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## Brief report

## The 24-hour report as an effective monitoring and communication tool in infection prevention and control in nursing homes

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## Key Words:

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Twenty–four-hour reports are filled out by nurses daily to monitor nursing home residents and document any changes in resident status. Semistructured interviews conducted with ICPs from 12 southeast Michigan nursing homes showed that although 24-hour reports were used, they were not standardized for infection prevention activities. Our results indicate 24-hour reports can be an effective communication tool and potentially aid in early recognition of infections and outbreaks.

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The role of an infection prevention and control program within a nursing home (NH) is constantly expanding.<sup>1</sup> Infection control professionals (ICPs) manage these programs and are an essential part of an effective program,<sup>2</sup> although an interdisciplinary collaborative approach is also critical for the program to be successful. This includes regular communication between frontline health care personnel, administration, and physician/medical directors on issues such as antibiotic agent use, indwelling devices, and transmission-based precautions, in addition to other general resident care information.<sup>3–5</sup>

The use of a 24-hour report to indicate a change in resident condition is nearly universal in NHs. This report is filled out daily by a nurse at the end of each shift and includes a wide range of information. Despite its widespread application, the information in 24-hour reports is not standardized, and its role in communications surrounding infection prevention issues has not been studied. Therefore, we performed a qualitative content and thematic analysis of interviews with the ICPs of 12 southeast Michigan NHs to explore potential beneficial uses of the 24-hour report, including its role in infection prevention and control.

## METHODS

Twelve NHs in southeast Michigan were enrolled in a prospective randomized controlled trial with a targeted infection prevention intervention focusing on prevalence and incidence rates of antibiotic-resistant bacteria and infections in residents with indwelling devices.<sup>6</sup> The study was approved by the University of Michigan and the VA Ann Arbor Health System institutional review boards. At the start of this study (2010) and at its conclusion (2013), a semistructured interview, designed to follow the Society for Healthcare Epidemiology of America/Association for Professionals in Infection Control and Epidemiology, Inc. guideline for infection prevention and control in long-term care facilities<sup>7</sup> was conducted (LM, SM, and BL) with the ICP at each facility. Each interview was audiorecorded and transcribed for qualitative analysis.

Two questions related to the 24-hour report were asked: “Do you have a 24-hour report?” and, “How does this report help in your infection prevention activities?” Although these were the only questions related to a 24-hour report, the topic was frequently mentioned by the ICPs when discussing questions regarding outbreaks, antibiotic monitoring, and other topics.

We then conducted a summative content analysis.<sup>8</sup> Key words were chosen to reflect potential uses of the 24-hour reports in infection prevention and control. Key words identified were: *admission, admits, antibiotic, change, communicate, communication, condition, discharge, falls, fever, infection, isolation, monitor, outbreak, precaution, status, surveillance, symptom, and treatment*. Each key word was searched in the condensed transcripts and its presence quantified. Several themes were chosen based on the potential uses

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Conflicts of interest: None to report.

**Table 1**  
Description of infection control professional (ICP) duties

Theme	2010	2013
Responders identifying themselves as an ICP	12 (100)	11 (92)*
Responders with multiple jobs at facility (outside of infection control and prevention-related tasks)	9 (75)	9 (82)
Responders with a written job description	10 (83)	10 (83)
Responders with full decision making authority	8 (67)	9 (82)
Responders with ability to institute infection control measures	9 (75)	10 (91)
Hours per week spent on infection prevention and control	17.5 ± 10	20.4 ± 9.0

NOTE. Values are given as n (%) or mean ± standard deviation.

\*One facility in 2013 was between ICPs, so the director of nursing with infection prevention responsibility was interviewed.

**Table 2**  
Thematic analysis for use of a 24-hour report in infection prevention and control activities in nursing homes

Theme	2010 (n = 12) 2013 (n = 12)		Examples of use
	n (%)		
Presence of 24-h report	12 (100)	12 (100)	
Identify new infections by change in status	10 (83)	9 (75)	“We meet every morning... and we look through what we call our 24-h report sheet and we talk about anything that’s happened during the past 24 h and I start looking for anybody that looks like they have some signs and symptoms based on what they tell me, and start the investigation into those things.” “It helps me to know who to go to immediately.”
Identify residents taking antibiotic agents	8 (67)	7 (58)	“Yes. I love that [24-h] report and the nurses are more aware what they’re doing... before 24-h report they didn’t know, they were just giving the antibiotics... We’ve started a different 24-h report several years ago and it really helped with the nurses identifying and looking for signs and symptoms.”
24-h report reviewed in morning meetings	4 (33)	7 (58)	“For an antibiotic situation and infection, they would be charted on every shift and then symptoms would be documented.” “We go through them in a group setting, with the director of nursing; myself; [the coordinator]; the care plan person; as well as representatives of the dietary, social services, environmental.”
Monitoring response to antibiotics in 24-h report	4 (33)	2 (17)	“It helps the nurses with communication to each other and to the certified nurses’ assistants as to specifically who is being treated for an infection and it helps them to monitor those residents for signs and symptoms or lack of.”
Identify residents on transmission-based precautions	1 (8)	3 (25)	“For [monitoring antibiotics] the 24-h sheet is what cues me in, that’s my first.”
Device presence or care/issues identified	0 (0)	0 (0)	“On the 24 h report they have who was on antibiotic therapy and who was on isolation.” None given

for the 24-hour report, including presence of a 24-hour report, identifying residents on transmission-based precautions, identifying new infections by status change, identifying residents receiving antibiotic agents, monitoring antibiotic response, reviewing the report in morning meetings, and device care and issues. Thematic analysis was completed by 2 independent analysts. Initial agreement was found for 88% of coding variables between the 2 analysts. A second round of coding followed by a discussion of any discrepancies was completed until consensus was reached. Subsequently 24-hour reports were obtained from 5 facilities to compare their format and information.

## RESULTS

Eight of 12 facilities were for-profit, 2 were not-for-profit, and 2 were government-owned and the overall mean quality star rating was 3 (range, 1–5). The average number of beds ranged from 83 to 230 (mean ± standard deviation = 137 ± 41.2 in 2010 and 134 ± 42.9 in 2013). Seven of 12 facilities changed ICPs during the 3-year study period. In addition to their ICP duties, 82% held other jobs at the facilities such as wound care nurse or staff in-service coordinator. The majority of ICPs reported having full decision-making authority, as well as the ability to institute infection control measures. On average, ICPs spent 17.5 and 20.4 hours a week on infection prevention and control during 2010 and 2013, respectively (Table 1).

All NHs reported using a 24-hour report as a communication tool. Content analysis of the interviews yielded 4 key words with at least 5 mentions. The most mentioned key word was *antibiotics* (n = 24 and n = 18 during 2010 and 2013 interviews, respectively), followed by *symptom* (n = 15 and n = 12), *infection* (n = 8 and n = 9), and *change* (n = 5 and n = 7). All other key words were used <5 times during each interview year. There was relatively close agreement and consistent rank order of key words between the 2010 and 2013 interviews regardless of different time points and turnover of ICPs. The most prominent theme was the use of 24-hour reports to identify new infections by monitoring a change in resident status (100% of facilities) (Table 2). Most facilities used this report to identify residents taking antibiotic agents. In 2013, 25% mentioned using 24-hour reports to identify residents on transmission-based precautions. There was no reference to using the report to identify the presence of a device or its care.

## DISCUSSION

All 12 NHs used 24-hour reports and they can be considered a key component of their infection prevention and control programs. The reports were generally filled out by nurses at the end of each shift, reviewed by ICPs, and discussed during morning meetings with other staff members, including the director of nursing, unit managers, and other administrators, demonstrating its potential as an excellent tool to enhance communications surrounding

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