Rates of hospital-acquired infection rising in Canada

By John MacKay
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A new study, based on a survey of Canadian hospitals, has revealed that hospital-acquired infection rates continue to rise and that for want of funding, infection-control programs continue to fall well short of expert recommendations.

The study, conducted by Canadian researchers, found significant increases in the rates of major communicable bacterial infections—including methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant Enterococcus (VRE) and Clostridium difficile (C. difficile)—over a seven year period from 1999 to 2005.

The study, published in the December issue of the *American Journal of Infection Control*, targeted acute care hospitals and demonstrated that the rates of MRSA more than doubled in the period from 1999 to 2005. C. difficile infections also tended to rise over the same period, while the number of hospitals reporting new cases of infection with VRE climbed 77 per cent.

The authors concluded that current surveillance and control activities are insufficient to deal with the incipient outbreaks. Dr Dick Zoutman, lead author of the study, stated that "Taking into account hyper-virulent C. difficile strains, the predicted influenza pandemic and increasing rates of MRSA and VRE, there continues to me to be a great need for ongoing investment in infection-control programs."

The investigators found that hospitals with lower infection rates practice active and targeted surveillance to identify and count cases of hospital infections and teach infection-control practices to their staff.

All of the investigated infections originate from bacteria that can become resistant to antibiotics. Such resistance is reportedly on the rise in many countries. "Antibiotic-resistant infections are becoming an increasingly significant problem in Canada, and will only get worse if recommended infection-control procedures aren't put into place," said Zoutman.

The authors suggest that the major hospital infection outbreaks experienced in Canada during the period of investigation—the Severe Acute Respiratory Syndrome (SARS) crisis in 2003 and two C. difficile outbreaks—have failed to cause a major redesign and refunding of the infection-control system.

The SARS outbreak claimed 44 lives and infected 438 across Canada, while the hyper-virulent strain of C. difficile killed more than 100 and infected more than 1000 over a period of 18 months in outbreaks in Calgary and Montreal. A further outbreak of C. difficile occurred in Saint-Hyacinthe, Quebec in 2006, killing 16.

These outbreaks revealed that the Canadian health care system was not prepared for such epidemics and the findings of this study suggest that the risk of further outbreaks is high. Government health care budget cuts played a major role in the spread of these epidemics, as has been revealed by various academic studies, government inquiries, and coroner's inquests.

During the initial stages of the SARS outbreak, senior Canadian and Ontario government officials along with most of the corporate media attributed the severity of the Toronto outbreak to bad luck. However, evidence quickly emerged to show that the massive budget cuts imposed during the previous 8 years by the then federal Liberal government and the Ontario Conservative government of Mike Harris greatly facilitated the epidemic's spread.

The head of infection-control at Toronto's Mount Sinai Hospital and a key member of the SARS containment team, Dr Allison McGeer, said, "It's been very clear to us that we were going to pay for the public-health dismantling that has happened under the provincial and municipal governments." It was revealed that cuts to nursing which had been made some years prior to the outbreak were a major contributing factor. A large number of nurses had been forced into part-time or casual jobs and were thus working at multiple hospitals, resulting in the inadvertent spread of the virus from one health care facility to another.

A resulting Ontario government-appointed inquiry whitewashed the role played by the federal Liberal and Ontario Conservative governments in slashing Ontario's health care budgets. However, it was forced to concede that the spread of SARS was facilitated by the weakness of the

province's public health units, hospital overcrowding, aged infrastructure, lack of time and facilities for proper staff hygiene and the refusal to hire full-time nurses.

In regard to the C. difficile outbreak of 2003, reports published in succeeding issues of the *Canadian Medical Association Journal* the following year drew a direct link between the disease's spread and the massive cuts that the federal and provincial Liberals, Parti Québécois, Conservative and NDP governments have made to Canada's health care system. The Quebec government responded by accusing the authors of the article of scaremongering.

One of the article's authors, Dr Jacques Pépin, observed, "In many institutions, housekeeping staff has been reduced while nursing workloads have increased. *C. difficile* is particularly difficult to eradicate from surfaces and equipment. Compliance with hand hygiene has been shown to decrease as workloads increase. Decreased compliance with isolation protocols along with the increased environmental spore burden could have a synergistic effect in promoting *C. difficile* cross-infection".

A coroner's inquest into the C. difficile outbreak in Saint-Hyacinthe, Quebec in 2006 revealed it had been linked to a reduction in cleaning and disinfection procedures at Saint-Hyacinthe hospital. The hospital had contracted out its cleaning requirements and the company failed to take into account additional cleaning and disinfection needs when C. difficile is detected in a ward.

This is of interest considering recent changes that the Scottish health care system has undertaken to prevent further increases in hospital-acquired infections. The Scottish Health Secretary Nicola Sturgeon announced in October that health authorities will henceforth be barred from outsourcing cleaning and catering services, although current contracts will be allowed to run their course. The new rules will confine such services in-house as part of a bid to reduce infections such as MRSA and C. difficile. In 2007 there were 6,430 cases of C. difficile infections in Scotland, of which 597 proved fatal. The ban on contracting-out is a reversal of policies introduced by the Conservative government of Margaret Thatcher, which spearheaded the privatizing of hospital services in the 1980s, and continued under the Labour governments of Tony Blair and Gordon Brown.

The authors of the current article into Canadian hospitals stress that there is a crucial need for ongoing investment in infection-control practitioners and surveillance tools if Canada is to achieve widespread control of infections in acute care hospitals. "It does cost money upfront to prevent these infections," said Dr Zoutman. "Not making the required investments would be short-sighted and might suggest that we have already forgotten the lessons we learned from the outbreaks of SARS and C. difficile."

Other experts weighed in on the debate. Dr. Andrew Simor, head of microbiology at Toronto's Sunnybrook Health Sciences Centre, said, "Despite the two major communicable diseases—SARS and C. difficile—despite the emphasis by the Canadian Public Safety Institute on safer health care, despite all those things, our institutional approaches to infection control have changed remarkably little".

The report reveals that while more people are working in the area of infection control, the intensity of surveillance and prevention measures continues to be less than what is needed. More computers are being used by infection-control teams for the purpose of tabulating infection data, however fewer hospitals are using statistical or specialized infection control software than in 1999. Some hospitals lacked resources to buy new software and others have not trained new infection-control practitioners in how to use the programs.

Dr Zoutman expressed concern about future cuts in health care due to the current state of economic deterioration. "I'm concerned now that it's more challenging economic times ... that we don't lose [sight of] this." Of major concern is the fact that past outbreaks of hospital-acquired infection in Canada took place under better economic circumstances. Future government cost-cutting, both federally and provincially, is likely to be sold to the public as necessary to weather the current economic crisis, with wanton disregard for the consequences of such cuts to public safety.

The current research builds on a national survey conducted by the same researchers published in 2003 which demonstrated that the majority of Canada's acute care hospitals fell short of the minimum recommendations for effective infection prevention programs. These shortfalls were then estimated to result in over 200,000 hospital-acquired infections per year in Canada and over 8,000 deaths.