Quality and Safety Series

Data Plan
OBJECTIVES

• Describe the importance of a data plan in the quality improvement (QI) process.
• Identify key elements of a data plan.
• Discuss the use of a data plan.
Why Do We Need Data?

Data measure the **quality**, **efficiency**, and **value** of care we provide.

- Identify opportunities for improvement.
- Measure effectiveness of interventions.
- Improve patient and population health outcomes.
- Identify disparities and improve health equity.

“If you can’t measure it, you can’t change it.”

– Peter Drucker
What Is a Data Plan?

“A well thought out approach to collecting both baseline data as well as data that can provide clues to root causes.”

Data Journey

- Collecting Data
- Tracking Data
- Analyzing Data
- Acting on Data
## Types of Measures

<table>
<thead>
<tr>
<th>Measure Type</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Measures</td>
<td>Assesses the context or framework in which care is delivered.</td>
<td>Does your hospital use e-prescribing for controlled substances?</td>
</tr>
<tr>
<td>Outcome Measures</td>
<td>Assesses the effectiveness of care or the result of care.</td>
<td>Rate of opioid-related adverse drug events.</td>
</tr>
<tr>
<td>Balance Measures</td>
<td>Assesses for unintentional outcome(s).</td>
<td>Decreased opioid prescribing results in an increase in patient pain rates.</td>
</tr>
</tbody>
</table>
Types of Quantitative Data

- **Discrete data**—include only integers, such as counts.
  - Number of patients
  - Number of infections

- **Continuous data**—include measures on numbers on a scale or continuum.
  - Time to discharge
  - Length of stay
  - Patient weight
Data Source

- Look for existing data sources.
  - Discrete data versus narratives
- Access available, existing reports.
  - Complexity of new report
- Establish an automated process.
- Abstracted measures are more labor intensive.
- Always weigh the data burden.
- Consider who will collect, monitor, and analyze data.
- Do not make it too complex—will others understand?
What to Measure

Select measures that directly tie to the outcome you are trying to achieve.

Use **outcome measure(s)** to monitor **success**.

Use **process measure(s)** to monitor **compliance**.

Consider using the CTQ (critical to quality) tree to identify key measures.
Why Use a CTQ Tree?

• To assist in developing a data collection plan.
• To identify key metrics.
• To ensure you are meeting the needs of your customers.

Components of the CTQ Tree

- Critical need
  - VOC
  - Customer’s expectation
  - General

- Quality driver
  - Factor to meet customer’s expectation or need

- Performance requirement
  - Metric to measure the quality driver
## CTQ Tree: Example 2

<table>
<thead>
<tr>
<th>Critical Need</th>
<th>Quality Drivers</th>
<th>Performance Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Service</td>
<td>Staff availability and skill set</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bed availability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emergency department throughput</td>
</tr>
<tr>
<td>Good Care (VOC)</td>
<td>Cost</td>
<td>Maximize fast-track care/efficiencies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appropriateness of care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consolidate/centralize services</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td></td>
<td>Timely</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transparent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attentive staff</td>
</tr>
<tr>
<td>Clinical Excellence</td>
<td></td>
<td>Accurate diagnosis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appropriate treatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Timely care</td>
</tr>
</tbody>
</table>
Measure Definition: A standardized, clear, and concise definition that provides the details of what is being measured.

“Time of ED registration to time of discharge in minutes.”

Operational Definition: Provides the details on collecting and recording data—the who, what, when, and where.

“Daily report that will be automatically generated from the electronic medical record (EMR) and disseminated to the ED manager and quality director.”
Baseline data, or baselining, is the measurement of outcome or performance prior to an intervention.

- Confirm that data reflect the current state.
- Use the measure definition.
- Ensure there are enough data points.
- Watch for seasonal impacts.

https://www.whatissixsigma.net/baseline-measurement/#:~:text=Baseline%20Measurement%20or%20Base%20lining,improvement%20or%20change%20initiative%20is.
Sampling

- Most often used with abstracted measures
- Decreases data collection burden
- Used when target population is very large
- Must have a large enough sample size to represent the population
  - Power or type II errors
  - Confidence level—at least 95%
  - Can use a sample size calculator

- Sampling method
  - Simple, random sampling where each case is chosen by chance from the eligible population
  - Can use a random sampling calculation in Excel
  - Can use a randomizer tool
# Putting It All Together

## Data Collection Plan

A data collection plan is a document that communicates the details of the who, what, when, where, and how of each measure that will be used to support a quality improvement project. Having a well thought out and purposeful plan to collect meaningful data that will serve as a baseline, measure progress, and monitor sustainability is critical to the success of a quality improvement initiative. A key consideration is to identify already existing and readily available sources of data to decrease the burden of measure abstraction.

Tip: Include someone from IT or electronic medical record (EMR) report team who is familiar with the system, data, and reporting capabilities.

<table>
<thead>
<tr>
<th>Measure Name</th>
<th>Measure Type</th>
<th>Data Type</th>
<th>Data Source</th>
<th>Measure Definition</th>
<th>Operational Definition</th>
<th>Established Baseline</th>
<th>Sampling Methodology</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED Throughput</td>
<td>Process Measure</td>
<td>Continuous (Time)</td>
<td>EMR</td>
<td>Time of ED registration to time of discharge in minutes</td>
<td>Daily report that will be automatically generated from the EMR and disseminated to the ED manager and quality director</td>
<td>CY 2020</td>
<td>100% Sampling</td>
<td>ED Manager</td>
</tr>
</tbody>
</table>

Thoughtful Planning on the Front End

- Take your time and think through details.
- Engage a multi-disciplinary team.
- Include subject matter experts (EHR and IT).*
- Consider collecting test data for a small period of time to identify any barriers.
- When you think you have it right, review it again!

Lack of thoughtful and thorough planning on the front end leads to confusion, barriers, and rework on the back end!

*EHR = electronic health record, IT = information technology
Key Take-Aways

• A data plan is a standardized, clear, and concise blueprint that provides the details of the what, why, when, where, how, and who of what is being measured for a QI project.

• Identify both process and outcomes data so adherence and success can be measured.

• Consider data burden when identifying measures to be used.

• Take your time and thoughtfully work through a data management plan to avoid confusion and barriers; rework after the project begins.
Thank you!

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