

Transforming Care at the Bedside (Phase 2)

This evaluation was of a program that sought to test the impact of rapid-cycle improvement efforts championed and carried out primarily by nurses on the quality of care in hospital medical/surgical units. The rapid-cycle improvement approach included such quality improvement processes as staff brainstorming, team decision making, small tests of change, and use of data to assess results of the tests of change. The program had three phases; this summary focuses on the evaluation of the program's second phase.

The evaluation found that:

- The program resulted in changes in care and work processes on participating nursing units.
- The program was successful in engaging front-line staff in developing, testing and implementing changes to improve processes on nursing units.
- The work of testing and evaluating innovations spread beyond the original nursing units participating in the program to other nursing units in the participating hospitals.

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THE PROGRAM

Purpose or Objective of the Program

Transforming Care at the Bedside (TCAB) sought to:

- Improve the quality and safety of patient care on medical and surgical units
- Insure a high-quality work environment to attract and retain nurses
- Engage and improve the patients' and family members' experience of care
- Improve the effectiveness of the entire care team.

The strategy used in the program was to empower front-line nurses and other staff to develop, test and implement changes to improve care on hospital medical/surgical units. The hypothesis tested in TCAB was that improvements in the nurse work environment would positively affect the quality of patient care.

National Program Office (NPO)

Institute for Healthcare Improvement (IHI)

20 University Road, 7th floor

Cambridge, MA 01238

(866) 787-0831

<http://www.ihl.org/IHI/Programs/StrategicInitiatives/TransformingCareAtTheBedside.htm>

Key contact: Carrie Peck, TCAB project manager, cpeck@ihi.org

Robert Wood Johnson Foundation Management

Susan Mende, Program Officer

Nancy Fishman, Evaluation Officer

Program Elements

TCAB had three phases:

- Phase 1 was a pilot program that involved three hospitals.
- Phase 2 added ten additional hospitals, for a total of 13 hospitals. These 13 hospitals were invited to participate in TCAB based on their prior relationships with IHI and RWJF, the hospitals' reputations for providing high-quality care and their work in quality improvement initiatives.
- Phase 3 involved the 10 hospitals that elected to continue from Phase 2, as well as 68 new hospitals sponsored by the American Organization of Nurse Executives (AONE).

RWJF has also incorporated TCAB's approach into its current *Aligning Forces for Quality* Initiative.

In TCAB's phase 2, the focus of this summary:

- Each of the participating hospitals initially designated one or two nursing units and teams of staff from these units to be the sites for the TCAB work.
- Most hospitals also designated a TCAB team of the leadership staff.
- The NPO coached the hospital teams to test changes quickly on a small scale (initially one nurse, one patient, one shift) and to modify the changes based on these tests.
- The participating hospitals collected and reported data on a common set of outcome measures. These are listed in the Evaluation section, below.
- As the program progressed, some of the participating hospitals spread successful process changes to other nursing units.

Key Dates

Program dates:	
Phase I:	2003
Phase II:	June, 2004 – June, 2006
Phase III:	June, 2006 – June, 2008 for 10 hospitals continuing from Phase II June 2007 – June, 2009 for 68 AONE hospitals

Evaluation dates:	
Evaluation design:	June, 2004
Evaluation began:	September, 2004
Evaluation end:	November, 2009

QI Strategy

- Rapid-cycle testing (PDSA cycles) as part of the IHI Improvement Model
- Collaborative learning model

Clinical Conditions Targeted

- Inpatient care in medical/surgical nursing units

Level of Intervention

- Organization (hospital) level
- Provider (nursing unit) level

THE EVALUATION

This summary describes the evaluation of phase 2 of the program.

Evaluation Team

University of California at Los Angeles, School of Public Health, in collaboration with RAND

- Jack Needleman, Ph.D., **Key Contact**
- Andrea Bakas, R.N., M.P.H.
- Patricia Parkerton, Ph.D.
- Marjorie Pearson, Ph.D.
- Lynn Soban, R.N., Ph.D.
- Valda Upenieks, R.N., Ph.D.
- Tracy Yee, M.P.H.

Purpose of the Evaluation

The evaluation of TCAB sought to identify whether the program led to:

- Changes in care and in work processes on the nursing unit (and the extent to which these affected patient outcomes).
- The creation of cultures and work environments on the nursing units in which nurses and other unit staff were encouraged and expected to engage in change efforts.
- Changes that could be spread from the original unit to other parts of the hospital, or other hospitals.

Level of the Evaluation

- Organization (hospital) level
- Provider (nursing unit) level

Design of the Evaluation

The evaluation followed a pre- and post- intervention design, using a convenience sample of hospitals and their medical-surgical units. The design did not include randomization or control units.

Methodology

Use of Data:

	Used to assess impact at the:		
	Organization level	Provider or staff level	Patient level
Survey			
In-person			
By phone			
Internet	X	X	
Mail			
Site visit	X	X	
Interview			
Provider	X	X	
Patient			
Key Informant	X	X	
Clinical data/chart review			X*
Clinical data/other source			X*
Participation data	X	X	
Other process data	X	X	

*These data elements were collected by staff of the participating hospitals as part of their data reporting for the program.

Data for the evaluation of TCAB's phase 2 came from:

- Responses to baseline and follow-up questionnaires regarding structural elements of the TCAB hospitals and units.
- Observation of all of the Learning and Innovation meetings as well as other TCAB phone calls and meetings.
- Monitoring of the IHI extranet to review sites' measurement data (see below) and their descriptions of tests of change.
- Telephone and in-person interviews with hospital staff involved in TCAB.
 - The evaluation team conducted 27 total interviews, 14 with Quality Improvement staff people and 13 with nurse managers. The team conducted at least one interview at each hospital.

In addition, participating hospitals were asked to collect and submit data (on the IHI extranet) on:

- Adverse events
- Days between a death
- Death among surgical inpatients
- Falls per 1,000 patient days
- Patient satisfaction
- Pressure ulcer prevalence
- Voluntary staff turnover
- Staff satisfaction (based on survey responses)
- % of nurse time in direct patient care
- % of nurse time in value added work
- % of nurse time in documentation
- Direct costs per adjusted patient day
- Average length of stay
- Nursing hours per adjusted patient day

Analytic Approach

The analytic approach included both quantitative and qualitative elements:

- **Qualitative:** The evaluation team assessed interview and survey responses, using two evaluators for reliability and categorical assessment to determine common traits.
- **Quantitative:** The quantitative analysis was primarily bivariate, but did use regression to ascertain associations between organizational characteristics and processes to outcomes.

Key Measures and/or Constructs

The evaluation team measured:

- Integrity to the TCAB approach, as evidenced by:
 - Using unit-level teams
 - Having staff generate ideas
 - Experimenting with small, rapid tests of change
 - Using measurement data to make change decisions.
- Overall intensity of each hospital's implementation of TCAB, by assessing whether each of the elements of the TCAB approach (see above) occurred in the second year of the program.
- Staff engagement in TCAB activities.
- Time that unit managers were willing to devote to TCAB activities.
- Volume of innovations tested and implemented.
- Outcomes, specifically:
 - Falls resulting in harm
 - Codes
 - Readmissions within 30 days
 - Time spent in direct patient care
 - Percentage of patients likely to recommend the hospital
 - Staff reporting feeling part of an effective work team
 - Staff turnover

- Leaders' perceptions, measured by:
 - Leaders' self-reported involvement in TCAB.
 - Leaders' assessment of the program's value.
 - Leaders' expectation that units would maintain TCAB processes and activities after the program's end.

Findings

The evaluation team reports these findings for each area the evaluation sought to assess:

Changes in care and work processes on the nursing unit

The evaluation team found that the nursing units of the 10 hospitals that participated in phase 2 and continued into phase 3 of TCAB:

- Engaged in 533 tests of change and adopted and spread a substantial number of them.
- Appeared to show improvement in patient safety indicators.
- Had unit managers who felt that all four domains (safety, teamwork, patient-centered care and value-added care processes) improved, and said that TCAB was an important factor in that improvement.¹

The creation of a culture of improvement on nursing units

The evaluation team found that that:

- Unit managers and chief nursing officers in the 10 hospitals that participated in phase 2 and continued into phase 3 said that participation in TCAB made it more likely that unit staff would continue to initiate changes to improve patient care and that collaboration between nursing and other departments had improved. These staff cited:
 - The substantial amount of time that unit managers committed to improvement work.
 - Increased staff engagement in TCAB and reduced resistance of unit staff.
 - Unanimous agreement of unit managers that they would participate in the TCAB initiative again.

¹ Needleman J, Parkerton PH, Pearson ML, Soban LM, Upenieks VV, & Yee T (2009). Overall Effect of TCAB on Initial

- The expressed commitment of most leaders to continue TCAB activities after the initiative ended.²
- “Almost all” of the nursing units participating in phase II of TCAB created unit-level improvement teams, solicited staff’s ideas for change in an initial brainstorming session, and conducted rapid-cycle tests of change on the unit.³
- Most of these units had active teams that met weekly in the first year, made decisions about which change ideas to test, and experimented with using measurement data to assess and refine tests of change.⁴
 - Half the hospitals reported that 80% or more of their front-line nurses participated in TCAB tests of change by the second year, with most of these units conducting multiple improvement efforts.⁵

The evaluation team also found, however, that the units varied in their ability to make improvements, and that participation dropped off in TCAB’s second year. The team concluded that, “(a)lthough engaging front-line nurses in change processes is feasible, this evaluation shows that implementing the front-line participatory approach is not necessarily easy.”⁶

Spreading TCAB’s changes throughout the hospital, or to other hospitals

The evaluation team conducted a focused case study analysis of the spread of changes within three TCAB hospitals. This analysis found that:

- Spread is feasible: the hospitals could spread nursing unit changes to additional medical-surgical units in their systems, and both innovations and change processes could be spread.
- The nursing units tried both new process changes and innovations borrowed from other TCAB units. The borrowed innovations frequently were adapted in some way.
- All three systems “engineered the spread effort. They all carefully planned, coordinated, and implemented a spread process; none left dissemination to chance.”⁷

² Ibid.

³ Pearson ML, Needleman J, Parkerton PH, Upenieks VV, Soban LM, & Yee T (2009). Participation of Unit Nurses. *AJN The American Journal of Nursing*, 109(11), 66.

⁴ Ibid.

⁵ Ibid.

⁶ Ibid.

⁷ Ibid.

Limitations

The hospitals selected for TCAB's phase 2 all had strong histories of providing high quality care and engaging in quality improvement efforts, previous experience with the IHI, and committed leaders who paid a fee for their facilities to participate in the program. Organizations without these structural supports may not see the same results.

Key personnel at these facilities were thoroughly trained by and benefited from the IHI's support structure for the program. Again, organizations engaging in improvement work without this training and IHI's support may find this work more difficult.

Participation in TCAB required major commitments of financial resources and staff energy and attention. These factors resulted in only 10 hospitals participating in both phases 2 and 3, limiting the power of statistical analysis and reducing the generalizability of the findings.

Tools and Other Resources Developed in the Evaluation

Publications

- Needleman, J. and S. Hassmiller, The Role of Nurses in Improving Hospital Quality and Efficiency: Real-World Results. *Health Affairs* 28, no. 4 (2009): w625–w633 (published online 12 June 2009; 10.1377/hlthaff.28.4.w625).
- Needleman, J, Parkerton, PH, Pearson, ML, Soban, LM, Upenieks, VV, & Yee, T (2009). Overall Effect of TCAB on Initial Participating Hospitals. *AJN The American Journal of Nursing*, 109(11), 59.
- Parkerton, PH, Needleman, J, Pearson, ML, Upenieks, VV, Soban, LM, & Yee, T (2009). Lessons from Nursing Leaders on Implementing TCAB. *AJN The American Journal of Nursing*, 109(11), 71.
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- Pearson, ML, Upenieks, VV, Yee, T, & Needleman, J (2008). Spreading Nursing Unit Innovation in Large Hospital Systems. *JONA: The Journal of Nursing Administration*, 38(3), 146.
- Upenieks VV, et al. The relationship between the volume and type of transforming care at the bedside innovations and changes in nurse vitality. *J Nurs Adm* 2008;38(9):386-94.

Evaluation Lessons Learned

The evaluation team found that:

- The evaluation itself acted as an intervention, due to the quantity and detail of data the evaluation team needed. Through participation in the evaluation, teams were routinely reminded of their commitment, taught how to use data themselves, and exposed to shared results as the program progressed.
- The small numbers meant that it was still often difficult to determine statistical significance in the data.
- Sharing data with the intervention teams and presenting data at meetings helped the hospital teams understand the value of the data they collected, and made them much more willing to submit it.
- Maintaining a strong relationship with the National Program Office helped when collecting data from the hospitals became difficult.
- Developing almost all of the evaluation tools internally required a large investment of time and resources. While this approach led to rich and relevant data, using previously validated instruments would have been sufficient.
- The evaluation of phase 2 informed the evaluation of phase 3. For example, the team was able to use responses from the semi-structured interviews in phase 2 to create closed-ended questions for phase 3's on-line surveys.

Prepared by: Katherine Garrett

Reviewed by: Lori Melichar, Sallie Holmes, and Amy Woodrum

Program Officers: Susan Mende

Evaluation Officer: Nancy Fishman

Program Area: Human Capital

Grant ID#: CQI

Key Contact: Carrie Peck, TCAB project manager, cpeck@ihi.org

