verification process? Was it applied? Were protocols followed?
- Is there a system of quality assurance or formal peer review? Was it followed?
- To what extent is the expert evidence founded on proven facts (and admissible evidence)?
- Has the expert explained the basis for the technique, theory, or opinion? Is it comprehensible and logical?
- Has the expert evidence been tainted or influenced by inculpatory or adverse information and opinions? Did the experts have close contact with the investigators, or were they formally and substantially independent?
- Has the expert made serious mistakes in other investigations or prosecutions? Has the expert been subjected to adverse judicial comment?
- Does the expert invariably work for the prosecution (or defence)?
- Are the techniques or conclusions based on individual case studies or more broadly based on statistical approaches like epidemiology and meta-analysis?

- How confident is the expert? Does the expert express high levels of confidence or quantify certitude in the absence of validation and accuracy studies? Is this quality a feature of the expert's regular practice?
- Is the expert willing to make concessions?
- How extensive is the expert's education, training, and experience? Is this background directly relevant? Judges should look at overall training and experience, and, in an age of increasing specialization, not be too eager to allow individuals who are not the most appropriate experts to testify.
- Does the expert have a financial interest in the evidence or technique? This question extends beyond employment to issues of intellectual property, proprietary interests, managerial roles, and shareholding. *Conflicts of interest* should be disclosed so they can be factored into assessments of admissibility and weight.⁶⁰

Although he proposed this list of helpful questions, Professor Edmond also cautioned:

Judges should be reticent in using these (and other) supplementary indicia to overcome a lack of testing. They should inquire about the failure to test and not simply excuse such failures because the inculpatory expert evidence is important, or vital, to the prosecution's case. Where rigorous empirical studies have been undertaken, the results of these studies will tend – though not invariably – to outweigh the other indicia of reliability. Ordinarily, the results of rigorous empirical testing should be preferred to other evidence – no matter how prevalent the view, how authoritative the expert, or how counterintuitive the result. Without more, the fact that a technique or theory has been used by a forensic community for decades and previously admitted into trials will rarely provide a persuasive basis to resist adverse results from validation and accuracy studies.⁶¹

I agree with this caution. Testing and error rates are optimal, but it is important to reiterate that many kinds of expert opinion are not readily susceptible to empirical testing or reproducibility. The inability to provide testing results does not necessarily render these kinds of expert evidence unreliable. However, it does call for vigilant use of other indicators of reliability which are more germane to the task.

⁶⁰ Edmond, "Pathological Science?" at 126–27.

⁶¹ *Ibid.*, 128.

Forensic pathology provides a good example of a discipline that has not traditionally engaged in random testing or determining rates of error. The reasons are obvious: testing and reproducibility cannot be used to verify a cause of death. The forensic pathologist's opinion must instead rely on specialized training, accepted standards and protocols within the forensic pathology community, accurate gathering of empirical evidence, attention to the limits of the discipline and the possibility of alternative explanations or error, knowledge derived from established peer-reviewed medical literature, and sound professional judgment.

Although it will often not be possible to look to testing and error rates, there are other tools that judges can use to determine the threshold reliability of interpretative sciences such as forensic pathology. Professor Edmond has provided a very useful inventory. Our systemic review also suggests a number of tools that are germane in assessing the threshold reliability of a forensic pathology opinion.

First, it is important that the factors on which a sound forensic pathology opinion rests, and which I described earlier in this Report, be scrutinized to ensure that they have been adhered to in the particular case. Is the empirical evidence accurately recorded? Is the reasoning process clearly explained and logical? And, based on this foundation, does the opinion stated appear to be justifiable?

As the evidence at the Inquiry made clear, the presence or absence of a system of quality assurance and meaningful peer review of post-mortem reports in the work environment from which the opinion comes is also important. So too is whether the expert witness has the training and experience to offer the particular opinion, or whether the witness is stepping beyond the limits of his or her expertise.

In addition, because forensic pathology is an interpretive science, it is important to examine the language in which the expert opinion is expressed. As is often the case in fields where testing and error rates may not be available, the limits placed by the science on the precision or certainty with which a conclusion can be drawn from empirical evidence must be observed. Purported precision or certainty beyond that permitted by the empirical evidence may be a telltale sign of unreliability. This caution is one of the important lessons learned from our systemic review.

We also learned that failure to acknowledge that a proffered opinion is located in an area of particular controversy within the science can matter for threshold reliability. So, too, can the failure to consider and provide reasoned rejection of alternative conclusions that might arguably be drawn from the data.

Thus, like all expert scientific evidence, forensic pathology opinions can be tested for threshold reliability. The challenge for the trial judge as gatekeeper is to access the tools germane to the task when applying the element of judgment

necessary to determine threshold reliability in a reasoned and transparent way.

I discuss later in this chapter the process that trial judges can use when they are deciding whether expert evidence is admissible and, in particular, how it can be made both expeditious and fair through increased reliance on written material, including standardized expert reports. But first it is important to put in context the legitimate concern that a vigilant approach to judicial gatekeeping will prolong the trial process, at least for pediatric forensic cases.

The types of cases considered by this Inquiry, ones where expert evidence was absolutely critical to the ultimate issue in the case, are relatively rare. Cases involving the death of children are, thankfully, uncommon. Even in those few cases, however, many will not hinge on an expert forensic pathology opinion about the cause of death. In those that do, there is a need for judges to play their gatekeeper role with vigilance. Despite their best efforts, this approach may prolong the trial process, but that is necessary when the interests of justice demand it. As seen by this Inquiry, the consequences of allowing unreliable expert opinion can be devastating. That being said, however, the appropriate exercise of the gatekeeper function may in fact reduce the length of the trial process, where it results in the exclusion of some or all of the proposed expert testimony. As Justice Moldaver of the Court of Appeal for Ontario noted in *Johnson v. Milton (Town)*:

Recognizing, as I do, that expert evidence may not fit neatly into watertight compartments in every case and that shades of grey will inevitably exist, trial judges should do their best to perform the gatekeeper function they have been assigned, if for no other reason than trial economy. Permitting experts to give evidence on matters that are commonplace or for which they have no special skill, knowledge or training wastes both time and resources and adds stress to an already overburdened justice system. It is also legally incorrect.⁶²

Drawing on what I heard at the Inquiry, let me offer these concluding thoughts on the gatekeeper task of vetting any scientific evidence for threshold reliability. I recognize that simply reciting a laundry list of factors or questions is of limited utility. It may be helpful to distinguish between those questions that focus on the reliability of the witness and of the relevant scientific field in general and those that focus on the reliability of the particular opinion that the witness proposes to provide. Although some expert evidence can be excluded on the basis that the witness or the discipline, or both, are not sufficiently reliable to justify admission, expert evidence should not be admitted solely on the basis that the

⁶² 2008 ONCA 440 at para 48.

witness has impressive credentials and comes from a recognized discipline. In every case, the trial judge should drill down and determine whether the actual evidence to be given by the witness satisfies a standard of threshold reliability.

In determining that threshold reliability, the trial judge should focus on factors related to

- 1 the reliability of the witness, including whether the witness is testifying outside his or her expertise;
- 2 the reliability of the scientific theory or technique on which the opinion draws, including whether it is generally accepted and whether there are meaningful peer review, professional standards, and quality assurance processes;
- 3 whether the expert can relate his or her particular opinion in the case to a theory or technique that has been or can be tested, including substitutes for testing that are tailored to the particular discipline;
- 4 whether there is serious dispute or uncertainty about the science and, if so, whether the trier of fact will be reliably informed about the existence of that dispute or uncertainty;
- 5 whether the expert has adequately considered alternative explanations or interpretation of the data and whether the underlying evidence is available for others to challenge the expert's interpretation;
- 6 whether the language that the expert proposes to use to express his or her conclusions is appropriate, given the degree of controversy or certainty in the underlying science; and
- 7 whether the expert can express the opinion in a manner such that the trier of fact will be able to reach an independent opinion as to the reliability of the expert's opinion.

These factors obviously do not require the trial judge to be convinced that the proposed opinion is correct. That is a question of ultimate reliability for the trier of fact. The trial judge is to assess whether the particular conclusions and opinions offered by the expert are supportable by a body of specialized knowledge familiar to the expert, and whether the manner in which the expert proposes to present his or her testimony accurately reflects the science and any relevant controversies or uncertainties in it. This full disclosure of the limits and controversies of the science in a way that the trier of fact can understand is especially important in fields such as pediatric forensic pathology.

Recommendation 131

In determining the threshold reliability of expert scientific evidence, the trial judge should assess the reliability of the proposed witness, the field of science, and the opinion offered in the particular case. In doing so, the trial judge should have regard to the tools and questions that are most germane to the task in the particular case.

The Process to Determine the Admissibility and Scope of Expert Evidence

My recommendation that judges should vigilantly exercise their gatekeeper role has implications for the process used by trial judges to decide whether expert evidence should be admitted. Those implications are discussed in the paragraphs that follow.

When There Is No Objection

One major issue is what should be done when there is no objection to the introduction of expert testimony, as happened in a number of the cases examined by this Inquiry. Justice Archibald and Ms. Davies suggest in their article:

When both parties agree that a potential witness is an expert, the trial judge must nevertheless assess whether all four *Mohan* factors are met. In that situation, the assessment is generally straightforward with the result being the proper admission of the evidence. However, where the trial judge does not agree with counsel, it must be remembered that whether a witness is a qualified expert is a clear question of law. If, after applying all of the *Mohan* principles, the trial judge concludes that the witness is not an expert, the evidence is inadmissible.⁶³

I agree that the trial judge retains the responsibility of determining the admissibility of expert scientific evidence, regardless of the absence of an objection from counsel. However, the absence of an objection or, indeed, consent to the admission of the evidence should figure prominently in whether the trial judge embarks on the kind of detailed examination of threshold reliability I have been discussing. Experienced counsel may have no interest in contesting the cause of death, given the nature of the defence. As well, counsel will be aware of factors that remain unknown to the trial judge and which may affect their tactical decisions.

⁶³ Archibald and Davies, “Law, Science, and Advocacy,” 19.

Recognizing how cautious a trial judge must be about exploring counsel's tactical decisions, there may well be circumstances under which the trial judge is best advised to raise the issue with counsel so as to ensure that the failure to object is an informed decision.

The Form of the Voir Dire

Two methods can be used to determine the admissibility of expert evidence. One method is for counsel to provide a summary of the proposed evidence as the basis for the judge's decision. That summary might consist of a "will-say" statement, the expert's report, and/or the testimony given at the preliminary hearing. Jurisprudence has encouraged the adoption of this approach where additional oral evidence is not necessary to resolve the admissibility issues. The second method involves the hearing of evidence, including that of the proposed expert witness, before a decision is made whether to admit the evidence. If the debate is confined to the particular witness's qualifications or expertise to give evidence, that *voir dire* often takes place in the presence of the jury. Where the *voir dire* is more extensive, and the expert's ultimate opinion will be referred to, the jury will generally be excluded.

A detailed and contested examination of threshold reliability will likely compel the hearing of some evidence on a *voir dire*. As I said earlier, this hearing will no doubt prompt the concern that more rigorous gatekeeping by judges will lengthen trials, particularly in an era in which concerns have already been raised that pretrial motions are lengthening criminal trials. These legitimate concerns cannot be lightly dismissed, but I do not believe they should discourage trial judges from playing their important gatekeeping role and ensuring that there is sufficient threshold reliability to justify the admission of expert opinion. Fortunately, I think there are ways that this examination can be done both well and efficiently.

The gatekeeper function can be facilitated by expert reports that meet the requirements for completeness, plain language, and transparency described in Chapter 16, Effective Communication with the Criminal Justice System. It might also be facilitated, in some cases, by written descriptions in the report of the nature of the relevant discipline and how it engages with the criteria of reliability discussed above, such as testing, peer review, standards, general acceptance, and error rates. In forensic pathology, this description could also include areas of controversy relevant to the case and a reading list of pertinent scientific literature. This information would provide the judge and the opposing parties with a solid foundation for an efficient yet searching screening process. Oral hearings would still often be required, but they would be focused and shortened by this written

material. As I contemplate this process working, these descriptions would not have to be reinvented every time an expert witness prepares a report in a particular field of science. Rather, they would simply be adapted by the proposed expert for each case and could provide a means to facilitate effective and focused cross-examination.

Professor Edmond also dealt in his research study with the objections that could be raised from the perspective of trial efficiency to an enhanced screening for the reliability of expert evidence:

In terms of practice, the exclusion of unreliable expert evidence may increase the length of some preliminary proceedings but overall is likely to reduce the length of trials, avert the need for trial judges to give complex instructions about questionable evidence, and prevent juries from having to make, quite literally, uneducated guesses. Just as important, the exclusion of unreliable expert evidence obviates the need for defence lawyers to undertake long and technical cross-examinations along with the need to identify and secure the services of rebuttal experts. Instead, exhaustive cross-examination and rebuttal expertise will be necessary only where the prosecution adduces demonstrably reliable expertise. Moreover, the emphasis on reliability means that the defence can question or challenge incriminating expert evidence on its own terms rather than being compelled to impugn the reputation or abilities of experienced experts called by the state.⁶⁴

Thus, while it is important to make the gatekeeper process as efficient as possible, it is also true that time devoted at the start of the trial to excluding unreliable expert evidence and to understanding the strengths and limits of the science on which the expert evidence is based will pay off later in the conduct of the trial and in the reduced need for subsequent appeals or even public inquiries. This lesson has emerged clearly from our systemic review.

Recommendation 132

The trial judge’s gatekeeping function may be facilitated, in some cases, by written descriptions in the expert reports of the nature of the relevant discipline and how it engages with the various criteria of reliability. In forensic pathology, these descriptions could include areas of controversy relevant to the case and a reading list of scientific literature on the subject.

⁶⁴ Edmond, “Pathological Science?” 92.

The Range of Outcomes from the Admissibility Hearing

The gatekeeper function need not face the trial judge with only a binary choice – to admit expert scientific evidence fully or to exclude it completely. Framed in these terms, the choice presented to the judge would be especially stark. It would be understandable if judges hesitated before disqualifying a proposed witness with impressive credentials and experience. Moreover, such an “all or nothing” approach might inhibit trial judges from considering the threshold reliability of each aspect of a particular opinion.

Given that the admissibility decision should be made about each specific part of the proposed expert evidence, a range of outcomes is possible. A qualified forensic pathologist may be allowed to outline the abnormal findings at autopsy but not offer an opinion as to cause of death where the science does not permit that opinion to be given. Or the pathologist may be permitted to situate his or her opinion as to cause of death within an existing controversy as long as the controversy is fully disclosed. Or the pathologist might be allowed to opine as to cause, but not mechanism, of death. Or the pathologist’s opinions might be admitted, but the use of certain misleading or scientifically unsupportable language or expressions of certainty precluded. The point here is that the options should be driven, in large part, by threshold reliability, and not by all-or-nothing propositions advanced by counsel or the witness.

In determining what parts of the expert testimony should be admissible, the judge will also consider all the prerequisites for admissibility articulated in *Mohan*, including the balance between the probative value of the proposed evidence and its prejudicial effect. That balancing might result in the exclusion of some or all of the evidence. The extent to which the evidence approaches the ultimate issue in the case may also inform whether it has sufficient threshold reliability to justify its admission.

Another option that the trial judge should consider in the admissibility *voir dire* has received less attention than it deserves – determining what language can or cannot be used by the proposed expert. If, for example, there is a concern that phrases such as “consistent with” will be potentially misleading, that concern should be discussed at the admissibility hearing, and the judge should make clear at the conclusion of the hearing what phrases can or cannot be used.

A final outcome from the admissibility process is a clear definition of the scope of the expertise that a particular witness is qualified to give. As discussed in the earlier part of this chapter, it will be beneficial to define the range of expertise with as much precision as possible so that all the parties and the witness are alerted to areas where the witness has not been qualified to give evidence. For

example, such an approach would have prevented Dr. Smith from giving evidence on matters of social science that fell well beyond his expertise in pathology. We have come full circle in this respect. As I earlier recommended, the trial judge should take steps at the outset to define clearly the proposed subject area of the witness's expertise. At the conclusion of the *voir dire*, the trial judge will be well situated to rule with precision on what the witness can and cannot say. These steps will help to ensure that the witness's testimony, when given, can be confined to permissible areas and that it meets the requirement of threshold reliability.

Recommendation 133

Judges should consider whether there are parts of the proposed expert evidence that are sufficiently reliable to be admitted and others that are not or which must be modified to be admitted.

Judicial Education to Enhance the Gatekeeping Function

The determination of threshold reliability of expert scientific evidence by a trial judge will be greatly assisted if judges become literate in basic scientific concepts.⁶⁵ Judges do not have to be equipped to resolve scientific controversies, but they can learn to understand what constitutes good and bad science, for instance, and the frailties and limits of science.

John Conley and David Peterson⁶⁶ have said that “because science plays no part in judicial selection, judges range from closet Einsteins to proud Luddites.”⁶⁷ An empirical study of state court judges in the United States has concluded that most judges have trouble applying *Daubert* criteria relating to falsifiability and error rate.⁶⁸

One possible remedy would be to assign specialist judges to cases that involve scientific evidence. At our roundtable on expert evidence, this possibility was discussed and rejected by all participants. Professor Beecher-Monas indicated that she did not think that judges should be specialized: “I think that there is a huge

⁶⁵ Gold, *Expert Evidence*, 23.

⁶⁶ David Peterson has a PhD and is senior vice-president of Peopleclick. John Conley is the William Rand Kenan Jr Professor of Law at the University of North Carolina, Chapel Hill.

⁶⁷ John Conley and David Peterson, “The Science of Gatekeeping: The Federal Judicial Center’s New Reference Manual on Scientific Evidence” (1996) 74 *North Carolina Law Review* 1183 at 1205–6, quoted in Gold, *Expert Evidence*, 21.

⁶⁸ Sophia Gratowski *et al.*, “Asking the Gatekeepers: A National Survey of Judges on Judging Expert Evidence in a Post-Daubert World” (2001) 25 *Law and Human Behaviour* 433 at 452.

value in having generalist judges, judges who have experience with regular trials, and who bring that experience to trials that involve scientific evidence.” However, she went on to comment:

At the same time, I think that education of the judiciary is a wonderful thing. I think that continuing legal education is something to be encouraged among the bar, and among the judiciary. And I think that it’s important to bring up issues to the judiciary in terms of contrasting viewpoints about science. For example, a panel educating judges on some of the controversies about sudden infant death syndrome, or shaken baby syndrome, would be very helpful. They probably won’t take back from the education all the details of the controversy, but what they will remember is that there is a controversy, and if they have a case involving sudden infant death syndrome, or shaken baby, they will worry about the evidence. And I think that’s very important. I think that judges should be encouraged in their gatekeeping duties, and education is one of the ways to do it. But I am a firm believer in generalist judges.

She said that continuing legal education is something to be encouraged among both the bar and the judiciary. Indeed, Professor Beecher-Monas has written a book that I found to be extremely helpful in laying out what she calls “intellectual due process” – a framework of analysis that allows lawyers, judges, and others to evaluate a broad range of scientific evidence and to assist in discharging the judge’s gatekeeper role under *Daubert*.⁶⁹

Mr. LeSage, as well as my colleague Justice Rosenberg, agreed that specialist judges were not a viable option. As Mr. LeSage said: “From my perspective, a judge is a judge is a judge.” I agree entirely. However, both of these long-serving judges supported the important role that continuing judicial education could play in helping judges perform their gatekeeping role. Mr. LeSage referred to his own experience as commissioner in the James Driskell Inquiry in Manitoba (in which he held a roundtable on scientific evidence) and commented:

I must say it came as somewhat a shock to me, having spent forty (40) years plus in the justice system, to hear some of the scientific experts speaking about the uncertainty and the lack of clarity in areas of science which I had always thought were far more certain than they really are. And I felt very guilty that I had not better educated myself on these areas long before.

⁶⁹ Erica Beecher-Monas, *Evaluating Scientific Evidence: An Interdisciplinary Framework for Intellectual Due Process* (Cambridge: Cambridge University Press, 2007).

Justice Rosenberg suggested that it is difficult for judges to determine threshold reliability. They are being asked to look at an entirely different field in which their ordinary views of what is common sense and what is logic may not help as much as we would hope. He said that judges need to know what questions should be asked. If the lawyers are not asking them, they might be prodded by the trial judge, albeit cautiously, to ensure that they do.

Justice Rosenberg, who has been deeply involved in judicial education, suggested that there is an important role for the National Judicial Institute in developing further courses that raise issues about the scientific method and the threshold reliability of expert evidence. I agree. The Supreme Court's important decision in *Trochym* also makes the present a particularly opportune time for increased judicial education about these and related issues.

Recommendation 134

The National Judicial Institute should consider developing additional programs for judges on threshold reliability and the scientific method in the context of determining the admissibility of expert scientific evidence.

In the wake of *Daubert*, the Federal Judicial Center in the United States prepared a *Reference Manual on Scientific Evidence* that includes an introduction by Justice Stephen Breyer of the United States Supreme Court and chapters dealing with the legal tests for admissibility of expert evidence, the scientific method, the management of expert evidence, and reference guides on topics such as statistics, multiple regression, survey research, estimation of economic loss, epidemiology, toxicology, medical testimony, DNA, and engineering practices.⁷⁰ In my view, it would be helpful if a similar guide were prepared in Canada, perhaps under the auspices of the Canadian Judicial Council, which included a guide to forensic pathology. Until that is done, the American *Reference Manual* could serve as a useful resource.

Recommendation 135

It would be useful if the Canadian Judicial Council, in conjunction with the National Judicial Institute, could examine the feasibility of preparing a Canadian equivalent to the *Reference Manual on Scientific Evidence* prepared by the Federal Judicial Center in the United States.

⁷⁰ Federal Justice Center, *Reference Manual on Scientific Evidence*, 2nd ed., 2000, online: Federal Judicial Centre <http://www.fjc.gov/public/home.nsf>.

THE INTERACTION OF THE JUSTICE SYSTEM WITH EXPERT WITNESSES

A Code of Conduct for Expert Witnesses

Dr. Smith acknowledged that, when he began his work, he did not understand that his duty was to give impartial expert testimony to assist the court, as opposed to serving the adversarial interests of the Crown. In my opinion, it would be helpful to develop a code of conduct for expert witnesses who testify in criminal cases. Because expert witnesses owe their duty to the court to provide impartial and candid evidence, the presiding judge should ensure that they have been made aware of their obligations before they begin their testimony. This check might be done in a variety of ways. For example, as part of their written reports, the experts might be required to certify that they understand this duty and, before giving evidence, agree to be bound by the obligations contained in the Code of Conduct. Or, the court might inquire of counsel whether their experts have so agreed. The court could also make this inquiry of the witness directly.

In his Civil Justice Reform Project, the Honourable Coulter Osborne recommended that Ontario's Rules of Civil Procedure or its *Evidence Act* be amended "to establish that it is the duty of an expert to assist the court on matters within his or her expertise and that this duty overrides any obligation to the person from whom he or she has received instructions or payment."⁷¹ He also recommended that experts be required to certify in their reports that they understand this duty.

In *R. v. Harris and others*, cited in earlier chapters, the Court of Appeal for England and Wales outlined the following duties that expert witnesses owe to the court:

- 1) Expert evidence presented to the court should be and seen to be the independent product of the expert uninfluenced as to form or content by the exigencies of litigation.
- 2) An expert witness should provide independent assistance to the court by way of objective unbiased opinion in relation to matters within his expertise. An expert witness in the High Court should never assume the role of advocate.
- 3) An expert witness should state the facts or assumptions on which his opinion is based. He should not omit to consider material facts which detract from his concluded opinions.

⁷¹ Coulter A. Osborne, *Civil Justice Reform Project: Summary of Findings & Recommendations* (Toronto: Ministry of the Attorney General, 2007), 83.

- 4) An expert should make it clear when a particular question or issue falls outside his expertise.
- 5) If an expert's opinion is not properly researched because he considers that insufficient data is available then this must be stated with an indication that the opinion is no more than a provisional one.
- 6) If after exchange of reports, an expert witness changes his view on material matters, such change of view should be communicated to the other side without delay and when appropriate to the court.⁷²

In England and Wales, these general guidelines for all expert witnesses have been supplemented and particularized in a book for experts prepared by the Director of Public Prosecutions (DPP). It includes the requirement that experts called by the Crown certify that they understand their duties to the court and that they will inform all parties and, where appropriate, the court, in the event that their views change on a material issue. This obligation also requires the expert witnesses to inform the DPP of any pending legal, professional, or disciplinary proceedings against them; any adverse findings by a judge or a coroner against them; or anything else that may adversely affect their professional competence and credibility as expert witnesses.⁷³ Many of these guidelines now find expression as well in *The Criminal Procedure [Amendment No 2] Rules 2006*.

In addition, the Home Office and the Royal College of Pathologists have prepared their own specific Code of Practice and Performance Standards for Forensic Pathologists. It contains direction specific to forensic pathologists, as well as more general language that could be applied to all experts. In Chapter 15 (Best Practices) and Chapter 16 (Effective Communication with the Criminal Justice System), I recommend the creation of a similar code of practice and performance standards for forensic pathologists in Ontario that targets the entire range of their practice. At this juncture, however, I will consider the advisability of a general code of conduct for *all* experts about testifying in criminal cases.

During the policy roundtable on expert evidence, I asked the participants about the advisability of a code of conduct that would make it clear to expert witnesses that they are not to be advocates but, rather, to give evidence in an impartial and candid manner to assist the court. What I was referring to was something that would go beyond the proposed code of practice and performance standards for forensic pathologists and represent an ethical code for expert witnesses gener-

⁷² *R. v. Harris and others*, [2005] EWCA Crim 1980 at para. 271, citing *National Justice Compania Naviera SA v. Prudential Assurance Co. Ltd. (The Ikarian Reefer) (No.1)*, [1993] 2 Lloyd's Rep. 68 at 81.

⁷³ *Disclosure: Expert's Evidence and Unused Material – Guidance Booklet for Experts*, March 2006, 17–19, online: Policy Directorate http://www.cps.gov.uk/publications/docs/experts_guidance_booklet.pdf.

ally, akin to that proposed by Mr. Osborne. No objections were voiced to this proposal, although both Mr. LeSage and Justice Rosenberg made the valid point that a code in itself would not guarantee the integrity of expert witnesses. Professor Beecher-Monas was supportive of the idea because of its educative function and because it could be cited by expert witnesses to resist overzealous advocates who might try to push them to say things that they were not comfortable with or that were beyond their range of expertise. The consensus seemed to be that a code of conduct would do no harm and that it could achieve some good.

In my view, there are various ways in which such a code of conduct could be incorporated into the criminal justice system. For example, the Superior Court of Justice in Ontario and the Ontario Court of Justice might issue practice directions that require counsel to ensure that the experts they intend to call as witnesses have familiarized themselves with the code of conduct and agree to be bound by its obligations before giving evidence. As well, existing pretrial conference forms could be amended to include a question as to whether counsel have complied with their responsibilities under the practice directions. In the context of criminal proceedings, these approaches might be preferable to an amendment of the criminal rules of procedure or the *Canada Evidence Act*. However, regardless of the precise approach taken, this proposal, like the one advanced by Mr. Osborne for experts in civil proceedings, would ensure that a code of conduct is made applicable to experts testifying in criminal proceedings. Indeed, given that the accused's liberty is at stake, it would be anomalous if a code governed experts when they testified in civil cases but not in criminal cases. Such an approach also tracks what has been done in England and Wales.

Recommendation 136

- a) A code of conduct for experts giving evidence in criminal proceedings should be created.
- b) It should be incorporated into the criminal justice system. This may best be done through the introduction of practice directions and amendments to pretrial conference forms.
- c) The code should provide that experts have a duty to assist the court on matters within their expertise and that this duty overrides any obligation to the person from whom they received instructions or payment.
- d) Experts should be required to certify that they understand this duty as part of their reports and agree to be bound by the obligations contained in the code of conduct before giving evidence.

Court-Appointed or Joint Experts

Some commentators have suggested that experts, including forensic pathologists, who are appointed by the court or jointly by the parties represent the best hope for securing reliable, objective expert testimony. In civil cases, interest has been expressed in the use of court-appointed or joint experts, although I note that Mr. Osborne concluded in his review that the mandatory use of such experts was not recommended.⁷⁴ In my view, they would not be useful in criminal cases involving complex and controversial questions of pediatric forensic pathology.

Professor Edmond stated in his research study for this Inquiry that people such as Professor Sir Roy Meadow, whose testimony was later discredited in England, or Dr. Smith might have been precisely the type of well-known “experts” appointed by the court or chosen by the parties as joint experts.⁷⁵ Reliance on a joint or court-appointed expert follows a view of science that discounts disagreements among scientists on matters of judgment – an area that is particularly relevant with respect to the more interpretive aspects of forensic pathology. As well, one of the benefits of an adversarial system is its ability, through properly resourced and informed cross-examination and presentation of evidence, to best reveal and illuminate areas of scientific controversy. As one leading commentator on the interaction between science and the law has written: “At their most effective, legal proceedings have the capacity not only to bring to light the divergent technical understandings of experts but also to disclose their underlying normative and social commitments in ways that permit intelligent evaluation by lay persons.”⁷⁶

Professor Edmond has similarly stressed the ability of the adversarial process, including cross-examination, to provide a focused form of challenge that may not always be present within scientific communities.⁷⁷ That said, it is critically important that sufficient resources be provided to ensure effective adversarial challenge. I will address this subject in more detail elsewhere in this Report.

Recommendation 137

Court-appointed or joint experts are not recommended for cases involving pediatric forensic pathology. Rather, effective use of the adversarial system, which

⁷⁴ Osborne, *Civil Justice Reform Project: Summary of Findings & Recommendations*, 82.

⁷⁵ Edmond, “Pathological Science?” 137.

⁷⁶ Sheila Jasanoff, *Science at the Bar: Law, Science, and Technology in America* (Cambridge: Harvard University Press, 1995), 215.

⁷⁷ Gary Edmond, “Secrets of the Hot Tub: Expert Witnesses, Concurrent Evidence and Judge-led Law Reform in Australia” (2008) *Civil Justice Quarterly* 51–82.

allows each party to call its own evidence and to cross-examine the other party's witnesses, is particularly appropriate in areas of dispute or controversy in these cases.

Case Management, Disclosure of Expert Reports, and Meetings between Experts

Subsection 657.3(3) of the *Criminal Code* provides that, “for the purpose of promoting the fair, orderly and efficient presentation of the testimony of witnesses,” each party who intends to call expert testimony shall give notice of this intention to the other parties at least 30 days before the commencement of the trial or within any other period fixed by the court. This notice should include the name of the proposed witness, a description of the witness's area of expertise sufficient to permit the other parties to inform themselves about that area of expertise, and a statement of the qualifications of the witness as an expert.

In addition, the prosecutor shall, within a reasonable time before the trial, provide the other party or parties with a copy of the witness's report or, if no report has been prepared, a summary of the anticipated opinion and the grounds on which it is based. The defence shall provide such material no later than the close of the case for the prosecution. Without the consent of the accused, the prosecutor may not produce this defence material in evidence if the proposed defence witness does not testify.

In Chapter 17, The Roles of Coroners, Police, Crown, and Defence, I reject the introduction of additional provisions that would compel the defence to provide early disclosure of its anticipated expert testimony. However, I note there that the defence is often well served (as is the forensic testimony presented to the criminal justice system) by earlier, voluntary disclosure of its anticipated forensic evidence. Indeed, in several of the cases examined at this Inquiry, such disclosure contributed to or resulted in decisions by prosecutors to terminate the criminal proceedings.

In this chapter, I focus on the important role that judges should play in ensuring compliance with the existing disclosure provisions and in encouraging or facilitating additional steps to promote the accurate and expeditious consideration of expert testimony.

Subsection 657.3(4) provides that, where a party calls an expert witness without complying with its obligations under subsection (3), the court shall, at the request of any other party, grant an adjournment to allow preparation for cross-examination; direct the party calling the witness to provide the material that it should have provided earlier; and order the calling or recalling of any witness to

give testimony on related matters, unless the court considers it inappropriate to do so. As well, even where the obligations have been complied with, if the court is of the opinion that another party has not been able to prepare for the evidence of the proposed witness, it may adjourn the proceedings or order that further particulars be given of the evidence or that any witness be called or recalled.

What these provisions mean is that the trial judge has a vital role to play in enforcing compliance with the existing *Criminal Code* and in taking steps, even where there has been full compliance, to ensure that all parties are fully prepared and informed, and, as a result, can effectively test the expert testimony presented. Most significant, the trial judge may order that further particulars of the evidence be given. These particulars might include, in the context of pediatric forensic pathology, more information about any qualifications on the opinions expressed, the expert's level of confidence in the opinions expressed, and any existing controversy around the issues under consideration and how the expert opinion is situated within that controversy.

The court has an equally vital role to play in case management before the trial. Section 625.1 of the *Criminal Code* provides for pre-hearing conferences to consider matters that promote a fair and expeditious hearing or would be better decided before the start of the proceedings, and to make arrangements for decisions on those matters. Indeed, such conferences are mandated for jury trials. Even apart from these provisions, judicial pretrials in Ontario are well established at all levels of court and, for serious or complex cases, may engage the judge in ongoing pretrial case management.

Case management has particular relevance to trials in which pediatric forensic pathology or other complex expert evidence may figure prominently. The judge can facilitate the narrowing of the issues between the parties that relate to forensic pathology. For example, agreement may be reached as to whether the pathologist's expertise is to be admitted; whether the post-mortem or consultation report, or parts thereof, will be filed on consent; how the underlying facts relied on by the expert will be proven; and what photographs, if any, will be tendered. At the very least, this process can sharply define the issues for the assistance of the trial judge.

In connection with the expert's report, ss. 657.3(1) and (2) of the *Criminal Code* are sometimes overlooked. Subsection 657.3(1) provides that the evidence of an expert may be given by means of a report, accompanied by an affidavit or solemn declaration by the proposed expert setting out his or her qualifications if certain preconditions are met. The court must recognize the person as an expert, and the party intending to produce the report must have given the other party or parties a copy of the report, the affidavit or solemn declaration, and

reasonable notice of the intention to produce the report. Subsection 657.3(2) provides that, notwithstanding subsection (1), the court may require the person to be examined or cross-examined on any of the issues contained in the affidavit or solemn declaration or report. These provisions invite discussion as part of the case management process; ultimately, they invite consideration by the trial judge as to whether an order should be made admitting the report into evidence, and whether it should be accompanied by examination or cross-examination of its author.

Finally, although there is no obligation before the trial for the defence to disclose the report of its proposed witness or a summary of the anticipated opinion of that witness, the pretrial judge can nonetheless explore with the defence whether it would be prepared to do so, and, if it is so prepared, how and when that might take place. The judge may be able to alleviate, through agreed-upon terms, any concerns that the defence may have with early voluntary disclosure.

Recommendation 138

- a) Trial judges can play an important role in enforcing compliance with the existing *Criminal Code* provisions respecting disclosure of anticipated expert testimony and in taking steps, even where there has been full compliance, to ensure that all parties are fully prepared and informed and, as a result, can effectively test the expert testimony presented.
- b) Pretrial judges have an equally important role to play in cases in which pediatric forensic pathology or other complex expert evidence may figure prominently. They can facilitate the narrowing of the issues between the parties. They can facilitate the production of further particulars of the proposed expert's opinion or the grounds on which it is based. Finally, they can explore with the defence the voluntary early disclosure of the report by its proposed witness or a summary of the anticipated opinion of that witness, as well as how and when that disclosure might take place.

Pretrial Meetings or “Hot Tubs” between Experts⁷⁸

Considerable interest has been expressed in the idea that experts retained by competing parties meet before the trial in an attempt to settle or narrow their differences.

⁷⁸ “Hot tubbing” is used here to describe the meeting of experts retained by competing parties to attempt to reach agreement or to narrow issues. It has also been used in another way – to describe the calling of experts in panels, rather than individually.

Mr. Osborne has recently recommended in civil cases that judges in pretrial proceedings be able to order opposing experts in appropriate cases to

- a Meet, on a without prejudice basis, to discuss one or more issues in the respective expert reports to identify, clarify and, one would hope, resolve issues on which the experts disagree and
- b Prepare a joint statement as to the areas of agreement, or reasons for continued disagreement
where in the opinion of the court
 - i there may be room for agreement on some or all issues,
 - ii the rationale for opposing expert opinions is unknown and clarification on areas of disagreement would assist the parties or the court or
 - iii cost or time savings or other benefits can be achieved proportionate to the amounts at stake or the issues involved in the case.

Of particular note to this Inquiry was his comment that,

[d]uring consultations, medical experts noted that doctors often work well in forming consensus. They suggested that it would be very useful to have experts meet to consider whether issues can be agreed upon and determine which are still in dispute. For all experts, this reform would provide a level of peer review that expert opinions do not now routinely undergo. It may also assist in clarifying disparate interpretations of underlying facts and assumptions and would introduce a level of accountability that may deter “hired guns.”⁷⁹

Meetings between Crown and defence experts could be valuable if, in light of the expert critique from a respected colleague, they lead the experts to rethink, clarify, or narrow their disagreement. It will often be in the best interests of all parties, including the accused, to facilitate meetings between expert witnesses on complex matters involving pediatric forensic pathology. Criminal Procedure Rules in England and Wales have recently been amended to give judges the power to direct experts to meet in order to discuss their evidence and to prepare statements, with reasons, on the matters on which they agree and disagree.⁸⁰ Except for such statements, the contents of the meetings between experts are not admissible.⁸¹ These rules also contemplate that the court can refuse to accept expert

⁷⁹ Osborne, *Civil Justice Reform Project*, 77, 83.

⁸⁰ *Criminal Procedure Rules 2005*, R. 33.5; *R. v. Holdsworth*, [2008] EWCA Crim 971 at paras. 25 and 59.

⁸¹ *Criminal Procedure Rules 2005*, R. 33.5(3).

evidence as a remedy for non-compliance with these requirements.⁸² Such an approach in Canada might be vulnerable to the same *Charter* objections, discussed in Chapter 17, The Roles of Coroners, Police, Crown, and Defence, in relation to pretrial mandatory disclosure of defence expert reports. That said, judges can encourage and facilitate meetings between willing experts. This role is yet another that can be fulfilled by pretrial judges, who are also well situated to identify the potential benefits of such meetings and to work toward agreement on the timing and terms of such meetings and any written materials that might come from them.

Recommendation 139

It will often be in the best interests of all concerned for expert witnesses to meet before trial to discuss and clarify their differences. In appropriate cases, judges, particularly pretrial judges, can encourage and facilitate such meetings between willing experts, without requiring that they take place.

Charges to the Jury with Respect to Expert Evidence

Finally, the court can play a role in protecting the criminal justice system from flawed pathology by using the charge to the jury to beneficial effect. The judge should not use instructions designed to address the weight that the jury might give to the expert evidence as a substitute for decisions about threshold reliability. As Justice Ian Binnie has noted, “the Court has emphasized that the trial judge should take seriously the role of the ‘gate keeper.’ The admissibility of the expert evidence should be scrutinized at the time it is proffered, and not allowed too easy an entry on the basis that all of the frailties could go at the end of the day to weight rather than admissibility.”⁸³

The Canadian Judicial Council has published model jury instructions, which include instructions on expert evidence. They explain that the expert has given an opinion about some technical matters that the jury may have to consider in deciding the case and that the expert is qualified by training, education, and experience to give an expert opinion. They then provide:

Remember, the opinions of experts are just like the testimony of any other witnesses. Just because an expert has given an opinion does not require you to accept

⁸² *Ibid.*, R. 33.6.

⁸³ *R. v. J.-L.J.*, [2000] 2 SCR 600 at para. 28.

it. You may give the opinion as much or as little weight as you think it deserves. You should consider the expert's education, training and experience, the reasons given for the opinion, the suitability of the methods used and the rest of the evidence in the case when you decide how much or little to rely on the opinion. It is up to you to decide. ... How much or little you rely on the expert's opinion is up to you. But the closer the facts assumed or relied on by the expert are to the facts as you find them to be, the more helpful the expert's opinions may be to you. How much or little you rely on the expert's opinion is entirely up to you. To the extent the expert relies on facts that you do not find supported by the evidence, you may find the expert's opinion less helpful.⁸⁴

In cases where experts differ and where proof of an essential element depends entirely on the expert evidence, judges are advised to give the following instruction to the jury:

The issue on which these experts differ is an essential element that the Crown must prove beyond a reasonable doubt. Before you accept the opinion of the Crown's expert on this issue, however, you must be satisfied beyond a reasonable doubt that s/he is correct. If you are not sure that s/he is correct, then the Crown has failed to prove beyond a reasonable doubt that essential element of the offence charged.

These model charges are helpful in reminding jurors that they have an obligation to apply their common sense to the findings of experts and to make their own findings about the ultimate reliability of the expert's testimony; that they are not required to accept an expert's opinion; and that they can reject all or part of the opinion,⁸⁵ even if there is no competing expert evidence.⁸⁶

The judge should not tell the jury that the expert's evidence has already been ruled admissible, that its threshold reliability has already been determined,⁸⁷ or that the expert has any special skill.⁸⁸ It may, however, be advisable in the appropriate case to emphasize areas of controversy in expert evidence or to instruct

⁸⁴ Model Jury Instructions – Instruction 10.4, Expert Opinion Evidence (Conflict in Opinions), online: Canadian Judicial Council http://www.cjc-ccm.gc.ca/english/lawyers_en.asp?selMenu=lawyers_pmf_types_en.asp.

⁸⁵ See *R. v. Fisher*, [1961] OWN 94 (Ont. CA), affirmed [1961] SCR 535.

⁸⁶ See *R. v. D.D.*, [2000] 2 SCR 275.

⁸⁷ *R. v. Logan* (1999), 139 CCC (3d) 57 (Ont. CA) at 61.

⁸⁸ That is, in the sense that the witness has a special skill to better understand matters outside of the trier of fact's normal experience; *R. v. A.K.* (1999), 137 CCC (3d) 225 (Ont. CA) at 280.

juries that they should carefully evaluate expert scientific evidence, and not simply accept the expert evidence without careful scrutiny.

In cases in which expert evidence is important, trial judges should make use of the charge language provided by the Canadian Judicial Council model instructions, recognizing that they should supplement that language to address the particular needs in the individual case.

Recommendation 140

- a) In cases in which expert evidence is important, trial judges should make use of the model charge language provided by the Canadian Judicial Council model instructions.
- b) Judges should remind jurors that they should apply their common sense to expert testimony and that it is up to them to decide whether to accept all, part, or none of the expert's opinion.
- c) In addition, judges should, in appropriate cases, provide structured questions to assist the jury in determining the ultimate reliability of the expert's opinion. These questions may resemble the ones available to judges to assess threshold reliability as discussed in this Report.

The evidence heard at the Inquiry clearly demonstrated that the criminal justice system can be vulnerable to unreliable expert scientific evidence, including expert evidence relating to pediatric forensic pathology. Fortunately, as I have tried to describe, tools are available to decrease the risk that the system will be misled by unreliable expert testimony. It is important to note that this gatekeeping will not be an “all or nothing” task, but that each part of the proposed expert testimony must be vetted to ensure that it has sufficient reliability to be considered by the trier of fact. Properly prepared expert reports, along with a certification that the expert understands the duty to provide impartial advice to the court, are also helpful and should facilitate the process of ensuring the threshold reliability of expert evidence. Once experts are properly qualified, care should be taken to ensure that they stay within the bounds of their expertise. No justice system can be immunized against the risk of flawed scientific opinion evidence. But with vigilance and care, we can move toward that goal.