

Urinary Catheter Management for Nonurologists: A Resident Driven Educational Initiative

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Abstract

Introduction: Prevention of catheter associated urinary tract infection relies on timely catheter removal and care of indwelling catheters. Educational and quality improvement initiatives to prevent catheter associated urinary tract infection should address the basics of urinary catheter placement and management. Internal medicine residents are an appropriate target for these efforts and they may lack formal training in these issues. We developed a resident driven orientation session that covers basic Foley catheter management principles called the TIPS (Troubleshooting, Indications and Practice Sessions) program.

Methods: Urology residents at our institution were queried on common consultations for urinary catheter related issues. The incoming intern internal medicine class at our institution completed a pre-TIPS survey that evaluated their baseline urological experience and knowledge. A 1-hour didactic session led by urology residents was followed by hands-on directed practice with mannequins. The web based survey was repeated 1 month later.

Results: Of the total of 60 residents 54 (90%) completed the initial survey. In medical school 38 of 54 residents (70%) had never rotated in urology. Upon repeating the survey at 1 month the response rate was 34 of 60 residents (57%). The proportion of residents confident in their ability to troubleshoot catheter problems increased from 50 to 88% ($p < 0.05$). Knowledge of indications, clot retention and proper catheter technique also improved ($p < 0.05$).

Conclusions: A focused educational session about common urological catheter management scenarios resulted in improved internal medicine resident confidence in catheter troubleshooting and knowledge of basic urinary catheter placement indications. These educational sessions may be a method to improve nonurology resident education and awareness of common urological issues.

Key Words: urethra; urinary tract infections; catheterization; education, medical; internship and residency

Abbreviations and Acronyms

CAUTI = catheter associated urinary tract infections
IM = internal medicine
TIPS = Troubleshooting, Indications and Practice Sessions

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97 Quality improvement initiatives in health care are becoming
98 important driving forces in the promotion of care that is safe,
99 effective and efficient.^{1,2} AMA (American Medical Association) created PCPI (Physician Consortium for Performance Improvement) to promote patient centered care and
100 quality improvement programs.³ In the last 10 years almost
101 every major medical society has established a division
102 dedicated to quality improvement in patient care. One of the
103 most widely adopted quality improvement initiatives across
104 the country is the prevention of CAUTIs.⁴ Prevention of
105 CAUTI has been identified as a prime target for improving
106 patient care and decreasing health care costs.⁵ CAUTIs are
107 tracked as a metric of hospital performance and recently
108 Medicare adopted a nonpayment policy for additional care
109 and costs resulting from a CAUTI diagnosis.⁶

110 Although quality improvement initiatives have been
111 adopted at many hospitals, most physicians other than urologists have no working knowledge of urinary catheters and their management, potentially compromising the efficacy of these
112 quality improvement initiatives. In fact, to our knowledge no
113 formalized programs to date directly address the basics of
114 urinary catheter placement and important issues that relate to
115 catheter management for IM residents. As a result, at many
116 academic institutions residents go through residency training
117 without a basic orientation to Foley catheter management and
118 they experience deficiencies in their knowledge of important
119 urological topics that they are likely to encounter in practice.

120 Inevitably, these new physicians will care for a patient with
121 a urinary catheter. Up to 25% of hospitalized patients and 10%
122 of nursing home patients will have an indwelling urinary
123 catheter.⁴ Despite this we could not identify a standardized
124 curriculum devoted to CAUTI and urinary catheter management. Such a curriculum would echo ongoing efforts around
125 central venous line placement in which modules involving
126 simulation models have oriented resident trainees to a complex
127 procedure and potential source of in-hospital morbidity.⁷

128 We sought to address this training deficiency in a
129 teaching hospital environment through an educational session. In this project we created a focused session covering
130 commonly encountered topics in urology, including management of indwelling urinary catheters, and tested its effectiveness among incoming IM interns at our institution.
131 The session was designed to cover urinary catheter troubleshooting and indications for placement, and it included
132 hands-on practice sessions using TIPS.

144 Methods

145 This pilot project was designed to educate IM interns and
146 improve their knowledge of and confidence with urinary
147

148 catheter related issues. This was a step toward our over-
149 arching goal of improving patient care. The curriculum was
150 derived from consultation with urology residents and faculty
151 regarding the most commonly encountered reasons for
152 urological consultation with specific attention to consultations on the management of indwelling urinary catheters.
153 Additional topics discussed included indications for urinary
154 catheter placement, management of continuous bladder
155 irrigation, catheter associated urinary tract infection epidemiology and management of asymptomatic bacteruria. This
156 information was used to create a brief didactic lecture and
157 hands-on guided practice in urinary catheter placement and
158 catheter troubleshooting. The lecture included common
159 clinical scenarios that described management of a clotted
160 catheter, difficult urinary catheter placement and continuous
161 bladder irrigation setup.

162 Two weeks prior to orientation week the IM resident
163 class was invited to complete a brief web based survey. This
164 survey was implemented online through the Catalyst system
165 at our institution and 2 email reminders were circulated to
166 increase participation. The survey included questions about
167 prior urology experience in medical school, including
168 experience placing urinary catheters, calling urology
169 consults and irrigating catheters. We also tested urinary catheter
170 knowledge using case based scenarios and asked residents to
171 rate their confidence with troubleshooting common urological topics.

172 The TIPS intervention was a 60-minute session with a
173 15-minute didactic lecture followed by a 35-minute hands-on
174 practicum guided by senior urology residents and faculty. In these practice sessions IM residents worked on
175 mannequins to practice placing various catheter types (ie
176 straight and Coudé tip urinary catheters) and irrigating
177 catheters with catheter tip syringes. TIPS concluded with a
178 10-minute summary session to review key points and the
179 case based scenarios. A high yield handout was provided
180 (fig. 1). Residents were provided with a laminated card that
181 included useful information from the didactic lecture (fig. 2).

182 One month after TIPS we repeated the same survey with
183 IM resident participants. Descriptive statistics were performed for survey results before and after the session.

190 Results

191 In June 2014 the incoming IM class of 60 residents at our
192 institution was divided into 2 groups of 30 each and then
193 subdivided into small groups of 8 to 10. Of the 60 residents
194 54 completed the initial survey for a response rate of 90%.
195 Figure 2 shows prior urological experience. Approximately
196 half of the respondents were confident in their ability to
197

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