



State of the Science Review

Strategies to promote infection prevention and control in acute care hospitals with the help of infection control link nurses: A systematic literature review

Daniel Peter MD ^{a,*}, Michael Meng MSc ^b, Christiane Kugler MSc ^{b,c}, Frauke Mattner MD ^a^a *Klinken der Stadt Köln gGmbH, Institute of Hospital Hygiene, Köln-Merheim, Hospital of the Private University of Witten/Herdecke, Cologne, Germany*^b *Faculty of Health, Department of Nursing Science, Private University of Witten/Herdecke, Witten, Germany*^c *Faculty of Medicine, Freiburg University, Freiburg, Germany***Key Words:**Nosocomial infection
Liaison nurse
Nurse education
Nurse training**Background:** Infection control link nurses (ICLN) are important backup personnel for the prevention and control of infections in hospitals. To identify facilitators and barriers for the implementation of and long-term collaboration with ICLNs.**Methods:** We conducted a systematic literature review, following the preferred reporting items for systematic reviews and meta-analyses guidelines. Inclusion criteria were defined as description of de novo implementation of an ICLN system, strengthening of an existing ICLN system, or analysis of an ICLN system.**Results:** In 10 publications, facilitators and barriers were identified for mode of selection of ICLN candidates, characteristics and responsibilities of ICLNs, composition of a training curriculum, educational strategies, and external influencing factors. Experienced nurses with an interest in infection control seemed appropriate candidates. The importance of psychological skills in addition to technical knowledge was emphasized. A clear definition of responsibilities was important. Viable tasks for ICLNs included surveillance and teaching activities and the implementation of prevention measures. Ongoing teaching was superior to a single course. Management support was pivotal for success.**Conclusion:** Research on ICLNs is scarce. The potential to decrease health care-associated infections with the help of ICLNs has been demonstrated. The training in psychological skills in addition to technical knowledge deserves more attention.

© 2018 Association for Professionals in Infection Control and Epidemiology, Inc. Published by Elsevier Inc. All rights reserved.

Health care-associated infections (HAIs) are a risk for patients and place a substantial burden on health care institutions and health care systems. Within the member states of the European Union, an estimated 4.2 million HAIs occur every year.¹ The Centers for Disease Control and Prevention estimate 1.7 million HAIs occur in the United States every year.² In Canada each year, 220,000 patients acquire an HAI.³ Twenty percent to 30% of all HAIs are believed to be preventable.^{1,2}

The implementation of appropriate hygiene measures represents an important prerequisite to prevent the emergence of HAIs.

* Address correspondence to Daniel Peter, MD, Klinken der Stadt Köln gGmbH, Institute of Hospital Hygiene, Köln-Merheim, Hospital of the Private University of Witten/Herdecke, Ostmerheimer Str. 200, 51109 Cologne, Germany.

E-mail address: peterd@kliniken-koeln.de (D. Peter).

This research was conducted in the context of the Hygienebeauftragte Pflegende (HYGPFLLEG-Project), a project funded by the German Federal Ministry of Health (Project No. IIA5-2512FSB102).

Conflicts of interest: None to report.

Prevention must happen during clinical procedures through clinicians and nurses. Expertise in infection prevention and control (IPC) rests in the hands of specifically trained staff: infection control physicians and infection control nurses (ICNs). To close this gap and strengthen IPC measures where they are needed, an attempt was made to establish liaisons for ICNs amongst nurses working in direct patient care; that is, infection control link nurses (ICLN). Few studies have analyzed the influence of ICLNs, yet reports from various countries can be found on ICLNs.⁴⁻⁷

ICLN were first been introduced in the United Kingdom in the late 1980s.⁸ In the United States, attempts to establish ICLNs were made as early as 1980, when a broadening spectrum of responsibilities of infection control physicians led to exploring new ways of support.⁶ The aim then, as now, was to find a more practical and effective way to carry out surveillance and IPC activities.^{6,7}

The demand for infection control personnel in Germany—infection control physicians and ICNs—depends on the size (number of beds) and the risk profile of the institution. Acute care hospitals are expected to introduce at least 1 ICLN in every ward and functional unit.⁹

Although no common description of responsibilities can be found,¹⁰ ICLNs are seen as facilitators for the implementation of IPC measures in direct patient care—whether to introduce new guidelines^{4,11} or to complete tasks ranging from promoting hand hygiene compliance or controlling methicillin-resistant *Staphylococcus aureus* (MRSA) to surveillance activities.^{12–14}

Suggested content of curricula for ICLN training include microbiology, IPC practices,¹⁵ basic knowledge of disinfection, food and water hygiene, outbreak management, hygiene audits,^{9,16} teaching, and psychological skills.⁵

Many authors describe the education of ICLNs by in-house IPC staff.^{4,11,15,17,18} Additionally, external institutions offer training courses for ICLNs.^{16,19,20} In the current literature, different training methods and educational approaches can be found. Once an ICLN system is implemented, strategies are needed to sustain motivation and collaboration.

This review aimed to analyze the different strategies discussed with regard to success in terms of knowledge transfer, motivation of ICLNs, sustainability, and patient outcome (if mentioned). ICLNs may contribute to a reduction of nosocomial infection rates¹³—as long as their education succeeds in transferring essential knowledge and leads to sustainable motivation and finally intensified compliance with infection prevention measures amongst health care workers engaged in direct patient care. An analysis of strategies for a successful implementation of an ICLN system may help IPC staff in planning and implementing an ICLN system.

METHODS

For the literature review, a set of 12 search terms was defined: *infection control link nurse*, *infection control link nurse curriculum*, *infection control link nurse education*, *infection control link nurse training*, *infection control link nurse program*, *infection control link nurse programme*, *infection control link nurse system*, *infection control liaison nurse*, *infection control champion*, *infection prevention link nurse*, *infection prevention liaison nurse*, and *infection prevention champion*.

The Pubmed and Cochrane databanks were searched between May and June 2015. After removal of duplicates, records were screened for relevance. Nonrelevant records were excluded. Full-text articles of all included records were obtained and screened for eligibility. All articles that met the defined inclusion criteria detailed below were included in the final analysis.

In a second step, references of all included publications were screened for relevance by the same criteria. Relevant full-text articles were screened for eligibility and included, if the inclusion criteria were met.

The inclusion criteria for publications were a description of educational strategies (successful or unsuccessful), facilitators, or barriers; for the de novo implementation of an ICLN system; and/or for strengthening an existing ICLN system; and/or drawn from an analysis of an existing ICLN system. Furthermore, articles were screened for evaluation by means of staff- and/or patient-based parameters, subdivided in structure, process, and outcome parameters.

Only full-text articles were considered. Abstracts, presentations, and other publications for which no full-text publication was available, were excluded. All publications that met the inclusion criteria were considered, regardless of type of study and publication date.

All full-text publications included in the final analysis were appointed to 1 of the following defined categories: de novo implementation of an ICLN system, strengthening of an existing ICLN system, or analysis of an existing ICLN system.

Educational strategies, facilitators, and barriers described in the text were identified and divided into positive (successful) and neg-

ative (unsuccessful). Outcome parameters were decisive for determining positive or negative.

Results are given for all publications within each category (A, B, or C) (Tables 1–3) and finally merged for qualitative synthesis. Possible limitations of all included studies are shown in Table 4.

RESULTS

The search in the databases produced 353 hits. After the removal of duplicates and screening of records, 14 full-text publications were assessed for eligibility. Nine full-text articles met the inclusion criteria. In these 9 articles, 167 references were given. Screening of these references yielded 4 additional full-text articles for assessment of eligibility. Finally, 1 additional full-text article was included for a total of 10 studies for the final analysis (Fig 1 and Table 4).

Three studies were interventional studies,^{6,12,17} 2 were cluster-randomized controlled trials,^{4,11} 2 were cluster-controlled trials,^{8,15} 1 was an observational cohort study,²¹ 1 article described a study day,²² and 1 was a narrative review that included data from the Acute National Health Service Trusts in England.⁵ The original publication of the referenced Trust data²³ was not included in the final analysis because all relevant facts were presented in the included publication⁵ amongst additional information on the subject. Five studies gathered staff- and patient-based outcome parameters,^{6,11,12,17,21} whereas 5 studies surveyed staff-based outcome parameters only.^{4,5,8,15,22} Additional parameters included economic estimates,¹⁵ reduction of use of antibiotics,²¹ and the suitability of a questionnaire as a tool for IPC audits.⁸

Patient-based outcome parameters were rate of HAIs^{6,12,17,21} and management of transurethral urine catheters.^{4,11} Staff-based outcome parameters were identification of hygiene-related problems,²¹ barriers and facilitators for ICLN on ward,^{15,22} evaluation of an ICLN course,⁶ handrub consumption,^{12,17} guideline adherence,^{4,11} hygiene-related knowledge,^{5,8,22} and influence and benefit of having ICLNs on wards.^{5,8,21,22} See Table 4 for an overview of type of study, study design, and outcome parameters.

Six articles matched category A—positive and negative strategies for the de novo implementation of an ICLN system.^{4,6,11,15,17,21} Two articles matched category B—positive and negative strategies for the strengthening of an ICLN system^{12,22}—and 2 articles matched category C—positive and negative strategies found by analysis of an existing ICLN system.^{5,8}

The content-related analysis of the publications included in this review suggested 6 subcategories for which strategies, facilitators, and barriers could be found: mode of selection of ICLN candidates,^{4,6,15,21} characteristics of ICLNs,^{5,6,11,15,21} responsibilities of ICLNs,^{4,6,11,15,17,21} composition of a curriculum for ICLN training,^{4,6,11,15,21} educational strategies for ICLN training,^{4,6,11,12,15,17,21,22} and external factors influencing the success of ICLNs.^{4,6,8,15,17,21}

See Tables 1–3 for results of each category and subcategory.

Mode of selection of ICLN candidates^{4,6,15,21}

In 2 studies, volunteers amongst the ward staff were chosen to become ICLNs. One study showed that wards achieved higher clinical audits scores if ICLNs were present.⁵ The influence of ICLNs on HAI rates was analyzed in a second study.⁶ HAI rates dropped below the baseline determined before the intervention in 9 of 11 months. Candidates volunteering as ICLNs were recommended by ward leaders and then selected by IPC staff.⁶

In 2 studies, ICLN were appointed by ward leaders.^{4,21} In 1 study, the reduction of perioperative antibiotics from 3 doses to 1 dose was demonstrated. No reduction of HAI rates was found after the implementation of ICLNs. The capability of ICLNs to collect HAI data was demonstrated.²¹ In the second study, a new urine catheter

Download English Version:

<https://daneshyari.com/en/article/8567069>

Download Persian Version:

<https://daneshyari.com/article/8567069>

[Daneshyari.com](https://daneshyari.com)