Chapter 6
We Can Do This: The Institute for Healthcare Improvement Adverse Drug Events Collaborative

Rewind to 1995, before Annenberg and the NPSF. "Patient safety" was not on many agendas, but methods to change systems to improve quality of care were beginning to be developed. Policy-makers and the healthcare establishment were slow to respond to the new information on the extent of medical error and our calls for a new approach, but one person instantly recognized the challenge: Don Berwick of the Institute for Healthcare Improvement (IHI).

Don Berwick was a pediatrician, an honors' graduate of Harvard and Harvard Medical School, with a MPP from Harvard Kennedy School of Government. "Preparation H" he would call it. He was interested in health policy and quality of care. After joining the Department of Health Policy and Management at the Harvard School of Public Health, he was hired as the vice president for Quality-of-Care Measurement at the Harvard Community Health Plan, where his attempts to motivate physicians and managers by providing them with performance data were not always welcomed. At the advice of the CEO, Tom Pyle, Berwick began to explore approaches to quality in other industries.

Berwick read extensively the literature on quality improvement in industry. He visited and was powerfully influenced by Guy Cohen of NASA and A. Blanton Godfrey, head of quality systems and theory at Bell Labs. At about this time, he had a chance meeting with Paul Batalden, who introduced him to the work of W. Edwards Deming.

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Paul Batalden was also a pediatrician and was COO of Park Nicollet Medical Center when he discovered the work of W. Edwards Deming. Batalden, like Berwick, had been working on improving quality of care for some time, with frustratingly little to show for it. He found Deming's work on quality management in industry fascinating [1].

Deming had been a careful student of approaches to improving industrial and agricultural efficiency during World War II. But in the postwar period, a booming economy and pent-up demand led US manufacturers to focus on production and not worry about quality. Deming was sent instead to Japan, which was struggling to recover from the war, and found his advice eagerly sought—and listened to. The results of his efforts came home to America—literally—in the early 1970s when Japanese cars that were cheaper and better than those produced by the American "big three" entered the market. Deming returned to the USA and found increasing audiences for his courses on quality management.

Batalden took Deming's course and had an epiphany. The approaches Deming was teaching were just what healthcare needed. He persuaded the CEO of the Hospital Corporation of America to fund basic quality improvement courses in their 390 hospitals. Batalden convinced Don Berwick to take Deming's course, which was similarly transforming for him and led to his conversion to quality-focused methods of management and improvement.

(**a**) Don Berwick and (**b**) Paul Batalden. (All rights reserved)

At the suggestion of Howard Hiatt, Berwick wrote up his ideas about how these concepts could be applied in healthcare in a NEJM article, *Continuous Improvement as an Ideal in Health Care* [2], launching his career and a new field.

But how to make it happen? Blanton Godfrey had an idea: why not try a demonstration project that paired healthcare organizations that wanted to learn CQI with industrial companies that were actually doing it? Between them and with grant support from the John A. Hartford Foundation, they recruited healthcare organizations and companies to the National Demonstration Project on Quality Improvement in Health Care. Its success led to the founding of IHI in 1991.

Don became familiar with our work on preventing adverse drug events (ADEs) when he was asked by JAMA to review my ADE systems paper in late 1994. IHI was already working on patient safety as a result of Don's introduction to it by Guy Cohen at NASA earlier, and its faculty were engaged in safety designs for several early collaboratives. But Don recognized that it deserved more focused attention. Our ADE systems paper showed what needed to be done. IHI knew how to do it.

IHI was by then the emerging leader in quality improvement in healthcare and had considerable experience in making change. Since its inception, IHI had trained thousands of people from hundreds of healthcare organizations in the fundamentals of improving quality of care through courses on improvement and its annual conference, the National Forum on Quality Improvement in Health Care.

Yet actual change, measurably improved quality of care, was hard to come by. Physicians in particular were often reluctant to participate. They had difficulty reconciling QI concepts with the classical individual performance-centered approach they learned in medical school. The Institute was not having the breadth of impact on quality of care that it desired. IHI needed to try something different to engage organizations in making real, system-level changes that would lead to dramatic improvements in care.

One day, at a meeting of IHI's Group Practice Improvement Network, Don and Paul Batalden were chatting about ways to accelerate improvement in healthcare beyond what IHI had achieved using traditional educational approaches. Batalden sketched a model on a

paper placemat and handed it to Don. It contained two new concepts. First, it would pair clinical subject matter experts with quality improvement application experts to help organizations select, test, and implement changes on the front lines of care.

Second, it would bring QI teams from different hospitals together to enhance learning by providing them with instruction on change methods and the opportunity to learn from one another, providing mutual support, reinforcement, and peer pressure. It would build on the work of Tom Nolan, Lloyd Provost, Gerald Langley, and their colleagues in Associates in Process Improvement (API) on rapid cycle change [3]. In a flush of confidence, they decided to name them Breakthrough Series Collaboratives (BTS) [4].

What Is a Collaborative?

A collaborative is a collection of teams of healthcare workers who come together to work on a specific problem. The rationale for the collaborative is that meaningful change requires teamwork and that teams can learn from one another. The collaborative facilitates this interaction by bringing teams together from a number of similar healthcare organizations across the country to work on problems such as overuse of cesarean section or medication errors. The sponsor provides structure, instruction in theory and technique, data collection, and feedback and periodically brings the teams together for reinforcement and learning from one another.

IHI established four aims for a collaborative: to find, describe, and diffuse best practices throughout the collaborating organizations, to improve outcomes in each organization by teaching it to understand its systems of care and change them, to develop expertise in the science of improvement in each topic, and to disseminate the knowledge gained during the collaboratives as broadly as possible to others in the healthcare community.

Participants are educated in the evidence of care process changes that have been proven to be effective for the specific topic, and they are taught to use rapid cycles of change to help test and learn from changes in a short period of time. Teams are challenged to adapt these methods to their own situation to improve care. Early BTS Collaboratives

consisted of 20–40 organizations working together for 6–12 months on a specific topic. Over time the model evolved, sometime to incorporate hundreds of organizations in a single collaborative.

How It Works

IHI begins by identifying topics ripe for change. First, a topic has to be a significant quality of care issue. Second, there must be evidence that a different approach is effective, or at least promising. That is, proof that some healthcare organizations had achieved better outcomes by implementing a new system; a gap existed between common practice and what is possible. Third, the problem has to have risen to national, or at least local, attention so there is tension for improvement.

Next, an expert planning group is formed of researchers and specialty practitioners to clarify the nature of the gap and consolidate the scientific knowledge—*what* to do—and the improvement knowledge, *how* to do it. From this review the group identifies "change concepts," which are design ideas (often including human factors concepts such as standardization and reducing reliance on memory) that teams will use to implement the new knowledge. Methods to measure progress are identified, and realistic numerical goals for achievement are created.

Collaborative participants are multidisciplinary teams recruited from hospitals and systems in the wide IHI network. The ideal team varies with the topic but often includes a systems leader "sponsor" who has the authority to get things done, a technical expert who is the improvement leader, a day-to-day leader to make the project go, and at least one clinician champion.

The typical collaborative process starts with a 2-day learning session attended by all participating teams. The planning group instructs participants in improvement methods, the core of which is the "Model for Improvement" first formulated by Associates in Process Improvement. The Model guides teams toward real-world, rapid tests of change: so-called "Plan-Do-Study-Act" or "PDSA" cycles.

The way the Model for Improvement works is that a team identifies a specific aim and plans a small change in process to achieve it. The

change is implemented quickly, and just enough data is collected as quickly as possible to see results. If the change fails to yield progress, they start over. If it succeeds, they build on it to improve its success and spread it more widely in the organization. Each test of change informs the rest, as confidence grows in the understanding of what works—a "ramp" of growing knowledge. For any significant aim, a family of changes is required in order to achieve major success. Today, that family of changes is often represented in what IHI calls a "driver diagram."

At the first meetings of the Collaborative, teams decide on their aims, select specific process changes to try out, and plan the initial "tests of change" they are going to carry out when they return home. In subsequent meetings, teams report their progress to the entire group, learn from others, and plan the next changes. (One important rubric of the Breakthrough Series Collaborative model is "All Teach; All Learn.")

During the intervals between the whole-group learning sessions, teams are "supported by conference calls, peer site visits, and Web-based discussions that enable them to share information and learn from national experts and other health care organizations" [4].

A social media network is created for rapid and easy sharing of information. Teams are encouraged to visit other teams. Throughout, the emphasis is on results, not on collecting data. Written progress reports are filed to IHI monthly. Many collaboratives conclude with a National Congress to which all participants as well as other interested healthcare professionals are invited, and the results are reported. Most publish a monograph report or prepare papers for peer-reviewed journals, summarizing the collaborative's experiences.

The Reducing Adverse Drug Events Collaborative

Early in 1995, when the collaboratives were just forming, Don approached me about chairing one of the new breakthrough collaboratives, Reducing Adverse Drug Events. I was delighted to do so. It was exactly what I was looking for: an opportunity to get clinicians to apply what we were talking about regarding changing systems to prevent errors. Unlike the first collaboratives that focused on waiting

times and inappropriate care such as high cesarean section rates, the Adverse Drug Event (ADE) Collaborative was IHI's first effort focused solely on the problem of harm resulting from errors in care. It is described in some detail to show how this powerful method of systems change works to actually reduce harm.

In July we began planning the collaborative. We were able to recruit a group of safety noteworthies to advise us, including James Reason, the world's expert on error; Bob Helmreich, developer of aviation crew resource management; Don Norman, psychologist and author of *The Design of Everyday Things*; Earl Weiner, cognitive psychologist and communication specialist; Michael Cohen, founder of the Institute for Safe Medication Practices; Marilyn Bogner, specialist in technology and human error; Charles Meyers, pharmacist leader; David Bates, my research colleague from Brigham and Women's Hospital; and Ken Barker, research pharmacist.

I chaired the planning group of IHI experts, Andrea Kabcenell, Donald Goldmann, Carol Haraden, and Frank Federico, together with Tom Nolan of API and Michael Cohen from ISMP. Ross Baker, psychologist from the University of Toronto, attended as an observer. I think we all had the sense that this could be the entering wedge for getting healthcare to adopt a systems approach to errors.

The initial gathering of teams (called a Change Symposium) for the Breakthrough Series on Reducing Adverse Drug Events and Medical Errors was held January 22–23, 1996. We were delighted that 40 hospitals sent teams. Each consisted of a physician, a nurse, and a

(a) Mike Cohen, **(b)** Frank Federico, **(c)** Carol Haraden. (All rights reserved)

pharmacist. I found it fascinating that for most of these hospitals, it was the first time the participants had ever worked together as a team!

We taught the teams the basic theory of systems redesign and then asked them to identify a specific ADE problem they wanted to work on at home. They were instructed in the use of the API Model for Improvement and PDSA cycles for improvement [3].

Five weeks later, in February, we reconvened the teams for the first learning session. Chuck Kilo from IHI joined Frank Federico as team coaches. Participants were given more specifics of how to use the PDSA cycle, and teams planned their first cycles with faculty coaching. They then went home to carry out their plans. They filed monthly progress reports with IHI, and we had frequent individual and group conference calls.

Early on, we surveyed all participants regarding the extent to which 11 "basic" adverse drug event/medication error preventive measures were already in place in their institutions. These were procedures that were known and had been recommended and talked about for many years. They included unit dosing, standardization of doses, protocols for lethal drugs, pharmacy admixture of IVs, 24-hour pharmacist availability, prohibition of double shifts, etc.

The survey results were sobering. Only 8 of the 41 institutions had as many as 8 of the 11 measures in place; none utilized all. The use of unit dosing, computer drug profiling in pharmacy, and 24-hour availability of the pharmacist was quite high, but for others, such as enforcement of standard protocols, prohibition of double shifts, and use of effective systems to monitor ADEs, the rates were sadly low.

Measuring adverse drug events proved to be a challenge for many hospitals, so early on we developed a standardized ADE reporting form and distributed it to all participants. In addition, participants identified specific measures that applied to their changes, such as blood glucose level for changes in insulin administration and the documentation of allergy information.

The second learning session was held in June. We reviewed the problems in making change, lessons from human factors, and measurement. Teams shared experiences of their successes and failures

and interacted with other teams to learn secrets of success. With faculty coaching they refined their projects.

Midway in our Collaborative, in July 1996, IHI held a retreat for the leaders of all six Collaboratives underway to compare notes and learn from one another. All were struggling, with only a modest number of hospital teams notching up major successes in changing their systems. The process seemed straightforward to us; for the hospitals it was anything but.

The third and final learning session was held November 17–19. We focused on lessons learned, how to sustain changes, and strategies for moving forward. Teams presented storyboards of their projects and made presentations of their work and plans. A month later, we presented our experience with the ADE collaborative at the IHI annual forum, and in March 1997 we concluded the collaborative with a National Congress in which all of the groups reported out and presented plans for sustaining the gains.

Results

Of the original 41 teams, 36 completed the collaborative and implemented significant changes. Overall, they implemented 209 ramps, of which 120 were successful. The most common changes were implementing nonpunitive reporting (24 hospitals, 50% success), enforcing standardized prescribing (22 hospitals, 64% success) implementing heparin protocols (18 hospitals, 72% success), and removing KCl from nursing units (15 hospitals, 100% success) (Table 6.1). The change concepts that worked best were reducing reliance on memory, standardization, simplification, use of constraints, forcing functions, and the use of protocols [5, 6].

One of the interesting findings was that success was not related to hospital characteristics such as size, teaching status, ownership, or urban/rural location. It depended instead on the commitment of the team and the support it received from top management.

Table 6.1 Most common changes implemented

Type of change	No. of ramps	No. successful	(%)
Nonpunitive reporting	24	12	(50)
Enforce standardized prescribing	22	14	(64)
Implement heparin protocols	18	13	(72)
Remove KCI from nursing units	15	15	(100)
Ensure documentation of allergy information	12	10	(83)
Standardize medication administration times	12	8	(67)
Implement chemotherapy protocols	9	7	(78)
Implement insulin ordering protocols	7	3	(43)
Totals	119	82	(70)

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Lessons Learned

The experience of the ADE collaborative was similar to that of the other IHI collaboratives. Three major factors led to success: strong leadership, effective processes, and appropriate choice of intervention.

Leadership is essential at two levels: the CEO and the team leader. Change of any kind induces resistance. Support from the top is essential to overcome natural and expected objections. At the team level, consistent and persistent leadership was needed to maintain momentum for change and enthusiasm. Teams failed if they had poor leaders or if the leader suddenly left. Although their participation was essential to success, physicians were not necessarily, or usually, the leaders of the teams, which were variously led by representatives from all three professions: nurses, doctors, and pharmacists [7, 8].

Successful teams were also those that were able to define and relentlessly pursue their aims. They had a clear idea of what they wanted to accomplish and were rigorous both about measuring progress and following the PDSA cycle model for improvement. Teams were more likely to succeed when they involved all stakeholders, thus co-opting potential resistors, and if they included a physician.

Successful teams chose practical small-scale interventions that attempted to change processes, not to educate or reform people. The ideal intervention redesigned the work so that it was both difficult to make errors and easy to perform.

Conversely, the most important causes of failure were lack of these features: absence of supportive leadership, failure to clearly define aims, and poor choice of intervention. Failure to involve all stakeholders was almost always a prescription for failure. Resistance by physicians and nurses to change can be profound if they are not involved in the process, especially if the new process requires additional time or effort. Other stumbling blocks were fixating on data collection and focus on the error rather than on the underlying systems failure.

The Breakthrough Collaborative has turned out to be one of the most effective methods for achieving systems change. The limited time frame of the collaborative puts pressure on teams to actually make changes, not just talk about them. The previous experience with many QI efforts was that weeks or months were spent gathering data and talking about and planning elaborate changes. The Collaborative forced action.

The API Model for Improvement and the PDSA method, the use of small tests of change and repeated iterations, is very powerful when used properly. A momentum is developed that energizes the team and facilitates change. But improvement teams often struggle when they are on their own. The collaborative helps them succeed by providing structure, instruction, discipline, and the reinforcement that comes from sharing with others. It is a powerful tool for improving patient safety.

Use of Collaboratives

IHI convened a second collaborative on ADEs that focused on "high-alert" drugs: medications that can be fatal when used improperly. It was one of many collaboratives led by IHI over the ensuing years, teaching hundreds—thousands—of hospital teams the PDSA model. The Massachusetts Coalition for the Prevention of Medical Errors used collaboratives—with the help of IHI—to implement two medication safe practices statewide. (See Chap. 8.)

Some years after IHI introduced the collaborative model, in 2004, Peter Pronovost dramatically demonstrated its effectiveness in reducing central line catheter-associated bloodstream infections (CLABSI) in a statewide collaborative in Michigan [9, 10].

Central lines are plastic infusion tubes inserted into the atrium of the heart via a large vein in the neck. They are typically inserted by a resident physician using sterile technique with the patient in bed. Because they provide reliable access for giving intravenous fluids, blood, and medications, their use is a standard practice for seriously ill patients, who may need them for a long time. But they are risky: infections occurred in 10–20% of patients with long-dwelling catheters; 10% or more of those were fatal. Infection is almost always the result of bacterial contamination at the time of catheter insertion.

Pronovost previously had incredible success in eliminating CLABSI in an intensive care unit at the Johns Hopkins Hospital. He and his team implemented a protocol to ensure that guidelines for the process of inserting the catheter were followed. A key feature was the use of a checklist that specified each step in the process, such as use of a sterile drape, gown, and gloves. (This is the work that introduced the term "checklist" to medicine.)

Johns Hopkins Hospital CLABSI protocol (Adapted from Ref. [9])

1. Implement educational intervention
2. Create a Central Catheter Insertion Cart
3. Asking providers daily whether catheter can be removed
4. Implement a checklist to be completed by the bedside nurse
5. Empower nurse to stop procedures if guidelines are not followed

Checklist for inserting central line (Adapted from Ref. [9])

1. Clean hands
2. Clean the skin with chlorhexidine
3. Drape site
4. Use Hat, mask, sterile gown
5. Use sterile gloves
6. Apply sterile dressing

Pronovost's protocol also introduced a truly radical innovation: if sterile technique was breached, the nurse was empowered to stop the procedure and require the physician to re-prep, re-gown, and re-drape. This was a profound cultural change. It required psychological safety for the nurse, i.e., no fear of speaking up, and physician willingness to accept a role as a true member of a team. As we will see later, these are building blocks of the culture change needed to make healthcare safe.

Pronovost's results were astounding: within months the CLABSI rate was reduced to zero, and the improvement was sustained for more

than a year [11]. At last, someone had "gotten to zero"! I considered it then, and still do, a major milestone in the safety journey; it was certainly the most important breakthrough until then.

Building on this success, Pronovost later enlisted the support of the Michigan Hospital and Healthcare Association (MHHA) and secured funding from Michigan Blue Cross-Blue Shield to carry out a statewide collaborative to implement his protocol. With Christine Goeschel and others, he recruited 127 hospitals to participate in the collaborative run by his team.

Ninety-six hospitals completed the collaborative. They reduced the mean rate of CLABSI/1000 catheter days from 7.7 to 1.4 in 18 months. Even more impressively, over half of the hospitals replicated the Hopkins experience, totally eliminating the infections, getting their infection rates to zero, and keeping them there for 3 years [9].

Dixon-Woods and Bosk subsequently carried out an intensive analysis of how the Michigan collaborative had been so incredibly successful. They concluded that five features were crucial to its success: (1) social pressure among state's ICUs to participate (as the program got underway, ICU leaders didn't want to be left out); (2) creation of a network community by immersion coaching, workshops, and data, as used by IHI; (3) combining grassroots features and inclusion of all stakeholders with a vertically integrated program structure; (4) use of data on infection rates as a disciplinary force by making performance visible and ranking units' performance; and (5) use of "hard edges," coercive measures, by program leaders, such as contacting hospital CEOs to ask for data and asking ICUs to withdraw from the program if the data were not forthcoming (none did) [12].

Motivated by Pronovost's work in Michigan, the World Health Organization launched an international "Match Michigan" program to encourage country organizations to adopt the collaborative method to reduce bloodstream infections. In the UK it was taken up by 215 ICUs. While they were unable to "match" Michigan, they did succeed in reducing the infection rate by more than 50% [13].

In the USA, AHRQ funded Pronovost and JHH faculty to lead a national effort supported by the American Hospital Association and the MHHA. State hospital associations coordinated hospital teams in their states. Following a national campaign, which included promotion by Consumers Union, the Leapfrog Group, the Center for Medicare

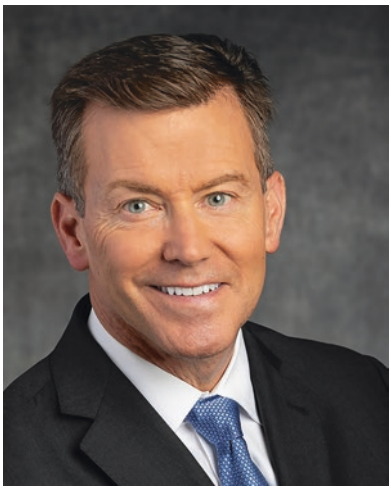
and Medicaid Services (CMS), and The Joint Commission, 45 states participated. In addition, 22 states instituted required reporting of bloodstream infections [14]. Central line infections in ICU patients have been reduced by 80% [15].

An important result of these successes was that CMS decided that CLABSI was preventable and stopped reimbursing hospitals for the additional costs of bloodstream infections [14].

Thanks to the pioneering work of IHI that developed the Breakthrough Series Collaborative model and the success of Peter Pronovost in applying it on a large scale to get results, the collaborative method has proved to be a highly successful method for changing a system and sustaining the change. Convening collaboratives to address the many other issues in patient safety should be high priority for AHRQ and for state health departments and hospital associations.

Subsequent IHI Initiatives

The Breakthrough Collaboratives added to the influence that IHI was having on quality improvement. By then, the annual National Forum was attracting thousands, and in 1996 IHI teamed with BMJ to host the first European Forum on Quality Improvement in Health Care. At



Peter Pronovost. (All rights reserved)

the turn of the century, hundreds of hospitals were engaged with IHI in *Idealized Design* programs for clinical office practices, medication systems, and the ICU. In 2002, IHI launched *IMPACT*, a national network for change.

But the most exciting IHI initiative at this time was *Pursuing Perfection*, a collaboration with the Robert Wood Johnson Foundation to provide $20 million to a small number of hospitals that would make a serious commitment to redesigning processes and building capacity.

The goal was for an organization to show that it could improve not just one or two aspects of care, in one clinic, unit, or department, but could make high levels of performance improvement a way of life for healthcare providers, all the time, in all dimensions of quality, throughout an entire organization or system of care. To undergo *organizational transformation* [16]. The initiative would not only raise expectations among providers, payers, and consumers for higher-quality care; it would demonstrate how to attain this level of achievement.

When the program was launched in 2001, over 220 organizations applied; 12 were selected for Phase 1, the planning process. In 2002, seven US organizations—four hospitals and three outpatient organizations—were awarded Phase II implementation grants of up to $1.9 million each. In addition, six self-funded international sites in Holland, Sweden, and four in the UK joined in this collaborative learning model. (IHI had been working with the National Health Service since 1999.)

The initiative was highly successful, with several hospitals in the USA and overseas achieving transformational change. Cincinnati Children's Hospital attributes its culture change to the Pursuing Perfection initiative.

In 2004, IHI launched its most ambitious project, the *100,000 Lives Campaign*. The design components came from Don Berwick's son, Dan, who had worked on political campaigns. "Some is not a number, soon is not a time," he said—a slogan that resonated as IHI strove for greater and more sustainable impact. They set a date, June 14, 2006, to achieve the goal of saving 100,000 lives—the number the IOM had estimated died every year from medical errors. IHI reached out for support from the AMA, ANA, CMS, and The Joint Commission and found all receptive.

The campaign called on healthcare organizations to reliably—100% of the time—implement six specific interventions: rapid response teams, medication reconciliation, immediate revascularization for myocardial infarction, CLABSI protocol, ventilator-associated pneumonia protocol, and use of perioperative antibiotics.

The campaign was incredibly successful: over 3000 hospitals joined, and by the due date hospital self-reports suggested that the project had saved more than 100,000 lives. This was followed by the five million lives campaign, ending in January 2008, that added six more practices and enlisted additional hospitals. While an accurate count was impossible, the amount of change was substantial. Improving quality and safety was finally becoming ingrained in healthcare.

Of the many other IHI initiatives within the time frame of this book, two deserve brief mention. In 2008, IHI created the IHI *Open School for Health Professions*, with online courses in patient safety and quality improvement provided free to students and at low cost to others. Medical and nursing students rapidly enrolled to make up for their schools' failure to make room for these subjects in their curricula. Within 10 years, 890 voluntary "chapters" of students with faculty advisors had been established in 92 countries, and 4.5 million courses had been completed by 715,000 learners (IHI website). More than 1000 organizations and universities use the courses in their training programs or formal curricula.

The second powerful innovation of this period was the *Triple Aim*, initially crafted by Tom Nolan and another IHI faculty member, Dr. John Whittington. In 2008, recognizing that improving the healthcare system requires simultaneous pursuit of improving the experience of care, improving the health of populations, and reducing per capita costs of healthcare, IHI codified these objectives in a new framework, the Triple Aim. This concept recognized and validated the role of quality improvement in controlling costs and that our responsibilities—and effectiveness—depend on efforts beyond the walls of our healthcare institutions [17].

Conclusion

It is impossible to overstate the impact of IHI on quality of healthcare and patient safety. Under the inspired, skilled, and impassioned leadership of Don Berwick, IHI established a corporate model that has yielded a never-ending stream of innovative and effective methods to improve care and reduce harm. Its influence is global and continually expanding. Its initiatives have both deepened and broadened our understanding of quality of care and the roles of institutions and professionals in providing it. Much of what most people in healthcare understand about quality improvement they learned from IHI.

The merger with the NPSF has led to global expansion of efforts to improve patient safety. IHI support of the Lucian Leape Institute ensures continuing development of innovative strategies to reduce harm. Of all types of quality failure, our inability to prevent harm is the least defensible. Under IHI guidance and inspiration, continued progress is assured.

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