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Major Article

Qualitative validation of the CAUTI Guide to Patient Safety assessment tool

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hospital-acquired infection
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Background: Hospital-acquired infection, including catheter-associated urinary tract infection (CAUTI), is common. Although CAUTI is usually preventable, hospital units may struggle to reduce CAUTI rates. The CAUTI guide to patient safety (GPS) was developed to assess a unit's CAUTI prevention activities. Our aim was to qualitatively validate the GPS.

Methods: We interviewed participants from 2 units in each of 4 hospitals. Each unit's nurse manager completed the GPS and then discussed their answers with a trained research assistant. Semistructured interviews were conducted with unit nurses and physicians. We compared the nurse managers' answers to the unit physicians' and nurses' responses and assessed agreement.

Results: A total of 49 participants from 4 medical intensive care units and 4 medical-surgical units were interviewed. Nurse managers found the GPS helpful and complete. There was higher agreement between nurse managers and unit nurses than with physicians. Some questions generated more disagreement than others. Our findings suggest that the GPS is comprehensive and may be best used to stimulate discussions between stakeholders to address key issues.

Conclusions: Using the GPS to assess several stakeholders' views could allow a given unit to move its CAUTI prevention efforts forward in a more informed manner.

Hospital-acquired infection (HAI) is common and costly, affecting approximately 1 in 25 hospitalized patients in the United States.[1] Catheter-associated urinary tract infection (CAUTI) is especially preventable. Unfortunately, urinary catheters used during a hospital stay, which can lead to both infectious and noninfectious complications, are frequently used inappropriately, increasing the risk of harm.[1,2] It is estimated that up to 69% of CAUTIs could be avoided if evidenced-based practices were used reliably.[3]

Myriad efforts have been undertaken to reduce CAUTI, including the Keystone Collaborative, a statewide initiative in Michigan,[4,5] and On the CUSP-Stop CAUTI, a national initiative sponsored by the Agency for Healthcare Research and Quality.[6] Institutions have also developed their own programs.[7-10] Despite a national focus to reduce preventable harm,[11] the incidence of CAUTI has been difficult to decrease.[12]

Although the challenges to implementing CAUTI prevention programs appear similar across a broad range of settings, specific barriers and solutions depend on the microcultures of individual hospital units. Therefore, units need to be able to conduct a realistic assessment to better identify and address their key challenges in implementing an effective CAUTI prevention program. The CAUTI guide to patient safety (GPS) was developed with this in mind. The CAUTI GPS includes a 10-item survey (Appendix 1) developed based on 21 site visits and interviews with >400 stakeholders in CAUTI prevention.[13] It was designed to be self-administered by a key person knowledgeable about their hospital unit. Although the GPS assessment survey has been used for quality improvement, it has not undergone rigorous testing itself. Our purpose was to qualitatively validate the GPS survey and to explore how it could best be used as a tool for helping units prevent CAUTI.

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MATERIALS AND METHODS

Setting

We conducted qualitative semistructured interviews and observations at 4 sites: 3 academic medical centers and 1 Veterans Affairs medical center. Because the GPS was developed based on research with predominately medical-surgical units, we chose similar units for this study (n = 4). We also included medical intensive care units (ICUs) (n = 4). This study was approved by the Medical College of Wisconsin Institutional Review Board.

Participants

At each site, we purposefully sampled hospital staff to interview about their unit or institution's efforts to prevent CAUTI. We constructed a proposed participant list to include staff in roles that we expected would have knowledge and experience with HAI prevention practices. We networked with contacts at each site who recommended their institution's key people in CAUTI prevention. These key people then suggested units to study and served as liaisons to hospital personnel. We reached out to the nurse managers of the proposed units to request their participation and to seek their permission to interview several of their staff members. Our final participant list included nurse managers, unit nurses, physician leaders, fellows, hospitalists, intensivists, residents, infection preventionists, and patient safety and quality officers.

Data collection overview

Data were collected through the GPS survey, interviews, observations, and organizational documents (Table 1). We used an iterative process so we could adapt the data collection tools to explore unexpected findings in subsequent visits.

Interviews

We used 2 sets of interview questions: 1 for nurse managers and 1 for other participants. All interviews were audio recorded, transcribed, and anonymized. A trained research assistant (J.T.T.) conducted the nurse manager interviews. In these sessions, the nurse manager filled out the CAUTI GPS; after completion, each survey question was discussed to obtain a deeper understanding of the nurse manager's responses. Additionally, the nurse managers provided their opinions of the GPS instrument, its usefulness for their staff, and other questions that could be included. Finally, nurse managers were asked to share any CAUTI prevention educational materials they use. Completed GPS surveys were stored separately from all other collected data and were not reviewed by the lead author (K.E.F.) until analysis of all other data was completed.

The lead author and one member of the study team (K.E.F. and J.T.T.) conducted semistructured interviews of other participants, guided by the CAUTI GPS principles. These interviews allowed us to capture a rich representation of the knowledge, perceptions, and practices of nurses and physicians with regard to HAI and CAUTI prevention initiatives, unit culture, and hospital culture. To keep the time associated with the interviews reasonable, the nurse manager interviews were more structured, focusing on the GPS survey.

Data analysis

We used both content analysis[14] and grounded theory[15] approaches to analyze the transcripts from the interviews. Content analysis entails the use of a predefined set of codes to analyze data.[14] The predefined codes for this project were drawn from the CAUTI GPS survey questions. The open codes were grounded within the data and allowed for a more contextualized analysis and understanding of the findings[15]; additionally, open coding ensured that data which fell outside the predefined codes were captured as well as any disconfirming findings. In this article, we focus on analysis of the nurse and physician interviews, the nurse manager responses to open-ended questions about the GPS, and nurse managers GPS survey answers.

After interviews from the first 4 units had been coded by 2 members of the study team (K.E.F. and J.T.T.), the full team reviewed and discussed the range of findings within the code reports. To ensure consistency in coding, 2 other investigators (S.L.K. and M.H.) also independently coded the interviews from 1 unit using the structured GPS-based coding scheme. The study team then met to discuss the results and resolve the few discrepancies that were identified.

Matrices were constructed for each of the units in the project (Table 2). The x axis shows the role of the participant, and the y axis shows the CAUTI GPS questions. Intersecting cells show the survey response of the participants, either given directly (for nurse managers) or inferred from unit staff statements during the interviews. The matrices allowed us to assess the level of agreement among participants. We specifically looked at agreement between the nurse manager and the other nurses, the nurse manager and the physicians, and the nurse manager and the unit overall (including nurses and physicians). Agreement was calculated by dividing the number of responses that were the same as the nurse manager's by the total number of responses. We characterized agreement as high (0.67-1), moderate (0.34-0.66), or low (<0.34).

Table 1
Data sources

Source	Description
Interviews	Individual interviews with various staff at each site.
Site visit overview	A written overview statement prepared immediately after the site visit by the site visitors, including their insights about the degree to which a CAUTI prevention program is in place.
Debrief	Verbal discussion between the 2 site visitors about the site, the CAUTI and other prevention programs in the hospital, the culture with respect to CAUTI and other prevention programs, and anything else that was unexpected.
Additional documents	The study team asked the staff at the site if they have any CAUTI prevention information that they would like to share (eg, poster templates, training documents, spreadsheet templates, e-mail communication templates).

Table 2
Sample site matrix

	Respondent					
Question	RN manager	RN 1	RN 2	MD director	MD 1	MD 2
Do you currently have a well-functioning team (or work group) focusing on CAUTI prevention?	Yes	Yes	Y/N	Yes	No	Yes
Do you have a dedicated project manager to coordinate your CAUTI prevention activities?	Yes	Y/N	NA*	No	NA*	Yes

CAUTI, catheter-associated urinary tract infection; *MD*, medical doctor; *NA*, no related text was coded; *RN*, registered nurse; *Y/N*, respondent's answer was not a clear yes-no.
*Not every respondent addressed every guide to patient safety question.