

Driving Organizational Change From the Bedside: The AACN Clinical Scene Investigator Academy

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BACKGROUND Staff nurses are pivotal in leading change related to quality improvement efforts, although many lack skills to steer change from the bedside. The American Association of Critical-Care Nurses (AACN) staff nurse leadership program, Clinical Scene Investigator (CSI) Academy, teaches and empowers staff nurses in leadership skills and change concepts to translate evidence into practice affecting patient outcomes.

OBJECTIVES To describe the curriculum of the AACN CSI Academy that provides staff nurses with the leadership skills required to create unit-based change projects that positively impact patient/family outcomes.

METHODS The curriculum of the Academy included leadership topics, communication, change concepts, quality improvement methods, project management, and data management and analysis. Each team of participants collected project data to show improvements in patient care. The program evaluation used many data sources to assess the program effectiveness, relating to the professional growth of the participant nurses. The participants assessed project patient outcomes, sustainability, and spread.

RESULTS The first cohort of CSI participants included 164 direct care nurses from 42 hospitals in 6 cities. They rated the Academy highly in the program evaluation, and they reported that the Academy contributed to their professional development. The individual hospital quality improvement projects resulted in positive patient and estimated fiscal outcomes that were generally sustained 1 year after the program.

CONCLUSION With the skills, tools, and support obtained from participation in the CSI Academy, staff nurses can make substantial contributions to their organizations in clinical and possibly fiscal outcomes. (*Critical Care Nurse*. 2017;37[4]:e12-e25)

The American Association of Critical-Care Nurses' (AACN) member-elected board of directors identified a need for programming that aligns with the advancement of AACN's vision of "a healthcare system driven by the needs of patients and families where acute and critical care nurses make their optimal contribution."¹ It was ultimately determined that AACN would design and implement a staff nurse leadership program that would help nurses influence positive change in their work environments and drive patient care excellence.

The goal of the new 16-month staff nurse leadership program, the AACN Clinical Scene Investigator (CSI) Academy, was to provide staff nurses with the knowledge and support necessary to become leaders in creating unit-based change that would positively affect patient/family outcomes and other targeted outcomes, such as staff communication and satisfaction. The hypothesis was that not only would patients and families benefit from nurse participation in the CSI Academy, but the impact on the financial health of a health care facility would also be positive.

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The AACN CSI Academy teaches, empowers, and engages staff nurses in quality improvement (QI) and evidence translation. Studies have shown that health care efficiency can be improved and cost can be decreased through programs in which nurses learn to understand and apply evidence-based practice (EBP) and QI processes.²⁻⁴ However, although EBP and QI programs may include sound tools, these programs generally have less emphasis in the theory and practice of implementing change.

Changing practice and sustaining it is challenging and one of the greatest hurdles to successful process improvement. Change is difficult because people respond to environmental challenges and change based on internal threats to self and erect barriers to creating the desired practice environment.⁵ Sustainability of any change is perhaps even more challenging; however, maintaining change can be achieved through a long-term vision that connects human behavior and success with the achieved change. The AACN CSI Academy specifically focuses on providing practical skills to create the changes needed to improve outcomes and not just on QI concepts.

The objectives of creating and initiating the AACN CSI Academy was to teach leadership skills, QI processes, data management, and change strategies/tactics to help empower staff nurses to lead change efforts, ultimately leading to positive outcomes. The specific aims were to educate staff nurses in the content areas noted above, while mentoring them through a change project specific to their units. The purpose of this article is to report the outcomes of the AACN CSI Academy.

Methods

Description of AACN CSI Academy

Creation and development of the AACN CSI Academy began by searching for best-in-class demonstration programs. Children's Mercy Hospital in Kansas City, Missouri, had developed a CSI Academy with funding from a Partners Investing in Nursing grant.⁶ Seven area hospitals sent teams of staff nurses to learn leadership and QI skills to systematically improve a clinical outcome and achieve a financial impact. The teams implemented change projects, with all projects achieving positive patient and fiscal outcomes.⁷ The Kansas City CSI Academy was viewed as a good match for AACN because this Academy had an overall goal of providing leadership skills to staff nurses, which matched what

AACN wanted to accomplish in their program. The Kansas City CSI program director and AACN staff adapted the original program and curriculum based on current evaluation feedback, and the newly adapted program was named the AACN CSI Academy.

AACN staff believed the most efficient way to deliver the program was to provide the Academy experience in specific regions of the country in a cohort manner. The objective was to seek applications from hospitals within the identified region with the help of a chief nursing officer (CNO) familiar with AACN. Seven hospitals were then chosen to participate in the regional cohort. Each hospital sent 2 to 4 staff nurses to participate in the 16-month program, creating a peer learning community among the 7 regional hospitals and 28 CSI nurses. The hospitals chosen were granted \$10 000 from AACN to assist with backfilling shifts and to support the projects with supplies needed for implementation.

The 6 regions selected for cohorts were Indianapolis, Raleigh-Durham-Chapel Hill, Austin, Boston, Philadelphia, and New York City. The first cohort (Indianapolis) launched in June 2012, and the 5 remaining cohorts had staggered launches 2 to 4 months apart, with the last launch in September 2013.

Curricular Concepts and Content Delivery

The Academy was an interactive, experiential program for the staff nurse. Over the course of 16 months, the CSI teams from each hospital unit came together in an all-day workshop that met 7 to 8 times. The program's

Changing practice and sustaining this change is challenging and one of the greatest hurdles to successful process improvement.

curricular content included the concepts of leadership, such as influencing through commu-

nication and empowering teams. Specific QI tools such as Plan-Do-Study-Act, project planning with logic models, data collection, and analysis were an integral part of the Academy (see Table 1 for concepts, objectives, and learning activities). Logic models are a representation of a program showing logical relationships among available resources, the activities, and the anticipated outcomes.⁸ Faculty presented social entrepreneurship as a conceptual means to creatively think through solutions to unit-specific problems. They presented and discussed change concepts in terms of making change work in the staff

nurses' specific unit and how to make the change persist. The CSI teams worked together to select an issue to change with their unit-specific project plan, which included an evaluation of outcomes. Interactive content allowed for immediate application and collaboration across sometimes competing institutions.

AACN staff who provided Academy content delivery and mentoring all had at least masters degrees and were clinical leaders with backgrounds in learning facilitation. These staff were called the AACN CSI Academy faculty. The faculty for each cohort served as facilitators of learning and provided mentoring, one-on-one support, consultation with the CSI team's clinical coach (see below), and served as consultants to the hospital CNO. Between each workshop, program faculty used email, telephone, and web-mediated interactive communication to review project plans, consult with teams, and respond to unanticipated challenges.

The faculty led qualitative evaluations in an open forum format at the end of each workshop. Participants identified what did and did not work for the learning experiences of that day and offered suggestions for the next workshop. Faculty identified immediate needs to target and followed up with phone meetings or consultations with the CSI groups as necessary. In addition, based on feedback from the CSI nurses, the faculty adjusted content and delivery methods as the Academy proceeded.

The Academy program used a hospital-selected internal coach to serve as a resource for the project teams. These coaches were someone other than the CSI participants' nurse manager and were selected based on their ability and availability to mentor and help project teams navigate the hospital system to secure project resources. As invaluable resources to the CSI faculty and program staff, they attended program workshops when appropriate content related to project goals were presented.

The end of the program culminated in a city-wide innovation conference in which Academy faculty and participants presented the projects to the health care community. Nurse speakers offered inspirational messages about the power of staff nurse engagement and innovation. The conference spotlighted completed work, the growth of individual nurses, and the new skills that will be available to each institution and its community. The conference helped the nurses realize their full potential as leaders of innovation and change.

Table 1 AACN CSI Academy curricular concepts, objectives, and example learning activities

Curricular concepts	Objectives	Example learning activities
Creativity and innovation	Describe the nature of creativity. Discuss techniques for promoting innovation.	Teams create solutions to everyday issues seen in health care using innovations from other industries and professions.
Working in teams	Identify group team roles. Discuss how you use individual team members' strengths to impact the team goals.	Teams identify personality types of each member. Each team member matches their strengths with a team member role.
Problem identification	Discuss potential projects. Explain PDSA. Describe a test of change completed on your unit.	Teams complete a force field analysis. Teams complete 1 test of change on their unit related to the project idea.
Business case for quality	Discuss clinical outcomes. Differentiate between process and outcome measures. Describe how to quantify the fiscal impact of a practice change.	Teams apply process and outcomes data ideas to their project. Teams identify where to obtain their data and/or start planning pre/post data acquisition. Teams identify costs and fiscal impact associated with their projects. Team members practice cost calculations related to clinical outcomes. Teams manage their own project budgets.
Project planning and implementation	Explain the components of a logic model and drill-down plan. Demonstrate understanding by creating a logic model for the project and a drill-down plan.	Teams create a logic model for their project. Teams create a drill-down plan for each step of their project. Teams use their logic models and drill-down plans to process through their projects.
Strategic communication	Explain the message of your project. Explain the key aspects of strategic communication. Share project results.	Teams use an influencer map to identify key stakeholders for their projects. Teams identify other professionals who are vital to the success of the project. Teams create and practice an elevator speech about their projects. Teams present a midproject presentation to their CNOs and leadership. Teams present their project and results at an Innovation Conference at the end of the program. Teams identify other forms of project communication during and after the program.
Sustaining and scaling projects	Describe a plan for sustaining your project. Discuss scaling your project (eg, to another unit, hospital-wide, system-wide).	At the beginning of their project plan, teams identify the need and actions for sustaining the project results. Teams create excitement for other units or hospitals to use their projects to improve patient outcomes.
Social entrepreneurship	Describe social entrepreneurship. Define appreciate inquiry.	Teams identify ways in which they have been social entrepreneurs by completing the change project.
Personal and unit excellence	Define the 6 AACN Healthy Work Environment Standards. Define the Beacon Award for Excellence program. Describe what it means to own your own practice (certification).	Team members describe how their projects relate to the Healthy Work Environment Standards and unit excellence activities. Team members reflect on their own contribution to patient care and outcomes.

Abbreviations: AACN, American Association of Critical-Care Nurses; CNO, chief nursing officer; CSI, Clinical Scene Investigator; PDSA, Plan-Do-Study-Act.

The faculty chose John Kotter's 8-step change theory to frame the program's curricular concepts of change, as that model has been used successfully to manage transformational change in health care.^{9,10} Because managing

people is crucial in order to change practice, Kotter's model creates urgency, communication, vision, and empowerment as guides to successful change. When changing behavior, leaders must provide compelling

Table 2 Areas of evaluation concepts and assessment tools

Evaluation assessment tools	Conceptual evaluation areas			
	Continuing education	Professional growth and development	Project outcomes	Regional/national impact
CNE session evaluations	X			
Qualitative session evaluations	X			
Qualitative program evaluation	X	X		
Semistructured CNO interviews	X	X		
Coach survey		X		
Before/after empowerment, engagement, and social entrepreneurship		X		
CSI 1 year after CSI Academy survey		X	X	X
Project list with outcomes			X	
List of CSI dissemination activities				X
Innovation database hits				X

Abbreviations: CNE, continuing nursing education; CNO, chief nursing officer; CSI, Clinical Scene Investigator.

reasons to change along with education. According to Kotter, an important strategy to successful change is communicating the vision and embedding the vision in all that is done. Therefore, logos, slogans, and visual cues are necessary to create reminders and excitement and to brand the initiative.

Each team picked project launch dates with educational and promotional materials that included these slogans and visual cues. Some teams engaged nurse peers in selecting the slogans, with the added benefit of generating initial buy-in. When enthusiasm from unit staff waned, the CSI teams developed creative “redosing” strategies to deliver the core message and mitigate flagging interest.

Measures

The approach to the Academy evaluation comprised a variety of conceptual evaluation areas: (1) continuing education (CE) evaluation data and overall satisfaction with the program; (2) assessment of the CSI nurses’ professional growth and development; (3) project outcomes including sustainability and scaling; and (4) regional and national impact of the projects, including dissemination activities. See Table 2 for the evaluation plan and methods. The evaluation was both formative (at the end of each workshop day) and summative (immediately on completion and 1 year after program completion). A mixed methods approach was used, employing both qualitative and quantitative assessment techniques.

Continuing Education and Program Satisfaction.

At the end of each workshop, the CSI faculty asked for feedback in a qualitative, open-forum format. CE workshop quantitative session evaluations were completed online within 3 weeks of the workshop day. Participants also had an opportunity to write in comments. The faculty used these data to facilitate changes for the next workshop. See Figure 1 for the qualitative and quantitative CE evaluations.

CSI faculty developed semistructured phone interviews to obtain evaluative aspects of the program from the CNOs. The CSI program director facilitated these interviews, completed at the end of the program, to gather thoughts from the CNOs about the program and its impact on their hospital and staff. All 42 CNOs were interviewed (Figure 2).

Professional Growth and Development of CSI Nurses. The Academy staff set out to understand the possible effect of the program on the professional growth and development of the CSI staff nurses. In this case, the evaluation method was intentionally correlated to the original purpose of the program: to provide staff nurses with the knowledge and support necessary to become leaders who guide and partner with peers to create unit-based change. The aim was to evaluate the nurses’ satisfaction with the knowledge gained, as well as to evaluate their professional growth and development as leaders of change. At a summative evaluation,

Quantitative Evaluation

Data Collection

The CNE evaluation survey is available online for 3 weeks after each session (Session 6 does not have CNE credit and no evaluation). CSI nurses navigate to these evaluations at their convenience by logging onto the AACN CSI Academy website. Results are used to modify the Academy to better meet the needs of the participants.

Questions

To evaluate the effectiveness and quality of this program please supply the following information.

Yes/No

The program objectives were met. _____
 The content adequately covered the learning objectives. _____
 The teaching method was appropriate. _____
 The learning evaluation was appropriate. _____
 The program met or exceeded my expectations. _____
 Concepts presented will be incorporated into my practice. _____
 I would attend another similar program. _____

Please rate the speaker from 1 to 3 (3-best)

Effective	1	2	3
Knowledgeable	1	2	3
Organized	1	2	3
Qualified	1	2	3

Open-Ended

1. Comments regarding the faculty and guest speaker(s), if applicable
2. Major strengths and/or weaknesses of the program
3. Suggestions to improve the program

Qualitative Evaluation

Data Collection

This evaluation is conducted at the end of each session by the faculty. It is an informal, group discussion regarding what went well and what could be improved. The faculty engage the CSI participants in brainstorming answers. Ideas are recorded by the faculty and used to determine if changes need to be made to the Academy.

Questions

1. What went well?
2. What could we have done differently?
3. What do you need from us for the next session?

Figure 1 Continuing nursing education (CNE) session qualitative and quantitative evaluations.

Abbreviations: AACN, American Association of Critical-Care Nurses; CSI, Clinical Scene Investigator.

Data Collection

These interviews were conducted in one-on-one phone calls with the CNOs of the participating hospitals. The program director facilitated the interviews (the city's faculty lead may also conduct some of the interviews). The interviews were scheduled for 30 minutes, but could be completed in a shorter time.

Interview Questions

1. What do you see as the positive aspects of participating in the AACN CSI Academy?
2. How can we improve this program?
3. Would your hospital participate in another Academy?

Figure 2 Semistructured chief nursing officer (CNO) interviews.

Abbreviations: AACN, American Association of Critical-Care Nurses; CSI, Clinical Scene Investigator.

the CSI faculty conducted a qualitative, open-format feedback session on the last workshop day asking questions about their perspective of professional growth related to participating in the Academy. The 1-year postprogram evaluation also assessed professional

growth. This 1-year postprogram evaluation used a combination of quantitative and qualitative techniques (Figure 3).

In addition to these assessments, a research study was implemented to assess professional growth of the

1. Has your participation in the CSI Academy contributed to your professional growth in any of the following ways?**(Check all that apply):**

- Advanced on clinical ladder
- Joined professional organization
- Prepared for certification/became certified
- Assumed a leadership position
- Returned to school or graduated w/an advanced degree
- Not applicable
- Other

2(a). Since completing the CSI Academy, my level of confidence in leading innovation has:

Increased, Is about the same, Diminished

2(b). Since completing the CSI Academy, my level of collaboration with other health care team members has:

Increased, Is about the same, Diminished

2(c). Since completing the CSI Academy, my ability to influence other health care team members has:

Increased, Is about the same, Diminished

3. Please discuss how participation in the CSI Academy has positively affected your confidence, collaboration, and/or influence in your work setting.**4. Please discuss any challenges you've had since completing the CSI Academy related to your confidence, collaboration, and/or influence in your work setting.****5. Please indicate all mediums or venues where your project was highlighted since your Innovation Conference presentation (check all that apply):**

- Journal article published or submitted for publication
- Other publication (eg, newsletter)
- Podium presentation (within your hospital)
- Podium presentation (outside of your hospital)
- Poster presentation (within your hospital)
- Poster presentation (outside of your hospital)
- Presentation to a nursing or hospital committee (eg, infection control, quality or safety, board of directors)
- Not applicable
- Other

6. Please list the mediums/venues where your project was highlighted.**7. In the year since your Innovation Conference presentation, how much have you been able to sustain your project?**

- Not at all (0% sustained)
- Not much (around 25% sustained)
- Some (around 50% sustained)
- A lot (around 75% sustained)
- A great deal (around 100% sustained)

8. How were you able to sustain your project?**9. After your Innovation Conference presentation, have your project results or outcomes...**

Fluctuated, Stayed about the Same, Worsened

10. How were you able to improve your project results or outcomes?**11. Please discuss any circumstances that may have negatively affected your results.****12. Has anyone contacted you for more information about your CSI Academy project in hopes of implementing a similar project?****(Please select all that apply)**

- Yes, nurses or health care providers from other units
- Yes, nurses or health care providers from other hospitals within system
- Yes, nurses or health care providers from other divisions
- Yes, nurses or health care providers from hospitals outside of system
- Other (Please specify):

13. Please discuss the circumstances surrounding the discussion(s) described in Question 12.**14. Has your project been implemented by other units, divisions, or hospitals within or outside of your system?****(Please select all that apply)**

- Implemented by other unit(s)
- Implemented by other division(s)
- Implemented by other hospitals within system
- Implemented hospital-wide
- Implemented by hospitals outside of system
- Other
- Not applicable
- Unsure

15. Please discuss how your project has been (or is currently being) implemented by other units, divisions, or hospitals within or outside of your system.**16. Have you implemented or helped implement *other* CSI Academy projects (not your own) in any of the following work settings? (Please select all that apply):**

- Your unit
- Your division
- Your hospital system
- Not applicable
- Other (Please specify)

17. Please list the CSI Academy projects other than your own that you implemented or helped implement.**18. Is there anything else you would like to share with us?****Figure 3** One-year post–Clinical Scene Investigator (CSI) program evaluation.

CSI nurses with pre/post measures of empowerment, engagement, and social entrepreneurship. The CSI program staff surveyed nurse participants on the first workshop day (pre) and last workshop day (post) using 3 established instruments: (1) the Conditions of Work Effectiveness Questionnaire-II to measure empowerment; (2) the Oldenburg Burnout Inventory to measure engagement; and (3) the Social Entrepreneurship scale. The University of Missouri Kansas City institutional review board approved the study, and data collection occurred between June 2012 and August 2014.

Laschinger and colleagues¹¹ developed the Conditions of Work Effectiveness Questionnaire-II based on Kanter's model of empowerment.¹² The 19-item tool, answered using a 5-point Likert scale, measures opportunity, information, support, resources, formal power, and informal power. Cronbach α is 0.91.¹³ The 16-item Oldenburg Burnout Inventory measures exhaustion (Cronbach α , 0.74) and disengagement from work (Cronbach α , 0.79) on a 4-point Likert scale.^{14,15} Low scores indicate high engagement. The Social Entrepreneurship scale consists of 3 subscales: innovation, proactiveness, and risk taking. With established validity and reliability, the scale measures the individual's perceptions of the level of social entrepreneurship within his or her organization using a 10-item, 8-point scale.¹⁶

To further assess the effect of the CSI Academy on nurse participants, the coaches completed a summative quantitative and qualitative survey at the end of the 16-month program. The Academy staff wanted to understand the coaches' perspective on the professional growth of the CSI nurses and gather their opinions on the Academy program.

CSI Project Outcomes. Over the 6 cohorts, Academy staff gathered a list of all CSI projects, their focus, and clinical outcomes. As part of their project outcomes, the CSI nurses calculated, as best as possible, an estimated impact to the hospital's financial bottom line. To maintain financial consistency, the AACN CSI program staff developed a standard list of costs per event, based on a literature review of the most common project outcomes. CSI Academy participants based their calculations on their individual hospital's available data, with each project team collecting and analyzing its own institution data to determine patient outcomes and estimated financial impact. Because data availability and access varied among hospitals, some teams had to

identify other sources in order to approximate unavailable records. The hospitals provided support from their own quality departments, data analysts, research personnel, and other professionals to assist the CSIs in data acquisition, data analytics, and patient and estimated fiscal outcome measures.

In addition to tracking project outcomes, Academy staff captured sustainability and scaling of the projects through subjective evaluation from the CSI nurses. Sustainability was defined as the project continuing past the 16 months of the Academy, as assessed at the 1-year postprogram evaluation. Scaling was defined as having the project continue after the 16 months by other units within the hospital or across hospital systems, with or without adaptation, again assessed at the 1-year postprogram evaluation.

CSI faculty created the 1-year postprogram evaluation to assess, albeit in a small way, the CSI nurses' professional growth and development and project dissemination activities, and to gather CSI perspective on the projects' scaling and sustainability (Figure 3). The Academy sent this survey a year after the Innovation Conference and used an online platform.

Regional and National Impact. The fourth evaluation piece assessed the Academy's impact on regional and national awareness and use of the CSI team project information. Individual project information, searchable by clinical outcome and region, is available for public access at the AACN CSI Academy Innovation Database (www.aacn.org/csi). Each project includes a project summary, tools, and the innovation conference slide presentation. Quantitative metrics were assessed by "hits" on the innovation database that were quantified and graphed over time. In addition, Academy staff gathered lists of other CSI programming that occurred at AACN's National Teaching Institute, presentations at regional and national conferences, and publications completed by CSI nurses about their projects. The 1-year postprogram evaluation survey asked the CSIs if their projects were disseminated and in what venue (Figure 3). The survey also asked if the CSI nurses had been contacted for more information about their projects and requested the specific circumstances in which this

Logos, slogans, and visual cues are necessary to create reminders and to brand the initiative.

occurred. The objective of assessing regional and national impact was to generate enough interest in the projects that other nurses would either adopt or adapt the completed projects for their own use.

Analysis

Quantitative analysis was completed using descriptive statistics. Paired *t* tests were completed for the empowerment, engagement, and social entrepreneurship measures using SPSS, version 23. For the qualitative analysis of the CSIs' program evaluation, the semistructured CNO interviews, and the qualitative questions from the coach surveys, qualitative descriptive analysis was completed, and themes emerged from the answers to the structured questions.^{17,18}

Results

The first 6 cohorts consisted of 164 nurses and 43 project teams from 42 hospitals. One hospital had 2 teams of 2 CSIs. The extensive evaluation plan provided a large amount of data affecting just-in-time adjustments to workshop programming. No feedback led to substantially changing the curricular model. Because of the large amount of data, summarized information is presented for some of the evaluation areas.

Continuing Education and Program Satisfaction

The CE learning outcomes and program satisfaction were measured and assessed with each workshop to ensure immediate follow-up for CSI project issues and to readjust workshop programming. The overall program evaluations were overwhelmingly positive, with few suggestions for improvement from one workshop to the next. These suggestions were treated as just-in-time feedback, changing programming as needed. Summaries of aggregated data from the session evaluations (both quantitative and qualitative), end-of-program qualitative evaluation, and CNO semistructured interview were as follows:

- More than 90% of nurses gave highly positive responses on session evaluations.
- A theme of the qualitative program evaluation was CSI nurses appreciated the collaborative nature of the program and hearing from nurses across the region.
- From the semistructured interviews, all CNOs said they would participate in the program again.

Table 3 Qualitative descriptive themes of program evaluation by key stakeholder

Stakeholder	Themes
CSI nurses	Improved feelings of empowerment Gained influencing and persuasion abilities Gained leadership skills and project implementation tools Appreciated collaboration and networking opportunities with CSI participants from other hospitals in their cohort
Coaches	Gained leadership and quality improvement skills Acquired, applied, and shared knowledge Gained confidence and empowerment Experienced personal and professional growth
CNOs	Increased staff engagement, empowerment, and excitement Professional development of CSI nurses Increased collaboration and networking among CSI nurses

Abbreviations: CNO, chief nursing officer; CSI, Clinical Scene Investigator.

Professional Growth and Development of CSI Nurses

With the qualitative evaluation completed at the end of the program, more than 90% of the CSIs responded that they gained leadership skills, specifically influencing clinical processes. In addition, more than 90% of the coaches agreed the program helped nurses develop leadership skills and confidence. Table 3 presents qualitative themes from CSIs, coaches, and CNOs, showing global improvement in the nurses' feelings of empowerment, improved collaboration, and marked assessment of building skills.

Table 4 presents the analysis of the measurements of empowerment, engagement, disengagement, and social entrepreneurship (and subsequent subscales) completed during the first (pretest) and last workshop (posttest) sessions. Findings revealed a statistically significant difference for structural empowerment ($P = .016$), with participants reporting a higher perception of empowerment after completing the program. Other scores were not statistically significant.

One-Year Postprogram Evaluation

The 1-year postprogram evaluation was sent to all 164 CSIs, with 40 returning the survey (response rate of 24%). For the 6 cohorts, the response rates ranged from 7% to 32%.

Table 4 CSI nurse before and after matched-pairs results

Subscales by instrument	n	Pretest mean	Posttest mean	P	Desired direction
Empowerment (CWEQ II)	49	20.76	21.83	.016 ^a	High score
Exhaustion (OLBI)	50	2.54	2.46	.213	Low score
Disengagement (OLBI)	51	2.13	2.12	.780	Low score
Social entrepreneurship (SE)	42	5.32	5.42	.571	High score

Abbreviations: CSI, Clinical Scene Investigator; CWEQ-II, Conditions of Work Effectiveness Questionnaire-II; OLBI, Oldenburg Burnout Inventory; SE, Social Entrepreneurship Scale.

^a Statistically significant at .05.

Twenty-eight of the 40 respondents (70%) thought participation in the program had contributed to their professional growth in some form (Table 5). Nurses answering “other” forms of professional growth noted maintaining their clinical ladder level, presenting national conferences, becoming generally more involved in their work, or applying to a graduate school. The survey also asked about levels of collaboration and confidence and the ability to influence. Most reported that since completing the program, they noted higher levels of confidence in leading innovation and collaborating with other health care team members, and an improved ability to influence other team members (Figure 4).

To obtain additional context to interpret quantitative responses, nurses were asked for qualitative feedback about how participation in the AACN CSI Academy positively affected their collaboration, confidence, and ability to influence others. Synthesis of qualitative data revealed a heightened sense of empowerment. One nurse noted that participation in the program reinforced that “nursing is a team sport.” Another theme that emerged was that nurses earned respect and admiration from peers and managers as a result of their projects. Peers sought them out as expert resources. An additional theme was that public speaking, including presentations, in the hospital and at national conferences helped to increase their reported level of professional confidence.

Project Outcomes

Table 6 presents the types and frequency of projects that were undertaken by the CSI groups. Table 7 presents a sample of the clinical outcomes in each region, along with each cohort’s combined estimated annualized financial impact. The impact on patient outcomes could be attributed to other environmental factors and not solely to an AACN CSI Academy project, and the

Table 5 Clinical Scene Investigator (CSI) Academy participation and professional growth

Has your participation in the CSI Academy contributed to your professional growth in any of the following ways? ^a	No. (%) ^b
Advanced on the clinical ladder	18 (45)
Joined professional organization	11 (28)
Prepared for certification/became certified	8 (20)
Assumed a leadership position	8 (20)
Returned to school or graduated with an advanced degree	6 (15)
Other	9 (23)

^a Participants may select more than 1 answer.

^b From 1 year after evaluation survey; 164 CSIs with a 24% response rate (n = 40).

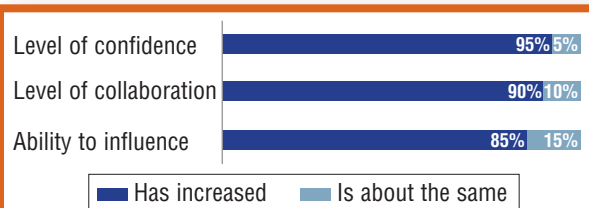


Figure 4 Results after completing the Clinical Scene Investigator Academy.

estimated fiscal impact of each project was based on generalized financial data noted in the literature. Each hospital owns the pre/post data about patient outcomes, process work, and estimated fiscal impact. Several CSIs have published their specific CSI project outcomes or their experiences and knowledge gained from the CSI Academy.¹⁹⁻²⁸

Sustainability and Scaling

The 1-year postprogram evaluation examined sustainability and scaling. Respondents rated 10% of the projects as “a great deal” sustained, with 48% reporting

Table 6 CSI projects by type

Project type	Total (n)
Increased early mobility	9
Prevention of delirium	7
Prevention of pressure ulcers	7
Improved communication	4
Prevention of CAUTIs	4
Improved patient handoffs	2
Noise reduction	2
Prevention of CLABSIs	2
Prevention of falls	2
Decreased SICU readmissions	1
Reducing delirium with patients admitted for acute alcohol ingestion	1
Prevention of ventilator-associated pneumonia	1
Primary nursing and nurse satisfaction	1

Abbreviations: CAUTI, catheter-associated urinary tract infection; CLABSI, central line-associated blood stream infection; CSI, Clinical Scene Investigator; SICU, surgical intensive care unit.

them as “a lot” sustained and 28% as “somewhat” sustained. Fewer individuals reported “not much” (13%) or “not at all” (3%) sustained.

Participating nurses cited continuous education and reeducation of new and seasoned peers as the most common ways for sustaining the projects. Some posted best-practice models and their unit’s current infection rate or celebrated favorable project outcomes. Others made presentations, facilitated peer buy-in of project goals, maintained project teams or created new ones, and extended projects across the entire hospital or health system.

Nurses also reported changes in project outcomes. From the end of project completion, 40% said the results fluctuated, with 28% reporting improved outcomes and the same number reporting no change. Only 2 reported worse outcomes after the project ended.

Regional and National Impact

The AACN CSI Academy sought to expand the reach of the original Kansas City pilot project, so the projects developed through the program could become more widely available. In the 1-year postprogram evaluation, 80% of reporting nurses were contacted for project information, mostly by nurses and health care providers in other units, but also by audience members after presentations. Nurses reported being asked for consultation, which included helping with hospital- and system-wide project expansion. More than half (53%) said their

Table 7 Summary of clinical and estimated fiscal outcomes by cohort

Region	Selected clinical outcomes	Annual estimated fiscal impact, \$
Indianapolis	Decreased falls Decreased ICU length of stay Decreased pressure ulcers	7 105 011
Raleigh/Durham/Chapel Hill	Decreased hospital length of stay Decreased CAUTIs Decreased ventilator days	5 066 854
Boston	Reduced percentage of CAM-ICU positive scores Decreased pressure ulcers Reduced communication incident reports	7 990 194
Austin	Decreased CLABSIs Decreased falls Decreased noise levels	1 024 628
Philadelphia	Decreased hospital length of stay Decreased pressure ulcers Decreased the average ICU readmission length of stay	2 725 437
New York City	Decreased CAUTIs Decreased CLABSIs Decreased ventilator days	4 465 954
Total annual estimated fiscal impact for 43 teams in 6 cohorts		28 378 078

Abbreviations: CAM-ICU, Confusion Assessment Method in the ICU; CAUTI, catheter-associated urinary tract infection; CLABSI, central line-associated bloodstream infection; ICU, intensive care unit.

projects were implemented in other areas, most often in other units, but also in other hospitals.

The AACN CSI Academy Innovation Database received 9197 unique visitors between November 2013 and January 2016, with 25 828 unique project material downloads. Promotional activities, such as email blasts, speaking engagements, media releases, and webinars, increased visits and downloads. Mobility, pressure ulcer prevention, and communication with patients and family were the 3 clinical issues most often downloaded.

Dissemination

Ongoing communication with program participants and hospital leaders pointed to the potential of replicating and disseminating successful projects to other clinical units and institutions, as units experiencing the same clinical problem sought out the nurses as change advisors. They were often asked to speak to unit councils and QI committees.

Program nurses have published their projects and shared best practices in hospital-based, local, and national podium and poster presentations, abstracts, and webinars.¹⁹⁻²⁸ Venues have included the AACN National Teaching Institute & Critical Care Exposition, the Society of Critical Care Medicine Congress, the Institute for Healthcare Improvement annual conference, and the American Organization of Nurse Executives annual conference. Local print and broadcast media also picked up success stories, and creative solutions have been uploaded to YouTube.^{19,21,25,27,29-31} One CSI nurse participated in the Nurses in Washington Institute, which is a program that provides nurses with an opportunity to learn advocacy strategies to further professional nursing and health care concerns through the legislative and regulatory processes. The CSI nurse met with a staffer for her house representative and 2 senators. She spoke to them about her personal experience with the AACN CSI Academy and how her team was able to improve patient and fiscal outcomes. The CSI nurse emphasized the change in practice that occurred as a result of program participation and the importance of funding Title VIII Nursing Workforce Development Programs, National Institute of Nursing Research, Title VIII Nursing Workforce Reauthorization Act, and Veterans Health Care Staffing Improvement Act to allow other nurses to also bring about change.

Discussion

The positive outcomes of the AACN CSI Academy's leadership initiative indicate that, when given the tools, competencies, resources, and time, staff nurses can positively impact patient outcomes and a hospital's financial health. Improved patient outcomes cannot be attributed solely to the program's projects. However, the change actions and targeted approaches boost the program's impact.

During the first workshop, participants often said they lacked the confidence to tackle an improvement project and create the environmental change necessary for success. Over 16 months, the nurses reported their own personal and professional growth. The pre-post paired *t* tests measured this transformation, reflecting the program's effect on feelings of empowerment which, as described above, was considerable. In addition, CNOs reported professional growth as a positive aspect of participation in the AACN CSI Academy. The CNOs noted that nurse involvement favorably influenced confidence, collaboration skills, and the ability to influence other team members. In addition, they thought nurses who went through the CSI Academy learning experience were better equipped to handle challenges in the work setting.

The CSIs' efforts to reduce hospital-acquired conditions, such as falls, pressure ulcers, catheter-associated urinary tract infections, and central catheter-associated bloodstream infections, are clinically important and support nurses' ethical obligation to ensure quality care and improve

The success supports reports from other initiatives that

Enabling nurses to lead change requires times and resources to equip them with the necessary knowledge, skills, and abilities.

engaged staff nurses in improvement projects that resulted in positive patient, nurse, and organizational outcomes, including decreased nurse stress and increased communication and collaboration.^{2,32}

The AACN CSI Academy incorporated innovative curricular content to support the sustainability of project results over time. In the 1-year postprogram evaluation, more than half of respondents reported project results were fully sustained a year after completion. An additional 28% said their project results were somewhat sustained.

Ensuring change persists is never easy. Assuring staff nurses help design and implement the change may contribute to sustainability.³³ Infrastructure changes are also vital. Attitudes and culture need to change, and these aspects take more time to take effect. Ongoing education related to the changed practice is an iterative mechanism that requires “redosing” to sustain motivation and knowledge. Formal and informal nurse leaders are influential in reinforcing change until processes, attitudes, and behaviors can become socialized into sustained new practice.^{33,34}

Recognizing the connection between effective nursing care and prevention of hospital-acquired conditions supports the business case that nurses can improve hospital financial outcomes.³⁵ The estimated annual financial impact in excess of \$28 million by 43 AACN CSI Academy project teams lends support to the financial impact of nurse-led improvement projects and spotlights the contribution staff nurses can make to a hospital’s bottom line.

Evidence derived from empowerment theories suggested that organizations can create structures that support individual nurses to feel empowered and have autonomy and control over their practice.^{11,12,36-38} The AACN CSI Academy and participating hospitals provided these structures based on evidence that structural and psychological empowerment boosts job satisfaction and decreases job strain.³⁸

This type of staff empowerment to lead planning efforts that improve clinical outcomes has not become the industry standard, although it is required for successful implementation.³⁹ Top-performing hospitals believe excellent process and patient outcomes are driven by engaged employees with input from frontline staff.⁴⁰ These hospitals distinguish themselves by training clinical staff in QI and process improvement methods. They expect staff nurses to solve quality problems as part of their job. Hospital leaders consistently communicate and reinforce a culture of excellence by offering meaningful opportunities for frontline staff to improve the care they provide.

Hospitals seeking healthy patients and bottom lines would do well to harness this untapped potential. In turn, staff nurses seeking to improve quality of care should become what Omery⁴¹ calls bilingual—conversant in QI, professional practice, and business models. Continued improvement of nurses’ financial acumen is vital to leverage this untapped contribution.

Enabling nurses to lead change requires time and resources to equip them with the necessary knowledge, skills, and abilities. Participating hospitals provided opportunities and support for program participants to acquire these qualities. Together, the Academy and the hospitals addressed 2 recommendations from the National Academy of Medicine’s (formerly the Institute of Medicine) Future of Nursing report.⁴² Recommendation 2 seeks to expand opportunities for nurses to lead and participate in collaborative improvement efforts. Recommendation 7 seeks to prepare and enable nurses to lead change to advance health.

Limitations

This evaluation of the AACN CSI Academy has several limitations. Hospital CSI teams were responsible for their own project data collection, and sometimes data were unavailable to the teams. In such cases, the nurses’ ability to demonstrate their impact may have been limited. The program was completed after 16 months, and several of the participants were lost to follow-up. The 1-year postprogram evaluation had a low response rate of only 24%. A higher response rate would have strengthened the evaluation of the primary goal—nurse leadership growth and development—as well as the assessment of the sustainability and scaling of the projects.

Conclusions

Because of their proximity to the point of care, staff nurses are familiar with barriers to positive patient outcomes and are uniquely able to identify ways of overcoming them. In collaboration with participating hospitals, the AACN CSI Academy provided the resources, time, support, and skill acquisition for staff nurses that resulted in immediate leadership skills application through change projects aimed to bring about positive patient outcomes. The program challenged traditional views of so-called nonproductive time by showing that carefully managed time away from direct care responsibilities can lead to transformative innovation. **CCN**

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