Getting Started Kit: Sustainability and Spread

How-to Guide

A national initiative led by IHI, the 5 Million Lives Campaign aims to dramatically improve the quality of American health care by protecting patients from five million incidents of medical harm between December 2006 and December 2008. The How-to Guides associated with this Campaign are designed to share best practice knowledge on areas of focus for participating organizations. For more information and materials, go to www.ihi.org/IHI/Programs/Campaign.

This How-to Guide is dedicated to the memory of David R. Calkins, MD, MPP (May 27, 1948 – April 7, 2006) -- physician, teacher, colleague, and friend -- who was instrumental in developing the Campaign's science base. David was devoted to securing the clinical underpinnings of this work, and embodied the Campaign's spirit of optimism and shared learning. His tireless commitment and invaluable contributions will be a lifelong inspiration to us all.

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Campaign Donors

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BlueCross BlueShield Association
An Association of Independent Blue Cross and Blue Shield Plans

Cardinal Health Foundation

This initiative builds on work begun in the 100,000 Lives Campaign, supported by Blue Cross Blue Shield of Massachusetts, the Cardinal Health Foundation, the Rx Foundation, the Gordon and Betty Moore Foundation, The Colorado Trust, the Blue Shield of California Foundation, the Robert Wood Johnson Foundation, Baxter International, Inc., The Leeds Family, and the David Calkins Memorial Fund.

General Introduction

When IHI launched the 5 Million Lives Campaign in December 2006, we committed to partner with participating hospitals to protect patients from 5 million incidents of medical harm over the subsequent 24 months. Since then, hospitals have adopted and spread the Campaign's interventions at different rates—some starting with only one intervention in one unit, others introducing all twelve interventions across their entire facility or system.

Having made such a significant investment in introducing the Campaign interventions, it is vitally important that participating hospitals plan to sustain and spread improvements.

This guide identifies well-tested approaches for pursuing those goals:

- **Sustainability**: Locking in the progress that hospitals have made already and continually building upon it; and
- **Spread**: Actively disseminating best practice and knowledge about every intervention and implementing each intervention in every available care setting.

Sustainability (Holding the Gains) and Spread (Spreading Campaign Interventions to All Locations)

On one of the Campaign team's many trips out into the field, a nurse at a hospital in the Detroit area noted that, from her standpoint,

"*Collecting improvement data is just as important as taking vital signs—it all contributes to better care for the patient and that is the goal of our work. There is really no end to the improvement we can do, and our leadership expects us to make it a priority*."

Her statement was striking to those of us who heard it, and a source of great optimism—an organization whose staff expresses such sentiments is one that understands the importance of continuous improvement and that has built the culture and the systems for sustaining progress indefinitely.

Our goal is to build on the great successes we have observed in participating hospitals to this point and generate organizational capacity for change of the kind that's present at the hospital described above, describing key strategies and tactics for sustainability—or "holding the gains" —and spread in Campaign hospitals.

Why Is Sustaining and Spreading Progress So Important?

By embarking on the 5 Million Lives Campaign, all of us—IHI, our partners, Nodes and, above all, participating hospitals—made a pledge to patients and families that we would change the standard of health care in the country, radically reducing harm and death through the introduction of the twelve Campaign interventions. We cannot afford to backslide on this pledge—if we fail, patients will endure pain and families will lose loved ones unnecessarily.

Furthermore, in an industry that is plagued by negative press coverage and pessimism, it is crucial that we do not lose momentum and sow deeper frustration. Through the Campaign—and other concurrent quality initiatives in the country—hospitals have demonstrated that they are bringing the same passion to their improvement work that they bring to their patients each and every day. Reverting to prior levels of performance would damage the morale of those who have worked so hard to enhance their hospitals' performance, and also send a message to critics that well-documented variability in American health care is difficult —if not impossible—to fix. While we know that this is not the case and that outstanding, ongoing performance is possible, we must prove it by building on the momentum of the last 21 months.

Finally, our work on improving health care offered in participating hospitals has only just begun. We are not yet where we need to be on all twelve Campaign interventions and won't be until every hospital in the country introduces them reliably. And our work doesn't stop there. There are countless other areas for improvement, and so it is critical that we establish the twelve Campaign interventions as new standards of care, and move on to new evidence-based interventions and areas for improvement.

PART ONE: Key Components of Sustainability (Holding the Gains)

Authoritative sources on sustainability in health care systems (see *Sustainability Resources and Literature* on p. 15) seem to agree that several or all of the following properties exist in organizations that sustain improvement:

1. Supportive Management Structure
2. Structures to "Foolproof" Change
3. Robust, Transparent Feedback Systems
4. Shared Sense of the Systems to Be Improved
5. Culture of Improvement and a Deeply Engaged Staff
6. Formal Capacity-Building Programs

For each of these components of a hospital's system for sustainability, we have identified some notable best practices and examples of success. Examples come from our experience working with hospitals in the 100,000 Lives Campaign, the predecessor to the 5 Million Lives Campaign.

1. Supportive Management Structure

In order to support sustainability, the hospital's leadership (trustees and executives) treats quality of care as a high priority, devoting regular attention, creating accountability systems for improvement, and recognizing the organization's successes.

Best practices:

- Board and executive team creates accountability systems for tracking performance, assigning senior-level responsibility for holding gains on the Campaign interventions, and reviewing intervention-level performance monthly in a structured reporting format (e.g., an organizational scorecard).
- Board and executive team effectively communicates measurable improvement aims and the importance of sustaining performance in the intervention area, utilizing key communications vehicles (emails, newsletters, hospital meetings) to emphasize their importance.
- Executive team celebrates successful attainment of improvement aims.

Examples of success:

- The leaders at Benedictine Hospital in Kingston, NY, use an organizational scorecard to track Campaign results (see "Appendix B: 100,000 Lives Campaign Dashboard for Executives and Leaders").
- The Board and executives of the Parkview Hospital System in Ft. Wayne, Indiana, have set clear aims for their hospitals and receive regular reports on progress towards those goals. Quality improvement issues have a firm and prominent place in management and board meeting agendas. Front-line staff and leaders alike share accountability for success.
- See "An Example of Success: Baptist Memorial Health Care System (BMHCC)" on pp. 28-37 for the graphs included in BMHCC's 100,000 Lives Campaign System-Level Report.

2. Structures to "Foolproof" Change

In each of the intervention areas, the organization builds structures (e.g., IT systems, packaged materials that support a given intervention) that make it difficult—if not impossible—for providers of care to revert to old ways of doing things.

Best practices:

- Managers of improvement activities document successful processes in guidelines and training materials.
- Managers of improvement activity develop tools (e.g., checklists, pre-packaged "kits" of materials used in applying the intervention) and technology to support sustained implementation of the intervention.

Examples of success:

- Many hospitals use "kits"—for example, Community Health Network in Indianapolis, Indiana, uses central line insertion kits that contain all the necessary tools and checklists to comply with the Campaign's central line bundle elements.
- Some medication reconciliation processes are successful because they merge multiple workflows to streamline daily practice. For instance, several hospitals have made medication reconciliation forms that double as admission order forms. By adding medication reconciliation to an existing process, a hospital can ensure that the reconciliation will happen and also eliminate extra work and forms.

3. Robust, Transparent Feedback Systems

As much of the organization as possible is aware of performance on key indicators, reviewing information generated by a measurement system (that provides data to stakeholders at every level in the organization), comparing it to clear standards set by management, and taking part in improvements devised in response.

Best practices:

- The hospital has in place a measurement system that regularly generates data on performance, abstracted at different levels of detail for different audiences (e.g., organization-wide measures for executives, unit-specific data for providers).
- The hospital publicly displays improvement data on all improvement interventions, noting performance as measured against aims articulated by leadership.

Examples of success:

- Minnesota Children's Hospitals and Clinics uses a screen saver slide show on all hospital computer terminals to display up-to-date Campaign intervention results.
- See "An Example of Success: Baptist Memorial Health Care System (BMHCC)" on pp. 28-37 for BMHCC's 100,000 Lives Campaign performance measures.

4. A Shared Sense of the Systems to Be Improved

All stakeholders in making improvement (executives, managers, frontline providers of care) share an understanding of the processes and systems that they are seeking to improve, and are clear on their contribution to the sought-after improvement.

Best practices:

- Managers of improvement activity use tools to map the process that has been improved (e.g., flow charts), allowing for shared analysis of systems as sustainability work proceeds.

Examples of success:

- While medication reconciliation is arguably the most challenging Campaign intervention to introduce, several hospitals have begun to see improved results after developing a clear map of the reconciliation process, noting the role of many stakeholder in introducing this change. If understood by everyone taking part, this map serves as a constant reference point in studying and enhancing the system for reconciliation.

5. Culture of Improvement and a Deeply Engaged Staff

The organization shares a sense of pride around performance and improvement skill, and many enjoy their work in this area. Staff are well aware of quality improvement initiatives like the 5 Million Lives Campaign, and feel invested in outcomes; job descriptions and performance evaluations include attention to quality improvement skills.

Best practices:

- Everyone in the organization is clear on major performance improvement activity and can explain their role in it.
- Staff view quality improvement work as part of their job and they believe that they have a stake in continually enhancing their performance in any given intervention area.
- Managers of improvement activity write job descriptions to reflect involvement in introducing a particular intervention and supporting ongoing improvement work.
- Managers of improvement activity create opportunities for all stakeholders to express concerns about the improvement process, and to share ideas for improvement.

Examples of success:

- McLeod Regional Medical Center in Florence, South Carolina, undertook efforts to strengthen its nursing program and its ability to recruit and retain nurses. That effort soon became a matter of transforming the organization's culture, as Marie Segars,RN, MSN, CNAA, Vice President of Patient Services and Chief Nursing Officer, explains: "I come from a generation of leaders who were taught to think about projects with a beginning and an end. But when you really go about the business of transforming an entire system and its culture… all your projects become woven into a tapestry and you can't separate them. We have learned that you can't perfect anything in isolation, and the same skills we use to improve AMI care help us support the nursing workforce."

6. Formal Capacity-Building Programs

The organization makes training of executives and staff a high priority, building skill in appropriate fiscal or clinical disciplines, but also building organization-wide skill in application of modern quality improvement methods and creating a culture where improvement work is seamlessly integrated into day-to-day activity in the unit or facility.

Best practices:

- Managers of improvement activity closely consider the composition and skill base of participating teams, working to enhance confidence and core competencies.
- Every stakeholder in the organization is introduced to the content of any new improvement intervention and provided ongoing training in quality improvement methods (e.g. The Model for Improvement, Plan-Do-Study-Act cycles – see Appendix A).

Examples of success:

- The Advocate Health System in Chicago, Illinois, has been building the skill base of its staff for several years with a formal program that teaches process improvement, quality improvement, and measurement techniques in regular seminars.

Forming the Team, Setting an Aim, and Measuring Progress

Team. Notably, the team for sustaining improvement is represented not by a small, interested group that has first tested an intervention, but by everyone in the hospital that is involved in the impacted care process. Making sure that each of these stakeholders (doctors, nurses, other clinical staff, and administrative professionals) is invested in the process is the hallmark of a successful program to hold gains. Other keys to success include planning proactively for the sustainability phase of work (i.e., considering the key factors above while the intervention is still undergoing incremental introduction and piloting), and making certain that leaders and staff are on board through deliberate discussions about sustainability.

Aim. On the level of the Campaign interventions, aims for sustainability will not vary greatly from the aims for prior phases of work – if anything, teams should seek to improve performance in this phase, driving infection rates downward and reliability rates upward.

Measures. The key is that teams continue to measure performance in these areas with regular review by leaders and all stakeholders; above anything else, tracking how often you measure – measurement of the periodicity of measurement activity – will ensure that these aims are met. Hospitals might also consider measuring how frequently boards of directors and executives review these data as an indicator of engagement in sustainability activity. The Campaign facilities most successful at holding their gains to this point appear to constantly measure performance with an aim of improving it significantly in every quarter for all six interventions.

(Note: See *PART TWO: Spreading Campaign Interventions to All Locations*, p.16, for ideas on how to link your aims for holding the gains, establishing a team, and setting up a measurement system with the activities needed to support spread.)

Tips for Getting Started

The key question in getting underway on holding the gains is: Do you have any gains to hold? The hard work of first introducing an intervention into your setting – characterized by experimentation and adaptation—must be completed confidently (i.e. high levels of performance ought to have been achieved on an increasingly broad basis across a unit or facility for several months) before you can set the sustainability process in motion.

The National Health Service (UK) *Improvement Leaders' Guide to Sustainability and Spread* (a wonderful resource that has informed much of our content here) identifies four sets of questions that leaders of improvement should ask themselves when they embark on this phase:

1. Is the (intervention) near the final stage of development? If there were room for further changes, would these completely alter the way the solution has been introduced?
2. Are the measurements demonstrating real improvement?
3. Who cares about this improvement? Is the solution representative of the wider views of those involved?
4. What policy or technological changes may render this solution redundant? When might this happen?

Once you arrive at firm answers to these questions that suggest the initial phase of work is complete, it is time to design a formal system for holding your gains. You are also ready to begin activities that will support the spread of interventions throughout your organization.

Notably, several world experts on holding the gains in health care note that the real secret to success is to consider sustainability from the moment you start introducing a new improvement intervention; in the best cases, thinking about how to hardwire progress ought to be an element of project design from the outset (a good reminder to us all when we embark on our next phase of work together).

Sustainability Resources and Literature

Improvement leaders' guide to sustainability and spread. NHS Modernisation Agency. Ipswich, England: Ancient House Printing Group; 2002. Available at: http://www.modern.nhs.uk/improvementguides/sustainability/fw.html

Spread and sustainability of service improvement: Factors identified by staff leading modernisation programmes. London, England: NHS Modernisation Agency; February 2003. Research into Practice, Report No. 4: Overview of early research findings.

Teamworking for improvement: Planning for spread and sustainability. London, England: NHS Modernisation Agency; August 2003. Research into Practice, Report No. 5.

Øvretveit J, Bate P, Cleary P, et al. Quality Collaboratives: Lessons from research. *Qual Saf Health Care*. Dec 2002;11:345-351.

Juran J, Godfrey B. *Juran's Quality Handbook (5th Edition)*. New York: McGraw-Hill, 1998. (Chapter 4)

The NHS Institute for Innovation and Improvement offers spread and sustainability resources, including a model to assess likelihood of holding gains. See their website for more information:
http://www.institute.nhs.uk/sustainability_model/general/welcome_to_sustainability.html
http://www.institute.nhs.uk/sustainability_model/introduction/find_out_more_about_the_model.html

PART TWO: Spreading Campaign Interventions to All Locations

No matter what level of experience you have with the Campaign interventions, it is never too early to plan for spread. If your organization is just now gaining confidence in your ability to implement one or two of the Campaign interventions, now is the time to develop a plan and begin setting the groundwork for reaching all the appropriate units or departments with all the Campaign interventions. If your organization has made great strides in testing and implementing one or more of the Campaign interventions in specific departments or units and is actively working to sustain the gains from your initial work, now is the time to develop and fully implement a spread plan. The end result is the same for all organizations: to ensure that all the Campaign interventions—along with the renewed energy and satisfaction they generate—are spread to every relevant part of the organization. This section of the guide can help you develop a plan and a course of action to help leverage the Campaign interventions across your organization.

Developing a plan for spread includes the following steps:

1. Laying the Foundation for Spread
2. Developing an Initial Plan for Spread
3. Refining the Plan

Step 1: Laying the Foundation for Spread

The foundation for spread rests on the success of the initial work to test, implement, and then hold the gains for one or more of the interventions in selected units, departments, or areas within your organization. Just as it is the responsibility of senior leadership to set up the infrastructure and activities to ensure that initial improvements are sustained, it is also the responsibility of senior leadership to plan for and provide the overall guidance and oversight needed for successful spread.

The following are some specific actions for leaders to take in laying a strong foundation for spread. These actions should be integrated with the actions and infrastructure established to hold the gains:

Send a clear message.

CEO and other members of the executive team set the agenda by clearly communicating the importance of moving the interventions from single departments, units or facilities to multiple departments, units or facilities, depending on the size of the organization and the appropriate locations for each of the interventions.

Designate an Executive Sponsor.

The executive team should designate an executive sponsor with accountability to the CEO and Board of Trustees to lead the spread efforts and also to ensure the sustainability of interventions already implemented. This may be the same senior leader who has led the Campaign efforts to date or it may be another member of the senior team.

Appoint a day-to-day leader and establish a spread team.

The executive sponsor should then assemble a team that will coordinate and provide leadership to the spread effort. In addition to the executive sponsor, the spread team may include: mid-level administrative or managerial leaders, senior medical, nursing, and pharmacy leadership, a quality improvement leader, representatives from those units or departments that have successfully piloted the interventions, and an overall day-to-day leader (spread agent) to drive the implementation of the interventions. In many cases, those involved in the team established to hold the gains will also have responsibility for spread.

The day-to-day spread leader should work with the executive sponsor to develop a plan for spread and functions as the key coach, coordinator, motivator, and connector for the spread work. The day-to-day leader may have organizational responsibility for the areas addressed by the interventions, may be someone with improvement expertise, or

may be an exceptional leader who can effectively communicate, motivate, and harness organizational resources to support the spread effort.

Share results of the successful pilots.

If the interventions that you intend to spread have been piloted successfully in at least one unit or department (i.e., you have seen improvements in the measures you have been tracking for those interventions such as numbers of VAP cases has decreased), then use the results of the successful units to attract others to the intervention(s) by showing results and sharing the stories about the impact on staff and patients that the interventions have had. If you do not yet have results to spread, then use the How-to Guides, available on the Campaign Materials tab, for those interventions to ensure the success of implementation in one unit or department.

Tip: The results and experience of successful initial units will help you make the case for a wider implementation of the interventions while also providing you with first-hand examples of successful implementation in your own organization. Take advantage of the experience and expertise of the pilot team and learn from their successes and challenges. Having readily available experts and examples from your own organization will help new teams implement the interventions more rapidly.

Step 2: Developing an Initial Plan for Spread

Your spread plan identifies specific actions you will take to reach your spread aim. The spread team working together with senior leadership is responsible for putting together the spread plan and monitoring progress in reaching the stated goals.

Establish an aim.

The first step in developing an initial plan for spread is setting an aim. An effective spread aim statement answers the following questions:

1. What do you intend to spread? (e.g., the twelve Campaign interventions)

2. What is your target level of facility or system performance? (e.g., all ICUs with 100% reliable implementation of the ventilator bundle)

Identify specific and measurable goals. You may choose to include both outcome and process measures related to the improvements that you intend to spread. For example, the overall measure for the Campaign is lives saved. For one intervention, such as Ventilator Associated Pneumonia (VAP), an additional outcome measure would be the number of cases of VAP in a specified time period or the number of days since the last reported case of VAP. A process measure you might choose to track would be : the percent of ventilated patients who receive "perfect care"—that is, all four elements of care of the ventilator bundle.

3. Who is your target population, i.e., to whom will you spread?

Include the exact number and location of the hospitals, departments or units that you intend to reach. For example, you may have piloted your medication reconciliation intervention on one medical-surgical unit. Your target population for spread would be all the units in the hospital, or all the units in all the hospitals in your system if you are a multi-hospital system.

4. What is your timeframe?

If you wish, you may identify both a short term (3- 6 months) and long-term (1-2 years) timeframe.

Sample Aim Statements

We encourage you to set aggressive goals that include all the Campaign interventions, but your aim should also reflect the extent of your current work. If you have successfully piloted all the Campaign interventions, then your spread aim would be to spread all the interventions to all the appropriate units, departments or hospitals in your systems. If you have successfully piloted one or two of the interventions and are currently working on the others, then your aim statement and your plan for spread would reflect your current progress and plans for the future. We encourage you to link your intent to hold the gains from your current work to the aims you are setting for spread.

Example 1:

We have spent the last year intensively working to implement all twelve of the 5 Million Lives Campaign interventions in our system. We have successfully piloted each intervention in at least one unit in each of our four hospitals. Over the next six months we will hold the gains on our pilot units and spread the interventions to all the units in all system hospitals and reach the following goals: (Goals listed here.)

Example 2:

We have spent the last year intensively working to implement the 5 Million Lives interventions and have successfully piloted the Medication Reconciliation and Rapid Response Team interventions in three of our seven medical surgical units, while at the same time beginning to introduce the other interventions. Over the next six months we will hold the gains on pilot units and spread the Medication Reconciliation and Rapid Response Team interventions to all medical surgical units while completing the pilot work for other interventions. We will begin spread of the additional interventions in January 2009. We intend to achieve the following levels of system performance by December 2010:

- No cases of Ventilator Associated Pneumonia in any ICU for at least three consecutive months;
- 100% on time administration and discontinuation of antibiotics on surgical patients;
- Achieve at least 95% "perfect care" for our AMI patients.

Utilize your organizational structure.

- Leverage the experience of the pilot units. Spread occurs more rapidly when pilot units are linked directly to the other units in the target population. Consider how you can use unit or department reporting relationships, medical staff committees, line responsibility, and other structures to engage clinicians and staff in the interventions and establish accountability for spread. For example, the use of Rapid Response Teams can spread rapidly throughout a hospital if the pilot unit is directly connected to multiple units that have not yet adapted the change. Utilize ICU and nursing leadership to share the process changes needed to support Rapid Response Teams and to set expectations for their adoption.

  Tip: As you develop a plan for engaging all units in an intervention, determine if there are differences among the new units that might impact on how the interventions are implemented. For example, general medical-surgical units and more specialized units such as cardiac, obstetrics, pediatrics, etc. If so, then you may consider piloting the interventions on these new units while at the same time spreading the improvements directly to the other medical-surgical units. Additional piloting will help identify specific processes that may be needed to successfully adapt the interventions to these specialized units.

- Consider whether there are information system or other infrastructure changes that would facilitate spread of improvements from one or two units to all units (e.g., data collection methods, information system templates, phone or pager enhancements, etc.) Making the new processes as easy as possible will

facilitate their adoption. (Some examples include pagers for Rapid Response Teams; special beds or tools for determining head-of-the bed angles in the ICU; electronic medication reconciliation forms that interface with the MAR; and central line insertion kits assembled by central supply.)

- Build responsibility for the interventions into operational responsibility. As quickly as possible, the Campaign interventions should be perceived not as a "special project" but as part of the standard processes and procedures of everyday work. The foundation for this transition is laid in the process of holding the gains but continues and is expanded across the system during the spread process.

  Note: See "An Example of Success: Baptist Memorial Health Care System (BMHCC)" on pp. 28-37 for details about how the middle managers are actively involved in their spread initiative.

Develop a communication plan.

- Build on the communication methods or channels that you have used already during the Campaign to build awareness about the 5 Million Lives Campaign interventions. Continue using hospital-wide meetings, newsletters, media coverage, special events, etc. to build interest and energy in the Campaign as it continues. Use results and stories from your successes to both educate and motivate additional clinicians and staff.

  For example, Parkview Health System in Fort Wayne, IN, has established teams for each intervention, with representatives from the leadership and the medical and nursing staffs. They have also made the Campaign their own and marketed the concept to their entire staff, creating their own version of the Campaign button with their own logo, placing poster boards with information on the initiative all around their hospitals, and even creating specially branded t-shirts, balloons, and napkins. They have also held internal Campaign rallies to motivate and

thank their teams, to share results, and to promote collaboration between their various facilities.

- Identify your target audience(s) for the interventions you are spreading and the messages that you anticipate will be the most effective for each audience. Incorporate what you have learned from the nurses, physicians, technicians, support staff, and patients on the pilot units to craft your communication messages for others.

  A good example comes from Swedish Medical Center in Seattle, WA, which has adopted an aggressive internal communication strategy to make all staff aware of the goals Swedish has set for itself and its progress toward those goals. They've committed to make a contribution of 200 lives to the national Campaign, and they provide updates to their staff on their results.

- Consider how you will provide information about the interventions to the physicians and staff in the new units. Bring staff from the pilot units to the new units to share their experience and expertise, provide "hot-line" support for those with questions, and identify mentors who can serve as resources to others through meetings, e-mail, or brief coaching session. Continue to utilize the resources from IHI and the national Campaign to provide the information needed to begin using the interventions.

  In an interesting example, North Shore Hospital in Miami, FL created a rapid response video to explain the importance of the concept to staff while also demonstrating how it might be used. Their video followed the fictional story of a patient complaining of chest pain. In the pre-Rapid Response Team scenario, that patient arrested and eventually died, a situation that many of the nurses in the hospital could relate to. The video then showed an alternate outcome based on the intervention of a Rapid Response Team. The same patient's complaints were addressed and the source of her pain diagnosed before it became life-

threatening. The video won a lot of supporters for Rapid Response Teams as the pilot team showed it around the hospital.

- Identify specific methods for providing feedback to adopters, establishing accountability for results, and providing encouragement and support from leaders. Consider such methods as regular meetings with leaders, review of results at staff meetings, linking results to leadership and management performance reviews, etc.

  Tip: The executive sponsor and other senior leaders play a pivotal role in both conveying the message of the importance of the interventions and also listening for issues, stories, and success from the front line.

<u>Build a measurement system.</u>

- Track process and outcome measures for each intervention.
  Develop methods to gather the data that will help you track progress in meeting the outcome and process goals in your aim statement. As you move the interventions across your organization, you may want to consider electronic systems that will facilitate the data collection process as well as sampling methods to minimize the data collection burden. (See “An Example of Success: Baptist Memorial Health Care System (BMHCC)” on pp. 28-37.)

- Track the adoption of each intervention over time (e.g., specific units using all of the items in the ventilator bundle, etc.). Identify how you can easily determine the rate of adoption of each intervention in each unit, department, or facility. (See “An Example of Success: Baptist Memorial Health Care System (BMHCC)” on pp. 28-37.)

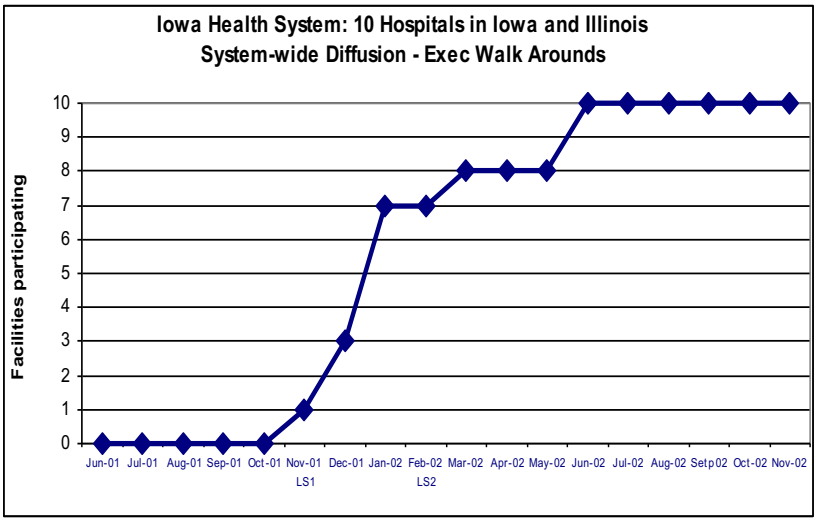
  Tip: Provide regular feedback on progress in reaching target goals and in the rate of adoption of each intervention both to senior leadership and to the units and departments making the interventions. This focuses attention on the work and

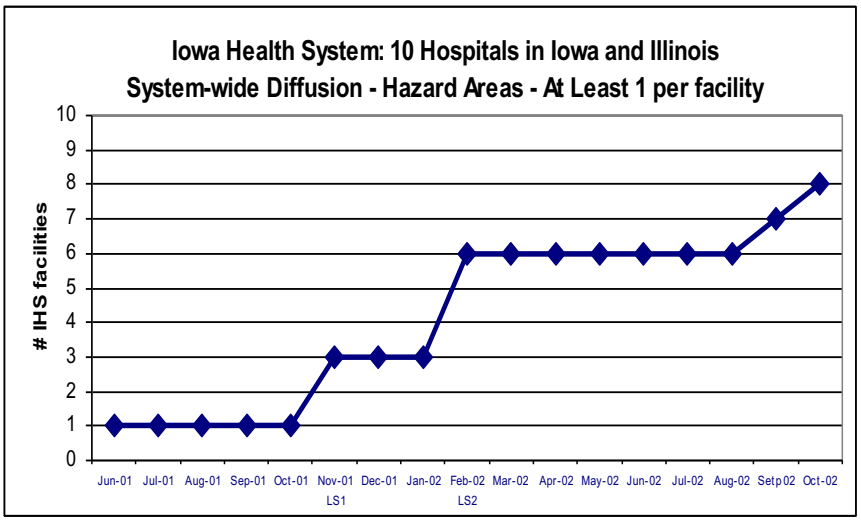
can be an important source of information about emerging issues that need to be addressed by either the leadership or the front line teams to accelerate spread.

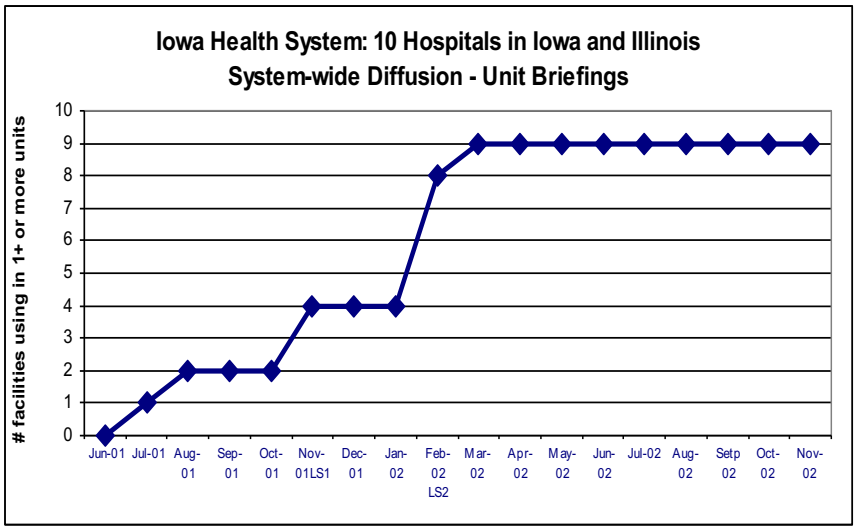
The following graphs illustrate how Iowa Health System tracked and reported the spread of improvements – in this case, changes to reduce adverse drug events – in multiple sites.

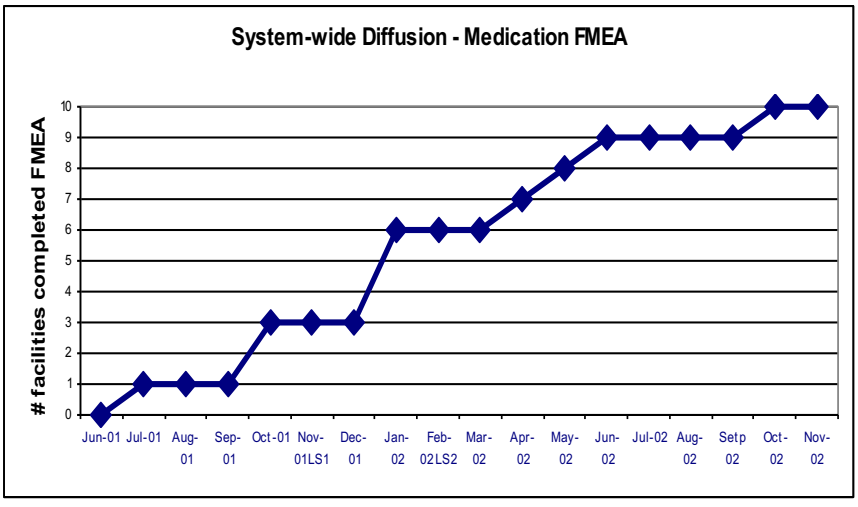
Iowa Health Progress Report to Leadership

Site	Exec Walks	Unit Briefings	HFE Briefings	FMEA	Reconci-liation	Hazard Areas
1	X	X	X	X	X	Coumadin
2	X	X	X	X	X	PCAs
3	X	X		X	Plan	
4	X	X	Plan	X	X	
5	X	X	Plan	Plan	X	
6	X	X		X	Plan	Lovenox
						Heparin
7	X	Plan		Plan	X	
8	X	Plan		X	X	X
X = At least one unit implementing the change						




Iowa Health System: 10 Hospitals in Iowa and Illinois
System-wide Diffusion - Hazard Areas - At Least 1 per facility
IHS facilities
0
1
2
3
4
5
6
7
8
9
10
Jun-01
Jul-01
Aug-01
Sep-01
Oct-01
Nov-01 LS1
Dec-01
Jan-02
Feb-02 LS2
Mar-02
Apr-02
May-02
Jun-02
Jul-02
Aug-02
Setp 02
Oct-02


Iowa Health System: 10 Hospitals in Iowa and Illinois
System-wide Diffusion - Unit Briefings
facilities using in 1+ or more units
0
1
2
3
4
5
6
7
8
9
10
Jun-01
Jul-01
Aug-01
Sep-01
Oct-01
Nov-01 LS1
Dec-01
Jan-02
Feb-02 LS2
Mar-02
Apr-02
May-02
Jun-02
Jul-02
Aug-02
Setp 02
Oct-02
Nov-02


System-wide Diffusion - Medication FMEA
facilities completed FMEA
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Step 3: Refining the Plan

Adjustments in the spread plan may be needed in order to accelerate adoption of the interventions. The spread team can identify the need for adjustments from the monitoring of reports on both the process and outcome measures and the rate of adoption data. In addition, the spread leader can also gather additional information from the front line units and departments through formal reports from each unit or department, regular surveys, informal conversations, or other methods.

An Example of Success: Baptist Memorial Health Care System (BMHCC)

A "soup-to-nuts" example of how a system prepared for, developed, and implemented system-wide spread.

Baptist Memorial Health Care System (BMHCC) hit the ground running with the 100,000 Lives Campaign in December 2004. At that time, they had already begun improvement work in three areas—ventilator-associated pneumonia, central line infections, and urinary tract infections—through their participation in IHI's IMPACT Learning and Innovation Mortality and ICU Communities. When the Campaign began, they were able to embrace all the Campaign interventions by rapidly expanding the system they already had in place for spreading improvements across all their hospitals. This is the story of how they built and executed their spread strategy.

Background

Baptist Memorial Health Care Corporation is a non-profit health care corporation located in Memphis, Tennessee. Established in 1912, it currently operates 15 hospitals (2,177 beds) in Tennessee, Arkansas, and Mississippi, and includes 10,194 total employees and 2,535 physicians. All 15 hospitals in their system were involved in the Campaign.

Step 1: Laying the Foundation for Spread

In 2003, the leadership of BMHCC found themselves in a situation familiar to many health care organizations: an ambitious mission to provide safe, quality health care and pockets of known best practices that were not being leveraged sufficiently across their system. At a strategic planning session at IHI's 2003 National Forum, BMHCC physician leaders shared the progress at two hospitals in reducing ventilator-acquired pneumonia and central line infections with Don Berwick, MD. He challenged BMHCC's leadership by asking, "If these two hospitals can improve their outcomes, why can't you spread these best practices to the rest of your hospitals?" At that moment, the leadership knew that they needed a way to rapidly spread improvements across all their

facilities so patients could be assured of receiving reliable care in any of the hospitals in their system. They accepted the challenge and got to work putting words into action.

The first step they took was for the Administrator of System Quality to present the "bundle" concept and quality-of-care outcomes of the hospitals (Alpha sites) that had dramatically reduced ventilator-acquired pneumonia and central line infections to the Executive Vice President/COO. The Executive Vice President/COO then took the results and the bundle concept to the Governing Board. The Governing Board endorsed the use of the bundles and set expectations for system-wide spread (as reflected in the aim statement below. In addition, the system-wide spread of the bundles was incorporated into the corporation's strategic plan.

These actions by the Governing Board were translated into accountability for leadership throughout the system. CEOs were held accountable for their hospital's outcomes, and outcomes were tied to performance evaluation of all employees. The stage was then set for the allocation of appropriate resources to support the effort, including:

- Positioning an FTE to coordinate spread activities;
- Developing a site on their intranet system (Sharepoint) for the communication and sharing of ideas;
- Opening 32 ports for spread conference calls for our 15 hospitals; and
- Increasing travel time for internal consultants' site visits.

Step 2: Developing an Initial Plan for Spread

Setting a Spread Aim

At first, BMHCC's spread aim encompassed three areas—reducing ventilator-acquired pneumonia, central line infections, and urinary tract infections—as reflected in the following statement:

To reduce mortality by spreading the [following] "Bundles" to all patient care units throughout the BMHC system: the Ventilator-Associated Pneumonia Bundle, the Central Line Bundle and the Urinary Tract Infection Bundle.

The specific practices associated with each of Baptist's bundles (similar to the Campaign bundles in the cases of VAP and CLI) were as follows:

- Ventilator-Associated Pneumonia Bundle: Elevation of the head of the bed (HOB) 30 degrees at all times, sedation vacation, peptic ulcer disease prophylaxis, deep vein thrombosis prophylaxis, weaning trials (protocol), and every four hour oral care
- Central Line Bundle**:** Wash hands prior to procedure, subclavian site versus internal jugular, impregnated catheter, full gown and gloves, full sterile drape, maximum precautions, clean site using chlorhexidine prep, sutureless securement device, and no routine replacement catheter
- Urinary Tract Infection Bundle: Silver coated catheter, Foley catheter anchored, pericare with soap and water every shift, urine collection bag not elevated above the patient and placed correctly (not on the floor), daily needs assessment for continued use of catheter

They established the following targets for their system performance:

- Reduce HSMR by 25% by June 2006
- Reduce ventilator-associated pneumonia (VAP) by 50% by December 2005
- Reduce bloodstream infections (BSI) by 50% by December 2005
- Reduce urinary tract infections (UTI) by 50% by December 2005

With the launch of the 100,000 Lives Campaign in December 2005, BMHCC expanded their aim to encompass all six Campaign interventions. The new aim for BMHCC now reads: "*All BMHCC hospitals will achieve the IHI 100,000 Lives Campaign goals (obtained from the 100,000 Lives Campaign How-to-Guides) by June 14, 2006."*

Communication Plan

At the heart of the communication plan for spreading improvements was the initiation of "Breakthrough Conversations" that linked clinicians with successful practices to others wanting to learn about how to try the improvements in their own units and departments. The "Breakthrough Conversations" were a series of conference calls held with multidisciplinary teams at facilities. The calls were packaged as a series of four calls held each year. Each call focused on information and skills needed to support spread, including:

- Awareness of the improvements;
- Information about the changes needed for testing and implementation;
- Sharing successes and failures with implementation; and
- Follow-up (updates on progress and continued problem-solving).

The calls were led by the physician champions, and were structured with an agenda, handouts, and tools to support spread. The calls included assigned homework at the end of the call to spread awareness, implement the bundle, and collect data regarding process and outcome. All participating hospitals were asked to share their tools for success, outcome data, and concerns. CMEs and CEUs were offered for those participating on the conference calls.

In addition to their role in leading the "Breakthrough Conversations," physicians champions and other physician leaders provided information, support, and technical expertise to other physicians in other ways as well, including offering face-to-face education to physicians including traveling to various medical staff meetings within the corporation, emphasizing the rationale for following best practices, and showing hospital's current outcome with alpha-site outcomes and national benchmarks. In one instance, there was initial resistance of the medical staff in one of the facilities in accepting the bundle components. One of the physician champions went to the site and met with the medical staff, and helped to clarify their questions. As a result of this conversation and follow-up communication, this hospital moved forward in totally embracing the bundles and is now one of the system's highest performers.

Other effective communication strategies included a Spread Initiative Library (on-line) that houses references of published articles and national guidelines, outcome data from each facility, and "Best of the Best" ideas from hospitals that achieve the best results; and a BMHCC/IHI Bi-Annual Symposium attended by hospital leaders from 15 hospitals, which opened with statements from the Executive Vice President/COO and included presentations from hospitals with the most impressive outcomes.

Utilizing the Organizational Structure

Middle managers played a central role in integrating the improvements into the day-to-day operations of the hospitals. Some of the specific roles of the middle managers included:

- Meeting after conference calls to plan for the bundle implementation;
- Adopting material to use for education;
- Educating staff and other managers in the improvements;
- Developing expectations for performance for staff;
- Reviewing results and setting expectations for follow-up actions;
- Posting "their" bundles process and outcome graphs;
- Encouraging continued improvement with their staff; and
- Celebrating gains.

Setting up a Measurement System

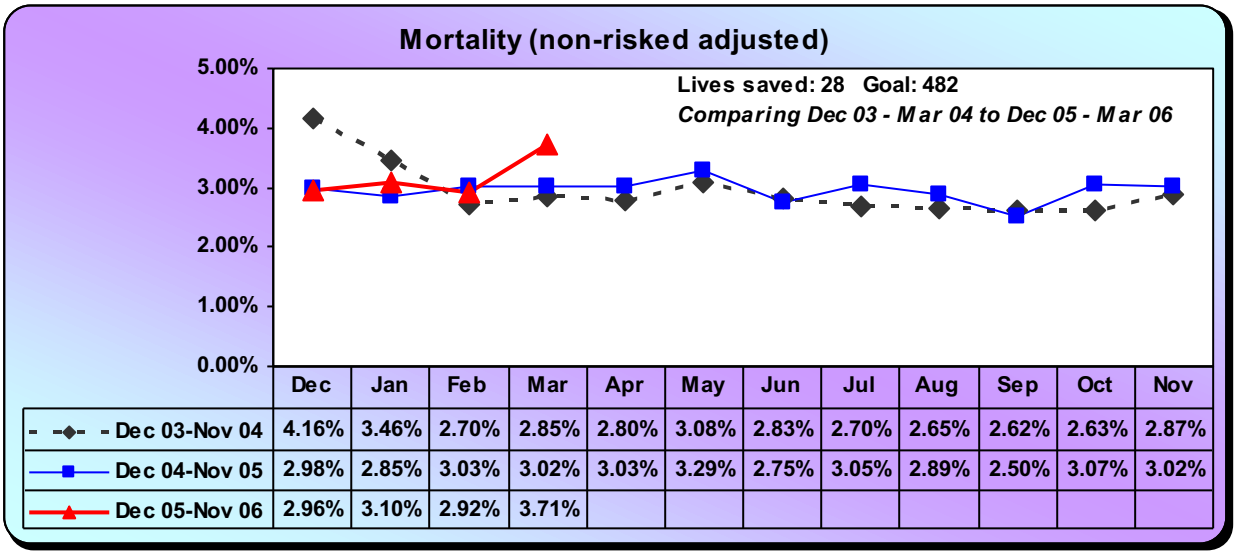
All BMHCC hospitals appointed a 100K Lives facilitator (Quality Directors). The hospital departments collect and report their data to the 100K Lives facilitator, who in turn reports this data to Corporate System Quality. The System Quality Project Specialist enters all data into a system database. Graphs are developed to show trending of performance. A system-level report is then submitted to Corporate Senior Leadership and the hospitals' CEOs. The hospitals' Senior Leadership deploys the information to their medical and hospital staff. (*See graphs on next pages.)

Step 3: Refining the Plan

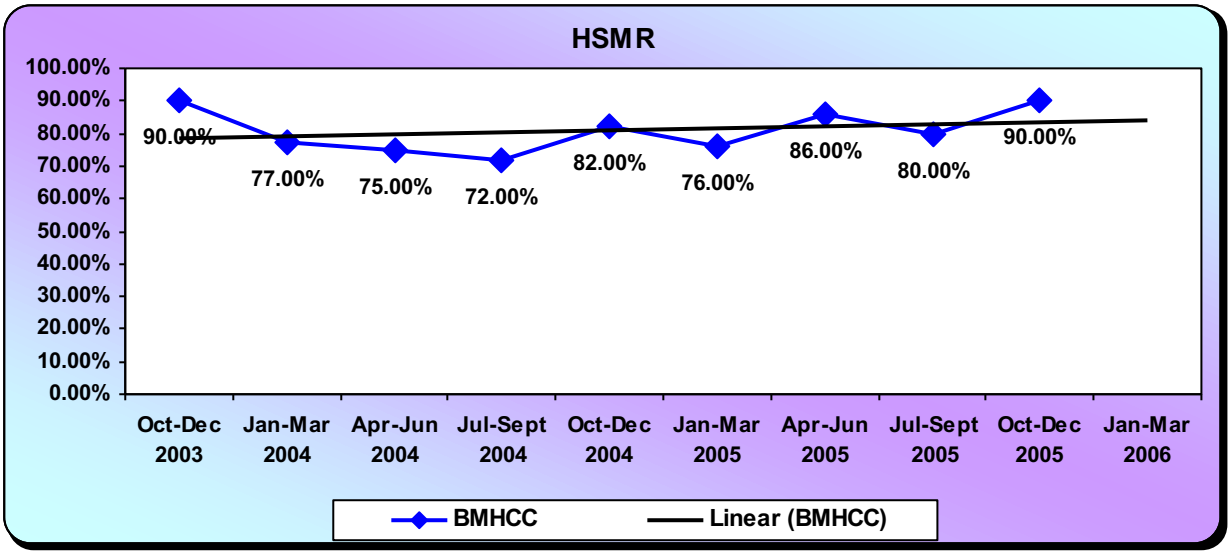
Based on what it has learned from monitoring all data, including reports on process and outcome measures, Baptist has identified areas that needed additional discussion and support. Accordingly, Baptist has made the following adjustments to the spread plan, in order to get better results:

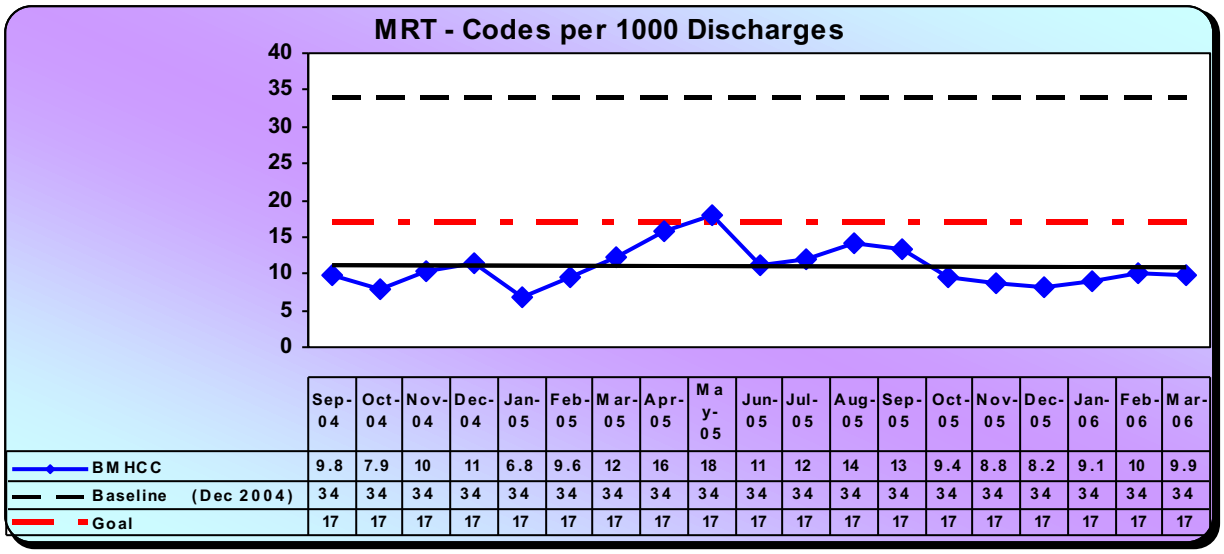
1. The BMHCC System Quality Committee of the Board was created.
2. Changes were also made in the functions and responsibilities of the Metro Performance Improvement Committee of the Medical Staff. Specifically, clear expectancies for 100K Lives results were set.
3. The frequency of Breakthrough conversations has increased.

BMHCC's 100,000 Lives Campaign System-Level Report:



	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Dec 03-Nov 04	4.16%	3.46%	2.70%	2.85%	2.80%	3.08%	2.83%	2.70%	2.65%	2.62%	2.63%	2.87%
Dec 04-Nov 05	2.98%	2.85%	3.03%	3.02%	3.03%	3.29%	2.75%	3.05%	2.89%	2.50%	3.07%	3.02%
Dec 05-Nov 06	2.96%	3.10%	2.92%	3.71%								





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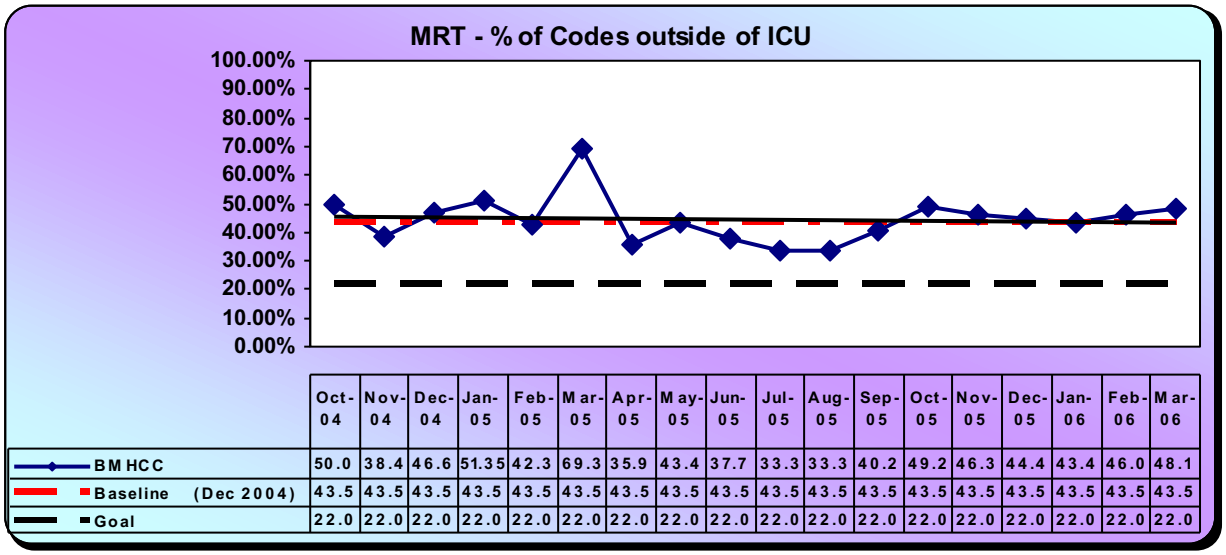
BMHCC	9.8	7.9	10	11	6.8	9.6	12	16	18	11	12	14	13	9.4	8.8	8.2	9.1	10	9.9
Baseline (Dec 2004)	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
Goal	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17



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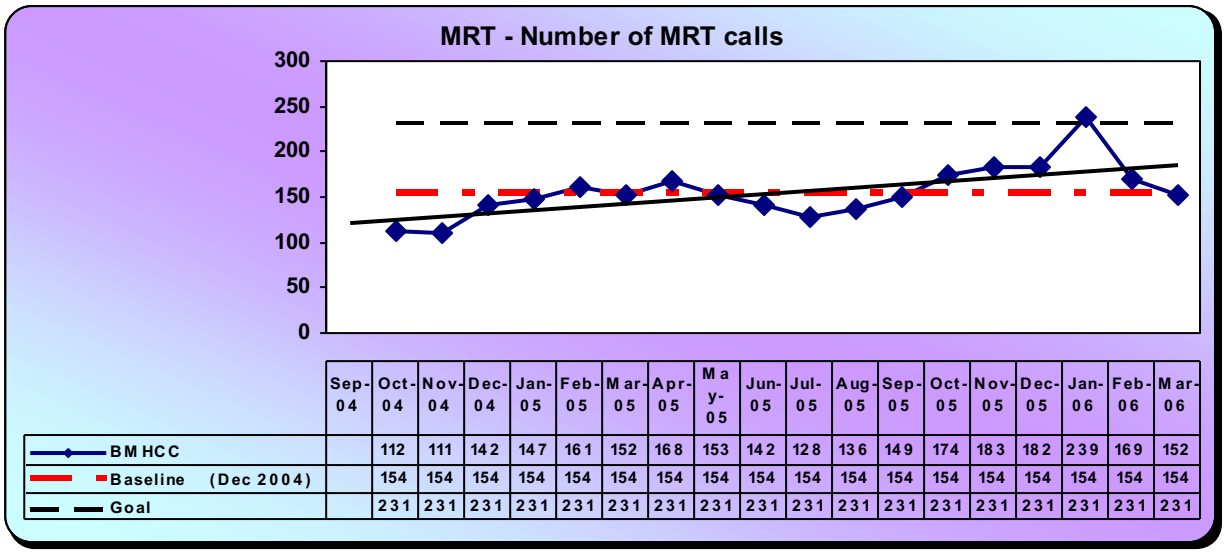
BMHCC	50.0	38.4	46.6	51.35	42.3	69.3	35.9	43.4	37.7	33.3	33.3	40.2	49.2	46.3	44.4	43.4	46.0	48.1
Baseline (Dec 2004)	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5
Goal	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0



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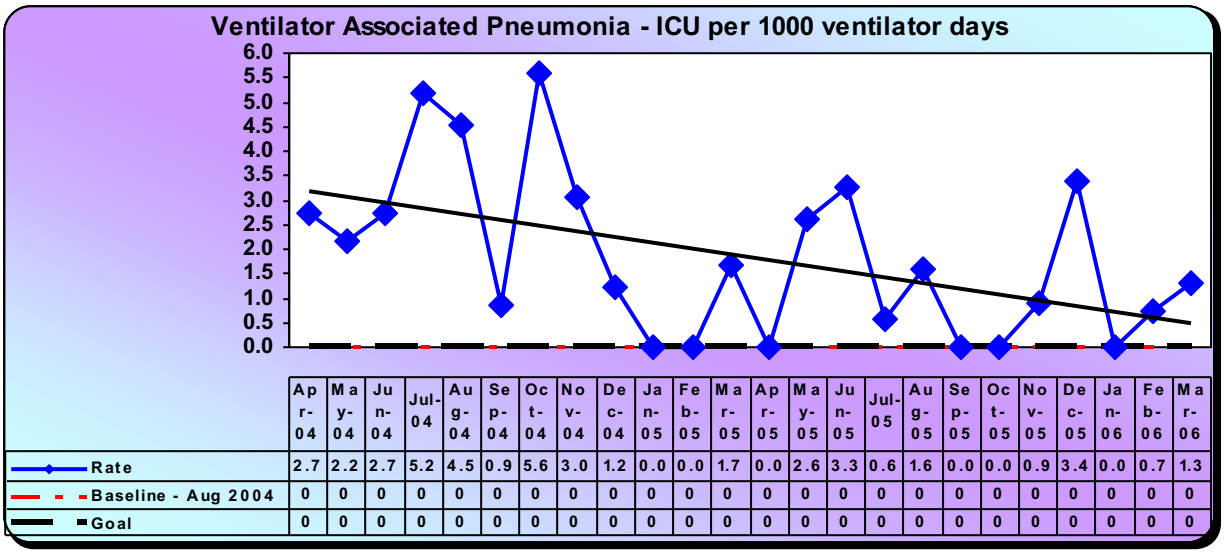
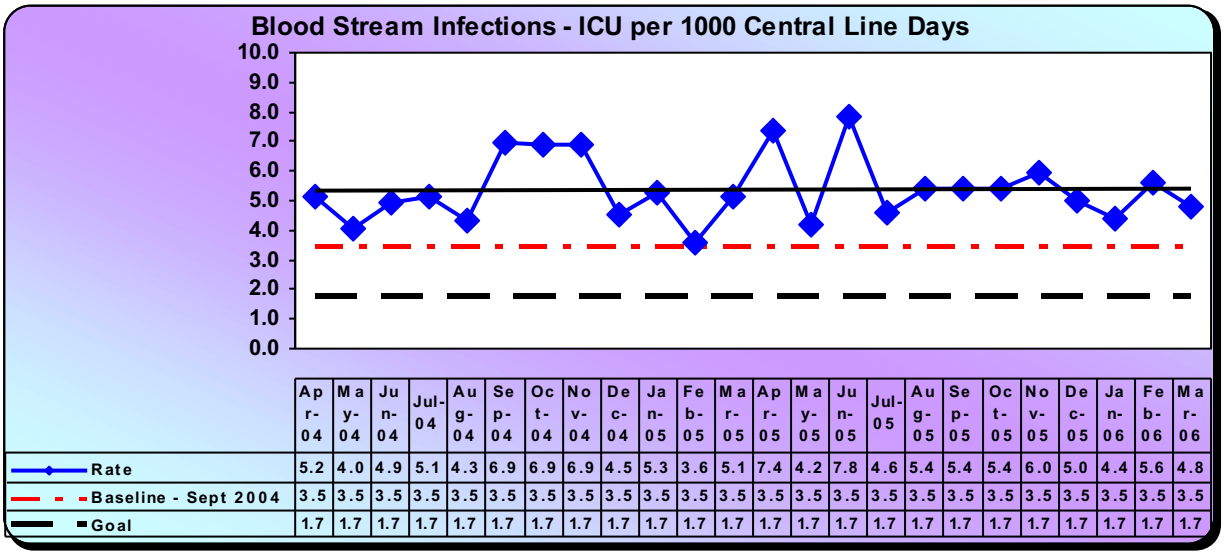
BMHCC		112	111	142	147	161	152	168	153	142	128	136	149	174	183	182	239	169	152
Baseline (Dec 2004)		154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154
Goal		231	231	231	231	231	231	231	231	231	231	231	231	231	231	231	231	231	231



	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04	Oct-04	Nov-04	Dec-04	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06
Rate	2.7	2.2	2.7	5.2	4.5	0.9	5.6	3.0	1.2	0.0	0.0	1.7	0.0	2.6	3.3	0.6	1.6	0.0	0.0	0.9	3.4	0.0	0.7	1.3
Baseline - Aug 2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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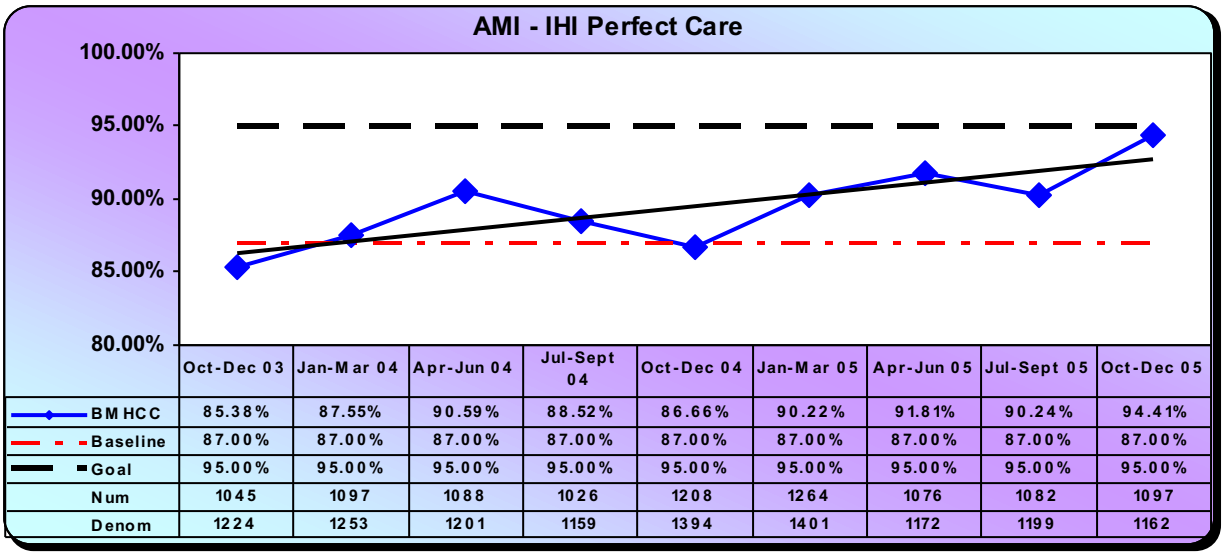
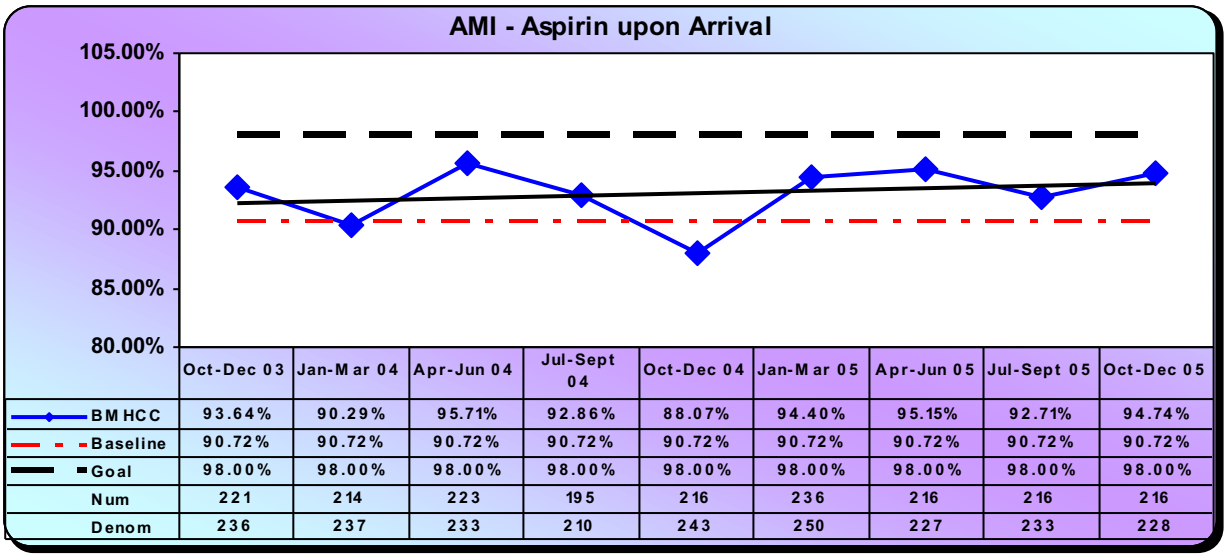
Rate	5.2	4.0	4.9	5.1	4.3	6.9	6.9	6.9	4.5	5.3	3.6	5.1	7.4	4.2	7.8	4.6	5.4	5.4	5.4	6.0	5.0	4.4	5.6	4.8
Baseline - Sept 2004	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Goal	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7



	Oct-Dec 03	Jan-Mar 04	Apr-Jun 04	Jul-Sept 04	Oct-Dec 04	Jan-Mar 05	Apr-Jun 05	Jul-Sept 05	Oct-Dec 05
BMHCC	85.38%	87.55%	90.59%	88.52%	86.66%	90.22%	91.81%	90.24%	94.41%
Baseline	87.00%	87.00%	87.00%	87.00%	87.00%	87.00%	87.00%	87.00%	87.00%
Goal	95.00%	95.00%	95.00%	95.00%	95.00%	95.00%	95.00%	95.00%	95.00%
Num	1045	1097	1088	1026	1208	1264	1076	1082	1097
Denom	1224	1253	1201	1159	1394	1401	1172	1199	1162



	Oct-Dec 03	Jan-Mar 04	Apr-Jun 04	Jul-Sept 04	Oct-Dec 04	Jan-Mar 05	Apr-Jun 05	Jul-Sept 05	Oct-Dec 05
BMHCC	93.64%	90.29%	95.71%	92.86%	88.07%	94.40%	95.15%	92.71%	94.74%
Baseline	90.72%	90.72%	90.72%	90.72%	90.72%	90.72%	90.72%	90.72%	90.72%
Goal	98.00%	98.00%	98.00%	98.00%	98.00%	98.00%	98.00%	98.00%	98.00%
Num	221	214	223	195	216	236	216	216	216
Denom	236	237	233	210	243	250	227	233	228

Spread Resources and Literature

The area of the IHI website on "Spreading changes" offers a number of useful resources. In addition, the following papers and texts might be helpful:

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Appendix A: Using the Model for Improvement

In any activity to enhance quality, IHI recommends using the Model for Improvement. Developed by Associates in Process Improvement, the Model for Improvement is a simple yet powerful tool for accelerating improvement that has been used successfully by hundreds of health care organizations to improve many different health care processes and outcomes.

The model has two parts:

- Three fundamental questions that guide improvement teams to 1) set clear aims, 2) establish measures that will tell if changes are leading to improvement, and 3) identify changes that are likely to lead to improvement.

- The Plan-Do-Study-Act (PDSA) cycle to conduct small-scale tests of change in real work settings — by planning a test, trying it, observing the results, and acting on what is learned. This is the scientific method, used for action-oriented learning.

Implementation: After testing a change on a small scale, learning from each test, and refining the change through several PDSA cycles, the team can implement the change on a broader scale — for example, for an entire pilot population or on an entire unit.

Spread: After successful implementation of a change or package of changes for a pilot population or an entire unit, the team can spread the changes to other parts of the organization or to other organizations.

You can learn more about the Model for Improvement on www.IHI.org

Appendix B: 100,000 Lives Campaign Dashboard for Executives and Leaders (courtesy of Benedictine Hospital, Kingston, NY)