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# Barriers to Reducing Urinary Catheter Use: A Qualitative Assessment of a Statewide Initiative

Sarah L. Krein, RN,  $PhD^{1,2,3}$ , Christine P. Kowalski, MPH<sup>1</sup>, Molly Harrod,  $PhD^1$ , Jane Forman, ScD, MHS<sup>1</sup>, and Sanjay Saint, MD, MPH<sup>1,2,3</sup>

<sup>1</sup>VA Ann Arbor Healthcare System, Center for Clinical Management Research

<sup>2</sup>Department of Internal Medicine, University of Michigan Medical School

<sup>3</sup>VA/UM Patient Safety Enhancement Program

# Abstract

**Background**—Preventing catheter-associated urinary tract infection (CAUTI), a common healthcare-associated infection (HAI), is important for improving the care of hospitalized patients and in meeting the goals for HAI reduction set by the U.S. Department of Health and Human Services. The objective of this study was to identify ways to enhance CAUTI prevention efforts based on the experiences of hospitals participating in the Michigan Health and Hospital Association's Keystone Center for Patient Safety statewide program to reduce unnecessary use of urinary catheters (the "Bladder Bundle").

**Methods**—Qualitative assessment involving 12 purposefully sampled hospitals in Michigan. Data were collected through semi-structured phone interviews with key informants at 12 hospitals and during 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.

**Results**—Common barriers to Bladder Bundle implementation and appropriate urinary catheter use were: 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 (e.g., planned toileting) as part of other patient safety programs, such as a fall reduction program; 2) explicitly discussing 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**—The Bladder Bundle 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 United States 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 healthcare-associated infection (HAI).<sup>1</sup> Up to 10% of hospitalized patients

Address correspondence to: Sarah L. Krein, PhD, RN Phone: 734-845-3621 skrein@umich.edu VA HSR&D (152) PO Box 130170 Ann Arbor, MI 48113.

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develop an HAI,<sup>2</sup> with urinary tract infections being a leading cause.<sup>3</sup> Thus, meeting the Department of Health and Human Service's goals will require large-scale efforts to address urinary tract infections, the majority of which are related to the use of indwelling urinary catheters.<sup>4</sup>

Recognizing the importance of catheter-associated urinary tract infection (CAUTI) prevention, in 2007 the Michigan Health and Hospital Association Keystone Center for Patient Safety implemented a statewide program to reduce unnecessary urinary catheter use in Michigan hospitals.<sup>5</sup> Modeled after a successful program at one Michigan hospital,<sup>6</sup> the Keystone "Bladder Bundle" focused on appropriate indications for indwelling urethral (or Foley) catheter use and prompt removal when an appropriate indication no longer exists. Bladder Bundle implementation involved educating healthcare workers about appropriate indications, establishing a process for regular catheter assessment and removal, a nursing-based discontinuation protocol, and ongoing data collection for monitoring urinary catheter use and indications.

The Keystone Bladder Bundle increased the use of practices to promote timely urinary catheter removal,<sup>7</sup> resulted in a reduction of approximately 30% in urinary catheter use,<sup>8</sup> and now serves as the model for a program being rolled out across all 50 states.<sup>9</sup> 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 key challenges with implementing the Keystone Bladder Bundle from the perspective of participating hospitals.

# Methods

#### Study Sample and Design

This study is part of a sequential mixed-methods project.<sup>5</sup> 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 not all hospitals began implementing the Bladder Bundle concurrently. At the time of the study survey, 54 of the 103 responding hospitals were implementing the Bladder Bundle and served as the sampling frame for the qualitative phases of the study. We selected a purposeful sample of 12 of the 54 hospitals to participate in semi-structured phone interviews.<sup>10</sup> 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 hospital size and type of unit(s) that implemented the Bladder Bundle (intensive care unit (ICU), medical/surgical floor, hospital-wide). Finally, we selected 3 of the 12 hospitals to visit in person based on their usefulness in elaborating themes that were emerging and 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 over 400 beds.

Institutional review board (IRB) approval was obtained from the University of Michigan Medical Institutional Review Board, the VA Ann Arbor Healthcare System, and the local IRB for each hospital visited.

#### **Data Collection and Analysis**

We conducted 18 semi-structured phone interviews with participants at 12 hospitals, 1 to 3 at each hospital, between September and December of 2009. Interviews lasted between 30 and 60 minutes. Each interview was digitally recorded and transcribed verbatim. At least 2

team members conducted each interview and all of 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 solutions used to overcome those barriers.

Next we conducted multi-day site visits, between May 2010 and February 2011, to 3 of the hospitals that were involved in the phone interviews. This included conducting an additional 24 interviews, between 5 and 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 phone interviews. We toured each hospital, observed the environment, and interviewed senior executives, infection preventionists, physicians and nursing personnel (see Appendix).

We analyzed transcripts from the telephone and site visit interviews using rigorous qualitative procedures.<sup>11–13</sup> After each interview, extensive summaries were created, 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. Over 40% of participating hospitals reported that an infection preventionist was the primary champion for the initiative, while nearly 28% had a nurse or nurse manager as the primary champion (Table 2). Only 2 hospitals identified a physician as the primary champion, and less 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 Bladder Bundle implementation that emerged from our qualitative analysis were: 1) difficulty with nurse and physician engagement; 2) patient and family request for indwelling catheters; and 3) 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 below 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 was an ongoing challenge at most hospitals. Among nurses, lack of buy-in manifested as a general lack of appreciation of the invasive nature of urinary catheters and potential severity of urinary tract infections, as well as concerns about workload and competing patient safety priorities. Among physicians, there was often little interest in the topic or in serving as a part of the Bladder Bundle team.

Nurse perception 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..." While a director of nursing, who described Foleys 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 was discussed in the context of both needing to assist patients with toileting and the role of catheters in facilitating clinical care. For example, a charge nurse described how some nurses prefer it when certain patients have urinary catheters, "Some of the ladies go maybe 100ccs every 15–20 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."

Nurse perception 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 (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 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." Yet, 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 buy-in included using nurse champions and focusing 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 super special for that unit..."

Other site-specific solutions involved the use of care aides to reduce the perceived burden on nurses with getting patients up to toilet, and hourly rounding, which involves helping 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…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 buy-in 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 `buy-in' as important, although the degree of actual support and engagement 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 as to effective strategies for obtaining physician buy-in. However, even without a clear physician champion, several hospitals were still able to make progress. This may be due largely to the instrumental role played by nurses and was generally true as long as there was at least some support from medical leadership and no active disdain by key physician staff, which proved to be an insurmountable obstacle at one hospital. As described by the infection

preventionist: "The main urologist...who everybody knows and loves and could be that champion, thinks that the whole Bladder Bundle is just stupid..."

#### Patient and family requests for indwelling urinary catheters

Another challenge in reducing use of urinary catheters was patient or family request for a catheter. 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 really wants to hold on to their catheter, a patient with incontinence. They'll talk the physician and the nursing staff into keeping the catheter ..."

The primary strategy for addressing patient or 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, as initially devised, focused on the removal of non-indicated 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 one 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 "nurse or patient care tech convenience" since a catheter can be easier than 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 when there was support from the ED physician and nurse managers. As the infection preventionist at one 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..."

# Discussion

The documented success of the Keystone Bladder Bundle initiative in reducing indwelling urinary catheter use and specifically the use of catheters without an appropriate indication<sup>8</sup> provides the impetus for broader dissemination of this general approach. As our qualitative study reveals, however, there are some key barriers and potential opportunities that if addressed might further enhance program success. Some issues, such as difficulty with getting nurse and physician buy-in of the importance of reducing catheter use and CAUTI

prevention were not unexpected.<sup>15</sup> On the other hand, catheter use related to patient or family request 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 healthcare 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, confirms results from prior studies.<sup>14, 15</sup> However, our findings also highlight another issue: the complexity of implementing and prioritizing various safety measures and the perceptions or misperceptions about these competing priorities. For example, while 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 "buy-in" because catheters are a matter of convenience, it is important to identify and address these other potential concerns. Additionally, while 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 (e.g., urologist) can facilitate a CAUTI prevention initiative.

Identification of patient or family request as a reason for the use of indwelling urinary catheters was unexpected. In prior research patients have reported that having an indwelling catheter is painful and restricts their mobility.<sup>16, 17</sup> Surprisingly, urinary catheters either inserted or not removed for patient convenience and at the request of the patient or 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, while some may consider CAUTI as a relatively minor potential complication, the risk of non-infectious complications must also be considered. Future work should focus on developing effective strategies to assist healthcare workers in addressing these requests.

Another unexpected – but not entirely surprising – result is the importance of the ED in reducing indwelling urinary catheter use. While 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 non-medically appropriate reasons, and so despite the best efforts of the nurses on the floors to ensure timely removal, there was a steady "stream" of patients with non-indicated catheters. Consequently, strategies for targeting catheter insertion in the ED are also needed.<sup>18–21</sup>

Our study has the following limitations. We conducted a qualitative study to understand the experience of hospitals implementing the Keystone Bladder Bundle. As such, our goal is to provide detailed information to assist others who may undertake similar initiatives with understanding and addressing 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.<sup>10</sup> 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.

Meeting the goal of decreasing preventable hospital-acquired conditions as set forth by the U.S. Department of Health and Human Services,<sup>1</sup> requires a national effort to address CAUTI. The Keystone Bladder Bundle has increased use of key CAUTI prevention practices, reduced indwelling urinary catheter use and potentially decreased CAUTI rates,<sup>7, 8</sup> 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.

# **Supplementary Material**

Refer to Web version on PubMed Central for supplementary material.

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# Table 1

Selected Characteristics of Surveyed Michigan Hospitals Participating In the Bladder Bundle in 2009

Characteristic	Participating in Bladder Bundle (n = 54)	In Qualitative Study Sample (n = 12)
Number of total acute care beds, mean (range)	245.9 (22->1000)	257.1 (25 ->1000)
Number of adult ICU beds, mean (range)	23.3 (0 - 155)	24.7 (3 - 100)
Medical school affiliation	44.4%	58.3%
Collect data to measure urinary catheter days	68.5%	75.0%
Collect data to measure unnecessary urinary catheter days	38.9%	41.7%

#### Table 2

# Selected Characteristics of Bladder Bundle Implementation

Characteristic	Participating in Bladder Bundle (n = 54)	In Qualitative Study Sample (n = 12)
	N (percent)	N (percent)
Primary Champion for the Bladder Bundle		
Infection Control Nurse or Preventionist	24 (44.4)	5 (41.7)
Nurse or Nurse Manager	15 (27.8)	3 (25.0)
Other (e.g., Quality Manager)	6 (11.1)	2 (16.7)
We do not have a champion	5 (9.3)	0
Hospital Epidemiologist or Infectious Diseases Physician	2 (3.7)	1 (8.3)
Bladder Bundle Team Includes		
Infection Control Nurse or Preventionist	46 (85.2)	10 (83.3)
Nurse or Nurse Manager	43 (79.6)	10 (83.3)
Performance Improvement Coordinator/Quality Manager	26 (48.2)	7 (58.3)
Physician (Hospital Epidemiologist or Infectious Diseases Physician, Hospitalist, Urologist)	26 (48.1)	7 (58.3)
Have implemented the Bladder Bundle on the floor only	33 (61.1)	7 (58.3)
Have implemented the Bladder Bundle hospital-wide	12 (22.2)	2 (16.7)
Have implemented the Bladder Bundle in an ICU	10 (18.5)	3 (25)

#### Table 3

# Key Barriers and Strategies to Address

Illustration of Key Barriers	Potential Strategies to Address Identified by Interviewees	
Difficulty with nurse and physician engagement or 'buy-in'		
Some nurses may not to be on board with indwelling urinary catheter removal.	<ul> <li>Get buy in before implementation. For example, ask, "who do we have to convince on this floor?" Then have that person help to develop the plan or participate in the education for that unit.</li> <li>Listen to nurses' concerns and address them to nurses' satisfaction.</li> </ul>	
<ul> <li>Lack of or difficulty identifying nurse champions.</li> <li>Nurse managers tell your team that they are "too busy" to implement the new practice.</li> <li>Individuals identified as champions do not go out on the unit and do not have direct contact with inpatients.</li> <li>Difficulty with communication across shifts.</li> </ul>	<ul> <li>Identify the types of champions that work in your organization. Not a one-size-fits-all strategy. For example:         <ul> <li>Use nurse educators as champions.</li> <li>Have more than one nurse champion, e.g., co-champions, all nurse managers and educators.</li> <li>Identify a champion on each shift</li> <li>An LPN can be the champion if s/he is someone who others on the unit respect and go to for advice.</li> <li>Recognize nurse champions via such mechanisms as certificates of recognition, annual evaluation appraisals, newsletters.</li> </ul> </li> </ul>	
Concerns or prioritization relative to other patient safety issues. • A fall is a "never event."	• Incorporate urinary management (e.g., planned toileting) as part of other patient safety programs, such as a fall risk reduction or pressure ulcer prevention program.	
Nursing workload • Nurses are concerned that they will have to spend more time cleaning up patients if the indwelling urinary catheter is removed.	<ul> <li>Provide feedback, report monthly indwelling urinary catheter prevalence and CAUTI rates on nursing units.</li> <li>Institute workload reduction strategies, e.g., Nurse aides delegated to prioritize toileting activities over other activities (e.g. stocking supplies or cleaning equipment).</li> </ul>	
<ul> <li>Lack of physician buy-in.</li> <li>Do not see indwelling urinary catheters as a risk.</li> <li>"Way down on their priority list."</li> <li>Can't get physicians to buy in to the new practice bundle because they do not want "to make waves."</li> </ul>	<ul> <li>Provide data about urinary catheter use, feedback to physicians about monthly indwelling urinary catheter prevalence &amp; CAUTI rates.</li> <li>Consider focusing on specific motivators other than reduction in rates and prevalence for physicians dependant on their role/type (for example, reducing length of stay for hospitalists, improving mobility for geriatricians and orthopedic surgeons).</li> <li>Provide one-on-one education (evidence-based and patient safety oriented).</li> <li>Engage medical leadership support, e.g., chief of staff.</li> <li>Involve physicians as much as possible in planning, education, and implementation; include physicians on your team.</li> <li>Identify a physician champion who will:</li> <li>Meet with other physicians to get them on board.</li> <li>Back up nurses when there's a disagreement.</li> <li>Conduct Continuing Medical Education. Present evidence, e.g., highlight how often physicians have a patient with an indwelling urinary catheter and are unaware or forget.</li> </ul>	
Patient or Family Request		
Clinicians may give in to patient or family requests for indwelling urinary catheter, or believe that the patient wants the catheter in.	<ul> <li>Discuss risks of indwelling urinary catheters with patients and families.</li> <li>Review documentation of the rationale for placement if indications are not met and reinforce use of appropriate indications.</li> </ul>	
Indwelling urinary catheters inserted in the ED		
Indwelling urinary catheter is inserted with no order written. When patient gets to the floor, nurses and physicians don't know the indwelling urinary catheter is there. ED nurses think they are doing the floor nurses a favor by inserting the indwelling urinary catheter and assume that the patient might need it. ED nurses using catheter for specimen collection and then leaving it in place.	<ul> <li>Involve ED medical and nursing directors as champions or supporters of practice change.</li> <li>Work with ED to put a process in place that ensures that an order was written and appropriate indications for use are followed.</li> <li>Education about indications for insertion for the ED nurses and physicians.</li> <li>Implement alternative practices (e.g., the promotion of condom or intermittent catheters in appropriate patients).</li> </ul>	