The Interdisciplinary Academy for Coaching and Teamwork (I-ACT): A novel approach for training faculty experts in preventing healthcare-associated infection

Wendy Nickel MPH a,*, Sanjay Saint MD, MPH b, c, Russell N. Olmsted MPH, CIC d, Eugene Chu MD e, Linda Greene RN, MPS, CIC f, Barbara S. Edson RN, MBA, MHA g, Scott A. Flanders MD c

a Center for Patient Partnership in Healthcare, American College of Physicians, Philadelphia, PA
b Center for Clinical Management Research, VA Ann Arbor Healthcare System, Ann Arbor, MI
c Department of Internal Medicine, University of Michigan Medical School, Ann Arbor, MI
d Infection Prevention and Control Services, Saint Joseph Mercy Health System, Ann Arbor, MI
e Department of Medicine, Boulder Community Health and University of Colorado School of Medicine, Denver, CO
f Infection Control and Epidemiology, Rochester General Health System, Rochester, NY
g Health Research & Educational Trust, American Hospital Association, Chicago, IL

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Background: The Interdisciplinary Academy for Coaching and Teamwork (I-ACT) was an advanced course aimed at educating leaders of a quality improvement project on addressing clinical challenges associated with catheter-associated urinary tract infection (CAUTI), overcoming socioadaptive issues among a multidisciplinary team, and effective coaching.

Methods: The I-ACT course provided substantial opportunities for interaction among participants and faculty experts through role playing. Participants were grouped so that each discipline of a potential multidisciplinary team was represented during interactive components of the training. Precourse and postcourse surveys were used to assess participants’ comfort in addressing various challenges associated with implementation of interventions.

Results: After the course, participants expressed improved comfort with using the tools provided to address challenging socioadaptive issues. Written comments indicated that the participants valued being able to learn from experts and meet in a face-to-face setting.

Conclusions: The I-ACT course was successful in training faculty to serve as improvement experts for US hospitals working on CAUTI prevention. After completing the course, participants felt that their comfort and ability to address complex improvement problems had improved. This model may be effective for use in preparing improvement project leaders and participants to tackle other healthcare-associated infections and complex quality problems.

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Healthcare-associated infections (HAIs) contribute to significant morbidity, mortality, and economic burden in the United States. The Centers for Disease Control and Prevention (CDC) estimates that 1.7 million HAIs occur each year in US hospitals. A recent CDC analysis found that 1 in 25 patients acquires an infection related to care received in the hospital. These infections result in honoraria for various talks at hospitals as a visiting professor; grants from CDC Foundation, Blue Cross Blue Shield of Michigan, Michigan Health and Hospital Association; and expert witness testimony. S.S. has received numerous honoraria and speaking fees from academic medical centers, hospitals, group-purchasing organizations (eg, Premier, VHA), specialty societies, state-based hospital associations, and nonprofit foundations (eg, Michigan Health and Hospital Association, Institute for Healthcare Improvement) for lectures on catheter-associated urinary tract infection, implementing change, and leadership. R.N.O. serves as a member of Premier Safety Institute and is a member of speakers’ bureaus for Ethicon and Avid Education Partners. No other potential conflicts of interest are noted.
approximately $40 billion in annual excess health care costs and as many as 99,000 deaths. A significant body of research suggests that 70% of these infections may be preventable.

Preventing HAIs is a key strategic priority for consumers, the US Department of Health and Human Services (HHS), providers, payers, and relevant health care professional associations. In 2009, HHS released the National Action Plan to Prevent Health Care–Associated Infections: Road Map to Elimination, which includes a 5-year prevention target of a 25% national reduction in catheter-associated urinary tract infections (CAUTIs). This road map, updated in 2013, provides a pathway for preventing HAIs across the spectrum of care delivery (ie, acute, ambulatory, and long-term care). To broaden the level of engagement, in 2011 HHS spearheaded the Partnership for Patients campaign with a goal of reducing hospital-associated conditions and unnecessary readmissions by 40% and 20%, respectively. The platform for realizing these goals was hospital engagement networks (HENs), large multifacility networks that use geographic-based or organization-based memberships.

CAUTI is one of the most common device-associated HAIs in acute care settings, driven in large part by inappropriate use and gaps in proper maintenance of urinary catheters. An estimated 17%-69% of CAUTIs are potentially avoidable with recommended infection prevention/control practices, however, which equates to avoidance of up to 380,000 infections and 9,000 CAUTI-related deaths each year. The core prevention strategies include inserting catheters only for appropriate indications, removing catheters as soon as clinically safe and appropriate, ensuring that only properly trained persons perform catheter insertion and maintenance, using aseptic technique and sterile equipment, maintaining unobstructed urine flow and a closed drainage system, and, finally, practicing hand hygiene and standard precautions according to the CDC’s Healthcare Infection Control Practices Advisory Committee guidelines.

With support from the Agency for Healthcare Research and Quality (AHRQ), the Health Research & Educational Trust (HRET; the research and education affiliate of the American Hospital Association) and its partners launched a project focused on implementing best practices to prevent CAUTIs in hospitals across the United States. The project has 2 main goals: to reduce mean CAUTI rates in participating clinical units by 25%, and to improve the safety culture. This initiative, known as “On the CUSP: Stop CAUTI,” has been described previously. A key project strategy included assembling a national panel of expert faculty to help hospitals and HENs implement these best practices. The HRET leaders reached out to organizations representing health care professionals listed in Table 1 with expertise in CAUTI prevention. This core extended faculty would then support multidisciplinary teams at hospitals tasked with leading improvement efforts using infrastructure support from HRET and HENs.

Faculty experts from these organizations were often well versed in the technical solutions used to prevent CAUTIs, such as urinary catheter discontinuation protocols and order sets, but not in the socioadaptive elements required for meaningful change. In some instances, the experts had experience with leading change in their own units, but not necessarily in infection prevention. Addressing socioadaptive elements, such as promoting culture change, identifying and empowering physician and nursing champions, and navigating institutional barriers to improvement, is critical for successful implementation. Yet faculty experts lacked training in these methods.

The tools needed to facilitate implementation transcended any single type of infection; thus, once trained in these practices, our faculty experts would be prepared to facilitate implementation of practices targeting other HAIs or preventable harms. We created the Interdisciplinary Academy for Coaching and Teamwork (I-ACT), with a goal of training our faculty experts in both technical and socioadaptive strategies for infection prevention using CAUTI prevention practices as a model, and evaluated its impact.

METHODS

The On the CUSP: Stop CAUTI prevention project (hereinafter Stop CAUTI) recruited 13 expert faculty with the help of the professional societies listed in Table 1. This faculty attended a 1-day project kickoff meeting in which they were oriented to their roles and responsibilities, received an overview of the expectations of participating hospitals (eg, data collection requirements), and provided a brief review of evidence-based practices for preventing CAUTI. Faculty roles and responsibilities included speaking on CAUTI-related topics at in-person regional hospital cohort kickoff meetings, facilitating both coaching calls and periodic content conference calls, attending individual hospital site visits as needed, and offering advice for problems with CAUTI prevention projects faced by individual hospitals. The coaching calls were often run by a state hospital association lead, whose role involved recruiting participating hospitals, reviewing data submission, providing a coaching opportunity for their participants, and acting as a project liaison with hospitals related to the project. The structure of the Stop CAUTI project is shown in Figure 1.

The expert faculty began participating in coaching calls in early 2012. Six months into the project, faculty reported that they and many of the state hospital association leads were comfortable with the basics of CAUTI prevention, but struggled with complex clinical situations and many of the socioadaptive barriers that hospitals were routinely reporting.

I-ACT

Society representatives and the leadership of the Stop CAUTI project convened to develop a course to educate the coaches about challenging clinical scenarios related to CAUTI, the socioadaptive aspects of CAUTI prevention, and ways to overcome barriers and techniques for coaching long distance via teleconference. The Society of Hospital Medicine’s (SHM) “Mentor University” served as the foundation for the training. This model was used because of the high ratings awarded by participants and effectiveness in teaching coaching skills to hospital improvement leaders. Mentor University has trained more than 50 health care providers, mostly hospitalists, in providing coaching support to improvement teams across the country in such quality topics as glycemic management, venous thromboembolism prevention, and reduction of preventable readmissions. Taught by faculty who have participated in the SHM mentored implementation programs, Mentor University offers both didactic and interactive components featuring such topics as how to assess an institution’s organizational culture, addressing barriers to improvement and effective coaching techniques. SHM’s mentored implementation programs have been described previously.

The I-ACT grew out of the work of a planning committee with representatives from each professional organization. The I-ACT’s target audience included state leads and members of the extended faculty. Given the level of existing expertise among the participants, the I-ACT was developed as an advanced-level course with a focus on 3 main components: complex clinical CAUTI challenges, socioadaptive issues among multidisciplinary team members, and effective coaching. The training was formulated to provide substantial opportunity for interaction among the participants and the ability to role play using new techniques learned during the training. Participants were grouped so that during the interactive components of the training, each discipline (infection preventionists, hospitalists, nurses, state hospital association leads, and other professionals) was represented in group activities. The purpose of grouping participants who represented different levels of expertise was to provide opportunities for learning from and mentoring.
in this way was to mimic real-world experiences of a multidisciplinary improvement team. The I-ACT training agenda, along with program objectives, is provided in Figure 2.

I-ACT evaluation

A 14-question survey was developed to evaluate the impact of the meeting; results are summarized in Table 2. Questions addressed each participant’s knowledge of challenging clinical issues associated with CAUTI, quality improvement methodology, and tools for teams to use to overcome the socioadaptive barriers associated with CAUTI. A 5-point Likert scale was applied to quantify the comfort level that faculty experienced with various aspects of their roles. The survey also included open-ended questions, allowing a qualitative assessment of the strengths and weaknesses of the course. A pretest and posttest were administered to participants to assess knowledge and evaluate changes in comfort level when addressing challenging scenarios. Participants also assessed their overall satisfaction with training. Here, χ² tests of association were used to evaluate the significance of changes in responses from the pretest to the posttest.

RESULTS

Quantitative results

All 28 participants (100%) completed the pretest, and 24 of the 28 (85.7%) completed the posttest (Table 2). Participants were asked about their comfort level with discussing barriers to data collection on a coaching call. Less than one-half (46.4%) of the participants reported a comfort level of either “comfortable” or “most comfortable” on the pretest, compared with 70.8% on the posttest (P = .08). When asked to rate their comfort with using strategies to obtain buy-in from nonsupportive team members, the percentage responding “comfortable” or “most comfortable” increased from 32.1% on the pretest to 75.0% on the posttest (P = .002). Participants also were more comfortable with engaging team members in a conversation about a challenging CAUTI issue on a phone call after the training; comfort level was rated as “comfortable” or “most comfortable” by 46.4% on the pretest, compared with 79.2% on the posttest (P = .02). All 24 participants who completed the post-training evaluation (100%) rated their satisfaction with the training as good or excellent, 99% felt that they would be able to apply the

<table>
<thead>
<tr>
<th>Subspecialty Society</th>
<th>Expertise</th>
<th>Role</th>
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<tbody>
<tr>
<td>Association of Professionals in Infection Control and Epidemiology (APIC)</td>
<td>Expertise in surveillance and prevention of CAUTI; implementation of HICPAC CAUTI guidelines</td>
<td>Provide experts for educating institutions with focus on prevention and application of surveillance criteria.</td>
</tr>
<tr>
<td>Emergency Nurses Association (ENA)</td>
<td>Expertise in use of urinary catheters during emergency care</td>
<td>Liaison to emergency nurses through their society, build capacity for educating emergency nurses with focus on avoiding catheter use unless there is an appropriate indication.</td>
</tr>
<tr>
<td>Society of Hospital Medicine (SHM)</td>
<td>Expertise in education through a mentoring program; facilitate support and role for hospitalists in improving patient safety</td>
<td>Liaison with hospitalists who may play a key role in reducing unnecessary urinary catheter use.</td>
</tr>
<tr>
<td>Society of Healthcare Epidemiology of America (SHEA)</td>
<td>Expertise in both treatment and epidemiology of CAUTI</td>
<td>Provide experts for educating institutions on prevention, antimicrobial stewardship and other patient safety risks from urinary catheters.</td>
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</tbody>
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skills gained to their daily work, and 99% agreed that the training objectives had been met.

Qualitative results

Several attendees indicated that the interactive components of the training and multidisciplinary perspectives were the most valuable aspects of the I-ACT. Participants also commented on the value of learning from experts and meeting in a face-to-face setting. When asked what could have been improved about the I-ACT, attendees commented that even more time for interaction would have been useful, and suggested expanding the training time to 2 days. One participant suggested having clearer take-away items and follow-up actions.

I-ACT faculty and the planning committee also had the opportunity to debrief about the training. This group agreed that the interactivity of the training and inclusion of multiple disciplines were very effective in educating about prevention of CAUTIs and other HAIs. Although all agreed that face-to-face training sessions are highly valuable, the group raised concerns regarding the time and financial resources associated with conducting training of this nature; however, alternative approaches, such as Webcasts and video conferencing, were felt to insufficiently allow for the robust interactions observed among I-ACT attendees. The group

Table 2

<table>
<thead>
<tr>
<th>Question</th>
<th>Pretest (n = 28)</th>
<th>Posttest (n = 24)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. On a scale of 1-5, how comfortable are you leading a coaching call discussion on urinary catheter use in patients with epidural catheters?</td>
<td>17.9%</td>
<td>70.8%</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>2. On a scale of 1-5, how comfortable are you discussing barriers to data collection identified on a coaching call?</td>
<td>46.4%</td>
<td>70.8%</td>
<td>.076</td>
</tr>
<tr>
<td>3. Rate your comfort with using the tools in the CUSP toolkit (Learning from Defects, Team Check-Up Tool) to coach frontline improvement teams.</td>
<td>35.7%</td>
<td>70.8%</td>
<td>.012</td>
</tr>
<tr>
<td>4. Rate your comfort with using strategies to obtain buy-in from nonsupportive team members.</td>
<td>32.1%</td>
<td>75.0%</td>
<td>.002</td>
</tr>
<tr>
<td>5. Rate your comfort with engaging project team members in conversation about a challenging CAUTI issue in a phone call.</td>
<td>46.4%</td>
<td>79.2%</td>
<td>.016</td>
</tr>
</tbody>
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Fig 2. I-ACT training agenda.
brainstormed alternative ways to deliver the training, including conducting “train-the-trainer” sessions for wider dissemination, providing role-playing opportunities for new coaches via teleconference, and focusing more closely on the socioadaptive aspects of the training.

**DISCUSSION**

The I-ACT has proven to be a successful approach to training and preparing expert faculty to serve as mentors and improvement experts for hospitals across the US working to implement best practices to prevent CAUTIs. After completing the I-ACT course, our expert faculty reported dramatic improvements in their comfort level and ability to address complex improvement problems faced by participating hospitals. We believe that our approach to training expert faculty working within a quality improvement project has important lessons for others leading and participating in similar initiatives.

As a result of the increased focus on efficiency, quality, and value in the health care system, quality improvement projects such as the Stop CAUTI project are now common and multiplying at a dizzying rate. A brief Internet search identified improvement projects for a variety of clinical, safety, and quality initiatives, on topics ranging from improving asthma care in outpatient clinics to ameliorating pain in nursing homes. In addition, these projects are administered by a diverse group of organizations, including governmental entities, health systems, state hospital associations, insurers, national associations, clinical specialty societies, and private health care organizations. A systematic review of the impact of quality improvement projects showed overall positive, albeit limited, effects on improvement outcomes and the need for a better understanding of the components and success factors. Participating institutions that showed the most improvement identified interorganizational features, such as participating in multi-institutional training and providing networking opportunities to share challenges and best practices, as being the most helpful factors in achieving project goals.

Improvement work is challenging at best, and hospital teams can struggle at various points of an initiative. Having peers with whom to discuss strategies and share best practices for overcoming obstacles is often motivating. In addition, having leaders in these improvement projects who can model and facilitate interactive discussions is critical. Particularly daunting are obstacles associated with the socioadaptive elements of improvement. The initial Stop CAUTI experience was that although the experts (coaches and lead faculty) on the project were able to facilitate conversations among participants about technical CAUTI prevention issues, some were less comfortable with supporting discussions about barriers associated with physician engagement or resistance to urinary catheter removal. The I-ACT model provides opportunities for project leaders to learn how to have these conversations and, better yet, coach others to have them as well.

The lessons learned from the I-ACT experience, although focused on CAUTI prevention, are also relevant to efforts targeting other HAIs, avoidable harms, and complex multifaceted quality problems. In an era of population health and value-based purchasing, it is critical that leaders are well positioned to encourage and support improvement teams regarding standard practices that work to overcome socioadaptive barriers. Struggling hospital quality teams are in desperate need of projects that provide essential training to improvement leaders and team members for overcoming barriers to improvement. Both the quantititative and qualitative results of the I-ACT training indicate that it is a successful vehicle for delivering education about reducing CAUTIs, including managing socioadaptive challenges through simple change models. Although the I-ACT targets CAUTI prevention, this training is applicable to other complex quality problems as well, such as *Clostridium difficile* infections, falls, hospital-associated pressure ulcers, antimicrobial stewardship, and delirium. Focusing on the multidisciplinary team is also a feature of the I-ACT training that is important when addressing other HAIs. Investment in training of multidisciplinary team members has been shown to result in sustainability of long-term improvements. The I-ACT training program serves as an ideal model for quality projects to consider when educating improvement teams about implementing best practices, addressing challenging barriers, and demonstrating effective coaching.

Our results, although suggesting that expert faculty felt much more comfortable in carrying out their roles on the project, do not indicate whether or not they actually did a better job, or whether their enhanced skills more effectively facilitated improvement among participating hospitals. Measuring faculty’s sustainability of skills, ability to address complex clinical and socioadaptive barriers in the clinical setting, and potential impact on outcomes will be important complements to this evaluation of the I-ACT training. The next steps should also include an assessment of the impact of the training over time and feedback from participating hospitals on the effectiveness of the faculty experts. The application of the skills learned through the I-ACT training is really where the “rubber meets the road” and will require longer-term evaluation to assess effectiveness.

**CONCLUSION**

Using CAUTI as a model, the I-ACT training program significantly increased the comfort level of expert faculty in tackling complex technical and socioadaptive problems faced by hospital improvement teams in their daily work. If long-term outcomes are positive, then this training model may be useful for preparing improvement project participants to tackle other healthcare-associated infections and complex quality problems.

**Acknowledgments**

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