Enhancing Patient Care through Data Analysis

By Gregory Spencer, MD, FACP

Healthcare organizations, just like individuals, can suffer from information overload. Increasingly tasked with linking quality data to reimbursement parameters, providers now attempt to capture every piece of possible data.

The problem is that data collection has a price tag. Sometimes the cost is direct-the amount spent to hire data entry staff, for instance. Sometimes the outlay is softer-as in the time investment required by providers. Either way, productive data analysis entails taking direct and indirect expenses into account. Crystal Run Healthcare in Middletown, NY, has developed a process that matches its data-gathering activities with its clinical quality goals to economize all costs.

All 200-plus providers at Crystal Run's 11 locations are linked by a common electronic health record (EHR). The practice is accredited by the Joint Commission, and last year it earned National Committee for Quality Assurance certification as an advanced, level 3 patient-centered medical home.

Neither certification would have been possible without a practice-wide process to determine how data-both business and clinical-are collected, analyzed, and acted upon.

Choosing the Data to Analyze

The first step in the process is deciding which data are worth the cost of collection and review. This is a bit easier than it was a few years ago, because there is an increasing commonality in the quality measures required by payers and accrediting bodies.

Crystal Run starts with measures central to quality assurance or reimbursement programs such as the Healthcare Effectiveness Data and Information Set or the Physician Quality Reporting Initiative.

An early adopter of EHR technology, the practice quickly realized how easy it is to underuse the data it collects. Therefore, it identifies whether providers currently gather desired QA data as part of routine clinical care. If so, the group evaluates whether the data can be used as is or whether they can be captured more consistently, faster, or with fewer keystrokes. It tries to avoid developing idiosyncratic measures that cannot be leveraged.

Choosing which measures to track falls in part to division leaders (e.g., cardiology, GI) and physician-led committees (e.g., quality committee, patient safety committee). By bringing an administrative focus to the table, division leaders can reconcile measures to pursue with the time and effort needed from end users. The committees then identify the data required for applicable required measures and any problem areas physicians wish to target.

The practice uses published measures to drive internal quality improvement. It encourages physicians, departments, and the practice as a whole to measure themselves against external benchmarks, using apples-to-apples data. These efforts have been a vital component of Joint Commission and patient-centered medical home certifications, among others.

Assembling an Analysis Team

Once the quality measures to track are identified, the process moves to the IT and business intelligence departments to ascertain whether the desired measure is possible from a technical standpoint.

Crystal Run has sophisticated business intelligence and IT support. In addition, the chief medical officer acts as a liaison between clinicians and business intelligence and IT staff. Liaison activity frequently involves clarifying questions asked between the clinical and IT groups. Together, they map out whether what clinicians want to do can be done. If needed,

subcommittees then coordinate with IT and business intelligence to design reports, craft templates, or suggest workflow alterations to generate the desired data.

When considering who should participate in data collection and analysis, it is vital to involve:

- Clinical staff who know how a system is used within everyday workflow. A given EHR template may offer checkboxes, but providers at Crystal Run have developed an "alternative workflow" using comment boxes instead. Understanding the nuances surrounding what, when, how, and by whom data truly are entered is crucial in determining whether they will be accumulated as needed.
- A clinician interested in acting as a liaison between medical and IT staff.
- IT staff with in-depth knowledge of the database (e.g., where data are kept, who has access, which fields should be included or excluded to achieve accurate reports).

It is important to include someone who has a foot in both the clinical and IT worlds. Nearly every practice can identify one clinician interested in IT to learn how to "talk the talk," and such a liaison is imperative to the process. A clinician liaison is uniquely able to:

- Understand the clinical validity of data gathered
- Assess the realistic impact of proposed changes to daily workflow
- Request clinical needs in terms IT staff can understand
- Ensure end users receive information in the format most useful and understandable to them

Minimizing Workflow Challenges

As noted, any new process must be respectful of the time investment "cost" asked of providers. If it is not, data may not be gathered as desired. In fact, forcing providers to complete a new field or form may prevent them from accomplishing another medical record task, because there is a limited amount of time available for each patient.

It is important that providers feel their data-gathering efforts are worth the time and effort. Decision support alerts are most useful when leveraged to answer questions at the moment a provider is likely to ask them. Requiring data be entered more than once is a sure way to irritate physicians and nurses.

While overuse of decision support flags may lead to "alert fatigue," most providers feel that strategic use of alerts makes visits run more smoothly. The EHR can reveal or hide decision support fields based on provider name, specialty, or patient demographic. The ability to present the right data at the moment it is most likely to be considered is key to ensuring an efficient workflow.

Clinician liaisons are in a good position to judge when a proposed process will likely burden clinical workflow to the point of hindering accurate data collection. The involvement of clinically active division leaders also helps ensure that workflow alterations are embraced as a way to master quality measures and improve patient care-not viewed as just another layer of bureaucracy. Encouraging each specialty division to help select its own measures is equally as important in obtaining provider buy-in.

As crucial as it is to engage close-to-the-line clinicians committed to data collection, it is equally essential to use all available tools to ease workflow demands. All patient data are input to the system-including chart notes, referrals and consultation reports, prescriptions, and orders-and clinical staff fully utilize radiology, prescription, and lab interfaces.

Providers have access to patient data from virtually anywhere with Internet connectivity via a secure virtual private network. The practice has adopted the Blackberry platform to mesh its clinical systems with communication services. This kind of integration allows 98 percent of INRs (a measure of anticoagulation level) to be reported within one hour of being obtained.

Achieving Better Patient Care

Data collection is not the ultimate goal. The same division leaders and committees responsible for setting data-gathering parameters also use the resulting information to spur long-term patient-care improvement.

At least annually, they review clinical dashboards to ensure data collection remains relevant. Right now, for instance, diabetes is a big focus because it ties to so many comorbid conditions. Upon review of diabetes compliance and control measures, the practice noticed it was not checking patients' urine microalbumin often enough.

So, the group worked through the process with endocrinologists to create a dashboard that compares their microalbumin evaluation rates against national benchmarks and each other. This has become one of the practice's process improvement projects for the year.

Using EHR tools to manage patient data and drive decision making was essential when Crystal Run applied for its patient-centered medical home certification, too. The group showed, for instance, how it has improved compliance with chronic disease case plans by handing patients a history of their vital signs to demonstrate progress (or lack of progress) toward personalized care goals.

In addition, patients identified as high risk for certain conditions are enrolled in disease management programs. Each is then assigned a nurse who regularly reviews the medical record to assess risk factors and coordinate appropriate care.

All data are collected and organized automatically and presented in a summary template. Manual data entry is minimized through database-stored procedure. When manual data entry is required, however, it is gathered only once and then reused.

The success of these processes can be shown in care. Breast cancer mammography screening is at an 82 percent compliance rate for patients in the care management program. Similar results have been achieved in colorectal, cervical, and prostate cancer screenings and bone density screenings.

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