How Do You Turn Hospital Quality Data into Insight?
Data-driven quality improvement is one of the cornerstones of modern healthcare. Hospitals and healthcare providers now record, track and monitor data on dozens of individual indicators spanning patient safety, prevention and inpatient care. Even a small facility may collect thousands of data points daily. But is all this data really making a difference?
The Centers for Medicare and Medicaid Services (CMS) requires hospitals to report key measures such as adverse events and hospital readmissions in order to qualify for reimbursement. All this data collection provides a treasure trove of data points that hospitals could use to make quality improvement decisions. However, in many hospitals, data collection and reporting is not effectively connected to decision making. In order to drive real and measurable improvement, 

**hospitals need to be able to turn quality indicator data into clear, understandable information and actionable next steps.**
The promise of data-driven healthcare is twofold. First, data can help hospitals make decisions that improve patient outcomes. Second, data can be used to find inefficiencies and reduce healthcare costs. In order to achieve these results, data must not only be collected but also actually be used.

What makes data usable? To make a difference in patient outcomes and healthcare costs, quality improvement data must be easy to find, use and understand. Effective QI data share four critical characteristics:

1. **ACTIONABLE**
   Hospitals and other healthcare providers need analytic tools that turn data points into decisions. For example, improvement professionals need to be able to identify the factors that contribute to adverse events and analyze the risk factors that are correlated to different outcomes in order to make effective mitigation decisions.

2. **TIMELY**
   Many hospitals rely on CMS and Agency for Healthcare Research and Quality (AHRQ) data for benchmarking purposes. However, reports from these Federal programs often lag behind data collection by 2 years or more—meaning reports are completely outdated by the time hospitals get their hands on them. This data lag makes it difficult for hospitals to monitor ongoing progress or measure the impact of quality improvement initiatives as they are implemented. Hospitals need data as close to real time as possible so they can quickly determine whether quality improvements are having the intended effect and implement course corrections if they are not.

3. **ACCESSIBLE**
   Hospital leaders need to be able to access data when, where and how they need it—without sacrificing patient privacy or data security. Cloud-based analytical tools with appropriate security and role-based permissions allow each member of the quality improvement team to see relevant data at the point where they are making decisions.

4. **COMPARABLE**
   Benchmarking performance against comparable peers allows improvement professionals to set appropriate goals and measure progress against them. Within hospital networks or state hospital associations, these comparisons can also be a catalyst for increasing dialogue and sharing best practices between members.
Getting the Right Data for Decision Making

Data-driven decision making begins with defining the goals you want to achieve and the metrics you could use to assess them. Analytical tools that provide near real-time analysis and reporting can help hospitals move from simply collecting and reporting required data to actually using it to drive results. This includes the ability to answer several important questions:

- How do different metrics of patient safety and quality change over time?
- How do these trends compare to appropriately established benchmark comparison groups?
- Are the observed changes statistically significant and meaningful?
- How do these changes impact associated outcomes such as reduced morbidity and mortality, improved patient experiences, cost savings for the patient and/or provider, and reduced days of care.

**Questions for Data-Driven Decision Making**

- **What is the OUTCOME I hope to achieve?**
- **What METRICS can I use to set a baseline and measure progress?**
- **What is my CURRENT BASELINE?**
- **How do I COMPARE to other similar hospitals?**
- **What is the TARGET that I want to hit?**
- **What CHANGES will I implement to reach my goal?**
- **How much PROGRESS have I made since implementing this change?**
- **When do I PREDICT that I will meet the target?**
- **Are ADDITIONAL CHANGES needed to meet the target?**
Patient outcome data collected should include:

**Adverse Events:** How many adverse events (e.g., hospital-acquired infections, injuries or allergic reactions) occurred? What percentage of these events was preventable?

**Readmission Rates:** How many patients were readmitted to the same hospital or a different hospital after being released? What were the reasons for readmission?

**Quality Indicator Performance:** How is the hospital performing on specific quality measures from CMS/AHRQ, the Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (NHSN) or the National Database of Nursing Quality Indicators?

**Subpopulation Performance:** How do outcomes compare for different subpopulations? Subpopulations may be defined by gender, race/ethnicity, age, income and spoken language, as well as other factors related to socioeconomic status or prior medical history.
In addition to looking at patient outcomes, hospitals may also want to analyze costs. This could mean collecting data such as:

Days of Care: How many additional inpatient days were required due to adverse events?

Costs: What are the total estimated costs associated with adverse events and hospital readmissions?

Dollars at Risk: How many CMS reimbursement dollars to the hospital are at risk due to quality performance?

Some of this data will be the same data that hospitals already collect for CMS reporting, but other kinds of analysis may require hospitals to do additional data collection. Hospitals should consider the outcomes they are trying to achieve and determine whether current data collection provides them with the metrics they need to monitor those outcomes.
The Power of Performance Benchmarking

Performance benchmarking provides hospitals with invaluable information to drive quality improvement initiatives. Hospital networks that share a data collection and analysis platform can give their member hospitals quarterly benchmarking results using recent data rather than waiting for a report from the Federal government. This information can be used to identify best practices, pinpoint areas of need and drive performance improvements across the entire network.
Benchmarking at a state or regional level is even more valuable. For example, Battelle worked with the Ohio Hospital Association (OHA) to develop the Battelle WayFinder® Q.I. Dashboard, a cloud-based quality analytics improvement tool, to collect performance metrics from OHA. This larger data set allows for better statistical analysis. Specifically, state or regional programs can provide:

- **A larger comparative cohort:** Meaningful benchmarking requires the ability to compare performance to peers of similar demographic characteristics, size and areas of specialization. Hospitals with distinctive missions, such as a children’s hospital specializing in cancer care, are not likely to have peers within the immediate geographic area or their hospital system that provide a close match for their specific characteristics; however, within a statewide hospital association, it is easier to find facilities with similar characteristics for benchmarking and sharing of best practices.

- **Better statistical analysis for rare events and subpopulations:** One of the biggest benefits of a shared statewide database may be the ability to generate statistically significant data for specific subpopulations or infrequent events. For example, a small rural hospital system may only have a single patient with chronic myeloid leukemia, but shared data will allow them to look for patterns among similar patients across the entire state.
Getting Started

Data-driven quality improvement starts with an effective data analytics platform. The platform should provide:

- Access to near-real-time data for benchmarking, trend analysis and monitoring of quality indicators
- Data visualization tools to make information accessible and easy to understand for both quality improvement specialists and healthcare practitioners
- CMS reporting capabilities to avoid dual data entry in different systems
- Compliance with HIPAA and FISMA requirements for data privacy to allow for more granular data collection and analysis.

WayFinder is a quality measures dashboard designed to support data-driven hospital quality improvement by organizing, displaying and analyzing AHRQ, CMS, NHSN and other quality indicators. Through timely access to information, WayFinder helps hospitals and hospital systems analyze trends, monitor performance and identify areas for improvement.
Data analytics can help hospitals better use and understand the data they are already collecting. By putting this data to work, hospitals and other healthcare providers can make decisions on quality improvement initiatives that lead to better outcomes for patients, payers and themselves.