



## Feature Article

## Understanding infection prevention and control in nursing homes: A qualitative study



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## ABSTRACT

Infections have been identified as a priority issue in nursing homes (NHs). We conducted a qualitative study purposively sampling 10 NHs across the country where 6–8 employees were recruited ( $N = 73$ ). Semi-structured, open-ended guides were used to conduct in-depth interviews. Data were audiotaped, transcribed and a content analysis was performed. Five themes emerged: 'Residents' Needs', 'Roles and Training' 'Using Infection Data,' 'External Resources' and 'Focus on Hand Hygiene.' Infection prevention was a priority in the NHs visited. While all sites had hand hygiene programs, other recommended areas were not a focus and many sites were not aware of available resources. Developing ways to ensure effective, efficient and standardized infection prevention and control in NHs continues to be a national priority.

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## Introduction

In 2000, it was estimated that between 1.6 and 3.8 million infections occurred annually in nursing homes (NHs),<sup>1</sup> which is likely an underestimate of the problem. Increasingly, infections in NHs are associated with multi-drug resistant organisms (MDROs)<sup>2</sup>; and NH residents are considered a high risk population for MDRO infection and colonization in part due to the high degree of transfers between hospitals and NHs, and potentially because of the infection prevention and control (IPC) practices in the NHs.<sup>1,3</sup> Because infections are a leading cause of morbidity, hospital admission and mortality among residents,<sup>4,5</sup> IPC management is important. Yet, 15% of U.S. NHs receive deficiency citations for infection control annually, indicating a clear need for improvement.<sup>6</sup> Therefore, the Department of Health and Human Services (DHHS) has identified IPC in NHs as a priority area.<sup>7</sup>

Infection prevention in NHs has evolved since the 1987 Omnibus Reconciliation Act, which mandated that each NH have

an IPC program. It was recommended that NHs with 250–300 beds employ a fulltime infection preventionist (IP)<sup>8</sup> and that the IPs working in NHs have specific qualifications and training in epidemiology and IPC. While a fulltime IP in an NH is not mandated, the role is becoming more common. In Maryland in 2003, 8.1% of NHs reported employing an IP, which increased to 44% in 2008.<sup>9</sup> In a survey of Michigan NHs, it was found that 50% had a fulltime IP.<sup>10</sup> Even when an IP is not present in an NH, a staff member is assigned responsibility for the IPC program. Most research and guidelines for IPC focuses on acute care not NHs.<sup>11–17</sup> While there are some similarities in the structures, processes and personnel roles needed to implement effective IPC, there are also differences in the populations served, education and roles of staff providing care as well as availability of resources.<sup>8,18</sup> Guidelines for IPC in long-term care (LTC) facilities have been developed,<sup>8,18,19</sup> however, the extent that these guidelines are followed is not known. Furthermore, there is a dearth of federal or state data about infection rates, IPC programs, and the use of IP staff in NHs. To fill these gaps in knowledge, the aim of this study was to gain better understanding of how IPC programs are being implemented in NHs as well as the roles and responsibilities of employees responsible for IPC.

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## Material and methods

Our research team conducted a qualitative study. We followed the consolidated criteria for reporting qualitative research, which recommends the reporting of three domains: 1) research team and reflexivity, 2) study design, and 3) data analysis and reporting.<sup>20</sup>

### Research team and reflexivity

Our interdisciplinary team is multidisciplinary and no one had prior relationships with any of the study sites (see Table 1). Team members attended training sessions conducted by an expert qualitative consultant.

### Study design

We purposively sampled NHs with the goal of obtaining variation in geographic location, bed size, ownership status and three-year infection-related citation scores based on Online Survey, Certification and Reporting inspection survey data. Eligible sites were contacted via informational mailings, telephone and/or email, and if interested in participating a site coordinator was identified. The site coordinators recruited, from their facilities, six to eight experienced, English-speaking employees with various roles applicable to IPC. Semi-structured interview guides (available upon request) and in-depth interviewing techniques were used.<sup>21</sup> The guides were developed, reviewed and piloted by NH experts including IPs working within this setting and reflected our understanding of the significant issues of IPC in NHs from the literature and identified in guidelines.<sup>8,18,19</sup> Using a semi-structured interview format facilitated the exploration of new ideas.

To allow maximum flexibility we used an interviewing team. While it was appropriate to have multiple interviewers, it was also important to minimize differences in interviewing technique and style.<sup>22</sup> We reviewed all procedures to ensure sufficient uniformity across the interviewers to minimize the likelihood that differences in interview techniques were responsible for the type of information that was disclosed. Interviews were audiotaped, professionally transcribed and reviewed for accuracy. All procedures were approved by the Columbia University Medical Center Institutional Review Board and written informed consent was obtained from all participants. To encourage participation, an incentive of \$100 per

participant was provided either directly to the interviewee or to the institution, depending upon the facility's preference and policy.

### Data analysis and reporting

Transcripts were coded using NVivo qualitative data analysis software (QSR International Pty Ltd. Version 10, 2012) by a trained coding team (RIB, PKS, CCC). To ensure the coding scheme was well grounded in the data, supportable, and consistent in meaning, codes were systematically developed and documented. Two transcripts were double coded on a biweekly basis. Discrepancies were discussed until consensus was reached. In total, 16% of transcripts (12/73) were double coded and percent agreement was high throughout the process, averaging 97.6%. Using a conventional content analysis approach,<sup>21</sup> all codes and site summaries were reviewed (PWS) to develop the themes; there were four primary codes and 32 subcodes that were reduced to the themes discussed in this report. Throughout the analysis and interpretation of the data weekly conference calls were to ensure consistent understanding by all study team members.

## Results

From May to September 2013, 10 NHs were visited (see Table 2). Forty percent were non-profit, and bed size ranged from 40 to 204. Geographic location was diverse with 3 in the Northeast region, 3 in the West or Midwest, and 4 in the South. Facilities were evenly dispersed into the low and high three-year infection-related citation score categories. A total of 73 interviews were conducted. Often the participants served in multiple capacities; Table 3 shows these multiple roles by listing the participants' role as identified by the site coordinator and the corresponding interview guide that was used as well as the other roles identified in the interview process. Only 9 IPs were interviewed because of a leave of absence at one site. Table 4 lists the 5 themes that emerged, a short explanation, and provides exemplar quotes.

### Residents' needs

Many participants discussed the complexity of the residents' needs as well as tensions between the facility being the residents' home and the need for IPC. As elucidated in the quote in Table 4,

**Table 1**  
Expertise of research team.

	Nurse	Physician	Infection preventionist	Epidemiologist	Health economist	Health service researcher	Geriatric experience
<b>Investigators</b>							
1	X					X	X
2					X	X	
3	X		X	X		X	
4						X	X
5					X	X	X
6				X			
7		X				X	X
8		X	X			X	X
9	X						X
<b>Graduate research assistants</b>							
1	X						
2	X						
3	X					X	X
4	X						
5	X					X	
6				X			
7	X		X				
8	X					X	X

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