

# When the physician is the vector

John Hoey, MD

Tomorrow, Health Canada will publish revised recommendations intended to prevent the transmission of bloodborne diseases from physicians and other health care workers to patients. The recommendations call for mandatory screening for hepatitis B infection and, for those whose test results are positive, the forced suspension of privileges to perform "exposure-prone" surgical procedures.<sup>1</sup> If implemented, these measures will amount to an unprecedented intrusion into the lives of physicians. Are they justified?

Physicians are the vectors of many diseases. In the 1840s Oliver Wendell Holmes and Ignaz Philipp Semmelweiss independently made the unpopular discovery that physicians were unwittingly transmitting the then-unknown causative agent of puerperal fever to women during delivery. The remedy was straightforward: diligent hand-washing with a solution of chlorine. Today, physicians can still be the unwilling vectors of disease — influenza, tuberculosis, streptococcal pharyngitis, chickenpox and herpes simplex type 1 infection are but a few examples — but we have more sophisticated preventive measures at our disposal. Physicians are encouraged to be vaccinated against influenza, chickenpox and other vaccine-preventable diseases, to have regular tuberculin skin tests, to stay home from work when they have streptococcal pharyngitis or other contagious illnesses, to wear a mask or avoid performing surgery during recurrences of herpes simplex type 1, to wash hands frequently and well, to double-glove and to use universal precautions. Prudent as these measures may be, none presents the ethical dilemma inherent in the new Health Canada recommendations. This is because none is mandatory.

And none, with the possible exception of tuberculosis, involves routine and continuous screening of physicians or the suspension of their privileges. This is an extraordinary step, an infringement of the basic human right to dignity and privacy. The infringement is grave, because testing will neither be voluntary nor confidential. Coworkers and colleagues will make inferences when privileges are taken away; life and disability insurance will be denied, and existing policies will become more expensive; chosen vocations and livelihoods will be lost.

There are occasions when individuals suffer discrimination and disadvantage for the good of the public as a whole. Society demands such sacrifices in the face of a serious threat to public health or safety. In the case of hepatitis B infection, where is the evidence that mandatory screening is needed? Where is the evidence that it will work?

There is no doubt that physicians can transmit serious viral infections to patients during surgical and other invasive procedures. The reported cases are unfortunate: an orthopedic surgeon in France transmitted HIV to a patient during a lengthy procedure;<sup>2</sup> in Nova Scotia, another orthopedic surgeon transmitted hepatitis B to 4 patients;<sup>3</sup> a cardiovascular surgeon in the UK transmitted hepatitis B to 20 patients;<sup>4</sup> and a few other known or suspected cases have been reported. From the early 1970s until the end of 1994, 375 cases of hepatitis B transmission were recognized.<sup>5</sup> Hepatitis C has been transmitted during cardiothoracic surgery to 1 patient in the UK and to 5 in Spain.<sup>6,7</sup> In the period when hepatitis B vaccination was unavailable, an estimated 40% of US surgeons were infected with hepatitis B during surgery and about 4% became carriers.<sup>8</sup>

The Health Canada recommendations cite estimates for the rate of transmission of hepatitis B and C and HIV from infected health care workers to patients. These estimates per million exposure-prone procedures are 240 to 2400 transmissions of hepatitis B, 50 to 500 transmissions of hepatitis C and 2.4 to 24 transmissions of HIV.<sup>1</sup> These estimates are as good as any, but they are still only estimates. There are no population-based studies for physician-to-patient transmission of hepatitis B or C. The US Centers for Disease Control and Prevention reviewed reports concerning 22 171 patients of 51 health care workers with HIV infection and found no



*Editorial*

*Éditorial*

**Dr. Hoey is Editor-in-Chief of CMAJ.**

CMAJ 1998;159:45-6

‡ See related articles pages 64 and 71



evidence of transmission.<sup>5</sup> Transmission of HIV can occur but is distinctly rare. It is imperative that population-based studies of hepatitis B and C be done to make the Health Canada estimates more precise.

Although hepatitis B transmission is the most important threat in terms of frequency, hepatitis C is also important, and HIV transmission — although rare — has the gravest consequences. It is not apparent, therefore, why Health Canada's recommendations largely ignore hepatitis C and HIV and deal only with the detection of health care workers who are harbouring hepatitis B.

The recommendations apply to all health care workers and students who perform "exposure-prone" procedures (those that require digital palpation of a needle tip in a body cavity, repair of major traumatic injuries or operating in the oral cavity). That's pretty much most physicians and dentists in active practice. For these individuals the recommendations require, among other things:

- vaccination against hepatitis B
- proof of adequate antibodies to hepatitis B surface antigen (antiHBs)
- for those without adequate titres, annual screening for hepatitis B surface antigen (HBsAg)
- for those who test positive for HBsAg, further testing for hepatitis B e antigen (HBeAg)
- suspension of privileges for those who test positive for HBeAg
- suspension of privileges for those who refuse testing.

Will such a policy work? If implemented, these recommendations would lead to the detection of physicians who are HBeAg positive and would reduce the frequency of transmission of hepatitis B to patients. But at what cost? There are 3 categories of cost. First is the loss of human dignity and privacy of health care workers. Like everyone else, health care professionals do not welcome anything that is forced upon them. Nor do they want their private lives (and for most of these bloodborne pathogens we are talking about intimately personal matters) revealed to the larger public. But since we cannot put a dollar figure on these considerations, let us set them aside. Second is the loss of collaboration of physicians. Those who suspect that they may test positive may attempt to evade testing. It was for exactly these reasons that HIV testing was made available to the general public on an anonymous basis — to encourage all at risk to come forward for testing. Third, and most important, is the fact that the Health Canada recommendations would be extremely difficult and costly to implement. Sure, with adequate funds and resources, they *could* be implemented. Meticulous record-keeping would be required, along with central registries, hundreds of expert panels to assess procedures, mechanisms for handling appeals, changes in legislation in many provinces to enable mandatory testing to proceed, changes to compensation schemes for physicians who would be put out of work by test results, compensation for physicians and other health

care workers who would be denied life and disability insurance, and major retraining programs, including new residency slots for surgeons who become psychiatrists or pathologists, for example. None of this is thought out in the Health Canada recommendations. Nor are the costs of implementation considered or a source of funds identified.

If the risks are high and the proposed program is more effective than the current one, these costs might be justified. Is the existing policy ineffective? The current approach, endorsed by the CMA, emphasizes voluntary testing and strict adherence to universal precautions (see page 71). There is some evidence that voluntary measures work. In 1990 a Florida dentist was found to have transmitted HIV to 6 of his patients.<sup>9</sup> Since the adoption of universal precautions by dentists there have been no further reports of HIV transmission from dentists to patients.<sup>5</sup> It may be that physician education in better surgical technique, double-gloving, the use of blunt surgical needles, the adoption of safer instrument exchange procedures and a host of other precautions will be effective in limiting and perhaps eliminating the transmission of bloodborne viruses.

The enormous funds required to implement the Health Canada program might be better spent tackling more prevalent diseases such as influenza (by providing adequate vaccination programs for physicians and health care workers who care for elderly people) and antibiotic-resistant organisms (by providing education and accessible hand-washing facilities so that health care workers faithfully wash their hands between patients). Holmes and Semmelweis would approve.

Before the Health Canada recommendations are adopted, we need a careful assessment of their costs and feasibility. Above all, we need to consider all iatrogenic infections and determine whether an all-out attack on hepatitis B is the most cost-effective way of reducing the spread of diseases via the physician vector. Much more work is needed before we can endorse these recommendations.

## References

1. Proceedings of the consensus conference on infected health care workers: risks for transmission of bloodborne pathogens. *Can Commun Dis Rep* 1998;24[Suppl 4]. Available: [www.hc-sc.gc.ca/hpb/lcdc/publicat/ccdr](http://www.hc-sc.gc.ca/hpb/lcdc/publicat/ccdr)
2. Dorozynski A. French patient contracts AIDS from surgeon. *BMJ* 1997;314:250.
3. Nosocomial hepatitis B associated with orthopedic surgery — Nova Scotia. *Can Commun Dis Rep* 1992;18:89-90.
4. Lessons from two linked clusters of acute hepatitis B in cardiothoracic surgery patients. *Commun Dis Rep CDR Rev* 1996;6:R119-R125.
5. Bell DM, Shapiro CN, Ciesielski CA, Chamberland ME. Preventing bloodborne pathogen transmission from health-care workers to patients: the CDC perspective. *Surg Clin North Am* 1995;1189-1203.
6. Hepatitis C virus transmission from HCW to patient. *Commun Dis Rep CDR Rev* 1995;5:R121.
7. Esteban JI, Gómez J, Martell M, Cabot B, Quer J, Camps J, et al. Transmission of hepatitis C virus by a cardiac surgeon. *N Engl J Med* 1996;334:555-60.
8. Joint Working Party of the Hospital Infection Society and the Surgical Infection Study Group. Risks to surgeons and patients from HIV and hepatitis: guidelines on precautions and management of exposure to blood or body fluids. *BMJ* 1992;305:1337-43.
9. Update: investigations of persons treated by HIV-infected health care workers — United States. *MMWR* 1993;42:329-31.