- ***Educational & Professional Development***

A Roadmap for Measuring Quality in Health Care

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Measuring quality in health care and using statistical tools in continuous quality improvement has become an imperative need. Selecting appropriate measures of process and results is a critical part of a quality system. In determining what measures to use many factors must be considered, such as the purpose of measurement, type of measurement, who will use the information and the reliability and validity of the measures. However, the emphases must be on practicality and relevance of statistical tools and measures used.

Purposes and Types of Measurement in Healthcare:

When establish and evaluate an organization's measurement system we should select appropriate type of measures for different uses and should reflect the purposes of measurement. Three purposes have been identified for measurement in healthcare:

a- **Assess performance** in comparison with standards, establish benchmark, and identify opportunities for improvement.

b- **Improve processes and control processes** through discovering actions that will improve performance and evaluating effects of improvement actions.

c- **Control processes** by maintaining process stability and adjusting to changing situations.

Measurements are categorized into three types:

a- Measurements of structures include characteristics of manpower, availability of equipment and supplies, the ownership of a hospital, availability of equipment, staffing levels, etc.

b-Measurements of processes are the components of the encounter between a healthcare professional and a patient, for example, the medication administered, laboratory test done, radiological examination performed, or the surgical procedure completed. A clinical process measure assesses performance based on adherence to established clinical standards. Number of women attending at least five antenatal visits, maintenance of equipment, the

time to prepare meals in hospital kitchen, the number of unoccupied rooms in outpatient clinic are all example of process's measurements.

c-Measurements of outcomes include outcome data and costs incurred. by producing a specified healthcare output. Outcome data refer to the patient's subsequent health status and include observed outcomes like mortality, morbidity, and patient perceived outcomes such as satisfaction and quality of life.

Uses of Different Types of Measurements:

Measurements of structure and processes are used to improve processes and control processes because. All services can be improved only by changing process that produces them. It is possible to maintain desired levels of service performance by monitoring key process measures. On the other hand, measurements of results are of immediate interest to customers, and they assess performance, identify processes in need of improvement and measure the effects of implementing process change.

Roadblocks to Good Measurement:

1. *Measurement is Threatening:* - There is always an employee's fear of not achieving the management's expectations with subsequent loss of incentives and jobs. This especially occurs if the management uses data as a means for intimidation and control. The employee then wonders "Why should I participate in a measurement system that will be used against me?"

2. *The Desire for Precision*: - The federal government at the US classifies healthcare jobs as "service jobs" rather than "scientific jobs" along with jobs at car repair and beauty shops. Sure, we use science and technology to accomplish work at healthcare organizations, but ultimately healthcare is considered as a service. Many people in our profession use the illusion of precision as an excuse for not measuring though quality measurement does not have to be as precise as measurement in controlled experiments. Here, we are not conducting research; we are just trying to understand the variation that lives within our processes to make things more effective and more efficient for those we serve.

The basic purpose of quality measurement is to inform the organization if it is moving towards its goals and objectives. If an organization spends its time developing academically and scientifically precise measures, it will probably never get started on its quality measurement journey.

3. *Limited Knowledge of Statistical Process Control (SPC):-*

This roadblock relates to skills and competencies with quality measurement tools and techniques. Though most healthcare professionals have had at least one course in statistics at some point in their careers, yet SPC is a separate and distinct body of knowledge from the traditional statistical methods.

4. Numerical illiteracy: -

Numerical illiteracy is not a failure with arithmetic, but it is instead a failure to know how to use the basic tools of arithmetic to understand data.

Indicator's Selection and Development:

Continues quality improvement (CQI) is the continuous studying and improvement of the processes of providing health care services to meet the needs of individuals and people. CQI begins with listening to the voice of customers (VOC). Customers define quality and set the expectations for performance. If you asked customers for their opinions, they would usually provide feedback. But it begins with the desire to listen. Once you listen (really listen) to those you serve, you will be better positioned to respond appropriately. After listening to the Voice of Customer and understanding the customers' needs and expectations, these performance expectations should be translated into indicators that can be measured and tracked. In addition, these indicators can be used to motivate people since most of them are motivated to improve their performance if they are provided with relevant feedback.

What is an Indicator?

It is an observation expected to measure a certain aspect of performance. It is a measure which quantifies dimensions of structures, processes, or outcomes. It is a tool yielding such values as a rate, a ratio, an index, or a percentage – that indicates an organization's performance in relation to a specified process or outcome.

Reliable and valid indicators must be established so key elements of an organizational function can be monitored. Participation in the selection or development of indicators is a fundamental role of the quality professional.

The indicator selection process:

When selecting organizational activities for which indicators shall be developed, there should be focus on high-risk, high-volume-, high-cost, or problem-prone activities. Examples of high-risk processes include:

- *High-risk processes and interventions*:

  Medication delivery/administration, surgery, blood transfusions, and use of restraints.

- *High-risk patients*: patients with reduced renal function, patients who are immune-compromised, neonates, patients in critical care units
- *High-risk medications*: heparin, insulin, chemotherapy, opiates.

High Volume Services (Priority services):

To identify priority services, it is important to understand the populations of interest: What types of patients do we serve? What are the most common diagnoses? What are our most frequently performed surgical procedures?

Problem Prone Activities: can be identified from patient and providers complains or persistent noncompliance with the standards.

After deciding the aspect to be measured *(e.g.,* patient safety), the next step in the journey is to select a specific indicator that allows to measure a dimension of this aspect, whether this dimension is a structure, a process, or an outcome. For example, if we address patient safety, an indicator might be the inpatient falls rate (the number of inpatient falls per 1000 patient days). Obviously, there are many indicators that could be used to measure patient safety. The major challenge at this point is to decide from all the things that you could measure which one or more indicators are vital for your organization.

Developing Operational Definition:

After selecting a specific indicator, you should develop a clear operational definition for the indicator. For example, a clear definition of "fall" is critical *(e.g.}* it might include or exclude near falls, partial fall, falls with injuries, falls without injuries, and assisted falls. Some might even include staff and visitor falls in the count. An operation definition (OD) is a description, in quantifiable terms, of what to measure and the specific steps needed to measure it consistently. A good OD should be clear including the numerator, denominator, and sources for data for each.

Developing Data Collection Plan:

After developing the operational definition for the indicator, you should, develop an appropriate data collection plan. A well-developed data collection plan should address issues such as the frequency of data collection, stratification issues, sampling design, and collection methods. Data presentation and analysis will follow which necessitate basic statistical skills and may need statistical software. Inadequately prepared data collection plans will usually produce unacceptable results.

Describe the Data Reporting Plan:

- who will receive the results?
- how often will they receive the results?

Finally, an action should be taken after obtaining the results of analysis. Data without a context for action are useless. Quality improvement requires action. Data collection should not become the goal of a CQI team; action to make things better for the customer is the goal. If an action is not taken, then time and effort spent on data collection and analysis would be in vain.

Indicator Development Form:(Identification of an indicator):

To standardize your measurement process, you need to develop an identification card for each selected indicator, including the suggested following items:

- What is the specific name of this indicator?
- What is the rationale for this indicator?
- What is the type of this measure?
- List of the organizational unit (s), department (s), function (s) to which the indicator applies:
- This indicator will satisfy the following objective (s), or dimensions: access, effectiveness, efficiency, safety, timeliness…etc.
- Describe the data collection plan: numerator and denominator and sources of data.
- Does the data collection require sampling?
- Is there a current baseline data for this indicator?
- Is there a target or goal for this indicator?
- Describe the analysis plan: descriptive statistics that will be used, and tabular presentation or graphs that will be used.

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