

Role of data in QI

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The modern quality improvement practices have initially been influenced by the continuous improvement in the automotive industry. These practices have been adopted in the healthcare system to deliver safe, consistent, and effective care to patients. Qualitative and quantitative data can be used to answer questions, monitor changes, and inform decision-making within a healthcare system (Figure 1). Use of data in quality improvement differ from traditional research with the expectation to assess results in shorter intervals and to incorporate existing evidence correlated with high-quality care into practice rather than posing new evidence.

Figure 1

Data in Quality Improvement?

Measuring and tracking data in quality improvement can improve patient care at a various system levels by:

1. Identifying priorities of healthcare and selecting areas for change
2. Monitoring existing systems and changes secondary to intervention
3. Defining success of intervention and whether implemented intervention was responsible for the change

Types of Data

Types of Measures in Quality Improvement

A healthcare system is comprised of multiple factors and sources that affect outcome. Similarly, multiple data measures are required to understand the performance of a complex system and monitor quality improvement. The Donabedian model classifies measures to assess and compare the quality of healthcare systems in forms of outcome, process, structure, and balancing measures.

Types of Data

Figure 2

What Data Do We Need?

Within a healthcare system, a range of data measures can be selected to examine the pre- and post-intervention states:

Outcome Measures

Evaluate the impact of healthcare provision on the status of patients and populations

- Aim: To reduce the rates of surgical site infection following open aortic surgeries
- Outcome measure: 30-day surgical site infection rate

Process Measures

Evaluate quality of the method used to deliver the desired outcome

- Aim: To reduce wait time for patients with chronic limb-threatening ischemia by using a new referral form
- Process measure: Percentage of referrals received that are appropriate or require further information

Structure Measures

Evaluate the capacity of the environment, service, and provision of care

- Aim: To improve operating room efficiency
- Structure measure: Proportion of circulating nurses to number of active operating rooms

Balancing Measures

Evaluate the unintended consequences of the change that can be positive or negative

- Aim: To reduce the length of stay following lower-extremity revascularization
- Balancing measure: Readmission rate, discharge disposition