

A Framework for Collaborative Improvement: Lessons from the Institute for Healthcare Improvement's Breakthrough Series

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The article describes the Breakthrough Series, a collaborative improvement model developed by the Institute for Healthcare Improvement. The model adapts and applies existing knowledge to multiple, similar sites to accomplish common aims. It has been used to address several of the most pressing issues in health care today. The article outlines key elements of the Breakthrough Series to provide a framework for future collaborative improvement efforts.

Key words: collaborative improvement, continuous quality improvement, IHI Breakthrough Series

IN 1989, BERWICK and Laffel and Blumenthal published landmark articles ushering in efforts to improve U.S. health care through continuous quality improvement.^{1,2} These methods represent a fundamental philosophic and methodologic shift in the practice and management of health care.^{1,3} Unfortunately, an understanding of the science of continuous improvement eluded many health care professionals including physicians.

As health care organizations, namely hospitals and large outpatient providers such as health maintenance organizations (HMOs), have attempted to make this transition, physicians have witnessed many trap-pings of the old quality assurance philosophy. From a physician's perspective, quality improvement is another in a long string of administrative maneuvers focused on cost control; few physicians took the activities of "improvement" efforts seriously.

Clinicians witnessed long, poorly run, nonproductive meetings including discussions about care that were far removed from the real experiences of patients. Moreover, they saw "projects" undertaken that took months if not years to complete, represented

Credit for this work goes to those organizations that have labored to create meaningful, demonstrable change in the service of improving patient care and to those at the Institute for Healthcare Improvement who have worked diligently to improve the Breakthrough Series model. Specific thanks go to Penny Carver, vice president of the Institute for Healthcare Improvement; Tom Nolan, PhD, technical advisor to the BTS; and Andrea Kabcenell, Marie Schall, and Todd Molfenter, directors of the Breakthrough Series collaboratives. This work would not have been possible without the daily dedication of Lisa Green, Silvia Harper, Lindsay Lynch, Nivedita Misra, Rebecca Steinfeld, and other staff members. The author is particularly indebted to Valerie Weber for editing the article.

a poor use of their time, had little measurable impact on clinical outcomes, and did not attempt to understand care from the provider's perspective. Those promoting quality improvement often had a poor understanding of how to motivate and involve physicians in the real work of improvement. They used jargon that was unfamiliar, held unrealistic expectations, and poorly understood the science of improvement, including statistics and statistical process control.

A decade of experience has provided many lessons about leading meaningful and measurable improvement in clinical care. Yet many of these lessons have not been operationalized. This article describes the efforts of the Institute for Healthcare Improvement to apply these lessons in health care organizations using a collaborative improvement model called the Breakthrough Series (BTS). This model, created in 1995, is continually being revised and improved, based on lessons learned since its inception. Subsequent articles in this issue of *Quality Management in Health Care* (6:4) contain case studies from BTS participants that illustrate their experiences with this collaborative improvement model.

Breakthrough Series Background

The Institute for Healthcare Improvement (IHI) is a not-for-profit organization created in 1991 to help lead the improvement of health care systems and thereby increase their quality and value. IHI's measures of improvement include improved health status, better clinical outcomes, lower cost, broadened access, greater ease of use, and higher satisfaction for individuals and their communities. IHI strives to be an integrative force that brings health care professionals together to lead improvement.

In its initial years, IHI's activities were focused on providing courses on a wide range of improvement topics and sponsoring the National Forum on Quality Improvement in Health Care, a yearly conference. In 1995, IHI undertook an honest appraisal of the impact of these offerings on national health care performance. The study failed to find strong evidence of a demonstrable impact. At the same time, Davis and colleagues published a landmark article assessing

methodologies of continuing medical education.⁴ Their findings were both sobering and encouraging. Standard educational methods such as lecture-style conferences were found not to result in demonstrable health care improvement. Moreover, even though techniques exist to achieve behavioral change, they are being underused.

Seeking to have a greater and more immediate impact on health care outcomes, IHI constructed the Breakthrough Series collaborative model for organizational improvement. The BTS model seeks to achieve unprecedented levels of improved performance in participating organizations in less than 1 year by bringing providers together to understand and drive improvement within a specific topic area.

The Breakthrough Series is an improvement method that relies on the spreads and adapts existing knowledge to multiple, similar sites to accomplish common aims. Berwick published a list of worthy goals for the improvement of health care in 1994. From this list a number of IHI's initial collaborative topics was spawned.⁵

Fundamental Principles

IHI's Breakthrough Series is founded on several fundamental premises (see the box entitled "Premises for Collaborative Improvement"). First, a sub-

Premises for Collaborative Improvement

1. A substantial gap exists between knowledge and practice in health care.
2. Broad variation in practice is pervasive.
3. Examples of improved practices and outcomes exist, but they need to be described and disseminated to other organizations.
4. Collaboration between professionals working toward clear aims enables improvement.
5. Health care outcomes are the results of processes.
6. Understanding the science of rapid cycle improvement can accelerate demonstrable improvement.

stantial gap exists between what is known about clinical medicine and how care is provided. For example, much is known about caring for patients with asthma including when and how to use inhaled steroids. Yet this knowledge often goes unused in the routine care of patients who could benefit from it.⁵ Likewise, aspirin and beta-blockers provide a survival benefit after myocardial infarction, yet studies demonstrate that many patients who could benefit from these therapies are not receiving them.^{7,8} The diffusion of proven findings is unacceptably slow in health care.

Second, broad variation exists in the provision of care for comparable populations of individuals. This variation includes differences in the use of diagnostic tests, surgical procedures, and pharmaceutical agents that cannot be explained by differences in population demographics or risks.⁹

The appearance of broad variation is damaging to the profession. It implies that clinicians treat similar patients in widely varied fashions—where some would recommend certain diagnostic tests, others would not; where some would recommend surgery, others would not; where some would prescribe medications, others would prescribe either different medications or no medicine at all. Given the literature and expert opinion, one of three possibilities exists: clinicians cannot agree on the best way to provide care, clinicians agree but do not adhere to recommendations, or information on optimal treatment does not exist so clinicians simply attempt to do their best. To the public, variation is not reassuring regardless of the cause.

Third, examples of improved practices exist but are poorly described and disseminated to other organizations. Although no health care organization is demonstrably superior in outcomes across the spectrum of health care concerns, most organizations contain some examples of excellent performance that, if described, could be replicated elsewhere for the improvement of patient care. The challenge is to identify, describe, and learn from these examples and to use the learning to construct systems of improved performance.

Fourth, health care professionals have not been trained to, and therefore do not, work well across

professional boundaries. Clinicians have a poor understanding of other professions, and no deep tradition of working collaboratively. Clinicians and administrators may harbor animosity, physicians have historically undervalued the intellectual contribution of nurses, and pharmacists have been relegated to behind-the-counter drug dispensation instead of using their clinical pharmaceutical expertise.

Fifth, although the history of the medical profession is defined by fierce independence, no health care provider is solely responsible for patient outcomes. Systems and processes of care produce outcomes, not individuals. To optimize outcomes, the focus must be on systems. A basic tenet of improvement is that all systems must be perfectly designed to achieve the results they achieve. In order to change the results, the systems must be redesigned.

Most clinicians are aware of the value of immunizations in disease prevention, of inhaled steroids in asthma treatment, of aspirin and beta-blockers following myocardial infarction, of the lack of utility in treating most upper respiratory tract infections with antibiotics, and of the lack of utility of using H₂-blockers and protein pump inhibitors simultaneously. Yet when common practice is examined, such basic knowledge is not being applied. Either clinicians have the knowledge and are just not using it in the service of patient care, or the systems in which clinicians function do not ensure that patients receive the benefits of knowledge. The former is unlikely; most health care providers are highly motivated to provide the highest quality care possible. Thus it must be the system design that is failing providers and their patients. In order to change the results, systems must be redesigned.

Last, there is a science of change that has a solid foundation in statistics and theories of adult learning, yet it is generally unknown and underemployed in health care.^{10–14} This body of science includes knowledge about testing changes and performing measurement in real time, about understanding variation and exploiting it for improvement, about employing the psychology of motivating individuals toward change, and about using methods for the diffusion of innovations.

IHI's collaboratives seek to address each of these issues—to reduce the gap between knowledge and practice; to minimize variation in care by helping practitioners define optimal practice and put it to use; to find and describe best practices and diffuse them throughout collaborative organizations while measuring outcomes; to foster meaningful and effective collaboration between individuals and institutions; to improve outcomes by understanding systems of care and changing them rapidly, yet safely; and to develop national and local expertise in the science of change.

Breakthrough Series Goals

The IHI accomplishes several goals through the BTS. First, the BTS helps organizations make rapid, measurable, sustainable improvements in the areas of focus. In doing so, it builds the internal capacity of organizations to improve beyond the time frame of the collaborative. Second, IHI maintains a primary focus on the clinical subject matter, not quality improvement methodologies. Paul Batalden, MD, Director of Health Care Improvement and Leadership Development at Dartmouth Medical School, describes this as maintaining the clinical content in the foreground and improvement methodologies in the background (personal communication). In other words, improvement is treated as a part of the work process, not as a separate or special function.

Third, IHI defines the specific steps required for improvement in each topic area. It entails the formation of new knowledge—a knowledge of how to put the ideas and findings in the literature into action. Although there may be hundreds of ideas worth testing, a shorter list of changes carries the best chance of achieving improvement. The collaborative works to codify the highest leverage ideas and changes

in each topic area. The new knowledge also pertains to methods of real time measurement in each topic area, which often rely as much on pencil-and-paper data collection as on computer databases.

Methodology of the BTS

The BTS model is shown in Figure 1. Each collaborative consists of 20 to 40 organizations working together for approximately 9 to 12 months. Three 2-day learning sessions occur. To date, 367 teams from 256 organizations have participated in 11 collaboratives (seven completed and four ongoing). The box entitled "Breakthrough Series Topics" lists completed, ongoing, and upcoming collaboratives. Some topics are being repeated.

For each topic, IHI issues a national call for participants from organizations serious about making demonstrable, major improvements at an unprecedented rate. Each organization must complete an application that requires senior leadership support and demonstrates their commitment to change. Each participating organization also must contribute to the financial requirements of the collaborative. Once an application has been accepted, IHI sends the organization the preparatory work and arranges an initial conference call. Each organization must establish specific organizational goals that are clearly stated, data based, numerical, and employ the theory developed by the collaborative chair.

IHI strongly advocates that the work of improvement be a part of the normal daily activities of participants. Improvement work must not be seen as an extra burden or as something done only in special meetings. IHI also tries to avoid creating a "project" mentality where individuals participate as long as the project—in this case the collaborative—is underway and quickly disband when some end point is reached. The IHI strives to create organizational teams that continue working toward improvement well into the future.

Gathering the right individuals on an improvement team and securing the time and resources necessary to achieve the aim are critical to success. Team members are chosen based on their knowledge of,

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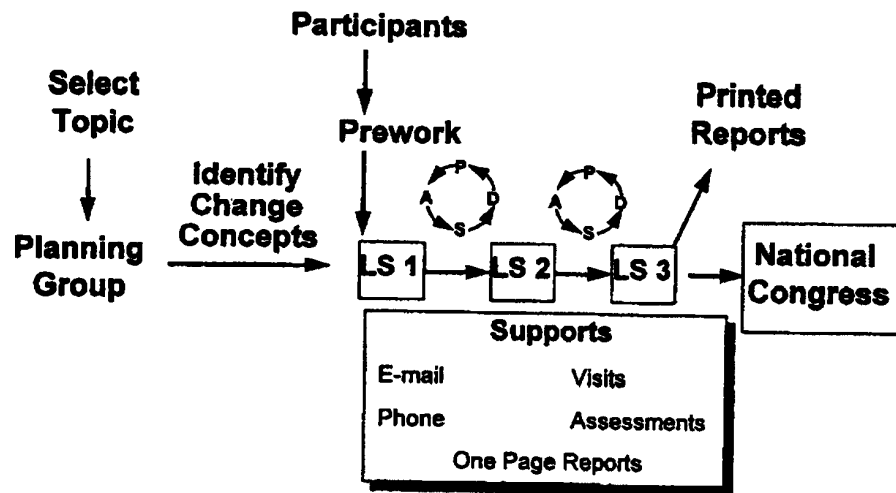


Figure 1. The breakthrough series model

and involvement in, the aim and the system of interest. Necessary support for the team is secured by discussing needs with the managers of this system.

Teams may vary in size and composition from organization to organization, but each should have representation from three different dimensions: system leadership, technical expertise, and day-to-day leadership. There may be one or more individuals on the team who fit into each dimension, or one individual may fill more than one role. Regardless, each component must be represented in order to be successful in driving change in the organization.

A system leader is someone with enough clout in the organization to institute change. When a change is suggested, this person should have the authority to implement it. In addition, this individual should have the authority to allocate the time and resources necessary to achieve the team's aim. Examples of an appropriate system leader include a vice president, a chief of medical staff, or a division head.

A technical expert is a subject matter expert—someone who knows the subject intimately and who understands the processes of care. Additional technical support may be provided by an expert on improvement methods who can help the team understand what needs to be measured; how to design simple, effective measurement tools; and how to

collect, display, and interpret data. It is critical to have at least one physician champion on the team serving as an active member. This champion should have a good working relationship with colleagues and with the day-to-day leader(s). The champion should also be interested in driving change in the system.

A day-to-day leader is a person who works in the process on a daily basis and who can work well with the physician champion. This individual will be the critical driving component of the team, ensuring that tests of change are implemented and data are collected. This person must understand the details of the system through first-hand experience and anticipate the potential effects of changes to the system.

Learning Sessions

The first learning session focuses on developing an understanding of the critical changes necessary to achieve significant improvement in the topic area. Organizations solidify their aims, establish real time measurement systems, and plan specific tests of change to be performed upon return to their organization. The periods between learning sessions are called *action periods*. During an action period, organizations and experts share knowledge and experience using regular

Breakthrough Series Topics**Completed*

- Reducing Delays and Waiting Times (I & II)
- Reducing Cesarean Section Rates (I)
- Improving Asthma Care
- Reducing Adverse Drug Events and Medical Errors (I)
- Reducing Costs and Improving Outcomes in Adult Intensive Care
- Reducing Costs and Improving Outcomes in Adult Cardiac Surgery (I)
- Improving Care for Low Back Pain
- Improving Prescribing Practices

Ongoing

- Improving Care at the End of Life
- Reducing Cesarean Section Rates (II)
- Reducing Adverse Drug Events (II)
- Reducing Waits and Delays and Improving Patient Satisfaction in the Emergency Department

Upcoming

- Improving Service in Health Care
- Improving Care for Chronic Conditions
- Reducing Costs and Improving Outcomes in Adult Cardiac Surgery (II)
- Improving Efficiency and Access to Care in Physician Offices and Clinics
- Reducing Hysterectomy Rates
- Improving Outcomes and Reducing Costs in Orthopaedic Surgery

*As of April 1998.

conference calls, visits to other institutions, written reports, and electronic mail discussion groups.

The second learning session focuses on assessing progress, sharing key findings within the topic area, and planning how to spread progress beyond the initial test site(s).¹⁴ Some organizations begin to address additional goals.

The third learning session is a summative event wherein lessons learned during the collaborative are compiled and ways to further disseminate knowledge are planned. Dissemination begins with a National Congress, a large conference open to the health care community that is held at the end of each collaborative.

BTS Elements

There are seven major elements of the Breakthrough Series. They include topic selection, theory, multiple sites, the model for improvement, focus, tension for change, and spread.

Topic selection

Four criteria are used to choose topics. A topic must involve an area where (1) elimination of a gap between knowledge and practice can lead to a demonstrably higher quality of care; (2) high-level performance examples already exist that can serve as models for others; (3) significant financial savings can be accrued through performance improvement; and (4) a leader with national recognition and expertise exists to chair the collaborative.

Theory

The first job of the collaborative chair is to create a planning group of approximately five individuals who have first-hand experience in leading substantive improvement in the topic area. The greater their personal experience in successful front line improvement, the more effective they will be.

With the help of the planning group, the chair develops a theory for improvement expressed in terms of aims, measures, and key changes. Available knowledge is codified from the literature as well as data-supported experience. The theory is expressed first in terms of collaborative aims: What outcomes can be achieved based on available knowledge? For instance, available knowledge states that cesarean section rates in the United States can be safely reduced to less than 15 percent from the national average of 24 percent while maintaining or improving maternal and fetal outcomes.¹⁵⁻²⁰ In coronary artery bypass surgery, available knowledge states that median operating room times can be safely reduced to 3 hours or less from a current average of over 4 hours and surgical mortality can be safely reduced while improving outcomes and reducing costs.^{21,22}

The theory also suggests measures. Available knowledge guides the end points, processes, and outcomes that should be monitored while pursuing the aim.

Last, the theory helps suggest changes. Based on available knowledge, the chair and the planning group can hypothesize which few changes will most aid organizations in achieving the aims that they set. Hundreds of changes are available for consideration in each topic area, but only a few are highly leveraged. These high-leverage changes—the ones with the greatest likelihood of improving performance—are what the chair and planning group attempt to identify.

Multiple sites

In order for collaboratives to succeed, a critical mass of participating sites is needed to cultivate a useful exchange of ideas, experience, and learning. Sharing information shortens the discovery phase of improvement; rapid deployment of new learning accelerates the pace of change; and working with peers motivates participants and reduces skepticism. IHI's experience suggests 25 to 40 organizations per collaborative is an optimal size.

The model for improvement

The BTS approach differs in important ways from many prevailing approaches to quality improvement. Traditional approaches may involve months of flow-

The model for improvement is the engine for change in the Breakthrough Series.

charting, baseline data collection, and discovery to prioritize opportunities and to identify needed changes. Then many more months are required to implement changes, if they are implemented at all. In contrast, the BTS begins with, and maintains, a highly specific focus on a clinical topic. The initial discovery phase, where the source of the problem and possible solutions are analyzed, is shortened through increased reliance on existing scientific knowledge and experience. Clinical issues and knowledge remain in the foreground of the work during the collaborative. In the background, continuous improvement is used as the method through which clinical knowledge is employed—it is treated as a new way to work, not as something distinct or separate.

The model for improvement is the engine for change in the BTS¹⁰ (Figure 2). It consists of three questions that address intention to improve (aim), measurement, and the identification of well-founded ideas based on the literature or experience. It then employs

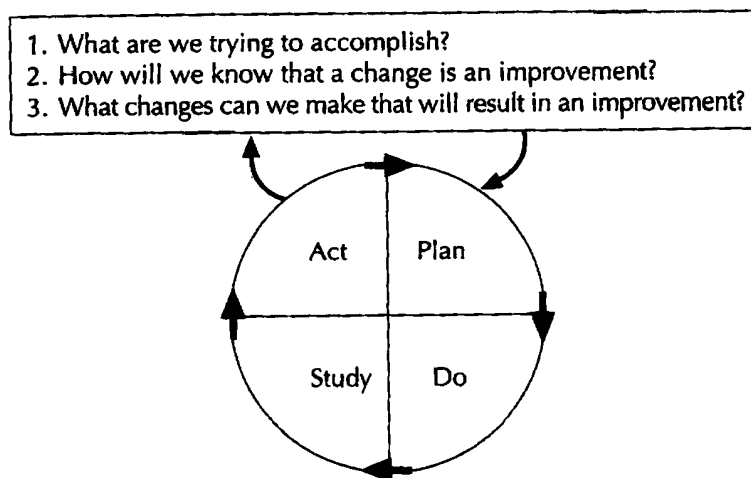


Figure 2. The model for improvement.

the scientific method to test these ideas in the clinical environment (using the Shewhart or PDSA [plan-do-study-act] cycle).

During the collaboratives, organizations are taught to test changes on a small scale before fully implementing them. The model for improvement emphasizes safely testing changes on just a few patients at a time; the changes are redesigned repeatedly based on the results. The model requires an up-front commitment to change from all involved personnel including senior executives and front-line clinicians. As noted previously, the ideas for change are derived from other organizations and research units that have shown them to be safe and effective; reliance on this knowledge base allows the participating organizations to test and adapt these ideas locally. Testing on a small scale allows for a more pragmatic and informative analysis of the changes, far superior to the more customary "all-or-none" adoption of new technologies or, worse, the adoption of changes without any systematic reflection at all after the change is introduced.

IHI's collaborative on improving outcomes and reducing costs in adult cardiac surgery is a case in point. Rapid extubation is achievable within 4 to 6 hours following open heart surgery, but in 41 hospitals across the United States over 50 percent had not implemented the necessary elements to achieve this superior level of performance. Their median patient intubation times remained well over 12 hours.

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The study of safe, rapid ventilator weaning after coronary artery bypass graft (CABG) surgery in high-performance organizations and in the literature identified several key principles to successful early intubation.²³⁻²⁷ Specific changes in anesthesia and pain management accompanied by weaning protocols that are driven by respiratory therapy and nursing can result in effective and safe early extubation programs—higher quality patient care while simultaneously lowering costs.

In the Breakthrough Series collaborative, cardiac surgery staff learned these key changes and designed local tests to assess them. They then performed tests of change on a small sample of patients (first, one patient within the first week, then five patients within the next week, for example), providing a "safety net" for the patients in case the changes should fail to perform as predicted. Results from the initial tests (such as weaning time, reintubations, nosocomial pneumonia, and patient and staff satisfaction) were carefully measured and served as input to further action and testing. With this approach, staff become engaged in the improvement process—they become comfortable with testing rapidly in small yet significant steps. And dramatic, rapid changes in outcomes can (and do) occur within months.

The rigorous but parsimonious use of measurement is another key aspect of the scientific method that accelerates improvement in the BTS. Because participants aim for large improvements, small amounts of data, achieved through appropriate sampling over time, are often sufficient to determine whether or not a change has led to an improvement.¹¹ Sampling, monitoring only two to three key outcomes and potential adverse effects, and an emphasis on "just enough" data are sufficient to determine if a change is an improvement. Within these guidelines, participants collect and analyze data with each change they test. In the example of ventilator weaning after CABG surgery, two outcomes were sufficient to assess each patient—weaning times and reintubations. Once the changes were tested and the new system of intubation had been implemented, sampling four

patients per week, rather than all patients, was sufficient to monitor the weaning process indefinitely.

Only in testing changes in the system and monitoring the effects of those changes in real time can learning occur. The BTS creates a bias toward smart action with the intention of action-oriented learning—the primary learning occurs *after* a change has been made in the context of a small-scale test, not from data collection and analysis *before* a change has been made. Rigorous but swift, this approach appeals to clinicians who believe in the scientific method and who have often been frustrated by prior experiences.

Focus

Distractions are pervasive in our daily work, and easily divert attention away from the real work of improvement. To maintain positive, forward energy, a sharp focus must be maintained on achieving the aim. Two examples of IHI's approach to this problem follow.

First, the content that could be presented to participants during the collaboratives is vast including subject matter information and process improvement techniques. It is easy to overwhelm participants with information not directly pertinent to the work of improvement, paralyzing intended action. The challenge is to distill and codify the few pieces of information that will safely propel organizations toward their goals. Early on learning session binders were filled with handouts, journal reprints, bibliographies, lists of potential changes, and more—nearly a hundred pages of material. This approach effectively served to overwhelm participants and distract their focus.

To address this issue, IHI maintains focus by limiting learning session handouts to approximately 10 to 20 pages that contain critical information. The task is to determine valuable content and to focus the attention of participants on that content. Ventilator weaning illustrates this point. One option in helping organizations achieve early extubation would be to provide the appropriate literature on early extubation, to build confidence that better performance is achievable by presenting data, to have organizations

flowchart their extubation process, and brainstorm ideas for improvement, and so forth. Instead, the BTS experts distill this knowledge before the collaborative so that participants working to improve weaning, for example, can focus their attention on the few changes that matter. A discussion of the key changes, with examples of how these changes have been implemented and used at other institutions, is all that participants need to plan their tests of change.

A second example of maintaining focus is IHI's development of a one-page report format (Figure 3). Organization reports are often lengthy, difficult to digest, and filled with extraneous information, virtually guaranteeing that useful learning is hidden. To address this problem, IHI devised a report format that contains only vital information—the organization's name, aim, measures and sampling methods, data (in the form of an annotated run chart as a minimum standard), and details about key changes. This format allows rapid comprehension by the reader and focuses on the subject matter, not the underlying improvement methodology.

Tension for change

Tension for change is a critical element of successful change. IHI employs several methods of maintaining the necessary tension: senior leadership support, shared deadlines, and ongoing assessment of progress. Implicit, if not intended, is the constructive peer pressure to succeed that accompanies any collaborative process focusing on demonstrable improvement.

Senior leader support is harvested in a number of ways. Senior leaders (i.e., the CEO, COO, or vice president) must sign the collaborative application and are encouraged to participate actively in the work. The team's aim must be a priority on each senior leader's agenda, leading him or her to review the team's progress frequently.

Shared deadlines help to maintain forward momentum even in the press of everyday events. Participants submit monthly reports using the one page report format discussed previously. These reports are disseminated for group learning. Likewise, each or-

St. Mary's Hospital Medical Center, Madison WI Fast Track Extubation Project

Aim To extubate heart surgery patients within 6 hours of arrival to the SICU without increasing CPAP or reintubation rates

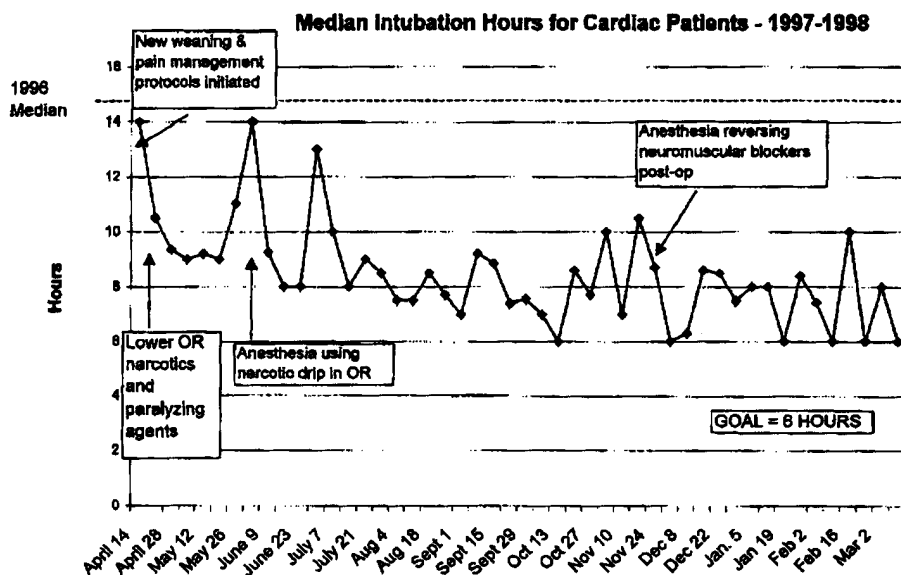
Measures

- Post-operative intubation times
- Reintubations and use of CPAP within 24 hours of extubation
- Post-operative length of stay—total and ICU

Sampling Methods

All heart surgery patients are considered candidates for early extubation and are included in the data. In patients who underwent re-exploration, intubation time was measured after the re-exploration.

Data



Key Changes

1. Education for entire care team to change expectations about intubation
2. Change pain treatment to smaller doses of narcotics with option to increase frequency while intubated
3. Use intravenous narcotics after extubation until taking PO
4. Institute respiratory therapy and nurse controlled weaning protocol
5. Anesthesia lowered amount of narcotic given during surgery
6. Anesthesia implemented use of narcotic drip during surgery
7. Anesthesia decreased paralyzing agents during surgery and reversed neuromuscular blockers post-operatively
8. Use relaxation tapes for patients to reduce anxiety and pain

Other Initiatives

- Survey of nurses and respiratory therapists to understand their attitudes about extubation
- Treatment of post-operative hypertension
- Decreased pre-operative PFTs ordered as they do not impact respiratory management
- Test a post-operative propofol drip

Figure 3. Illustrative one-page report.

Generic Collaborative Assessment Scale

1. Non-starter
2. Activity but no changes
3. Modest improvement (30% improvement at a major subsystem level)
4. Significant progress (50% improvement at a system level)
5. Outstanding progress

organization presents a poster (storyboard) at each learning session.

Self-assessments and planning group assessments are performed on a monthly basis to monitor participant and collaborative progress. IHI employs a generic five point scale (see the box entitled "Generic Collaborative Assessment Scale") that requires statistical proof that improvement is being made. Given clearly stated aims, it is easy to assess an organization's progress toward that aim.

Spread

Collaboratives build fundamentally new knowledge—knowledge about achievable aims, practical real-time measurement, and high-leverage changes.

Spreading this "how to" knowledge is the last element. IHI's desire is to achieve knowledge dissemination within participating organizations (to other sites for instance) and to all other organizations that can benefit from it. At the end of each collaborative, the knowledge is placed within the public domain starting with a National Congress, a public report of what was learned. IHI publishes a book on each topic, intended to be a functional "guide" to making improvement, submits journal articles, and convenes regional conferences and meetings.²⁸⁻³²

Results

An in-depth discussion of results is not the intent of this article, but progress to date is worth noting. As discussed previously, IHI uses a five-point scale to assess participants' progress in each collaborative. IHI also monitors median assessments across collaboratives as an outcome measure of its own work. IHI's goal is to achieve a median assessment of four in each Collaborative. Figure 4 shows the results to date.

To improve results, the directors of the BTS meet formally on a monthly basis to share learning and to review organizational assessments. Their focus is on understanding how to foster demonstrable, meaning-

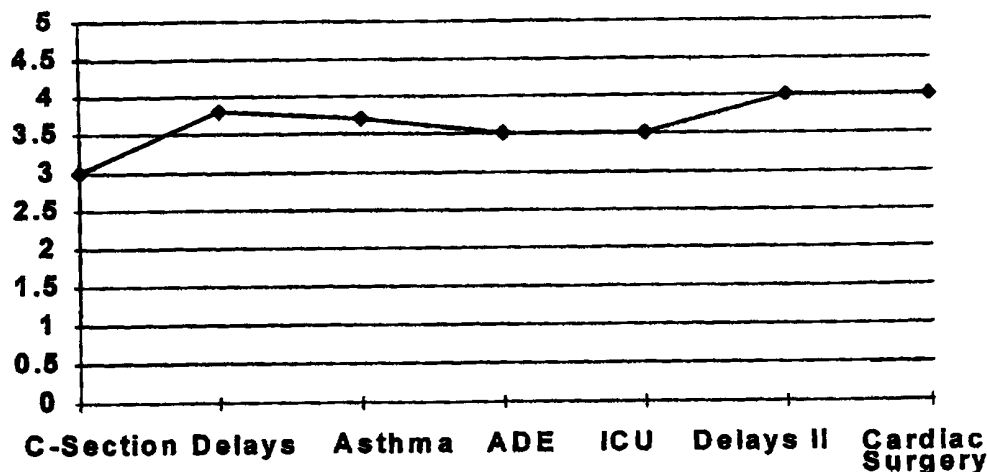


Figure 4. Comparative collaborative assessments.

ful improvement in a more timely and less resource-intensive manner. IHI assess its own progress toward goals and collectively decides on strategies to enhance processes. The BTS is a dynamic and evolving process.

Conclusions

The Breakthrough Series model appears to be a robust innovation for collaborative improvement—the spread and adaptation of existing knowledge to multiple sites to accomplish common aims. It brings diverse organizations together in order to learn and improve. It codifies existing knowledge from disparate sources and employs that knowledge in demonstrable improvement. It builds the internal capacity of participating organizations to establish clear aims and to collect and monitor appropriate performance measures. It enables organizations to use the scientific method to test changes in their processes of care and modify them to achieve demonstrable improvement.

Many opportunities and challenges remain. Enhancements to the BTS model are needed to obtain more consistent results. Less costly alternatives to the current structure need to be explored. Methods need to be developed to more fully engage senior leaders and to help participants with the organizationwide spread of ideas. Last, the factors associated with the success and failure of participants need to be elucidated.

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