## INTRODUCTION TO QUALITY IMPROVEMENT

Quality improvement (QI) in health care is the combined and unceasing efforts of everyone (health care professionals, patients, families, researchers, payers, planners and educators) to make changes that will lead to better patient outcomes, system performance, patient experience and professional development.

## QUALITY MEASURES

Quality measures provide a framework for assessing and understanding quality in health care.

<table>
<thead>
<tr>
<th>Structural Measures</th>
<th>Outcome Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflect the underlying design of the health care system and measure capacity of the system to deliver quality care. Example: nurse-to-patient ratios in the ICU.</td>
<td>Health state of patients resulting from health care, such as changes in physiology that lead to longer-term health outcomes. Example: blood pressure.</td>
</tr>
</tbody>
</table>

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<th>Process Measures</th>
<th>Balancing Measures</th>
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<td>Assessments of activities carried out by health professionals to deliver services and services generally provided for preventive care and management of acute or chronic disease. Example: percentage of patients receiving prompt antibiotics after recognition of sepsis.</td>
<td>Look at whether changes designed to improve one part of the system impact other parts of the system; unanticipated consequences—positive or negative. Example: program to decrease hospital length of stay increases the number of readmissions.</td>
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## DATA SOURCES

At the core of any QI initiative is data. Data is needed to define the extent of the problem and to assess the impact of changes. Measures are taken from many data sources, each with strengths and weaknesses.

<table>
<thead>
<tr>
<th>Administrative Data</th>
<th>Data Abstracted from Patient Records</th>
<th>Survey Data</th>
<th>Direct Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Includes patient demographics, physician name, diagnoses, procedures and discharge location. Collected for administrative or billing purposes and can be leveraged in QI Example: hospital readmission within thirty days for congestive heart failure.</td>
<td>Can provide more clinical details than administrative data, such as adherence with evidence-based standards of care. Example: percentage of patients screened for depression using a screening tool and treated if diagnosed with depression.</td>
<td>Collected by tools to capture self-reported information from participants. Administered by mail, telephone or the internet. Example: survey of patient satisfaction or experience.</td>
<td>Some behaviors are best collected via direct observation. Example: hand hygiene compliance among health professionals by observing if they wash their hands.</td>
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</tbody>
</table>

(Data Sources continued on next page)
DATA SOURCES (cont’d)

<table>
<thead>
<tr>
<th>Registries Focused on Specific Populations</th>
<th>Data is collected to evaluate outcomes for specific populations of patients. Data is abstracted into a standard tool, submitted to a clearinghouse and analyzed. Example: comparison between hospitals of infection rates after colon surgery.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surveillance Data</td>
<td>Collected and analyzed to understand the health of a population. Does not focus on individual patients or clinical encounters. Example: hospital-acquired infection rates.</td>
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</table>

QUALITY IMPROVEMENT METHODS

QI efforts begin with clearly defining the problem or issue and the data needed to determine successful improvement. Then the appropriate QI method is selected. No one method is ideal for all situations. All methods use the underlying principles of systems thinking, standardization and feedback loops.

- **Model for Improvement**
  - Involves clearly defining the problem or aim, establishing quantifiable measures, selecting ideas for change and selecting the right team. Once the team is ready to implement a change idea, then one of the other QI methodologies, such as plan-do-study-act (PDSA), is used to test it in a methodical manner.

- **Plan-Do-Study-Act**

- **Lean**
  - Focuses on maximizing efficiency by eliminating every form of waste (non-value added activity) and to simplify and maximize value by putting the right processes and procedures in place.

- **Six Sigma**
  - Seeks to eliminate variation by minimizing defects in a process. Sigma is a statistical unit that compares how many standard deviations a process is performing compared to perfection. Level of sigma performance (1 to 6) correlates to defects per million opportunities. Six Sigma performance is achieved through systematic steps to identify and address the root causes of variation.

INTERVENTIONS TO ADDRESS HEALTH CARE QUALITY ISSUES

Interventions to address issues in health care quality include:

- Leadership and board of directors accountability
- Front-line engagement and team-based care
- Standardization protocols and order sets
- Clinical decision support
- Equipment redesign and forcing functions
- Change management

QUESTIONS TO ASK:

- How do we know what works and what does not work in health care?
- How does a health system go from defining a problem to developing a solution?
- How will you embrace your role in improving the quality of care and make changes that will lead to better health care, satisfaction and learning?