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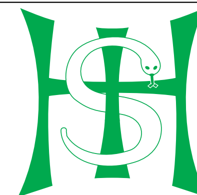

Review

# Working practices and success of infection prevention and control teams: a scoping study

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SUMMARY

Little research has been undertaken on how infection prevention and control (IPC) teams operate and how their effectiveness is assessed. This review aimed to explore how IPC teams embed IPC throughout hospitals, balance outbreak management with strategic aspects of IPC work (e.g. education), and how IPC team performance is measured. A scoping exercise was performed combining literature searches, evidence synthesis, and intelligence from expert advisers. Eleven publications were identified. One paper quantified how IPC nurses spend their time, two described daily activities of IPC teams, five described initiatives to embed IPC across organizations following legislation since 1999 in the UK or changes in the delivery of healthcare, and three explored the contribution of IPC intermediaries (link nurses and champions). Eight publications reported research findings. The others reported how IPC teams are embedding IPC practice in UK hospitals. In conclusion, there is scope for research to explore different models of IPC team-working and effectiveness, and cost-effectiveness. Other topics that need addressing are the willingness and ability of ward staff to assume increased responsibility for IPC and the effectiveness of intermediaries.

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## Introduction

Infection prevention and control (IPC) teams originated in the UK in the 1950s with the introduction of IPC nurses to support the work of clinical microbiologists.[1] The purpose of the newly introduced post-holders was to educate clinicians, conduct surveillance, investigate outbreaks of infection and ensure that clinical staff implemented IPC guidelines.[1] The role was considered a success from the outset and IPC teams have been established in many countries.[2–5] Formal preparation for IPC nurses has since been introduced, allowing them to assume responsibility for technical aspects of IPC.[2,6] Training is compulsory in some countries, but in others, including the UK, it is not mandatory. Over the years, workload has expanded in response to increased patient throughput, ageing patient populations, increase in numbers of invasive procedures placing patients at high risk of healthcare-associated infection (HCAI), and growing demand for surveillance and audit to meet public expectations of a clean, safe hospital environment.[7]

Since the 1990s IPC teams have expanded to include new roles. In the UK and numerous other countries, link nurse schemes and 'champions' have been introduced.[8,9] Post-holders are clinical staff with a remit to liaise with the IPC team to implement policies and guidelines at ward level. Legislation in the UK introduced from 1999 onwards required all health workers to accept responsibility for IPC. Similar developments are taking place in some other countries.[10] It is

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suggested that the new approach has changed the working practices of IPC teams in the UK. Instead of providing technical support, they are now required to adopt a more strategic role, working closely with clinicians to embed IPC throughout hospitals.[11]

The literature is replete with accounts of how outbreaks of infection or particularly troublesome pathogens have been controlled, and the impact of specific IPC procedures, care bundles and special campaigns.[12,13] Outbreak control and special initiatives usually involve input from IPC teams, but their activities are not described in detail in these accounts. By contrast, few empirical studies explore the daily working practices of IPC teams. This scoping exercise aimed to identify studies concerning whether and how IPC teams work across boundaries to embed IPC throughout hospitals, how they balance management of outbreak situations and other untoward events, alongside strategic aspects of IPC work such as education, and how their performance is assessed.

## Methods

Scoping exercises are recommended when little is known about a topic. The aim is to identify gaps in knowledge and opportunities for research.[14] This review adopted an established methodology for undertaking scoping exercises combining literature-searching and evidence synthesis with expertise from accepted leaders in the field likely to have privileged knowledge through their networks.[15] Works that addressed the activities of the core IPC team, link nurses and champions were searched for. Accounts of outbreak control, management of specific pathogens, and IPC involvement in campaigns were excluded since the aim was to look at daily working practices of IPC teams and interaction with clinicians.

A two-armed approach was taken to search the titles and abstracts of papers combining the search terms Infection Control/, infection control, healthcare associated infection, hospital acquired infection, healthcare acquired infection and combinations of all these search terms with intermediary nursing, intermediary, linking agents, facilitators, change agents, champion, opinion leaders and link nurse. The following databases were searched: Medline, CINHAL and Embase, and a general web browser (Google Scholar). Key journals were hand-searched for relevant publications: *Journal of Hospital Infection*, *American Journal of Infection Control*, *Infection Control and Hospital Epidemiology*, *Journal of Infection Control*. Once relevant papers had been identified, their reference lists were hand-searched. The *Cochrane Database of Reviews* was also searched. Conference abstracts and posters were excluded, as they did not contain sufficient information for consideration. The aims of the exercise were discussed with recognized experts in the field of IPC to locate other relevant publications, including those in the grey literature and initiatives in progress not yet published. The experts identified from our networks came from England, Wales, Canada, Australia, and the USA.

## Results

The searches identified 251 publications. The abstracts were read independently by two reviewers to establish whether their content captured the required information. Once potentially eligible papers had been identified, they were read in detail and information was extracted to document aims, methods, analysis, and findings.

On detailed reading, 11 papers fulfilled the eligibility criteria. Seven were identified through electronic searching.[16–22] Three reports were obtained by hand-searching.[23–25] An additional report was suggested by expert adviser.[26]

Four studies originated from the USA.[17,18,22,26] Two were reported by the same team and appeared to represent different aspects of one large study.[17,18] The remaining reports were from the UK.[19–21,23–26]

Publications quantified how IPC nurses spend their time, described daily activities, initiatives to embed IPC across organizations in the wake of legislation or changes in healthcare, and the contribution of IPC intermediaries.[17–26] Eight publications reported research findings.[16–19,22,24–26] The other three papers reported how IPC teams are working to change IPC practice in the UK.[20,21,23]

### *Daily activities of the core infection prevention and control team*

An early initiative in an English National Health Service (NHS) hospital pre-dating legislative changes targeted at IPC since 1999 applied a workload measurement tool to quantify the type of activities undertaken by IPC nurses over a period of five months and the amount of time spent on each.[25] Analysis revealed a 'fire brigade' approach in which nurses turned from one crisis to another, focusing on management of outbreak situations and other events demanding immediate attention at the expense of strategic activities such as education and policy development. A second study compared the activities of two IPC teams qualitatively. One team visited clinical areas daily.[26] Clinical staff were reported to appreciate the accessibility and high level of visibility afforded by this model of service delivery. The second team identified potential problems by inspecting microbiology reports but seldom undertook clinical visits. Neither study reported the impact of the IPC team on patient or organizational outcomes. Another study reported daily organization and working practices of IPC teams in four National Health Service hospitals.[24] Data were collected by telephone interview to document working practices, staffing levels, decision-making and reporting mechanisms for IPC personnel. By contrast with the earlier studies, all four IPC teams reported a strategic approach to engagement with staff in clinical areas.[25,26] Auditing was mainly devolved to wards, and the results were used to identify areas requiring particular attention. Daily ward rounds were not undertaken except in one hospital where they were performed by link nurses. Finally a study from the USA explored how the work of IPC teams is expanding in response to changes in the delivery of healthcare, not in response to specific legislation.[22] Interviews with 19 IPC personnel in 11 hospitals in different geographical areas of the USA reported lack of resources to undertake increasing workload and uncertainty created by shifting boundaries as ward staff assumed more of their traditional responsibilities. The most effective ways of persuading clinical staff to comply with IPC guidelines were reported to be personal interaction, use of champions, and providing evidence of the effectiveness of IPC

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