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Trends in publication scholarship in *Healthcare Infection*: a 12-year analysis

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Abstract. ***Background*:** *Healthcare Infection*, the official publication of the Australasian College for Infection Prevention Control, is an international, peer-reviewed journal. This paper presents an analysis of the publication scholarship trends of articles published within *Healthcare Infection*, providing insight into future publication trends.

***Methods*:** A cross-sectional study design was used to explore published articles over a 12-year period, between 2002 and 2015. A content analysis was performed to examine the key thematic characteristics of all published articles. Citation data from articles published between 2011 and 2015 were extracted from Scopus.

***Results*:** A total of 345 articles were published in *Healthcare Infection* during this time. The topics and content of the publications varied considerably. Approximately half the published articles were original research of which the majority were low level evidence. Other articles comprised discussion papers, review articles and editorials.

***Conclusion*:** In recent years, there has been an increase in international collaborations and diversification of topics published, including urinary tract infection, sharps injuries, health economics, and antibiotic resistance and stewardship.

Additional keywords: infection control, infection prevention and control, literature, research.

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Introduction

Healthcare Infection is an international, peer-reviewed journal. It provides a forum for the communication of findings and perspectives among the professional disciplines involved in healthcare-associated infection. The major goal of the journal, formerly titled *Australian Infection Control*, is to expand infection-control knowledge and scholarship in order to prevent infection-related illness in striving towards best practice in this area. To this end, *Healthcare Infection* invites original contributions pertinent to infection control in all healthcare settings, including original research, literature reviews, surveillance outcomes, editorials and book reviews. *Healthcare Infection* is published by CSIRO publishing on behalf of the Australasian College for Infection Prevention and Control. This paper presents an analysis of the publication scholarship trends within *Healthcare Infection* between 2002 and 2015 and explores possible future trends.

Methods

A cross-sectional study design was used to explore published articles over a 12-year period, between 2002 and the first edition of *Healthcare Infection* in 2015 (inclusive). All published research and scholarly articles between these dates were extracted from the Cumulative Index to Nursing and Allied Health Literature database. The timeframe of 2002 to 2015 was chosen as this is the period of time during which the journal, and its predecessor *Australian Infection Control*, were published by the one publisher, CSIRO, and the data were readily available for this. From the extracted data, the article type, submitting author details and location of research were determined. A content analysis was performed to examine the key thematic characteristics of all published articles. Descriptive statistics using SPSS Version 20.0 were used to collate study design, author and site information. Citation data from articles published between 1 January 2011 and 25 March 2015 were extracted from Scopus.

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Results

There were 345 articles published in *Healthcare Infection* between 2002 and 2015. Broadly, the topics and content of the publications varied considerably. Fifty percent of published articles were original research or reviews (Table 1), with the remainder comprised of article reviews, discussion papers or editorials. Most of these articles were low on the hierarchy of the 'levels of evidence' pyramid.[1] Four systematic reviews have been published.[2–5]

The primary topic of articles varied, with practice assessment and improvement, cleaning and disinfection, epidemiology and surveillance, multi-drug-resistant organisms and hand hygiene being most common (Table 2). Many of the articles discussed more than one topic. In articles examining the epidemiology, surveillance, management or outbreak of infections, the most common organism described was methicillin-resistant Staphylococcus aureus, followed by influenza.

Between 2011 and 2015, the most commonly cited articles were a paper exploring the economic rationale for infection control in Australian hospitals[6]and an AICA/ASID position statement on *Clostridium difficile* infection.[7] These articles have both been cited 12 times and were published in 2009 and 2011 respectively. The next three commonly cited articles were focused on cleaning and disinfestation and were published more recently.[8–10]

The median number of authors for each article was two (range 1–11). Nurses (35.2%) followed by medical practitioners (29.0%) were the two most common professionals to author publications. Between 2002 and 2010, there was no international collaboration of authorship within the published articles where international collaboration was defined as an article that had been produced by researchers from one than one country. From 2011, the percentage of journal's documents signed by researchers from more than one country increased to 8.3%, 9.4% and 9.7% for the 2011, 2012 and 2013 calendar years respectively.

Table 1. Article type

Article type	*n*	%
Original research	173	50.10%
Discussion paper	47	13.60%
Journal watch	42	12.20%
Editorial	33	9.60%
Letter to the editor	23	6.70%
Literature review	20	5.80%
Book review	6	1.70%
Conference abstracts	1	0.30%

Table 2. Primary topics published in *Healthcare Infection*

Primary topic	*n*	%
Practice assessment and/or improvement	32	9.30%
Cleaning, disinfection and sterilisation	30	8.70%
Epidemiology and surveillance	29	8.40%
Multi-resistant organisms, multi-resistant organism management, antimicrobial resistance	28	8.10%
Hand hygiene	27	7.80%
Infectious diseases – diagnostics, specific types	25	7.20%
Antibiotic use and stewardship	14	4.10%
Sharps injuries and management	12	3.50%
Models in clinical practice	12	3.50%
Indwelling catheter and peripheral or central line infections	12	3.50%
Outbreak management	11	3.20%
Surgical site infections and bloodstream infections	11	3.20%
Environmental	10	2.90%
Occupational health and safety, and personal protective equipment	10	2.90%
Disasters and pandemics	8	2.30%
Policy and guideline development, and consultation	5	1.40%
Health economics and healthcare-associated infection	4	1.20%
Isolation	2	0.60%
Parasitology	2	0.60%
Quality improvement	2	0.60%
Research practice	2	0.60%
Wound care	1	0.30%
Writing scholarship	1	0.30%
Bioterrorism	1	0.30%
Bloodborne viruses	1	0.30%
Credentialling and advanced practice	1	0.30%
Other	52	15.1%

Discussion

The review of publication scholarship trends in *Healthcare Infection* identified three notable themes. First, half the published papers were original research and the other half a combination of article reviews and discussion papers. Second, the authorship of published articles was varied with respect to the number of authors, designation and affiliations. Third, published research was conducted in a balance of Australian states and territories relative to population, in addition to national and international studies. Moreover, the nature of the articles published reflects the scope of the journal during this time.

Hand hygiene was unsurprisingly the most frequent theme of the articles, the topic coming to prominence in 2011,[11] with several articles published on this topic in this and sequent years[12–15] and within a special themed edition. Surveillance and epidemiology, as well as contamination, disinfection and sterilisation (including the environment) also ranked as common research topics. These topics had consistent publications over the review period, culminating in a themed edition on the environment in 2012, resulting in numerous publications.[16–20] Publications related to the environment have continued since,[10,21–25] whereas publications related to hand hygiene have slowed.[26,27] In the past two years, there has been an increase in publications on the topics of urinary tract infections,[28–33] sharps injuries,[34–36] health economics,[27,37,38] and antibiotic resistance and stewardship.[39–44]

Authors of *Healthcare Infection* articles were a diverse group. There was a mix of authorship between different professionals, including nurses, medical practitioners and academics. Affiliations of the authors were also mixed, with hospitals and universities the main affiliations. International

collaborations increased in recent years, perhaps reflecting an editorial push to promote the journal to a wider audience, and increased involvement and promotion of the journal by the editorial board, many of whom are international researchers and academics. The proportion of articles submitted by authors in government positions could be considered low, given that several states and territories in Australia have infection control units dedicated to surveillance and infection prevention activities, providing opportunities to share data and experiences. Working in a bureaucracy does, however, have challenges, particularly when disclosing or discussing information around infection and infection-related data. Nonetheless, there have been articles published relating to surveillance and infection data by state-wide infection control units.[45–50]

Infection control professionals in Australia and New Zealand have a varied scope of practice.[51] In a study undertaken by Hall *et al*. exploring the scope of practice of infection control professionals, education was a key component of practice.[51] Despite this, there have been limited publications in *Healthcare Infection* in this area. In the same study, respondents indicated that research consumed a limited part of their practice. With this in mind, it was surprising to see that nurses accounted for a large proportion of authorship in published articles. This could be a reflection of a small number of professionals regularly publishing.

Conclusion

Publishing is essential to all growing and expanding professions. Future publication scholarship across Australasia should focus on growing the research and evidence base for practice through increased interprofessional collaboration in priority areas, including reporting and surveillance of antimicrobial resistance and usage,[52] emerging and remerging infections, and health economics in both hospital and extra-hospital settings.

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