

# Evolutions of Healthcare Quality Improvement and Patient Safety

## 1.1 Introduction



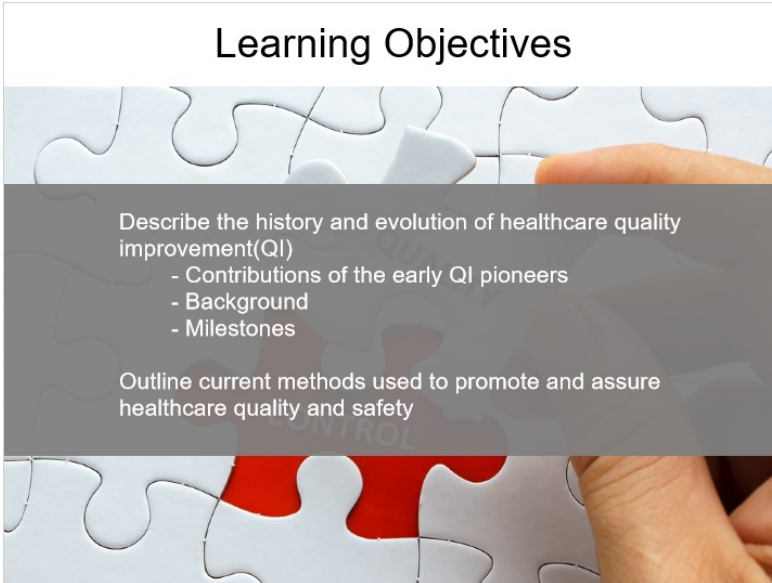
### Notes:

In this presentation, we will be covering the history and evolution of the current healthcare quality improvement (QI) and patient safety movements.

Current healthcare QI methods have evolved, primarily over the past 30 years, from methods applied in manufacturing several decades earlier.

Don't worry about memorizing a lot of details or facts. Sit back and enjoy this excursion through the history and evolution of healthcare QI.

## 1.2 Learning Objectives



**Learning Objectives**

Describe the history and evolution of healthcare quality improvement(QI)

- Contributions of the early QI pioneers
- Background
- Milestones

Outline current methods used to promote and assure healthcare quality and safety

### Notes:

In this presentation, we will be covering the history and evolution of the current healthcare quality improvement Q I and patient safety movements.


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## 1.3 History of QI

### History of Healthcare Quality Improvement QI



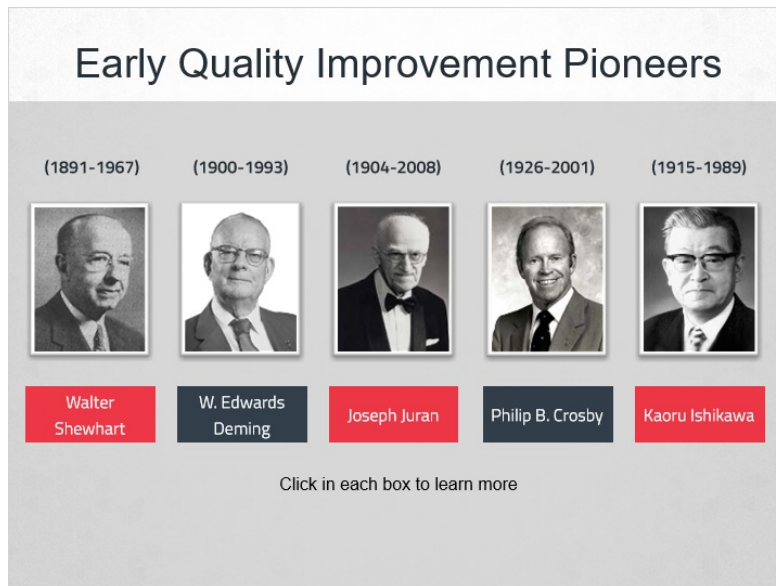
- Early QI pioneers
- Key historical events
- Three eras in the history of healthcare QI
- Impact of the Institute of Medicine's *Quality Chasm report series*
- Current methods used to promote and/or promote quality care and patient safety

#### Notes:

Our discussion on the history of healthcare QI is primarily organized into three eras as described by the National Association for Healthcare Quality.

It will highlight the importance and impact of several key landmark reports by the Institute of Medicine i O M that were key drivers of the current quality and safety movements.

## 1.4 Early Quality Improvement Pioneers



### Notes:

Walter Shewhart and W. Edwards Deming are considered by many to be icons in the field of quality, in both manufacturing where the whole quality movement started and in healthcare.

Shewhart is best known for developing the Plan-Do-Check-Act QI method which was later adapted by W. Edwards Deming as the Plan-Do-Study-Act method.

Deming is also well known for developing what are now commonly referred to as “Deming’s 14 points” or principles, which many consider the basis for transformation of American industry between 1950 and 1980. I encourage you to read it when you have a few moments. Remember that they were written in the wake of World War II when the Japanese were monopolizing many industries previously dominated by the US, including the steel and automobile industries. Essentially, they remind us that QI is a continuous and perpetual process, that training and leadership are pre-requisite to success, and that quality is everyone’s job.

Both quality pioneers were among the earliest to advocate for the incorporation of statistical methods into QI processes.

Joseph Juran and Philip Crosby were two other iconic pioneers in the field of quality.

Juran's contributions to the field of quality include identifying the importance and role of management in quality and creating the Pareto principle concept, commonly referred to as the 80-20 principle referring to the observation that in many situations 80% of effects come from 20% of causes. When applied to healthcare quality and patient safety, this principle can be used to evaluate and focus improvement efforts on factors that have the greatest impact.



He is also credited with writing the first standard reference work on what was at the time known as quality management.

In the 1970s and 1980s Crosby developed an important concept known as the cost of [poor] quality. He documented that high quality is less costly than the waste and rework that characterizes poor quality processes and demonstrated conclusively that investment in quality can offer an enormous financial return to companies and organizations. Crosby also developed a list of 14 steps or principles for improving quality which all focused on his underlying philosophy which has been described as "Doing it right the first time." He published more than a dozen books on QI. The first, entitled Quality is Free, is still the most well-known.

Among the early QI pioneers, Kaoru Ishikawa is also considered an icon. He is credited with development of the philosophy of Total Quality Management, which is considered by most quality experts to be the predecessor to what we now commonly refer to as CQI. His contributions include development of the now famous Ishikawa or fishbone diagram, one of several "cause and effect" analysis tools popular in QI today. This semester you'll be developing your own fishbone diagram for the QI project plan assignment in this course.

## walter (Slide Layer)

**Walter Shewhart (1891-1967)**




Importance of standards as a means to an end

Quality linked to customer needs and financial outcomes

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## Edwards (Slide Layer)

**W. Edwards Deming (1900-1993)**




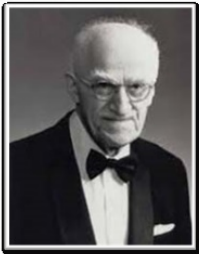
01	CREATE PURPOSE FOR IMPROVEMENT	08	DRIVE OUT FEAR
02	ADOPT THE NEW PHILOSOPHY	09	BREAK DOWN SILOS
03	CEASE DEPENDENCE ON INSPECTION TO ACHIEVE QUALITY	10	NO SLOGANS
04	WORK WITH ONE SUPPLIER TO REDUCE COST	11	NO QUOTAS OR NUMERICAL GOALS
05	CONTINUOUS IMPROVEMENT	12	REMOVE ANNUAL RATINGS OR MERIT SYSTEM
06	ON-THE-JOB TRAINING	13	INSTITUTE EDUCATION AND SELF-IMPROVEMENT PROGRAMS
07	LEADERSHIP	14	INVOLVE ALL WORKERS IN THE TRANSFORMATION

14 Points management philosophy  
Common and special cause variation

[Return](#)

## joseph (Slide Layer)

**Joseph Juran (1904-2008)**

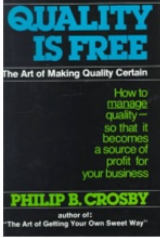



Pareto Principle  
Role of management

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## philip (Slide Layer)

Philip B. Crosby (1926-2001)



Cost of Quality

Quality is Free

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## kaoru (Slide Layer)

Kaoru Ishikawa (1915-1989)



Total Quality Management (TQM) philosophy

Ishikawa "fishbone" diagram

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## 1.5 Background



### Background

**Key elements of the Japanese strategy of Japanese industry in the 1950s**

- Having upper level managers take chart of leading the quality revolution
  - First to widely implement statically-based
- Providing QI training for employees at all levels in every department
  - QI methods proposed by Deming and Shewhart Techniques quickly spread to product and service organizations
- Implementing QI at a rapid pace and continuously
  - Birth of TQM paradigm
- Involving front line workers in QI implementation, including decision making and problem solving

### Notes:

After WW II, the Japanese embarked on a course of reaching national goals through trade rather than by military means. Their reputation in international markets for producing shoddy merchandise was a major barrier. To solve this problem, Japanese manufacturing industry leaders undertook the task of learning how other countries managed for quality, sending teams abroad to study the approaches used by companies throughout the world. During this period, Eiji Toyoda spent three months at Ford's Rouge Plant in Detroit and the rest, as they say, is history.

As a result, they devised a set of unprecedented strategies for revolutionizing the quality of Japanese goods and services. In the 60s and 70s, Japan greatly increased their share of the American electronics, automobile, steel, and machine tool markets, primarily due to the superior quality of their products.

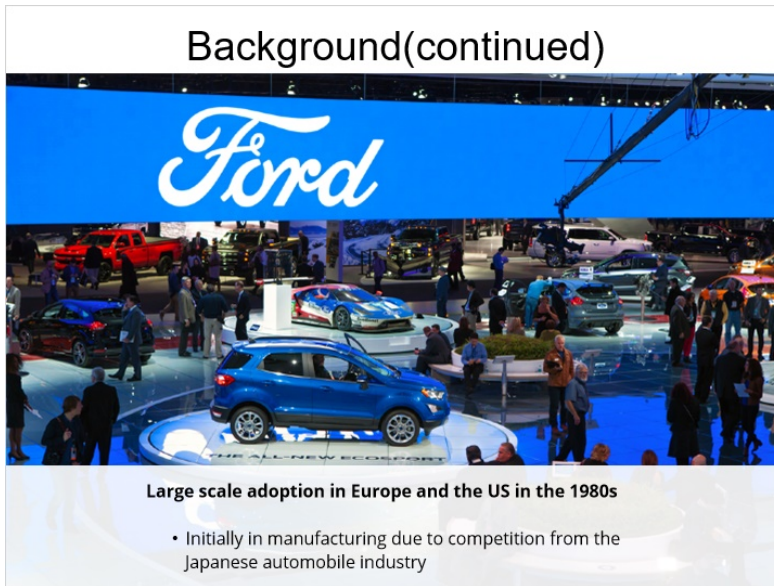
Toyoda eventually adapted what he saw at Ford to develop what later became known as the infamous Toyota Production System.

Key elements of the Japanese strategy included:

- Having upper level managers take chart of leading the quality revolution
- Providing QI training for employees at all levels in every department;
- Implementing QI at a rapid pace and continuously
- Involving front line workers in QI implementation, including decision making and problem solving



## 1.6 Background continued



### Notes:

Ford was among the first US automobile manufacturers to embrace the importance of QI and to launch wide scale implementation of CQI . Some of you may be old enough to remember a popular Ford automobile commercial in the 1980s featuring employees at various Ford Motors facilities and touting that "At Ford, Quality is Job 1."

It's interesting to note that while the US automotive industry suffered immensely during the recent economic downturn that began in 2007, Ford was able to remain afloat without government support and many believe has now emerged perhaps the US industry leader. While Ford's resilience is no doubt in part due to shrewd financial management, it may also be ascribed to the company's emphasis on quality.

## 1.7 Birth of CQI

### Birth of continuous Quality Improvement (CQI)

**NBC documentary**

- "If Japan Can, Why Can't We?"

**PBS program**

- "Quality or Else!"

Deming's "**Out of the Crisis**" published in 1982



#### Notes:

The birth of the modern QI movement began in the early 1980s when NBC and PBS aired two separate and important interviews with W. Edwards Deming (1980) in which he challenged US industries to embrace quality improvement as a method of gaining and maintaining a competitive edge in the world market place.

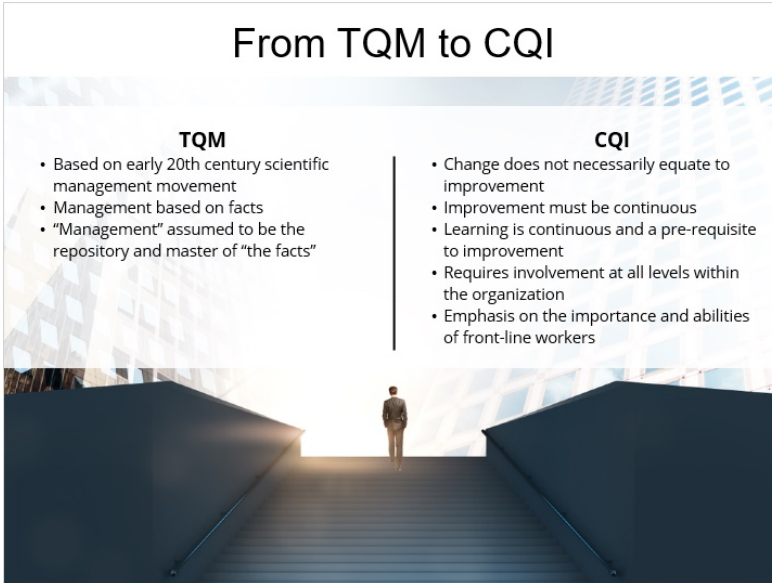
Quality evolution in the US started in the automobile manufacturing industry in the 1980s and quickly began to spread to other fields including computer science, education, and healthcare.

Beginning with Total Quality Management, it eventually evolved into the terms you are most likely to see applied today, Continuous Quality Improvement (CQI) or simply Quality Improvement (or QI), which is how we will refer to it.

Do not get too bogged down with the disparities in terminology and labels you will see in your readings on this topic. They serve as a reminder that while QI in healthcare has come a long way it may still be in its infancy in terms of structure and specification of definitions/approaches.

## 1.8 From TQM to CQI

### From TQM to CQI



TQM	CQI
<ul style="list-style-type: none"><li>• Based on early 20th century scientific management movement</li><li>• Management based on facts</li><li>• "Management" assumed to be the repository and master of "the facts"</li></ul>	<ul style="list-style-type: none"><li>• Change does not necessarily equate to improvement</li><li>• Improvement must be continuous</li><li>• Learning is continuous and a pre-requisite to improvement</li><li>• Requires involvement at all levels within the organization</li><li>• Emphasis on the importance and abilities of front-line workers</li></ul>

## 1.9 History and Evolution

### Healthcare Quality Improvement



<b>ERA 1</b> Nightingale, Codman, and the American College of Surgeons
<b>ERA 2</b> Donabedian and the Joint Commission
<b>ERA 3</b> Berwick, Batalden and James

Click in each box to learn more

### Notes:

Now let's turn our focus to the history and evolution of healthcare QI, which evolved from the lessons learned in the manufacturing sector. Let's look at three eras in healthcare QI, as defined by the NAHQ. The first era is the Nightingale, Codman, and American College of Surgeons era.

Florence Nightingale was a pioneer of the nursing profession and is credited by most sources as being the original pioneer for healthcare quality and patient safety. Noting, in 1863, that patients seemed to fare better in some London hospitals than others, she was the first to call for systematic inquiry into the nature of care processes and their relationship to patient outcomes. Here is a quote from her Notes on Nursing written in 1859.

“I am fain to sum up with an urgent appeal for adopting this or some uniform system of publishing the statistical records of hospitals. If they could be obtained...they would show subscribers how their money was being spent, what amount of good was really being done with it, or whether the money was doing mischief rather than good. “

She envisioned these forward-thinking principles:

- Management of the hospital environment to promote patient healing
- The need to control confounding variables when evaluating care
- Use of statistics and graphics to track patient outcomes
- Identification of a relationship between sanitary conditions and patient survival

Her ideas were furthered by a Boston surgeon, Ernest Codman, whose ideas were embodied in the founding of the American College of Surgeons in 1913. The College established the first Hospital Standardization Program in the US, which focused on identification of factors associated with successful and unsuccessful treatment outcomes.

In the mid to late 1960s, a University of Michigan physician researcher, Avedis Donabedian, gained prominence in the field of healthcare QI following publication of “Evaluating the Quality of Medical Care” in the Milbank Memorial Fund Quarterly in July 1966.

In this article he describes a theoretical framework for patient care evaluation based on a three dimensional “Structure-Process-Outcomes” model for quality evaluation that is still considered the gold standard by many QI experts today. Prior to this publication, Joint Commission survey

standards for hospitals were limited to measures in the structure and process categories. Part of the real value of Donabedian’s work was the model’s emphasis on the importance of relating healthcare structures and processes to outcomes or how patients fared as a result of care and treatment. Prior to Donabedian’s work, the Joint Commission accreditation process was based on an implicit assumption that if proper structures and processes were in place, good outcomes would follow, so his focus on outcomes represented a huge step forward in terms of applying scientific thinking to QI.

The names of Donald Berwick, Paul Batalden, and Brent James, three physician experts in the field of healthcare QI, stand out in the field. Berwick and Batalden are responsible for researching and furthering application of the industrial QI methods evolving from the Japanese experience. Batalden is credited with translating Deming’s famous

14 points to facilitate their application in healthcare. In 1987, Berwick and Batalden were instrumental in creating and establishing the National Demonstration Project on QI in Healthcare. This multiyear project

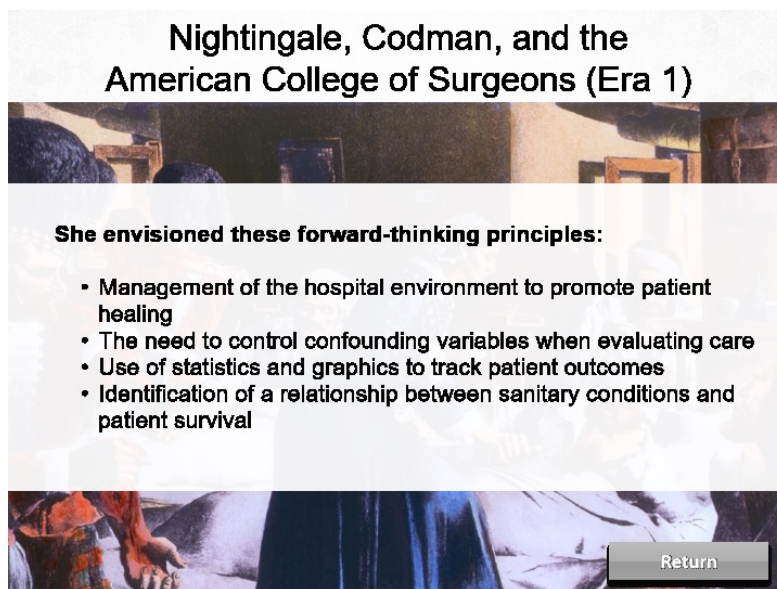
involved 21 forward-thinking healthcare organizations. Outcomes from the project conclusively demonstrated the applicability of the TQM process to

Healthcare, a major milestone in the field of healthcare QI.

James is credited with similar groundbreaking work within the Intermountain Health System, where he led the adoption of TQM for an entire multihospital system and was able to also demonstrate the impact on patient outcomes.

In 1991, Berwick established the Institute for Healthcare Improvement. This organization is a key driver of improvements in healthcare today and you will be hearing more about their national level projects, including QI Collaboratives, and development/application of the rapid cycle improvement model later in the semester.

## Nightingale (Slide Layer)



**Nightingale, Codman, and the American College of Surgeons (Era 1)**

**She envisioned these forward-thinking principles:**

- Management of the hospital environment to promote patient healing
- The need to control confounding variables when evaluating care
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- Identification of a relationship between sanitary conditions and patient survival

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## Donabedian (Slide Layer)

### Donabedian and the Joint Commission (Era 2)

“


Theoretical framework for evaluation

- Structure
- Process
- Outcome

The Joint Commission

- Comprehensive Accreditation Manual for Hospitals




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## Berwick (Slide Layer)

### Berwick, Batalden and James (Era 3)



**Donald Berwick, M.D.**   **Brent James, M.D.**   **Paul Batalden, M.D.**

- National Demonstration Project on Quality Improvement in Healthcare
- Demonstrated the relevance of QI processes to healthcare

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## 1.10 The Big Bang

**The Big Bang**

- 1) Leadership to support knowledge relative to the causes of medical error
- 2) Identifying and learning from errors
- 3) Setting performance standards and expectations for safety
- 4) Implementing Q I and safety systems in healthcare organizations.

### Notes:

In a series of landmark reports issued around the turn of the century, most notably the two depicted on this slide, *To Err is Human and Crossing the Quality Chasm*, the IOM helped to focus the nation's attention on the state of health care delivery, patient safety issues, health professions education, and leadership for nursing practice. The reports described a US healthcare system fraught with errors resulting in needless human suffering, loss of life, and wasted resources and called for fundamental change using a four-tiered approach: (1) leadership to support knowledge relative to the causes of medical error, (2) identifying and learning from errors, (3) setting performance standards and expectations for safety, and (4) implementing Q i and safety systems in healthcare organizations.

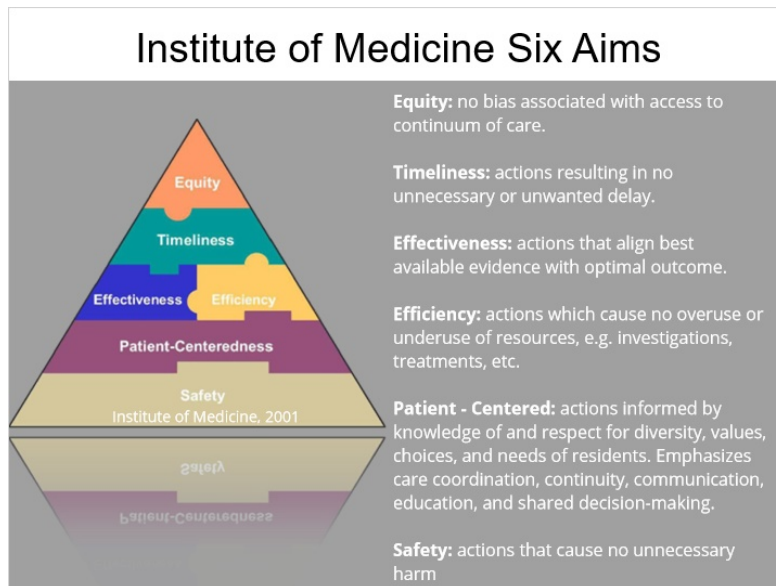
White has suggested that approaching patient safety within an organization requires a review in six key areas: structure, environment, equipment/technologies, processes, people, and leadership/culture. We'll talk about these in more detail later in the semester.

These reports served to illuminate a system fraught with human errors and the financial burden associated with system level failures within the health care industry.

We will talk about the safety-quality continuum and try to clarify the relationship between these two concepts, although there is not universal agreement on this point.



## 1.11 Institute of Medicine Six Aims



### Notes:

In Crossing the Quality Chasm, the IOM outlined six aims for improving the US health system: safety, patient centeredness, efficiency, effectiveness, timeliness and equity. These aims provide the framework for most quality and safety improvement efforts. Notice that safety and patient centeredness form the foundation of the pyramid. We'll come back to the significance of this a bit later in the semester when we specifically focus our discussions on the safety dimension of quality.

The IOM reports and these recommendations triggered the creation of many public and private national initiatives to improve patient care quality...as well as Federal and State legislation.

They also led to wide spread acceptance and acknowledgement of the fact that quality improvement is a professional responsibility of every member of the healthcare team, which has led to integration of QI standards in the educational curriculum for physicians, nurses, pharmacists and other health care disciplines in recent years.

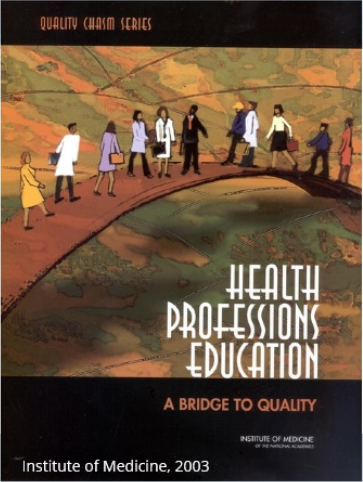
## 1.12 Health Professions Education

### Health Professions Education

Health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team

Five core competencies for health professionals:

- Provide patient-centered care
- Work in interprofessional teams
- Employ evidence-based practice
- Apply quality improvement
- Utilize informatics

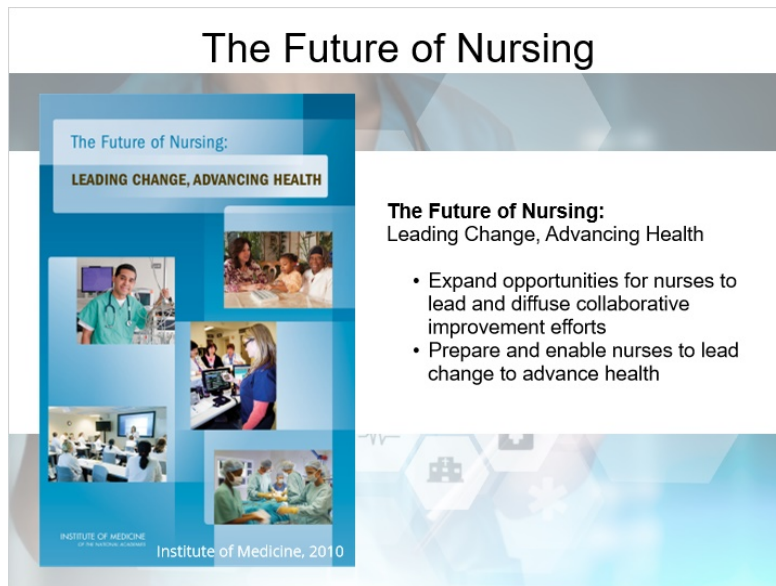


Institute of Medicine, 2003

### Notes:

The IOM was responsible for another major milestone in the evolution of healthcare Q i with publication of their seminal work entitled Health Professions Education in 2003. This reference established core competencies for health professionals, including application of quality improvement methods/strategies, and has been a key driver in the movement to integrate QI education into medical and nursing education programs throughout the country as well as those of other healthcare professionals.

## 1.13 The Future of Nursing



### Notes:

In 2010, the IOM issued yet another landmark report focused on the future of nursing that is likely to have a major impact on the expectations and role of nurses relative to QI and patient safety moving forward.

In this report, the expert panel of authors recommend that government and healthcare organizations

- (a) expand opportunities for nurses to lead and diffuse collaborative improvement efforts
- (b) that nursing education programs should expand opportunities for nurses to lead and manage collaborative efforts with physicians and other members of the healthcare team to conduct research and to redesign and improve practice environments and health systems
- (c) That the Center for Medicare and Medicaid Innovation should support the development and evaluation of models of payment and care delivery that use nurses in an expanded and leadership capacity to improve health outcomes and reduce costs
- (d) That health care organizations should support and help nurses in taking the lead in developing and adopting innovative, patient-centered care models
- (e) That nursing education programs and employers prepare and enable nurses through education, training, and career advancement opportunities, to lead change to advance health...across all levels.

## 1.14 Current Methods



### Notes:

Here is a list of methods currently being used to promote and assure quality and safety in healthcare organizations.

The labeling of these processes and projects vary among authors. Remember that many of these falls under the purview of QI within various healthcare organizations, particularly hospitals.

## 1.15 References

### References

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## 1.16 End of Presentation

### End of Presentation

