EP News: Center-Specific Quality Improvement

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In this EP News, we focus on the concept of center-specific quality improvement (QI). Large multicenter trials, observational studies, and practice guidelines provide us with the evidence and expert recommendations to standardize care delivery, inform QI initiatives, and improve outcomes across care delivery systems. However, at its core, QI is a continuous process and not simply the achievement of a specific threshold goal or the ability to define a center's care as "high quality." Center-specific QI projects are developed and implemented at individual centers. They may target a range of systems from hospital-wide to individual provider practices, and they are tailored to the strengths, challenges, and needs of a particular health care environment. The smaller scale of center-specific QI allows for continuous iteration and evolution of QI efforts in a process that is nimble and dynamic.

The basic process of QI revolves around the PDSA (Plan, Do, Study, Act) cycle. The intention is to implement small changes in system processes and care delivery systems while studying the impact immediately and adjusting the intervention "in real time" as the outcomes are realized. This feature of continuous adjustment is one of the major differentiators between QI and methodologically rigorous but narrowly focused large-scale trials. The relative ease of implementing these small center-specific QI processes should make them highly prevalent. However, because they are focused on center-specific systems, the translatability across centers may be limited, thereby making publication of results rare.

Occasionally, an implemented change may impact a local system significantly, such that dissemination of the process may be of benefit to other centers. For centers interested in publishing results of health care QI efforts, SQUIRE (Standards for QUality Improvement Reporting Excellence) guidelines provide a framework for reporting. These guidelines are intended for describing system-level work to improve the quality, safety, and value of health care.

The studies summarized here exemplify the value of conducting center-specific QI work and disseminating the results to the larger scientific and clinical communities.

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Utilization of a radiation safety timeout reduces radiation exposure during electrophysiological procedures

Recognizing the high impact that checklists and timeouts have had across surgical and procedural systems, Aizer et al (JACC Clin Electrophysiol 2019;5:626–634) implemented a simple 7-question preprocedural safety timeout focused on radiation use and protection for the pending case. Baseline data were collected for 6 months before the change. The primary target of improvement was reduction in the dose–area product. After initiation of the change, the outcomes were analyzed every 3 months until an improvement was realized or for a total of 12 months. The project spanned 1040 procedures, of which 43% occurred after the change. The addition of the checklist reduced patients' fluoroscopy dose by 21% and, most significantly, reduced its use by the individual practitioners with the highest baseline fluoroscopy use. Protective shield use and ultrasound-guided access also significantly increased. Somewhat surprisingly and atypical of a continuous QI process, the checklist process was removed after the improvement was realized. Post removal, there was a lasting positive impact on fluoroscopy reduction, although not all of the originally implemented actions remained intact. In a traditional QI process, the checklist procedure would have been continued and potentially modified to further improve outcomes.

Quality improvement in cardiac implantable electronic device follow-up

In this study, Beaney et al (Heart Rhythm 2019;16[5 Suppl]:S263) instituted a plan to standardize and improve the completeness of implantable cardiac device follow-up. They developed a standard protocol for both pacemaker and implantable cardioverter–defibrillator (ICD) follow-up. A retrospective analysis of 100 pacemaker and ICD follow-ups identified those portions of the newly developed standard protocol that were commonly not done, such as evaluating the underlying rhythm or adjusting the settings for ventricular tachycardia below the detection rate. This study presents the first step of their QI process by identifying the problem to be solved. The next step will be to implement interventions to improve the completion and documentation of the missed portions of cardiac implantable electronic device (CIED) follow-up. Once that is complete, it is anticipated that the authors will reanalyze another set of device follow-up to assess how the intervention improved CIED follow-up completeness. This study is an excellent example of the first step of a PDSA cycle.

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