

PROVING CAUSATION IN BIRTH TRAUMA CASES:

Navigating the Twilight Zone Between Factual and Legal Causation

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INTRODUCTION

he Canadian Medical Protective Association's ("CMPA") 2011 Annual Report indicates that, in that year, there were 894 civil action cases closed. Of that number, approximately one-third settled (293). Out of those legal actions that proceeded to trial, 13 judgments were rendered for the plaintiff and 55 for the defendant. This represents an overall failure rate of almost 66%. As noted by Professor Russell Brown (as he then was), the reason most plaintiffs fail in medical negligence cases is that they are unable to prove that the medical professional's negligence caused the plaintiff's injury. As will be examined below, this is especially true in birth trauma cases, where proving causation is often the most trying and costly part of the case.

BACKGROUND AND LITIGATION ENVIRONMENT

Infants may suffer neurological injuries for a variety of reasons: frequently the exact cause remains forever unexplained, often they occur due to antenatal causes (congenital malformations, unavoidable vascular events that happen *in-utero*, maternal infections, etc.), and in some rare cases injuries to neonates are due to the negligence of the attending medical staff and thus are entirely preventable.

In terms of malpractice litigation, neonatal injuries are often perinatal in nature, meaning the injury occurs during labour and delivery. The underlying mechanism is often medical problems such as obstructed labour, cord prolapse or hemorrhage. The tort claim is based on the negligence of the medical staff in failing to recognize the problem and "rescue" the infant before permanent injury occurs.

Where birth trauma occurs, the consequences for infants, and their families, are often catastrophic. Fetal asphyxia³ during labour and delivery, for example, may result in a profound brain injury to the infant and lead to cerebral palsy ("CP") with or without significant cognitive impairment. Either way, CP normally leaves these children in dire need of constant support and care. In litigation, the lifetime dependency created by CP translates into massive claims for damages. This helps to explain why birth trauma cases are usually hard-fought by the defence.

In 1997 the Dubin Inquiry in the CMPA determined that the Association was allocating almost 65% of its reserves to the defence of only ~1.5% of its open cases – the injured baby cases. This resulted in a number of adjustments by the CMPA, including the development of a specialized group of lawyers who devote their time and energy to the defence of these matters, often to the exclusion of other types of cases, and have thereby developed a high level of expertise. The development of specialized counsel has, as a by-product, also resulted in a growing sophistication of the causation defence, which our courts have been quite amenable to adopting.

This development has also, of course, resulted in significantly increased complexity and costs for injured plaintiffs. For families with injured children, financing this type of litigation has become a real problem. Typically, the disproportionate share of plaintiff's disbursements (which often climb into hundreds of thousands of dollars by the time a case goes to trial) goes to paying for the required expert evidence necessary to prove the causal link between the medical professional's negligence and the injury that the child suffers during the birthing process.

CAUSATION – A BRIEF REVIEW OF THE LAW

For a plaintiff to recover damages, there must be a causal link between the negligent conduct of the medical staff and the injuries suffered by the plaintiff. The primary test used in determining causation is the "but for" test. The plaintiff bears the burden of showing that "but for" the defendant's negligent act or omission, her injury would not have occurred. Typically, in an obstetrical case, applying the "but for" test requires proving that it is more likely than not that without the negligence of the medical staff, the infant plaintiff's injuries would not have occurred.⁴

The causation test does not demand scientific precision and should not be applied too rigidly. In theory, causation is a practical question of fact which can best be answered by ordinary common sense. Although the burden of proof remains with the plaintiff, in some circumstances an inference of causation may be drawn from the evidence without positive scientific proof. However, in *Moore v. Castlegar & District Hospital* (1998), 49 BCLR (3d) 100 at 105 (CA), the court stated:

...in a case such as this where there is affirmative medical evidence leading to a medical conclusion it is not open to the court to apply "the common sense reasoning urged in *Snell* v. *Farrell*."

(This latter case, and its implications for the practical aspects of proving causation in obstetrical cases, will be discussed further below.)

The plaintiff need not establish that a defendant's wrongful conduct is the sole cause of her injury. So long as the plaintiff establishes a substantial connection between the injuries and the defendant's negligence beyond the "de minimis" range, the defendant will be fully liable for the harm suffered by a plaintiff, even if other causal factors, which he or she is not responsible for, were at play in producing the harm.7 Medical etiology and causation at law are not synonymous. This is because the "but for" test need only be established on a balance of probabilities, in contrast to the more rigorous standard that approaches scientific certainty familiar to the medical field. Mindful of that key difference, the Court in Tsalamandris v. MacDonald, 2011 BCSC 1138 (CanLII),; 2011 BCSC 1138 at paras. 144-146, var'd on other grounds, 2012 BCCA 239 (CanLII), 2012 BCCA 239, provided these instructive observations in relation to the causation analysis:

Because the "but for" test is to be proved on a balance of probabilities, rather than a standard of scientific certainty, great care must be had in assessing medical evidence. The human condition is incredibly complex. The precise biological, biochemical or molecular mechanisms causing many medical conditions are often not known and may not be known for lifetimes to come, and for the same reason, prognosis and treatment is also often not certain. In cases where medical causation cannot by its very nature be proven with certainty, medical experts may not be comfortable stating a black-and-white opinion as to what "caused" a patient's condition. Often medical evidence refers to known "risk factors" for medical conditions, or a number of causes, precisely because of the expert's discomfort in assigning one "cause" to a complex medical issue.

In determining causation in the legal context, courts must be mindful to assess the import and substance of the expert opinion evidence, and to be cautious about the wording used by the experts so as to not unduly discount or over-weigh the expert's choice of language when describing medical causation. Ultimately causation is a question for the court, taking into account the evidence.

It is important for the court to keep in mind that all that is required to determine these complex medical issues in the context of causation is for the plaintiff to prove what is more likely than not. This is what is meant by the "but for" test: it is more likely than not, that without the tort, the injury or medical condition would not have happened.

Causation in law must be established on the balance of probabilities, taking into account all the evidence: factual, statistical

and that which the judge is entitled to presume. Loss of a chance is not compensable. Similarly, it is not sufficient to show that the defendant created a risk of harm and that the harm subsequently occurred within the ambit of the risk created.⁸

In this jurisdiction, the practical difficulty associated with proving causation stems, at least in part, from the stiff resistance put up by our Court of Appeal to any attempt to lower the standard of proof in malpractice cases. In *Snell v. Farrell*, [1990] 2 SCR 311, Sopinka J., speaking for the court, stated:

Causation is an expression of the relationship that must be found to exist between the tortious act of the wrongdoer and the injury to the victim in order to justify compensation of the latter out of the pocket of the former. Is the requirement that the plaintiff prove that the defendant's tortious conduct caused or contributed to the plaintiffs injury too onerous? Is some lesser relationship sufficient to justify compensation? ... If I were convinced that defendants who have a substantial connection to the injury were escaping liability because plaintiffs cannot prove causation under currently applied principles, I would not hesitate to adopt one of these alternatives. In my opinion, however, properly applied, the principles relating to causation are adequate to the task...

. . .

I am of the opinion that the dissatisfaction with the traditional approach to causation stems to a large extent from its too rigid application by the courts in many cases. Causation need not be determined by scientific precision...

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In many malpractice cases, the facts lie particularly within the knowledge of the defendant. In these circumstances, very little affirmative evidence on the part of the plaintiff will justify the drawing of an inference of causation in the absence of evidence to the contrary...

...

The legal or ultimate burden remains with the plaintiff, but in the absence of evidence to the contrary adduced by the defendant, an inference of causation may be drawn although positive or scientific proof of causation has not been adduced. If some evidence to the contrary is adduced by the defendant, the trial judge is entitled to take account of Lord Mansfield's famous precept. This is, I believe, what Lord Bridge had in mind in Wilsher when he referred to a "robust and pragmatic approach to the ... facts" (p. 569). It is not therefore essential that the medical experts provide a firm opinion supporting the plaintiff's theory of causation. Medical experts ordinarily determine causation in terms of certainties whereas a lesser standard is demanded by the law.

This analysis of the law prompted a number of plaintiff's counsel to suggest, with varying degrees of success, that *Snell* represented a change in the law – that it was not now necessary for plaintiffs to prove causation by leading medical evidence, but that the court could infer causation simply by resorting to a "robust and pragmatic" analysis of the evidence. This analysis was not only rejected by our Court of Appeal, it was rejected in a manner which has led to a significantly higher burden of proof (with the attendant costs associated with that increased burden).

The shift began with the judgment of the Court of Appeal in *Moore v. Castlegar Hospital et al* (1998), 49 BCLR (3d) 100. In that case, the plaintiff was injured in a motor vehicle accident. He suffered a burst fracture of his spinal column at C7, which went undetected because of an inadequate x-ray and a failure to do a neurologic examination. When he awoke, the plaintiff was discovered to be paralyzed. Causation was the only liability issue at trial. Both sides led evidence on that issue. At trial, the court concluded that the plaintiff had failed to prove causation and dismissed the action. On appeal, it was submitted that the trial judge had erred in failing to use a robust and pragmatic approach to the causation issue and in failing to infer causation. That submission was rejected in the following passage:

With respect, I think in a case such as this where there is affirmative medical evidence leading to a medical conclusion it is not open to the court to apply "the common sense reasoning urged in *Snell v. Farrell.*" I take it this is what the trial judge was referring to when she said:

All parties have led evidence on this issue [causation] and it would be inappropriate to resort to an inferential analysis as was argued on the plaintiff's behalf.

I share that view.

In subsequent cases, this passage was used to cement a general rule in this province that whenever the defence led evidence on the causation issue, a trial judge was *prohibited* from applying the "robust and pragmatic" approach to causation in order to draw an inference of causation.⁹

This general proposition came to a head in the recent judgment of the Court of Appeal in Ediger v. Johnston, 2011 BCCA 253. In that case, the defendant Dr. Johnson was found to have negligently performed a mid-forceps delivery without ensuring that adequate backup was in place. Very shortly after he removed the forceps, the fetal heart rate dropped precipitously. This was recognized as an emergency requiring immediate delivery, but access to the operating room was not available because another procedure was going on. The causation issue revolved around the cause of the drop in the fetal heart rate. The plaintiff's theory was that the application of the forceps had led to a slight shifting of the fetal head which allowed the umbilical cord to drop down beside the head where it was compressed. The defence led evidence that it could have been caused by medical problems unrelated to the application of the forceps, including a kink in the umbilical cord or a short cord. There was no direct physical

evidence regarding which theory was correct and the medical evidence was largely in the form of inferences drawn by the experts on the basis of the evidence which was available. The trial judge accepted the plaintiffs theory and found that causation had been established. The Court of Appeal set aside that judgment and dismissed the action. In doing so, Smith, J stated for the court:

[85] In this case, the appellant led evidence to the contrary. While some potential causes for the cord compression were ruled out by the medical experts (including cord prolapse, placental abruption, and a short cord) there was also evidence that cord compression could occur from a "kink" in the cord or a nuchal cord, or in some instances for unknown reasons. The fact that the precise mechanism of how the cord compression occurred could not be determined did not lessen the burden of proof on the respondent or the trial judge's task of having to weigh the evidence on causation in the context of her other findings of fact. The inference of causation from Snell was not available to be drawn. The trial judge had to determine whether the evidence established that, on a balance of probabilities, the appellant's attempted forceps delivery was the cause of the cord compression.

This judgment created significant problems for plaintiffs attempting to prove causation in obstetrical cases. In almost all

cases, the precise mechanism of injury is hidden. The baby is usually injured while still *in utero*, meaning that all conclusions regarding causation must be by way of inference. Direct evidence is almost never available. Fortunately, the Supreme Court of Canada granted leave to appeal on this issue.

Between the granting of leave and the hearing of the appeal, the Supreme Court handed down judgment in another significant causation case – *Clements v. Clements*, 2012 SCC 32. In that case, the Supreme Court confirmed that the presumptive causation test is the "but for" test. The plaintiff must show on a balance of probabilities that "but for" the defendant's negligent act, the injury would not have occurred. Inherent in the phrase "but for" is the requirement that the defendant's negligence was necessary to bring about the injury; in other words, that the injury would not have occurred without the defendant's negligence. The Court also stated, however, that:

[9] The "but for" causation test must be applied in a robust common sense fashion. There is no need for scientific evidence of the precise contribution the defendant's negligence made to the injury. See Wilsher v. Essex Area Health Authority, [1988] AC 1074, at p. 1090, per Lord Bridge; Snell v. Farrell, 1990 CanLII 70 (SCC), [1990] 2 SCR 311...

[10] A common sense inference of "but for" causation from proof of negligence usually flows without difficulty. Evidence connecting the breach of duty to



the injury suffered may permit the judge, depending on the circumstances, to infer that the defendant's negligence probably caused the loss. See *Snell* and *Athey* v. *Leonati*, 1996 CanLII 183 (SCC), [1996] 3 SCR 458...

[11] Where "but for" causation is established by inference only, it is open to the defendant to argue or call evidence that the accident would have happened without the defendant's negligence, i.e. that the negligence was not a necessary cause of the injury, which was, in any event, inevitable. As Sopinka J. put it in *Snell*, at p. 330:

welcome!

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The legal or ultimate burden remains with the plaintiff, but in the absence of evidence to the contrary adduced by the defendant, an inference of causation may be drawn although positive or scientific proof of causation has not been adduced. If some evidence to the contrary is adduced by the defendant, the trial judge is entitled to take account of Lord Mansfield's famous precept [that "all evidence is to be weighed according to the proof which it was in the power of one side to have produced, and in the power of the other to have contradicted" (Blatch v. Archer (1774), 1 Cowp. 63, 98 ER 969, at p. 970)]. This is, I believe, what Lord Bridge had in mind in Wilsher when he referred to a "robust and pragmatic approach to the ... facts" (p. 569). [Emphasis added.]

It would appear, based on this pronouncement, that the difculties anticipated with the *Ediger* decision may never come to uss. This brings us back, however, to the still considerable difculties associated with proving causation in medical cases. The simple fact is that the CMPA and its counsel allocate substantial resources to the defence of these cases, and causation is virtually always an issue. The defence will usually lead evidence on the issue, and it is incumbent upon counsel to recognize where the causation issues arise and be prepared to prove that the negligence of the defendant(s) caused the injuries to the infant plaintiff.

The analysis below outlines some of the typical issues and how they must normally be approached if causation is to be proven in birth trauma cases.

CAUSATION IN THE CONTEXT OF A BIRTH INJURY CASE

Based on the above, it is clear that an infant plaintiff seeking compensation for neurological injuries suffered at birth usually needs to prove that the onset of his or her injuries was identifiable during labour and delivery, that there was some type of intervention that was required according to the standard of care, that the required intervention failed to occur due to the negligence of the medical staff, and that earlier intervention would have left the infant plaintiff in a better position.

In birth trauma cases, the causation inquiry often focuses on the specific type of injury that occurred (acute near total asphyxia or partial prolonged asphyxia), and on the specific interventions that were available and required. If the standard of care issue is passed (ie – if the medical staff is found to have been negligent), the next question often is – assuming there was no negligence, would the injury have occurred anyway? In order to answer this question, it is usually necessary to determine the nature of the negligence which has been identified, and then to determine whether normal or non-negligent treatment by the attending medical staff would have prevented the injury.

For example, let us assume that an infant has suffered an acute near-total asphyxial injury during delivery. In order to establish causation in such a case, the scientific inquiry must normally go through a multi-stage analysis to prove causation. First, it is often necessary to determine when the asphyxia commenced. This normally begins with an examination of the medical records: the fetal monitoring strips, the partogram and the other parts of the obstetrical record. These documents, properly interpreted, often provide valuable data regarding the onset of an asphyxial insult. They also provide the foundation for establishing when the duty of care was breached.

Neuroimaging provides the basis for determining the type of injury that was suffered – an acute profound or a partial prolonged asphyxial injury. As adjuncts to this, other clinical indicia such as the Apgar scores, the umbilical cord gas values, placental pathology and evidence of multisystem failure over the first 72 hours of life provide valuable information on the nature of the injury, the extent of the injury and the timing of the intervention necessary to prevent it. With this information in hand, counsel is left with the task of constructing a theory of the case (what happened, where did it go wrong and how could the injury have been prevented with appropriate treatment).

Fetal Monitoring Strips

Fetal monitoring is not standard in labour and delivery, but it is frequently seen. If done correctly, fetal heart tracing measurements are a valuable tool in identifying evidence of oxygen deprivation. Having said this, however, recent medical guidelines (which appear to be largely litigation driven) provide great scope for "clinical judgment." In other words, tracings are becoming more and more complex in terms of appropriate interpretation and it is not uncommon to see any number of highly qualified professional experts who profoundly disagree on the interpretation of the strip. Nevertheless, there are certain indicia, such as late decelerations and the loss of variability, that most experts will agree are indicative of fetal hypoxia when they occur in tandem. Because of the difficulties of interpretation, however, it is a rare case where fetal heart strips alone can be used to prove causation.

Neuroimaging

In cases of suspected asphyxial injury at birth, babies are often sent for neuroimaging (CT scan and/or, less frequently, MRI scan). The results of these examinations often form the cornerstone of the plaintiff's case because they define the nature of the injury that occurred. They may also form the cornerstone of the defence. For example, if the medical data establishes that the baby suffered an acute profound near total asphyxial insult within 10 minutes of birth, it is often very difficult to establish that any intervention could have taken place in time to prevent the injury. On the other hand, if the infant suffered a partial prolonged asphyxial insult, which by definition usually means it occurred over many hours, the theory of the plaintiff's case will often be that intervention should have taken place hours earlier and that, had it done so, the injury would have been avoided.

Apgar Scores

It is routine practice for a baby's condition at birth to be assessed on the basis of the "Apgar score." The attending medical team assesses the baby's condition on the basis of a number of parameters taken at one, five and ten minutes of life.

The rating system, named after Dr. Virginia Apgar, assesses activity (muscle tone), pulse (heart rate), grimace (reflex irritability), appearance (skin color), and respiratory effort (breathing). Each of these criteria is given a score between zero and two. A score of zero for each category, respectively, means limp muscle tone, no heart rate, and no reflex to being stimulated, blue colored skin and no breathing. A score of one is given where there is some flexion, present heart rate of less than 100 beats per minute, some grimace, pink body but blue hands and feet, and a weak cry. Two for each category is assigned where there is active spontaneous movement, heart rate is above 100 beats per minute, a baby is responsive to stimulation by crying or pulling away, the skin is pink all over the body, and there is a strong cry. At one, five and ten minutes of life, all scores for each component of the system are added up.

It has been repeatedly demonstrated that Apgar scoring is very subjective and, therefore, inherently unreliable. Apgar scores alone are therefore not conclusive evidence of perinatal asphyxia. However, when used together with non-reassuring fetal heart rate monitoring patterns, abnormal cord gases, imaging indicating a brain injury, placental pathology, multi-system organ dysfunction, and neonatal electroencephalography, ¹⁰ they are a helpful part of an evidentiary package used to demonstrate that an intrapartum hypoxic—ischemic event was a cause of the infant plaintiff's injuries.

Umbilical Cord Gases

Analysis of umbilical cord blood gases is often a critical component to the plaintiff's causation case. Cord gases may demonstrate the existence of an acute intrapartum asphyxial event and they can sometimes be used to demonstrate the timing of the injury.

The Society of Obstetricians and Gynecologists of Canada (the "SOGC," the governing Canadian obstetrical group) and ACOG (their American counterpart) have attempted to use cord gas values as a clear bright line delineation tool to determine whether an asphyxial injury occurred at birth or not. According to the ACOG and SOGC guidelines, an asphyxial insult sufficient to cause brain injury could not have occurred if the cord gases demonstrate a pH of more than 7.1 and a base deficit less than 12. Some recent cases have rejected this sort of analysis as being entirely too rigid, but plaintiff's counsel should always be aware that the attempt to discredit plaintiff's theory will be made if cord blood analysis falls within the SOGC/ACOG guidelines.

Placental Pathology

Where perinatal asphyxia is suspected in a newborn, the placenta is typically sent for pathological examination where weight of the placenta, the cord length and colour and microscopic examination to detect the presence of infection are investigated. All of these factors play a role in the determination of the cause

of an infant's injuries. They may rule out a perinatal injury or they may point in a direction hidden on initial examination.

It is unwise to rely upon the hospital to do the required examination. Often, it is up to counsel to ensure that the examination is performed. A note of caution: where there are findings of untreated infections, an aged placenta or placental abruption, the defendants will rely on these to argue that the CP was a product of an earlier (and therefore untreatable) asphyxial event, or as a result of a completely unrelated event. For example, if the placental pathology indicates a prior severe infection, it may lead to the conclusion that the asphyxial evidence during delivery was not the cause of the infant's injuries, but rather the result of a pre-existing injury. This information is obviously important if counsel is going to provide proper advice to their clients, hopefully before a great deal of time and money has been spent chasing down a claim.

Overall Evidence of Multi-System Dysfunction

Neonates who suffer a brain injury in the perinatal period may exhibit certain symptoms after birth. Evidence of problems such as difficulties "latching on" for feeding, breathing problems requiring ventilation and/or seizures, and the timing of the onset of these problems, may provide valuable information regarding not only the cause of the injury, but the timing as well.

To sum up, the causation inquiry in birth trauma cases is nothing but a process of drawing inferences based on the above-referenced indicia gathered from the birth records. It is always a reconstruction of what likely happened, without the benefit of any evidence of a directly observable mechanism that caused the injury. The precise mechanics of a cause-in-fact in injuries resulting from birth trauma are often in the realm of the unknown.

CONCLUSION

As the Supreme Court of Canada recently affirmed in *Clements* (supra), the law, at least in theory, provides that

[8] The test for showing causation is the "but for" test. The plaintiff must show on a balance of probabilities that "but for" the defendant's negligent act, the injury would not have occurred. Inherent in the phrase "but for" is the requirement that the defendant's negligence was *necessary* to bring about the injury – in other words that the injury would not have occurred without the defendant's negligence. This is a factual inquiry. If the plaintiff does not establish this on a balance of probabilities, having regard to all the evidence, her action against the defendant fails. [9] The "but for" causation test must be applied in a robust common sense fashion. There is no need

[9] The "but for" causation test must be applied in a robust common sense fashion. There is no need for scientific evidence of the precise contribution the defendant's negligence made to the injury. See Wilsher v. Essex Area Health Authority, [1988] A.C. 1074, at p. 1090, per Lord Bridge; Snell v. Farrell, [1990] 2 SCR 311.

Notwithstanding this pronouncement, however, the reality on the ground is that if the plaintiff fails to lead scientific evidence on the causation issue in a malpractice case, and in particular an obstetrical case, there is a high probability that the court will find that causation has not been proven. Our courts have stated that "... Snell does not stand for the proposition that an inference of causation may be drawn in the absence of evidence that the negligence caused the injury. The burden is on the plaintiff to prove that "a substantial connection between the injury and defendant's conduct" is present: Resurfice (at para. 23). There must be some evidence that the negligence caused, or could have caused, the injury to justify drawing an inference."11 The defence can be counted upon to lead substantial evidence on the causation issue. As a practical matter, if the plaintiff is to succeed in any malpractice case, and especially in an obstetrical case, it is incumbent upon counsel to properly investigate all aspects of the causation issue and be prepared to lead a great deal of scientific evidence on the issue.

Paul McGivern acts exclusively in plaintiffs' medical negligence and infant injury litigation cases. For the past 25 years his practice has been focused on complex catastrophic cases, especially infant birth trauma cases. Paul has been lead counsel in hundreds of medical malpractice claims, including serious spinal cord injury cases, head injuries and birth injury cases. Paul is an adjunct legal professor at the University of British Columbia.

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- 1 The statistics for 2012 have not yet been published.
- 2 Russell Brown, "Known Unknowns in Cause-in-Fact," (2011) 39 *The Advocates' Quarterly* 37-66.
- 3 A condition that occurs when a fetus is deprived of oxygen while in-utero.
- 4 Athey v. Leonati, 1996 CanLII 183 (SCC), [1996] 3 SCR; 458; Blackwater v. Plint, 2005 SCC 37 (CanLII), [2005] 2 SCR 3.
- 5 Snell v. Farrell, 1990 CanLII 70 (SCC), [1990] 2 SCR 311
- 6 Snell v. Farrell, supra.
- 7 Farrant v. Laktin, 2011 BCCA 336 (CanLII), 2011 BCCA 336; Athey; Resurfice Corp. v. Hanke, 2007 SCC 7 (CanLII), 2007 SCC 7; Clements v. Clements, 2012 SCC 32.
- 8 St-Jean v. Mercier, 2002 SCC 15, Cottrelle v. Gerrard (2003), 233 DLR (4th) 45, (Ont CA), Seatle (Guardian ad litem of) v. Purvis, 2007 BCCA 349 (BCCA).
- 9 See, for example, Brito v. Woolley, 2001 BCSC 1178;, Kooner v. Matsqui-Sumas-Abbotsford General Hospital, 2001 BCSC 1266;, Dobie v. Dlin, 2002 BCSC 356;, McLeod v. Ridyard et al, 2001 BCSC 158; Miller v. Budzinski et al, 2004 BCSC 1730;, Agno v. Wilson, 2007 BCSC 1160;, Sam v. Wilson, 2007 BCCA 622.
- 10 Recording of electrical activity along the scalp that measures the electrical activity of a baby's brain.
- 11 Jackson v. Kelowna General Hospital, 2007 BCCA 129 at para. 20 [Emphasis added].

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