Healthcare-associated infections in Australia: Tackling the 'known unknowns'

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Abstract. Australia does not have a national healthcare-associated infection (HAI) surveillance program. Without national surveillance, we do not understand the burden of HAIs, nor can we accurately assess the effects of national infection prevention initiatives. Recent research has demonstrated disparity between existing jurisdictional-based HAI surveillance activity while also identifying broad key stakeholder support for the establishment of a national program. A uniform surveillance program will also address growing concerns about hospital performance measurements and enable public reporting of hospital data.

Introduction

Healthcare-associated infections (HAIs) cause significant morbidity and mortality.[1] Most are believed to be preventable,[2] but prevention requires an understanding of how, why and where HAIs are occurring. An HAI surveillance program informs such knowledge. Surveillance of HAIs is fundamental to any infection prevention program and provides data on which to develop an infection-prevention program.[3] Many major countries with large, complex healthcare systems, including the US, England, Scotland, Germany, France and The Netherlands, all have well-established and mature national HAI surveillance programs.[4] European countries even contribute HAI data to the European Centres for Disease Control to improve their understanding of HAIs in the region.[5] Many of these national programs comprise elements mandating specific HAI data be submitted to a national database. Although many local and some state-wide surveillance programs do exist in Australia, these have evolved separately and recent research has demonstrated there is broad variation in activity, methodology, skill, reporting and agreement in identifying infections.[4,6,7] This means that meaningful comparisons of HAI data between states and territories, and the generation of national data, is not possible, preventing the use of data to inform policy. As a result, the current national burden of HAIs is unknown in Australia. The last national HAI prevalence survey took place in 1984.[8]

Why do we need national HAI surveillance?

We propose three important reasons why Australia should have a national HAI surveillance program. The first relates to patient safety, and the right of the consumer to expect the same quality of care wherever they present. The risk of acquiring an HAI should not be dependent on the size or location of the facility a patient attends. It is likely an increased risk of HAI will not be due to patient characteristics or other explainable causes, such as the type of interventions received, but for other, yet to be identified, reasons. Presently, we do not know anything about facilities with higher HAI rates or why HAIs are occurring. We need to identify these HAIs so we can then start to understand the cause, share successful initiatives and implement action at a national level to prevent further infections. This will improve health care safety and quality for all. The second reason relates to performance and measurement. Funders have a right to expect that healthcare facilities are making informed and wise decisions based on sound data to direct precious infection-prevention resources appropriately. Regulatory bodies expect that facilities under their jurisdiction are providing safe care, and accreditors need to know that the processes and outcomes they review are valid measures of safety and quality. Although the Australian Institute for Health and Welfare has now assumed responsibility for the public release of hospital performance indicators, including a single HAI (*Staphylococcus aureus* bacteraemia), published on the MyHospitals website (www.myhospitals.gov.au, accessed 13 February 2017), the fact remains that the usefulness of this information remains extremely limited until we have a coordinated approach and a uniform method to measure other HAI outcomes nationally.

The third reason is about identifying effective interventions. Australia has undertaken several national infection-prevention activities over recent years. The National Hand Hygiene Initiative (NHHI)9 was implemented several years ago and now collates data from over 900 Australian healthcare facilities. The National Guidelines on Infection Prevention and Control,10 originally released in 2010, are currently undergoing review and provide a national infection prevention resource for many facilities.
The National Safety and Quality Health Service Standard 3 is completely devoted to infection prevention and safety by providing guidance and infection-prevention standards to facilities. 11 The overall aim of each of these resource-intense national activities is ultimately to reduce the burden of HAIs, but the disparity within current HAI surveillance means we cannot accurately measure their effectiveness, or identify and prioritise areas for future intervention.

What needs to be done?

A recent study involving key stakeholders across Australia demonstrated overwhelming support for a national HAI surveillance program, which the stakeholders believed would be beneficial to their hospital infection-prevention programs.12 The same study also identified that key stakeholders would prefer a mandatory national program that enabled hospitals to compare data with like hospitals, as well as a national benchmark. Further, there was a strong preference for hospital HAI data to be released publicly on a routine basis.12
Despite the support of many stakeholders, there are many challenges that must be addressed. From a clinical and epidemiological viewpoint, key issues for an HAI surveillance program are reasonably straightforward and include robust data collection processes, appropriate risk adjustment, timely feedback and validation.
Other challenges will be political. For example, issues regarding data governance would need to be addressed, and uniform response strategies would need to be coordinated between states and territories. There is a growing trend internationally with performance measurement, public reporting and financial penalties for low-performing hospitals. Financial penalties associated with HAIs are already common in the US.13 It could be argued that 'pay for performance' may result in a 'race to the bottom' as poorly resourced services are penalised with no information on process failure on which to act. Further, if targets are met, there is little incentive to introduce new initiatives, especially if those require additional resources.14 Already in Australia Queensland has instituted financial penalties for preventable bloodstream infections in the absence of public reporting.15 Recently, an Australian private health fund announced a policy of non-payment for 'hospital-acquired complications', including HAI.16 All these challenges will need to be identified and addressed through a comprehensive implementation strategy to ensure that surveillance findings translate into improved patient outcomes.17 There is precedent with national infection prevention initiatives, such as the NHHI, and the submission of national data, such as the HAI *S. aureus* data published on the MyHospitals website (www.myhospitals.gov.au, accessed 13 February 2017).
There is ample experience and expertise in HAI surveillance in Australia in the existing state-wide programs, in both implementation and maintenance of programs. Given international trends, it is inevitable that there will be an increased demand for transparency in healthcare quality metrics in Australia. A national HAI surveillance program would enable this.
A new initiative will require a recalibration of current funding of infection prevention in Australia. Recent Australian studies have suggested that staffing costs for infection prevention nurses exceed AUD$100million per year, and that 36% of their time is spent on surveillance.18,19 A separate study identified that half of those undertaking surveillance had never been trained, and fundamental elements, such as risk adjustment and reporting data to hospital executives, is frequently not done.7 This means that much of the HAI data being collected is not being analysed in a meaningful way, and because it is not being reported to those with authority to make change, HAI data are not being used for action. Clearly a proportion of precious infection prevention resources are not being used efficiently and a

need for capacity building in this area is essential. These resources need to be redirected towards best practice.
Efficiencies are also likely from an ‘economies of scale’ argument. A uniform national approach to surveillance means there will be no duplication between states and territories, and rather than develop local interventions, national interventions would similarly prevent duplication.
Further, although the implementation of current and future national infection prevention initiatives is welcome, it makes both clinical and economic sense to invest some of these resources towards establishing a national surveillance program so the effect of these initiatives can be measured appropriately.

Conclusion

There are clear benefits for all stakeholders from a national HAI surveillance program. Australia has the expertise and the support from many of the key stakeholders who understand the benefits at a hospital level. Commitment and strong national leadership is required to bring the states and territories together to identify an appropriate implementation strategy to ensure success.

Competing interests

Philip Russo is a member of the Australian Commission for Safety and Quality in Health Care (ACSQHC), Healthcare Associated Infection Advisory Committee, and previously Operations Director at the VICNISS Coordinating Centre. Lisa Hall was previously the Manager of Epidemiology and Research at Centre for Healthcare Related Infection Surveillance Program (CHRISP), and is a member of the ACSQHC, Healthcare Associated Infection Technical Working Group.

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