

# **Will It Work Here?**

## **A Decisionmaker's Guide to Adopting Innovations**

**Prepared for:**

Agency for Healthcare Research and Quality  
U.S. Department of Health and Human Services  
540 Gaither Road  
Rockville, MD 20850  
[www.ahrq.gov](http://www.ahrq.gov)

**Contract No.** 233-02-0090

**Developed by:**

RTI International  
for the Agency for Healthcare Research and Quality (AHRQ).

*Investigators*

Cindy Brach  
Nancy Lenfestey  
Amy Roussel  
Jacqueline Amoozegar  
Asta Sorensen

AHRQ Publication No. 08-0051  
September 2008

## Acknowledgments

A huge debt of gratitude is due to health care professionals at our case study sites who gave generously of their time so that others could benefit from their experiences.

Thanks are also due to health care decisionmakers and colleagues who reviewed earlier drafts of the Guide. Their numerous suggestions improved the Guide's quality and richness.

Special recognition is owed to Michael Harrison of the Agency for Healthcare Research and Quality, whose wealth of knowledge and incisive comments were indispensable. We would also like to acknowledge the valuable contributions of Brian Mittman of the VA/UCLA/RAND Center for the Study of Healthcare Provider Behavior and Brian Weiner of the University of North Carolina, who served as consultants throughout the development of this Guide.

This document is in the public domain and may be used and reprinted without special permission. Citation of the source is appreciated.

Suggested citation:

Brach C, Lenfestey N, Roussel A, Amoozegar J, Sorensen A. *Will It Work Here? A Decisionmaker's Guide to Adopting Innovations*. Prepared by RTI International under Contract No. 233-02-0090. Agency for Healthcare Research and Quality (AHRQ) Publication No. 08-0051. Rockville, MD: AHRQ; September 2008.

The information in this *Decisionmaker's Guide to Adopting Innovations* is intended to assist decisionmakers in health care organizations in determining whether to adopt an innovation. This Guide is intended as a reference and not as a substitute for professional judgment. The findings and conclusions are those of the authors, who are responsible for its content, and do not necessarily represent the views of AHRQ. No statement in this Guide should be construed as an official position of AHRQ or the U.S. Department of Health and Human Services. In addition, AHRQ or U.S. Department of Health and Human Services endorsement of any derivative products may not be stated or implied. None of the investigators has any affiliations or financial involvement that conflicts with the material presented in this Guide.

# Contents

- Purpose..... 1
- How to Use the Guide..... 1
  
- Module I: Does the Innovation Fit? ..... 7
  - What Is the Innovation? ..... 9
  - Does It Further Our Goals? .....13
  - Is It Compatible With Our Organization? .....17
  
- Module II: Should We Do It Here? ..... 21
  - What Are the Potential Benefits? .....23
  - What Are the Potential Costs?.....27
  - Can We Build a Business Case?.....31
  - What Are the Risks?.....35
  
- Module III: Can We Do It Here? ..... 37
  - Are We Ready for This Change? .....39
  - What Changes Will We Have to Make? .....41
  - Do We Have the Ingredients for Success? .....45
  
- Module IV: How Will We Do It Here? ..... 49
  - How Will We Measure the Impact of the Innovation?.....51
  - Can We Try the Innovation First? .....55
  - How Will We Implement the Innovation?.....59
  
- Index of Tools ..... 65
  
- References..... 73
  
- Appendix: Case Study Report..... 75
  - Clinica Campesina and Group Visits .....77
  - Mt. Carmel and Six Sigma.....83
  - Golisano Children’s Hospital and Family-Centered Rounds.....93
  - N.C. Children’s Hospital and Pediatric Rapid Response Teams..... 103



### Purpose

The goal of this Guide is to promote evidence-based decisionmaking and help decisionmakers determine whether an innovation would be a good fit—or an appropriate stretch—for their health care organization. Guided by a framework that regards adoption as a process, rather than an event, the tool is based on a modified version of the core concepts in *Rogers' Diffusion of Innovations* (Rogers, 2003). For the purposes of this Guide, an innovation is a new way of doing things to improve health care delivery. An innovation may be a product, a service, a process, a system, an organizational structure, or a business model. If it is new to your organization, it is an innovation, even if it has been around for a while in other contexts.

### How to Use the Guide

The Guide is designed to facilitate use by busy decisionmakers, layering questions for consideration to allow users to select an appropriate level of detail. We do not expect readers to read the entire document from cover to cover. The Guide uses a modular format that permits readers to move around the text. The four primary modules are guided by the following questions:

*I. Does the innovation fit? (p. 7)*

- What is the innovation?
- Does it further our goals?
- Is it compatible with our organization?

*II. Should we do it here? (p. 21)*

- What are the potential benefits?
- What are the potential costs?
- Can we build a business case?
- What are the risks?

*III. Can we do it here? (p. 37)*

- Are we ready for this change?
- What changes will we have to make?
- Do we have the ingredients for success?

*IV. How will we do it here? (p. 49)*

- How will we measure the impact of the innovation?
- Can we try the innovation first?
- How will we implement the innovation?

## How to Use This Guide

Use [Exhibit 1](#). Issues to Consider When Deciding Whether to Adopt an Innovation to identify sections that are most pertinent to your organization's situation. Click on the section name or question to link to that part of the guide.

**Exhibit 1. Issues to Consider When Deciding Whether to Adopt an Innovation**

Dimensions	Questions to Consider
<b>I. Does the innovation fit?</b>	
<b>Innovation Description</b> (p. 9)	<ul style="list-style-type: none"> <li>▪ <i>How does the innovation work?</i> (p. 9)</li> <li>▪ <i>What is the scope of the innovation?</i> (p. 10)</li> <li>▪ <i>Where has the innovation been implemented?</i> (p. 14)</li> <li>▪ <i>What is the evidence that the innovation worked?</i> (p. 11)</li> </ul>
<b>Goal Congruence</b> (p. 13)	<ul style="list-style-type: none"> <li>▪ <i>Will the innovation address our problems?</i> (p. 13)</li> <li>▪ <i>Will the innovation help us achieve our goals?</i> (p. 14)</li> <li>▪ <i>What is our vision of success for the innovation?</i> (p. 14)</li> </ul>
<b>Compatibility</b> (p. 17)	<ul style="list-style-type: none"> <li>▪ <i>Is the innovation compatible with our mission, values, and culture?</i> (p. 17)</li> <li>▪ <i>Can the innovation be adapted to improve compatibility?</i> (p. 19)</li> </ul>
<b>II. Should we do it here?</b>	
<b>Potential Benefits</b> (p. 23)	<ul style="list-style-type: none"> <li>▪ <i>What benefits will the innovation generate?</i> (p. 23)</li> <li>▪ <i>Will the benefits be visible to those who have to implement the innovation, to those who have to support it, and to patients and their families?</i> (p. 24)</li> </ul>
<b>Potential Costs</b> (p. 27)	<ul style="list-style-type: none"> <li>▪ <i>What resources will we need to implement the innovation and what do they cost?</i> (p. 27)</li> <li>▪ <i>What are the potential cost offsets?</i> (p. 29)</li> <li>▪ <i>What are the opportunity costs of adopting the innovation?</i> (p. 30)</li> </ul>
<b>Business Case</b> (p. 31)	<ul style="list-style-type: none"> <li>▪ <i>How do we prepare a business case?</i> (p. 31)</li> <li>▪ <i>How can we calculate the return on investment?</i> (p. 32)</li> <li>▪ <i>Is there a business imperative or strategic advantage for adoption?</i> (p. 33)</li> </ul>
<b>Potential Risks</b> (p. 35)	<ul style="list-style-type: none"> <li>▪ <i>What types of risk will we face?</i> (p. 35)</li> <li>▪ <i>How do we assess potential risks?</i> (p. 36)</li> </ul>
<b>III. Can we do it here?</b>	
<b>Readiness for Change</b> (p. 39)	<ul style="list-style-type: none"> <li>▪ <i>Is our staff open to change?</i> (p. 39)</li> <li>▪ <i>How will other stakeholders react to the change?</i> (p. 40)</li> </ul>

### III. Can we do it here? Continued

#### **Needed Changes** (p. 41)

- *What structural changes will be needed?* (p. 41)
- *What process changes will be needed?* (p. 41)
- *What workforce changes will be needed?* (p. 42)
- *What other changes will be needed?* (p. 43)

#### **Ingredients for Success** (p. 45)

- *Can we identify innovation champions?* (p. 45)
- *Where will we find the needed expertise?* (p. 46)
- *Can we do it in time?* (p. 47)
- *What can we learn from our past experiences with innovation?* (p. 48)

### IV. How will we do it here?

#### **Measuring Impact** (p. 51)

- *How do we evaluate the innovation?* (p. 51)
- *What measures should we use?* (p. 52)

#### **Piloting** (p. 55)

- *Can we try the innovation for a limited time?* (p. 55)
- *Can we try the innovation on a small scale?* (p. 56)
- *Can we phase the innovation into the organization?* (p. 56)

#### **Implementation** (p. 59)

- *How will we manage change?* (p. 59)
- *How will we monitor and evaluate implementation?* (p. 61)
- *How will we sustain the innovation?* (p. 62)

The Guide may help some users determine early on that an innovation they are considering adopting is not an appropriate fit for their organization. For others, the Guide may suggest that an innovation is an excellent fit, and provide a head start on implementation.

The Guide may be used in a number of ways, by a broad range of decisionmakers. You can use the Guide as:

- A problem-solving aid for organizational planning
- A roadmap for navigating the innovation adoption decision process
- A vehicle for training or professional development
- A catalog of tools and examples of innovation adoption decisionmaking
- A means to obtain input from and involve stakeholders in decisionmaking
- A stimulus to launch discussions about how to adapt and remain competitive in a changing environment

## Icons

The following icons are used throughout the Guide to differentiate key elements:



Denotes tools available on the Internet



Denotes examples

We conducted case studies of innovation adoption decisions in four health care organizations. Excerpts from the case studies highlight factors considered during the decisionmaking processes. The case studies may be viewed in their entirety in the [Appendix](#).



## **Module I:**

# **Does the Innovation Fit?**



## What Is the Innovation?

### Why This Matters

Assessing the feasibility of adopting a particular innovation begins with an understanding of how the innovation works and the scope of the innovation. Decisionmakers should also examine other organizations' experiences with the innovation. What may work effectively in one setting may not work as well in another, so it is important to consider factors such as context, setting, and circumstances, along with evidence of success.

### Key Questions to Consider

- How does the innovation work?
- What is the scope of the innovation?
- Where has the innovation been implemented?
- What is the evidence that the innovation worked?

---

### Question 1. How does the innovation work?

You have heard about a new practice adopted by another health care organization. It sounds intriguing, and you want to learn more. The first step is to find out the answers to these questions:

- What was done?
- Why?
- By whom?
- For whom?
- How?

## Module I: Does the innovation fit?



The Agency for Healthcare Research and Quality (AHRQ) Health Care Innovations Exchange has a searchable repository of profiles of innovative activities and tools. See examples of complete innovation descriptions at <http://www.innovations.ahrq.gov>.

A logic model can be a valuable tool to capture which key areas the innovation addresses and how it accomplishes its intended goals. A logic model shows how inputs and activities are expected to lead to intended outcomes. It can help clarify assumptions, specify related activities that may shape the innovation and its impacts, and detail contextual factors that might affect the innovation. It can also help to identify the parts of the innovation that might be adaptable to a particular situation.



The W.K. Kellogg Foundation has developed a handbook to guide the development of logic models:  
<http://www.wkcf.org/Pubs/Tools/Evaluation/Pub3669.pdf>



Golisano Children's Hospital benefited from learning about Cincinnati Children's experiences implementing family-centered rounding. Please refer to [Section 3](#) (p. 93) of the case studies in the Appendix for information.

---

### Question 2. What is the scope of the innovation?

Innovations vary in scope. The magnitude of change that will be required to adopt the innovation will depend on the scope of the innovation. Ask yourself the following questions:

- Will the innovation require organizationwide change, or is the innovation limited to a single subsystem?
- Will the innovation require transformational change such as a shift in organizational culture, or incremental change?
- Is the change required by the innovation a natural progression from current practice?



Mt. Carmel Health System implemented Six Sigma, an organization-wide process improvement strategy to increase efficiency and improve its financial standing. To learn more about the scope of this effort, please refer to [Sections 2.1](#) and [2.2](#) (p. 84) of the case studies in the Appendix.



A description of key types of organizational change can be found in a handout provided by the Free Management Library:

<http://www.managementhelp.org/misc/types-of-orgl-change.pdf>

---

### Question 3. Where has the innovation been implemented?

Understanding where the innovation has been implemented may provide insights about how well it will fit in your setting. Dimensions to consider include:

- Inpatient versus ambulatory settings
- Independent versus multisite organizations
- Fee-for-service versus capitated payment
- Primary care versus specialty care services
- Acute versus postacute versus long-term care services
- Urban versus suburban versus rural settings
- Diverse versus homogeneous patient population
- Commercial versus safety-net patient population

---

### Question 4. What is the evidence that the innovation worked?

Before you decide to adopt an innovation, consider the evidence that the innovation is likely to achieve its goals. To embark on evidence-based decisionmaking, you will need to:

- **Find the evidence.** Searches of the Web, databases of research articles and syntheses, and networking with professional colleagues are common methods for unearthing evidence.
- **Evaluate the evidence.** Consider how credible the evidence is in terms of rigor of the analysis, trustworthiness of the source, and applicability to your situation. For example, consider for how long and in how many places the innovation had been implemented when judging the relevance of evaluation data.

## Module I: Does the innovation fit?

- **Judge whether there is sufficient evidence.** Is the information complete? Are there important perspectives that are not represented?
- **Assess the alternatives.** Is there more than one viable option? What tradeoffs are associated with each alternative?



For a series of tools designed to support informed managerial decisionmaking, visit the Informed Decisions Toolbox. It includes modules on how to assess the accuracy, applicability, and actionability of the available evidence:  
<http://toolbox.berkeley.edu/tools/>



Evidence that an innovation did not work is as important as evidence it did work. For an example of evidence on a failed innovation, look at Faxed Physician Reminders Fail to Improve Antidepressant Adherence on AHRQ's Health Care Innovation Exchange:  
<http://www.innovations.ahrq.gov/content.aspx?id=66>

## Does It Further Our Goals?

### Why This Matters

Organizations should be clear about what will be gained by adopting an innovation prior to making an adoption decision. Whether decisionmakers are actively searching for an innovation to solve a particular problem, or just happen upon an attractive innovation, they have to determine whether the innovation is congruent with the organization's goals.

### Key Questions to Consider

- Will the innovation address our problems?
- Will the innovation help us achieve our goals?
- What is our vision of success for the innovation?

---

### Question 1. Will the innovation address our problems?

If you have been looking for a solution to an organizational problem, an innovation may appear to be just what the doctor ordered. But is it the right prescription? To answer that question, you need to define the problem and ascertain whether the innovation will address it. Key questions to ask include the following:

- What kind of problem is it?
  - What is the nature of the problem (e.g., efficiency, quality, safety, workforce, patient satisfaction, public relations, financial)?
  - How is the problem defined? By whom?
  - When and where does the problem occur?
  - What causes the problem?
  - Whom does the problem affect?
- How big a problem is it?
  - What is the perceived importance of the problem to you and to others?
  - How frequently does the problem occur?
  - What is the severity of the problem?
  - What will happen if you don't fix the problem?

## Module I: Does the innovation fit?

- How will the innovation address the problem?
  - Does the innovation address the root cause of the problem?
  - Does the innovation provide a long-term solution to the problem?
  - Will the innovation spawn other problems?
  - Is the innovation congruent with other initiatives?

---

### Question 2. Will the innovation help us achieve our goals?

Your organization may not be facing any particular problems for which you are seeking solutions, but you always have your eyes open for ways to improve quality and efficiency. You've come across an innovation, and it sounds promising. But how does it relate to your organization's goals? Consider the following questions:

- How effective are our current systems for delivering products and services to our patients/clients in helping us meet our goals?
- What can we do differently to improve our systems?
- Is there a perceived need to change?
- Are there opportunities for improvement that we are missing?
- Will the innovation strengthen our ability to confront future challenges?
- How will adopting the innovation help us meet our goals?
- Is there alignment between our strategic goals and the innovation's intended results?



Golisano Children's Hospital found that family-centered rounds addressed a number of organizational goals, including meeting accreditation requirements, aligning with Institute of Medicine goals, reducing medication errors, and improving the discharge process. For more information about the goals that this innovation addressed, please refer to [Section 3.4](#) (p. 102) of the case studies in the Appendix.

---

### Question 3. What is our vision of success for the innovation?

Before adopting an innovation, you should be clear about what you expect the innovation to achieve. Specifying objectives in a structured manner will guard against adoption of an innovation that holds out only vague promises. It also provides a foundation for future evaluation, which is likely to be critical for the long-term success and sustainability of the innovation. (To learn more about evaluation, see [How will we measure the impact of the innovation?](#) on p. 51.)

A common rubric used in developing objectives is that they be specific, measurable, attainable, relevant, and timely (SMART):

**Specific:** What are we planning to do?

**Measurable:** Is it measurable?

**Attainable:** Can we get it done in the proposed timeframe/in this political climate/for this amount of money?

**Relevant:** Will this objective lead to the desired results?

**Timely:** What is the target date for accomplishing this objective?

The following equation may facilitate the objective-writing process:

***Objective: To (action verb + key result + target date)***

Examples of SMART objectives:

- To increase retention of nurses by 10% within 4 years
- To decrease appointment no-show rate by 40% within 1 year



Additional details regarding SMART objective setting are available on the March of Dimes Web site:

[http://www.marchofdimes.com/files/HI\\_SMART\\_objectives.pdf](http://www.marchofdimes.com/files/HI_SMART_objectives.pdf)



## Is It Compatible With Our Organization?

### Why This Matters

An innovation's compatibility with the adopting organization is one of the determinants of successful adoption (Denis et al., 2002; Ferlie et al., 2001). Organizational decisionmakers should assess the extent to which an innovation is consistent with their organization's mission, values, and culture. Once areas of conflict have been identified, it may be possible to adapt an innovation to make it more compatible.

### Key Questions to Consider

- Is the innovation compatible with our mission, values, and culture?
- Can the innovation be adapted to improve compatibility?

---

### Question 1. Is the innovation compatible with our mission, values, and culture?

A high degree of compatibility between an innovation and the adopting organization's mission, values, and culture will facilitate both the adoption decision and the implementation process. If an innovation runs counter to your organization's mission, values, or culture, carefully consider whether these conflicts are likely to cause the innovation to fail. Ask yourself how the innovation fits with your:

- Mission
- Values (i.e., beliefs and acceptable behaviors)
- Patient-care culture
- Business culture
- Management culture
- Professional culture
- Interpersonal culture
- Quality improvement culture

Organizations can identify areas of incompatibility by recognizing when the innovation might conflict with an aspect of the organization's mission, values, or culture. For example, mismatches may occur when an organization:

- Encourages experimentation and ad hoc problem solving, but the innovation requires meticulous planning and strict procedural adherence.

## Module I: Does the innovation fit?

- Has a top-down management style, but the innovation requires decisionmaking authority to be widely shared.
- Has divisions that operate independently of each other, but the innovation requires collaboration across divisions.
- Encourages and rewards competitiveness among staff members, but the innovation requires teamwork.

Mismatches do not necessarily mean that the innovation should not be adopted. Innovations may be used as part of a strategy to change organizational culture, or measures can be taken to cushion the culture clash.



If you want to formally assess your organization's culture, take a look at the Organizational Culture Assessment Instrument. You'll find it at [http://gsbc.colorado.edu/student\\_tools/documents/8bOCAIWorksheet-Second2004.doc](http://gsbc.colorado.edu/student_tools/documents/8bOCAIWorksheet-Second2004.doc).

A 2003 review of available tools to assess organizational culture in health care can be found at <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1360923>.



The decisionmakers at Clinica Campesina gave careful consideration to whether group visits were compatible with their organization's mission and culture. Please refer to [Section 1.2](#) (p. 78) of the case studies in the Appendix for a discussion of how they assessed compatibility.

At Golisano Children's Hospital, adoption of family-centered rounding required a change in the paternalistic medical care model. Read about how Golisano effected this cultural shift in [Section 3](#) (p. 93) of the case studies in the Appendix.

---

**Question 2. Can the innovation be adapted to improve compatibility?**

Often an innovation has to be customized in order to be compatible with an adopting organization. If, however, you do not replicate the innovation exactly, you may not get the same results as the original innovation did. To determine to what extent adaptation is possible, ask:

- What parts of the innovation are essential, and what parts are amenable to alteration?
- How robust is the innovation? Are small adaptations likely to change the results?
- How can the innovation be modified to suit the organization better without sacrificing fidelity to the original innovation?



The Community Tool Box discusses adapting an innovation to fit your situation: [http://ctb.ku.edu/tools/en/sub\\_section\\_main\\_1152.htm](http://ctb.ku.edu/tools/en/sub_section_main_1152.htm)



## **Module II:**

# **Should We Do It Here?**



## What Are the Potential Benefits?

### Why This Matters

Before adopting an innovation, organizational decisionmakers should consider both tangible and intangible benefits that the innovation might generate for patients, staff, and other stakeholders. Decisionmakers often seek an innovation that will yield tangible results, such as cost savings. In other cases, an innovation may be adopted for its anticipated effect on team cohesion or morale, which may subsequently lead to improvements that are more tangible (e.g., staff retention).

### Key Questions to Consider

- What benefits will the innovation generate?
- Will the benefits be visible to those who have to implement the innovation, to those who have to support it, and to patients and their families?

---

### Question 1. What benefits will the innovation generate?

The innovation may benefit patients, staff, and other stakeholders. Consider each perspective as part of the adoption decisionmaking process.

Potential benefits to patients and families may include:

- Enhanced satisfaction
- Increased involvement in the care process
- Improved quality of care
- Easier access to care
- Reduced wait times
- Increased safety

Potential benefits to staff may include:

- Increased autonomy
- Better working conditions
- Reduced stress
- Enhanced teamwork
- Easier care processes

## Module II: Should we do it here?

Potential benefits to other stakeholders may include:

- Increased market penetration/volume
- Increased revenue
- Decreased costs
- Greater efficiency
- Reduced lawsuits
- Enhanced reputation
- Greater receptivity to innovation



Six Sigma has developed checklists for identifying financial, organizational, operations, and information technology benefits. Access them at <http://www.isixsigma.com/library/content/c011112a.asp>.



N.C. Children's Hospital expected that adopting Pediatric Rapid Response Teams would yield various benefits in addition to the main benefit of reducing cardiac and respiratory arrests. These additional benefits included increased nursing staff satisfaction and improved communication and cooperation among caregivers. Please refer to [Section 4.4](#) (p. 110) of the Appendix for more details about the other kinds of benefits senior leadership expected this innovation to generate for their patients and staff.

---

### **Question 2. Will the benefits be visible to those who have to implement the innovation, to those who have to support it, and to patients and their families?**

Once the intended benefits have been established, consider how observable those benefits will be:

- Will staff members who implement the innovation recognize the benefits? Will they receive recognition for implementing the innovation?
- Will leadership, governing bodies, and other stakeholders see the benefits?
- Will patients and families notice the benefits?

The more observable an innovation and its benefits are, the greater the chances of success. Consider steps that can be taken to ensure that benefits are observable. Specific actions taken during the planning and implementation stages may increase the likelihood of success.

Plans for rollout and dissemination should consider methods to highlight successes to multiple stakeholder groups. It is important to be able to measure the success of the innovation. See pg. [51](#) for a *discussion of measurement*.



## What Are the Potential Costs?

### Why This Matters

Innovations invariably involve at least some initial implementation costs, and generally entail costs for their continued operation. These costs can be offset by savings that innovations generate. Decisionmakers will need to consider these costs, as well as the cost of any opportunities forgone when the innovation is adopted.

### Key Questions to Consider

- What resources will we need to implement the innovation and what do they cost?
- What are the potential cost offsets?
- What are the opportunity costs of adopting the innovation?

---

### Question 1. What resources will we need to implement the innovation and what do they cost?

When determining the level of resources needed to adopt an innovation, you should evaluate the organization's capacity to support the innovation under consideration, including organizational structure, systems, and physical/technological infrastructure. Capacity assessment tools, such as the McKinsey Grid, can be useful.



You can find the McKinsey Capacity Assessment Grid at <http://www.vppartners.org/learning/reports/capacity/assessment.pdf>.

Once an organization's capacity to support a candidate innovation has been determined, consider the costs of resources needed to implement the innovation successfully:

- Do we have the in-house capacity to plan, monitor, and evaluate the innovation? What will it cost to augment our capacity (e.g., hire consultants)?
- Do we have the human resources to implement the innovation?
  - Will new staff be required? If so, do we have the capacity to recruit new staff? How much will new staff cost?
  - Will current staff need to acquire new skills? If so, what training will be required and how much will it cost? (Keep in mind that although training costs are often budgeted as an initial one-time expense, training is often an

## Module II: Should we do it here?

ongoing expense because of staff turnover and the need to reinforce training objectives.)

- Will current staff have to take on new duties? If so, is there slack that can be absorbed, or will some of their current duties be displaced?
- Do we have the physical infrastructure to support the innovation?
  - Do we have the space to house the innovation? If not, how much will necessary changes or additions to buildings and space cost? (Consider capital investments as well as operation and maintenance costs.)
  - Do we have the equipment or other materials needed to implement the innovation? If not, how much will they cost?
- Do we have the information technology infrastructure to support the innovation?
  - Will we need new information technology? If so, how much will new information technology and the ongoing maintenance and technical support for staff who use it cost? What are the costs of transitioning to the new information technology?
- Do we have in place the partnerships or collaborations needed to implement the innovation? If not, what resources will it take to establish them?
- Will adopting the innovation interfere with normal operations? If so, for how long and what costs are associated with the disruption?
- Who will monitor the implementation and impact of the innovation? What will ongoing evaluation cost?

It can be useful to obtain multiple perspectives on estimated costs, since those prepared by champions for an innovation may be different from those developed by individuals who are not yet committed to it. Conducting a financial analysis that looks at fixed and variable costs over several years can provide information on an innovation's affordability.



The article "How to Decide Whether to Buy New Medical Equipment" in the March 2004 issue of *Family Practice Management* provides a downloadable financial analysis worksheet that can be adapted for innovation adoption decisions:

<http://www.aafp.org/fpm/20040300/53howt.html>

Training needs analysis (TNA) uses a variety of methods to gather information about training needs, including direct observation, questionnaires, interviews, focus groups, and tests. An example of a TNA matrix and additional information on the types of TNAs are available at the Change Management Toolkit (<http://www.change-management-toolbook.com/Default.aspx?tabid=473&language=en-US>) and the HR-Guide.com (<http://www.hr-guide.com/data/G510.htm>).



Decisionmakers at N.C. Children’s Hospital dedicated significant attention to staff availability in assessing what resources they would need to adopt Pediatric Rapid Response Teams. Please refer to [Section 4.2.1](#) (p. 105) of the case studies in the Appendix for more details on how they addressed staffing needs for this innovation.

Faced with a limited budget, decisionmakers at Clinica Campesina carefully considered the costs of implementing group visits. Costs included those associated with physical restructuring, additional staff commitments, and added labor hours. For a description of how anticipated financial costs affected this decisionmaking process, please refer to [Section 1.2](#) (p. 78) of the case studies in the Appendix.

---

## Question 2. What are the potential cost offsets?

Although innovations have upfront and continuing costs, they may generate savings or revenues that offset or exceed the costs. Cost reductions and savings may accrue by:

- Substituting less expensive services for more expensive services (in a capitated environment)
- Minimizing payroll, by matching responsibilities to employees’ capabilities and licensure
- Diminishing the need for services as a result of effective prevention, early treatment, or self-management (in a capitated environment)
- Lowering uncompensated services (e.g., services to uninsured or disallowed by payer, such as services related to “never events”)
- Increasing staff retention, thereby reducing recruitment, hiring, and training costs
- Lessening lawsuits and insurance costs
- Decreasing paperwork, downtime (e.g., cancelled appointments or surgeries), duplication, and other waste
- Streamlining regulatory compliance activities

Sources of increased revenue include:

- Greater productivity (delivering more services while costs stay constant)
- Higher volume of billable services
- Increased payment for services (e.g., negotiated rate increase, payment for previously unbillable services)
- Bigger market share

## Module II: Should we do it here?

- More income from bonuses or pay-for-performance incentives
- Improved billing accuracy and collections



At Mt. Carmel, most Six Sigma projects were required to demonstrate that they would achieve substantial cost savings. Please refer to [Section 2.3](#) (p. 86) of the Appendix to learn more about Mt. Carmel's project selection.

---

### Question 3. What are the opportunity costs of adopting the innovation?

Adoption of an innovation will generally involve some opportunity costs. It could delay, preclude, or interfere with other initiatives. Questions to consider include the following:

- If the innovation is to be implemented with existing staff, what can the staff no longer do because of the innovation?
- Are there alternative innovations that could be adopted? If so, how does this one compare with those?
- Could the need that the innovation addresses be met in other ways?
- How else could the resources spent on the innovation be used to improve quality and efficiency?
- Will implementing this innovation mean that we forgo pursuing other opportunities or initiatives?



Mt. Carmel Health System decisionmakers weighed the continuous quality improvement strategies they were currently employing against the promise of Six Sigma. For details on which aspects they compared, please refer to [Section 2.2](#) (p. 84) of the Appendix.

## Can We Build a Business Case?

### Why This Matters

In today's environment, health care organizations have to watch their bottom lines. They are unlikely to adopt innovations, even those proven to improve quality, without a business case (Leatherman et al., 2003). A business case can be purely financial (i.e., the innovation saves as much or more money than it costs in a reasonable timeframe), or it can address other business imperatives.

### Key Questions to Consider

- How do we prepare a business case?
- How can we calculate the return on investment?
- Is there a business imperative or strategic advantage for adoption?

---

### Question 1. How do we prepare a business case?

A business case is the justification for adopting an innovation. To build a business case, you need to document how the innovation:

- Reduces costs
- Increases revenues
- Addresses business imperatives or strategic advantages

A successful business case does not have to show a profit. It may be sufficient to demonstrate that an innovation will improve quality and be budget neutral. In some cases, an innovation addresses such vital issues that it will be adopted even at a net cost to the organization.

To establish a business case, you need to understand both the direct and indirect effects the innovation will have on your organization. To assess these effects, you can:

- Build a logic model of how the innovation works. Refer to [How does the innovation work?](#) on p. 9.
- Map out the financial and nonfinancial benefits and costs of the innovation. Refer to [What are the potential benefits?](#) on p. 23 and [What are the potential costs?](#) on p. 27.
  - Consider how impacts that appear not to be financial (e.g., increased patient satisfaction) could translate into financial impacts (e.g., increased market share and revenues).

## Module II: Should we do it here?

- Consider who will benefit and who will bear the costs. It is harder to make a convincing business case when costs are incurred by one part of the organization and benefits accrue elsewhere.
- Quantify costs and benefits and calculate the return on investment (ROI).
- Articulate justifications for adopting the innovation based on business imperatives or strategic advantage for adoption.
- Compare the business case for the innovation with alternatives.
- Present the case to those who need to approve of adopting the innovation.



Impact Technical Publications has published a *Business Case Primer* that details eight phases of building a business case:

<http://www.impactonthenet.com/bcprimer.pdf>

---

### Question 2. How can we calculate the return on investment?

Calculating the ROI of an innovation requires advanced financial skills and detailed data. Though estimating the ROI is not a prerequisite to making an adoption decision, health care organizations are increasingly calling for such analyses.

To calculate the ROI of an innovation you must decide the period of time over which you will compute the costs and revenues.

- The shorter the time horizon (e.g., 1 year), the less likely the innovation will be considered cost-effective.
- A longer time horizon (e.g., 5 years) allows more time to fully implement the innovation and recover expenses, but may be at odds with shorter cycles for fiscal accountability.

You will need to estimate the costs and financial benefits (i.e., cost savings and increased revenues) of the innovation.

- Many innovators do not report on the fixed and variable costs associated with the innovation. Refer to *What resources will we need to implement the innovation and what do they cost?* on p. 27 to help you approximate these costs.
- Benefits of innovations are often documented by the original innovators and earlier adopters of the innovation.
- Use rules of thumb to make estimates when no data are available. For example, the cost of recruiting, hiring, and training a nurse is approximately 25 percent of the nurse's salary.
- Include a low-end and a high-end estimate so that you can examine how sensitive your calculation is to the assumptions you are making about costs and benefits.
- Conduct a financial analysis, calculating the financial ROI.

- Compare the ROI of the innovation with the ROI of alternative investments. Organizations have many business opportunities, and investing in one innovation means not using those resources to pursue other options.

Calculation of ROI will be specific to the innovation in question, but several online tools illustrate how such calculations can be made.



The Institute for Healthcare Improvement has developed an Events Prevented Calculator that computes the ROI and lives saved by quality improvement efforts focused on reducing adverse events:

<http://www.ihc.org/NR/rdonlyres/F1E65627-881A-48B5-B975-808439BF9AAF/0/AdverseEventsPreventedCalculator.xls>

The Center for Health Care Strategies has an ROI Calculator to help Medicaid agencies and health plans forecast the financial impact of quality improvement activities. You can find it at <http://www.chcsroi.org>.

---

### Question 3. Is there a business imperative or strategic advantage for adoption?

Sometimes the business case rests not on a financial analysis but on a business imperative that does not easily translate into dollars and cents. Examples of instances when organizations may decide to adopt an innovation without a positive ROI include:

- Addressing major defects, such as intolerably high rates of adverse events
- Fulfilling mandated requirements, such as state Medicaid program requirements
- Enhancing inspection and accreditation status
- Avoiding or settling lawsuits
- Advancing the organization's mission, such as serving indigent people

Organizations may also adopt an innovation in the belief that it confers a strategic advantage on them, even if it is one that is difficult to quantify, such as:

- Securing or retaining market recognition for quality and innovation
- Keeping up with or surpassing competitors
- Earning a reputation for being a good employer

## Module II: Should we do it here?

The business case for innovations that respond to business imperatives or bestow a strategic advantage must be presented as a closely reasoned logical argument for adoption. There are several key steps in this process:

- Present the current state of affairs.
- Explain what's possible with the innovation.
- Show how the innovation will close the gap between what exists and what is possible.
- Demonstrate that the benefits outweigh the costs.

## What Are the Risks?

### Why This Matters

Before any significant organizational change is decided on, it is important to anticipate any potential risks. Innovations associated with a perceived high degree of risk or uncertainty have a lower likelihood of adoption (Meyer, Johnson, and Ethington, 1997).

### Key Questions to Consider

- What types of risk will we face?
- How do we assess potential risks?

---

### Question 1. What types of risk will we face?

Change entails risk. Consider the range of risks you may face when adopting an innovation. Potential risks include:

- Strategic risks (e.g., a shift in market position, increased competition)
- Political risks (e.g., alienation of partnering organizations)
- Medical risks (e.g., delay in delivering needed care)
- Regulatory or legal risks (e.g., accusations of breached confidentiality)
- Operational risks (e.g., disruptions to business, administrative, or clinical care processes)
- Financial risks (e.g., decline in investor confidence)

When attempting to effectively manage potential risks, consider the following questions:

- What are the best and worst case scenarios?
- What can go wrong?
- How can we mitigate these risks?
- How likely is it that the innovation will fail or that we will be worse off than we are now?
- What risks are we unwilling to take?
- What risks would we be taking by not adopting the innovation?

## Module II: Should we do it here?



Perform a thought exercise to project the risks associated with the project:

- Imagine explaining to the board of your organization why the innovation failed.
- Write the headline and first paragraph of a newspaper story that describes the disastrous results of the innovation.
- Draft bullets for a postmortem presentation to your staff about what went wrong with the innovation.



In assessing operational risks that might accompany Pediatric Rapid Response Teams, decisionmakers at N.C. Children's Hospital considered potential disruptions in the culture of patient ownership. Please refer to [Section 4.2.3](#) (p. 108) of the case studies in the Appendix for more details about these concerns and how they were addressed.

Mt. Carmel realized they were taking a tremendous financial risk in the decision to implement Six Sigma. Please refer to [Section 2.2](#) (p. 84) of the case studies in the Appendix for more information on Mt. Carmel's identification of the risk.

---

### Question 2. How do we assess potential risks?

Various factors will affect potential risk of failure of an innovation. These include how long it will take to complete implementation, how complex the innovation is, and whether the innovation has been well established or is still evolving.

A variety of tools are available to support careful analysis of risks.

Environmental scans collect data to answer questions about the present and future; they may entail a variety of tools such as surveys, questionnaires, focus groups, and open forums. Examples of environmental scans are available at <http://www.nsba.org/sbot/toolkit/ts.html>.



The Change Management Toolkit provides a group process for estimating risk: <http://www.change-management-toolbook.com/Default.aspx?tabid=495>

The New South Wales, Australia, Department of State and Regional Development's *Risk Management Guide for Small Business* contains tools for identifying, assessing, and managing risks. It can be accessed at <http://www.smallbiz.nsw.gov.au/NR/rdonlyres/FAC1345B-F20C-42C3-9F86-A5413F97FBC4/0/RiskManagement6.pdf>.

## **Module III:**

# **Can We Do It Here?**



## Are We Ready for This Change?

### Why This Matters

Although potential benefits of an innovation may outweigh potential costs and risks, an organization may not be ready to implement the innovation. Before an innovation is adopted, it is important to consider organizational readiness for change. Receptivity to change among staff and patients may be instrumental in determining how successful an innovation ultimately will be.

### Key Questions to Consider

- Is our staff open to change?
- How will other stakeholders react to the change?

---

### Question 1. Is our staff open to change?

For an innovation to be successful, support is needed at every level of the organization, from top leadership to front-line workers. Staff members' openness to change may be assessed by answering questions such as the following:

- What are staff members' values, attitudes, and beliefs about change?
- Is there a widespread perceived need to change among staff?
  - Are staff members dissatisfied with how things are currently done?
  - Do staff members think that the organization could be doing a better job?
  - Do staff members believe that work is done inefficiently?
  - Do staff members believe that there are inequities that need addressing?
  - Do staff members think there are gaps in the services provided?
- Has the case for change been made effectively, using logic or data?
- How have staff members responded to similar changes in the past?
- Do staff members trust the people who will be leading the change effort?
- Who is most likely to resist change?

Tools for assessing readiness for change include staff surveys, comment cards, and focus groups. These tools can be used to gather information about staff attitudes about the status quo, about change in general, and about a particular innovation. Be aware, however, that

## Module III: Can we do it here?

reactions to a proposed change may differ from how people react to the actual change. See *Can We Try the Innovation First?* on p. 55 for information about testing a change.



As part of the Put Prevention Into Practice initiative, the Agency for Healthcare Research and Quality has published an instrument to assess staff readiness to change their delivery of clinical preventive services:

<http://www.ahrq.gov/ppip/manual/reader.htm>

The Institute of Behavioral Research at Texas Christian University conducted a staff survey of organizational readiness for change. Key domains included motivation for change, resources, staff attributes, organizational climate, and training exposure and utilization. To see the survey items, some of which are specific to substance abuse treatment settings and others that apply to other settings, see

<http://www.ibr.tcu.edu/pubs/datacoll/Forms/orc-s.pdf>.



The group visit model dramatically changes the roles of medical providers and support staff. Clinica Campesina assessed staff readiness for change before making the adoption decision. For details, see *Sections 1.2* and *1.3* (pp. 78 and 80) in the case studies in the Appendix.

---

### Question 2. How will other stakeholders react to the change?

Patients and families, board members, community organizations, and others have a stake in your organization. Ensuring that they have a positive attitude toward the innovation can be as critical to its success as obtaining staff cooperation. See *How will we implement the innovation?* on p. 59 for more on conducting a stakeholder analysis.

When assessing stakeholders' readiness to accept an innovation:

- Identify stakeholders affected by the innovation.
- Find out what their perceptions of the change are:
  - What do they think will happen?
  - How might they oppose the innovation?
  - How might they support the innovation?
  - What would constitute a “win” for them?
- Consider how you will involve stakeholders in the change process.

## What Changes Will We Have to Make?

### Why This Matters

All innovations require some degree of change. Some innovations require changes that go to the heart of the organization—changes in organizational structure, processes, and workforce. Anticipating the types of changes that an organization will have to make can help decisionmakers assess whether it is feasible to adopt a particular innovation.

### Key Questions to Consider

- What structural changes will be needed?
- What process changes will be needed?
- What workforce changes will be needed?
- What other changes will be needed?

---

### Question 1. What structural changes will be needed?

Organizational structure refers to the relationship among distinct units of an organization. Potential structural considerations include whether to:

- Create new departments or consolidate existing departments
- Change lines of authority, responsibility, or accountability
- Centralize functions that are currently decentralized, or vice versa
- Change managers' span of control
- Add or reassign staff
- Create new teams
- Outsource any functions
  - For questions about changes to physical plant and information systems, see *What resources will we need to implement the innovation and what do they cost?* on p. 27.

---

### Question 2. What process changes will be needed?

- Work processes are how an organization gets its work done. Consider the innovation's potential impact on work processes.
- Will current work flows be disrupted?

## Module III: Can we do it here?

- Will we need to modify standard operating procedures?
- Will we need to change decisionmaking processes?
- Will we need to alter communication (i.e., information flows) within the organization?
- Will work processes become more or less predictable?
- How will coordination, transitions, and handoffs be affected?
- Will we need to change our hours of operation or work shifts?
- Will we need to revise our performance measurement systems?



Decisionmakers at Clinica Campesina wished that they had considered how implementing a group visit model would affect the roles, responsibilities, and teaming of their care providers and support staff. Please refer to [Section 1.2](#) (p. 78) of the case studies in the Appendix for a discussion of the changes that occurred.

---

### Question 3. What workforce changes will be needed?

Adopting an innovation usually requires some workforce changes, sometimes relatively minor and sometimes extensive. Ask yourself:

- Will we have to change staff roles or job descriptions?
  - Will we need additional specialization?
  - Will staff roles be diminished in any way (e.g., not using skills fully)?
  - Will staff members' interactions with colleagues change?
  - Will we have to change supervision or management practices?
  - Will any staff be laid off?
  - Will rules about seniority or job security be affected?
  - Will we have to modify hiring processes?
  - Will we have to change staff remuneration or performance recognition systems?
  - Will we have to create new positions?
  - Will we have to negotiate changes with our unions?
- Do staff members have the requisite skills to implement the innovation?
  - How specific and complex are the knowledge/skills required?
  - Do staff members have the capacity to acquire the necessary skills?
  - Is there enough time for adequate training and skill development?

For more on training issues, see [What are the potential costs?](#) on p. 27.



For a list of questions that staff members might ask about how change will affect them, check out the chapter on workplace change in Industrial Relations Victoria's *High Performance Toolkit* at

[http://www.business.vic.gov.au/busvicwr/\\_assets/main/lib60037/06\\_hpt2-1managingchangeintheworkplace.pdf](http://www.business.vic.gov.au/busvicwr/_assets/main/lib60037/06_hpt2-1managingchangeintheworkplace.pdf).

---

#### **Question 4. What other changes will be needed?**

Although changes in structures, processes, and workforce are the most likely changes required to implement an innovation, other changes may be needed. Carefully consider the possibility of changes in other dimensions, such as:

- Patient relations
- Community involvement
- Finance or billing
- Record keeping, accounting, and reporting



## Do We Have the Ingredients for Success?

### Why This Matters

Many innovations fail despite careful planning. The innovation doesn't catch on or meets with resistance, people implementing the innovation stumble for lack of experience, or the amount of time it takes for successful implementation is underestimated. Decisionmakers can anticipate these pitfalls, learn from past innovation experiences, and determine whether they have the ingredients for successful adoption.

### Key Questions to Consider

- Can we identify innovation champions?
- Where will we find the needed expertise?
- Can we do it in time?
- What can we learn from our past experiences with innovation?

---

### Question 1. Can we identify innovation champions?

If key colleagues within an organization support an innovation, then there is a greater likelihood that others within the organization will adopt the innovation (Backer and Rogers, 1998; Greenhalgh et al., 2004; Markham, 1998; Meyer and Goes, 1988). Before deciding to adopt an innovation, try to identify who could serve as champions who will be committed to implementing the innovation.

Potential champions include:

- Team or opinion leaders among staff who will use the innovation (clinical, management, business office, etc.)
- Staff who are enthusiastic about the innovation
- Staff who occupy key roles (e.g., medical director, chief financial officer)

You should also consider whether your potential champions have the skills to be effective. Champions need to be able to:

- Generate support for the innovation
- Bridge communication gaps
- Foster collaboration
- Overcome resistance to change
- Problem solve

## Module III: Can we do it here?

Consider how you can help your champions be effective.

- Will they have an official role in the implementation of the innovation?
- Will they be released from other duties to work on the innovation?
- Will leadership demonstrate support publicly?



The Canadian Health Services Research Foundation summarizes four ways to identify opinion leaders at [http://www.chsrf.ca/other\\_documents/insight\\_action/insight\\_and\\_action\\_e.php?intIssueID=35](http://www.chsrf.ca/other_documents/insight_action/insight_and_action_e.php?intIssueID=35).



Decisionmakers at N.C. Children’s Hospital emphasized that having a champion with high visibility, strong interpersonal skills, and willingness to cooperate with staff of other disciplines was critical to their success. Their champion served as a transformational leader, network facilitator, and change agent. Please refer to [Section 4.4](#) (p. 110) of the case studies in the Appendix for details on how this champion supported the Pediatric Rapid Response Teams.

---

### Question 2. Where will we find the needed expertise?

You may need expert support to implement an innovation. This expertise may be found in-house, or you may need outside help. The source of the expert support could have implications for timing and resources. Questions to consider include the following:

- What kinds of experts will be helpful to consult with before implementing the innovation?
- Will we need outside help or technical assistance? Where will we obtain the necessary resources?
- If we use consultants for expertise, how much help might we need before we are self-sufficient?



The Connecticut Nonprofit Information Network has tools on how to find a consultant, including *When Do You Need to Hire a Consultant?* and *How to Hire a Consultant*. To access these tools, visit <http://www.ctnonprofits.org/pages/Consultants/Consultants.asp>.

---

### Question 3. Can we do it in time?

The time required for implementing an innovation must match your timetable for meeting your goals. You should consider the length of time it will take to prepare for implementation of the innovation, the length of time it will take to implement it, and the length of time needed to obtain results. Other considerations include the following:

- What sequence of tasks is involved in implementing the innovation?
- What is the anticipated timeline for accomplishing these tasks?
- Which tasks, if any, should occur simultaneously?
- Which tasks, if any, depend on the completion of other activities?
- Which, if any, of the tasks are considered to be urgent?
- What will be the consequences of falling behind schedule?

Several tools are available for charting the time a project will take to implement. For example, a Gantt chart can be a useful tool for:

- Planning tasks that need to be completed
- Providing a schedule for completion of tasks
- Facilitating a plan for allocation of resources needed to complete the project



Information on using Gantt charts to plan and monitor the timing of adoption and implementation events is accessible at [http://www.mindtools.com/pages/article/newPPM\\_03.htm](http://www.mindtools.com/pages/article/newPPM_03.htm).

Critical path analysis (CPA) is another tool that can facilitate scheduling project tasks. CPA is more oriented around the sequence and interdependence of tasks than are Gantt charts. CPA is especially helpful for determining which tasks must be completed on time to avoid delaying the completion of the entire implementation and the minimum amount of time needed to complete implementation.



Additional information on CPA is accessible at <http://www.mindtools.com/critpath.html>.

### Question 4. What can we learn from our past experiences with innovation?

Successful organizations learn from their experiences and apply that knowledge to improve performance. If your organization has adopted innovations in the past, you can use that experience to inform your current adoption decision by asking yourself:

- What prime factors were responsible for the success or failure of the innovation?
  - Key players
  - Implementation strategies
  - Decisionmaking processes
- How is the proposed innovation similar to or different from past innovations?
- Are any of the elements that were critical to success in the past missing this time? Is there any way to compensate for this absence?
- What can be done differently this time? Is this enough to make the innovation succeed when others have failed?



When considering adoption of the Crew Resource Management model to increase patient safety, Mt. Carmel Health System applied some lessons learned from the adoption of Six Sigma. They recognized the importance of having physician leaders engaged early to build support and buy-in; identifying measures of outcomes/impact early and tracking them over time; and using methods that supported budget-neutral innovation. Identifying a way to adopt the innovation at no net cost to the health system generated CEO and other key leadership support.

## **Module IV:**

# **How Will We Do It Here?**



## How Will We Measure the Impact of the Innovation?

### Why This Matters

The only way to know if an innovation is an improvement is to measure its impact. Done correctly, measurement will let you monitor the implementation process, early results, and ultimate outcomes of the innovation. Remember the adage, “What gets measured gets done.”

### Key Questions to Consider

- How do we evaluate the innovation?
- What measures should we use?

---

### Question 1. How do we evaluate the innovation?

Tracking progress and measuring impact of an innovation requires time and effort. The first step is to plan out your evaluation strategy.

- Articulate your evaluation goals. Think about how you want to use the information (e.g., accountability, improvement, expansion decisions, public relations) and who the audience will be.
- Formulate your evaluation questions. Decide what you (and your audiences) will want to know in the end.
- Decide who will perform the evaluation. If staff members do not have the necessary skills and resources to conduct the evaluation, consider how you might augment in-house expertise.
- Consider the data sources available to you and how much effort you are willing to expend on collecting new data.
- Select the measures that reflect your organizational priorities.
- Estimate how long it will take to get results.



The Innovation Network offers a variety of tools, including a workbook to plan an evaluation of implementation and outcomes. You can find it at [http://www.innonet.org/client\\_docs/File/evaluation\\_plan\\_workbook.pdf](http://www.innonet.org/client_docs/File/evaluation_plan_workbook.pdf).

The W.K. Kellogg Foundation logic model handbook includes a section on posing evaluation questions. See p. 35 at <http://www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf>.

---

### Question 2. What measures should we use?

Developing a measurement set requires balancing priorities. On one hand, you want a measurement set that is parsimonious. Too many measures can be burdensome and confusing. However, you also want a measurement set that answers the questions stakeholders will ask and can provide concrete feedback to implementers.

Consider the following when selecting measures:

- Which measures will be meaningful to stakeholders? Which measures will answer your evaluation questions?
- Are the measures valid and reliable?
- Are the measures well specified (e.g., define numerator and denominator, periodicity of data collection)?
- Is the innovation likely to affect the measures during the measurement period?
- Does your measurement set include an appropriate mix of structural, process, outcome, workforce, financial, access, and patient experience of care measures?
- Can you measure intermediary as well as long-term effects? If the impact of the innovation won't be measurable for a long time, are there surrogate or intermediate measures you can use?
- Will collecting data for measurement be burdensome?
- Are there data or measures already being collected that would be appropriate?
- Can your current data systems and resources capture the measures?
- How will you measure change over time?
  - Can you obtain baseline data?
  - Will you be able to track changes at appropriate intervals?
  - Are there benchmarks with which you can compare your performance?

The Outcome Measurement Guide, developed by the Sharon Martin Community Health Trust Fund, describes outcome measurement and potential indicators. You can find it at [http://www.smartfund.ca/docs/smart\\_outcomes\\_guide.pdf](http://www.smartfund.ca/docs/smart_outcomes_guide.pdf).



You can find a library of potential measures at the Agency for Healthcare Research and Quality's National Quality Measures Clearinghouse: <http://www.qualitymeasures.ahrq.gov/>

The Institute for Healthcare Improvement has an Improvement Tracker, an interactive tool to help monitor the impact of innovations, at <http://www.ihl.org/ihl/workspace/tracker/>.



## Can We Try the Innovation First?

### Why This Matters

Innovations that can be tried on a limited basis are adopted and assimilated more easily (Plsek, 2003; Rogers, 2003; Yetton, Sharma, and Southon, 1999). Organizations unwilling to commit to full-scale adoption may find pilot testing an innovation is an acceptable risk. A pilot test may serve as a small test of change on which you can base the larger adoption decision. It can also provide an opportunity to assess fit and the need to adapt an innovation before applying it more broadly. Although pilot testing can be extremely valuable, it is not always feasible; some innovations are not suitable for piloting.

### Key Questions to Consider

- Can we try the innovation for a limited time?
- Can we try the innovation on a small scale?
- Can we phase the innovation into the organization?

---

### Question 1. Can we try the innovation for a limited time?

The ability to try the innovation for a limited time before deciding whether to continue depends largely on the nature of the innovation. Questions to consider include the following:

- Can the innovation be evaluated after a trial period?
- How long a trial period is necessary to see the benefits?
- Are the startup costs of a trial period prohibitive?
- How will staff, patients, and other stakeholders react to discontinuing the innovation after a trial period?
- Will discontinuation be disruptive to operations?



The decisionmaking culture at Clinica Campesina is one of trying. Please refer to [Section 1.3](#) (p. 80) of the case studies in the Appendix to find out how they decided to try out the group visit model rather than adopt it irreversibly.

### Question 2. Can we try the innovation on a small scale?

Some innovations are designed for specific components or services within a health care organization, while others may be applied more broadly. Review both the nature of the innovation and the nature of the organization when considering a pilot test on a small scale before broader adoption. Questions to consider include the following:

- Is the innovation designed to affect the entire organization, or can it be tried by a smaller component?
- Are economies of scale lost when the innovation is implemented on a small scale?
- How will we measure the results of the pilot?
- Can we generalize from the results of the pilot?
- Will piloting the innovation cause confusion or be disruptive?
- If one component of the organization is selected for a pilot test, how will other components react to not being selected?
- How will we demonstrate the value of the innovation to ensure wider acceptance beyond the pilot test site?



Golisano Children's Hospital's champions and decisionmakers considered whether it would be feasible to implement family-centered rounds on a small scale initially. Please refer to [Section 3.2](#) (p. 94) of the case studies in the Appendix to find out how they decided to proceed.



Learn about how to conduct small tests of change through Plan, Do, Study, Act (PDSA) cycles and access the Institute for Healthcare Improvement's PDSA Worksheet at <http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/testingchanges.htm>.

---

### Question 3. Can we phase the innovation into the organization?

A careful plan for phasing in an innovation across an organization can build support and promote success. This approach requires several considerations:

- Can the innovation be segmented and implemented over a period of time?
- Can momentum for implementing the innovation be maintained during the phase-in process?
- Does phasing in the innovation increase comfort with the change among key stakeholders?

- What is the likely impact of a prolonged transition period on productivity?
- What is the likely impact of a prolonged transition period on staff support or opposition?



When Group Health Cooperative implemented its depression guideline by deploying a simple screening tool, adoption was slow because physicians did not think that they had time to use the tool. As the tool was introduced, one or two clinicians in each module would volunteer to try it out. Other clinicians in the module observed that it was possible to do, and the model remains in place to this day (<http://xnet.kp.org/permanentejournal/spring05/diffusing.html>).



## How Will We Implement the Innovation?

### Why This Matters

No one wants to adopt an innovation that cannot be implemented successfully or cannot be sustained. It pays to think ahead about how you will manage the change process and how you will sustain the innovation once it is implemented.

### Key Questions to Consider

- How will we manage change?
- How will we monitor and evaluate implementation?
- How will we sustain the innovation?

---

### Question 1. How will we manage change?

Unmanaged change can result in poor morale, loss of trust in management, and lower productivity. Change that is managed skillfully can strengthen organizational resilience and readiness to adopt innovations in the future. Consider developing a change-management plan that delineates the decisionmaking and implementation process. The plan should address the following:

- Preparation: Explain why the innovation is needed; create a motivating vision that will inspire staff.
- Change management team: Designate who will be responsible for coordinating and implementing the innovation.
- Communications: Define stakeholders (e.g., patients and families, clinical staff, support and administrative staff, unions, middle and upper management, board members) and use a variety of channels to communicate with them.
- Policies and procedures: Articulate a process for changing policies and procedures as needed to support the innovation.
- Building buy-in: Involve participants in the process, coaching, training, and using champions and change agents to build buy-in and manage resistance.
- Monitoring: Develop performance measures, regularly assess performance, and institute corrective action as necessary to keep the innovation on track.
- Reinforce change: Consider performance incentives, morale boosters, and celebrations of success.

## Module IV: How will we do it here?



The Free Management Library offers several tips and resources for effectively managing the communication, delegation, and planning of the organizational change process: [http://www.managementhelp.org/org\\_chng/org\\_chng.htm](http://www.managementhelp.org/org_chng/org_chng.htm)

George Mason University offers an overview of leading change in a continuous quality improvement model. It describes the key role of leadership in change, and outlines necessary elements and clear action steps.

<http://gunston.gmu.edu/healthscience/708/LeadingChange.asp?E=0>

The overall guide is here: <http://gunston.gmu.edu/healthscience/708/default.asp>

The Department of Veterans Affairs Health Services Research and Development Service provides an organizational change primer containing lessons learned about managing organizational change, as well as pitfalls to avoid:

[http://www1.va.gov/hsrd/publications/internal/organizational\\_change\\_primer.pdf](http://www1.va.gov/hsrd/publications/internal/organizational_change_primer.pdf)

The Score Association offers 5 Tips on Preparing for Change at [http://www.score.org/5\\_tips\\_bp\\_8.html](http://www.score.org/5_tips_bp_8.html).

Anticipating potential challenges and developing strategies to overcome them is an important aspect of change management. Resistance to change in varying degrees is common. Many people fear uncertainty, and some may not perceive the need for change. Some staff members may oppose how the change will occur.



Imperial College London has developed guidance on conducting a stakeholder analysis. Learn how to develop an Influence/Interest Grid at

<http://www3.imperial.ac.uk/pls/portallive/docs/1/7339774.DOC>.

A table highlighting six layers of resistance to change is available on the Focused Performance Web site at

<http://www.focusedperformance.com/articles/resistance.html>.



To get staff buy-in for family-centered rounds, decisionmakers at Golisano Children’s Hospital rolled out the decisionmaking process as shared consensus building. For information about how they obtained staff support for this innovation, please refer to [Section 3.2](#) (p. 94) of the case studies in the Appendix.

Though there were naysayers along the way, the visibility of the results from Six Sigma process improvements in the Mt. Carmel Health System created traction for this innovation. Please refer to [Section 2.3](#) (p. 86) of the case studies in the Appendix for more information about how this system overcame challenges they faced in adoption and implementation.

---

## Question 2. How will we monitor and evaluate implementation?

A formative evaluation monitors the implementation process and the progress toward goals, providing information for midcourse corrections. Formative evaluations answer such questions as the following:

- Was the innovation implemented as intended?
- What adaptations to the innovation were made?
- What were the unanticipated impacts of the innovation?
- What corrective action can we take?
- Why did the innovation have the impact it had?
  - What influenced its success or failure?
  - How can we improve?

Formative evaluations must be done quickly if they are to provide feedback in time to be useful for short-term adjustments.



The Department of Veterans Affairs QUERI Implementation Guide provides an overview of formative evaluation at [http://www.hsrd.research.va.gov/queri/implementation/section\\_1/part1\\_4.cfm](http://www.hsrd.research.va.gov/queri/implementation/section_1/part1_4.cfm).

### Question 3. How will we sustain the innovation?

You know that energy and resources will be needed to get the innovation off the ground. Be sure to think ahead about maintaining the innovation as well. Otherwise, as enthusiasm for the innovation ebbs or trained staff leave, the organization may slide back into its old patterns. If you are not reasonably confident that you can sustain the innovation, investment in an innovation may not be warranted.

Think about where you want your organization to be in a few years. Ask yourself:

- What does the innovation look like in a steady state?
- How can we institutionalize the innovation?
- When does change management leave off and plain old management kick in?
- How realistic is it to expect the innovation to substitute for any current activities?
- How much staff time and other resources does the innovation require in the maintenance phase (e.g., “booster” training and training of new staff)?
- How can we keep staff engaged?
- How will we celebrate success?
- How will we spread the innovation to other parts of the organization?

A well-rounded approach to program planning can play a pivotal role in achieving intended results from an innovation. A planning checklist, such as the RE-AIM planning tool, can be useful in identifying key issues to consider when evaluating the potential sustainability of a candidate innovation. The Maintenance section of the checklist inquires about anticipated challenges to long-term success, plans for sustainability, stakeholder commitment to the innovation in the long run, and the extent to which the innovation will be integrated into the organization as part of standard practice.



The RE-AIM planning tool is a checklist to facilitate planning related to improving reach, effectiveness, adoption, implementation, and maintenance:

<http://www.re-aim.org/Documents/RE-AIM%20PLANNING%20TOOL.pdf>

The Institute for Healthcare Improvement discusses how to measure the spread of an innovation at

<http://www.ihl.org/IHI/Topics/Improvement/SpreadingChanges/Measures/RateofSpread.htm>.



Within a few years of implementing Six Sigma, Mt. Carmel Health System staff had developed a systematic approach to the selection of projects and each member of the senior management team had a set of guides assigned to him or her. Please refer to [Section 2.3](#) (p. 86) of the case studies in the Appendix for a description of how this innovation was incorporated into this health system's regular operating procedures.



## **Index of Tools**



# Index of Tools

Action	Tool/Reference	Page Number
<b>Innovation Description</b>		
View example innovation profiles.	Health Care Innovations Exchange Agency for Healthcare Research and Quality <a href="http://www.innovations.ahrq.gov">http://www.innovations.ahrq.gov</a>	10
Develop a logic model.	Logic Model Development Guide W.K. Kellogg Foundation <a href="http://www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf">http://www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf</a>	10, 52
Understand types of organizational change.	Major Types of Organizational Change Free Management Library <a href="http://www.managementhelp.org/misc/types-of-orgl-change.pdf">http://www.managementhelp.org/misc/types-of-orgl-change.pdf</a>	11
Assess the accuracy, applicability, and actionability of available evidence.	The Informed Decisions Toolbox The Center for Health Research, University of California, Berkeley <a href="http://toolbox.berkeley.edu/tools/">http://toolbox.berkeley.edu/tools/</a>	12
View evidence that an innovation did not work.	Health Care Innovations Exchange Agency for Healthcare Research and Quality <a href="http://www.innovations.ahrq.gov/content.aspx?id=66">http://www.innovations.ahrq.gov/content.aspx?id=66</a>	12
<b>Goal Congruence</b>		
Develop specific, measurable, attainable, relevant, and timely objectives.	SMART Objectives March of Dimes <a href="http://www.marchofdimes.com/files/HI_SMART_objectives.pdf">http://www.marchofdimes.com/files/HI_SMART_objectives.pdf</a>	15
<b>Compatibility</b>		
Assess organizational culture.	Organizational Culture Assessment Instrument Graduate School of Banking at Colorado (University of Colorado) <a href="http://gsbc.colorado.edu/student_tools/documents/8bOCAIWorksheet-Second2004.doc">http://gsbc.colorado.edu/student_tools/documents/8bOCAIWorksheet-Second2004.doc</a>  The Quantitative Measurement of Organizational Culture in Health Care: A Review of the Available Instruments Health Services Research <a href="http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1360923">http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1360923</a>	18

## Index of Tools

Action	Tool/Reference	Page Number
<b>Compatibility Continued</b>		
Adapt an innovation.	Criteria for Choosing Promising Practices and Community Interventions Community Tool Box, Kansas University <a href="http://ctb.ku.edu/tools/en/sub_section_main_1152.htm">http://ctb.ku.edu/tools/en/sub_section_main_1152.htm</a>	19
<b>Potential Benefits</b>		
Identify potential benefits associated with the innovation.	Quantify the Benefits of Six Sigma Projects Six Sigma <a href="http://www.isixsigma.com/library/content/c011112a.asp">http://www.isixsigma.com/library/content/c011112a.asp</a>	24
<b>Potential Costs</b>		
Assess organizational capacity.	McKinsey Capacity Assessment Grid Venture Philanthropy Partners <a href="http://www.vppartnerFCs.org/learning/reports/capacity/assessment.pdf">http://www.vppartnerFCs.org/learning/reports/capacity/assessment.pdf</a>	27
Conduct financial analysis.	How to Decide Whether to Buy New Medical Equipment Financial Analysis Worksheet American Academy of Family Physicians <a href="http://www.aafp.org/fpm/20040300/53howt.html">http://www.aafp.org/fpm/20040300/53howt.html</a>	28
Conduct a training needs analysis.	A Matrix for Training Needs Analysis Change Management Toolbook, ChangeSource <a href="http://www.change-management-toolbook.com/Default.aspx?tabid=473&amp;language=en-US">http://www.change-management-toolbook.com/Default.aspx?tabid=473&amp;language=en-US</a> <a href="http://www.hr-guide.com/data/G510.htm">http://www.hr-guide.com/data/G510.htm</a>	28
<b>Business Case</b>		
Learn the eight phases to building a business case.	Business Case Primer Impact Technical Publications <a href="http://www.impactonthenet.com/bcprimer.pdf">http://www.impactonthenet.com/bcprimer.pdf</a>	32
Calculate return on investment (ROI).	Events Prevented Calculator The Institute for Healthcare Improvement <a href="http://www.ihl.org/NR/rdonlyres/F1E65627-881A-48B5-B975-808439BF9AAF/0/AdverseEventsPreventedCalculator.xls">http://www.ihl.org/NR/rdonlyres/F1E65627-881A-48B5-B975-808439BF9AAF/0/AdverseEventsPreventedCalculator.xls</a> Medicaid ROI Calculator Center for Health Care Strategies <a href="http://www.chcsroi.org">http://www.chcsroi.org</a>	33

Action	Tool/Reference	Page Number
<b>Potential Risks</b>		
Conduct an environmental scan.	Taking Stock National School Boards Association <a href="http://www.nsba.org/sbot/toolkit/ts.html">http://www.nsba.org/sbot/toolkit/ts.html</a>	36
Conduct a risk assessment.	Risk Assessment for Projects Change Management Toolkit, ChangeSource <a href="http://www.change-management-toolbook.com/Default.aspx?tabid=495">http://www.change-management-toolbook.com/Default.aspx?tabid=495</a>	36
Identify, assess, and manage risks.	Risk Management Tools and Activities Small Business Administration <a href="http://www.smallbiz.nsw.gov.au/NR/rdonlyres/FAC1345B-F20C-42C3-9F86-A5413F97FBC4/0/RiskManagement6.pdf">http://www.smallbiz.nsw.gov.au/NR/rdonlyres/FAC1345B-F20C-42C3-9F86-A5413F97FBC4/0/RiskManagement6.pdf</a>	36
<b>Readiness for Change</b>		
Assess organizational climate and readiness for change.	Readiness Survey Agency for Healthcare Research and Quality <a href="http://www.ahrq.gov/ppip/manual/reader.htm">http://www.ahrq.gov/ppip/manual/reader.htm</a>  Organizational Readiness for Change Institute of Behavioral Research, Texas Christian University <a href="http://www.ibr.tcu.edu/pubs/datacoll/Forms/orc-s.pdf">http://www.ibr.tcu.edu/pubs/datacoll/Forms/orc-s.pdf</a>	40
<b>Needed Changes</b>		
Anticipate staff reactions to innovation.	Workplace Change in <i>High Performance Toolkit</i> Industrial Relations Victoria (Australia) <a href="http://www.business.vic.gov.au/busvicwr/_assets/main/lib60037/06_hpt2-1managingchangeintheworkplace.pdf">http://www.business.vic.gov.au/busvicwr/_assets/main/lib60037/06_hpt2-1managingchangeintheworkplace.pdf</a>	43
<b>Ingredients for Success</b>		
Identify opinion leaders.	Local opinion leaders: Effects on professional practice and health care outcomes Canadian Health Services Research Foundation <a href="http://www.chsrf.ca/other_documents/insight_action/insight_and_action_e.php?intIssueID=35">http://www.chsrf.ca/other_documents/insight_action/insight_and_action_e.php?intIssueID=35</a>	46
Find, hire, and manage a consultant.	When Do You Need to Hire a Consultant? How to Hire a Consultant Connecticut Nonprofit Information Network <a href="http://www.ctnonprofits.org/pages/Consultants/Consultants.asp">http://www.ctnonprofits.org/pages/Consultants/Consultants.asp</a>	46
Use Gantt charts.	Gantt Charts Mind Tools <a href="http://www.mindtools.com/pages/article/newPPM_03.htm">http://www.mindtools.com/pages/article/newPPM_03.htm</a>	47

## Index of Tools

Action	Tool/Reference	Page Number
<b>Ingredients for Success Continued</b>		
Use critical path analysis and PERT charts.	Critical Path Analysis and PERT Charts Mind Tools <a href="http://www.mindtools.com/critpath.html">http://www.mindtools.com/critpath.html</a>	47
<b>Measuring Impact</b>		
Plan evaluation.	Evaluation Plan Workbook The Innovation Network Resource Exchange Center <a href="http://www.innonet.org/client_docs/File/evaluation_plan_workbook.pdf">http://www.innonet.org/client_docs/File/evaluation_plan_workbook.pdf</a>	52
	Logic Model Development Guide (p. 35) W.K. Kellogg Foundation <a href="http://www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf">http://www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf</a>	10, 52
Select measures.	A SMART Fund Guide to Using Outcomes to Design & Manage Community Health Activities Sharon Martin Community Health Fund <a href="http://www.smartfund.ca/docs/smart_outcomes_guide.pdf">http://www.smartfund.ca/docs/smart_outcomes_guide.pdf</a>  National Quality Measures Clearinghouse Agency for Healthcare Research and Quality <a href="http://www.qualitymeasures.ahrq.gov/">http://www.qualitymeasures.ahrq.gov/</a>	53
Monitor the impact of an innovation.	Improvement Tracker Institute for Healthcare Improvement <a href="http://www.ihl.org/ihl/workspace/tracker/">http://www.ihl.org/ihl/workspace/tracker/</a>	53
<b>Piloting</b>		
Carry out small tests of change.	Plan, Do, Study, Act (PDSA) Institute for Healthcare Improvement <a href="http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/testingchanges.htm">http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/testingchanges.htm</a>	56
<b>Implementation</b>		
Manage change.	Organizational Change and Development Free Management Library <a href="http://www.managementhelp.org/org_chng/org_chng.htm">http://www.managementhelp.org/org_chng/org_chng.htm</a>  Leading Change George Mason University <a href="http://gunston.gmu.edu/healthscience/708/LeadingChange.asp?E=0">http://gunston.gmu.edu/healthscience/708/LeadingChange.asp?E=0</a>	60

Action	Tool/Reference	Page Number
<b>Implementation Continued</b>		
Manage change. (Continued)	Continuous Quality Improvement Guide George Mason University <a href="http://gunston.gmu.edu/healthscience/708/default.asp">http://gunston.gmu.edu/healthscience/708/default.asp</a>	60
	Organizational Change Primer Health Services Research and Development Service Department of Veterans Affairs <a href="http://www1.va.gov/hsrd/publications/internal/organizational_change_primer.pdf">http://www1.va.gov/hsrd/publications/internal/organizational_change_primer.pdf</a>	
	5 Tips on Preparing for Change The Score Association <a href="http://www.score.org/5_tips_bp_8.html">http://www.score.org/5_tips_bp_8.html</a>	
Identify stakeholders and their interest in and influence over the innovation.	Project Stakeholder Analysis Imperial College London <a href="http://www3.imperial.ac.uk/pls/portallive/docs/1/7339774.DOC">http://www3.imperial.ac.uk/pls/portallive/docs/1/7339774.DOC</a>	60
Identify and overcome resistance.	Taking Advantage of Resistance to Change (and the TOC Thinking Processes) to Improve Improvements Focused Performance <a href="http://www.focusedperformance.com/articles/resistance.html">http://www.focusedperformance.com/articles/resistance.html</a>	60
Monitor and evaluate implementation.	Implementation Guide Department of Veterans Affairs Quality Enhancement Research Initiative (QUERI) <a href="http://www.hsr.d.research.va.gov/queri/implementation/section_1/part1_4.cfm">http://www.hsr.d.research.va.gov/queri/implementation/section_1/part1_4.cfm</a>	61
Plan for maintenance and sustainability.	RE-AIM Planning Tool Kaiser Permanente <a href="http://www.re-aim.org/Documents/RE-AIM%20PLANNING%20TOOL.pdf">http://www.re-aim.org/Documents/RE-AIM%20PLANNING%20TOOL.pdf</a>	62
Monitor spread of innovation.	Rate of Spread Institute for Healthcare Improvement <a href="http://www.ihl.org/IHI/Topics/Improvement/SpreadingChanges/Measures/RateofSpread.htm">http://www.ihl.org/IHI/Topics/Improvement/SpreadingChanges/Measures/RateofSpread.htm</a>	62



## References

- Backer TE, Rogers EM. Diffusion of innovations theory and work-site AIDS programs. *Journal Health Commun* 1998 3(1):17–28.
- Denis JL, Hebert Y, Langley A, et al. Explaining diffusion patterns for complex health care innovations. *Health Care Manage Rev* 2002 27(3):60–73.
- Ferlie E, Gabbay J, Fitzgerald L, et al. Evidence-based medicine and organisational change: an overview of some recent qualitative research. In: Ashburner L, eds. *Organisational behaviour and organisational studies in health care: Reflections on the future*. Basingstoke, United Kingdom: Palgrave; 2001.
- Greenhalgh T, Robert G, MacFarlane F, et al. Diffusion of innovations in service organizations: systematic review and recommendations. *Milbank Q* 2004 82(4):581–629.
- Leatherman S, Berwick D, Iles D, et al. The business case for quality: case studies and an analysis. *Health Aff* 2003 22(2):17–30.
- Markham SK. A longitudinal examination of how champions influence others to support their projects. *J Product Innovation Manage* 1998 15(6):490–504.
- Meyer AD, Goes JB. Organizational assimilation of innovations: a multilevel contextual analysis. *Acad Manage J* 1988 31(4):897–923.
- Meyer M, Johnson D, Ethington C. Contrasting attributes of preventive health innovations. *J Commun* 1997 47:112–31.
- Plsek P. (2003). Complexity and the adoption of innovation in health care. Paper presented at Accelerating Quality Improvement in Health Care: Strategies to Accelerate the Diffusion of Evidence-Based Innovations. Washington, DC: National Institute for Health Care Management Foundation and National Committee for Quality in Health Care.
- Rogers EM. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.
- Yetton P, Sharma R, Southon G. Successful IS innovation: the contingent contributions of innovation characteristics and implementation process. *J Info Tech* 1999 14(1):53–68.



## **Appendix:**

# **Case Study Report**





# **1** Clinica Campesina and Group Visits

### **1.1 Clinica Campesina and the Group Visit Model**

Clinica Campesina is a community health center that is committed to providing affordable, high-quality medical care to low-income, unemployed, and uninsured people in the surrounding community. As part of their organizational mission to increase access to care in the community, Clinica Campesina core group members chose to adopt a group visit model in 2000. Group visits increase patient capacity without the need to hire additional staff, improve continuity of care, and provide an opportunity for mutual support among patients. In these group visits, 15 to 20 individuals with the same condition or health need see a physician as a group. One physician moves from patient to patient discussing individual concerns and conducting a brief examination, while the rest of the group receives a patient education segment, participates in a question-and-answer session, and has routine wellness measures taken (e.g., blood pressure, blood sugar). Patients who have similar medical conditions and problems make a long-term commitment to meet regularly. Over time, they form a primary support group. Clinica Campesina currently holds group visits for prenatal, newborn, well-child, diabetes, AIDS/HIV, depression, and weight-loss care.

### **1.2 Decision to Implement Group Visits**

The Clinica Campesina core group learned about the group care model during a search for an innovative care approach to meet the needs of their patients. In the early 1990s, Clinica Campesina was recruited to take part in an Institute for Healthcare Improvement (IHI) diabetes collaborative assessing diabetes care models. As part of this collaborative, Clinica staff were required to collect several key measures to assess the efficacy of their diabetes programs. Analysis at Clinica and other facilities participating in the collaborative showed suboptimal outcomes for the key measures. Following that initial collaboration with IHI, Clinica decisionmakers realized that the care model they were using was not effective in producing the outcomes they desired.

Clinica Campesina decisionmakers began actively searching for a conceptual model of change to improve outcomes and

## Appendix: Section 1 — Clinica Campesina and the Group Visit Model

increase access to services at their clinic. Clinica core group members began to research idealized office design concepts, and in September 2000 a core group from Clinica attended a large IHI conference. The group consisted of key leaders within the organization, including medical directors, site managers (RNs and operations), and an operations director. The core group participated in all office redesign clinics offered at the IHI conference, including a strategy and design clinic for implementing the group visit model.

The decision to implement the group care model was made almost immediately after Clinica core group members participated in the clinics at the IHI conference. The decision to seek an alternative model was prompted by the immediate need to increase access to and quality of care at Clinica Campesina. Low-income patients at Clinica did not have access to care and were not receiving scheduled medical treatment because of the high demand for services. An innovation was needed that would improve access to care and allow Clinica to expand its patient population significantly.

Another major consideration in the decisionmaking process was the cost of the model. Group members considered the cost of the initial physical restructuring, additional staff commitments, and work hours. Clinica decisionmakers were faced with a limited budget and had to determine which innovation would bring the most added benefit in return for the cost.

In reviewing possible innovations to adopt, the core group also reviewed the expected benefit to patients that each candidate innovation would create. They wanted to provide medical services in a way that would enable patients to establish a long-term relationship with Clinica by engaging them and allowing them to build relationships both with their medical providers and health communities and with other patients.

The expected observability of benefits was also a factor. Staff wanted to be able to measure the benefit not only to the clinic but also to the patient. Measures included patient and provider satisfaction, increased access to health services, increased attendance at appointments, and improved lab results for key medical areas. Along with observability, decisionmakers at Clinica focused on the trialability of the innovation—the ability to implement it on a small scale or for a short period.

One of the most vital aspects that the core group considered in the decision process was compatibility. They were eager to find an innovation that would be compatible with the mission and culture of Clinica Campesina. The core group looked at various aspects of compatibility, including organizational culture, staff abilities, staff attitudes, patient attitudes, and staff readiness for change. These factors were discussed prior to the decision to implement by core group members and were later assessed as part of the implementation process. Core group members discussed these factors in light of their experience working with Clinica staff and patients.

The primary factors considered before adopting the group visit model were access to care, cost, expected benefit, observability, trialability, and compatibility. Participants also discussed some factors that they did not take into account in decisionmaking. In retrospect, members of the core group realized that physical space needs should have been factored into the original decision about innovations. The shifting roles and responsibilities of employees at Clinica Campesina was another factor that was not considered in the initial decisionmaking process. The group visit model of care dramatically changed the roles of medical providers and support staff. Medical providers shifted from one-on-one patient care to group care, and other clinical staff (physician assistants, RNs) became responsible for group education and group care management. Administrative staff roles also changed to reflect the emphasis on continuity of care. Administration was restructured into different administrative and medical “pods,” which functioned independently and served the same patients continuously.

### **1.3 Decisionmaking Process**

At Clinica Campesina, decisionmaking is a group process involving individuals who represent various management and operational roles within the organization. As part of the group decisionmaking process, core team participants discussed all the candidate innovations and eliminated various innovations on the basis of the key factors discussed above. After the initial core group decision to implement an innovation, buy-in and approval from senior management and the chief executive officer were safeguarded.

The decisionmaking culture at Clinica is one of trying. This aspect of the organizational culture played a key role in the decision to go ahead with an innovation. They did not choose to adopt the group visit model irreversibly, but rather chose to try it. This model of trying may limit the ability to generalize the findings on the decisionmaking process and may not apply to innovations that are not well suited to a trial or pilot test. Clinica Campesina follows this model in day-to-day decision processes and large-scale innovation decisions. The model builds employee/management buy-in during the trial, minimizes perceived risk, and allows Clinica staff to try more innovations than similar organizations can.

*“We frequently find ourselves ‘trying’ if something [at Clinica] doesn’t work. People don’t feel like they are making a change if it is gradual. A complete consensus doesn’t have to be made to try something; people understand it is a process and they provide input and they understand that the endpoint is going to be different. People are more able to tolerate the problems that occur.”*

Clinica decisionmakers use several tools to monitor the innovations they try; the most important tool is PDSA (Plan, Do, Study, Act), a rapid-cycle improvement tool. This tool allows Clinica to monitor the success/benefits of an innovation and helps guide the final decision on whether to adopt the innovation permanently. Along with outcome tracking, Clinica uses patient and provider surveys to assess the compatibility of its programs within the organization and to solicit feedback from staff and patients on current innovations and readiness for change.

### **1.4 Decisions Not to Adopt**

Because of the organizational culture of trying, respondents could think of very few instances in which they decided to forgo adopting an innovation completely. In most cases, they decided to try a part of an innovation and then made a final decision after considering the feedback they received from employees, management, and patients. For example, the medical practitioners at Clinica once tried adopting an e-mail care program after receiving positive feedback from patients. The program was unable to deliver the results that practitioners at Clinica expected because of their patients’ lack of access to computers. After receiving the results of surveys analyzing

computer access, Clinica management decided to discontinue the program.

### **1.5 Lessons Learned**

Clinica Campesina staff provided an invaluable perspective on the adoption decision process and the degree to which the core elements of adoption decisionmaking (i.e., access to care, costs, observability, trialability, and compatibility) factored into their organization's adoption decision experiences.

When asked about things they wished they had considered ahead of time, respondents said that they wished they had conducted a better assessment of physical space needs and the changing roles of employees that emerged during implementation of the group visit model.

# 2 Mt. Carmel and Six Sigma



### **2.1 Mt. Carmel Health System and Six Sigma**

Mt. Carmel Health System (MCHS), one of the largest health care providers in central Ohio, comprises four hospitals and numerous surgery centers, outpatient facilities, physicians' offices, and community outreach sites. The health system has more than 8,500 employees, 1,500 physicians, and 1,300 volunteers serving more than half a million patients each year. Beginning in 2000, MCHS began implementing Six Sigma, a data-driven, measurement-based methodology for process improvement. The core of Six Sigma includes 4 weeks of intense training and focuses on organizational improvement processes. Mt. Carmel's "Soulful" Six Sigma initiative carefully considers the impact of changing processes on patients, employees, and physicians. By fiscal year 2004, the organization had accumulated more than \$40 million in savings from the program. To date, MCHS has completed more than 600 Six Sigma projects and has trained 5 master guides, 44 guides, and 125 assistant guides.

### **2.2 Decision to Implement Six Sigma**

The Balanced Budget Act of 1997 began to have a sizable impact on MCHS by 2000. Although revenues were still relatively healthy at that time, margins were shrinking, and the organization had just instituted its second layoff in 2 years. Moreover, during that year, MCHS made only \$500,000 net revenue out of an estimated \$750 million in revenue. Key leaders in the organization knew that a dramatic change was needed to increase efficiency and improve its financial standing.

A former mentor introduced the chief medical officer (CMO) to Six Sigma and its effects on the manufacturing industry. To conduct further research on the methodology, the chief executive officer (CEO), chief operating officer, chief financial officer, and CMO embarked on a visit to the Six Sigma Training Academy in Phoenix, AZ. Although the leaders were informed that no health care organization to date had deployed Six Sigma at an enterprisewide level, their interest in the use of the process improvement method within their health system continued to grow. They realized that they had a choice between either forging ahead with Six Sigma despite its uncertain results in the health care arena or continuing with the

existing Continuous Quality Improvement (CQI) strategies they had been using. As one informant noted,

*"I'd say what we had in our hip pocket as the alternative to Six Sigma was CQI at best, but it had poor statistical analysis tools and, at best, was fair when it came to the implementation stage."*

Another informant stated,

*"We had been doing a lot of performance improvement with the usual CQI tools everyone else was using. But the problem with it is that CQI, Just-in-Time, TQM [total quality management] are usually on the corner of someone's desk and drag on for months and months. This was about working smarter for less, and much faster. This [Six Sigma] was a set of more sophisticated tools."*

The majority of informants felt that MCHS used the same types of performance improvement tools that most other organizations used (e.g., CQI and TQM) prior to their adoption and implementation of Six Sigma. However, the institutionalization of Six Sigma brought the health system to a new level of innovativeness; it was one of the first systems in the nation to use Six Sigma in a large health care setting. When asked what accounted for this paradigm shift, one informant replied,

*"I think we had a few folks that really wanted to do something different and make a difference. They had a passion for really turning the organization around."*

Another explained,

*"To make this case, it was if not this, then what? Here's something we really believe that we think can help peel the onion and identify where our inefficiencies are and will help us get some return on the investment."*

Once the decision to adopt Six Sigma was made, the CMO and vice president of organizational effectiveness gathered to brainstorm the characteristics of an ideal deployment leader to guide MCHS through the implementation process. They desired a consulting firm that understood health care, Mt. Carmel's organizational culture, and the leaders' desire to refrain from additional layoffs. The CMO and vice president issued a request for proposals to external organizations and subsequently engaged in an interview process to identify a suitable consulting firm to partner with MCHS. The selected firm not only

demonstrated a clear understanding of the infrastructure needed to implement Six Sigma enterprisewide but also showed a willingness to put itself at risk for the return, by accepting payment in installments over a 5-year period. Payments were made at the time of contract, after completion of senior executive training, after completion of the first wave of Guide training, after the second wave of Guide training, and after 12 projects were implemented and demonstrated acceptable returns. Another distinguishing quality of the selected firm was its ability to quickly transfer requisite skills through the train-the-trainer method. Upon completion of a few waves of training, MCHS was able to conduct its own training independent of the consulting firm.

The MCHS leadership team knew that the adoption and implementation of Six Sigma would be expensive and realized that it was a potentially deleterious risk, especially in light of the fact that the organization spent \$650,000 on consulting fees after generating a net revenue of \$500,000 during the previous fiscal year. However, the CEO's tremendous belief in Six Sigma's potential in the organization and unwavering commitment to seeing it through proved to be inspirational to his staff. The dedication and positive attitude of the management team, as well as the "burning platform" sense of urgency to improve the organization's financial position, were also key drivers of the successful implementation effort.

Recruitment efforts for the first wave of Guide training targeted the organization's "best and brightest" employees. Although many of the organization's most outstanding employees participated in the early rounds of training, the use of this description caused some dissension among staff members. Some managers were reluctant to release their talented and valued employees to participate in training. Moreover, those who were not selected to participate in the early rounds of training took offense to the phrase "best and brightest" and perceived that they were viewed as less valuable than staff who were selected to participate in the training.

### **2.3 Project Selection**

Adoption of Six Sigma as an innovation includes a series of decisions aimed at performance and process improvement. During the first 2 years, MCHS's Six Sigma projects focused

primarily on efficiency, revenue, and cost reduction. By the end of the second year, however, the leadership recognized that it would be helpful to organize projects under larger themes, such as throughput. Consequently, greater emphasis was placed on efficiency and throughput in the emergency and operating rooms. *“When we first started doing projects,”* explained one participant, *“we asked key stakeholders to look at bottom lines and processes and to come up with processes that they needed to work at to increase the bottom line, increase throughput, and look at key drivers for their service lines.”* Forging ahead required scoping the project to (1) find a measurable defect and (2) determine the amount of money that would be generated/saved. However, obtaining the correct data to conduct such an analysis was not always a simple task, as one informant noted:

*“We are automated and data-rich in so many ways and data-poor in so many ways. We had tons of data, but did we have the right data? How do we actually capture the right data? Sometimes we’d be stalled for 3 months because we didn’t have the right baseline data.”*

Occasionally, staff would anecdotally note that certain departments had issues that needed to be resolved. However, once the project was reviewed and data were obtained, the data revealed either that there was no quantifiable defect or that initiating the project would yield little, if any, financial return on investment. Cost and revenue were the primary business metrics used to assess projects (i.e., most projects had to meet a \$100,000 minimum potential cost savings standard). Having the correct data available when scoping projects, and correlating the data to the staff conducting the processes, was also essential to project adoption and implementation decisions.

Although decisions about project selection were often based on financial reasons, in other instances projects were prioritized based on their potential impact on patient safety, patient satisfaction, staff’s personal interests, or new project ideas that arose while front-line staff worked on other projects. In many cases, projects did not have quantifiable returns and were designated as projects with “soft returns” (i.e., projects not associated with a quantifiable return on investment). Such projects were often pursued as a prerequisite to obtaining a greater return in subsequent projects pertaining to larger

themes, such as patient satisfaction or length of stay. *“Only 50 percent of our projects had dollars associated with them at all in the first year,”* explained one informant. *“It was imperative to do these soft projects before moving on to another project that would connect dollars.”* Projects examining lab result throughput are one example. The management team eventually limited soft projects to approximately 25 percent of the portfolio to ensure balance in the number and type of projects without a quantifiable return.

Although Six Sigma generated a lot of positive buzz throughout the organization, there were also naysayers along the way. However, as process improvements were made and results became more visible, the management team acquired greater aptitude and the initiative correspondingly gained greater traction. Informants noted that MCHS “reinvented” itself periodically as time progressed. Whereas project selection was somewhat arbitrary in the beginning, the deployment team eventually developed project selection grids that facilitated a more systematic approach to selection of projects. By the second or third year, a master guide and set of guides were assigned to each member of the senior management team. Given that each hospital had different strategic areas of concern, these new teams had the flexibility to select projects and begin focusing on their chosen individual themes and goals. They were given specific financial targets for the year and senior executives held them accountable for reaching the targets.

### **2.4 Decisions Not to Adopt**

When asked about a project that was considered but not adopted (or adopted but not fully implemented), informants noted that the reasons for the failed adoption or implementation effort could often be traced back to (1) improper scoping of the project (e.g., the project did not meet the desired financial return standards, or a metric could not be defined because of the large scope of the project); (2) the project did not involve a true “process” problem with a measurable defect rate that could actually be resolved through management decisions; (3) the project was perceived as “threatening” to some degree; or (4) the project lacked a champion or did not have the right stakeholders behind it.

In the case of a system that would increase the efficiency of communication attempts to contact the proper care provider, the idea had the support of the medical staff, appeared to be compatible with the current environment, and was expected to have visibility of benefits, yet it was not associated with a quantifiable financial return and was therefore not adopted. As one informant noted:

*"Yeah, it had all the right reasons, but when I watch how hard it is for health care delivery systems that are hospital-based to make money, so much of what's driving decisionmaking is financial. You go back to 2000 and while we spent more on a consultant than we made, when someone asks, 'But you can't spend a hundredth of what you made?' and I have to say 'no.' So sometimes the fuzzy logic doesn't always work. I'll be honest with you, if I said 'Six Sigma is going to be good for patients and nurses and quality is going to get better,' I betcha I couldn't have sold it. You've got to prove that it will make money; otherwise it's got a snowball's chance."*

## 2.5 Lessons Learned

The MCHS informants offered several insightful lessons learned from the Six Sigma adoption experience:

- Keep people engaged; keep the momentum going in order to see a significant change in operations. *"There's a good chance that you wouldn't be talking with us today if we lost the drive to execute."*
- Bring to the table all those who will be affected by the project to provide a clear understanding of the roles of each person and which staff the project will affect.  
Failure to do so may result in project delays and increased dissension.
- It can be helpful to have a decision tree for the decisionmaking process. A risk assessment would be incorporated as part of the decision tree.
- Among the key attributes to success are having good infrastructure and support, not only from top management but also from effective project managers and leaders. *"One of the things that we learned is that Six Sigma is more about succession planning and leadership. Once you have turnover, they become your leaders. We've had several go from manager level to director level and they have process lenses now, not just management lenses."* Another respondent stated, *"You have to make sure there's buy-in or support, not just*

*financial support or support that says 'you can do it.' You want to have the **interest** of these folks in doing it so that they're not just doing it so that they can stop talking about it."*

When informants were asked about aspects of the innovation that they wished they had considered ahead of time, responses included:

- Rephrasing the description "best and brightest" during the initial Guide training phases
- Conducting a more thorough assessment of organizational readiness for change
- Allotting more training and resources to change leadership. As one informant explained, "*Our initial training was all stats and there just wasn't enough on change leadership and how to deal with conflicts, change, facilitate communication, etc.*"

## 2.6 The Next Evolution

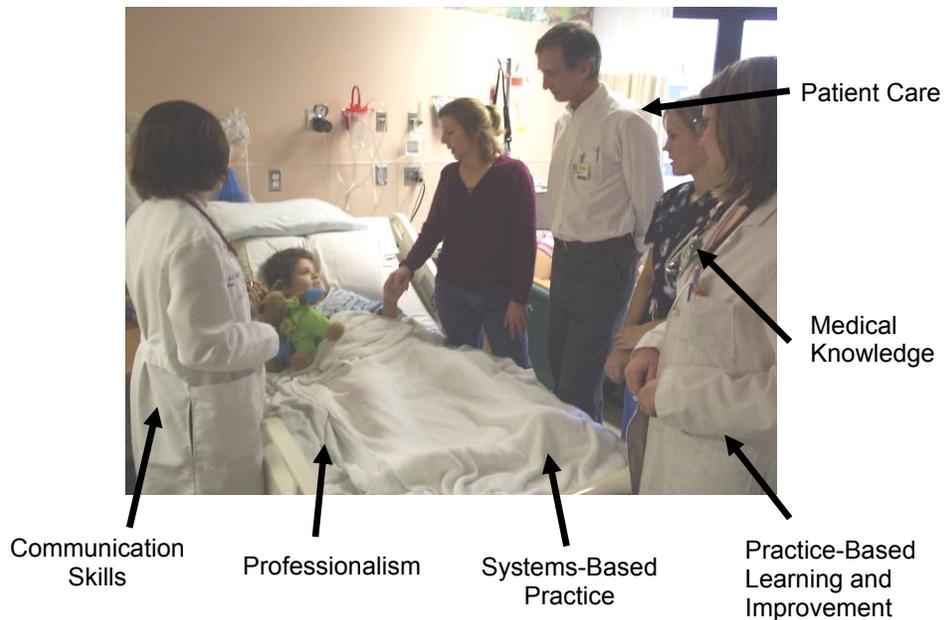
MCHS is currently undergoing another organizationwide change with the adoption of Crew Resource Management (CRM), a management tool that uses the crew aviation approach to safety and focuses on developing cognitive and behavioral skills related to situational awareness, problem solving, decisionmaking, and teamwork. The organization experienced an increase in the number of wrong-site surgeries and other unfavorable outcomes in the past 2 years. The incidents resulted from poor handoffs that could have been prevented. The MCHS leadership knew that they needed to make changes but did not know how to fix the problem. This was the second time that they turned to strategies adopted by other industries to address problems faced in the health care setting. However, unlike the motivation for adopting Six Sigma (i.e., steady decline in the organization's financial standing), the motivation for adopting CRM was derived solely from a focus on patient safety, not an expected dollar amount return. Financial incentives factored into the adoption decision (MCHS would receive a rather substantial risk credit on medical malpractice insurance for instituting a program like CRM that focuses on patient safety), but they were not the primary catalyst. The risk credit for implementing a program like CRM was approximately equivalent to the cost of hiring a consultant, which allowed the CMO to present the innovation to senior leadership as a budget-neutral initiative. The relatively low financial risk, coupled with

the potential use of train-the-trainer techniques and the ability to conduct a small-scale pilot test of the tool, were qualities that resonated with the health system's leadership team.

The initiative has received enthusiastic support from the medical staff, and informants believe that CRM's emphasis on behavioral skills will address areas that are not focused on by Six Sigma. Sample metrics for success with this initiative include the rate of wrong-site surgeries, surgical prophylaxis, and measuring nurse-physician communication and behavior change, both pre- and postimplementation.



# 3 Golisano Children's Hospital and Family-Centered Rounds



### **3.1 Golisano Children’s Hospital and Family-Centered Rounds**

The Golisano Children’s Hospital at Strong Memorial Hospital, a division of the University of Rochester Medical Center, is the area’s only children’s hospital. This 124-bed hospital is a referral center for seriously ill or injured children from the 17-county Finger Lakes region. Golisano Children’s Hospital adopted the concept of family-centered rounds from Cincinnati Children’s Hospital Medical Center with the hope that the rounds would allow its residents to carry out family-centered care in suboptimal circumstances (e.g., inpatient resident teams with multiple attendings and semiprivate rooms). Family-centered rounds are morning work rounds that are conducted with as many of the persons responsible for a child’s care as possible present at the bedside. Together they assess the patient’s status and formulate plans for the day based on formally stated discharge criteria. The rounds include read-back and confirmation of orders entered via a wireless laptop brought into the patient’s room. Assessing and discussing a patient’s status relative to formally stated discharge criteria means that discharge can be anticipated and prepared for in advance. This approach should result in more timely discharges and maximized continuity of care. At the time of this site visit, Golisano Children’s Hospital had recently completed a 4-month pilot project on the use of these rounds on its three pediatric non-critical-care inpatient floors.

### **3.2 Decisionmaking Process**

The front-line staff and upper administrators at Golisano Children’s agreed that family-centered rounds are “the right thing to do.” The idea of implementing family-centered rounds at Golisano Children’s was spearheaded by residents who felt the need to return to the bedside and improve communication within the care team and with family members. This grassroots effort was enthusiastically joined by nurses, who immediately recognized the benefits of improved communication, clarity of the care plan, increased efficiency of their workday, and improved ability to advocate for their patients. Most important,

all recognized that rounding with families would provide an immediate benefit to the patients:

*“The main thing is that we wanted the patients to feel like they were a part of the process and to give them a way to empower them to take better care of their children by giving them better information and we wanted them to feel safer in their environment in terms of knowing what to expect and that they would know what would happen next. Then, of course, we wanted them to feel satisfaction with the care when they left.”*

In addition to immediate benefits offered by family-centered rounds, residents, nurses, and hospital leadership felt that introducing such rounds would gradually change the paternalistic medical care model:

*“A number of us had the philosophy that the old medical model of paternalistic medicine in which the doctors dictate the care to the patient as the high and mighty source of information was wrong. The main thing was to change the decisionmaking locus from the physician alone to a collaboration between the physicians and the family.”*

*“What’s a little hard for [some providers] to understand is that families become experts on their child’s health. They have different residents and faculty each time they are admitted who don’t have history. It’s a matter of convincing faculty that involving families would lead to better decisionmaking. It requires humility not typically had by experts.”*

*“We don’t go there to demonstrate a patient to the medical student, but we go there to serve the needs of the children and the family as collaborators rather than experts. It’s a totally different philosophy. . . .[I]t kills doctors to give up that God-like status.”*

To move this effort forward, a group of residents and nurses discussed the logistics of the process and studied how the floors were run at that time, what changes would be needed, how to present the idea to faculty and other residents and obtain their buy-in, and whom to contact in the administration. They made presentations to others at faculty meetings and parent groups and arranged numerous meetings with senior administrators, such as the associate chair for clinical affairs, the chief of inpatient care, and the chair of the Department of Pediatrics, to make “a good idea” become reality.

As residents and nurses presented the concept of family-centered rounds to their upper management, it was embraced with great appreciation. Two decisionmakers explained that they had practiced family-centered rounds early in their careers and that this practice should not have been forgotten in the first place:

*“When I started medical school and residency, that’s what we did . . . and learned a heck of a lot at the bedside. We never should have got rid of this. . . . I was armed with their [residents] push to get back to the bedside and then I began to reflect on my old career. One of the real joys of practicing pediatric cardiology is interaction with the family and a long-held belief that the family is part of the decisionmaking process. . . . So how do we, as role models, begin to reinvigorate this with our new trainees?”*

*“My own historical view weighed most heavily. When they [innovation champions] described it to me, I said that’s not how you do rounds? They said no, we haven’t done that in a long time. That is the way general pediatrics was done 800 years ago when I was a resident. . . . I said that this explains what I have been seeing. Who stewards the patient between admission and discharge? Nobody. What drove my decision was that the shift to the new model seemed causally related to deterioration in investment in the care team. My sudden realization was that all my complaining about what had become of patient care over the years was related to this change.”*

In addition to recognizing the benefits presented by residents and nurses, senior administrators viewed it as an effective new way to train the residents and meet the mandate of teaching and evaluating the trainees in six competency domains: patient care, communication skills, professionalism, systems-based practice, practice-based learning and improvement, and medical knowledge. Senior administrators also recognized that family-centered rounds would improve other areas, including safety and quality. It was expected to improve the medication reconciliation process and reduce medication errors, because medication regimens would be discussed with the entire team and family and prescriptions would be entered during rounding into a portable laptop. Family-centered rounds were expected to improve the discharge process and timing, reduce the length of stay, increase patient turnover, and prevent readmissions. Finally, the family-centered rounds innovation aligned Golisano

Children’s with Institute of Medicine goals of providing patient-centered and efficient care and would enable them to meet the Joint Commission on Accreditation of Healthcare Organizations and Accreditation Council for Graduate Medical Education requirements.

Benefits to the patients and families, resident learning, and overall staff morale were the most important criteria in decisionmaking at the highest level of organizational authority:

*“The most important things to me were: What was the best for the patients and families? What was the best for the learning process for my residents and fellows? What was the best for the morale and sense of being part of a family and being heard by staff on patient floors? Frankly, I thought that the reason that this won is that for all three of those priorities, family-centered rounding was better than any other model. [It was the] best way for actual decisions that got made and enacted for families. [It was the] best [way] for my residents and fellows to learn. [It was the] best way to get nurses, social workers, pharmacists, etc., to feel part of the team. Everything weighed on the same side of the ledger. The other things—timing, etc.—those secondarily had to be attended to but it didn’t weight heavily in whether I thought this was a good idea.”*

As the adoption of family-centered rounds was coming to fruition, residents and nurse champions made two trips to Cincinnati Children’s, where a new model of safer, more efficient family-centered rounds had been developed. The purpose of sending a group of providers there was to educate them about family-centered rounds by creating an opportunity to observe them in practice and to get further buy-in. Because Golisano Children’s recognized that its staff had no prior experience in doing family-centered rounds, it invited one of the champions from Cincinnati Children’s to present a Grand Rounds in Rochester, so all of its staff would have an opportunity to see how family-centered rounding is done in practice. As one leader recognized, “It would have been difficult to approve this [innovation] without Cincinnati’s experience.”

---

### 3.2.1 Gathering Evidence

Because this innovation did not involve the use of new equipment and did not require hiring additional staff, decisionmakers and champions of family-centered rounds at Golisano Children’s did not anticipate that much cost would be

associated with its implementation. However, they were interested in monitoring the effectiveness of this innovation and evidence for its outcomes, such as time of discharge, time spent in rounding, length of stay, and assessment of resident competencies, in order to reinforce their decision. Although some preliminary data were available from Cincinnati Children’s, certain areas of effectiveness had not been studied. As a result, a general academic pediatrics fellow took on the role of change agent for implementation and evaluation of this activity, supported by the residents and nurses in the form of a steering committee.

In the process of stimulating the interest and buy-in for practicing family-centered rounds, the steering committee engaged in further evaluation of potential risks to patient care and existing efficiencies that might be associated with implementing this evaluation:

*“We had many discussions initially in terms of making any decision that would jeopardize patient care, and as we went through the entire project we could not see where there would be any cases where we would jeopardize care or interfere with care. One of the primary risks that we felt that we had if we interfered with the flow of work by starting these rounds was that we didn’t want to decrease the efficiency that was already there. In fact, that was one of the earliest process goals that for the first month we would not increase the time that it took to round and we would not increase the number of medication errors. All of our measures of efficiency, initially, we wanted not to see indicators that we were having an adverse impact. Then we wanted to see, as the project got up and running, some improvements.”*

These concerns, planning logistics, and domains of evaluation were addressed by generating a logic model. Evaluation measures included:

- Assessing the success in implementing family-centered rounds by measuring the extent of completion of critical-activity checklists during rounds
- Measuring efficiency by looking at discharge times and length of stay categorized by primary diagnosis
- Measuring change in medication safety by studying medication error rates obtained from medicine reconciliation performed during family-centered rounds and from the hospital’s medical error reporting system

- Assessing patient and family satisfaction through Press Ganey pediatric inpatient survey results
- Assessing resident competencies through a competencies survey compiled by the pediatric program director

Champions and decisionmakers at Golisano Children’s considered implementing family-centered rounds on a pilot basis but concluded that doing so would introduce confusion for residents, nurses, and families, especially when families had multiple admissions and were located on a different floor during each admission. Building on the success of introducing family-centered rounds in Cincinnati Children’s, Golisano Children’s leadership agreed that they would proceed with widespread adoption of this innovation at the time that they were set to start its implementation.

The leadership also recognized that family-centered rounds would potentially encounter significant barriers if the entire care team (i.e., attending physicians, resident team, nurses, social workers, and pharmacists) was involved at the beginning. To make implementation smoother, the decision was made to start family-centered rounds with the house staff only and to involve the rest of the care team gradually.

---

### 3.2.2 Addressing Resistance

Golisano Children’s leadership recognized that instituting family-centered rounds would bring about a change in the culture of their organization. Such changes are always difficult, and the leadership anticipated that some staff would be more amenable than others.

Despite shared recognition of the need for family-centered rounds, decisionmakers expected some resistance. Some staff questioned the benefits of this innovation and saw it as something that would be time consuming and inconvenient. However, the steering committee’s knowledge of the methods used at Cincinnati and those excellent results helped them overcome such resistance and gain buy-in:

*“Knowing that somebody else had tried it and that it was well received helped them to get over the objections. It is helpful to have some kind of example of previous success.”*

Another effective strategy for getting staff buy-in was the way in which the decisionmaking process was skillfully rolled out as shared consensus building rather than the top-down approach sometimes practiced by less experienced decisionmakers:

*“The trick is not in the decisionmaking, but rather the way in which you implement and roll out to those who do not agree with you. If you come in as a bull in a china shop, I would have been deposed. There is a process that I wouldn’t call decisionmaking but rather a process by which you make others feel like the decision was theirs in the first place. You must be willing to change if you realize the data are not what you thought they were. Some of it is tweaking your decision, some of it is consensus building. . . . Some will be happy, some won’t. Then, you have to shepherd the decision through the process. You go to those who didn’t want to do it and ask how to make it work. I never make a decision in a vacuum. I often make a decision alone.”*

However, the most important force in moving this innovation forward despite some resistance was the power of devoted champions supported by leadership:

*“There has to be will for carrying it out by people responsible for talking to patients.”*

*“I knew we would be met with resistance. We needed early adopters. . . . I don’t care how much others don’t like process—as far as patients and families are concerned, it is the right thing to do. We’ll either pull you or push you—I don’t care which.”*

*“An important lesson, you need somebody very high up, the chair or close to chair driving these innovations and to be saying to [certain staff], ‘You will do this and will get over transparency problems and involve families because that will result in better care.’”*

### **3.3 Decisions Not to Adopt**

One decisionmaker at Golisano Children’s Hospital explained that it is fairly rare for them to consider an innovation but decide not to adopt it:

*“If we see a problem, we talk about it, formulate something to do about it, and continue it. We don’t walk away from it.”*

They did share a few examples of cases in which they did not proceed with adoption of an innovation they considered: lung disease treatment guidelines and the addition of a medication reconciliation component to their rounding that involved the

nurses and residents reviewing the medications in the patients’ rooms twice a week. The primary reason they had not moved forward with adopting the lung disease treatment guidelines was a lack of staff needed to implement them and manage the resulting data. They trialed but ultimately did not adopt the medication reconciliation component because of the perception of many house staff that it was a net time drain. This aspect of medicine reconciliation will be readdressed in the future, however, after the basic features of family-centered rounding are accepted as part of the prevailing culture.

Our efforts to learn about decisionmaking processes that did not result in adoption generated an important discovery. The highly successful family-centered rounds described earlier had been considered for adoption previously by this same organization, and the leadership had decided against adopting it. Six years ago, a major proposal was put forth in the facility to start a family-centered rounding program, and key decisionmakers decided not to adopt it at that time. After studying the prospect of adoption of this innovation for an extended period, Golisano’s leadership felt that the prerequisite to implementing family-centered rounds was having private rooms and hiring discharge facilitators. The resources required to add a discharge facilitator on each floor were deemed to be more than the organization was willing to invest at that time. The facilities did not change, and discharge facilitators were not added. The group cited differences in the level of resident buy-in and in the prevailing medical atmosphere to explain why this innovation was recently adopted and implemented:

*“I think [resident buy-in] is one of the things that made this part successful. They are the ones who are doing it. You have to have buy-in from the people who are participating. Things that come down from upper management . . . aren’t going to happen until there is either a consequence for not doing it or you get buy-in from those who are doing it because it’s a good idea.”*

*“There’s such a huge difference thanks to the Institute of Medicine Report . . . all the focus on quality, the competitiveness of hospitals, you don’t get any business unless you have patient satisfaction. There’s a huge difference in the entire health world.”*

A final important difference was the existence of a model and data on implementation—Cincinnati Children’s Hospital Medical Center—when the decision was recently made to adopt this

innovation. No similar model existed when the proposal was prepared and submitted 6 years ago.

### 3.4 Lessons Learned

The adoption and implementation of family-centered rounds at Golisano Children’s Hospital is clearly a success story. Looking at the decisionmaking process retrospectively, the leadership indicated that they would not do anything differently if they could do it again. Eradicating the process of “rounding in front of a computer screen” and returning to a process that had worked well for senior staff years ago brought them closer to the patients, improved the teamwork and communication within the care teams, and was obviously “the right thing to do.” As one member of the leadership explained:

*“I don’t think I would do anything differently. In some ways, this was an easy one. I didn’t have people coming to me saying ‘No way!’ It was good for the patients, the families, the physicians, and the staff. I didn’t have anybody telling me negatives.”*

With respect to implementation, our informants simply said that they would have involved families earlier. Obtaining input from patients on how best to meet their needs earlier in the process would have yielded important discoveries, such as the best time of day to conduct rounds. Traditionally, rounds are conducted early in the morning when families are not available or ready to participate.

Golisano Children’s adoption of family-centered rounds has been highly successful. In deciding to adopt this innovation, the decisionmakers in this system were able to build on evidence from Cincinnati Children’s. They supplemented this evidence with baseline data and feedback obtained during a trial period. One key decisionmaker explained that this trial period provided early evidence of success by demonstrating the feasibility of the innovation’s implementation, but further evidence will be required to tangibly show that it helped:

*“The 3- or 4-month trial is only enough to say ‘uh oh, this is bad.’ To say something helped or is neutral, we will need longer. It told us it is feasible; it improved family and resident satisfaction and improved the morale of nurses. We may find out a year from now that it looks the same, but we didn’t spend a mint on it. The early look and pilot is to see if there is something that we are not thinking of that will make this a disaster. If yes, you haven’t expended tons of time, people, etc. Then you can ask the inverse.”*

# 4

## N.C. Children's Hospital and Pediatric Rapid Response Teams

**Pediatric Rapid Response Team**

This card is used by **Spanish** speaking family members to request the Pediatric Rapid Response Team. Please call the number below.

**Call**  
[Redacted] **64111** [Redacted]

Give the operator the child's location in the hospital.

**Grupo Pediátrico de Rápida Asistencia**

**¿Emergencia Médica?**

**Dé Esta Tarjeta a**  
[Redacted] **Enfermera o a Doctor** [Redacted]

(See reverse side for English)

#### **4.1 N.C. Children’s Hospital and Pediatric Rapid Response Teams**

N.C. Children’s Hospital at the University of North Carolina at Chapel Hill (UNC) is structured to provide family-centered care that ensures “care and support for the entire family, not just the individual child” (<http://www.ncchildrenshospital.org/>). UNC’s multidisciplinary team serves more than 33,000 children from all of North Carolina’s counties. When a patient at any UNC Hospital goes into cardiopulmonary arrest, a “Code Blue” is called, and an emergency resuscitation team is called into action. In August 2005, N.C. Children’s Hospital became the first medical center in North Carolina to implement the use of pediatric rapid response teams with the goal of preventing pediatric patients from reaching the point of cardiac and respiratory arrest. Rather than waiting until a child is in a state of cardiopulmonary arrest to call a Code Blue, a pediatric rapid response team is called at the first sign that a child’s condition is deteriorating and responds within 2 to 3 minutes.

The teams are available 24 hours a day, 7 days a week, and any member of the team or the hospital’s staff can call a team into action. The team may be called when staff or a family member is worried about the patient; there are acute changes in the patient’s heart rate, blood pressure, respiratory rate, oxygen saturation, or mental status; a new or prolonged seizure occurs; or the patient has difficult-to-control pain or agitation. These teams are composed of a Pediatric Intensive Care Unit (PICU) physician team leader, PICU charge nurse and respiratory therapist, senior pediatric resident, and the patient’s primary team of physicians and nurses.

#### **4.2 Decisionmaking Process**

UNC Health Care’s patient safety officer was aware of work being conducted in Australia on rapid response teams and had exchanged articles about it with the chairman of a cardiopulmonary resuscitation committee, of which she was a member. She recognized the promise of this innovation and began searching for an opportunity to move it forward in the UNC Health Care System. This opportunity presented itself in 2004 when the director of the PICU, who shared her interest in protecting their patients from preventable harms, asked the patient safety officer to interview a physician for a role in the PICU. This energetic pediatric critical care physician also had a

personal interest in patient safety. This physician was aware of rapid response teams from journal articles and had done some independent research to learn more about them. Shortly after she was hired, she agreed to champion this innovation.

Both the physician champion and the patient safety officer attended an IHI conference in December 2004 along with some members of UNC’s administration. At this conference, IHI announced its 100,000 Lives campaign, and the administrators signed UNC Health Care to participate. The development of a rapid response team is one of six recommended interventions that are part of the 100,000 Lives campaign. UNC Health Care’s commitment to participate in the campaign and thus implement the campaign’s recommended interventions throughout its hospital system gave the physician champion and patient safety officer the momentum needed to move forward with implementation of this innovation in the pediatric hospital. The physician champion proceeded to develop a concept proposal for senior administrators, such as the chief of staff and executive associate dean of clinical affairs and the pediatric chairman.

---

### 4.2.1 Need and Benefits

As with many other large medical centers, UNC frequently fills its staff vacancies with new graduates. As the proportion of relatively inexperienced staff increases, the acuity and complexity of their typical patient loads also increase:

*“We added about 100 FTEs [full-time equivalents] of RNs [registered nurses] to the Children’s Hospital in the first 5 years I was here and we continue to add because our patients are sicker. Our acuity data show that. We also have more novice nurses caring for patients. Add to that your residents and interns who are novices in health care and medicine themselves. What we found was that we were having far more events, it seemed [in which] something [was] happening with a child that possibly could have been prevented. The signs were there. When we sat in a root cause analysis meeting later to look at what happened that led up to these events, what we found is that different people saw different things, but then they pretty much validated each other’s perception. Some of it was because of being novice. Some of it was due to workload. Some of it was being novice and not knowing what you are seeing. When the physician says, ‘Yeah, it’s all right, the patient is okay,’ the novice nurse said, ‘All right. It’s okay.’”*

With the rate of preventable events on the rise, UNC needed to find a solution. Leadership recognized that the capabilities, time, and equipment of the house staff were no longer a good match for dealing with deteriorating patients. This solution needed to be one that would both improve care for these patients and give less experienced house staff a way to escalate the level of attention received by a deteriorating patient without going up the chain of command. As one member of leadership explained:

*“We’ve been struggling with how to get staff comfortable with saying it’s okay going up the chain of command... This idea was something that you didn’t need to go up the chain of command. You could act. That is the part of this we all liked. You didn’t have to hurt somebody’s feelings.”*

The physician champion did a chart review to gather historical information on cardiac and respiratory arrests in the institution. By telling powerful stories of patients from their own hospitals that could have benefited from the use of these teams, she was able to demonstrate effectively to administrative leadership the need for seizing this opportunity to intervene earlier to improve outcomes. She explained, *“I presented all of the very ugly cases I could find from our hospital that I could say, look, this is in writing from charts. This is happening and we need to do something about it.”* Although national examples were also helpful for obtaining buy-in, she emphasized the added impact achieved by using examples from her own organization.

Although senior leadership raised a few concerns, such as whether it would be appropriate for a new group to take over care, negative pushback was minimal. They expected various benefits in addition to the main benefit of reducing cardiac and respiratory arrests. The decisionmakers expected nursing staff satisfaction to increase because they

would be empowered by having the option of calling a team 24 hours a day without ramifications for false alarms. Other expected major benefits included improved communication and cooperation between caregivers and breakdown in the hierarchy of caregivers. They also expected that this innovation would be visible to the families of their pediatric patients, although this was not a major focal point during the adoption decisionmaking process.

The physician champion presented data to the N.C. Children’s Hospital leadership and administrative leadership separately because they had different levels of awareness about rapid response teams and commitments to the IHI campaign. After their buy-in was obtained, a multidisciplinary task force led by the champion was formed to plan for and guide implementation.

---

#### **4.2.2 Gathering Evidence**

Before this innovation could be adopted, one important thing to assess was staff availability. Thus, the champion generated estimates of the number of team activations that could be expected based on the number of activations in the adult hospitals that had implemented teams. Additionally, the physician champion and leadership reviewed the availability of staff who would compose the teams. At that time, N.C. Children’s Hospital had an intensive care unit (ICU) physician who also served as a fellow and was available to lead the team 24 hours a day, ICU charge nurses without patient assignments, and two ICU respiratory therapists. The hospital asserted that it had the staff available to make this work. Because the length of time involved in responding is relatively short, staff would not be taken away from their normal responsibilities for very long, which was an important factor for senior decisionmakers.

Given the weight of the need, the expected benefits, and the fact that no additional staff or staff hours were required for this innovation, the physician champion was not required to make a business case to proceed with the implementation of the pediatric rapid response teams. The innovation had an anticipated potential to reduce costs in the long run by eliminating time spent during and after responding to codes

by taking care of patients before intubation and ventilator support became necessary. To estimate financial costs, the champion produced estimates of expected call volumes. As one decisionmaker explained,

*“With a little more sophistication, a business case would be very easy to make. Some things are the right thing to do. It doesn’t matter that you will have positive financial impact downstream. We didn’t believe there would be immediate negative financial impact. A more sophisticated look at the financial aspect would be good for moving this forward nationally.”*

In considering strategic and operational risks, UNC decisionmakers’ primary concern was the potential for problems in the culture of patient ownership. One fear was that conflicts would result because of perceived interference by a noncaretaker group. To address this concern, physicians received indepth education about the purpose of the teams and their role in care.

---

### **4.2.3 Obtaining Staff Buy-In and Addressing Resistance**

To obtain staff buy-in, the champion also made presentations to stakeholders such as the senior vice president for nursing, who wanted to know how nurses’ and respiratory therapy staff’s workload would be affected. Obtaining the buy-in of physicians required more work; the chief of staff and executive associate dean of clinical affairs helped by arranging for the champion to make presentations to the Quality Council and Medical Staff Executive Committee. She also made presentations to many small groups of physicians. Loss of control was their main concern:

*“None of the physicians who had a problem were concerned about us doing something harmful to the patient. Instead, it was that we would do something with their patient and they wouldn’t know about it, or they’d be left out, or we’d take their patient to the ICU and not tell them, or we’d come out and take over care and they wouldn’t be able to write orders on their patient once we arrived.”*

This barrier was addressed by telling physicians from the beginning that they were expected to be part of the team,

but “they [**physicians**] didn’t get rid of the barriers until everyone had seen how useful the team was.”

Residents welcomed this innovation as a resource. Obtaining resident buy-in facilitated the process of obtaining the buy-in of the attendees, who had expressed concerns that learning opportunities would be lost whenever “a resident is not at the bedside learning because somebody steps in.”

To identify pockets of resistance (which the informants described as very minimal), leadership creatively investigated after a team had been activated to find out whether there was any reluctance on the part of any particular service or individual. In cases of observed reluctance, the champion engaged in further education with the reluctant individual(s) to reinforce the importance and benefits of this innovation. Positive feedback about the innovation was also reinforced through patient safety rounds, weekly updates sent to staff, and posters in every unit. To encourage staff to activate the teams, the organization president sent a thank you e-mail to staff members who activated a team, with a copy to their supervisor. They “used every communication mechanism [they] had” to get this “propaganda” out there:

*“It was important for us to really emphasize the point that this is a good thing to do for patient care and safety. This is part of the rollout of patient safety initiatives. . . . If we kept talking about it in a positive manner, we felt that it wouldn’t be a problem.”*

### 4.3 Decisions Not to Adopt

The decisionmakers we spoke with shared some examples of innovations that N.C. Children’s Hospital had considered but decided against adopting. Some reasons that they provided for not moving forward with these innovations included:

- Lack of teamwork exhibited between different types of house staff
- Requiring too much time from overloaded nursing staff
- Lack of personnel with background in health care systems quality improvement
- Lack of core staff to focus on innovation
- Lack of a champion
- Lack of buy-in from physicians
- Competing priorities

One member of the administrative leadership explained that one reason quality improvement innovations are not adopted is the intensive consultative assistance required to both ramp them up and operate them.

*"The cost and lack of internal development of staff turned out to be very negative. It caused us to discontinue and look at other methods to do this ourselves. If you are always depending on an outside consultant, you haven't changed the culture."*

### 4.4 Lessons Learned

The importance of having a champion was clearly paramount in the adoption process for this innovation. As one decisionmaker explained, *"If we didn't have a champion, this wouldn't have worked. That made the difference."* This informant described the effectiveness of this innovation's champion as stemming from her role in the ICU, her interpersonal skills enabling her to move the innovation forward in a way that was nonthreatening to the primary care and nursing groups, and the way that her visibility at a senior level of the hospital allowed her to positively reinforce activation of the teams. This champion's willingness *"to work outside of the silo of physicians"* was also of the utmost importance. This innovation required the cooperation of multiple disciplines, and she was very successful in harnessing the expertise of other professions.

Another thing that contributed to N.C. Children's Hospital's success was setting parameters from the outset and settling such details as what the team's services would cover and the logistics of responding in atypical locations. With limited time to respond, clear decisions are needed regarding where the teams can respond, which team will respond, and what that team should do afterward. At N.C. Children's Hospital, it was decided when the system was established that teams would respond to the lobby, cafeteria, or any other location in the hospital where a child, whether a patient yet or not, needs urgent attention.

The adoption and implementation of pediatric rapid response teams has truly been, as one informant put it, “one of [their] success stories.” In August 2006, a story was released on [www.IHI.org](http://www.IHI.org) reporting that N.C. Children’s Hospital had observed a substantial increase in the length of time passing between cardiac arrests “from a previous mean of 50 days to more than 300 days, with only one cardiac arrest in the last year and a half.”<sup>1</sup> This innovation has spread to adult units at UNC Health Care, and UNC has been named one of IHI’s “mentor hospitals” that health care organizations across the United States can turn to for advice about developing, implementing, and sustaining the pediatric rapid response team program.

---

<sup>1</sup> Institute for Healthcare Improvement. Children Count in the 100,000 Lives Campaign. 2006. Retrieved October 18, 2006, from <http://www.ihl.org/IHI/Topics/CriticalCare/IntensiveCare/ImprovementStories/ChildrenCountinthe100000LivesCampaign.htm>.

