

This is a sample of the instructor materials for *The Healthcare Quality Book*, fourth edition, by David B. Nash, Maulik S. Joshi, Elizabeth R. Ransom, and Scott B. Ransom.

The complete instructor materials include the following:

- Instructor notes for each chapter, including answers to the book's study questions
- A test bank
- PowerPoint slides for each chapter

This sample includes the instructor notes and PowerPoint slides for chapter 1, "Overview of Healthcare Quality."

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The Healthcare Quality Book, 4th edition
Chapter 1 Study Questions

1. Think of an experience you, a family member, or a friend has had with healthcare. Gauge the experience against IOM's six aims, and identify any opportunities for improvement.

The IOM's six aims are that medical care be safe, timely, equitable, efficient, effective, and patient centered. The following is an example only, using this framework.

Mrs. B was seen by a new primary care doctor. The physician noted a heart murmur on exam, and asked Mrs. B if she knew about the murmur. "Oh yes, so I've been told," Mrs. B replied. "I've had that for a while." No further workup was ordered. Six months later, Mrs. B was admitted to the hospital for a new diagnosis of heart failure. An echocardiogram revealed severe aortic stenosis. Within two weeks, Mrs. B underwent an aortic valve replacement for what was ultimately found to be a bicuspid aortic valve, a congenital defect often leading to premature stenosis. On review of prior records, her primary doctor saw that, 15 years ago, Mrs. B had an echocardiogram after a car accident that was concerning for a possible bicuspid aortic valve, but no follow-up imaging was ever done.

In this example, the patient ultimately received the appropriate surgical intervention for her condition. However, there was a diagnostic delay in identifying her high-risk heart defect. The lack of surveillance was unsafe and perhaps prevented timely intervention. The patient-centeredness of the care could have been improved, given that Mrs. B knew she had a murmur but did not know or understand the implications of this finding. The existence of data (i.e., the prior echocardiogram) not easily available to the new primary doctor at the outset of the case suggests room for improvement in the effectiveness of care leading up to Mrs. B's ultimate diagnosis. The provision of care in this case appears to have been equitable and largely efficient.

2. Describe three instances in which outcomes would not be a good measure of healthcare quality, and explain why.

- Rare condition or complication. If the outcome is very rare, process measures should be used. For example, it is vitally important that ABO mismatch blood transfusions be prevented, as they are catastrophic when they occur. Thankfully, they are very rare. In order to maintain a perfect process for preventing these rare events, metrics like "wrong blood in tube" rates, or appropriate use of bar-coding during blood administration, should be followed.
- Outcomes that take a long time to develop. If the latency from the episode of care to the outcome is very long, process measures are preferred. For example, a hospital medicine

practice managing patients with heart failure might choose to follow discharge on appropriate medication regimens, as opposed to mortality.

- Outcomes that have ambiguity in diagnosis. If your outcome is a diagnosis but that diagnosis is ambiguous, you may want to consider a process measure or a related outcome measure. For example, irritable bowel syndrome is a common diagnosis with vague diagnostic criteria. Rather than using a diagnosis of irritable bowel syndrome as an outcome measure, consider using symptom frequency such as constipation or diarrhea.

3. Do you agree that care can be both high quality and inefficient? Why or why not?

Answer: No. Inefficiency—waste within the system—can take the form of too much testing, too much treatment, or too much time spent providing care. Because medical care is practiced in a finite system, resources used in one setting are not available to be used in another. This inevitably worsens the care of some individuals (displacing care), while heaping waste and cost on others (providing too much or potentially harmful care).

Counter-answer: Yes. In patient-centered care, the most important patient is the individual person being cared for at that point in time. Therefore, providing that individual with as much care as deemed necessary, for as long as it takes to improve that individual's health, should be the goal of medical practice.

4. What are some of the challenges to spreading change? Identify two key questions/issues that need to be considered when applying change concepts in an organization or system.

Assessing the readiness to change, whether amongst team members, within an organization, or across a health system, is often one of the first challenges met when attempting improvement strategies. Likewise, the sharing of information, ideas, and innovations across an organization can be a barrier for spreading change, particularly if an organization's infrastructure is not one that fosters an environment supportive of change. Setting aims and establishing goals for spread, involving leadership, and aligning with organization priorities should all be considered with improvement initiatives in an organization.

5. How would a healthcare organization choose elements to measure and measurement tools when seeking to improve the quality of care?

The three types of measures healthcare organizations may choose are structural, process, and outcome measures. Which types of measures an organization focuses on is largely dependent on the organization's priorities for improvement. For example, an organization might measure the door-to-operating-room time, a process measure, to assess how quickly patients entering the emergency department with a hip fracture are surgically repaired. Structural measures may

include how many operating rooms are available at any given time and how many orthopedic surgeons are on staff to operate on hip fractures. Ultimately, organizations largely focus on outcomes measures, such as 30-day mortality and complication rates in hip fractures patients, as a marker of the quality of care organizations provide. Organizations can access data from multiple reporting agencies, such as the Agency for Healthcare Research and Quality (AHRQ) Quality Initiative, Center for Medicare & Medicaid Services (CMS), and The Joint Commission, to use for improvement initiatives.

6. What are some of the key elements common to the different tools discussed in this chapter?

Quality improvement tools are the materials and activities that take a design from an abstract concept to a physical structure. Each tool functions within one of seven categories: cause analysis, evaluation and decision making, process analysis, data collection and analysis, idea creation, project planning and implementation, or knowledge transfer and spread techniques.

7. What is the difference between a quality improvement method and a quality improvement tool? Provide examples of each.

The quality improvement method is akin to the process of designing and then planning the construction of a house. The quality improvement tools are the materials and activities that take a design from an abstract concept to a physical structure. Although we can observe people using the tools of the system, the system or model itself is invisible and cannot be observed. “Lean” is an example of a quality improvement model, and “5S” is an example of one of the tools in that method.

Chapter 1: Overview of Healthcare Quality

Chapter Outline

- History of the Quality Movement
- Frameworks and Stakeholders
- Quality Improvement Models
- Quality Improvement Tools
- Study Questions

History of the Quality Movement: Five Important Reports

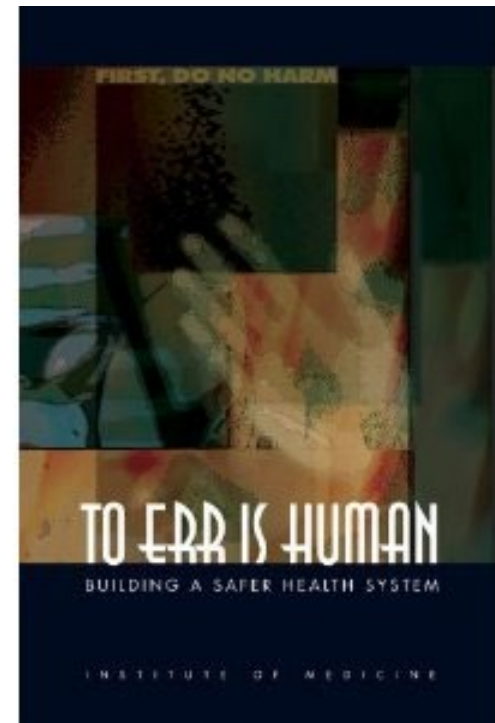
- Quality in the healthcare system is not what it should be.
- Five major reports identify gaps and call for action:
 - The National Roundtable on Health Care Quality’s “The Urgent Need to Improve Health Care Quality” (1998)
 - The Institute of Medicine’s (IOM) *To Err Is Human* (2000)
 - IOM’s *Crossing the Quality Chasm* (2001)
 - The Agency for Healthcare Research and Quality’s (AHRQ) *National Healthcare Quality Report* (2003–2011)
 - National Academies of Sciences, Engineering, and Medicine’s report on *Improving Diagnosis in Health Care* (2016)

IOM's "The Urgent Need to Improve Health Care Quality"

- "Serious and widespread quality problems exist throughout American medicine."
- Establishes the classification scheme of "overuse, underuse, and misuse" to categorize quality defects

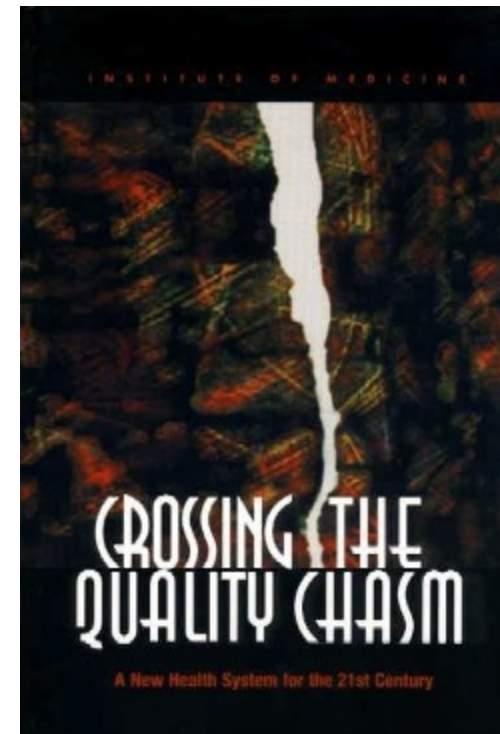
IOM's *To Err Is Human*

- Captured the attention of key stakeholders for the first time
- Framed the problem in a way everyone could understand
- Led to the identification of patient safety as a solidifying force for policymakers, regulators, providers, and consumers

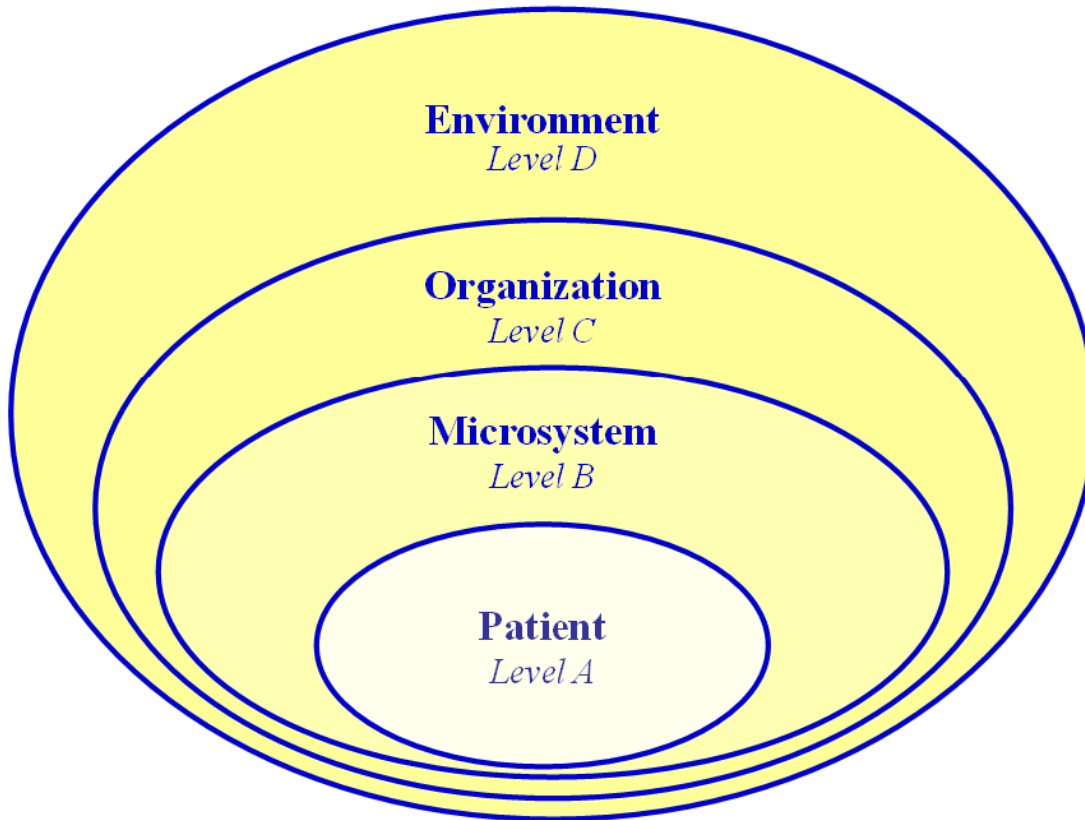


IOM's *Crossing the Quality Chasm*

- Offers a new framework for a redesigned US healthcare system
- Identifies six aims for improvement:
 - Safe
 - Effective
 - Efficient
 - Equitable
 - Timely
 - Patient centered



The Four Levels of the Healthcare System



The underlying framework for achieving the IOM's six aims for improvement depicts the healthcare system in four levels, all of which require changes.

AHRQ's National Healthcare Quality Report

- Identifies areas and opportunities for improvement and highlights progress that has been made
- Developed in combination with the *National Healthcare Disparities Report*
- Aims to answer three questions:
 - What is the status of healthcare quality and disparities in the United States?
 - How have healthcare quality and disparities changed over time?
 - Where is the need to improve health care quality and reduce disparities greatest?

National Academies of Sciences, Engineering, and Medicine's *Improving Diagnosis in Health Care*

- Claims most people will experience at least one diagnostic error in their lifetime.
- Defined as either a missed or delayed diagnosis, diagnostic errors are thought to account for up to 17% of hospital-related adverse events.
- Up to 5% of patients in the outpatient setting may experience a diagnostic error.
- Recommends healthcare organizations involve patients and families in the diagnosis process, develop health information technologies to support the diagnostic process, establish a culture that embraces change.

Frameworks and Stakeholders

- The STEEP Framework
- Stakeholders
- Measurement

IOM's STEEEP Framework

Aim	Definition
Safe	Care should be as safe for patients in healthcare facilities as in their homes.
Effective	The science and evidence behind healthcare should be applied and serve as standards in the delivery of care.
Efficient	Care and service should be cost-effective, and waste should be removed from the system.
Equitable	Unequal treatment should be a fact of the past; disparities in care should be eradicated.
Timely	Patients should experience no waits or delays when receiving care and service.
Patient centered	The system of care should revolve around the patient, respect patient preferences, and put the patient in control.

Stakeholders

- Different stakeholders tend to attach different levels of importance to the elements of the STEEEP framework.
 - Clinicians
 - Patients
 - Payers
 - Administrators
 - Society/public/consumers

Measurement

- Evaluations of care quality can be classified in terms of one of three measures:
 - Structure
 - Process
 - Outcome

Measurement: Structure

- *Structure* measures focus on the relatively static characteristics of the individuals who provide care and the settings in which the care is delivered.
 - E.g., education, training, certification
- Structure-focused assessments are most revealing when deficiencies are found.
- Good quality is unlikely if those who provide care are unqualified or if necessary equipment is missing or in disrepair.

Measurement: Process

- *Process* measures focus on what takes place during the delivery of care.
- Two aspects:
 - *Appropriateness*: whether the right actions were taken
 - E.g., whether the correct test was ordered
 - *Skill*: how well the actions were carried out
 - E.g., how well a surgeon completed a procedure
- The use of process measures to assess quality assumes that if the right things are done and are done well, good outcomes of care for the patient will result.

Measurement: Outcome

- *Outcome* measures focus on whether the goals of care were achieved.
 - E.g., whether a patient's pain subsided, the condition cleared up, or the patient regained full function
- Many factors that determine clinical outcomes (e.g., genetics, environmental factors) are not under the clinician's control.

Measurement: Metrics and Benchmarks

- *Metrics* refer to specific variables that form the basis for assessing quality.
- *Benchmarks* quantitatively express the level the variable must reach.

Measurement

Type of Measure	Focus of Assessment	Metric	Benchmark
Structure	Nurse staffing in nursing homes	Hours of nursing care per resident day	At least four hours of nursing care per resident day
Process	Patients undergoing surgical repair of hip fracture	Percentage of patients who received prophylactic antibiotics on day of surgery	100% receive antibiotic on day of surgery
Outcome	Hospitalized patients	Rate of falls per 1,000 patient days	Fewer than five falls per 1,000 patient days

Quality Improvement Models

- PDSA Cycle
- Model for improvement
- Lean/Toyota Production System
- Six Sigma
- Human-centered design

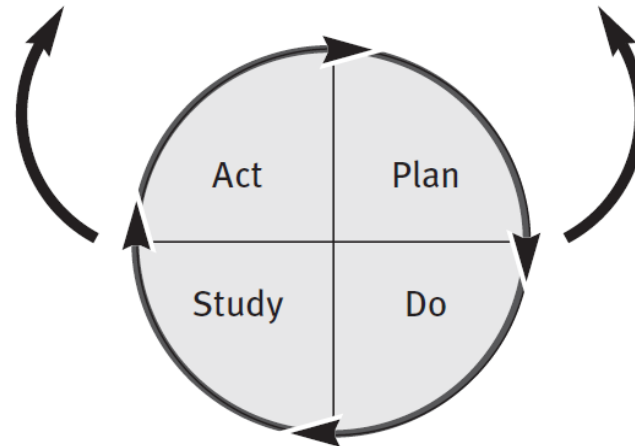
Quality Improvement Models: PDSA

- **Plan.** What are you trying to accomplish? What do you think will happen? What will you measure? Who will do what, where, and when?
- **Do.** Educate and train staff, carry out the plan, document problems and unexpected observations, begin analysis of the data.
- **Study.** Assess the effect of the change and determine the level of success as compared to the goal/objective, compare results to predictions, summarize lessons learned, determine what changes need to be made.
- **Act.** Act on what you have learned, perform necessary changes, identify remaining gaps in process or performance, carry out additional cycles.

Quality Improvement Models: Model for Improvement

Model for Improvement

- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What change can we make that will result in improvement?



Source: Langley et al. (1996). Used with permission.

Quality Improvement Models: Lean/Toyota Production System

- Lean manufacturing, or Toyota Production System (TPS), focuses on the removal of waste (muda) and improving flow.
- Seven forms of waste:
 - Overproduction
 - Waiting
 - Unnecessary transport
 - Overprocessing
 - Excess inventory
 - Unnecessary movement
 - Defects
- Place the needs of the customer first.

Quality Improvement Models: Six Sigma

- The aim of Six Sigma is to reduce variation in key business processes.
- Five steps (DMAIC):
 - Define
 - Measure
 - Analyze
 - Improve
 - Control

Quality Improvement Models: Human-Centered Design

- **Empathize.** Thoroughly understand the motivations, needs, and concerns of the client or user.
- **Define.** Translate the perspectives gained from interviewing and observing the end user into clear design challenges and goals
- **Ideate.** Generate a broad array of potential solutions with minimal self-editing or concern for real or imagined limitations.
- **Narrow.** Identify the most promising solutions usually through the application of specific criteria.
- **Prototype.** Create tangible products representing the potential future solutions, with the goal of communicating back to the end user and further exploring/refining ideas.
- **Test.** Share prototypes and gather feedback, working toward a final solution.

Quality Improvement Tools

- 7 categories of tools
 - Cause analysis
 - Evaluation and decision making
 - Process analysis
 - Data collection and analysis
 - Idea creation
 - Project planning and implementation
 - Knowledge transfer and spread techniques

Quality Tools: Cause Analysis

- Why is actual performance lagging behind optimal performance or benchmarks?
- Examples of cause analysis tools:
 - 5 whys
 - Cause-and-effect / fishbone diagram

Quality Tools: Evaluation and Decision Making

- Collecting, reviewing, and visualizing data can help to identify correlations and patterns to help guide decisions.
- Examples of tools:
 - Scatter diagram
 - Pareto chart

Quality Tools: Process Analysis

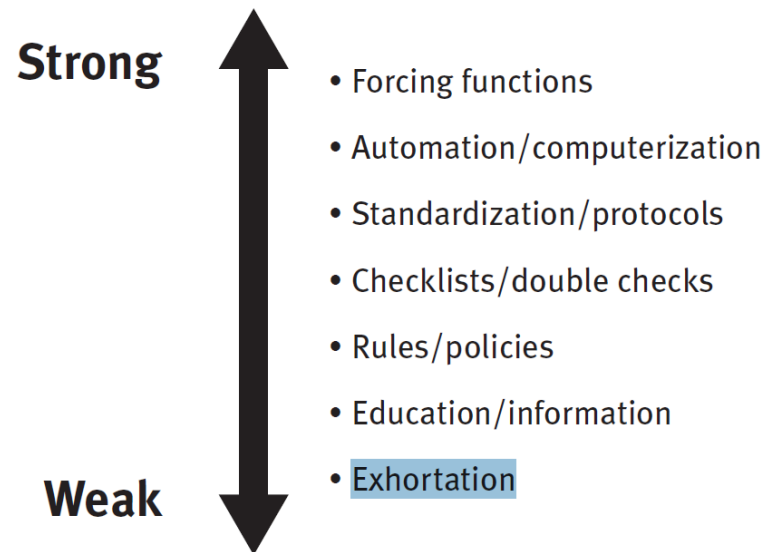
- Fully understanding an existing or proposed process is a vital step in improvement.
- Examples of tools:
 - Flowchart
 - Failure mode and effects analysis / mistake proofing

Quality Tools: Data Collection and Analysis

- Identifying measures, setting benchmarks, and trending performance data is at the heart of quality improvement.
- Examples of tools:
 - SMART aims
 - Run charts and control charts

Quality Tools: Idea Creation

- There is a hierarchy to improvement, with strategies like exhortation and education at the bottom, and systems-based interventions like checklists, automation, and forcing functions at the top.



Source: Adapted from Gosbee and Gosbee (2005).

Quality Tools: Project Planning and Implementation

- Tools that help to organize, prioritize, and communicate are vital to keeping a team on track.
- Examples of tools:
 - Stakeholder analysis
 - Checklists
 - 2x2 matrix
 - 5S

Quality Tools: Knowledge Transfer and Spread Techniques

- A key aspect of any quality improvement effort is the ability to replicate successes in other areas of the organization.
- Examples of tools:
 - Kaizen blitz/event
 - Rapid-cycle testing and pilots

Conclusion

- Healthcare quality is not what it should be.
- The patient is paramount in quality improvement efforts.
- There is promising evidence of the capacity for significant improvement.
- Many examples of breakthrough improvements are happening today.
- Call to action for all healthcare stakeholders to continue to rethink and redesign systems.

Conclusion (cont.)

- The strength of an organization depends on the foundation on which it was built and the strength of the systems, processes, tools, and methods used to sustain benchmark levels of performance and to identify and improve performance when expectations are not being met.