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RESEARCH PAPER

A point prevalence study of healthcare associated urinary tract infections in Australian acute and aged care facilities

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KEYWORDS

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Subacute care;
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Abstract *Objectives:* Surveillance of healthcare associated urinary tract infections (HAUTIs) in Australian acute and aged care facilities is lacking. Therefore, to provide the foundation for a national point prevalence study of HAUTIs and catheter associated urinary tract infection (CAUTIs), a three phase project was developed with recent completion of the second phase. The objectives of Phase II were to (1) develop a website incorporating tools for conducting point prevalence of HAUTIs and CAUTIs, (2) pilot an online process and database for conducting point prevalence of HAUTIs and CAUTIs and (3) determine the point prevalence of HAUTIs and CAUTIs in acute and aged care facilities. This paper reports on the third objective.

Methods: Point prevalence of HAUTIs and CAUTIs were assessed in 82 acute care and 17 aged care facilities within four Australian jurisdictions using an online survey.

Results: The study included 1320 patients and 663 residents from acute and aged care facilities respectively. HAUTI prevalence was 1.4% (95% CI 0.8–2.2%) in acute care and 1.5% (95% CI 0.8–2.6%) in aged care. Catheter use in acute care (9.3%) was three times greater than aged care (3.3%).

Conclusion: Given the relative frequency with which HAUTI occurs, associations with addition length of stay in hospital and risk of systemic sepsis from these infections, efforts should be made to further minimise HAUTI prevalence. There is also a need to develop targeted interventions for catheter use especially in acute care because inappropriate and/or excessive catheter use has implications for the risk of CAUTIs and adds consumable costs.

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Highlights

- Low proportion of HAUTIs were catheter associated compared to international literature.
 - Higher prevalence of catheter use in acute care compared with aged care.
 - Online point prevalence of HAUTIs is an effective means of surveillance.
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Introduction

Healthcare associated infections (HAIs) are the most common complication of hospitalisation with approximately 200,000 episodes of HAIs in Australian acute healthcare facilities each year [1]. The number of patients acquiring a HAI in European acute care facilities has been estimated at 4.1 million each year [2]. Healthcare-associated infections also pose a considerable burden among aged care residents [3]. They are associated with severe outcomes including debilitation, hospital admission and sometimes death. A European point prevalence survey (PPS) of HAIs in long term care facilities reported a HAI prevalence of 3.4% [4]. An Australian study conducted in 29 residential aged care facilities in one State, found a prevalence of 3.8% in residents presenting with more than one HAI, higher than reported in other studies [5].

Urinary tract infections are one of the most frequently reported HAIs by acute and aged care facilities [4,6]. A survey of adult patients in acute hospitals across England, Wales, Northern Ireland and the Republic of Ireland found urinary tract infections to be the second most common cause of healthcare associated infections [7]. It has been suggested up to 80% of healthcare associated urinary tract infections (HAUTIs) are caused by instrumentation of the urinary tract, referred to as catheter associated urinary tract infections (CAUTIs) [6]. A recent Australian study found about 26% of acute care patients had a catheter inserted while on admission [8]. In the United States, it is estimated that the prevalence of urinary catheter use in long-term care residents is 5%, representing approximately 50,000 residents with catheters at any given time [9].

Surveillance of HAIs is a core component of any infection prevention and control programme [10]. Point prevalence surveys are a useful surveillance method for understanding the burden of HAIs, including HAUTIs [11]. The data can help inform policy and nursing practice thereby reducing the risk of HAUTI acquisition [11]. Furthermore, utilisation of surveillance findings with the use of care plans will support delivery of a quality and safety-orientated healthcare service [11] consistent with Standard 3.2 of the National Safety and Quality Health Service Standards [12].

In Australia there is no specific national strategy and surveillance system in place to address HAUTIs and CAUTIs in acute or aged care facilities, despite being one of the most frequently reported HAIs and recent data suggesting

they increase hospital length of stay [13]. Therefore, to provide the foundation for a national PPS, we conducted a preliminary study in 6 Australian hospitals in 2013 (Phase I) [8]. Our findings from Phase I were used to develop a national protocol [14]. This paper reports on the findings of Phase II. The main goals of this phase were to provide proof of concept by testing our protocol using an online process and extend its use to aged care facilities, which were not represented in Phase I. The specific aims of Phase II were therefore to (1) develop a website incorporating tools for conducting a PPS of HAUTIs and specific point prevalence of CAUTIs, (2) to pilot an online process including online database for conducting PPS of HAUTIs and CAUTIs and (3) to determine the point prevalence of HAUTIs, CAUTIs and antimicrobial use in acute and aged care facilities. This paper addresses the third aim.

Methods

Study design

This study utilised a cross-sectional design.

Study sites

Purposive sampling was used to recruit 82 acute care and 17 aged care facilities within four Australian jurisdictions. Facilities could choose to participate or not, with the exception of one State. In this State, their Government's performance monitoring framework required all small (less than 100 acute beds) public hospitals participate. The hospital study sites were within metropolitan, regional, rural and remote locations and provided a mixed range of services such as gynaecological, paediatric and intensive care, depending on the location of the sites. Acute care and aged care facility bed numbers ranged from one to 175 and four to 100 respectively. The majority of aged care facilities were part of a public health service that included one or more hospital. Table 1 provides additional information on the mix of hospitals according to the Australian Institute for Health and Welfare's revised peer grouping for Australian public and private hospitals [15], including the percent data contribution of each hospital group to the total survey.

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