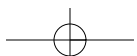PART TWO

ACTIVATING THE ORGANIZATION AND THE DARTMOUTH MICROSYSTEM IMPROVEMENT CURRICULUM

CHAPTER TEN

OVERVIEW OF PATH FORWARD AND INTRODUCTION TO PART TWO

Chapter Purpose

Aims. To promote organization-wide improvement through the introduction of an approach (the M3 Matrix) for building improvement capability at *all levels of a health system,* and to preview an action-learning program for frontline staff.

Objectives. At the completion of this unit, you will be able to

- Describe the current state of health care and the relevance of the Institute of Medicine's publication *Crossing the Quality Chasm* (Institute of Medicine [U.S.], Committee on Quality of Health Care in America, 2001).
- List specific, phased actions for leaders to take at the macrosystem, mesosystem, and microsystem levels

to create the conditions for performance improvement.
- Describe why a microsystem approach to improving performance is system based and engages the entire health system.
- State the value of using a story about a patient to engage staff at all levels of a health system.
- Outline the elements of an action-learning program for frontline staff.
- Identify the reasons why a lead improvement team (an interdisciplinary team representing all roles in a microsystem) makes an important contribution to anchoring improvement work in the real work of frontline microsystems.

T his chapter traces the beginning of the improvement journey to build the capability of clinical microsystems to become high-performing frontline units.

Recap of Part One and Overview of Part Two

Part One of this book offers a way of thinking about improving care and leading the betterment of care. It describes some of the many facets and faces of microsystem thinking in health care. We introduced case studies, concepts, and principles to provide a broad and deep perspective on clinical microsystems. We described the pivotal role of microsystems in providing high-quality, high-value care that meets the need of patients to realize health benefits, and the need of staff to have meaningful work and to make a difference in the lives of patients and families.

Part Two of this book will focus on practical issues. It will deal with pragmatic issues—what to do and how to do it. The primary purpose of Part Two will be to describe an action-learning program for frontline microsystems. This program is the Dartmouth Microsystem Improvement Curriculum (DMIC), and it is grounded in the micro-meso-macrosystems matrix (M3 Matrix). This program has been under development for over a decade and has been used successfully by hundreds of microsystems in both North America and Western Europe.

Using Real Case Studies and Practical Applications of Microsystem Thinking, Methods, and Tools

Throughout Part Two of this book we will provide two case examples of microsystems using the tools and methods introduced in each chapter. These cases will present concrete examples of the Dartmouth Microsystem Improvement Curriculum in action. One case study looks at a hospital inpatient unit—an Intermediate Cardiac Care Unit—and the second case study examines a busy ambulatory practice—within a Section of Plastic Surgery. The progression of each group's lead improvement team through the tools and methods will be discussed throughout the text. (Other case studies can be found in the case study portfolio on http://www.clinicalmicrosystem.org. This collection of cases illustrates various applications of microsystem thinking across the health care continuum in North America and throughout Europe and the Middle East.)

The Intermediate Cardiac Care Unit (ICCU) we focus on in the inpatient unit case study is a thirty-seven-bed telemetry unit with medical and surgical cardiac patients at the Dartmouth-Hitchcock Medical Center. A dynamic and ever-changing census and fluctuating acuity of patients provide many challenges

for this microsystem. The beginning of 2006 brought new leadership and a new direction for this highly stressed unit. A new nursing leader joined the staff of fifty; she began an intentional partnership with the ICCU physician medical director. Their intention to create world-class outcomes for patients and an improved workplace with high productivity caused them to start the unit on its developmental journey and to apply clinical microsystem thinking to make a clear and structured path for improvement.

The high-performing ambulatory unit in the Section of Plastic Surgery at Dartmouth-Hitchcock Medical Center, our second case study, began its microsystem development journey five years ago. It does outpatient minor surgical procedures as well as inpatient surgical procedures. The Plastic Surgery program learned it can only be the best it can be if it has deep knowledge of all aspects of its system.

Our hope is to help you weave together the Part Two chapters, the workbook materials in the Appendix to this book, the M3 Matrix, the DMIC, and the resources at http://www.clinicalmicrosystem.org so that you can build a customized strategy for the organization-wide improvement of your health system.

Before narrowing our focus to microsystems and the action-learning program, we first turn to the challenge that senior and midlevel leaders face—what can they do to create the conditions for frontline excellence? (Also see the discussion of leading meso- and macrosystems in Chapter Four.)

Working at All Levels of a Health System

At each level of a health care system, leaders can take actions that will create the conditions for quality and excellence in microsystems—the places where patients and families and health care teams meet.

Moving from Improvement Projects to Improving Systems

Donald Nielsen, a physician and expert on health care quality, has worked with many leading health care organizations and is a student of what works and what fails in transforming health systems to achieve high levels of performance. He uses the diagram shown in Figure 10.1 to explain what he sees happening (and what needs to happen) if health systems are to be successful in achieving and sustaining a culture of quality.

- *Project focus.* The first phase of improvement focuses on *projects,* as the health system seeks to improve quality by running a variety of projects in areas of high

FIGURE 10.1. EVOLUTION IN APPROACHES TO IMPROVING HEALTH SYSTEM QUALITY: FROM PROJECTS TO MESOSYSTEMS TO MACROSYSTEMS.
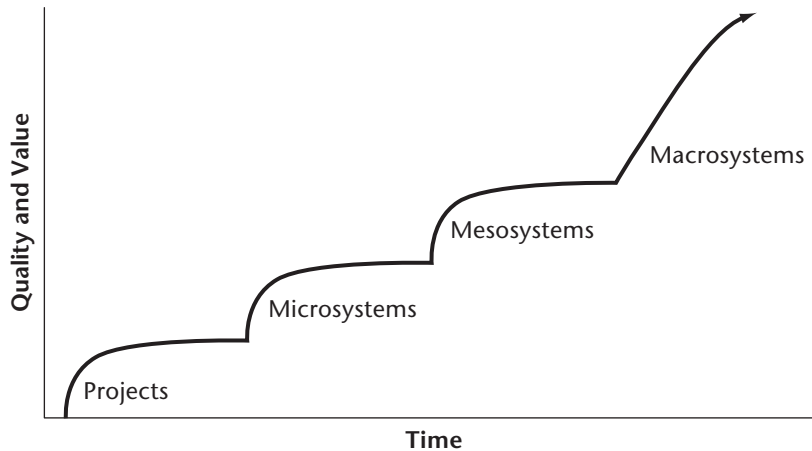
Source: Adapted from the work of Donald Nielsen.

interest. Many projects are successful, some fail, some are at first successful but fail to hold their gains. In this phase, quality work is viewed as special, ad hoc work by most staff members. The project participants often work extra hard, learn new skills, and take well-deserved pride in their accomplishments; usually they also know there is a clear start and a clear end to the project. Most health systems and provider organizations in the United States are in this phase. They will make real progress here and there, but it will be limited to whatever area was selected as the focus. Improvements arising from projects are sometimes difficult to sustain and are unlikely to spread and to transition on their own to the next challenge.

- *Microsystem focus.* The second phase of improvement focuses on microsystems, as the health system makes tactical use of microsystem thinking to build the habit for improvement into the fabric of some frontline systems. In this phase senior leaders promote improvement from the *inside out* in certain clinical microsystems. They encourage individual microsystems to develop their own capability to plan and make changes as part of their regular work routines. Frontline staff in the best-performing units have a sense that they work in a unique place with a wonderful group of people who care for a very special

EXHIBIT 10.1. LETTER TO THE EDITOR ABOUT A CLINICAL PROGRAM WITH A LOCAL AND NATIONAL REPUTATION.

To the Editor:

I have just completed treatment at a medical jewel more people in the Upper Valley should know about—the Spine Center at Dartmouth-Hitchcock Medical Center. In this innovative center, a team of world-class specialists in all aspects of back and spine care—from neurosurgery and orthopedics to psychology and physical therapy—assemble to review all aspects of any complex case. No more waiting and roaming from one source to another and obtaining conflicting views over a long period of time. Instead, different specialists exchange views face to face, backed by the most powerful diagnostic equipment and delivery techniques currently in use. All information is shared in a way that lets patients join appropriately in making the best decision.

I know of no other rural area that enjoys such capable specialists along with the most advanced technological and research facilities available anywhere. Just as important is the friendly and personal way the care is delivered. A small team knew my case intimately, provided the personal attention and follow-up associated with a small practice, and patiently responded to all the frightening questions—and analysis of alternatives—a person facing the possibility of back surgery wants answered.

All back sufferers in the Upper Valley are blessed to have this marvelous institution and its outstanding people.

James Brian Quinn
Hanover

Source: Quinn, 1999.

group of patients and families. These *breakaway* or *standout* microsystems might be considered *pockets of gold.* They have a good reputation, and stories are told and letters are written about the extraordinary care that this practice or that unit or clinical program provides (see, for example, Exhibit 10.1). There are some health systems in this phase of improvement, and their numbers are growing due to the attractive nature of the approach taken by these stand-out microsystems and the success they are achieving.

• *Mesosystem focus.* The third phase of improvement focuses on the mesosystem. At this stage, the good work done by individual microsystems to improve care begins to spread to other related microsystems. Mesosystems can be thought of as an interrelated set of "peer microsystems" that provide care to certain patient populations or support the care provided to these populations. Sometimes an individual microsystem that has made good progress on improving quality will start to "reach out" to other related microsystems to work on the way they connect with one another to transfer the patient from one microsystem to another or to work on the flow of supporting services and information. Another impetus for mesosystem development is for a health system to make it a priority

to improve care for patients that "move through" many different but related microsystems. For example, patients with chronic problems—such as heart failure, or diabetes—or with serious acute problems—such as acute myocardial infarction or pneumonia—often receive care from many assorted outpatient and inpatient clinical units. Consequently, if every patient is to get the right care in the right place in the right time, then it is necessary to organize and improve care in the mesosystem that consists of all the different microsystems that contribute to the care of "this" kind of patient. Yet another trigger for mesosystem development is a decision to target particular "clinical service lines" such as cardiovascular care or spine care or women's health as strategic areas for growth and development. Creating a center of excellence for patient populations such as these requires extensive work to improve or redesign care within and between all the related microsystems and thereby calls for the development of a superior mesosystem.

- *Macrosystem focus.* The fourth phase of improvement focuses on the whole system, or *macrosystem,* as all parts of the system and all levels of the system *get it,* as they become aligned with the goal of organization-wide improvement. This whole-system approach is strategic and operational. In this phase leaders and staff are working to improve performance both within and between all the microsystems in the organization and to align all levels of the organization to improve quality, reduce real costs, and engage all staff members in both doing their work and improving their work. An important aspect of this leadership work is to focus on making smooth, safe, and effective connections between and across related microsystems and supporting systems; this involves improving and redesigning the functioning of mediating, midlevel systems, or *mesosystems,* such as clinical service lines, programs, or divisions. Horizontal and vertical alignment is essential.

The Baldrige National Quality Program (2006) framework provides one excellent approach for mobilizing the whole system to work on quality and performance and has been applied to health care. Chapter Four in Part One of this book discusses this approach at length and introduces the major leadership frameworks and specific suggestions for moving in this direction. A small number of health systems and frontline (microsystem) providers are in this phase of improvement, and there is much to learn from them.

We believe, fundamentally, that populations will have high-quality health care systems only when their health care delivery organizations take a systems-based approach to attaining and sustaining high-quality health care. We believe that macro-, meso-, and microsystem thinking can provide just such a systems-based approach for improving the quality of a whole health system with a vertical and horizontal

alignment of strategy and actions. But to carry out such an approach requires synchronized action at all levels of a health care delivery organization. Improvement needs to be led from the *inside out* for microsystems and from the *outside in* for leaders creating the conditions for improvement. Paul Batalden reminds us that "every system is perfectly designed to get the results it gets" (personal communication to Donald Berwick, IHI president and CEO, 1996). Alignment of system levels with systems-based improvement offers the prospect of a better system and better results.

Using the M3 Matrix to Guide Actions at All Health System Levels

Figure 10.2 shows the M3 Matrix. It is called the M3 Matrix because it spells out actions that leaders can take at the three main levels of a health system:

- Macrosystem: actions taken by the senior leaders who are responsible for organization-wide performance
- Mesosystem: actions taken by the midlevel leaders who are responsible for large clinical programs, clinical support services, and administrative services
- Microsystem: actions taken by the leaders of frontline clinical systems who engage in direct patient care, provide ancillary services that interact with patient care, or provide administrative services that support patient care

The M3 Matrix displays actions not only according to the three system levels but also according to time frame, suggesting actions to consider taking immediately (within months one to six), in the short term (months seven to twelve), and in the long term (months thirteen to eighteen).

We believe that leaders of health care systems can use the M3 Matrix for developing a specific eighteen- to twenty-four-month action plan and for beginning to progress up "Nielsen's curve" (Figure 10.1) by making the transition from improvement based on projects to improvement based on microsystems to improvement based on mesosystems and the macrosystem—all the small systems coming together to make the whole system—and finally to the completion of a transformative journey.

Engaging the Whole Person in Doing the Work

Organizations cannot transform themselves without positive engagement of the workforce. The next two sections offer methods for (1) setting clear expectations on the need for everyone to take on improvement as part of daily work, and (2) making the need for dramatic improvements relevant and attractive by putting a specific human face on the imperative for change.

FIGURE 10.2. THE M3 MATRIX: SUGGESTIONS FOR LEADERSHIP ACTIONS AT THREE LEVELS OF A HEALTH SYSTEM.

Microsystems Developmental Journey: The Stages

1. Create awareness of our clinical unit as an interdependent group of people with the capacity to make change.
2. Connect our routine daily work to the high purpose of benefiting patients; see ourselves as a system.
3. Respond successfully to a strategic challenge.
4. Measure the performance of our system as a system.
5. Successfully juggle multiple improvements while taking care of patients, . . . and continue to develop our sense of ourselves as a system.

Microsystem Level	Mesosystem Level	Macrosystem Level
Inside Out 0–6 Months *Prework.* At www.clinicalmicrosystem.org, read Parts 1, 8, 9 of series (click publications in left-hand menu, select readings from *Journal of Quality, Safety Improvement Microsystems in Healthcare*; watch Batalden streaming video • Form an interdisciplinary lead improvement team. • Begin the Dartmouth Microsystem Improvement Curriculum. • Learn to work together using effective meeting skills. • Rehearse within studio course format. • Practice in clinical practice. • Hold daily huddles, weekly lead improvement team meetings, monthly all-staff meetings. • Conduct learning sessions (monthly). • Hold conference calls (between sessions).	*Creating the Conditions* 0–6 Months • Link strategy, operations, and people—*make it happen.* • Support and facilitate meso- and microsystem protected time to reflect and learn. • Identify resources to support meso- and microsystem development, including information technology and performance measure resources. • Develop measures of microsystem performance. • Address roadblocks and barriers to micro- and mesosystem improvements and progress. • Set goals and expectations.	*Outside In* 0–6 Months • Develop clear visions and missions for meso- and microsystems. • Set goals for improvement. • Design meso- and microsystem manager and leadership professional development strategy. • Engage board of trustees with improvement strategies. • Expect all senior leaders to be familiar and involved with meso- and microsystem improvement. • Provide regular feedback and encouragement to meso- and microsystem staff. • Encourage patient and family involvement in improvement.

6–12 Months
- Reinforce staff by leadership.
- Engage in colleague reinforcement.
- Develop new habits through repetition.
- Put improvement science into action.
- Add more improvement cycles.
- Build measurement into practice.
- Increase use of measures, dashboards, and data walls.
- Use playbooks and storyboards.
- Understand and develop relationships (linkages) between microsystems.
- Improve use of PDSA and SDSA approaches.
- Incorporate best practices, using value stream mapping or lean design principles.

6–12 Months
- Convene mesosystem and microsystems to work on linkages and handoffs.
- Facilitate system coordination.
- Link with electronic medical records.
- Link business initiatives or strategic plan to microsystem level.
- Attract cooperation across health professions, even if traditionally highly separate.
- Track and tell stories about improvement results and lessons learned at meso- and microsystem levels.
- Schedule rounds regularly at the microsystem level.
- Make improvement a regular agenda item.
- Inquire about results and data specifics to set goals and improvement.

6–12 Months
- Expect improvement science and measured results from meso- and microsystems.
- Develop whole-system measures and targets or goals.
- Attract cooperation across health professions, even if traditionally highly separate.
- Design review and accountability quarterly meetings for senior leaders.
- Track and tell stories about improvement results and lessons learned at meso- and microlevels.
- Develop budgets to support and develop strategic improvement.
- Ensure resources (such as information technology) to support meso- and microsystems.
- Plan time in schedule to conduct rounds at meso- and microsystem levels to observe improvements and progress.

12–18 Months
- Continue "new way of providing care, continuously improving and working together."
- Actively engage more staff involvement.
- Ensure that multiple improvements are occurring.
- Network with other microsystems to support efforts.
- Coach network and development.
- Develop leadership.
- Conduct annual review, reflect, and plan retreats.
- Conduct quarterly system review and hold accountability meetings with meso- and macrosystem leadership.

12–18 Months
- Link performance management to daily work and results.
- Support and coach microsystem leadership development.
- Provide resources to support microsystem development.
- Provide feedback and encouragement to microsystems.
- Expect patient and family involvement in improvement.
- Encourage and support the search for best practices.

12–18 Months
- Develop professional development strategies across all professionals.
- Design HR selection and orientation process linked to identified needs of macro-, meso-, and microsystems.
- Consider incentive programs for reaching targets or goals.
- Create system to link measurement and accountability at the micro-, meso-, and macrolevel.
- Develop a Quality College for ongoing support and capability building throughout the organization.

(*continued*)

FIGURE 10.2. THE M3 MATRIX: SUGGESTIONS FOR LEADERSHIP ACTIONS AT THREE LEVELS OF A HEALTH SYSTEM. (*Continued*)

Some Questions for Leaders at All Levels to Consider

Microsystem Leader	Mesosystem Leader	Macrosystem Leader
• How does this microsystem work? Who does what to whom? What technology is part of what you regularly do?	• How do the *organization's messages* move?	• How does this work bring help or value to the patients? What stories illustrate that?
• What is the main or core process of the way work gets done here? How does it vary?	• How does the macrosystem strategy connect to the microsystems? What helps people adapt to and respond to it?	• What are the values that are part of the everyday work?
• What are some of the limitations you encounter as you try to do what you do for patients?	• How do the microsystems link strategy, operations, and people needed for successful execution?	• What helps people grow, develop, and become better professionals here?
• When you want to change the clinical care because of some new knowledge, how does that work?	• What is the process for identifying and orienting the microsystem leaders? For helping set their expectations? For reviewing their performance and for holding each clinical microsystem accountable for its performance?	• What helps people personally engage the never-ending safeguarding and improving of patient care?
• What are the helpful measures you regularly use here? How are those measures analyzed and displayed?	• What helps maintain a steadfast focus on "improved patient care outcomes by more reliable and more efficient systems that are regularly reflected on and redesigned?"	• What connects this whole place—from the patient and those working directly with the patient down to the macrosystem leaders?
• What are the things people honor as *traditions* around here? If you had to single out a few things that really contribute to and mark the identity of this clinical microsystem, what might you point to?	• What about your personal style of work speaks more convincingly than your words about the desired way of work in the organization?	• What helps the processes of inquiry, learning, and change within, between, and across microsystems and mesosystems?
• What do people ask questions about around here? Who asks? Who gets asked?	• How do you yourself facilitate improvement across microsystems and encourage patient and family focus?	• What helps people do their own work and improve patient outcomes, year after year?
• What does it take to make things happen around here? When did it work well? Who did what?	• What do you yourself regularly do to learn of improvements in the microsystems?	• What might be possible? What are some of the current limits the organization faces?
• How do information and information technology get integrated into the daily work and new initiatives around here?		• What are some of the most relevant external forces for this macrosystem and its micro- and mesosystems?
		• Do you have the measurements and feedback necessary to make it easy for you to monitor and improve the quality of your performance?

- When you add new people here, how do you go about it?
- How are things *noticed* around here?
- If you were to point to an example of *respect* among all staff here, what might you point to?
- How do the leaders get involved in change here?
- How are patients and families brought into the daily workings and improvement of the clinical microsystem?
- Do people have a good idea of each other's work? How is that brought about?
- Do you discuss the common patterns of the way you work? The ways you test changes in them?

- What can you yourself do to be present in microsystems?
- What are the cultural supports for measurably improving the quality, reliability, and value of care in the microsystems?
- What are the cultural changes required to measurably improve the quality, reliability, and value of care at the front lines?

- Are you treated with dignity and respect everyday by everyone you encounter, without any regard for hierarchy?
- Are you given the opportunity and tools that you need to make a contribution that gives meaning to your life?
- Does someone notice when you've done the job you do?
- As you think about what you do and your ability to change it—what gains have been made in the past 12 months?
- How do you actually do what you do? What changes have you been able to make? What changes are you working on now?
- What changes that you've tried haven't worked?
- Do people feel compelled to regularly justify or rationalize things that happen around here?

Go to www.clinicalmicrosystem.org, click on "streaming videos" on the left-hand menu bar of the home page, then select from the Clinical Microsystems streaming video series "A Microsystem's Self-Awareness Journey, Paul Batalden, MD." The videos are best viewed by RealOne Player.

Ask for Two Jobs: Providing Quality Services and Improving the Quality of Service. We all sense that people who enjoy their work, who are excited by and engaged in their work, are likely to do better work than others and to enjoy their work. We all know that staff satisfaction is related to patient satisfaction (Denove & Power, 2006; Nelson et al., 1992). We know that people who feel empowered and important in their work are more likely than others to find ways to improve their work and to take pride in their work (Buckingham & Clifton, 2001; Deming, 1986). We know that most people go into health care for one reason—they want to make a difference in the lives of people with real needs.

We know that leaders, at all levels of the organization, create the conditions for improvement to flourish and for excellence to emerge. The question, then, is, What might leaders do to engage staff and to bring forth the energy and creativity of the whole person in her or his everyday work? Of course there is no one simple answer; however, there are some things that leaders can do to fully engage staff. Here are two that are basic:

- *Set clear expectations.* Let everyone in your organization or area know that the mission is to deliver high-quality, high-value services and that the task is so big that everyone really has two jobs—to do the work and to improve the work. This goes to the heart of fostering a culture of quality, safety, and excellence. You are saying that everyday work involves both doing well what needs to be done and testing ways to improve the quality of what is done. Improvement is everyone's responsibility and needs to be a basic job expectation.
- *Foster relevant learning.* Improving work requires knowledge, skills, and effort, just as doing the work requires knowledge, skill, and effort. One way to make this expectation clear, and to promote the fundamental improvement of knowledge and skill, is to foster relevant learning. One way to accomplish this is to adapt the DMIC to fit into your health system's leadership and human resource development process.

The second section of the M3 Matrix (Figure 10.2) provides questions that leaders might ask themselves about each level of the health system (some of these questions might also be considered when engaging staff). Many leaders have found this starter list of questions and perspectives helpful for reframing their health care system and ensuring alignment for improvement.

Use Esther's Story: Engage the Head, the Hand, and the Heart. John Kotter is a noted authority on leading change. He has studied organizations that have succeeded and those that have failed at making transformational change. He teaches, consults, studies, and writes on this topic (Kotter, 1996; Kotter & Cohen, 2002).

Clearly, there is a great deal that goes into transforming an organization and creating the conditions for sustained excellent performance, but one aspect of success that stands out and is worth highlighting is this. *Organizations that succeed at mobilizing and engaging their staff succeed (in part) because they are able to engage the whole person—her or his intellect, efforts, and values. The successful organization finds ways to engage the head, the hands, and the heart.*

Paul Bate, chair of Health Services Management at University College London, in the United Kingdom, another authority on organizational change, and his colleagues at the Rand Corporation have studied high-performing health systems (at both the microsystem and macrosystem levels) in North America and the United Kingdom. This research has given Bate an understanding of the power of storytelling, and other methods of dramatization, to illuminate the patient's experience and to ignite improvement work in organizations that are achieving unprecedented levels of quality and safety (Bate, 1994).

One technique for engaging the energy and creativity of the whole person is to make use of stories and storytelling. In health care we believe that stories about patients that dramatize an individual's experiences and the person's and family's efforts to cope with the burden of illness can be a powerful source of insight and motivation. Because most health care professionals enter health care to make a difference, telling patient stories can even invite the reengagement of discouraged staff (Hurwitz, Greenhalgh, & Skultans, 2004).

One of the most rapidly improving health systems is the Jönköping County Council Health System (JCCHS) in Sweden. A large, vertically integrated health system, it has the best quality and lowest cost measures in Sweden. It has been a leading participant in the highly regarded Institute for Healthcare Improvement's Pursuing Perfection program (Institute for Healthcare Improvement [IHI], 2006). One thing that JCCHS leaders have done for more than five years is to tell and retell Esther's story (Exhibit 10.2). "Esther" is a fictional, but endearing and believable, elderly woman who lives alone and suffers from chronic obstructive pulmonary disease and other health problems. Whenever Esther's story is told, people immediately recognize the complexity of her care and her case. They see both the strengths and weaknesses in the way care is currently provided. Because Esther could be anyone's grandmother, mother, beloved aunt, or dear neighbor, everyone (physicians, nurses, secretaries, technicians, and administrators) can relate to her story. Having told Esther's story, JCCHS leaders ask a few powerful questions to invite staff to assess current care delivery and to generate ideas to improve and innovate. They ask such questions as these:

- What would Esther want?
- What does Esther need?

EXHIBIT 10.2. IMPROVING PATIENT FLOW:
THE ESTHER PROJECT IN SWEDEN.

"Esther" is not a real patient, but her persona as a gray-haired, ailing, but compe-tent elderly Swedish woman with a chronic condition and occasional acute needs has inspired impressive improvements in the ways patients flow through a complex network of providers and care settings in Höglandet, Sweden.

Esther was invented by a team of physicians, nurses, and other providers who joined together to improve patient flow and coordination of care for elderly patients within a six-municipality region in Sweden. The productive work that has been done on Esther's behalf led the Jönköping County Council, responsible for the health care of 330,000 residents living around Höglandet, to become one of two international teams participating in the Pursuing Perfection initiative. This program, launched by the Robert Wood Johnson Foundation, is designed to help health care organizations and hospitals dramatically improve patient outcomes by pursuing perfection in all their major care processes. The Institute for Healthcare Improvement (IHI) serves as the national program office for this initiative.

"I think it is very important that we call this work Esther," says Mats Bojestig, chief of the Department of Medicine at Höglandet Hospital, Höglandet, Sweden, one of the developers of the Esther Project and an Institute for Healthcare Improvement (IHI) faculty member. "It helps us focus on the patient and her needs. We can each imagine our own 'Esther.' And we can ask ourselves in our work, 'What's best for Esther?' "

Esther proved inspirational for the team. During the three-year project, they were able to achieve the following improvements:

• Hospital admissions fell from approximately 9,300 in 1998 to 7,300 in 2003.
• Hospital days for heart failure patients decreased from approximately 3,500 in 1998 to 2,500 in 2000.
• Waiting times for referral appointments with neurologists decreased from eighty-five days in 2000 to fourteen days in 2003.
• Waiting times for referral appointments with gastroenterologists fell from forty-eight days in 2000 to fourteen days in 2003.

The Esther Project grew from a need that many U.S. health systems share: to improve the way patients flow through the system of care by strengthening coordination and communication among providers.

Böjestig tells Esther's story this way: "Esther is eighty-eight and lives alone in a small apartment. During the past few nights her breathing has become worse and worse, and her legs have edema so severe that she cannot lie down but sits up all night. She knows she needs health care. She phones her daughter in a nearby town, who tells her to call her home nurse. The home nurse visits and says she needs to see her general practitioner (GP). But Esther lives on the third floor and can't manage the stairs.

"So the nurse calls an ambulance, and Esther goes to the doctor, who says she needs to go to the hospital. Now three hours have passed. An ambulance takes her to the emergency room (ER), where she meets an assistant nurse and waits for three hours. She meets with a doctor, who examines her and orders an X-ray and says she will have to be admitted. She comes to the ward and meets more nurses."

EXHIBIT 10.2. (*Continued*)

Here Böjestig smiles. "Most days Esther is a little lonely, but today she is happy because she has already met 30 people!"

The Swedish health system is designed in a traditional, functional way: each link in the caregiving chain—the primary care physician (PCP), the hospital, the home care providers, the pharmacy—acts independently according to its function. "But Esther needs it to all fit together," says Böjestig. "It needs to flow like an organized process," he says, so each provider of care can take advantage of what others have done or will do.

Out of this need grew the Esther Project, which has six overall objectives:

1. Security for Esther
2. Better working relations throughout the entire care chain
3. Higher competence throughout the care chain
4. Shared medical documentation
5. Quality throughout the entire care chain
6. Documentation and communication of improvements

The Esther Project team consisted of physicians, nurses, social workers, and other providers representing the Höglandet Hospital and physician practices in each of the six municipalities. They were divided into two subgroups: the strategy group and the project management group.

To establish a clear picture of where the problems existed, team members conducted more than sixty interviews with patients and providers throughout the system. Together they analyzed the results, which included such statements as "patients in a nursing home rarely see their doctor" and "a patient getting palliative care at home was in contact with 30 different people during one week."

According to Böjestig the interviews also furnished providers with valuable realizations about the ways their individual work processes did or did not dovetail with the work of their colleagues in the care chain. Figuratively, if not literally, he says, interviewers would exclaim, "Are you doing that? I'm doing that too!"

The result of this lack of coordination, he says, is that even though Esther's social worker knows all about how Esther lives, for example, "still her GP asks her how she lives, and she tells it, and the hospital asks her, and she tells it again, and so on." Lack of coordination of information, particularly where medications are concerned, causes considerable redundancy and waste. In the worst case, it can lead to medical errors and avoidable illness.

The team devised an action plan that spelled out six main projects, designed to correspond to the six goals:

1. Develop flexible organization, with patient values in focus
2. Design more efficient and improved prescription and medication routines
3. Create ways in which documentation and communication of information can be adapted to the next link in the care chain
4. Develop efficient information technology support throughout the whole care chain
5. Develop and introduce a diagnosis system for community care
6. Develop a virtual competence center for better transfer and improvement of competence throughout the care chain

(*continued*)

EXHIBIT 10.2. IMPROVING PATIENT FLOW:
THE ESTHER PROJECT IN SWEDEN. (*Continued*)

Böjestig says that as part of its work, the team examined demand and capacity within the system and saw that the inadequate capacity for planned care was forcing patients to seek urgent care in inappropriate settings. "If Esther complains of headaches, and her GP says she should see a neurologist, in our system that referral would take three months. For Esther this is not acceptable. So she goes to the ER, and the doctor there knows that if he puts her in the hospital, the next day there will be a neurologist in to visit her."

Although it appeared that the demand was for inpatient admissions, it was really demand for better access to specialty care. So the team tested a process in which the queue for care was redesigned from two—one for acute care and one for planned care—into one. "Instead of having acute care go into the wards," says Böjestig, "it goes to the team."

This team, which includes the PCP, specialists as appropriate, nurses, and home nurses, has a collaborative relationship, through which team members decide together what's best for each patient. When a patient presents acute care needs, says Böjestig, the PCP can page a specialist on the team, who is expected to respond within two minutes. A telephone consultation may still result in an inpatient admission, but it allows the patient to be admitted directly to the ward without having to endure a visit to the ER, costly in both human and financial terms.

For their part the specialists began working toward open access scheduling, in which patients could be seen on the same day they call or their PCP calls. Closer cooperation among specialists and other providers meant that PCPs and home care nurses were able to do for patients some of the things specialists had been doing.

Additionally, patient education was recognized as a critical element in keeping patients out of the hospital. Nurses were trained to educate heart failure patients, for example, about how to take vital measurements at home and tweak their medication accordingly.

Böjestig says that all 250 providers in the network received training in the project's goals and processes. And the investment paid off. "We have closed about 20 percent of our bed capacity," he says, "and moved that capacity to where the need is bigger."

The continuing focus of the project team's work, says Böjestig, is "how to create value for Esther." He says that the project changed the attitudes among those who work for Esther, because "the focus is on her now."

"The important things for us to ask as leaders or workers in the health care system," says Böjestig, "is can we still continue to work in systems that are not integrated? Is it fair to our knowledge? Is it what we want to do? Is it best for Esther?"

- Why can't we do this for Esther?
- Can we find a way to just try to do this for Esther?

These simple questions dramatize a recognizable person's health and health care experiences. They serve as an open invitation to become curious about what might be done (the head), to engender the will and energy to get it done (the heart), and to call forth the skill to do what has never been done before (the hand).

Focusing on the Microsystem Level

When people are sick or injured or have a health condition that they cannot manage on their own, they often seek health care from educated and trained professionals. They wish to have a healing relationship or a relationship that protects or promotes their health. Patients and families invite these health professionals—physicians, nurses, clinicians—into their lives to provide needed assistance. When and where a person with a health need interacts with a health care professional and supporting staff, a clinical microsystem is at work.

Microsystems are the places where patients and families and health care teams meet. Microsystems are the unit of action—the *sharp end* of the health care system. It follows then, that if a health care wishes to produce high-quality health care, care that meets the needs of the individual, then it must have high-quality microsystems that are always *on*—perpetually able to discern what a person wants and needs and able to design and deliver the care that best matches that person's needs. This relationship is shown in Figure 1.1 in Chapter One. Donald Berwick and the Institute of Medicine (IOM) subcommittee responsible for the report *Crossing the Quality Chasm* depicted the pivotal and determinate position of the microsystem when they made the health care "chain of effect" diagram (Institute of Medicine. . . , 2001).

All large health systems (macroorganizations) have microsystems as their basic building blocks. These microsystems make health care *real,* and they vary widely in their ability to do the job—to give all patients what they want and need exactly when they want and need it (Institute for Healthcare Improvement, 2000). Improving requires learning grounded in the experience and daily reality of the work of health care in that frontline context.

So we focus on frontline systems because the only way to design and deliver care that consistently and efficiently meets people's needs is to grow the capability of the microsystems to realize their mission by providing high quality to each person they serve. Excellent service and care every time for every . . . patient—if this is the aim, new learning and new ways of thinking and acting and interacting are required to achieve it. If the aim has merit and is fundamentally in line with people's needs for health care, then most people in most microsystems will need to embark on a developmental journey to build their capability.

We have seen that scores of clinical microsystems have found it possible to set out on their own developmental journeys and to make great progress in improving their ability to provide highly reliable, high-quality, high-value care. This journey toward peak performance is challenging, enjoyable, engaging, empowering, and transformational. Its chief hallmarks are action learning and discovery and also the emergence of inside-out motivation and action to make a superior thing.

Understanding the Role of Experiential Learning in the Improvement of Care

Jerome Bruner (1960), a famous educator, believed that more people act their way into believing than believe their way into acting. He was a proponent of using *action learning* to advance education. David Kolb (1984) has advanced and popularized the idea of action learning; his model of the experiential learning cycle is shown in Figure 10.3. He believes that the way most people learn most things is by running through a cycle (or ascending spiral) made up of the interplay of four things—concrete experience, reflective observation, abstract conceptualization, and active experimentation:

1. A person experiences something, and
2. Reflects on what he has experienced and on what he or she has observed and tries to make sense out of it, and
3. Turns this sense-making activity into an abstract concept that might be used to guide future action, and

FIGURE 10.3. EXPERIENTIAL LEARNING MODEL.
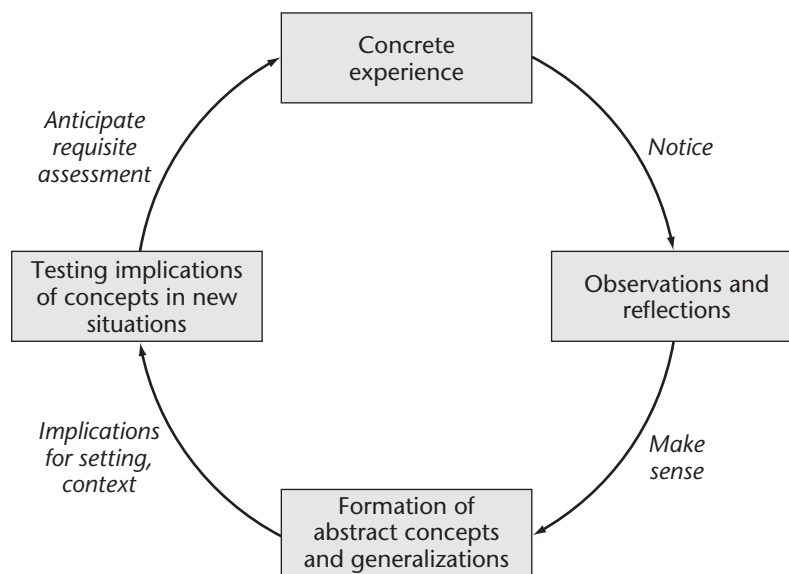
Source: Adapted from Kolb, 1984; Weick, 2000.

4. When circumstances arise in the future, he or she tests out the abstract concept on a particular case in point, which leads once again to a new experience and the start of a new cycle.

We can further enrich our understanding of this learning by studying how professionals such as airplane pilots, physicians, nurses, and architects learn. Donald Schön, an authority on adult learning and the ways that professionals learn, has used the architectural studio course to demonstrate the most effective means for helping professionals move towards mastery of their field (Schön, 1983).

Architectural students gain knowledge, insight, and skill in powerful learning environments called *studio courses;* these courses are at the core of the students' professional education experience. Studio courses challenge architects-in-training to design a project, such as a town hall, a cathedral, an elementary school, or a fire station. By the end of the term most students have succeeded at doing something they were not capable of doing earlier. They have met the design challenge, usually more or less successfully, because the conditions for learning have been well designed. The conditions for learning in a studio course consist of a rich mix of ingredients:

- A specific goal set for the learner that becomes a worthwhile challenge that engages the learner's creativity
- An informal learning place to interact with faculty and other students
- A studio course master who can guide and challenge the learner
- The development of blueprints and models to graphically illustrate plans and ideas
- Open and honest critique of the learner's work by faculty and fellow learners
- The learner's effort to design a superior thing by drawing on his or her own insights and reflection, past and present learning, creativity, and intelligence

In this environment, over time, the architectural students increase their capability to design a superior building that meets the needs of their clients, fits into the local context and culture, and can be built at an affordable cost.

We have designed a learning program for members of clinical microsystems—the Dartmouth Microsystem Improvement Curriculum (DMIC)—that builds on the ideas of leading educators such as Bruner, Kolb, Schön, and others. This learning program aims to do for microsystem members what a studio course does for architectural students. The curriculum invites microsystem members—health professionals, administrative and support staff, patients, and families—into shared experiences that challenge them to make a superior thing (high-quality and high-value health care). Together they increase their capability to improve

performance by acquiring knowledge, skills, principles, and concepts that they adapt to their own unique microsystems. The curriculum and structure also provide a setting for busy microsystem members to learn to work together in new and different ways. They use this learning to understand and to test new ways to provide care and services that can better meet people's needs for high-quality, affordable health care.

Using Experiential Learning to Advance the Developmental Journey of Microsystems

Whether they have recognized it or not, all microsystems are on a developmental journey. It is the nature of clinical microsystems, as "living, adaptive" systems (one form of complex, adaptive systems) (Zimmerman, Lindberg, & Plsek, 1999) to be constantly changing and adjusting to internal forces and external conditions. Old patterns of thinking and acting evolve over time, and new patterns emerge (slowly or rapidly, depending on the conditions) as a microsystem attempts to adjust to changing conditions in an ever-changing world.

The goal of the DMIC is to expedite and to guide a clinical microsystem's developmental journey toward peak performance. We have deliberately modeled the DMIC on Kolb's, Bruner's, and Schön's ideas about how professionals learn. We try to create rich conditions for learning by setting up a studio course for clinical teams that include interdisciplinary members of microsystems.

A brief description of the DMIC learning process follows:

Preparation: Getting Ready

- Secure macro- and mesosystem senior leader support and encouragement at macrosystem and mesosystem levels.
- Define the microsystem that is ready to begin its developmental journey, and its members. Identify the different member roles (patient, family, physician, nurse, technician, receptionist, transport staff, social worker, and so forth).
- Assemble a *lead improvement team* that represents all the member roles. It is highly desirable to have at least one person to represent each role that plays a part in the microsystem.
- Begin the learning by providing a common frame of reference and introducing microsystem thinking. Lead improvement team members may do some reading before the first session.
- Determine a clear multimedia communication plan that describes how lead improvement team members are to reach the other members of the microsystem.

Baseline Assessment: Discovering the Microsystem

- Discover your microsystem. See what you have never seen before by viewing the clinical program as a small system that can be understood by studying its 5 P's—purpose, patients, professionals, processes, and patterns—and the ways in which its *parts* interact with one another.
- Use the 5 P's framework for assessing the clinical setting as a small system. Just as you can assess, diagnose, and treat a patient, you can assess, diagnose, and treat your microsystem.
- Make a wall poster to summarize the 5 P's assessment and to illustrate the gross anatomy of the microsystem and some of the detail that is embedded—the *fine structures* and *key processes* and *vital patterns* and *core outcomes.*
- Review *metrics that matter* (Figure A.14 in the Appendix) specific to your population of patients.

Primary Diagnosis: Selecting a Worthwhile Challenge for Improvement

- Following the assessment, you have an invitation to make a diagnosis.
  Identify the strengths of your microsystem, and celebrate them.
  Identify improvement opportunities revealed by your assessment.
  Determine what the organization's strategic needs are that your microsystem could or should address.
  Determine national professional group recommendations.
  Review the Institute of Medicine's six quality aims—safe, timely, effective, efficient, equitable, and patient-centered.
- In light of the previous steps, make your primary diagnosis.
  Although there may be multiple worthy themes that identify areas for improvement, select a single, important, and worthwhile theme to focus your (first or next) improvement work on for the next six to twelve months.
  This theme becomes the focus for the shared learning. This represents your studio course programmatic challenge.

Primary Treatment: Using the Scientific Method to Make and Sustain Improvements

- Now that the assessment and diagnosis have been made, it is time to take action and to move into the improvement work.
- In this phase of the learning the members of the lead improvement team learn how to work together effectively as an interdisciplinary team and to
  Establish clear, measurable aims that are aligned with the overall theme for improvement.

Analyze the current process using flowcharts.

Use cause and effect thinking by making a fishbone diagram.

Develop promising change concepts.

Use the scientific method to rapidly test changes (plan-do-study-act) and to maintain gains once the aim has been reached (standardize-do-study-act).

Build data collection and practical methods for measuring and monitoring into daily work.

• As this action learning progresses, fundamental principles and basic improvement techniques are introduced to help all involved make the journey of building improvement capability smooth and successful.

Reflection and Celebration

• At the conclusion of this initial cycle of learning, the members of the microsystem's lead improvement team

Reflect on what they have achieved and on what they have learned along the way.

Celebrate their successes.

Begin making plans to tackle a new theme and to extend improvement knowledge and skills to all the members of their microsystem.

Review the M3 Matrix to make a detailed plan for the next six to twelve months in order to continue the developmental journey and to further increase their capability to do their work, improve their work, and take pride in their work.

For convenience, we divide the learning into several modules that have a logical order and flow one into another. The remaining chapters in Part Two of this book provide details on the Dartmouth Microsystem Improvement Curriculum that we have just described. Table 10.1 outlines each chapter: the topic, aim, and learning objectives and the between-sessions work.

Adapting DMIC to Different Settings and Conditions

The DMIC has been used by many leaders in varying settings. It works best when it is adapted to fit local conditions and each system's unique requirements. Some of these different approaches to using DMIC to build capability in frontline, interdisciplinary microsystem teams are described next.

The formal DMIC learning sessions are often attended by six to twelve microsystem lead improvement teams. These sessions are also usually attended by the mesosystem leaders who supervise the leaders of the participating

TABLE 10.1. DARTMOUTH MICROSYSTEM IMPROVEMENT CURRICULUM.

Chapter and Purpose	Objectives	Between Learning Sessions Work
Chapter 10: To promote organization-wide improvement, through the introduction of an approach the (M3 Matrix) for building improvement capability at all levels of a health system, and to preview an action-learning program for frontline staff	1. Describe the current state of health care and the relevance of the Institute of Medicine's publication *Crossing the Quality Chasm*. 2. List specific, phased actions for leaders to take at the macrosystem, mesosystem, and microsystem levels to create the conditions for performance improvement. 3. Describe why a microsystem approach to improving performance is system based and engages the entire health system. 4. State the value of using a story about a patient to engage staff at all levels of a health system. 5. Outline the elements of an action-learning program for frontline staff. 6. Identify the reasons why a lead improvement team (an interdisciplinary team representing all roles in a microsystem) makes an important contribution to anchoring improvement work in the real work of frontline microsystems.	1. Review the M3 Matrix and develop an organized, specific strategy for the three levels of your system. 2. Specify the frontline microsystem development strategy. 3. Identify lead improvement teams for microsystem development. 4. Select a patient population for a primary focus, and write your own "Esther" story.
Chapter 11: To describe the origin of clinical microsystem thinking and the research on it, and to identify microsystems in your health care system	1. Define and identify the clinical microsystems in your health care system. 2. Describe how systems thinking is connected to microsystems. 3. Link systems thinking with the microsystem.	1. Begin to develop a microsystem wall graphic that models your own system and also offers the physical space to display what people are learning, additional information, and results of the improvement work and the efforts to change. *(continued)*

TABLE 10.1. DARTMOUTH MICROSYSTEM IMPROVEMENT CURRICULUM. (*Continued*)

Chapter and Purpose	Objectives	Between Learning Sessions Work
	4. Describe the microsystem connections to research from the service industry and the Institute of Medicine.	2. Identify a communication strategy.
Chapter 12: To identify concepts and methods for holding effective and productive meetings with a lead improvement team	1. List the four common roles and functions for effective meetings. 2. Describe the meeting process and the seven steps in the agenda template. 3. List the work to be done before meetings. 4. List the processes to be followed during meetings. 5. Create a draft list of ground rules for your lead improvement team members to use when learning how to work together in a meeting. 6. Describe the steps for maintaining the rhythm of improvement.	1. Conduct sixty-minute meetings with an interdisciplinary lead team using effective meeting skills. 2. Use an agenda to hold a meeting to brainstorm a draft set of ground rules. 3. Identify a place and time to hold weekly lead improvement team meetings.
Chapter 13: To do an assessment of your clinical microsystem using the 5 P's framework, a tested analytical method that focuses on purpose, patients, professionals, processes, and patterns	1. Organize your microsystem assessment so it is systematic. 2. Describe your deeper knowledge of your microsystem purpose, patients, professionals, processes, and patterns. 3. Identify key tools and methods for gaining deeper knowledge. 4. Engage all members of your clinical microsystem in the process of assessment and awareness building. 5. Review, analyze, and draw conclusions about the relationships among the 5 P's. 6. Identify strengths and opportunities for improvements based on the 5 P's assessment.	1. Review the 5 P's, and determine which data and information can be obtained from your organization and which data and information will be collected through other means, such as the microsystem workbook, tools, and forms. 2. Identify who will collect which data and information. 3. Create a timeline for collecting data and reporting on the assessment work.

Chapter 14: To understand and apply the model for improvement, in conducting disciplined, sequential tests of change for the purpose of making measurable improvements that can be sustained

1. Define the model for improvement.
2. Describe the two components of the model for improvement.
3. List the detailed steps of PDSA.
4. Develop a clear *plan* to test a change.
5. Describe the point at which a PDSA cycle becomes a SDSA cycle.
6. State where PDSA↔SDSA cycles fit in the improvement process.
7. Use the PDSA↔SDSA worksheet to guide actions.

1. Review and discuss the model for improvement, to clarify the path forward for the lead improvement team.
2. Review the PDSA↔SDSA worksheet to gain insight into the next steps.

Chapter 15: To select a worthy theme on which to focus improvement actions, based on assessments made using the 5 P's, on organizational strategy, and on consideration of national or professional guidelines and recommendations

1. Define a theme for improvement.
2. Describe the benefit of identifying a theme for improvement.
3. Describe what to consider when selecting a theme for improvement.
4. Describe how theme selection is connected to assessment information and data.
5. Identify where theme selection fits in the overall improvement process.
6. Describe the process of identifying and selecting a theme for improvement.

Select a theme to focus your improvement work; base your choice on
1. Your 5 P's assessment data and information.
2. A review of information from external forces such as the Institute of Medicine, Institute for Healthcare Improvement, and Joint Commission for Accreditation of Healthcare Organizations (JCAHO).
3. A review of your own organization's strategic priorities.

Chapter 16: To create a global aim statement to focus the improvement work based on the theme the lead improvement team selected

1. Define a global aim.
2. Identify the importance of the relationship between the global aim, the improvement process flow, and theme selection.
3. Describe how to manage new ideas and topics within the context of writing a global aim.
4. Write a global aim statement using a template.

1. Write a global aim for improvement based on your theme selection
2. Share all global aim progress and drafts with all members of the microsystem.

(*continued*)

TABLE 10.1. DARTMOUTH MICROSYSTEM IMPROVEMENT CURRICULUM. (*Continued*)

Chapter and Purpose	Objectives	Between Learning Sessions Work
Chapter 17: To define process-mapping techniques, with a specific focus on high-level flowcharts and deployment flowcharts	1. Define process mapping. 2. Describe the differences between high-level flowcharts and deployment flowcharts. 3. Describe the relationship between the global aim statement for improvement and the flowcharting process. 4. Create a high-level flowchart or deployment flowchart using several techniques. 5. Develop a process to engage all members of the microsystem in the creation and modification of the flowchart.	1. Draft a flowchart of the process identified in your global aim statement. 2. Display the flowchart draft for all the staff to review and add to. 3. Modify the flowchart based on feedback.
Chapter 18: To create a detailed specific aim statement based on the selected theme and the global aim statement to further guide and focus improvement activities	1. Define what a specific aim is. 2. Describe the connections between specific aim, process flow, global aim selection, and theme. 3. Use the specific aim template. 4. Describe the *improvement ramp* that leads microsystem members to meet overall improvement aims.	1. Create your specific aim, based on your flowchart.
Chapter 19: To define cause and effect diagrams and the process of creating them to gain deeper knowledge of the factors that contribute to end results	1. Define cause and effect diagrams (fishbone diagrams). 2. Describe the principle of the web of causation in relation to a fishbone diagram. 3. Create a cause and effect diagram specific to the outcome you are studying. 4. Describe the function of cause and effect diagrams in the big picture of improvement.	1. Create a fishbone diagram to show the causes that contribute to your specific aim. 2. Display the draft fishbone diagram for all to review and modify. 3. Make the modifications to the fishbone based on feedback.

5. Develop a process to engage all staff in the creation and modification of a fishbone diagram.

Chapter 20: To define the process that a lead improvement team can use to develop a large list of ideas for improving a process and then to systematically reduce the number to the very best ideas

1. Define the methods and describe the steps in the process of brainstorming and multi-voting.
2. Describe the differences between interactive brainstorming, silent brainstorming, and nominal group techniques.
3. Apply brainstorming and multi-voting to a topic in order to select a specific change idea to test.
4. Develop a process to engage all staff in the review and consideration of the results of the brainstorming and multi-voting session.

1. Brainstorm and multi-vote to choose a change idea to test that is related to your specific aim statement.
2. Develop a process to engage all staff in the review and consideration of the results of the brainstorming and multi-voting work.
3. Develop a clear plan to test a change idea.
4. Review the plan with all staff.
5. Determine dates and preparation needed to test the change idea quickly.
6. Use the PDSA↔SDSA worksheet to guide actions.

Chapter 21: To understand how change concepts can contribute to developing new change ideas for improvement

1. Define a change concept.
2. List common change concept categories.
3. Identify when change concepts enter the overall improvement process.
4. Describe how a change concept can lead to specific change ideas.
5. Describe a clinical example of a change concept applied to a change idea.

1. Review the change concept list, and use it to stimulate thinking about ways to redesign your process.
2. Research the best-known change ideas for the process you aim to improve.

Chapter 22: To understand how to make and interpret run charts and control charts, two methods for measuring and displaying data trends over time

1. Describe how plotting data over time and using run charts and control charts fit into the improvement process.
2. Make and interpret a run chart.

1. Create a run, or control chart specific to your PDSA cycle.
2. Display "the chart on a data wall" for all staff to see real-time progress.

(*continued*)

TABLE 10.1. DARTMOUTH MICROSYSTEM IMPROVEMENT CURRICULUM. (*Continued*)

Chapter and Purpose	Objectives	Between Learning Sessions Work
	3. Make and interpret one type of control chart.	3. Build measurement into every microsystem member's activities.
Chapter 23: To create a clear action plan of next steps for planning and monitoring improvement activities and progress made	1. Describe the importance of an action plan. 2. Differentiate between an action plan and a Gantt chart. 3. Explain the connections among the action plan, the Gantt chart, and your improvement work. 4. Describe how to manage improvement activities over time. 5. Write an action plan or a Gantt chart, or both.	1. Write a Gantt chart specific to your long-term improvement plan. 2. Write an action plan each week, to promote between-meeting completion of tasks.
Chapter 24: To make plans to tell the improvement story, measure progress over time, and sustain improvement using standard processes	1. Describe the improvement fundamentals needed to maintain and sustain improvement. 2. Identify where improvement data can be posted for viewing by all microsystem members to increase their knowledge about purpose, progress, and priorities. 3. Design a microsystem playbook that documents standard ways of performing processes and that can be used in orientation, performance appraisals, and daily improvement work. 4. Develop a storyboard to document your microsystem's improvement journey and progress made over time.	1. Create a storyboard showing your microsystem's current state. 2. Start and maintain a data wall of results, achievements, and processes to be monitored. 3. Create and actively manage your microsystem playbook.

microsystems. The sessions might be held monthly, weekly, or biweekly or be grouped together over the course of a single week. Here are some of the patterns we have seen:

- Monthly sessions bring microsystem lead improvement teams together, under the sponsorship of senior and midlevel leaders, for one full day or one or two half days once a month for six to nine months.
- Weekly or biweekly sessions bring microsystem lead improvement teams together, under the sponsorship of senior and midlevel leaders, for one to two hours once a week or once every two weeks for six to nine months.
- An intensive weeklong workout session brings microsystem lead improvement teams together, under the sponsorship of senior and midlevel leaders, for six to eight hours per day for five consecutive days.

Each of the remaining chapters in Part Two provides topic-specific knowledge from the DMIC. The best format and the most practical pace for teaching this knowledge within the context of an interdisciplinary lead improvement team are determined by the local conditions. Health care systems might also take advantage of *toolkits,* specially packaged learning materials that target particular kinds of health care organizations, or they might try an applied learning approach.

- Toolkit method. Use a microsystem-based toolkit to guide action learning: for example, *Clinical Microsystems: A Path to Healthcare Excellence* (Godfrey, Nelson, & Batalden, 2005) is a guide for improving care in hospitals and is sponsored by the Dartmouth Medical School, the American Hospital Association, the Institute for Healthcare Improvement, Premier, Inc., and VHA, Inc. Other toolkits are available on the Web site http://www.clinicalmicrosystem.org. Toolkits can also be used within an academic program to educate health care professional students (physicians, nurses, and administrators).
- Applied microsystem education. Have health professional students work in small groups with the staff of an actual clinical microsystem to go through the 5 P's assessment process or through the diagnosis and treatment process described earlier in the descriptions of the DMIC learning process. This can be done in multiple sessions over the course of an academic term or as an intensive workout.

The DMIC approach for health professional education in academic settings and for leadership and staff development in delivery systems is being used in a variety of health systems worldwide. The Web site http://www.clinicalmicrosystem. org offers more ideas and resources on ways to adapt this way of learning to your own setting.

Understanding the Value and Composition of a Lead Improvement Team

In several places we have suggested establishing a lead improvement team to guide the microsystem's participation in the DMIC. The idea behind this is to make sure that your microsystem education considers all the roles held by all the system's essential members. Every member of a microsystem has an important role to play and offers a unique perspective. Just as you would not wish to coach a baseball team without having all the players present, you should not choose to mentor microsystem team learning without having all the members either present or represented. In health care organizations it is often impossible to have all the members present for action learning, but it is usually possible to have all member roles represented (including current or former patients and families).

Review Questions

1. How will real case studies support your improvement journey?
2. What are the levels of the organization that should be considered when strategically planning improvement?
3. What is the importance of "Esther"?
4. What specific activities contribute to system improvement (beyond improvement projects)?
5. How does the *studio course* format support learning and practical application?

Prework

1. Review the M3 Matrix, and develop an organized, specific strategy for the three levels of your system.
2. Specify the frontline microsystem development strategy.
3. Identify lead improvement teams for microsystem development.
4. Select a patient population for a primary focus, and write your own "Esther" story.

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