Guest Editorial

Improving Quality in Dentistry: An Imperative for the Profession

Dental caries is a transmissible disease and the most common chronic disease affecting U.S. children, five times more common than asthma and seven times more common than hay fever. Caries prevalence increases with age, rising from one in four U.S. children aged two to five years to nine out of 10 adults aged 20-64.[1] Disparities in caries persist among racial and ethnic groups, with untreated tooth decay higher for Hispanic and non-Hispanic black children and adults compared to non-Hispanic whites.[1] Poor oral health complicates other serious conditions such as heart disease and diabetes.[2] Moreover, Medicaid spends over half a billion dollars annually on dental-related emergency department visits, which often only manage symptoms rather than addressing the underlying cause.[3] These observations are indicative of a national system of oral health care that falls short of adequately addressing the needs of the general public. While dental practitioners are rightfully proud of the skilled care they provide to individual patients, there are growing signs that the oral health care delivery system is in need of significant improvement.

Over the past 24 years, the field of medicine has addressed its quality chasm by applying industrial quality improvement methods to the design or redesign of care systems.[4,5] Quality improvement (**QI**) involves the use of measurement and practical, on-the-job testing to establish workplace processes whose goal is to reliably deliver evidence-based care to every patient, every time. The goal is the triple aim: better patient experiences, improved population health status, and reduced per-capita cost of care.[6] Worldwide, QI has advanced in health care through the pioneering efforts of the Institute for Healthcare Improvement (**IHI**) and a myriad of health care organizations working to increasingly adopt and apply QI methods. Support for QI in healthcare is reflected in the Department of Health and Human Services National Strategy for Quality Improvement in Health Care, the Patient-Centered Medical Home initiative, the Centers for Medicare and Medicaid Innovation initiative, and other programs.[7] The National Quality Forum, a public-private partnership founded in 1999 to establish the standard, evidence-based measures to assess patient safety, health outcomes, and health care costs across a wide range of clinical domains, has been instrumental in supporting these initiatives.[8] Like any other reform movement, QI in health care has its share of methodological disputes and vocal critics. However, QI has unquestionably made care safer and more effective for millions of Americans.[9]

Most dental providers, however, remain unfamiliar with QI. Although federal agencies, commercial insurers, and payer organizations have begun to support the use of QI in dentistry, more must be done to fully engage the support of the dental community.[10] The need to improve systems of oral health care, together with the increasing use of QI in other health care sectors, make it imperative that dental professionals create the culture and systems necessary to apply QI principles and activities for the benefit of our patients, the public at large, and our profession.

Following the Breakthrough Series Model pioneered by IHI to support provider and practice changes through collaborative learning, the DentaQuest Institute set out in 2008 to engage dental professionals to work together to develop a disease management (**DM**) approach to reduce early childhood caries (**ECC**). The ECC Collaborative began with just two participating organizations: Boston Children's Hospital and St. Joseph's Health Services in Rhode Island. The first two phases of the ECC Collaborative focused on developing and testing a DM protocol based on the best available clinical evidence to prevent and manage ECC. The protocol includes seven components: caries risk assessment, effective communication, engaging patients and caregivers in managing their oral health, caries charting, fluorides and other remineralizing strategies, and risk-based recare intervals with restorative treatment as needed and desired by patients and families.

In Phase III of the ECC Collaborative (2013-2015), 32 federally-qualified health centers (**FQHCs**), hospital-based dental clinics and private practices worked collaboratively to implement the DM protocol with patients from six to 60 months of age. Participation in this program led to increased completion of risk assessment and self-management goals for children, improved collaboration with medical departments, increased pediatric patient volume, and improved communication and relationships with patients and their families. By employing QI techniques including ongoing measurement, participating offices were able to redesign workflows that ultimately led to improved outcomes for their patients.[11]

A QI learning collaborative employing the IHI Breakthrough Series model also has been launched in Los Angeles County as part of a program focused on increasing the capacity of FQHCs and other safety net clinics to serve as dental homes for over 50,000 young children and pregnant women and increasing parent's and caretakers' awareness of the importance of oral health for young children. The UCLA-First 5 LA Oral Health Program, which thus far has engaged 22 local FQHCs and community clinics as partners, is working with QI teams of dental, medical, and community outreach professionals and staff members to implement improved risk-based, integrated systems of care within clinics and surrounding communities. Teams are using QI methods to analyze and redesign workflows, improve care coordination and case management, and implement risked-based, culturally sensitive caries prevention and DM strategies for the diverse populations served by partner clinics. Preliminary evaluations reveal substantial increases in service delivery for diagnostic, preventive and treatment services in participating clinics.[12]

At its core, QI in dentistry is about making changes that lead to better patient outcomes.[13] A fundamental aspect of QI is the Model for Improvement, which includes three formative questions: "What are we trying to accomplish?"; "How will we know that a change is an improvement?"; and "What changes can we make that will result in improvement?"[13] Changes are evaluated using the "Plan-Do-Study-Act" (**PDSA**) cycle, a workplace-based testing framework for rapidly assessing process changes on a small scale, learning about their impact via observation and measurement, and continually implementing changes based on testing results.[13,14] Sites may adapt a change and try again, adopt a change because it worked well or abandon a change entirely. These steps are repeated in a continuous cycle of improvement until reliably improved performance is demonstrated.

The principles of QI also can be adapted for nationwide improvements across healthcare systems. Federal agencies and both public and commercial payers often spearhead QI efforts at the system level. The Centers for Medicare & Medicaid Services (**CMS**) has been a strong proponent of QI through its Medicare program. Accountability (providing payment incentives/disincentives for better performance) and transparency (publicly reporting performance scores) are often the levers used to improve performance and nudge the system towards higher quality. These levers rely on measurement to quantify healthcare processes, outcomes and patient experiences. Medicine has developed hundreds of quality measures including measures for evidence-based care protocols, staffing and operations, hospital readmission rates and survival rates for specific conditions. However, quality/performance measures development in dentistry has lagged behind efforts in medicine.

As a result, following a request from CMS, the American Dental Association provided leadership for the establishment of the Dental Quality Alliance (**DQA**) to develop oral health care performance measures to support improvements in the dental care delivery system. The DQA is a multi-stakeholder alliance comprised of 32 stakeholders, including federal agencies, payers, medical and dental professional organizations, and a member of the general public. The mission of the DQA is to advance performance measurement as a means to improve oral health, patient care, and safety through a consensus-building process.[15] The DQA aims to "establish measures to identify and monitor innovative approaches to reduce the incidence of oral disease, while simultaneously improving effectiveness and efficiency of care through a focus on prevention".[16] Thus far, the DQA has developed an initial set of measures that address utilization, quality, and cost for dental caries in pediatric populations. These measures have been adopted by Medicaid programs, federal agencies and commercial payers, including CMS, the Health Resources and Services Administration, and the Covered California state marketplace. As these measures are adopted by multiple entities that support oral healthcare, an emerging priority of the DQA is to ensure that improvement initiatives are "undertaken in a collaborative manner by all stakeholders in quality within the profession."[16]

Opportunities abound to use QI to redesign the oral healthcare delivery system. However, integrating QI into a dental practice requires considerable planning, communication, and commitment. Successful improvement requires the will to change and an enthusiastic team of dental practitioners, office staff, and patient representatives. It requires measurement of what we are doing, how we are doing it, and the impact of changes in care processes on patient outcomes. With its rich history in medicine and growing use in other healthcare sectors, QI will undoubtedly become more common in dentistry as word spreads of the achievements of these collaborative initiatives and as validated oral health care measures become available to dental practitioners and others involved with the oral health of our patients.

The time to embrace and accelerate the use of QI in dentistry is now. Practicing dentists need to begin learning QI principles, apply QI in their work, and champion use of QI broadly among their professional peers. Launching a broad QI initiative in dentistry will have an enormous positive impact on the way dental care is delivered—and ultimately improve the oral health of Americans.

Sincerely,

Natalia I. Chalmers, DDS, PhD
DentaQuest Institute, Westborough, Mass.

Richard Scoville, PhD
Institute for Healthcare Improvement, Cambridge, Mass.

Adam Richman
DentaQuest Institute, Westborough, Mass.

James J. Crall, DDS, ScD
UCLA School of Dentistry, Los Angeles, Calif.

Krishna Aravamudhan, BDS, MS
American Dental Association, Chicago, Ill.

Man Wai Ng, DDS, MPH
Boston Children's Hospital and Harvard School of Dental Medicine, Boston, Mass.

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