EP NEWS

EP News: Quality Improvement and Outcomes

The impact of data integrity on improving anticoagulation for patients with atrial fibrillation

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Quality improvement (QI) is based on a methodology of baseline measurement, intervention, and remeasurement/analysis, with iterative improvement cycles along the way. The accuracy of the data used for measuring and remeasuring quality is therefore paramount, which leads to the question: *What if the data are not accurate?*

Anticoagulation (AC) for atrial fibrillation (AF) has been the cornerstone strategy to reduce the risk of stroke. Unfortunately, an estimated 1 million people in the United States who meet guideline criteria for AC have been identified as untreated (Hsu et al, JAMA Cardiol 2016;1:55, PMID 27437655). Recent QI efforts led by the Heart Rhythm Society have identified some patients incorrectly coded in the electronic health record (EHR) as having AF and some incorrectly coded as not being anticoagulated. QI initiatives undertaken at the University of Florida Jacksonville and Gainesville campuses unearthed EHR data inaccuracies when compared with manual chart review. While the goal should be to eliminate strokes caused by lack of AC for patients with AF, these data integrity issues caused us to question whether the global AC percentages in the literature may be inflated by inaccurate data in the EHR.

Data compilation and subsequent analysis drive decision making during the QI process. The importance of data integrity in achieving QI success cannot be overstated. The University of Florida uncovered data inaccuracies that affected multiple phases of the QI initiatives, including establishing benchmark data for AC performance, targeting best practice advisories to physicians, sending educational materials to patients, monitoring the study progress, and measuring the outcome of the improvement in AC rate.

The problem of data integrity is multifaceted and complex. Some issues were found to be related to the use of administrative data to identify patients not anticoagulated in concordance with guidelines. EHRs retain diagnoses used when physicians order electrocardiograms because of concerns for AF or other dysrhythmias. If, instead of diagnoses such as tachycardia or presyncope, a diagnosis of AF is entered, then that diagnosis may persist in the administrative record even if the patient is ultimately found not to be in AF, and the misrepresentation will appear in reports used to identify patients who are not anticoagulated.

Other sources of problems stem from lack of consistency and standards for clinician data entry. Inadequate shared rules among EHR developers and users lead to problem and medication lists that are not sufficiently accurate for clinical or research use. We found that a percentage of those identified as not being on AC actually were appropriately anticoagulated.

With the ever-growing complexity of health care, health information technologies, including EHRs, were originally adopted to transform the US health care system to be more efficient, safe, and consistent (Avendano et al, Cureus 2022;14:e26330, PMID 35911305). EHRs have become the standard tool for collecting data, but that data collection comes with the potential for errors and resulting consequences in patient care. Shortcomings in design and implementation, especially with regard to data entry standards and consideration of user behavior, have resulted in health information technologies failing to achieve projected benefits and cost savings.

Currently, there are no regulatory requirements to evaluate EHR efficacy and safety and standardization, and certification processes do not address problems regarding implementation, clinician usability, or information integrity. These gaps result in an absence of shared responsibility for product functionality between EHR developers and EHR users. Problem and medication lists lack system tools to automatically update or reconcile records. Errors in design have led to data being lost, incorrectly displayed, or incorrectly transmitted, all of which adversely affect patient care and outcomes.

At a system level, a potential solution to data integrity is to decrease design flaws by working with EHR vendors to identify program features that result in errors and user workarounds. Understanding the root cause of errors can allow designers to target the source of the problems. Additionally, organizations can enhance data integrity by adopting clear EHR policies and procedures around clinical and administrative data entry, providing training on expected EHR data standards, and enacting internal monitoring system for data irregularities. Researchers should use methods such as chart review to validate use of administrative data which can be confounded by EHR inaccuracies.

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