



State of the Science Review

Staff nurses as antimicrobial stewards: An integrative literature review



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Antimicrobial stewardship
Antibiotic resistance
Staff nurse

Background: Guidelines on antimicrobial stewardship emphasize the importance of an interdisciplinary team, but current practice focuses primarily on defining the role of infectious disease physicians and pharmacists; the role of inpatient staff nurses as antimicrobial stewards is largely unexplored.

Methods: An updated integrative review method guided a systematic appraisal of 13 articles spanning January 2007–June 2016. Quantitative and qualitative peer-reviewed publications including staff nurses and antimicrobial knowledge or stewardship were incorporated into the analysis.

Results: Two predominant themes emerged from this review: (1) nursing knowledge, education, and information needs; and (2) patient safety and organizational factors influencing antibiotic management.

Discussion: Focused consideration to empower and educate staff nurses in antimicrobial management is needed to strengthen collaboration and build an interprofessional stewardship workforce.

Conclusions: Further exploration on the integration and measurement of nursing participation is needed to accelerate this important patient safety initiative.

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Antibiotics are a shared community resource and the only class of pharmaceutical agents that lose effectiveness over time and repeated use because of bacteria's ability to develop resistance.¹ Inappropriate antibiotic utilization results in increased antimicrobial resistance (AMR) that jeopardizes the health and welfare of patients.² In the United States, the Centers for Disease Control and Prevention estimate that AMR directly results in 2 million illnesses and 23,000 deaths annually.² Global and national concerns have prompted the development of antibiotic stewardship programs (ASPs) designed to enhance the quality and safety of clinical care through antibiotic management.³

Within U.S. hospitals, ASPs guide interventions involving antibiotic selection and administration to optimize antibiotic treatments and minimize unnecessary use. Traditionally led by infectious disease physicians and pharmacists, The Joint Commission⁴ is requiring inpatient ASPs to demonstrate interdisciplinary engagement to address core performance elements and expand stewardship reach. Staff

nurses have important roles in antibiotic optimization, including obtaining appropriate cultures prior to initiation of antibiotics and administering and monitoring antibiotic therapy. Despite these activities being in their scope of practice, the impact of staff nurse contributions is largely unstudied.^{5,6} This integrative literature review examines the extant literature on the role of staff nurses in antibiotic stewardship to develop strategies to enhance nursing participation in ASPs.

METHODS

Whittemore and Knaf's integrative review method⁷ was selected to systematically appraise data from both qualitative and quantitative research traditions, therefore allowing disparate studies to be used in analyzing literature about nurses' contribution to ASPs. An integrative review is a useful framework for evidence-based practice integration and policy development.⁷

Search strategy

A literature search to identify articles indicating the need for inpatient staff nurse involvement in ASPs was conducted by a health

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sciences librarian in collaboration with the lead author using the following databases: PubMed, Cumulative Index to Nursing and Allied Health Literature, and Scopus. Dellit et al⁸ published one of the first ASP implementation articles; therefore, the search was limited to the years 2007 to June 4, 2016, and was restricted to English language articles. Figure 1 further describes details of search strategies and databases. The search retrieved 468 citations. Reference lists

of included articles were checked, and no additional articles were selected for review.

Article selection

The process for article selection included removing duplicates and using inclusion criteria to assess citation titles and abstracts for full-text review (Fig 2). Two researchers then verified the selected articles met inclusion criteria. Finally, all 3 authors agreed on eligibility and data extraction results. Retained articles acknowledged or included staff nurses in stewarding efforts. Most of the articles were descriptive with a focus on (1) nursing knowledge of AMR, (2) nursing roles and activities in ASPs, (3) e-health decision support systems on improving nursing access to antimicrobial information, or (4) hierarchical determinants influencing ASP involvement.

Two articles addressing the role of staff nurses specific to advancing stewardship efforts were excluded,^{5,10} despite the pivotal positions they had in garnering topical attention, because the purpose of the review was to summarize and report research findings. Likewise, it is vital to note other nurse leaders have clearly acknowledged the importance of staff nurse inclusion in stewardship activities, with their articles serving as advisory recommendations for clinical practice.¹⁰⁻¹² Excluded were expert recommendations lacking qualitative findings or quantitative data and publications that had a general focus on infection prevention strategies, infection control nurses, or the prescribing patterns of advance practice nurses.

Pubmed	CINAHL	Scopus
PubMed Search: ("Anti-Infective Agents"[Mesh] OR anti-infective OR antibacterial OR antimicrobial* OR antibiotic*) AND (stewardship OR "Practice Patterns, Physicians"[Mesh] OR "prescribing practices" OR "restriction policies") AND nurs*	(MH "Antibiotics+") OR "antibiotic" OR (MH "Drug Resistance, Microbial") OR (MH "Antiinfective Agents") OR "antimicrobial", "stewardship" OR (MH "Prescribing Patterns") OR "prescribing patterns", (MH "Public Policy") OR (MH "Hospital Policies") OR (MH "Health Policy") OR "restriction policy" OR (MH "Policy Making") OR (MH "Health Policy Studies"), "nurse" OR (MH "Nurses+") OR "nursing" OR (MH "Nurse Administrators") OR (MH "Students, Nursing, Graduate") OR (MH "Students, Nursing, Doctoral") OR (MH "Schools, Nursing")	TITLE-ABS-KEY (antibiotics OR antimicrobial OR antibiotic) AND TITLE-ABS-KEY (nurse OR nurses OR nursing) AND TITLE-ABS-KEY (stewardship)

Fig 1. Periodical databases and terms used for search. CINAHL, Cumulative Index to Nursing and Allied Health Literature.

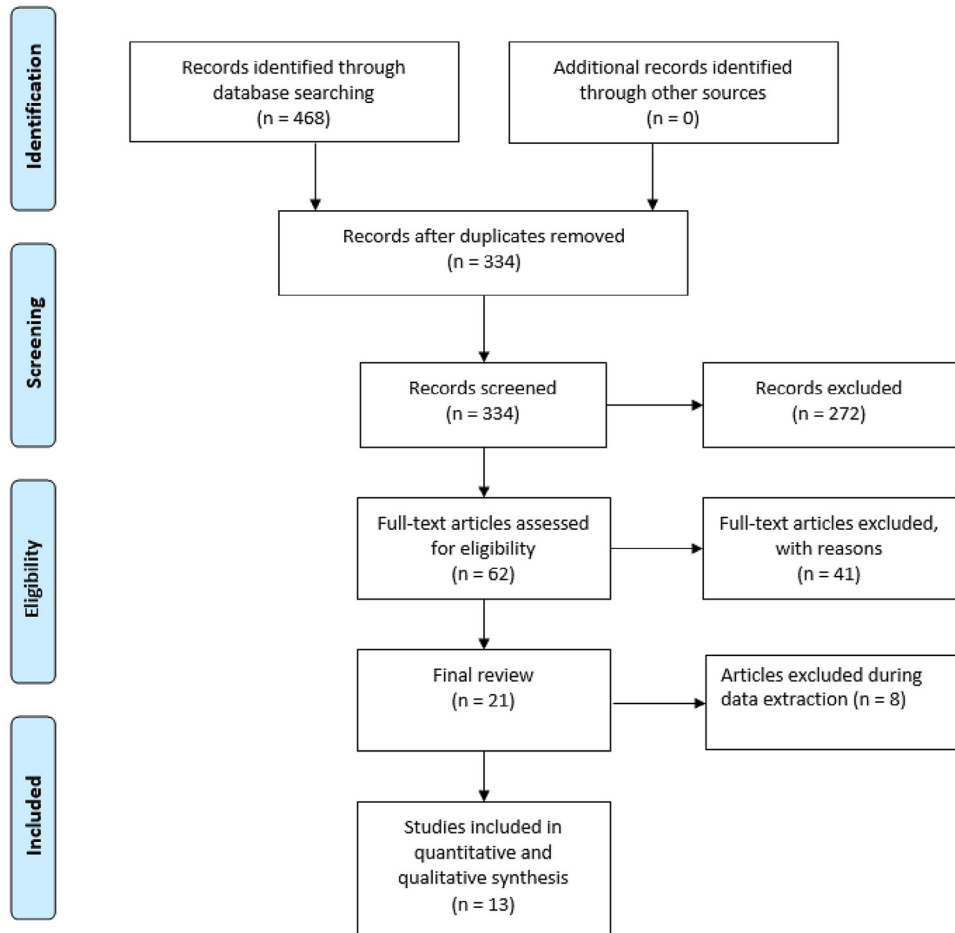


Fig 2. Flowchart of selection process.⁹

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