

Healthcare infection prevention and control really is everyone's business



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Healthcare-associated infections (HAIs) are more important than most people realise. They are estimated to affect 7–10% of all patients admitted to hospital and are among the top five causes of death worldwide, including in countries like Australia with sophisticated (and expensive) healthcare systems. In Australia it is estimated that 200,000 HAIs occur each year; they affect 5–10% of hospital patients, contribute to 7,000 deaths and are responsible for A\$2–3 billion in excess health costs. In the USA they cause an estimated 99,000 deaths and cost the health system US\$10–25 billion. These, and other estimates of the burden of HAIs anywhere in the world, are imprecise and almost certainly lower than the true values, because surveillance and reporting of HAIs is limited and highly variable. What is most shocking about these statistics is that at least 50% of these infections (probably more) are judged to be preventable by measures that are simple, inexpensive and have been shown to be effective.

HAIs have been a problem since hospitals were first established and the principles of prevention have been known since the 19th century, although the major pathogens change from time to time and in different places. In the 21st century most HAIs are due to multiresistant organisms (MROs), mainly bacteria, but also, increasingly, fungi. Antimicrobial resistance is also not a new problem but,

until recently, there always seemed to be new drugs available to treat infections that had become resistant to older ones. This is no longer the case and we are hearing more and more about infections for which no available antimicrobials are effective – they are untreatable. This means that infection prevention and control (IPC) in healthcare settings is becoming even more critical, to protect patients from exposure and the risk of infection from resistant pathogens. Reducing the all-too-frequent unnecessary or inappropriate use of antimicrobials is equally urgent, because we know it can slow or even reverse the spread and spectrum of resistance.

It is difficult to explain to anyone, let alone to patients who are the victims of serious HAIs, why healthcare professionals so frequently fail to protect patients by neglecting the simple measures – like hand hygiene – that we know can prevent the spread of microbes. It is not only or necessarily the fault of individual healthcare workers or the healthcare system, but a complex societal problem. Prevention is always more difficult to ‘sell’ than ‘cure’ and our healthcare systems, public expectations and hence healthcare budgets are focused on cures and rescues. However, many of the medical and surgical ‘miracle’ cures and rescues developed over the past 20–50 years – chemotherapy to cure leukaemia and prolong the lives of many cancer patients; life-saving kidney, heart and lung transplantation; prosthetic heart valves and joint replacements – carry associated

high risks of infection and so depend on good IPC policies and the availability of antibiotic and antifungal ‘safety nets’. They are now in jeopardy because our IPC and antimicrobial prescribing practices have been often inconsistent with the best policies and are now less reliable.

So what are we to do about this? There have been many innovative approaches to improving this situation, some of which have been very successful. In Australia, the National Hand Hygiene Initiative, sponsored by the Australian Commission on Safety and Quality in Healthcare, has implemented standardised auditing and national reporting, by all public hospitals, of compliance with the ‘5 Moments of Hand Hygiene’, with improvement from an average of 64%, overall, in 2009 to 77% in 2013. All States have implemented mandatory reporting of certain ‘marker’ HAIs, of which health-care-associated *Staphylococcus aureus* blood stream infections is now publicly reported, along with hand hygiene compliance data, by hospital, on the MyHospitals website. Public reporting is a controversial and not necessarily very effective strategy for preventing HAIs, but it does have the effect of raising the profile of IPC in the minds of hospital administrators, which is the first step towards improving local IPC practices and, hopefully, providing adequate resources. It also highlights the need for surveillance of selected HAIs and MROs, with microbiological support.

It is a truism that we can’t improve what we can’t (or don’t) measure. We need to identify key indicators of the burden of HAIs and the prevalence of MROs before we can hope to reduce them, monitor the effectiveness of preventive programs and motivate front-line clinicians to take responsibility for the safety of their patients. Many clinicians believe that HAIs are rare; annual or quarterly statistics fail to resonate; when a HAI occurs in their own patient many see them as unavoidable collateral damage due to the patient’s underlying condition, a failure of the ‘system’, and that there was nothing they could have done to prevent it. Some regard colonisation with MROs as unavoidable. Doctors have, legitimately, complained that microbiological results are generally too slow to guide logical choice of antibiotic therapy in critically ill patients – and so they have developed bad prescribing habits to cover all bases.

Rapid diagnostics and susceptibility testing; carefully targeted, relevant and rapidly reported microbial surveillance data (including strain typing for common hospital pathogens); automated electronic data management, reporting and decision support and monitoring systems; and a better understanding of the epidemiology and evolution of ‘hospital’ pathogens and antibiotic resistance – among other things – can help to dispel these myths, motivate efforts to reduce individual risks, limit outbreaks and improve management of hospital infections. But we also need a better understanding of the

complex and varied healthcare ‘cultures’, personal and professional relationships and environmental factors that determine how well patients – and healthcare professionals – are protected, from the very real risk of infection associated with healthcare. Any of us – or our parents, children or friends – is a potential vector or victim of infection and so it is in our interests to make it our business. In this issue of *Microbiology Australia* we highlight current trends and new developments in infection control and antimicrobial resistance and hope you will find it stimulating and instructive.

Biographies

Lyn Gilbert (MD, FRACP, FRCPA, MBioethics, FASM) is a clinical microbiologist and infectious diseases physician who, until recently, was Director of Centre for Infectious Diseases (CIDM) Laboratory Services and CIDM-Public Health, Westmead Hospital. She is currently Clinical Lead in Infection Prevention and Control for Western Sydney Local Health District. Her research interests include clinical and molecular epidemiology, prevention and control and ethics of communicable diseases of public health importance, including healthcare-associated infections.

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