Barriers to Reducing Urinary Catheter Use

A Qualitative Assessment of a Statewide Initiative

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Importance: Preventing catheter-associated urinary tract infection (CAUTI), a common health care–associated infection, is important for improving the care of hospitalized patients and in meeting the goals for reduction of health care–associated infections set by the US Department of Health and Human Services.

Objective: To identify ways to enhance CAUTI prevention efforts based on the experiences of hospitals participating in the Michigan Health and Hospital Association Keystone Center for Patient Safety statewide program to reduce unnecessary use of urinary catheters (the Bladder Bundle).

Design: Qualitative assessment of data collected through semistructured telephone interviews with key informants at 12 hospitals and in-person interviews and site visits at 3 of the 12 hospitals. The analysis focused on perceptions and key issues identified by hospitals as influencing implementation of CAUTI prevention practices as recommended by the Bladder Bundle initiative.

Setting: Twelve purposefully sampled hospitals in Michigan.

Participants: Key informants including infection preventionists, clinical personnel, and senior executives.

Results: Common barriers to Bladder Bundle implementation and appropriate urinary catheter use included (1) difficulty with nurse and physician engagement, (2) patient and family request for indwelling catheters, and (3) catheter insertion practices and customs in the emergency department. Strategies to address these barriers were also identified by several of the participating hospitals, including (1) incorporating urinary management (eg, planned toileting) as part of other patient safety programs, such as a fall reduction program, (2) explicitly discussing the risks of indwelling urinary catheters with patients and families, and (3) engaging with emergency department nurses and physicians to implement a process that ensures that appropriate indications for catheter use are followed.

Conclusions and Relevance: The Bladder Bundle program provides a model for implementing strategies to reduce CAUTI. These findings provide actionable information to inform CAUTI prevention-related activities in hospitals throughout the country.


The US Department of Health and Human Services has established a goal of decreasing preventable hospital-acquired conditions by 40% by 2013, which includes a specific focus on health care–associated infections (HAIs). As many as 10% of hospitalized patients develop an HAI with urinary tract infections being a leading cause of this statistic. Thus, meeting the Department of Health and Human Service’s goals will require large-scale efforts to address urinary tract infections, most of which are related to the use of indwelling urinary catheters.

In 2007 the Michigan Health and Hospital Association Keystone Center for Patient Safety recognized the importance of preventing catheter-associated urinary tract infection (CAUTI) by implementing a statewide program to reduce unnecessary use of urinary catheters in Michigan hospitals. The Keystone Bladder Bundle initiative (hereinafter referred to as the Bladder Bundle) was modeled after a successful program at a single Michigan hospital; the initiative focused on appropri-
ate indications for indwelling urethral (or Foley) catheter use and prompt removal when an appropriate indication no longer exists. Bladder Bundle implementation involved educating health care workers about appropriate indications, establishing a process for regular catheter assessment and removal, use of a nursing-based discontinuation protocol, and collecting data for monitoring urinary catheter use and indication.

The Bladder Bundle increased the use of practices to promote timely urinary catheter removal,\(^7\) resulting in a reduction of approximately 30% in urinary catheter use,\(^8\) and now serves as the model for a program being rolled out across all 50 states.\(^9\) Promoting the successful spread of these practices requires that we understand and learn from the experience of the Michigan hospitals. This study uses qualitative assessment to examine the key challenges to implementing the Bladder Bundle program from the perspective of participating hospitals.

### METHODS

#### STUDY SAMPLE AND DESIGN

This study is part of a sequential mixed-methods project.\(^5\) In May 2009 we sent a survey to infection preventionists at 131 hospitals in the state of Michigan. The survey elicited information about what practices hospitals were using to prevent CAUTI and their participation in the Keystone HAI initiative, which included the Bladder Bundle. The HAI initiative had multiple components; hospitals could select when to begin each component so that not all hospitals began implementing the Bladder Bundle concurrently. At the time of the study survey, 54 of the 131 responding hospitals were implementing the Bladder Bundle and served as the sampling frame for the qualitative phases of the study. We selected a purposive sample of 12 of the 54 hospitals to participate in semistructured telephone interviews.\(^10\) Based on their survey responses, we selected hospitals that did and did not use various practices to prevent CAUTI and maximized variation in the sample based on other organizational characteristics, including the hospital size and the type of unit that implemented the Bladder Bundle (intensive care units, medical/surgical floors, or entire hospitals). Finally, we selected 3 of the 12 hospitals to visit in-person based on their usefulness in elaborating emerging themes and their reported success with implementing the Bladder Bundle. These facilities were also located in different geographic areas of the state and ranged in size from slightly more than 100 beds to more than 400 beds.

Approval was obtained from the University of Michigan Medical institutional review board, the Veterans Affairs Ann Arbor Healthcare System, and the local institutional review board for each hospital visited.

#### DATA COLLECTION AND ANALYSIS

We conducted 18 semistructured telephone interviews with participants at 12 hospitals, 1 to 3 at each hospital, from September 1 through December 31, 2009. Interviews lasted from 30 to 60 minutes. Each interview was digitally recorded and transcribed verbatim. At least 2 team members conducted each interview, and all the authors served as interviewers. The first interviewee from each hospital was generally an infection preventionist who was then asked to recommend other key informants. Our interview guide included questions about involvement in the Bladder Bundle, use of CAUTI-preventive practices, how practice implementation was proceeding, what barriers were encountered, and what solutions were used to overcome those barriers.

Next we conducted multiday site visits from May 1, 2010, through February 28, 2011, to 3 of the hospitals that were involved in the telephone interviews. These visits included conducting an additional 24 interviews, ranging from 5 to 12 interviews at each site. The goal of the site visits was to gain a more holistic understanding of implementation at each site and to test or further explore issues identified by the telephone interviews. We toured each hospital, observed the environment, and interviewed senior executives, infection preventionists, physicians, and nursing personnel (eAppendix; http://www.jamainternalmed.com).

We analyzed transcripts from the telephone and site visit interviews using rigorous qualitative procedures.\(^11,13\) After each interview, we created extensive summaries, and each member of the research team read through the summaries and identified preliminary themes. Team members then met frequently to discuss and finalize the themes. Disagreements were resolved through discussion and by returning to the original data for confirmation. The themes were then compared within and between hospitals to better understand experiences with implementing the Bladder Bundle.

#### RESULTS

Selected characteristics of the 54 responding hospitals participating in the Bladder Bundle at the time of the survey are shown in Table 1. Less than half of the participating hospitals (44%) reported that an infection preventionist was the primary champion (person leading the effort) for the initiative, whereas 28% had a nurse or nurse manager as the primary champion (Table 2). Only 2 hospitals (4%) identified a physician as the primary champion, and fewer than half (48%) reported that a physician was a member of the Bladder Bundle team. Characteristics of the 12 study hospitals (Tables 1 and 2) are generally similar to those of the larger sample.

Key barriers to implementation of the Bladder Bundle that emerged from our qualitative analysis were (1) difficulty with nurse and physician engagement, (2) patient and family request for indwelling catheters, and (3)

<table>
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<tr>
<th>Characteristic</th>
<th>Participants (n = 54)</th>
<th>Qualitative Study Sample (n = 12)</th>
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<tbody>
<tr>
<td>No. of total acute care beds, mean (range)</td>
<td>245.9 (22 to &gt;1000)</td>
<td>257.1 (25 to &gt;1000)</td>
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<tr>
<td>No. of adult intensive care unit beds, mean (range)</td>
<td>23.3 (0 to 155)</td>
<td>24.7 (3 to 100)</td>
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<tr>
<td>Medical school affiliation, No. (%)</td>
<td>24 (44)</td>
<td>7 (58)</td>
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<tr>
<td>Collect data to measure urinary catheter use, No. (%)</td>
<td>37 (69)</td>
<td>9 (75)</td>
</tr>
<tr>
<td>Collect data to measure unnecessary urinary catheter use, No. (%)</td>
<td>21 (39)</td>
<td>5 (42)</td>
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the role of the emergency department (ED) in catheter insertion. Each of these barriers, along with potential strategies to address them, is discussed in more detail in the following sections and summarized in Table 3.

DIFFICULTY WITH NURSE AND PHYSICIAN ENGAGEMENT

Although some interviewees indicated that the Bladder Bundle raised awareness about CAUTI and catheter use at their facility, engaging nurses and physicians proved an ongoing challenge at most hospitals. Among nurses, lack of engagement manifested as a general lack of appreciation of the invasive nature of urinary catheters and potential severity of urinary tract infections and as concerns about workload and competing patient safety priorities. Often physicians expressed little interest in the topic or in serving as a part of the Bladder Bundle team.

Perception by nursing staff of urinary catheters and urinary tract infections as benign was quite common. For example, as an infection preventionist explained: “You put the ‘Foley’ catheter in; you think it is benign despite the fact that it’s an invasive object. . . .” A director of nursing, who described Foley catheters as “low tech, low glamour,” noted: “If we get a Foley infection nobody says, ‘let’s have a huddle and see how it happened.’”

Concerns about nursing workload related to catheter removal were discussed in the context of the need to assist patients with toileting and the role of catheters in facilitating clinical care. For example, a charge nurse described how some nurses prefer certain patients to have urinary catheters: “Some of the ladies go maybe 100 cc every 15 to 20 minutes and you’re in there constantly answering the lights.” An infection preventionist stated: “Nurses like the convenience of [indwelling urinary catheters]; it’s easier to monitor output and the patient is able to rest more.”

Perception by nursing staff of the relationship between catheter use and patient falls was a prominent example of concern about competing safety priorities. An infection preventionist described the primary motivation for not removing catheters as fear of potentially more serious events (eg, a fall), not simply reducing workload:

Nurses are worried, “Well, do I really want this person hopping out of bed and can I really be sure that they’re going to call me to help them?” We don’t want there to be any falls. That’s considered to be a never event in a hospital. . . . We’re kind of selling nursing short by just saying it’s easier for them to have the catheter in there.

However, the risk of a fall was also identified as a reason that nurses wanted to have catheters removed when no longer medically necessary. A nurse explained:

Sometimes they [nurses] have to call the physician and say, “Can we pull this catheter?” because the Foley agitates the patient more. . . . They keep forgetting that the Foley is there and they keep feeling like they have to urinate. The catheter will get pulled out by the patient or they are going to try and get out of bed and injure themselves. . . . We have taken them [Foleys] out for patient safety.

Strategies to overcome lack of nursing engagement included use of nurse champions and focus on the benefits to patients of early catheter removal. Several interviewees described having a nurse champion, someone who is passionate about CAUTI prevention, and the importance of making the initiative a unit-based activity. As an infection preventionist explained: “It’s just finding that person to put the individual energy into it. . . .yes, it’s a bundle but I think it has to be rolled out as something superspecial for that unit.”

Other site-specific solutions involved the use of care aides to reduce the perceived burden on nurses getting patients up to toilet and hourly rounding to help the patients use the bathroom at set intervals. Finally, some interviewees described focusing on the benefits to patients of early catheter removal, rather than simply focusing on reducing CAUTI rates. As a nurse manager from a successful unit described:

Nurses, I believe, truly care about the patients in . . . their area. [For example], on [one] unit, they’re getting [patients] out of bed sooner. . . .[for] increased mobility which may in turn decrease the length of stay . . . if you let [nurses] know what the benefits could be, not just all, “Hey, our patients may not get a UTI.”

The impact of physician engagement was also clear. As a charge nurse explained: “If you don’t have the doctors on board you’re just going to be beating your head against the wall. . . .You can keep asking, ‘Can I pull the Foley?’ and they’ll just [say], ‘leave it in.’” Nearly all sites identified physician engagement as important, although the degree of actual support and investment by physicians varied considerably. Many hospitals struggled to identify a physician who would help to champion the Bladder Bundle initiative and, aside from focusing on reimbursement implications, the interviewees offered little insight about effective strategies for physician engage-

<table>
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<th>Table 2. Selected Characteristics of Bladder Bundle Implementation</th>
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<td><strong>Characteristic</strong></td>
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<tr>
<td>Primary champion</td>
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<tr>
<td>Infection control nurse or preventionist</td>
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<tr>
<td>Nurse or nurse manager</td>
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<tr>
<td>Other (eg, quality manager)</td>
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<tr>
<td>None</td>
</tr>
<tr>
<td>Hospital epidemiologist or infectious diseases physician</td>
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<tr>
<td>Team participants</td>
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<tr>
<td>Infection control nurse or preventionist</td>
</tr>
<tr>
<td>Nurse or nurse manager</td>
</tr>
<tr>
<td>Performance improvement coordinator/quality manager</td>
</tr>
<tr>
<td>Physician (hospital epidemiologist or infectious diseases physician, hospitalist, urologist)</td>
</tr>
<tr>
<td>Implementation A</td>
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<tr>
<td>On the floor only</td>
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<tr>
<td>Hospital-wide</td>
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<td>In an intensive care unit</td>
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*Includes all that apply (not mutually exclusive).*
Infection preventionist: “The main urologist... was... a surmountable obstacle at 1 hospital. As described by the disdain by key physician staff, which proved to be an in... provided at least some support and in the absence of active... This was generally true as long as medical leadership pro... possibly because of the instrumental role played by nurses. Several hospitals were still able to make progress...”

Another challenge in reducing the use of urinary catheters came from requests by the patient or the family for catheters. For example, a clinical nurse specialist at one hospital explained: “The family says, ‘Well my mom really needs it in... Mom can’t get up, mom can’t walk, she’s incontinent [of urine].’” At another hospital, a nurse described how “occasionally you’ll get somebody that [who]...”
really wants to hold on to [the] catheter, a patient with incontinence. [That patient will] talk the physician and the nursing staff into keeping the catheter.”

The primary strategy for addressing a patient or a family request was education. As described by a nurse manager: “I personally went in and talked to them about the risk of a catheter infection and I went over some of this information and then they were like, ‘Oh, I understand, I really don’t want a Foley then’ so then we didn’t insert it.” An infection preventionist also identified a need for “a better way of presenting the risk to people” after describing an incident with her own family member: “Even my own mother, when she had her knee [operation], I said to her, ‘It’s simple, Mom, that Foley catheter’s a risk to you. Don’t you think they ought to take that out today?’ She said, ‘Just get out of my room; you’re not taking it out.”

URINARY CATHETERS INSERTED IN THE ED

The Bladder Bundle initiative, as initially devised, focused on the removal of nonindicated indwelling urinary catheters. However, many of the hospitals identified initial catheter insertion in the ED as impeding their efforts to reduce urinary catheter use. Among the reasons for ED catheter insertion was the perception that floor nurses preferred patients to come up to the floor with a catheter already inserted. As a interviewee said:

The charge nurses say, “They keep putting them in down in the Emergency Room and they come up [to the floor], we don’t even have a Foley order and the ED nurses [would say], ‘Well, we just do it thinking... it’s probably a time saver because they [the floor nurses] don’t have to get the patient up to go to the bathroom.”

Other commonly cited reasons for ED catheter insertion included specimen collection and convenience for the nurses or technicians caring for the patients, because a catheter can be easier than using a bedpan or assisting the patient to the toilet, given the lack of conveniently located restrooms in many EDs.

The primary strategy for tackling this issue was to work with ED leadership and staff by providing education about appropriate indications and monitoring of catheter use. At most hospitals, these ED-based initiatives appeared successful in reducing catheter use, especially with support from the ED physician and nurse managers. As the infection preventionist at 1 hospital described, the ED perspective was: “We’re very busy, we really don’t have time to deal with all this toileting,” but when the physician medical director made it a priority, it changed the tone [and] we did see a good improvement.”

The documented success of the Bladder Bundle initiative in reducing indwelling urinary catheter use and specifically the use of catheters without an appropriate indication provides the impetus for broader dissemination of this general approach. As our qualitative study reveals, however, if some key barriers and potential opportunities are addressed, program success might be further enhanced. Some issues, such as difficulty with getting nurse and physician engagement in the importance of reducing catheter use and preventing CAUTIs, were expected. On the other hand, catheter use related to requests by the patient or the family and the key role of the ED have not been described previously. Each of these themes provides important information for stakeholders involved with CAUTI prevention efforts.

Difficulty with engaging health care workers in CAUTI prevention, due in part to a prevailing view that CAUTIs are less important than other types of infections, and concerns about increased clinical workload when catheter use is reduced, confirm results from prior studies. However, our findings also highlight the complexity of implementing and prioritizing various safety measures and the perceptions or misperceptions about these competing priorities. For example, although some providers viewed urinary catheters as a way to prevent falls, others saw catheters as a potential fall hazard. Thus, rather than simply assuming that nurses may not become engaged because catheters are a matter of convenience, we must identify and address these other potential concerns. In addition, although having a physician champion may be ideal, our findings suggest that if a champion cannot be identified, support from medical staff leadership or even nominal involvement by a key physician (eg, a urologist) can facilitate a CAUTI prevention initiative.

Identification of a patient or a family request as a reason for the use of indwelling urinary catheters was unexpected. In prior research, patients reported that having an indwelling catheter is painful and restricts their mobility. Surprisingly, urinary catheters inserted or not removed for patient convenience and at the request of the patient or the patient’s family were described by interviewees from almost all participating hospitals. This result identifies a need to better understand the perceptions of patients and families about these devices. Indeed, although some may consider CAUTI as a relatively minor potential complication, the risk of noninfectious complications must also be considered. Future work should focus on developing effective strategies to assist health care workers in addressing these requests.

Another unexpected—but not entirely surprising—result is the importance of the ED in reducing indwelling urinary catheter use. Although the Bladder Bundle initiative focused on timely removal of urinary catheters, most hospitals also identified the need for intervention in the ED. Of concern was the insertion of catheters in the ED for reasons that were not medically appropriate; thus, despite the best efforts of the nurses on the floors to ensure timely removal, a steady stream of patients had catheters without medical indications. Consequently, strategies for targeting catheter insertion in the ED are also needed.

Our study has a few limitations. We conducted a qualitative study to understand the experience of hospitals implementing the Bladder Bundle program. As such, our goal is to provide detailed information to assist others who may undertake similar initiatives to understand and address potential barriers within their local settings. These findings can therefore be applied outside the study sample.
if the reader recognizes the phenomenon described and finds it useful to understanding or changing practice.\textsuperscript{10} Another limitation is the potential for response bias. To minimize potential bias, our interviewees included individuals with a diverse set of organizational roles and thus varying perspectives about the Bladder Bundle initiative.

Meeting the goal of decreasing preventable hospital-acquired conditions as set forth by the US Department of Health and Human Services\textsuperscript{1} requires a national effort to address CAUTI. The Bladder Bundle initiative has increased use of key CAUTI prevention practices, reduced indwelling urinary catheter use, and potentially decreased CAUTI rates,\textsuperscript{7,8} thereby providing a foundation for quality improvement efforts to reduce CAUTI. Our qualitative findings—especially the solutions identified to overcome key barriers—can be used to enhance CAUTI prevention–related activities nationwide.

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REFERENCES


