New “super bug” threatens Australian hospitals

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Last month’s edition of the *Medical Journal of Australia* provided a new warning that a virulent strain of a hospital-acquired bacterial infection, responsible for the deaths of at least 2,000 patients in Canada in 2003-2004, had arrived in Australia.

The organism has also spread to Europe and there are reports now of cases in Asia and Central America. While most infections have been in hospitals, increasing numbers of community-associated cases are being reported in the US and Europe, demonstrating the “super-bug’s” capacity to also infect vulnerable individuals outside healthcare facilities.

The *Journal* provided a case study involving a potent strain of the bacteria Clostridium difficile (C. difficile). The January 2010 infection occurred in an elderly man, nine days after cardiac surgery in Melbourne’s Epworth hospital, the largest private hospital in the state of Victoria.

The case is significant as it occurred four months before three cases of C. difficile at the same hospital. At the time the hospital would not confirm that the cases were linked. However, the hospital reported that following the second outbreak there would be reviews of its infection control procedures.

Australia’s first reported infection was in Perth during 2009, where a patient was thought to have been exposed to the bacteria in the United States.

While all these patients survived, the infection resulting from this strain is associated with high morbidity and mortality and is difficult to treat. Health experts have therefore warned of possible epidemics like the one experienced in Canada if proper preventative measures were not implemented Australia-wide.

C. difficile is infrequently found in the gastrointestinal tract of healthy individuals but it does not cause medical problems. However, in those that are ill, risk factors include the use of antibiotic and immune suppressing drugs, advanced age and prolonged hospitalisation. Long-term aged care residents are at risk, as they frequently need hospitalisation and can be regularly exposed to antibiotics.

There are some particularly aggressive features of the hyper-virulent strain of C. difficile, known as ribotype 027. This strain has become resistant to a variety of antibiotic drugs and has the capacity to produce two potent toxins responsible for significant tissue damage to the gastrointestinal tract. The bacteria are also efficient at producing spores, which can persist for long periods in a hospital environment, increasing the likelihood of the infection spreading.

In 2008, the Australian Commission on Safety and Quality in Healthcare recommended hospital surveillance programs in all states and territory. Australian health ministers approved this recommendation but the *Medical Journal of Australia* reports that as yet, no state or territory has implemented it. Surveillance has since been limited to only a handful of jurisdictions, where some hospitals are reporting cases.

In an accompanying editorial in the *Journal*, authors Dr Rhonda Stuart and Dr Caroline Marshall wrote: “It is sobering to contemplate that what has occurred in the US, Canada and Europe is potentially and imminently on our door-step. We must learn from the experience of experts in these countries so Australia can avoid a similar experience”.

Surveillance and reporting systems are currently in place in the United Kingdom and the US. In the United States, C. difficile is now almost as common as multi-resistant staphylococcis aures or MRSA, otherwise known as “golden staph”.

Since the Melbourne outbreak, health professionals have made numerous calls for coordinated screening of susceptible patients and a national register to monitor infection rates and identify affected locations in order to prevent or contain any possible epidemic.

The doctor who treated Australia's first confirmed case told the *Australian* that not enough was being done. Clayton Golledge, a senior consultant in clinical microbiology and infectious diseases at Perth's Sir Charles Gairdner Hospital, said: "We are playing catch-up and it is lucky we haven't encountered a problem until now. Unless we do more, the situation is going to get worse."

The *Australian* reported one year ago that only two laboratories nationwide were capable of identifying the hyper virulent strain. The scientists running these laboratories agreed that similar labs should be established in every capital city. At that time, the director of Quality and Safety at the Victorian Department of Health, Alison McMillan, stated that typing all C. difficile cases was not necessary, suggesting preventative measures such as hand washing and disinfection of wards and isolation of cases were sufficient.

It is well established that such infection control measures are required to prevent the spread of infection. However healthcare budget cuts can undermine these methods. Compliance with hand hygiene and other sterile methods can decrease as workloads for hospital staff increase. Further, not all hospitals wards are equipped with adequate isolation rooms for significant outbreaks.

The Canadian C. difficile epidemics were associated with reductions in housekeeping staff and increases in nurses' workloads. Researchers have since linked the outbreaks to the budget cutting of the Quebec Government (see: "Canada: Budget cuts have contributed to spread of superbug"). Further, a coroner's inquest into the C. difficile outbreak in one hospital in Quebec in 2006 revealed reductions in cleaning and disinfection procedures by a private cleaning contractor.

Despite the advice of the medical experts, there has been no adequate response by the Australian government, this is bound up with its relentless efforts to drive down public health spending.

Earlier this year under the slogan of "health reform", Prime Minister Julia Gillard and state and territory leaders struck an in-principle agreement to establish a new market-based hospital funding system. From July 12, block grants to public hospitals will be abolished and hospitals will have to compete for funds, based on a national "efficient price" for each surgical activity. All sections of healthcare delivery will be under greater pressure to cut costs, regardless of the impact on patient care.

As a result, the hospital system will be increasingly prone to infection outbreaks, including of C. difficile.