Role of the External Coach in Advancing Research Translation in Hospital-Based Performance Improvement

Nancy Donaldson, RN, DNSc, FAAN; Dana Rutledge, RN, PhD; Kristin Geiser, PhD

Abstract

The California Nursing Outcomes Coalition (CalNOC) Partners for Quality (PFQ) to Reduce Patient Falls Project aimed to reduce the incidence of patient falls and the severity of fall-related injury in 33 California acute care hospitals. The project used an innovative telephone-based coaching intervention to link project coaches with hospital "team leaders," who confronted challenges of changing falls-related practice. CalNOC's prior experience affirmed reports that education alone catalyzes interest and perhaps fosters awareness of new practices, but it does not ultimately change behavior. The coaching intervention—multifaceted and involving local leaders—included specific consensus-building, interactive sessions, and guided practice. Coaches initiated and sustained contact with hospitals for nearly 3 years. In this paper, we describe the operationalization and challenges of the coaching intervention, from pre-engagement through closure phases. We also discuss strategies for extracting themes from the coaching process, feedback from participating hospitals, and results from self-assessments of participating hospitals describing the impact of the intervention on fall-related policies and clinician practices.

Introduction

The primary aim of the California Nursing Outcomes Coalition Partners for Quality to Reduce Patient Falls Project (CalNOC PFQ) was to reduce the incidence of patient falls and the severity of fall-related injuries through expediting evidence-based performance improvement. The study involved a convenience sample of 77 medical-surgical units drawn from 33 CalNOC member acute care hospitals. CalNOC's experience prior to this project supported the findings of a systematic review suggesting that education alone catalyzes interest and perhaps fosters awareness of and knowledge about new practices, but it does not typically change practice with sufficient strength to affect outcomes.[1]

Scholars in various disciplines have documented the complexity of effecting organizational change.[2, 3, 4, 5, 6] The change process is further complicated when individuals within the organization—the very people charged with making the change happen—are professionals whose practice is informed by research knowledge and practice-based or clinical knowledge.

Innovative ideas, groundbreaking practices, and new policies are implemented at the local level by clinicians, who must evaluate, adapt, and implement recommendations. As we looked at this process of translating research into practice through the lens of reducing patient falls, we found great variation in the degree to which practicing nurses adopted and implemented evidence-based practices that had been found to prevent or reduce patient falls.

The CalNOC PFQ coaching intervention was grounded in the premise that effective interventions—those that promote actual change in clinical behavior and codified practices (i.e., policies, procedures and protocols)—are multifaceted, involve local leadership, require consensus building, and benefit from interactive sessions with new knowledge, resources, and guided practice.[7, 8, 9, 10] The principal elements of the coaching intervention used by the CalNOC PFQ team have been successfully used in catalyzing organizational and practitioner change in the field of education.[11]

The CalNOC PFQ Project was informed by health services research and shaped by hospital-specific data related to falls and a detailed self-assessment. The project used an innovative telephone-based coaching intervention, sustained for nearly 3 years, to link project coaches with hospital "team leaders" who were confronting the challenge of changing falls-related practice or policy at the organizational level and implementing/setting specific new clinician practices. An important component of the intervention was having a coach facilitator serving as a coach to the project coaching team, a role found to be lacking in some educational coaching interventions.[12]

In this paper, we describe the operationalization of the coaching intervention, challenges to the delivery of this intervention, strategies for extracting themes and patterns from the coaching process, and an approach to documenting and tracing the content of coaching contacts. Formative and summative feedback from participating hospitals is discussed, along with the impact of the intervention on fall policies, practices, and outcomes.

Background on Coaching

The CalNOC PFQ Project began its coaching intervention by approaching each hospital in a systematic, somewhat standardized, yet highly individualized way. From the outset we acknowledged and recognized the following:

> *"Whatever strategies or practices may be used, they must be implemented, and implementation requires adaptation of a strategy or practice within the local context of a school [hospital]. Contexts vary greatly from one [setting] to another; they also change within the same [setting] over time. Furthermore, implementation follows a nonlinear path—a path that does not lend itself to be sufficiently captured in any one "model" for improvement. Therein lays the challenge. Implementation is a nonlinear process that is highly context-specific; therefore, it requires the authentic participation of those who know the context best."* [11]

In preparation for launching the coaching intervention, the investigative team confronted key questions at the heart of the coaching role effectiveness, which included:

- How is authentic participation best supported and guided?
- How can implementation of new practices be supported?
- What are the key obstacles to successful adaptation and implementation?
- How can these obstacles be avoided or effectively addressed?
- Finally, and perhaps most importantly to the project's aims, in the midst of such a nonlinear process of improvement, how can an organization make steady and even accelerated progress and improve outcomes?

In the field of education, scholars and school-change experts have found that practitioners tend to engage in deep, sustained, technical, and normative change when they are in a relationship with a knowledgeable guide or coach. We began our coaching intervention in anticipation that the experience gleaned from education would be relevant to our efforts in health care. Furthermore, we posited that the explicit role of the coach working in collaboration with a designated hospital staff person, literally linking clinicians in that setting with the project team, was consistent with and operationalizing Havelock's Linkage Model, our conceptual perspective.[13]

What Is the Role of a Coach in the Context of Change?

In the field of education, coaching is effective, not only for facilitating changes in practice, but also for building individual and organizational capacity for continuous improvement. The commitment and capacity (i.e., knowledge, skills, habits) required to change practice are effectively supported by a coach. Likewise, the commitment and capacity (i.e., processes, systems, norms) required for an organization (e.g., team, unit, floor, hospital) to change are greatly enhanced through coaching support. What, then, is the role of the coach in the context of change?

In both education and nursing, coaches can help organizations navigate effectively through the complex process of change by addressing key elements of the change process, including, but not limited to:

- Obtaining buy-in for change efforts, including data collection and analysis that help identify goals and priorities.
- Ensuring systematic and detailed planning.
- Accessing support and ongoing professional development.
- Adapting new practices in the local context.
- Evaluating goals and the implementation process to inform next steps, paying particular attention to indicators of positive fall prevention efforts.
- Cycling back continuously to each element, maintaining thoughtful focus on each discrete element and the interconnectedness among the various elements.[11]

This is not a sequential list of steps that the coach facilitates; rather, they are touchpoints that coaches can address as they build the capacity of the organization to engage in continuous learning and improvement. With the expertise and objectivity of an "outside" consultant—but with an understanding of the site's culture, history, and vision characteristic of an "inside" leader and advocate—coaches are well-positioned as "insider/outsiders" to help the organization

address tensions that, in many change processes, can erode or derail the change process. For example, coaches help sites (1) maintain focus and be adaptable and responsive, (2) achieve clarity and tolerate confusion, (3) understand reality and imagine other possibilities, and (4) think systemically and act specifically.[11]

While coaches may at times provide instruction or training (e.g., in data analysis, goal setting, evaluation/measurement), they do not direct or instruct their sites as consultants might. Instead, coaches bring more of a mentoring, or guiding, presence by:[11, 14, 15]

- Asking questions, e.g., "How might you…?" "What evidence do you have that…?"
- Brokering resources and relationships, e.g., "I know of a site that worked with that evaluation software last year. Let me put you in touch with them directly to see if they could guide you in implementing it at your site."
- Developing the commitment and capacity of a core leadership team within the site, e.g., linkers and linker teams.
- Observing, listening, inquiring, and reflecting upon local processes in the context of larger efforts aimed specifically at improving the overall quality of patient care and reducing patient falls.
- Optimally, posing thought-provoking comments and questions that bring out the positive qualities in site personnel and organizations and ultimately deepening or accelerating the change process.

Project Conceptual Approach and Design

Conceptual Perspectives Guiding Project Methods

As noted above, the CalNOC PFQ Project coaching intervention was grounded in Havelock's principles of reciprocal communication[13] and guided by Rogers' concepts of organizational, work unit, and individual innovation adoption and diffusion processes.[16]

Havelock's Linkage Model posits reciprocal and interdependent relationships between the knowledge generation subsystem and the knowledge user subsystem, with human "linkers" playing a key role in transmitting new knowledge and in enabling feedback.[13] The model assumes that knowledge diffusion and utilization are fundamentally acts of communication between resource systems producing new knowledge and systems that apply and use knowledge to attain societal goals (e.g., health care). Human "linkers" literally connect the resource and user systems, facilitating communication and feedback, thus making collaboration to accomplish the transfer and use of research possible. Our project highlighted communication by envisioning the project team as a "source of knowledge," with individual coaches as representatives, by identifying "linkers" for each hospital site and by providing hospital "users" with assistance in accessing/synthesizing research-based evidence to support specific fall-reduction efforts.

Although Havelock's linkage concept is invaluable in explaining reciprocal relationships between knowledge producers and knowledge users in health care practice, Rogers' theorizing

relates to how practice change (i.e., innovation) diffuses or spreads. Rogers[16] posits stages in the processes that make up individual and organizational adoption of innovations.

At the organizational level, the organizational innovation process comprises five stages:[16] (1) agenda setting, (2) matching, (3) redefining/restructuring, (4) clarifying, and (5) routing. Affirming the organization's commitment to change emerges from agenda setting efforts and launches the next steps to refine the match between the organization's need and the target innovation. At the heart of innovation adoption is a concurrent process of sequential decisionmaking that culminates in a commitment to implementation of the change.

This five-stage process is the "Innovation-Decision Process"[16] and includes the following phases: (1) knowledge acquisition, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation. The challenge of interventions geared toward translating research into practice arises from the tough reality of moving through the phases of innovation decisionmaking within and between organizational, work unit, and individual levels.

Guided by Rogers' conceptualizations of these processes that culminate in successful diffusion of innovations, we aligned our coaches' approach with phases of the innovation decision processes. The content and tactics of coaching intervention were intentionally contingent on the needs of the organization and the medical-surgical patient care units working through the processes of fall-related innovation implementation unique to each setting.

Design and Implementation of the Coaching Intervention

In our project, the coaching intervention was designed principally as a telephone-based contact between one coach and the linker(s) assigned to the project, about 30 to 60 minutes in length at 3 to 6 week intervals, with the option for one or more site visits or multi-site conference calls. Coaches' actions included:

- **Monitoring:** Activity focused on tracking the status of target milestones; includes listening, assessing progress, eliciting feedback, and guiding discussion to clarify.
- **Providing information:** Knowledge is exchanged.
- **Providing support**: Mutual sharing; includes active listening, being a sounding board, and validating and highlighting common experiences across sites; also, anticipatory guidance.
- **Identifying action/prescription:** Identification of activities to be done; includes planning assistance; clarifying next steps; identifying stakeholders; interpreting/reframing organizational responses, challenges, and barriers; and articulating mutually agreed upon tasks.
- **Providing referral:** The process of connecting linkers/hospitals, who have needs with someone or something with the knowledge; includes connecting people to people and people to information (e.g., publications, Web sites).
- **Identifying resources:** Assistance in the form of individuals, information, and energy; identification of resources needed for "next steps" in advancing the improvement plan.

Recruiting Coaches – Characteristics of the Coaching Team

Prior to initiating coaching contact with linkers in hospital sites, the project team developed a role description for a project coach that clarified availability (hours/month; number of site visits/month), explicated principles of honesty and boundary setting, highlighted the importance of being able to deal with ambiguity, and outlined some of the content and skill areas that were desirable. The coaching team included six registered nurses with specialized knowledge and skills related to research utilization, evidence-based practice, nursing services administration, and fall prevention strategies. Three coaches were doctorally prepared, and three were masters prepared, including a gerontology clinical nurse specialist. Coaches brought a wealth of insight, expertise, and a strong commitment to their role, which was considered key to the authenticity of their relationship with hospital linkers. Eligible hospitals (N = 33) were distributed among coaches to address site mix (small, large, community, academic) and to cluster sites geographically. The coaching team remained stable throughout the project, with the exception of one coach, a doctoral student, who ended his role with the project after completing his doctorate. His three hospitals were reassigned to other members of the coaching team.

Coaching Role Clarification

At the beginning of the intervention phase of the project, coaches met several times with the seasoned coach facilitator—an educator—to discuss the coaching role. In order to differentiate the coaching role from more familiar consulting and mentoring roles, the following key points were stressed:

- The length of a coach's relationship is usually longer than that of a consultant.
- The scope of a coach's work is customized to a specific hospital culture and focuses on specific targeted areas of priority work. The coach always moves between the specific and the systemic, keeping the big picture in mind. In contrast, consultants tend to focus on the big picture or targeted areas of work, without the back-and-forth thinking.
- Coaches leverage site expertise to actualize improvement, whereas consulting often presumes that the consultant has the expertise to achieve the desired improvements.
- Coaches are interested in building site capacity to: (1) accelerate change/improvement (e.g., sites should reduce falls more significantly and more quickly than if the coach had not been involved) and (2) sustain improvements that continue after the coach is gone (i.e., coaches should try to work themselves out of a job). Building capacity may include the "brokering" of services, such as connecting sites with resources (e.g., people, literature, data). Compared with coaches, consultants may focus more on (1) than on (2).
- Coaches understand that context mediates the change/improvement process. In light of this, coaches do not come with a predetermined approach to the work. Rather, they bring project goals and objectives along with a repertoire of process skills, content knowledge, and relationships from which to draw to support, challenge, and guide the site's efforts to reduce falls. In comparison, consultants might bring a more specific "model" that might not take into account the unique context of the hospital.
- Mentors usually reside within the same organization as the person being mentored. On the other hand, coaches more often than not are external to the organization. However, there can

be internal coaches. The approach each coach takes differs in relation to the person being coached. Individuals engaged in coaching or mentoring relationships understand the unique support and assistance that each provides.

The coach facilitator was engaged as a "coach" to the coaching team throughout the project, regularly participating in team conference calls.

The Linker Role

Linkers for each hospital were designated by the hospital's chief nurse officer (CNO). The nurse executives were asked to select nurses with specific characteristics when designating linkers. Preferred qualifications included an advanced practice role with at least a baccalaureate degree and multiple years of clinical experience. Additional linker characteristics suggested to CNOs included:

- Interest in fall prevention and reducing fall-related injuries.
- "Systems savvy," i.e., experience and knowledge with making things happen within a nursing service organization.
- Credibility with staff and leadership.
- Support on immediate unit or work area.
- Ability to champion a cause and motivate others in championing a cause.
- Experience with making changes that lead to improvements, with evidence-based practice, or with implementing research-based changes.
- Familiarity with stakeholders for a fall prevention program.
- Ability to develop relationships among multidisciplinary stakeholders.
- Ability to develop, modify, and implement a plan among different stakeholders.

While our project team was able to guide hospitals in selecting certain types of linkers, we ultimately did not determine their selection. All but one linker were nurses. While most hospitals selected a single linker, about one-third of the hospitals chose to use a linker team with two or more staff.

Phases of the Coaching Intervention

Phase 1: Pre-Engagement – 60 Days

The target objectives were refined by the coaching team. Prerequisite "enabling aims" were made for each target outcome objective, providing direction for coach actions. To provide a common language to describe coaching actions, a worksheet served as a documentation/ communication tool that captured the "content" of each coaching interaction. The content was framed in the target objectives, highlighting coach actions.

Phase 2: Site Entry and Planning – 120 Days

During the orientation period, coaches focused on building rapport with linkers and establishing a plan for ongoing telephone-based collaboration. In each contact, coaches informally assessed site capacity for evidence-based practice and fall prevention/assessment experience and practice. Coaches also established preliminary agreement with linkers related to their ongoing relationships, clarifying the relevance and appropriateness of target outcomes and the way this project fit into the site's strategic priorities. Based on self-assessment and review of detailed CalNOC falls data from each hospital, site-specific plans for improvement were developed by linkers and their teams with the support of the coach.

Phase 3: Doing the Work of Performance Improvement and Change – 24 Months

For most of the project, coaches worked with hospital sites to achieve site-specific performance improvement objectives. Guided by the focused plan for falls-related change, preliminary communication planning was refined and expanded to focus on the following:

- How the linker communicated with unit staff.
- How the linker, coach, and staff communicated with site leadership.
- How coaches and CalNOC leadership communicated with CNOs for participating hospitals.

All communications aimed at optimizing the work of the CalNOC Partners for Quality Project. The number of telephone calls and visits varied according to different coach assignments (e.g., one coach carried half of the sites), site needs, and linker availability. No interactions involved actual observation of practice.

As sites developed and implemented their plans for change and performance improvement, coaches worked with linkers to clarify outcome measures with the site and to identify resources necessary to attain goals and address emerging barriers to progress.

An ongoing focus for coaches and linkers was to develop site-team capacity to fully use site-specific CalNOC data as a source of evidence for identifying priorities for change and for evaluating progress. Throughout this phase, coaches sought to understand site priorities (goals/ strategic plans) and pressures (external/internal) to help align this project within the context of overall organizational priorities. Ultimately, this maximized the strategic value of the work.

At the same time, coaches were doing some of their own role-development work with CalNOC. This included the following activities:

- Advocating for site resource needs (e.g., various query reports using CalNOC data).
- Experiencing professional development: "Coaching the coach."
- Receiving feedback from CalNOC's evaluation of and reflections on coaching.
- Developing and using consistent documentation methods for site experience.

Phase 4: Phasing Out – 6 to 9 Months

During the final phase of the coaching intervention, coaches initiated anticipatory plans for ending the coaching contacts and assessing the impact of the project. During this phase, coaches and linkers considered the site's capacity to maintain data collection and analysis (i.e., making sense of the data and using it to inform practice). This involved activities such as tying reduced falls to job evaluations (accountability tied to outcomes) or linking data collection and analysis to dissemination and use with nurses on site, which in turn was tied to a reduction in patient falls. Coaches worked with sites to complete self-assessment surveys and to plan subsequent steps in sustaining the work and the changes achieved. Linkers and their CNOs were formally thanked for their commitment and contributions to the project. Preliminary outcomes were shared in formal and informal conferences/meetings.

The Reciprocal Roles of the Coach and Linker: Conceptual Foci and Deliverables

Table 1 presents an overview of the phases of the coaching interventions that link the activities of the coach with the conceptual approach, highlighting the reciprocal activities of linkers and hospitals sites and related mutual deliverables. As previously noted, the systematic approach to coaching reveals a high degree of site-specific customization and individualized strategic self-direction.

Outcomes of the Coaching Intervention

Upon completion of the coaching intervention, the overall project goal was that each hospital would reduce the incidence of patient falls and fall-related injuries on target medical and surgical units by improving its capacity to:

- Use data for performance improvement.
- Use reliable and valid risk screening and assessment.
- Implement individualized interventions to prevent falls/reduce injury.
- Effectively document and communicate, engaging staff, patient, and family members in preventing falls and fall-related injuries.
- Engage the hospital organization in a systematic improvement effort related to falls.

Tracing the Content and Activities of Coaches in Action

Throughout the coaching intervention, the content of site contacts—principally telephone contacts—was captured using Coaching Intervention Documentation Worksheets. Selected site visits did not differ substantively from telephone contacts and typically were used to "kick off" work or inspire teams by engaging them in face-to-face contact with the coach. Notes from the Documentation Worksheets enabled coaches to record content foci and key actions (described elsewhere in this paper) emerging from contacts with sites. In addition, "field notes" of conversations related to fall prevention efforts, issues, challenges, and concerns were recorded. These recordings helped coaches anticipate the foci and plan for next contacts.

Table 1. Key elements of the CalNOC coaching intervention to reduce patient falls

Phase 1:			
Conceptual foci	**Coaching intervention**	**Reciprocal site activities**	**Deliverables**
Catalyzed awareness of potential for improvement and establish preliminary organizational commitment	Engage sites in strategic vision of improvement potential related to falls/ fall prevention	Affirm preliminary interest	Site confirmation(s) of commitment
Identify designated site "linker(s)"	Develop linker network	Designate key clinical opinion leader as "linker"	Linker roster and active network – conference calls
Focus organizational self-assessment; determine capacity for change	Collaborate with linkers and CNOs to conduct organizational self-assessment	Conduct organizational self-assessment	Analysis and validation of organizational self-assessment findings
Linker role development	Engage linkers in systematic education and coaching, self-directed study, supportive coaching	Linkers actively participate in ongoing role development	Linker role development with observable evidence of role implementation
Organization-specific self-query re: falls data integrity, practice consistency, and implications for improvement vis-à-vis literature and litigation	Identify elements of database self-query and coach linkers in data capture, descriptive analysis, and implications	Conduct, analyze and synthesize self-query as basis for mounting systematic improvement effort	Self-query initiated
Organizational capacity development	Provide expert assistance and referrals to build organizational capacity for data-driven improvement project to reduce falls	Site-specific activities are reported that reflect capacity development efforts based on self-assessment findings	Capacity development tactics are reported and shared across sites
Linkers engage a site specific team in falls-improvement effort	Coach linkers within context of their setting quality improvement model, stakeholders, and infrastructure; coach evolving project management	Site-specific teams mobilized with organizational buy-in; confirm project management roles and resources	Site-specific teams identified and activated

Table 1. Key elements of the CalNOC coaching intervention to reduce patient falls (continued)

Phases 2 – 4			
Conceptual foci	**Coaching intervention**	**Reciprocal site activities**	**Deliverables**
Knowledge synthesis	Provide linkers with general literature/references re: falls risk assessment and interventions; key indicators for falls quality monitoring and benchmarks.	Site teams review, translate, and adapt literature; critique current practices and integrate potential innovations into a "pilot" evaluation; build consensus	Knowledge synthesis products for Web-based delivery; knowledge access tactics observed.
Strategic planning for practice change	Coach linkers in developing systematic strategic plans for implementing and evaluating selected practice changes	Linkers and teams develop systematic strategic plans	Strategic plans documented and strategies shared among sites
Knowledge transfer	Coach linkers in process of research use, translation, and local adaptation	Linkers and teams engage in research; use processes and local adaptation; preliminary adoption of selected practice changes.	Research use tactics documented and shared among sites
Practice change implementation and evaluation	Coach linkers in implementing and evaluating preliminary practice changes	Linkers and teams implement and evaluate preliminary practice changes; refine plans as needed	Changes are documented and preliminary evaluation data analyzed and reported
Analyze results of preliminary change; refine plan or decide abandon strategy	Monitor/review results of work-in-progress; celebrate successes; and coach in revising plans, interpreting results and options for next steps; provide technical assistance as needed	Sustain implementation and evaluation; maintain gains; refine strategies; celebrate; provide qualitative data to aid in formative evaluation of project processes, tactics, and effectiveness.	Measurable results
Sustain validated improvements	Monitor organizational change over time; analyze falls risk assessment, incidence, and injury trends per unit per site using CalNOC data; feedback with reports, project conferences	Ongoing CalNOC data collection; sustained change; check inter-clinician reliability in adopting practice change(s)	Evidence of improved falls prevention; conferences reach target audiences, provide preliminary reports to sites and stakeholders

Descriptive analysis of the Coaching Documentation Worksheets for year 1 reveals that all topics were discussed across multiple contacts. Listed below are the topics and percent of times each was documented:

- Use of falls data 79-85 percent
- Risk assessment validity/reliability 63-81 percent
- Fall prevention interventions 5-71 percent
- Engagement of staff, patient/family in change 44-69 percent
- Engagement of organization in performance improvement 8-63 percent

Challenges Faced by Coaches

Coaches faced a number of challenges to the effectiveness and impact of the intervention. First, challenges arising from the linker role included turnover, inability to focus on falls due to competing demands, perceived lack of support from organizations, lack of time, and difficulty sustaining contact with coaches. These challenges across sites and coaches resulted in difficulty establishing and sustaining "traction" in advancing project outcomes.

Another challenge was related to the capacity of the hospital and project linkers to access and use their CalNOC fall-related data. In particular, linkers had trouble extracting from these data setting-specific implications for strategic performance improvement. Although assigned to spearhead the work in their setting, many linkers were initially unable to read and interpret these data because they lacked experience with spreadsheets and dashboards.

Organizational capacity for transformational change varied widely but was also a theme across sites as CNOs faced shifting priorities. Turnover of executive leadership influenced the pace and intensity of change as priorities became realigned with expectations of new leaders.

An interesting challenge arose when the coaching team explored linkers' knowledge related to new literature on the impact of medication-focused interventions on falls reduction. The vast majority of linkers were unaware of this literature. To address this problem, the CalNOC coaching team developed a fact sheet that synthesized relevant findings and provided linkers with a tool (including references) to launch discussions within sites.

Impact of the Coaching Intervention on Policies, Procedures, Practices, and Outcomes

The coaching intervention lasted for just under 3 years. A short formative survey was sent to CNOs midway through the project to be completed by CNOs with linker input. Responses to three open-ended questions were received from 28 organizations (85 percent response rate). The findings suggested work in progress that may have ultimately led to many of the actual practice changes that were documented a year later on the final self-assessment evaluation.

Heightened awareness of falls as a universal problem in hospitals was reported as a common consequence of the coaching intervention. Participants reported a high degree of satisfaction with the coaching process, attributing the highest value to the interpersonal contacts.

Hospital pre- and post-intervention self-assessments suggested minor and major changes in policies and practices across sites. The percentage of hospitals that evaluated fall prevention equipment increased from 55 percent to 89 percent. An increase (from 29 percent to 79 percent) was also reported in the percentage of hospitals that used systematic post-fall analysis as part of the fall incident followup. There were also increases in the number of hospitals that reported fall rates monthly or more often (from 3 percent to 39 percent) or quarterly (from 18 percent to 57 percent). While almost all hospitals had a fall prevention protocol in place at the beginning of the project (94 percent), elements of fall prevention policies or protocols changed over the time of the intervention (Table 2) to reveal more evidence-based strategies.

Table 2. Impact of the coaching intervention on fall prevention protocols

Fall prevention protocol characteristics	Pre-coaching (%) (N = 33)	Post-coaching (%) (N = 29)
Interdisciplinary in nature	72	93
Literature-based	67	82
Based upon expert opinion	45	32
Offering an algorithm, or practice options based upon FRA	58	86
Consistently implemented	19	64
A guide to reevaluation of fall risk	55	57
Inclusive of sitters/safety attendants	70	75
Inclusive of a clear definition of falls	79	89
Included evaluation of medications administered and interventions related to polypharmacy[a]		71
Included use of universal fall precautions[a]		71

a Only asked of post-coaching intervention

FRA = fall risk assessment

Similarly, hospital responses to a fall incident became more systematic, incorporating more elements that would truly assist in fall prevention efforts (Table 3). At the final assessment, linkers were asked to evaluate several elements of the project (Table 4).

In general, evaluations were positive about the coaching intervention and its impact on fall-related performance improvement efforts (Table 5). The lowest ratings were for elements without a personal component (e.g., CalNOC data). Analysis of pre- to post-intervention fall incidence and injuries did not reveal significant differences, despite reported process and practice changes.

Discussion and Conclusions

Findings from the CalNOC PFQ project self-assessment surveys suggested that the intervention package, which focused heavily on the coaching intervention described here, favorably affected organizational policies, protocols, and reported clinical practices. Although a detailed presentation and discussion of the quantitative results, measuring pre- to post-intervention fall incidence and injuries, are beyond the scope of this paper, it is noteworthy that these results did not reveal significant differences that could be attributed to the CalNOC PFQ Project. We posit that this study was ultimately underpowered and confounded by a number of factors that affected its pre-post comparisons.

Table 3. Impact of the coaching intervention on hospital response to a fall incident

Data collected for a fall	Pre-coaching (%) (N = 33)	Post-coaching (%) (N = 29)
Shift during which fall occurred	49	86
Time of day	49	86
Location of fall	70	96
Patient-level variables	52	96
Medications patient was on at time of fall	27	75
Equipment in use	46	82
Patient activity at time of fall	48	22
Prevention efforts in place	61	93
Restraints in use	64	93
Staffing levels at time of fall	27	54
Type of patient/diagnosis	21	75
Fall risk	61	82
Interval of fall risk reassessment	30	54
Type of fall (anticipated/ physiologic/nonphysiologic)	58	89

Likewise, had we found significant differences, given the myriad forces influencing hospitals' efforts to reduce falls that emerged during this project, it would have been difficult to claim a benefit attributable to coaching alone. However, it might be suggested that the findings described here reveal that the coaching intervention, despite not making a significant difference in aggregate fall rates, did catalyze changes in hospital fall-related evidence-based process/practice improvements. Self-assessment reports from participating hospitals revealed effects from the coaching intervention that were congruent with its aims, foci, documented content, and observed results.

Changes may be explained by the "pressure" of the intervention (continuous reminders; ongoing scheduled contacts about fall prevention efforts over nearly 3 years) and the support and dissemination of evidence-based knowledge resources from coaches to linkers within trusted relationships. As such, it could be cautiously concluded that the CalNOC PFQ coaching

intervention advanced organizational change by addressing the complex interdependence of values, priorities, assumptions, and practices and by building capacity around data-based reflection and the transfer of evidence-based knowledge into practice.

Clearly, this preliminary observation merits further study.

Table 4. Linker-rated usefulness of CalNOC PFQ interventions at final self-evaluation

Usefulness of intervention resources[a]	Mean (±SD)
Coaching contacts	4.40 (0.13)
Coach site visits (not all coaches made site visits)	3.55 (0.24)
eReserve (CalNOC Web site)	2.92 (0.23)
CalNOC data	2.54 (0.23)
CalNOC bulletin board	2.56 (0.24)
Project all-site conference calls (not all sites took part)	3.86 (0.19)
CalNOC conference 2005 (focus on falls) (not all sites able to attend)	3.57 (0.43)

[a] Scale, 1-5

Table 5. Impact of the PFQ project on fall prevention efforts

PFQ project on fall prevention effort	Pre-coaching (%)[a] (N = 33)	Post-coaching (%)[a] (N = 29)
Fall risk assessment (FRA) on admission (%)	94	100
Intervals of fall risk assessment defined as:		
Q shift on all patients	40	64
Q shift on at-risk patients	36	4
Other	24	32
Fall risk assessment tool		
Internally developed with reliability and validity	6	7
Internally developed with no reliability and validity	24	11
Externally developed with reliability and validity	55	79
Externally developed with no reliability and validity	0	4

Table 5. Impact of the PFQ project on fall prevention efforts (continued)

PFQ project on fall prevention effort	Pre-coaching (%)[a] (N = 33)	Post-coaching (%)[a] (N = 29)
Policy for fall risk assessment		
For communication between units	45	71
For communication between departments	45	75
FRA policy matches actual practice		
Between units	31	62
Between departments	24	65
Policy for reporting falls		
Actual falls	33	50
Actual falls and near misses	39	50
Frequency of reporting of whether physical environment contributes to falls		
Monthly or less	0	39
Semi-annually	24	11
Sporadically	33	8
Actions taken based upon physical environment contribution to falls last 12 months	47	57
Plans for actions based upon physical environment contribution to falls next 12 months	57	36
Use of fall prevention equipment	91	93
Evaluation of fall prevention equipment in last 12 months	55	89
Actions taken based upon evaluation of equipment last 12 months	48	79
Plans for actions based upon evaluation of equipment next 12 months	37	54
Post-fall analysis as part of analysis of fall prevention efforts	29	79
New hires (RNs) oriented to fall prevention efforts	91	96
Annual competency evaluation of fall prevention knowledge/skills (RNs)	36	73
Timing of data reporting of fall rates		
Monthly or less	3	39
Quarterly	18	57
Semi-annually	61	4

Table 5. Impact of the PFQ project on fall prevention efforts (continued)

PFQ project on fall prevention effort	Pre-coaching (%)[a] (N = 33)	Post-coaching (%)[a] (N = 29)
Use of an administrative database that includes falls data	79	93
Fall reporting data gathering using		
Incident reports	91	96
Staff interviews	55	75
Patient interviews	33	57
Chart review	46	71
Fall reporting data sharing		
Reports to units	24	93
Dashboards	0	82
Fall data is now reported to:		
Director of nursing		91
Hospital quality committee		88
Medical staff committee		55
Board of directors		52
Staff meetings		49
Fall rates now compared to:		
CalNOC data	94	96
Other hospitals within corporate entity	49	50
Literature rates	27	29
Own hospital over time	85	93
Other data	12	32

a Percentages may not add to 100% due to missing data

Acknowledgments

We acknowledge the invaluable contributions of Col. Jeffrey S. Ashley, RN, PhD, and Nancy Oliva, RN, MS, MHA, MPA, Research Associates, Center for Nursing Research & Innovation, for analysis of the PFQ Hospital Self-Assessment data and to the CalNOC Research and Operations Team, Diane Brown, RN, PhD, FNAQH, CPHQ; Carolyn Aydin, PhD; Linda Burnes Bolton, RN, DrPH; Martha Buffum, DNSc, APRN, BC, CS; and Joanne Kingsbury, RN, MS, for

their steadfast support of this work as coaches, co-investigators, and advisors. This project was supported by a grant from the Agency for Healthcare Research and Quality (U18 HS13704).

Author Affiliations

School of Nursing, University of California San Francisco (Dr. Donaldson); California State University Fullerton (Dr. Rutledge); Stanford University (Dr. Geiser).

Address correspondence to: Nancy Donaldson, RN; UCSF School of Nursing, 2 Koret Way, N631, Box 0610, San Francisco, CA 9414; telephone: 415-502-1826; fax: 415-476-8899; e-mail: Nancy.donaldson@nursing.ucsf.edu.

References

1. Grimshaw JM, Shirran L, Thomas R, et al. Changing provider behavior: An overview of systematic reviews of interventions. Med Care 2001; 39: p. II2-II45.
2. Fullan M. The new meaning of educational change. New York: Routledge; 2007.
3. Coetsee L. From resistance to commitment. Pub Admin Quart 1999 Summer: 204-222.
4. Glennan TKJ, Bodilly SJ, Galegher JR, et al. Expanding the reach of educational reforms: Perspectives from leaders in the scale-up of educational interventions. Santa Monica, CA: RAND Corp; 2004.
5. Piderit SK. Rethinking resistance and recognizing ambivalence: A multidimensional view of attitudes toward an organizational change. Acad Manage Rev 2000; 294: 783.
6. Lieberman A, Hargreaves A, Fullan M, et al. International handbook of educational change. New York: Springer; 2005.
7. Bero LA, Grilli R, Grimshaw JM, et al. Getting research findings into practice: Closing the gap between research and practice. An overview of systematic reviews of interventions to promote the implementation of research findings. Br Med J 1998; 317: 465-468.
8. Davis DA, Taylor-Vaisey A. Translating guidelines into practice. A systematic review of theoretic concepts, practical experience and research evidence in the adoption of clinical practice guidelines. CMAJ 1997; 157: 408-416.
9. Grimshaw JM, Russell IT. Effect of clinical guidelines on medical practice: A systematic review of rigorous evaluations. Lancet 1993; 342: 1317-1322.
10. Waddell C. So much research evidence, so little dissemination and uptake: Mixing the useful with the pleasing. Evid Based Nurs 2002; 5: 38-40.
11. Geiser K, Berman P. Building implementation capacity: An essential element of developing and implementing high performance learning communities. Emeryville, CA: RPP International; 2000.
12. Neufeld B, Woodworth K. Taking stock: The status of implementation and the need for further support in the BEP-BAC Cohort I and II schools. Available at: www.edmatters.org/webreports/boston/takingstock700.pdf. Accessed April 15, 2008.
13. Havelock R. Linkage: Key to understanding the knowledge system. In Beal GM, Dissanayake W, Konoshima S, eds. Knowledge generation, exchange and utilization. Boulder, CO: Westview Press; 1986. p. 211-243.
14. Ward A, Candela L, Mahoney J. Developing a unit-specific falls reduction program. J Healthc Qual 2004; 26: 36-41.
15. BayCES coaching 1996-1997, reflections, learnings and implications. Oakland, CA: Bay Area Coalition of Equitable Schools; 1997. Available at: bayces.org/index.php?topic=resources. Accessed April 23, 2008.
16. Rogers EM. Diffusion of innovations. New York, NY: Free Press; 1995.