My name is Anita Farel. I am in the Department of Maternal and Child Health, UNC at Chapel Hill and currently teach a couple of QI courses. I co-Direct the National MCH Workforce Development Center and work primarily with the Center’s Pipeline Team.

In introducing *Applying Quality Management in Healthcare, A Systems Approach*, author Diane Kelly states

“"The days when quality was the passion of the select few are gone. The focus has evolved from hospital care to include integration across the continuum of care; from
individual patient outcomes to population and community outcomes; from delivering a quality service to ensuring patient safety and providing value; from individual accountability to accountability at the organizations, professional, and industry levels; from defining and measuring quality to public transparency; from health services delivery to the domains of public health and health professionals’ education. The research agenda has expanded from an academic specialty area to an imperative on which policy decisions are based.”

Over the next several weeks, we’ll explore quality in public health. This lesson will focus on: Defining Quality, The Quality Continuum and Quality Measurement.

Slide 3

<table>
<thead>
<tr>
<th>Sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Business and Industry</td>
</tr>
<tr>
<td>• Health Care</td>
</tr>
<tr>
<td>• Public Health</td>
</tr>
</tbody>
</table>

Quality has been adopted sequentially in different sectors.

Quality in business and industry was adopted after WWII.
In healthcare, efforts began as early as the late 1980s.
The past decade has shown a growing emphasis of quality in public health.

Slide 4
This presentation will cover:
• Defining quality
• Characteristics of quality
• The differences between Quality Assurance (QA)/Quality Control (QC) and Quality Improvement
• Methods and approaches to improve quality, and an
• Introduction to quality in public health

Defining Quality

• “The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” IOM, Lohr 1990.
• “The degree to which policies, programs, services, and research for the population increase desired health outcomes and conditions in which the population can be healthy.” Public Health Quality Forum (PHQF), 2008

The concept of quality is “complex and represents a synthesis of lessons, methods, and acquired knowledge from a range of disciplines” (Dalrymple and Drew 2000, 697).
The Public Health Quality Forum (PHQF) defined public health quality for the first time in the 2008 Consensus Statement on Quality in the Public Health System [PDF - 82 KB] as, “The degree to which policies, programs, services, and research for the population increase desired health outcomes and conditions in which the population can be healthy.” Following a review of The Institute of Medicine’s definition of health care quality, the PHQF expanded on that to define public health quality. The definition is applicable beyond governmental public health agencies and includes others that have a public health mission as well (tax-exempt hospitals, NGOs, academia).

As with management practices, the subject of quality in healthcare organizations has been the object of numerous trends, fads, and attempts at quick fixes.

Slide 6

CHARACTERISTICS OF QUALITY

Now let’s turn out attention to the characteristics of quality.

Slide 7
Characteristics of Quality

- Consistency
- Timeliness
- Meeting customers’ expectations
- Meeting technical specifications

Quality applies to both products and services. Specific characteristics of quality are defined in advance and the degree to which the product or service fulfills those characteristics indicate the degree of quality. Some common characteristics of both products and services are: consistency, timeliness, meeting customers’ expectations and meeting technical specifications.

Contemporary Quality

Meeting customer, client and stakeholder requirements and expectations
- Evidence
- Professional standards
- Client preferences
- Funders
- Statutes

Contemporary quality is inherently customer driven. A variety of external sources establish requirements for delivering quality public health services.

At the client-provider level, requirements may be defined by evidence, professional standards and client preferences.

At the program level, requirements may be defined by the funder.
At the health department level, requirements may be defined by statutes.

Slide 9

With regard to services, total quality encompasses both content quality and service quality.

Content quality or technical quality refers to the technical knowledge, expertise, and capabilities of those providing the service. Clients and patients assume the presence of content quality.

Service quality refers to the client’s experience in receiving the service. Both of these types of quality are required to demonstrate total quality.

Consider a county health department that provides reproductive health services. The knowledge, expertise and competency to deliver clinical care falls under content quality. The ability to interact with patients in a way that respects their cultural backgrounds and promotes communication in their native language falls under service quality. One without the other falls short of providing quality reproductive health services.

Slide 10
“There is nothing quite so useless, as doing with great efficiency, something that should not be done at all” (Peter F. Drucker)

Peter Drucker, a management science icon said “There is nothing quite so useless, as doing with great efficiency, something that should not be done at all.”

Doing the right thing at both the strategic and tactical levels requires thoughtful, data-driven decision-making processes that take into account current evidence, community context and other external requirements. Doing the right things right requires carefully designed processes carried out by qualified individuals.

A more contemporary perspective on quality is to reflect upon the following questions:
- Are we doing the right things?
- Is there a better way to do this?
- Are the things we are doing getting us to where we want to end up?

Slide 11

QA/QC AND QI
Now let’s look at the difference between quality assurance, quality control, and quality improvement – three terms often incorrectly used interchangeably.

### QA and QC

<table>
<thead>
<tr>
<th>Quality Assurance</th>
<th>Quality Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>“planned systematic review of [work] processes”</td>
<td>Method of inspection used in QA</td>
</tr>
<tr>
<td></td>
<td>Reviewing the outputs or products of a process</td>
</tr>
</tbody>
</table>

It is important to develop an understanding of quality terminology.

The terms quality assurance and quality control are often used hand-in-hand in public health. Quality Assurance refers to the “planned systematic review of [work] processes”. Reviewing the clinical records of a care coordinator to assess whether their case load is in line with the recommended guideline is an example of quality assurance. If such a review demonstrated that a care coordinator was managing a case load of over 100 clients (double the recommended standard of 50 clients per care coordinator) one would question if quality is being compromised.

Quality control is a primary method used in quality assurance. Quality control focuses on reviewing the outputs or products of a process.

Consider this: you are writing a grant proposal and must include specific information stated in the request for proposals (RFP). Reviewing the document before submission to verify that all points requested in the RFP are included in your proposal is an example of quality control.
Another way to look at QA / QC is to find, repair or discard faulty outputs or defects. Some refer to QA/QC as the “bad apple” approach.

For example, the fliers for a health fair you are sponsoring at the local school have just come back from the printers. You notice that the school address is incorrect. You must now throw the fliers away and reprint them.

In some cases, the defect may not be readily noticeable and is not discovered until a later time. For example, the parents of a medically-fragile newborn are sent home with various types of equipment and monitors. Before discharge from the NICU, the family receives instruction on the operation of the equipment and correctly demonstrates proper use of the equipment.

Once home, the visiting home health nurse notices that one of the monitors has not been set up to operate correctly. She demonstrates correct set up and operation of the equipment so the family will be able to care for their infant safely.
Another way to think about quality assurance is an illustration of a normal distribution or bell curve. Standardized tests in education can be used as an example. The results of hundreds of students are computed and when plotted, resemble a normal distribution. The mean is represented by the x bar and the width of the curve represents the variation in scores.

If the low scores are thrown out, the mean will automatically increase due to the higher values used to calculate the mean; however, the performance of the individual students has not changed.
If we consider the health education teaching example just given, one may have a false sense of quality if behavior is measured at NICU discharge only. Essentially, the future defect (as defined in this example as the parent not knowing how to operate the equipment properly) would not be included, as in this illustration.

Quality improvement focuses on finding root causes of problems and repairing faulty processes that result in faulty outputs (products or services).

In the previous health education example, if successful home care and infant health and safety are the desired outcomes, changing the time frame for measurement by including the post discharge-to-home period and adding the visiting home health nurse are examples of improving the underlying processes to ensure the parent’s ability to appropriately care for their newborn.
Consider another example: your prenatal clinic is experiencing a high number of patient no-shows for appointments. You have been collecting data on the number of no-shows every day for three months and plot the mean and variance as shown on this slide.

Improving the process by scheduling appointments at convenient times for the patient, using reminder systems, and arranging transportation so patients may keep their prenatal appointments are examples of quality improvement. This slide represents the no-shows for the three months after implementing the improved process. The entire performance curve has shifted (arrow a) toward the left indicating that the mean performance has changed in a favorable direction. The width of the distribution (arrow b) has narrowed indicating a more consistent and dependable process. By improving underlying processes, quality improvement seeks to improve performance and reduce performance variability.
Now let’s explore methods and approaches to improve quality in public health.

“Originating from industrial applications of quality improvement, the Shewhart cycle (the PDCA and PDSA cycles are interchangeable) consists of four steps: plan /do/study or check/ and act. The steps are linked to represent the ongoing cyclical nature of the approach. The steps in this systematic and continuous approach to improvement are (ASQ 2010b):
• **Plan:** Identify an opportunity and plan for change.
• **Do:** Implement the change on a small scale.
• **Check or Study:** Use data to analyze the results of the change and determine whether the change was an improvement.
• **Act:** If the change was successful, implement it on a wider scale and continuously assess your results. If the change did not work, begin the cycle again.

The Model for Improvement from Nolan, is a widely-accepted approach to quality improvement.

The Shewhart cycle is enhanced by adding the question “what are we trying to accomplish?” to help clarify the problem that needs to be solved.

The next question, “How will we know if change is an improvement?”; is a measurement question.

The third question, “What change can we make that will result in improvement?”; is a brainstorming question.

The National Institute for Children’s Healthcare Quality or NICHQ has adopted and successfully used the Model for Improvement in multistate improvement initiatives such as improving systems of care for children with special health care needs.
Lean thinking is an approach that originated in manufacturing and is a philosophy based on eliminating waste. Reworking, or repeating a task because it was not done correctly the first time, is an example of waste. Lean thinking tools focus on production systems, scheduling, and wait times. The lean approach has its own set of tools that help individuals reduce waste in the workplace. Many organizations adopt Lean as their quality improvement approach of choice and conduct widespread training by certified trainers.

Six Sigma is an improvement approach based on the philosophy “that views all work as processes that can be defined, measured, analyzed, improved and controlled” (Benbow and Kubiak 2005, 1–2). Six Sigma is a rigorous and disciplined approach using improvement tools, methods, and statistical analysis. The phrase “six sigma” is a statistical term referring to the goal of driving defects to zero. Six Sigma quality is considered 3.4 defects per million (ASQ 2010c). Like Lean, Six Sigma has a distinct set of tools and a distinct methodology. Many organizations adopt Six Sigma as their quality approach of choice with widespread training by certified instructors. If someone is trained as a “black belt” this refers to the highest level of Six Sigma expertise.
Now let’s shift slightly from specific QI methods to an overview of QI management approaches.

Total quality (TQM) is “a philosophy or approach to management that can be characterized by its principles, practices, and techniques. Its three principles are customer focus, continuous improvement, and teamwork . . . each principle is implemented through a set of practices . . . the practices are, in turn, supported by a wide array of techniques (i.e., specific step-by-step methods intended to make the practices effective).” (Dean and Bowen 2000, 4–5). Any of the QI methods described on the previous slides (for example, Six Sigma or Lean) meet the continuous improvement principle in Total Quality Management.

Organizational effectiveness is a theoretical base resulting from the overlap between quality theory and management theory. This theoretical base bridges the research-practice gap. It helps managers better understand, explain and improve the organization. (Dean and Bowen 2000)

Quality management refers to the manager’s role and contribution to organizational effectiveness. Quality management, for our purposes, refers to how managers operating in various types of health services organizations and settings understand, explain, and continuously improve their organizations to deliver quality patient care, promote quality patient and organizational outcomes, and improve health in their communities.

Slide 24
Quality

<table>
<thead>
<tr>
<th>Quality Control</th>
<th>Inspecting to fulfill requirements or specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Assurance</td>
<td>Finding and repairing faulty products</td>
</tr>
<tr>
<td>Quality Improvement</td>
<td>Finding and repairing faulty processes</td>
</tr>
<tr>
<td>Six Sigma</td>
<td>Aggressively repairing processes to reduce defects to zero</td>
</tr>
<tr>
<td>Lean Thinking</td>
<td>Eliminating waste</td>
</tr>
<tr>
<td>Total Quality</td>
<td>Managing differently</td>
</tr>
<tr>
<td>Organizational</td>
<td>Understanding and improving the system</td>
</tr>
<tr>
<td>Effectiveness</td>
<td></td>
</tr>
</tbody>
</table>

To summarize

Quality Control focuses on fulfilling requirements or specifications.

Quality Assurance focuses on finding, repairing or discarding faulty *products*.

Quality improvement focuses on finding and repairing faulty *processes*.

Six sigma focuses on aggressively repairing processes to reduce defects to zero.

Lean thinking emphasizes eliminating waste.

Total Quality Management is a way of managing differently.

Organizational effectiveness seeks to both understand and improve the system.
In wrapping up this discussion, let’s turn our focus to quality in public health.

As a reminder, quality in public health has been defined by the Public Health Quality Forum as “the degree to which policies, programs, services, and research for the population increase desired health outcomes and conditions in which the population can be healthy.” (PHQF, 2008)
National public health leaders have selected the following characteristics to describe the quality of public health policies, programs, and services:

- population-centered,
- equitable,
- proactive,
- health-promoting,
- risk-reducing,
- transparent,
- effective, and
- efficient.

The readings for this week describe in detail how the definition came about and how the characteristics (also referred to as aims) were chosen. You will also read about what these terms mean—both as they define the characteristics of quality in public health and as they serve as aims to guide public health quality efforts.
To summarize, in this lesson we:

- Defined quality
- Described characteristics of quality
- Differentiated Quality Assurance (QA)/Quality Control (QC) and Quality Improvement
- Described several methods and approaches to improve quality, and
- Defined quality in public health and introduced characteristics that describe quality in public health.