

FACTUAL CAUSATION AND HEALTHCARE-ASSOCIATED INFECTIONS

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Introduction – The Context

Nosocomial infections have been a reality since the origin of medicine and have been the object of judicial decisions for a long time. Canadian judges have dealt with potential liability arising from healthcare-related infections since at least the beginning of the twentieth century.¹ However, the increased incidence rates of nosocomial infections in the last few years have put them at the forefront of social and media scrutiny. They now present particular challenges for the courts because of their proliferation and the evasive nature of their causes. This paper comments on the judicial treatment of the uncertainty that often surrounds the causes of infections contracted in the healthcare setting.²

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1 *E.g., Cassan v. Haig*, [1914] O.J. No. 710, 7 O.W.N. 267 (S.C., App. Div.).

2 However, it does not purport to make an exhaustive review of all the caselaw on the issue and will highlight only some significant examples drawn from Canadian common and civil law. For the sake of brevity, it will also be limited to Canadian law, despite the existence of very interesting U.S. cases on the topic.

1. Definitions

The etymology of the word nosocomial is telling at the same time as it raises questions about its appropriateness. ‘Nosocomial’ comes from the Latin word *nosocomium*, which means ‘hospital,’ and the Greek word *nosokomeion*, which means ‘one who tends to the disease.’³ As far as its etymology demonstrates that the term ‘nosocomial’ only refers to care provided in healthcare institutions, it is too narrow in scope. Indeed, in our modern healthcare system, medical acts connected to infections also frequently occur outside of the healthcare setting – in the community, for instance. The more general term, ‘iatrogenic injury,’ is also limiting as it refers to injury that is induced by (*genic*) the healer or physician (*iatros*). This is why many jurists and scientists dealing with these infections now prefer to simply call them ‘healthcare-associated’ infections. Nevertheless, we will continue to refer to them as ‘nosocomial infections’ here.

There are several definitions of nosocomial infections. For the World Health Organization, ‘(n)osocomial infections [...] are infections acquired during hospital care which are not present or incubating at admission. Infections occurring more than 48 hours after admission are usually considered nosocomial.’⁴ The definition of the French Ministry of Health is along the same lines, but more precise:

*[L]es infections nosocomiales sont les infections qui sont contractées dans un établissement de soins. Une infection est considérée comme telle lorsqu’elle est absente à l’admission du patient. Lorsque l’état infectieux du patient à l’admission est inconnu, l’infection est classiquement considérée comme nosocomiale si elle apparaît après un délai de 48 heures d’hospitalisation. Ce délai est cependant assez artificiel et ne doit pas être appliqué sans réflexion.*⁵

One central idea flows through both of these definitions: the patient must have contracted the infection *after* being admitted for treatment. In other

3 *Nosos*: disease; *komein*: care. See the discussion of E. Ellenberg, “Nosocomial infection: a terminological clarification” (2004) 4 *The Lancet – Infectious Diseases* 721.

4 World Health Organization (WHO), *Prevention of Hospital-Acquired Infections. A Practical Guide*, 2nd ed., online: World Health Organization <www.who.int/csr/resources/publications/drugresist/en/whocdscsreph200212.pdf>.

5 Ministère de la Santé, *La lutte contre les infections nosocomiales*, online : Ministère de la Santé <www.sante.gouv.fr/htm/actu/34_010528.htm#1>.

words, the infection must have been contracted in the healthcare setting and, thus, must have been absent at admission. Given that most infections are asymptomatic for some time after their onset, it can be very difficult to identify with precision whether the infection was indeed contracted after admission or whether the patient was infected prior to admission but asymptomatic at that time. The 48-hour time line to which both definitions refer is helpful but, as the French definition stresses, must be approached with care; it is a rebuttable presumption, and not all infections will necessarily fit this time pattern.

It is useful to note that these definitions are broad enough to encompass both endogenous and exogenous infections.⁶ Exogenous infections are those whose source is found outside of the patient's body. They include infections transmitted from one patient to another through contact with hands or with medical instruments. They can also result from germs carried by staff or by a contaminated hospital environment (air, water, food).⁷ By contrast, nosocomial infections are endogenous when his or her own germs infect the patient or when the infection sets in because of the patient's particular vulnerability. The distinction between endogenous and exogenous infections is important since some decisions reveal judicial reluctance to impose medical liability for endogenous infections.⁸

2. Infectious agents and some statistics

Treatments that are particularly invasive – such as intravenous fluids, urinary catheters, artificial respiration, and any kind of surgery – are more likely to transmit infections.⁹ Indeed, the most common types of nosocomial infections are surgical wound infections, urinary tract infections, and respiratory tract infections. These typically arise from the most common agents of infection: bacteria, viruses, parasites, and fungi. Infections caused by bacteria have been particularly prevalent in Canadian hospitals, as the spread of infections caused by *Staphylococcus aureus* and *Clostridium Difficile* (*C. difficile*)

6 See Y. Lachaud, "Responsabilité médicale : l'évolution de la jurisprudence de la Cour de cassation en matière d'infection nosocomiale", *Gaz. Pal.* 1999. I.doctr.1619, 1622.

7 *Supra* note 4 at 2.

8 *Infra*, page 208 and our critique.

9 H. Groutel, "L'infection nosocomiale dans le secteur privé: un revirement de jurisprudence exemplaire" (1999) *Responsabilité civile et assurances* 6.

demonstrates. However, viruses are culprits as well; for instance, the transmissions of the human immunodeficiency and hepatitis C viruses through contaminated blood transfusions have had dramatic impacts in Canada and elsewhere. Infections related to fungi and parasites, such as *Aspergillus*, are also realities in our healthcare system.¹⁰

It is estimated that there are between 220,000 and 250,000 nosocomial infections in Canadian hospitals each year. These infections result in 8,000 to 12,000 deaths per year, thus making nosocomial infections the fourth leading cause of death in Canada.¹¹ Individual provincial statistics are also worrying. In the province of Quebec, for instance, 10 percent of hospital admissions result in nosocomial infections. This translates into 80,000 to 90,000 patients suffering from nosocomial infections annually in this province, which costs the healthcare system \$180 million per year.¹² The mortality rate for nosocomial infections in Quebec varies from 1 to 10 percent, depending on the infection.¹³ The World Health Organization estimates that hundreds of millions of patients around the world are affected by healthcare-associated infections every year and that an estimated 5 to 10 percent of patients admitted to modern hospitals in the developed world acquire one or more infections.¹⁴

10 For instance, the Royal Victoria Hospital in Montreal had to close 12 of its 15 operation rooms in 2001 after *Aspergillus* was discovered in its air ducts: Susan Pinker, "ORs closed after *Aspergillus* discovered at Royal Vic" (2001) 164: 9 CMAJ 1333.. Pinker also reports that a 1999 Health Canada report documented 24 Canadian hospitals facing the same problem.

11 Community and Hospital Infection Control Association (CHICA-Canada), online: <<http://www.chica.org/nacsph.html>>; College of Physicians & Surgeons of Ontario 2005, cited in Tracey M. Bailey & Nola M. Ries, "Legal Issues in Patient Safety: The Example of Nosocomial Infection" (2005) 8 Healthcare Quarterly 140.

12 Santé et Services sociaux Québec, *Plan d'action sur la prévention et le contrôle des infections nosocomiales 2006-2009*, Publication 06-209-01, online: Santé et Services sociaux Québec <<http://publications.msss.gouv.qc.ca/acrobat/f/documentation/2006/06-209-01.pdf>>.

13 *Ibid.*

14 WHO News and Public Information Fact Sheet, *Healthcare-Associated Infections. Scale and Cost*, online: Pan American Health Organization <http://www.paho.org/English/DD/PIN/Clean_Care_Factsheet.pdf>.

3. Litigation & Public Inquiries

Although there are numerous decisions dealing with infections related to healthcare decided by Canadian courts, there is currently only a limited number of cases involving healthcare-related infection *outbreaks*. As a result of infection outbreaks in Canadian hospitals, a few class actions suits have emerged in recent years. For instance, class action proceedings and other claims have been initiated on behalf of persons who contracted SARS in Toronto-area hospitals in 2003.¹⁵ Moreover, in November 2003, a \$150 million class action lawsuit commenced against the Sunnybrook & Women's College Health Sciences Centre of Toronto after it disclosed that ultrasound equipment was not properly disinfected, placing over 900 patients at risk of infection.¹⁶ In October 2006, Cullity J. certified partially a class action proceeding in favour of persons who were infected with tuberculosis (TB) by reason of their contact with an individual who was hospitalized at Lake-ridge Hospital in Ontario, as well as persons who had been exposed to TB as a result of their contact with him (an estimated total of 2800 people).¹⁷ In May 2006, an action was commenced against the Scarborough Hospital after approximately nine dialysis patients were advised that they were infected with Hepatitis B or Hepatitis C and approximately 400 dialysis patients and some of their family members were advised that they were at risk of contrac-

15 *Williams v. Canada (Attorney General)*, [2005] O.J. No. 3508, 76 O.R. (3d) 763 (S.C.J.) – motion to strike allowed in part; *Abarquez v. Ontario* [2005] O.J. No. 3504, 257 D.L.R. (4th) 745, (S.C.J.) – motion to strike allowed in part. See also the claim by family members of nurse Laroza and her son who both contracted SARS, of which Laroza died: *Laroza v. Ontario* (2005), 257 D.L.R. (4th) 761, 34 C.C.L.T. (3d) 264 (Ont. S.C.J.) – motion to strike partly granted.

16 *Farkas v. Sunnybrook and Women's College Health Sciences Centre* [2004] O.J. No. 5134 (S.C.J.); Bailey & Ries, *supra* note 11. Another class-action lawsuit alleges that an Alberta hospital failed to ensure that instruments used on patients were properly cleaned: The Canadian Press, "Lawsuit filed against Vegreville hospital, health authority" *CBC News*, 27 July 2007, online: <<http://www.cbc.ca/canada/edmonton/story/2007/07/27/lawsuit-vegreville.html>>.

17 *Healey v. Lakeridge Health Corp.*, 2006 CarswellOnt 6574 (S.C.J.). Cullity J. takes the opportunity to stress that the burden on the infected persons group to prove a causal link between their latent TB and their contact with the infected patient may be difficult to discharge in all but a few clear cases where, for example, a positive test was preceded by a negative test conducted shortly before there was contact with the TB patient: para. 109.

ting Hepatitis B and/or Hepatitis C.¹⁸ Another class action commenced in October 2005 after an outbreak of Legionnaires' Disease and Pontiac Fever at the Seven Oaks Home for the Aged in Scarborough that infected 135 people and killed 23.¹⁹ An expert report on this outbreak concluded that the source of *Legionella* was the air conditioning system. In July 2008, a class action was commenced against the Joseph Brant Memorial Hospital alleging negligence in the cleaning, maintenance and disinfection of the hospital during a *C. difficile* outbreak. Between May 1, 2006 and December 31, 2007, the bacteria infected approximately 177 persons, 91 of these patients died.²⁰ Finally, in December 2008, a class action claim was issued on behalf of patients who were infected by the *Pseudomonas aeruginosa*, a multidrug-resistant bacteria, during their hospitalization at the Toronto General Hospital between December 1, 2004 and March 31.²¹

Public inquiries have also dealt with some instances of outbreaks. For instance, a 2004 Ontario Ministry of Health and Long-Term Care report enumerated 103 recommendations following an audit ordered by the

18 Information provided on Sutts, Strosberg, LLP's website, online: <http://www.strosbergco.com/scarborough_hospital_hepatitis>. In May 2007, Mr. Justice Cullity certified the action: Court file # 06-CV-311846CP (Ont. S.C.J.). Other class actions flowing from alleged negligent sterilization of equipment have been commenced across Canada in recent years, for *e.g.*: against Alberta's St. Joseph's General Hospital and the East Central Health Region: information provided on James H. Brown & Associates' website, online: <<http://www.jameshbrown.com/vegreville.htm>> ; against Captain William Jackson Hospital in Labrador on behalf of 300 patients of the gynecology clinic between October 2001 and March 2003, online: <http://www.lawyersandsettlements.com/case/wm_jackson.html>; and against an acupuncturist practicing in the Ruth Pettle Wellness Centre in Toronto also alleging improper sterilization resulting in an outbreak of mycobacterium abscessus. This class action was certified on 26 February 2004 (*Rose v. Pettle* (2004), 23 C.C.L.T. (3d) 21, 43 C.P.C. (5th) 183(Ont. S.C.J.) and the case was settled on 21 April 2006: *Rose v. Pettle* [2006] O.J. No. 1612, 147 A.C.W.S. (3d) 894 (S.C.J.).

19 Information provided on Sutts, Strosberg, LLP's website, online: <<http://www.sevenoaksclassaction.com>> . The city of Toronto is also named as defendant.

20 Information provided on Sutts, Strosberg, LLP's website, online: <<http://www.branthospitalclassaction.com/>>.

21 CB Online, "Class Action Commenced Against Toronto General Hospital in Relation to Bacterial Outbreak and Deaths", online: <http://www.canadianbusiness.com/markets/cnw/article.jsp?content=20090106_070503_7_cnw_cnw>.

Ontario government of all hospital infection-control practices in the province following the spread of SARS the year before.²² In March 2007, the Minister of Alberta Health and Wellness requested that the Health Quality Council of Alberta conduct a review of the East Central Health Region and the St. Joseph Hospital (Vegreville, Alberta). The review, which led to a series of recommendations in July 2007, looked at infection prevention and control policies and procedures and risk management related to infection prevention and control, including Methicillin Resistant *Staphylococcus aureus* (MRSA), and sterilization practices.²³ Finally, a recent public inquiry studied eleven deaths allegedly caused or contributed to by an outbreak of *C. difficile* that occurred at Hôpital Honoré-Mercier in St-Hyacinthe (Quebec) in 2006. In her report of September 2007, Coroner Rudel-Tessier insisted on the multifactorial origin of *C. difficile* infections. She nevertheless blamed the hospital's management for not providing the infection prevention team with sufficient authority, but also stressed other causes explaining the spread of *C. difficile* at this institution, including the patients' underlying states of health, their physical proximity to each other, the pattern of use of antibiotics, asepsis, and the staff's excessive workload. Class action proceedings have been initiated in August 2008 against the hospital for a group of 70 infected patients, including 16 who died of the infection.²⁴

Litigation of future cases involving widespread infections in health-care settings should prove fascinating because of the complexity of the questions raised, not only with regard to the proof of causation but also in the demonstration of fault. The interest of such litigation also lies in the broader philosophical questions it raises: the impact of lack of resources on our public health care system, the issue of systemic factors in the emer-

22 Ministry of Health and Long-Term Care of Ontario, *Final Report of the Ontario Expert Panel on SARS and Infectious Disease Control*, online: Ministry of Health and Long-Term Care of Ontario <http://www.health.gov.on.ca/english/public/pub/ministry_reports/walker04/walker04_mn.html>.

23 Health Quality Council of Alberta, News Release, "Health Quality Council of Alberta announces findings and recommendations related to its review of infection prevention and control and CSR sterilization issues in East Central Health Region, 25 July 2007, online: Health Quality Council of Alberta <http://www.hqca.ca/phpBB2/files/hqca_news_release_july_25_2007_957.pdf>.

24 La Presse canadienne, "Bactérie *C. difficile* – Recours collectif contre l'hôpital Honoré-Mercier", *Le Devoir*, 29 August 2008, online: Le Devoir <<http://www.ledevoir.com/2008/08/29/203334.html>>.

gence of healthcare-related injuries, the complexity of infection control and prevention, and the impact of broader social and medical problems, such as the overcrowding of our hospitals or the effects of antibiotic prescription patterns which contribute to the antibioresistance of certain organisms. For the moment, however, we will limit ourselves to causation challenges.

A. Legal Challenges – Three types of Concerns

Since one approaches causation differently depending on the type of behaviour the plaintiff complains of, it is important to first identify the types of concerns that the courts focus on in dealing with cases involving nosocomial infections. Typically, the arguments discussed by parties and judges in these instances centre on a combination of the following three points: (i) whether the defendant's negligence is at the source of the infection, which implies that the source can be identified; (ii) regardless of the source of the infection, whether the defendant has been negligent in diagnosing and treating the infection once it has occurred; (iii) whether the defendant was negligent in failing to disclose the risk of infection inherent in the treatment or procedure undertaken.

The first situation presents causation challenges that flow from the frequent difficulties encountered in *identifying the source of an infection*. Demonstrating a general link between an infection and the healthcare setting is a challenge in itself, but even in cases where the nosocomial nature of the infection has been established, the exact cause of an infection is often difficult – if not impossible – for the plaintiff to identify. This uncertainty, in turn, complicates the assessment of whether an act of negligence caused the infection. This type of causal uncertainty is the object of our attention here.

The second context that has been a source of concern for the courts arises when the plaintiff complains that there was *negligence in diagnosing and treating* the infection once it manifested itself. Given that the identification of the source of the infection is fraught with difficulties, plaintiffs often choose to complain about how the infection was diagnosed and treated, regardless of its origin, instead of taking on the daunting task of proving that their infection originated from a negligent act.²⁵ Claiming negligence in

25 For *e.g.*, see: *Andree v. Pierce*, [1986] M.J. No. 121 (C.A.); *Mangelana v. McFadzen* (2006), 397 A.R. 140, 275 D.L.R. (4th) 178 (N.W.T. C.A.) at paras. 32-33; *Hajgato v. London Health Association* (1982), 36 O.R. (2d) 669 (H.C.J.) *aff'd* at (1983), 44 O.R. (2d) 264 (C.A.) (At trial, Callaghan J. inferred fault in diagnosing

the diagnosis and treatment of the infection is a useful way of avoiding the complexity of the causal analysis by simply switching the focus of the debate to what happened after the infection set in.²⁶ In this analysis, the causation issue often turns on whether the outcome could have been avoided if the infection had been diagnosed and treated on time or whether the delay in diagnosing or the negligence in treating caused the plaintiff's injury.²⁷ This assessment depends on the particular facts of the case and the inquiry is similar to the one that occurs in the context of other types of clinical negligence. However, a situation may involve an infection that is particularly hard to treat, in which case an earlier diagnostic or better treatment may not have changed the course of events.²⁸ The causal difficulty in such a situation is not negligible; there can be no liability for negligence in treating an infection unless the victim successfully demonstrates that the infection was foreseeable and preventable or capable of being diagnosed early enough to be treated successfully,²⁹ and, of course, the chances of being treated successfully must have crossed the balance of probabilities.³⁰ Despite the frequent reformulation of nosocomial infection issues as diagnosis and treatment problems, these cases will not be studied here since the causal assessment they necessitate is typical of that undertaken in any case where failure to properly diagnose and treat a medical condition is alleged.

Finally, plaintiffs typically also raise the argument, if relevant, that *the risk of infection inherent to the treatment or the procedure was not disclosed to*

and treating the infection, but the defendants successfully presented contrary evidence); *Rietze v. Bruser (No.2)*, [1978] M.J. No. 200 (Q.B.) at paras 61-62, 66, and 69.

26 For an example in Quebec civil law, see *Bérubé v. Hôpital Hôtel-Dieu de Lévis*, [2003] R.R.A. 374 (C.A.). See also: *Lamontagne v. Lefrançois*, [1994] R.R.A. 26 (C.A.). It must be noted that sometimes the delay in diagnosing an infection can actually cause a complication to arise, in the form of a more severe infection (e.g., necrotizing fasciitis). These cases also involve the typical but-for inquiry of whether the complication could have been avoided if treated in a timely fashion.

27 E.g., *Hamanski (Litigation Guardian of) v. Nagai*, 2007 WL 1115080 (S.C.J.) at paras. 58 and 61.

28 *Supra* note 26.

29 See *Painchaud-Cleary v. Pap*, [2002] R.J.Q. 1420 (C.S.).

30 See *Cottrelle v. Gerrard* (2003), 67 O.R. (3d) 737 (C.A.) at para. 36; *Barker v. Montfort Hospital* (2007), 278 D.L.R. (4th) 215, 223 O.A.C. 201 (C.A.) at para. 49.

them and that if it had been, they (in civil law) or the reasonable patient (in common law) would not have consented to the medical act. However, this topic likewise extends beyond the scope of this paper.

B. Challenges in Identifying the Source of the Infection

1. Statement of the problem

To determine if an infection is nosocomial, one must first establish whether it was absent at the moment of the patient's admission to the healthcare establishment. The problem is that the timing of the onset of the infection can be extremely difficult to determine.³¹ Given that several types of infections are asymptomatic for some time after contraction,³² it is often difficult to identify the exact moment the infection occurred. The typical incubation period of the infection may assist experts in identifying its onset by allowing them to calculate backwards from the moment of the first manifestation of symptoms.³³ Even where the infection has clearly been contracted in the healthcare setting, causal challenges still remain since a plethora of possible factors may explain it, making it extremely challenging to pinpoint the exact origin of the infection.³⁴ Even when it is clear or taken for granted that the infection is linked to a medical act temporally, one must still determine whether negligent medical or hospital care is linked to the infection causally.³⁵ For instance, the infection may simply be an inherent risk of the medical act,

31 See: *Hajgato v. London Health Association*, *supra* note 25 at para. 29.

32 *E.g.*, *Havens v. Hotel-Dieu of St. Joseph Hospital*, [1989] O.J. No. 1095 (H.C.J.).

33 See Macdonald J.A. in *McDaniel v. Vancouver General Hospital*, [1934] 1 D.L.R. 557 47 B.C.R. 304 (C.A.) at para. 13.

34 This inquiry may be further confounded by the plaintiff own actions (*e.g.*: *Arlinsky v. Donis*, [1986] B.C.J. No. 2253 (S.C.)) or by the nature of the illness (*Aristorenas v. Comcare Health Services* (2006), 42 C.C.L.T. (3d) 220, 216 O.A.C. 161(C.A.), *rev'g Aristorenas v. Comcare Health Services*, 2004 CarswellOnt 3599 (S.C.J.) on the causation issue, with dissent. Leave to appeal to the Supreme Court of Canada refused([2006] S.C.C.A. No. 487); Varied, 2004 CarswellOnt 3599, [2004] O.J. No. 3647 (S.C.J.)).

35 *Parragh v. Eagle Ridge Hospital and Health Care Centre*, [2008] B.C.J. No. 1836 (S.C.); *Doucet v. Bourque*, [1999] N.B.J. No. 168 (Q.B.).

no matter how carefully it is performed.³⁶ The multitude of possible causes of nosocomial infections can be appreciated better by distinguishing among (i) factors related to healthcare, (ii) factors external to healthcare, and (iii) wider systemic factors.

Factors related to healthcare that may cause infections are numerous and vary depending on the infection concerned. They may include a lack of asepsis of the premises, of the equipment, or of the instruments; substandard hygiene of the staff; the increased invasiveness and number of medical procedures; the physical proximity of patients, which facilitates contact between carriers and non-carriers of an infection; and the use of antibiotics that kill a patient's protective flora or of other drugs that weaken his or her immune defences. These factors – although clearly related to healthcare – are not necessarily linked to a fault on the part of the institution, the physician, or the staff.

Infections can also result from *factors external to healthcare* that the hospital, physician, and healthcare staff do not entirely control. Such factors include the hygiene and infectious states of visitors, the compromised immune system of the patient (which could have been induced by a medical act, but not necessarily), the state of the patient's own flora (endogenous infection), the body's reaction to treatment, such as antibiotics, or to the medical procedure; and the microorganism's resistance to antimicrobial agents or its intrinsic virulence.

Finally, *wider systemic factors* also play an important part in allowing nosocomial infections to spread: these include the absence of or the inefficiency of the hospitals' control and prevention teams, the overpopulation of hospitals, and antibioresistance provoked by general antibiotic prescription patterns adopted across the medical profession.³⁷ Outbreaks of nosocomial infections, in particular, tend to be linked to broader systemic failures rather than to individual acts of negligence. The result of this multiplicity of possible origins is that in many cases, it will be very difficult, if not impossible, to identify the cause of the infection and to relate it to individual behaviour attracting liability.

36 *E.g.*, *White v. Turner* (1981), 120 D.L.R. (3d) 269, 15 C.C.L.T. 81 (H.C.J.) at para. 77; *Normand v. Stranc*, [1994] 10 W.W.R. 175 at para. 62.

37 *Supra* note 4 at 3.

2. Current judicial solutions to causal uncertainty in nosocomial infection cases

A selection of Canadian common law and civil law decisions dealing with nosocomial infections demonstrates that our courts have taken advantage of several options available to them in order to tackle the above causal difficulties. One approach is to *exonerate the defendant based on causation and evidentiary principles*: if it is unknown what caused the plaintiff's infection, the plaintiff cannot demonstrate on a balance of probabilities³⁸ that the defendant's negligence is at its source and, therefore, loses. A second approach observed in the case law is to *infer causation* if sufficient evidence is available on which this inference can be based. Finally, a third tendency emerges from the nosocomial infection caselaw. Instead of focusing on identifying the cause of the infection, one may consider using an *elimination process* that involves looking at all of the possible explanations of the infection in the specific case and addressing whether any of them can be linked to an act of negligence on the part of the defendant.

a) Exoneration based on causal and evidentiary principles

Although Canadian courts have generally resisted overly liberal tendencies in the evaluation of medical causation, on numerous occasions, the Supreme Court of Canada has reiterated the necessity of avoiding a too rigid application of causal principles and the need, particularly in the presence of scientific causal uncertainty, to adopt a 'robust and pragmatic' approach to the evidence based on common sense.³⁹ This principle, advocated by Sopinka J. in *Snell v. Farrell*,⁴⁰ is frequently mentioned in common law decisions dealing with nosocomial infections either when evaluating causation generally or as a prelude to the drawing of an inference of causation.⁴¹ The decision of Rouleau J.A. in *Aristorenas v. Comcare Health Services*⁴² explains the approach:

38 The balance of probabilities standard of proof is also applicable in Quebec civil law: Art. 2804 C.C.Q.

39 This is true in both civil and common law: *Snell v. Farrell*, [1990] 2 S.C.R. 311; *Laferrrière v. Lawson*, [1991] 1 S.C.R. 541.

40 *Supra* note 39. The "robust and pragmatic" approach is inspired by *Wilsher v. Essex Area Health Authority*, [1988] A.C. 1074 (H.L.).

41 *Infra*, page 27.

42 *Supra* note 34 at para. 54. Also: *Best v. Hoskins*, 2006 ABQB 58, [2006] A.W.L.D. 1300 (Q.B.) where the standard of care was met, however; *Mangelana v. McFadzen*, *supra* note 25 where the Court of Appeal of the Northwestern Territo-

The “robust and pragmatic” approach is not a distinct test for causation but rather an approach to the analysis of the evidence said to demonstrate the necessary causal connection between the conduct and the injury. Importantly, a robust and pragmatic approach must be applied to evidence; it is not a substitute for evidence to show that the defendant’s negligent conduct caused the injury.

However, where the cause of an infection is unknown and the evidence does not provide sufficient indicia to support an inference, the chances of making a successful claim that the infection is linked to negligence will be thin, even under the so-called ‘robust and pragmatic’ approach. This is the case whether one applies the ‘but-for’ common law causation test, or the adequate-causation theory, the test most prevalent in Quebec civil law.⁴³

Claims are typically rejected where an alternative explanation, which cannot be related to any act of negligence on the defendant’s part, exists and can credibly explain the infection. Two types of claims seem to present particular difficulties in this respect: *post-operative infection* cases, especially considering that infections are known inherent risks of surgery, as well as cases where the infection has an *endogenous origin*.

Inherent Risk – Many Canadian nosocomial infection cases involve post-operative infections for which plaintiffs blame surgeons. The link between the infection and the medical act is usually obvious and the particular issue these cases tend to raise is whether the infection is the result of negligence on the surgeon’s part or the realization of an inherent risk of surgery. When the infection is a known, inherent risk of the surgery,⁴⁴ decisions tend to avoid inquiring into whether the source of the infection is indeed the realization of the inherent risk or some other cause, even if the evidence is inconclusive as to the precise cause of the infection in the specific case. Rather, perhaps taking for granted that the infection is the realization of the inherent risk, the analyses examine negligence in the management of the infection post-

ries recalled the considerable difficulties plaintiffs face when attempting to meet their burden of proof of causation (at paras. 18-19).

43 The adequate-causation theory asks whether a consequence follows from its alleged cause in the ‘normal course of events’. Proof of causation under the material-contribution test, as an alternative to the ‘but-for’ test, after the Supreme Court of Canada decision in *Resurfice v. Hanke*, [2007] 1 S.C.R. 333 is discussed *infra*, at 211.

44 *Supra* note 42 at para. 101.

operatively or in failing to disclose the risk of infection prior to the surgery.⁴⁵ For instance, in *Mangelana v. McFadzen*,⁴⁶ the patient had developed pneumonia leading to adult respiratory distress syndrome (ARDS) due to an infection that occurred after he underwent a tonsillectomy. The physician was found negligent for omitting to undertake a preoperative examination of the patient, which would have revealed signs consistent with an infection, and later discharging the patient without examining him. The trial judge believed there was insufficient evidence of causation because pneumonia was a complication of the surgery performed it was impossible to determine the cause of the infection that led to the plaintiff's pneumonia.⁴⁷ Interestingly, the Court of Appeal nevertheless found the defendant liable by shifting the focus of its analysis to an examination of whether the infection could have successfully been treated. Contrary to the trial judge, it concluded that there was a negligent delay in identifying and treating the patient's infection, which the court found was either present before the surgery or developed shortly thereafter. It was not necessary to identify the precise source of the infection to determine causation: '[r]egardless of its source, an infection was clearly present, ascertainable and treatable.'⁴⁸

Endogenous infections – In cases where insufficient asepsis is alleged, courts have expressed doubts about whether negligence in maintaining asepsis can explain the infection when its origin is endogenous. For instance, in *Bérubé v. Hôpital Hôtel-Dieu de Lévis*, the patient was the victim of a toxic shock syndrome caused by *staphylococcus aureus* following a breast reduction surgery.⁴⁹ Alleging fault in maintaining the asepsis of the premises, the equipment, the tools, and the air, she claimed against the defendant hospital and its staff. Although rejecting this allegation mainly for want of evidence, the Quebec Superior Court did express doubts as to whether there can be a

45 *Boyd v. Kunkel*, [1987] B.C.J. No. 1552 (S.C.).

46 *Supra* note 25.

47 This was so whether one applied the but-for test or the material-contribution test. On the latter, see *infra* p. 211.

48 *Supra* note 25 at para. 33.

49 [2000] R.R.A. 484 (Que. S.C.). On appeal, the Court of Appeal of Quebec concentrated on the diagnosis and response to the infection: *Bérubé v. Hôpital Hôtel-Dieu de Lévis*, [2003] R.R.A. 374 (Que. C.A.). See also *Jablonski v. Marosi* (2004), J.E. 85-657 (Que. C.S.) and *Lévis v. Centre Hospitalier Le Gardeur* (2005) B.E. 2005BE-709 (Que. C.S.) at para. 81 where the Court referred to the endogenous nature of the infection to reject allegations of asepsis deficiencies.

fault regarding asepsis when the infection is endogenous. In addition, many medical procedures involve the inherent risk of allowing a microorganism of endogenous origin to penetrate the patient's system and provoke infections, a fact that may jeopardize the plaintiff's chances of successfully demonstrating causation, as argued above. In *Girouard v. Hôpital Royal Victoria*,⁵⁰ bacteria (*peptococcus*), normally present in the patient's vagina was found in her abdominal wall after a tubal ligation.⁵¹ The Quebec Superior Court noted that this type of infection, although rare, was an inherent risk of the surgery rather than caused by an error or negligence on the part of the surgeon.⁵² Although it was not the endogenous nature of the infection that led to the rejection of the claim, the natural presence of the bacteria in the patient's body, coupled with the risk associated with this particular procedure, made this outcome an inherent risk for the patient.

Finally, some decisions voice a more general reluctance to qualify endogenous infections as nosocomial. Although dealing mainly with the duty to inform the patient of the risk of infection, Whitten J. made interesting comments about whether an endogenous infection can be considered nosocomial in the Ontario decision of *Kovacich v. St. Joseph's Hospital*.⁵³ After his kidney was removed and transplanted into his sister, the plaintiff developed a serious and extremely rare Group A *Streptococcus* (*Streptococcus pyogenes*) infection and necrotizing fasciitis (flesh-eating disease), one of the less common manifestations of this type of infection. Based on one expert's views, Whitten J. observed that there are two ways of contracting such an infection: (i) either the patient was colonized with the bacteria prior to admission (his son had had strep throat⁵⁴) and, because the bacteria was not completely disinfected from the skin, it invaded the wound and

50 *Girouard v. Hôpital Royal Victoria*, [1987] R.R.A. 858 (Que. C.S.).

51 For other examples of endogenous infections, see: *Lévesque v. Baribeau*, [2001] R.R.A. 639 (Que. C.S.); *Moreau v. Fugère*, [2002] R.J.Q. 404 (Que. C.S.); *Painchaud-Cleary v. Pap*, *supra* note 29; *Pelletier v. Roberge*, [1991] R.R.A. 726 (Que. C.A.).

52 He is found liable for his post-operative care, however.

53 *Kovacich v. St. Joseph's Hospital*, [2004] O.J. No. 4471 (S.C.J.).

54 The Court also found that there was no obligation to disclose this risk since the chance of contracting invasive Group A *Streptococcus* was one in a million and even lower for necrotizing fasciitis. Necrotizing fasciitis was likely to have had its origin in the community and manifested itself at the hospital. As for *Streptococcus A*, it was a risk that was in the public domain and within general knowledge.

caused an infection when an incision was made through the skin or (ii) the bacteria existed on the mucous membranes of a member of the surgical team who consequently infected the patient's skin or wound at the time of surgery or shortly thereafter.⁵⁵ The expert was of the opinion that the former explained how the plaintiff acquired the infection since, in the case of the latter, other patients would have been infected as well.⁵⁶ The judge added that the 'hospital environment itself was not a common cause of, or even a recognized cause of, group A *Streptococcus*.'⁵⁷ Referring to the expert's evidence, he wrote:

His evidence, as it were, is the 'big picture'. It is not a picture in which community Group A *Streptococcus* occurrences reveal an epidemic. Nor is it a picture of problematic nosocomial infections. The plaintiff's situation is in a way nosocomial, yet it is nosocomial only in the sense that the infection arose in the hospital but likely existed from without, in that the plaintiff brought the bacteria in on his person.⁵⁸

With respect, the proposition that endogenous infections are not nosocomial, or cannot be linked to asepsis deficiencies or to negligence on the part of institutions, physicians, or staff is flawed. Endogenous infections can, in many instances, qualify as nosocomial in the sense that, even though the organism that caused the infection is present on or in the patient, it is the medical act that allows the organism to mutate into an infectious state.⁵⁹ One certainly cannot say that the infection is not nosocomial simply because the patient was naturally carrying the microorganisms on or in his body if no infection would have developed without the medical intervention. Of course, the fact that the medical act allowed the microorganism to infect a patient is not in itself indicative of negligence, although negligence cannot

55 *Ibid.* at para. 79.

56 *Ibid.* at para. 107.

57 *Ibid.* at para. 80.

58 *Ibid.* at para. 108. These comments were made in the context of determining whether there was an obligation to disclose in this case, which the court concluded there was not.

59 Other cases do not stress the endogenous origin as a problem, but may conclude that the infection is an inherent risk of treatment: *Best v. Hoskins*, *supra* note 42 (perforated bowel during hysterectomy).

automatically be excluded. Finally, although the endogenous nature of an infection may raise fatal doubts regarding a possible environmental origin, one should consider the possibility of sepsis-related negligence even in endogenous cases because medical staff have an obligation to follow sterilization protocols – prior to surgery, for instance – that are meant to prevent microorganisms naturally present on the patient’s body from entering it, and failure to fulfill this obligation may warrant liability

Timing – To counteract these difficulties in nosocomial infection cases, time coincidence can be particularly helpful to plaintiffs, although it is normally insufficient to demonstrate a causal link by itself. In *Boren v. Vancouver Resource Society for the Physically Disabled*,⁶⁰ for instance, while the time coincidence was not explicitly cited as a factor in the court’s decision, the fact that urinary tract infections suffered by a quadriplegic man became more severe after a transfer accident caused by the defendant’s employees was a consideration in the court’s conclusion that the transfer accident was a major contributing factor to the increase in the frequency of urinary tract infections.⁶¹

Material-contribution test – Finally, few common law cases⁶² dealing with nosocomial infections discuss whether proof of causation could be facilitated by accepting as an alternative to the ‘but-for’ test evidence that negligence – failure to maintain asepsis for instance – has materially contributed to the occurrence of the infection.⁶³ This is perhaps because most cases involve causal difficulties that can be resolved under the ‘but-for’ test: did the alleged negligence contribute at all to the infection or could the infection have entirely originated from another source, as where it is an inherent risk of the medical act carried out. Nevertheless, some decisions mention

60 *Boren v. Vancouver Resource Society for the Physically Disabled*, [2002] B.C.J. No. 1831, 2002 BCSC 1134. The appeal on the liability issues was dismissed: (BCCA, Lambert J.A.)

61 Citing *Athey v. Leonati*, [1996] 3 S.C.R. 458 at paras. 56-59. For an example of a nosocomial infection in patients with particular susceptibility, see *Hamasni (Litigation Guardian of) v. Nagai*, *supra* note 27: kidney transplant patient on immune suppressants suffering from a *Staphylococcus aureus* infection at the site of an epidural catheter. The case focused on negligence in diagnosing the infection; *Rossmann v. Sas*, 1997 CarswellOnt 4274 (S.C.J.) where timing is an element in the decision of Boyko J. to infer causation: *infra*, page 33.

62 Quebec civil law does not use the material-contribution test.

63 *Athey v. Leonati*, *supra* note 63.

the material-contribution test as a permissible alternative to the 'but-for' test.⁶⁴ However, the Supreme Court of Canada's common law decision in *Resurfice Corp. v. Hanke*⁶⁵ would now appear to restrict the availability of this approach. In this 2007 case, the Court states that the basic test for determining causation is the but-for test⁶⁶ and that multi-cause cases should be decided on this basis.⁶⁷ The material-contribution test applies only in 'exceptional' circumstances where it is impossible for the plaintiff to prove causation using the but-for test due to factors that are outside of the plaintiff's control, such as current limits of scientific knowledge. It must also be clear that the defendant breached a duty of care owed to the plaintiff, thereby exposing the plaintiff to an unreasonable risk of injury, and that injury must have materialised.⁶⁸

Where medical negligence is proven, the requirement that it exposed the plaintiff to an unreasonable risk of infection is likely to be easily fulfilled. Whether the same can be said for the requirement of 'impossibility of proof' depends on what exactly the Supreme Court meant by this condition. Scientific uncertainty about the causes of a particular infection is sometimes present in the cases reviewed here, such as where the aetiology of an infection is unknown.⁶⁹ But, more frequently, the causal difficulty plaintiffs deal with lies in the existence of multiple alternative explanations of the

64 E.g.: *Barker v. Montfort Hospital*, *supra* note 30 at paras. 51-54; Rouleau J.A. considers *Resurfice Corp. v. Hanke* and the material-contribution test which he refuses to apply because of the absence of impossibility of proof (see also Weiler J.A. dissenting on the issue of causation at paras. 101-104); *Michener v. Doris*, [2003] B.C.J. No. 2301, BCSC 1541 at paras. 175 (seemingly treated as a basic test) and 216; *Norris v. LeBlanc*, [1989] O.J. No. 840 (H.C.J.) at paras. 32-33 and 42 (treated as basic test); *Boren v. Vancouver Resource Society for the Physically Disabled*, *supra* note 60 at para. 59. See also *Parragh v. Eagle Ridge Hospital and Health Care Centre*, *supra* note 35 at paras. 70-72. Cases decided prior to *Resurfice Corp. v. Hanke* do not always invoke the condition of 'unworkability' of the but-for test established in *Athey v. Leonati*, *supra* note 63.

65 *Resurfice Corp. v. Hanke*, *supra* note 44.

66 See also *Fisher v. Attack* (2008), 62 C.C.L.T. (3d) 1, 242 O.A.C. 164 at para. 53.

67 *Resurfice Corp. v. Hanke*, *supra* note 44 at para. 22. See also *Rizzi v. Mavros* (2007), 85 O.R. (3d) 401 (C.A.) at para. 12. *Contra: Aristorenas v. Comcare Health Services*, *supra* note 34 at para. 53.

68 *Resurfice Corp. v. Hanke*, *supra* note 44 at para. 25.

69 See for instance the discussion regarding the causes of necrotizing fasciitis in *Aristorenas v. Comcare Health Services*, *supra* note 34.

infection confounded by limits in the available factual evidence. It is unclear whether this evidentiary hurdle would qualify as an ‘impossibility of proof’ under *Resurfice*, particularly given that decisions in the field of medical negligence interpreting this requirement have stated that it is not met where the plaintiff fails to prove causation on the but-for analysis, or where the plaintiff’s theory of causation is difficult to prove.⁷⁰ Thus, *Resurfice*’s version of the material-contribution test is likely to have limited application in the situations discussed here. However, given the Supreme Court’s reference to the creation by the defendant of an unreasonable risk of injury, authors have questioned whether *Resurfice*’s limitation to the applicability of the material-contribution test concern solely cases where the negligent defendant contributed to the plaintiff’s *risk of injury*, rather than to the injury itself.⁷¹

b) Inferences / Presumptions⁷²

Canadian courts – whether applying civil or common law principles – recognize that causation can be proven either with direct evidence or with the help of inferences or, under the Quebec civil code, factual presumptions (*présomptions de fait*).⁷³ In the context of medical malpractice, there has been a particular emphasis on this evidential rule because of the frequently encountered uncertainties surrounding scientific causal links. In the common law case of

70 *Bohun v. Segal*, 2008 BCCA 23, 77 B.C.L.R. (4th) 85 at para. 53; *Bafaro v. Dowd*, [2008] O.J. No. 3474, 169 A.C.W.S. (3d) 437 (S.C.J.) at para. 48; *Lyon v. Ridge Meadows Hospital and Health Care Centre*, [2007] B.C.J. No. 1515, 159 A.C.W.S. (3d) 756 (S.C.) at para. 28. See also *Seattle (Guardian ad litem of) v. Purvis* (2007) BCCA 349, 68 B.C.L.R. (4th) 288 and *Jackson v. Kelowna General Hospital*, 2007 BCCA 129, 277 D.L.R. (4th) 385 at para. 22 (Leave to appeal to the Supreme Court of Canada dismissed: [2007] S.C.C.A. No. 212) where the Court states that the special circumstances referred to by the Supreme Court concern cases where it is ‘truly impossible to say what caused the injury’. In *Aristorenas v. Comcare Health Services*, *supra* note 34 at para. 53, Rouleau J.A. writes that the ‘material contribution test is invoked because of logical or structural difficulties in establishing “but-for” causation, not because of practical difficulties in establishing that the negligent act was part of the causal chain’.

71 See p. 223 below.

72 The word “presumption” is more appropriately used in Quebec civil law where there are, according to the Civil Code, only two types of indirect evidence/inferential reasoning: legal and factual presumptions: arts. 2846, 2647, and 2849 C.C.Q.

73 Art. 2849 C.C.Q.

Snell v. Farrell, faced with the inability of the medical experts to identify the cause of the patient's injury in the presence of several alternative explanations, the Supreme Court of Canada stated that inferences of causation may be drawn in the absence of evidence to the contrary even if positive or scientific proof has not been adduced; the Court explained that it is not essential that medical experts provide a firm opinion supporting the plaintiff's theory of causation because the medical profession assesses causation using standards that are different from those required by law.⁷⁴ Reminders of the 'robust and pragmatic' approach advocated in *Snell v. Farrell* and of the view that the causation tests must not be applied too rigidly in medical cases are often preludes to the drawing of an inference of causation.⁷⁵

Still, Canadian courts have rarely relied on inferences to identify causes of plaintiffs' infections. The division between the majority and the dissenting judges in the 1933 decision of the British Columbia Court of Appeal in *McDaniel v. Vancouver General Hospital*⁷⁶ is an excellent illustration of the debate that may arise concerning the possibility of inferring causation in nosocomial infection cases. *McDaniel* involved a young girl who was treated at the defendant's hospital for diphtheria. In the days following her admission, patients suffering from small-pox were put in rooms on the same floor and adjacent to hers. After her mother complained, the girl was moved to another floor. Four days later, she was released, and eight days after she returned home, she was diagnosed with small-pox, which left her disfigured. The majority judges found the defendant hospital negligent for omitting to take proper precautions to protect the plaintiff against small-pox.⁷⁷ Macdonald J.A., stressing that the causes of small-pox and its means of transmission were not well-known to medical science at the time, believed that the evidence

74 *Snell v. Farrell*, *supra* note 39 at 330, 335-36. See also *Athey v. Leonati*, *supra* note 63 at para. 16.

75 *E.g.*, in *Aristorenas v. Comcare Health Services*, *supra* note 34, the trial judge, Lederman J., the dissenting judge in the Court of Appeal, MacPherson P.S., and the author of the majority reasons, Rouleau J.A. all agreed that the evidence had to be assessed on the basis of the robust and pragmatic approach advocated by Sopinka J. in *Snell v. Farrell*, although they disagreed about the conclusion the approach should lead them to. Also: *Michener v. Doris*, *supra* note 64 (in *obiter*) at paras. 174-75, 177; *Rossmann v. Sas*, *supra* note 61 at para. 71.

76 *Supra* note 33.

77 *Ibid.* at paras 1-2 (Macdonald C.J.B.C.) and at paras. 16, 22-28 (Macdonald J.A.).

permitted the trial judge's inference that it had been contracted through contact with nurses who were in contact with the small-pox patients. The inference was particularly justified since visitors were not admitted⁷⁸ and the child's physician was not, at least consciously, in contact with small-pox patients.⁷⁹ McPhillips J.A., dissenting, disagreed and questioned the exact origin of the plaintiff's small-pox infection, considering that there was an outbreak of this disease in the Vancouver region at the time of infection.⁸⁰

(I)t would indeed be most dangerous to hold or come to the conclusion by mere inference that owing to being in the same building as small-pox patients were, or even have next to her a small-pox patient that because of that the infant plaintiff became infected, I might almost say that infection might have occurred in countless ways; the infant plaintiff's own physician may have been the agency mixing with the populace in daily practice; the mother may have likewise brought it upon her visits to the daughter. ... The infection giving rise to the infant plaintiff being affected with small-pox may have been caused by countless possibilities almost amounting to the inscrutable...⁸¹

The existence of alternative explanations of how an infection was contracted will, of course, affect the possibility of successfully convincing a court to draw an inference of causation in cases where the plaintiff alleges the infection has been contracted because of the defendant's negligence. In one of the best examples of inferential reasoning in a nosocomial infection case, the drawing of a causal inference was the object of debate between the trial

78 Presumably, in her room, although this is not specified.

79 *Supra* note 33 at paras. 13-14, 17. On appeal to the Judicial Committee of the Privy Council, the hospital was willing to assume that the infection was contracted through such cross-infection: *Vancouver General Hospital v. McDaniel*, *supra* note 33. Interestingly, the Privy Council, as did the Court of Appeal, concentrated on whether the segregation systems the hospital and the common nursing staff had opted for were negligent and found they were not.

80 He was also of the opinion that there was no negligence: "there will be unaccountable infection even under the most careful supervision and that careful supervision was given in the present case": *Ibid.* at para. 6.

81 *Ibid.* at paras. 6 and 10. McPhillips J.A. undertook, thereafter, an interesting discussion of whether the system put in place by the hospital to control infections was defective.

judge and the majority and dissenting judges of the Court of Appeal. In *Aristorenas v. Comcare Health Services*,⁸² the patient, who had delivered a baby by Caesarian section, was at a high-risk of infection after the delivery because of her obesity. She did in fact develop an infection that was treated by the defendant doctor and by several homecare nurses employed by the defendant health services. Nevertheless, her condition worsened, and she was eventually diagnosed with necrotizing fasciitis. At trial, the defendants were found to have been negligent in their postnatal treatment of the plaintiff, which had delayed the adequate treatment of her infection – a conclusion they did not challenge on appeal. The causal difficulty in this case flowed from the lack of knowledge pertaining to the causes of necrotizing fasciitis. Without this knowledge, it was impossible to assess whether the defendants' negligence had caused the plaintiff's necrotizing fasciitis to develop. Lederman J. was willing to infer causation, however, based on the facts that (i) an infected wound left untreated will develop serious complications, (ii) one possible complication, albeit rare, is necrotizing fasciitis, (iii) necrotizing fasciitis developed in the plaintiff's wound, (iv) whether necrotizing fasciitis would have otherwise developed is not a matter susceptible of scientific proof and none was led by any of the parties, and (v) it developed in this case in the very area of the infected wound which was permitted to deteriorate due to the defendants' lack of care.⁸³ On appeal, both the majority and the dissenting judges agreed that the robust and pragmatic approach of *Snell v. Farrell* applied in this case since the causes of necrotizing fasciitis could not be established with scientific certainty.⁸⁴ Their disagreement was over whether such an approach led to an inference of causation in this specific case. MacPherson P.S., in his dissent, found the inference of causation drawn by the trial judge to be proper and did not believe that the existence of other possible causes of the necrotizing fasciitis affected its validity. In his reasoning, he recalled that the Supreme Court of Canada in *Snell v. Farrell* and *Athey v. Leonati* had insisted on the necessity to avoid applying the causation test too rigidly.⁸⁵ Although agreeing with this last proposition, the majority believed that there was insufficient evidence on which to rest an inference of causation between the delay in treatment – which it assessed to

82 *Aristorenas v. Comcare Health Services*, *supra* note 34.

83 *Ibid.* at para. 72.

84 *Ibid.* at para. 29-30 (MacPherson P.S.) and para. 47 (Rouleau J.A.).

85 *Ibid.* at para. 45.

be three days, at most – and the necrotizing fasciitis suffered by the plaintiff. Rouleau J.A. recalled that the robust and pragmatic approach does not reduce the civil standard of the balance of probabilities but rather supports an inference even though medical and scientific expertise cannot arrive at a definitive conclusion.⁸⁶ However, a proper evidentiary foundation and ‘factors of the kind set out in’ *Snell v. Farrell*⁸⁷ are still needed to satisfy the trier of fact on the balance of probabilities that causation exists:⁸⁸

In *Athey*, Major J. speaks of avoiding a rigid application of the test of requiring scientific precision. He also says that common sense can aid in the determination of causation. Further, an inference may be drawn without scientific proof. While this language does evoke a more “relaxed” standard of proving causation, it does not alter the requirement that the plaintiff must establish causation on a balance of probabilities. In my view the “robust and pragmatic” approach modifies the type of evidence as well as the factors that the court may consider. It does not modify the amount of proof required to establish causation.⁸⁹

Insufficient proof existed in the present case because none of the experts testified that the likelihood of contracting necrotizing fasciitis increased with a delay in treatment and, even assuming that such a link did exist, no witness considered or gave evidence on the effect of the three-day delay in performing the proper treatment. Since there was far less evidence in this case than in *Snell* and there were no additional factors to assist the Court in finding causation,⁹⁰ it could not draw an inference.⁹¹ The existence of a wide

86 *Ibid.* at para. 56.

87 Rouleau J.A. listed as such factors: although the experts are unable to testify about causation on a standard of scientific precision, some evidence exists that the negligence led to the injury; the general increase of risk because of the negligence; the injury is not due to natural causes; the defendant is in a better position to observe what occurred and to interpret what he saw; the negligence results in a situation where it is impossible for anyone else to detect the precise cause of the injury (*Ibid.* at para. 60).

88 *Ibid.* at para. 58.

89 *Ibid.* at para. 60.

90 On these factors, see *infra*.

91 *Ibid.* at para. 74.

variety of other possible causes of the necrotizing fasciitis suffered by the plaintiff reinforced this conclusion.⁹²

Another example of inferential reasoning is provided by *Rossmann v. Sas*,⁹³ a case in which timing served as a consideration in the drawing of the causal inference. The patient alleged that her dentist negligently perforated the bony floor of her maxillary sinus during dental surgery that resulted in a fistula between her mouth and her sinus and caused a sinus infection that became chronic.⁹⁴ Although the existence of this perforation was contested, using inferential reasoning, Boyko J. determined that the infection was indeed caused by a perforation of the sinus floor. The judge based this inference on finding that the patient had been diagnosed with the infection within eleven days of the treatment and had complained of pain, stuffiness, and a sense of pressure within 48 hours of the procedure.⁹⁵ Given that the infection occurred immediately after the treatment, the court found that the bacteria that caused it must have been present in the patient's infected tooth, in a granulomatous lesion in the bony structure of her molars, in the inert material inserted into her root canal, or in the oral flora (bacteria) generally found in one's mouth:

Such an inference leads to no other reasonable conclusion than that the bacteria had to enter her sinus through a perforation in her sinus floor. No other reasonable or credible explanation having been advanced by the defendant for the cause of Mrs. Rossman's sinusitis, the circumstantial evidence of the plaintiff in my view establishes, on a balance of probabilities, that there was indeed a perforation of Mrs. Rossman's sinus floor.⁹⁶

92 *Ibid.* at paras. 74 and 76.

93 *Rossmann v. Sas*, *supra* note 61. See also *Parragh v. Eagle Ridge Hospital and Health Care Centre*, *supra* note 35 discussed below.

94 She also claimed failure to inform her of the risk of perforation.

95 *Supra* note 61 at para. 69.

96 *Ibid.* at para. 69. Boyko J. then inferred that the perforation was due to the defendant's treatment based on the doctrine of *res ipsa loquitur* (*Ibid.* at paras. 72-74). Moreover, the court concluded that the doctor had followed the standard practice of his profession but that this practice was negligent (*Ibid.* at paras. 126-28). For a Quebec civil law example, see: *Garceau v. Lalonde*, Que. C.Q. Saint-Jérôme, no. 700-02-002471-952, 30 January 1998 (Soumis J.) at 29 (court transcript).

Finally, when the court is willing to infer fault, the treatment of causation may thereby be facilitated. For instance, in *Hajgato v. London Health Association*,⁹⁷ it was unknown when and how the *staphylococcus* that infected the patient had been introduced into a surgical incision site. Through its willingness to infer fault – by applying *res ipsa loquitur*⁹⁸ – in the diagnosis and treatment of the infection, the court obliged the defendant either to provide an explanation of what happened or to demonstrate the absence of negligence – the second option ultimately succeeding in this case.

Some common law decisions warn that judges should resort to inferences only where there is causal uncertainty. In *Michener v. Doris*,⁹⁹ Allan J., in *obiter*,¹⁰⁰ insisted that where, by contrast, there is reasonably credible medical evidence pointing to a conclusion on causation, it is not appropriate to apply the common sense, robust and pragmatic approach of *Snell v. Farrell* and to apply an inferential analysis.¹⁰¹ This reasoning is in line with Canadian common law caselaw that insists that generous approaches to the evidence, such as the one advocated in *Snell*, ought to be reserved for cases of uncertainty and avoided in cases where the evidence is contradictory, rather than uncertain.¹⁰²

Outbreak cases – Factual inferences (or presumptions) depend intimately on the factual evidence provided at trial and, thus, are treated on a case-by-case basis. Up until today, decisions that have envisaged inference-making in nosocomial infection situations have dealt only with isolated occurrences of infections. We submit that the potential for proving causation through factual inferences will be increased in instances involving infectious outbreaks.

Indirect evidence in the form of factual inferences should certainly be a particularly helpful technique in identifying causes of outbreaks. Indeed, the inquiry should be facilitated by the occurrence of several cases arising in the same location at approximately the same time, or by patients being

97 *Supra* note 25

98 This case predates the decision of the Supreme Court of Canada in *Fontaine v. British Columbia (Official Administrator)*, [1998] 1 S.C.R. 424, [1997] S.C.J. No. 100 where *res ipsa loquitur* was said to be nothing more than circumstantial evidence of negligence.

99 *Supra* note 64.

100 The standard of care had not been breached.

101 *Supra* note 64 at paras. 182-85, 215.

102 Lara Khoury, *Uncertain Causation in Medical Liability* (Hart Publishing: Oxford, 2006) at 171.

treated by the same medical team or receiving the same type of treatment. In these situations, even though one may not be able to prove the exact origin of the infection through direct evidence, the identification of the culpable organism and the factual circumstances shared by a number of patients may provide sufficient indicators to support a factual inference regarding the infection's origin. Moreover, the findings of infection control and prevention teams in determining the sources of outbreaks should prove to be of great assistance to the courts in identifying (or inferring) the origin of the infection. However, as the report of Coroner Rudel-Tessier shows, causation is still a difficult element to unfold even in outbreak cases, given the complex, multifactorial origins of many types of infections.

Moreover, a recent decision sheds doubt on the above opinion. In *Parragh v. Eagle Ridge Hospital and Health Care Centre*,¹⁰³ two patients who underwent surgery to repair hernias contracted an invasive Group A Streptococcal infection leading to necrotizing fasciitis. Both patients were operated on by the same surgical team, on the same day and in the same operating room. These circumstances, in addition to the fact that the most common manner of transmission of the bacterium is through contact with a person carrying it, were enough for the British Columbia Supreme Court to conclude on the balance of probabilities that the infection had been contracted at the site of the surgical incision through contact with one of the operating room nurses.¹⁰⁴ However, the action was rejected for want of negligence. The court held that lack of asepsis was not necessarily the result of negligence.¹⁰⁵ In *obiter*, the court also declined the invitation of the plaintiffs to infer causation based on *Snell v. Farrell*. The Court was of the opinion that one of the nurses on the operating team must have been a carrier of the bacterium. None of them tested positive for it, but since the tests were not 100% accurate,¹⁰⁶ the court believed that one unidentified nurse must have fallen within the margin of error.¹⁰⁷ For the Court, this likened this case to *Cook v. Lewis*, except that a breach of the standard of care by the operating room nurses had not

103 *Supra* note 35.

104 *Ibid.* at paras. 37-38.

105 *Ibid.* at paras. 63-64. The court also refuses to infer breach of the standard of care at para. 64.

106 The operating room had also been tested, as well as the booking clerks, the surgical daycare ward nurses and the cleaning staff and all proved negative for the bacterium.

107 *Ibid.* at para. 85.

been proven.¹⁰⁸ Thus, the Court may have been willing to apply the solution – i.e. identifying the exact nurse who had transmitted the bacterium – developed in *Cook v. Lewis*, i.e. reversing the burden of proof of causation, had negligence on the part of each of the nurses been proven, a task that appears almost impossible to fulfill for any plaintiff in a similar situation. Nevertheless, this identification appears an unnecessary step as long as it is the hospital's vicarious liability that is sought.

Going further – Even in outbreak cases, successfully convincing a court to draw a factual inference of causation will be challenging since the evidence will frequently be conflicting on the causation issue because of the multiplicity of possible sources of infections. For instance, the sole possibility that the bacteria may have been brought in by a visitor, if substantiated by the evidence, might constitute a rebuttal of the causal inference, particularly if the hospital has taken all of the necessary precautions to encourage hygiene by visitors. One may, therefore, wonder if courts, particularly in the common law, might be willing to go further.

In some cases, Canadian courts have been willing to infer causation – even in the presence of only scarce evidence – based on predetermined justifications or factors considered sufficient for doing so. Although this method has rarely been applied in the Canadian medical caselaw, it is worth mentioning. Two justifications have been cited in the past in the Canadian caselaw to justify causal inferences: (i) the defendant has particular knowledge of the facts related to causation and, by his negligence, undermined the plaintiff's ability to prove causation; and (ii) the defendant has increased the risk of injury for the plaintiff (common law) or has subjected the plaintiff to a danger (civil law).

Snell v. Farrell relied on the first justification to infer causation in the presence of uncertainty.¹⁰⁹ Although it has been rarely used in Canadian caselaw,¹¹⁰ such reasoning is interesting from a policy perspective since,

108 *Ibid.*

109 It was also applied in *Heidebrecht v. The Fraser-Burrard Hospital Society*, [1996] B.C.J. No. 3042 (B.C.) at para. 105 where the plaintiff suffered significant brain damage as a result of bacterial meningitis he developed after a frontal craniotomy performed by the defendant neurosurgeon.

110 And its treatment is not always clear. *E.g.*, *Meringolo (Committee of) v. Oshawa General Hospital* (1991), 46 O.A.C. 260, [1991] O.J. No. 91 272 (in *obiter*); *Scott (Crick) v. Mohan*, (1993) 142 A.R. 281, [1993] A.J. No. 492 (Q.B.); *Pierre (Next Friend of) v. Marshall* (1993), 152 A.R. 161, [1994] 8 W.W.R. 478 (Q.B.) 506;

arguably, the courts are justified, in these circumstances, in allocating the risk associated with the absence of causal evidence or its uncertainty to the defendant.¹¹¹ The nosocomial infection caselaw reflects a timid interest for this line of thinking. For instance, in *Aristorenas v. Comcare Health Services*,¹¹² Rouleau J.A. indicated that factors that could aid in determining causation included the fact that the defendant had superior knowledge of the facts related to causation and created the causal uncertainty.

Grounding findings of causation on the fact that the defendant's negligence increased the plaintiff's risk of contracting an infection is a much more controversial option. Increase of risk as the basis for either a factual or a legal inference, an alternative test for causation, or a basis for liability has been a topic of discussion amongst causation scholars for many years.¹¹³ The approach is an interesting avenue for judges who wish to assist nosocomial infection victims in their demonstrations of causation. Indeed, one can often argue that although the exact cause of the infection has not been identified, negligence on the part of the hospital or the physician (lack of asepsis, deficiencies in infection prevention and control, overcrowding, etc.) has increased the risk of the patient developing an infection as a result of his or her admission to a healthcare facility. It goes beyond the purpose of this paper to embark on a lengthy analysis of this technique.¹¹⁴ It suffices to say that, although some past decisions have inferred medical causation based on an increase of risk, it is currently unlikely that this reasoning could support a finding of causation or liability in medical malpractice cases, especially since the Supreme Court of Canada rejected it in *St-Jean v. Mercier*. This civil law decision, which has impacted Canadian common law as well, rejected the notion of a creation of a danger for the plaintiff by the defendant as a justification for drawing a factual presumption: '(t)o the extent that such a

Dixon Estate v. Holland, [1996] B.C.J. No. 1252, [1997] 1 W.W.R. 130 (S.C.) at 135 – 36; *Ostby v. Bondar* (1998), 218 A.R. 132, 1998 ABQB 420 at 146; *Bigcharles v. Dawson Creek and District Health Care Society*, [2001] 91 B.C.L.R. (3rd) 82, [2001] B.C.J. No. 1003 at paras. 27 – 29; *Rogers v. Grypma*, 2001 ABQB 958, [2001] A.J. No. 1425 at para. 311; *Wilson v. Byrne*, [2003] O.J. No. 2360, 123 A.C.W.S. (3d) 671 (S.C.J.) at para. 83.

111 See our full argument: *Supra* note 103 at 221-25.

112 *Supra* note 34 at para. 79.

113 This attention was renewed following *Resurface Corp. v. Hanke*, *supra* note 44.

114 For an exhaustive comparative analysis (Canada, Quebec, England, Australia and France) and our critique: Khoury, *supra* note 103 at 147-81.

notion is a separate means of proof with a less stringent standard to satisfy, *Snell* ... and definitely *Laferrrière*...should have put an end to such attempts at circumventing the traditional rules of proof on the balance of probabilities.¹¹⁵ Likewise, Rouleau J.A. in *Aristorenas v. Comcare Health Services* specifically rejected the increase of risk approach on the bases of *Snell v. Farrell* and the decision of Sharpe J.A. in *Cottrelle v. Gerrard*.¹¹⁶

Could it be argued that the recent Supreme Court of Canada's decision in *Resurfice Corp. v. Hanke* permits common law findings of causation based on a mere 'material contribution' by the defendant to the plaintiff's *risk of injury*?¹¹⁷ When explaining the special circumstances in which the material-contribution test can be used as an alternative to the classic 'but-for' test, the Court wrote that it must be clear that the defendant breached a duty of care owed to the plaintiff, thereby exposing the plaintiff to an unreasonable risk of injury.¹¹⁸ This *obiter dictum* may be interpreted as supporting findings of causation based on evidence of a material increase of risk, despite some Ontario Court of Appeal decisions stating that *Resurfice* did not intend to alter the state of Canadian law on causation and that it simply reaffirmed that the basic causation test is the but-for test.¹¹⁹ Yet, given the rejection by the Supreme Court of increase of risk reasoning in *St-Jean v. Mercier* and *Snell v. Farrell*, it is at the very least surprising that the Supreme Court would deliberately reverse its own case law in such an ambiguous manner to allow

115 Gonthier J. considered that this approach is legitimate only in the context of a traditional approach to civil law factual presumption, i.e. presumably, one that is based on an assessment of all of the facts of the case. *St-Jean v. Mercier*, [2002] 1 S.C.R. 491 (Gonthier J.), para. 116.

116 *Aristorenas v. Comcare Health Services*, *supra* note 34 at paras. 78 and 80. He also rejected the loss of chance approach.

117 See Russell Brown, "Material Contribution's Expanding Hegemony: Factual Causation after *Resurfice Corp. v. Hanke*" (2007), 45 Can. Bus. L. J. 432 at 447-48.

118 See the other conditions *infra*.

119 *Barker v. Montfort Hospital*, *supra* note 30 at para. 51; *Monks v. ING Insurance Co. of Canada* (2008), 90 O.R. (3d) 689, 235 O.A.C. 1 at para. 86. An analysis of the very large number of cases discussing *Resurfice v. Hanke* is beyond the scope of this text. For critical analyses of this decision, see Brown, *supra* note 116 and Vaughan Black and David Cheifetz, "Through the Looking Glass, Darkly: *Resurfice Corp. v. Hanke*" (2007) 45 Alta. L. Rev. 241.

findings of causation based on negligent increase of risk, particularly in medical negligence cases.¹²⁰

c) Elimination Process

Finally, the analysis of whether negligence has been committed may help avoid a complex inquiry about the exact cause of the injury, when none of the possible causal factors can be linked to an act of negligence. Of course, evaluating the existence of negligence before embarking on a causal analysis is a regular judicial inquiry.¹²¹ The particularity of the present technique is that eliminating each of the alternative causal explanations because they cannot be linked to possible instances of negligence conveniently allows the court to avoid the – perhaps impossible – task of identifying the exact cause of the infection. This elimination process is of course especially common in cases where the judge believes that no negligence has been committed. For instance, in *Tonizzo v. Moysa*,¹²² the plaintiff alleged, among other things, negligence by doctors and the hospital in allowing him to contract a minor *staphylococcus aureus* infection on his left thumb while being treated for second and third degree burns. In *obiter*,¹²³ Smith J. went through a number of possible hygiene deficiencies on the part of the hospital and concluded that there was no negligence with respect to any of them. No infection control standard in relation to the plaintiff's care was shown to be deficient or neglected while he was hospitalized or when he underwent physical therapy as an outpa-

120 The analysis of this important issue is beyond the scope of this text. See Brown, *supra* note 116 at 447-48 and Black and Cheifetz, *supra* note 118 at para. 21. There are cases from lower Canadian courts that accept that factual causation may be proven by showing risk increase under *Resurfi*, for e.g. in the medical negligence field: *Bohun v. Sennewald*, 2007 BCSC 269 at paras. 70, 93-94, rev'd by the Court of Appeal: *Bohun v. Segal*, *supra* note 70 at paras. 37, 52-53; *Nattrass v. Weber*, [2008] AJ No. 465, 444 A.R. 303(Q.B.) at para. 267.

121 For instance, *Dineen v. Queen-Elizabeth Hospital*, [1988] R.R.A. 658 (Que. C.A.) at 659: the impossibility of ensuring perfect and constant asepsis demonstrated the absence of negligence and there was thus no need to assess whether the infection was truly due to the lack of asepsis alleged by the plaintiff. The Court of Appeal seems to try to avoid imposing an obligation of result (strict liability) on the defendant.

122 *Tonizzo v. Moysa*, [2007] A.J. No. 430, 2007 ABQB 245 (Alta Q.B.).

123 The claim was statute-barred.

tient.¹²⁴ While he was an outpatient, all of the physical therapy equipment used by the plaintiff 'would have been' properly sterilized in accordance with the hospital protocols,¹²⁵ and when he had an open wound, he either 'would not have been' permitted to use the physical therapy equipment or 'would have been' instructed to wear gloves.¹²⁶ As for infection control while the plaintiff was hospitalized, Smith J. found that, despite high infection control standards, *staphylococcus aureus* infections were not unusual in hospital burn units, and, therefore, the occurrence of the infection was not indicative of negligence.¹²⁷

In the 1985 civil law case of *Jablonski v. Marosi*,¹²⁸ the plaintiff sued the orthopaedic surgeon who had performed his knee operation (meniscectomy) and the hospital where the operation had taken place. Amongst other claims,¹²⁹ he complained that *staphylococcus aureus* invaded the wound site three days after the initial operation and caused an infection. Despite treatment with antibiotics, the infection persisted for the next several months. The patient argued that the infection was the result of non-sterile conditions for which the physician and the hospital were responsible,¹³⁰ and he invoked *res ipsa loquitur* to deal with the difficulties he faced in proving their respective faults. Interestingly, the Quebec Superior Court dealt with the case by focusing primarily on the evidence that allowed it to eliminate every possible instance of negligence relating to asepsis. It first found that the operating room in question was used that same day both before and after the plaintiff's surgery and that no other patient treated at that hospital in the periods leading up to and following the plaintiff's operation contracted a *staphylococcus aureus* infection. Then, the Court determined that, at the time of the infection, the hospital was taking appropriate measures and was suffi-

124 *Supra* note 124 at paras. 240 and 248.

125 *Ibid.* at para. 245.

126 *Ibid.* at para. 245.

127 *Ibid.* at para. 233.

128 *Jablonski v. Marosi*, *supra* note 49. See also: *Pelletier v. Centre hospitalier de Val-d'Or*, Que. C.Q. Val-d'Or, no 615-32-001988-011, 17 septembre 2002 at paras. 20 and 23.

129 The plaintiff also claimed negligence committed in the performance of the surgery and an absence of information concerning its possible complications. Both arguments were rejected by the Superior Court.

130 He also claimed that he was not fully informed of the possible risk of infection following treatment.

ciently equipped to ensure adequate sterilization. It stressed that there was no way to detect *staphylococcus aureus* at this time in either the patients or the staff prior to surgery. Finally, it raised the endogenous nature of the infection; test results made available after the operation showed that the patient had been carrying *staphylococcus aureus* before the surgery and, therefore, had infected himself. Thus, the claim was rejected for a lack of proof of fault on the part of either the surgeon or the hospital, a conclusion that was justified by the court by a mix of causal and negligence-based language.

Claims have also been dismissed against hospitals due to the general impossibility of preventing a particular infection from occurring, whatever its cause may have been. In *Bissell (Next friend of) v. Vancouver General Hospital*,¹³¹ the plaintiff child suffered brain damage as a result of aspiration pneumonia after being discharged from the hospital – as found by the trial judge.¹³² He had contracted a mild common cold (upper respiratory infection, or URI) allegedly while hospitalized – while another infant in the same ward had a respiratory infection.¹³³ Negligence was alleged against the physician and the hospital in charge of the child while he was hospitalized¹³⁴ in allowing him, while he was suffering from URI, to be discharged from the hospital and in failing to ensure that he did not contract URI. With regard to this second claim, McKenzie J. did not embark on a detailed discussion of how the cold had been contracted, although one expert raised the possibility that it could have been contracted outside of the hospital setting, through contact with the parents. Instead, the judge expressed the view that viral infections such as these cannot be obviated in a modern hospital and that reasonable steps were taken to minimize the risk of infection: ‘Any patient found to be suffering from a viral infection could be isolated from all other patients but this appears to me to be neither practical or necessary.’¹³⁵

131 *Bissell (Next friend of) v. Vancouver General Hospital*, [1979] B.C.J. No. 481 (S.C.).

132 *Ibid.* at paras. 48-49. Whether aspiration pneumonia had really occurred was a matter of debate, however.

133 There were also some indications in the evidence that influenza was prevalent at the defendant’s hospital at the relevant time: *Ibid.* at paras. 13 and 26.

134 Other parties were also sued on other bases that are not relevant to our discussion.

135 *Ibid.* at para. 54. *Dineen v. Queen Elizabeth Hospital*, [1988] R.R.A. 658 (Que. C.A.) expresses a similar reluctance to impose unrealistic obligations on hospitals.

Conclusion

Attempting to claim liability for a nosocomial infection by arguing that a hospital, a physician, or a staff member has negligently caused the infection to develop is a road paved with serious challenges. The multiplicity of potential origins of the bacteria, viruses, or fungi at the source of the infection – not to mention the frequent impossibility of identifying the precise origin of the infection – constitutes a major hurdle for these claims. Therefore, it is not surprising that many plaintiffs – and judges – prefer to approach these cases on the bases of alternative legal arguments, such as negligence in the diagnosis and treatment of the infection or failure to disclose the risk of infection inherent to the medical procedure. Despite the uncertainties that surround the origins of nosocomial infections, some decisions show a judicial willingness to factually infer causation where the evidence permits. However, such inferences may be inevitably confounded by the existence of alternative explanations of the source of the infection.

Doctrinal texts have often insisted that prompting general policy changes is not a primary function of the courts. Yet, the judiciary can play an important role in improving healthcare accountability and patient safety if it inquires about causes of nosocomial infections in the context of private litigation. Nevertheless, providing the courts with sufficient evidence to assess such questions remains an immense challenge for plaintiffs, which often leaves judges with little on which to base their inquiries. However, cases involving outbreaks will hopefully prove to be easier to resolve on this front. In the presence of an outbreak, the issue of identifying the origin of the infection becomes central, not only in order to shed light on the chain of events that led to the patient's injury and to allocate responsibility but also to acquire the knowledge and the understanding needed to improve the safety of our healthcare system.¹³⁶ However, judicial inquiries into causes of outbreaks are likely to reveal that their origins are complex and rarely stem from individual behaviour but rather from macro-level policy decisions. Specifically, one is likely to find that the source of the problem lies in the allocation of scarce resources, in administrative priority-setting, and in other systemic problems,¹³⁷ thus raising yet another difficulty: allocating responsibility based on individual negligence – an issue for another day.

136 The question of whether the courts are the best fora such inquiries is contentious, however.

137 For an early example, see: *McDaniel v. Vancouver General Hospital*, *supra* note 33.

