Shaping the future of dental care delivery

BACKGROUND

Health care systems are under pressure from rising costs, increasing consumerism, expensive new treatments, sociodemographic shifts, and growing health disparities. As a result, new approaches and delivery methods are needed to provide patients with quality oral health care. Both the e-commerce and tech industries use digital technologies and innovations that could be adapted to facilitate a move to more sustainable, relevant oral health care delivery systems. As a result, patients could have high-quality, value-based care, and practitioners and other stakeholders could take advantage of opportunities to remotely monitor patients and to promote preventive oral hygiene behaviors that will result in better patient outcomes.

VALUE OF DIGITAL APPROACHES

Empowered consumers, whose ways of communicating, shopping, traveling, and playing have been fundamentally changed by digital technologies, expect to have a personalized, on-demand experience in every area of their lives, including health care. As millennials and other digital natives assume more of the financial burden for their dental care and seek value and better outcomes, the locus of control will shift from the provider to the patient. Dental care providers and payers will have to invest in creating patient experiences that match their consumers' expectations. This includes (1) a seamless and personalized interaction; (2) more transparency in costs, comparative effectiveness of services, and value for money spent; (3) a social media strategy; and (4) a digital outreach to build patient awareness and engagement. Self-monitoring devices such as fitness trackers have created a generation that is comfortable with the process of gathering and analyzing detailed data about their daily activities with the goal of improving their health and quality of life. As a result, dental providers must begin to think how they can use digital technologies to help patients become engaged in their oral health care behaviors and develop preventive interventions that transcend the dental office visit.

Emphasis on Health Behaviors

The management of health consequences related to poor lifestyle choices accounts for more than 75% of the health care spending in advanced economies. Chronic disease development and progression are often related to modifiable health risk behaviors. Included among these chronic diseases are type 2 diabetes, cardiovascular disease and stroke, and chronic lung disease. Preventive behaviors are pertinent to dental disease because of the link between behavioral choices and chronic poor oral health. Oral health and the absence of dental disease are related to daily brushing with fluoridated toothpaste and regular dental care visits. Dental practitioners need to develop more relevant ways to induce patients to begin and to maintain brushing behaviors that can prevent problems rather than manage dental disease after it has become established. To achieve this more preventive approach, the dental community will have to increase behaviorally based, patient-centric approaches that both complement and extend the traditional clinic-based approach.

The goal of the new approaches will be to move patients from passive receptors of dental care to active participants in their own oral health behaviors. Insurers and payers will be moving to a value-based reimbursement model, which will also support this change in focus. Rather than having dental care clinicians direct patient care, the new model will function as a collaboration between clinicians who educate patients and encourage maintenance and patients who take active steps to drive their own oral health achievements.

The changes in emphasis will be achieved through methods already identified in the consumer science and behavioral economics used in consumer retail companies. These methods are used to engage and retain consumers in retail activities and include micro-segmentation, which involves identifying very small groups of people who share interests and behaviors. The result is a "market of one" in which the marketer understands the needs, interests, and ways to influence the behavior of an individual person, which in the health care model would translate to improved health and dental care.

Mobile Technologies

Mobile technologies in place today have the ability to remotely measure health and deliver health care and preventive health services; these are termed mHealth. The newer mHealth technologies with embedded sensors require little involvement on the part of the user and unobtrusively collect objective, high-resolution data on health indicators and health behaviors in the "real world." The information is then evaluated to reveal how health-compromising behavior occurs in natural settings, what prompts it or moderates it, and how it can be disrupted. With mHealth abilities, personalized health care delivery models can be developed that shift the responsibility for health from payers and health care systems to individual patients. Patients can also be encouraged to drive their own health rather than passively accept care provisions. Remote monitoring also allows providers to proactively identify those who are at risk for adverse health events and provide timely interventions.

DATA ANALYSIS

Big Data Uses

The volume, variety, and complexity of the big data collected by mHealth technologies can present a challenge but also opportunities to oral health care providers. To use the data most effectively will require the adaptation of infrastructure and methods already in place in giant internet entities. With these applications, information can be used to develop actionable clinical insights. It can also help to project what will happen in the future through the recognition of patterns and connections. It's likely that

much of health care will eventually be driven by algorithms that assimilate and process extensive datasets to make available to both providers and payers information on patients that is relevant clinically, socially, and behaviorally.

Precautions with Digital Approaches

Mobile technologies can potentially create a separation between those who have and those who do not have access to mHealth products. Challenges also exist in relation to data security and privacy, interoperability and integration with existing information technology systems, and reimbursement plans. Clear guidance and regulation may facilitate the adoption of digital health technologies.

Patient-facing solutions that extend beyond technology must also be incorporated into clinical care to motivate patients to make changes in their oral health behaviors. The products that are adopted need to (1) create increasing value for users; (2) connect patients, providers, and health systems seamlessly; and (3) improve oral health care at the individual and population level.

ADAPTATION AND ADVANCEMENT IN DIGITAL APPLICATIONS

Macro-economic, social, and technical influences outside the dental profession are driving the transformation of oral health care into a more digital approach to care. Dentists will be required to form and sustain relationships with tech-savvy patients and use digital technologies to stay connected with them. mHealth devices, data science tools, and behavioral strategies are all necessary to engage patients and motivate them toward a more active approach to oral health care behaviors. Preventive oral health and personalized care will encourage the deployment of precision behavioral interventions that target individuals at the right time in the most effective manner.

With higher out-of-pocket expenses, patients will demand greater transparency with what they are receiving for their money and will expect ready access to information on dental care quality and cost. Both value and positive experiences will dictate how they choose their dental care provider.

Dentists in this new model will increasingly deal with new value-based models of reimbursement that measure and reward cost-effective care and quality outcomes. The newer digital technologies, common data standards, and changing patterns of disease will expand the scope of dental practice and the speed of integration of oral health care with general health care processes. Dentists will work more closely with physicians and other care providers when they add screening and monitoring tasks related to chronic diseases to their clinical repertoire.

Dental care providers will also be able to furnish personalized feedback to patients, which is designed to prompt them to modify behavior and/or take action to improve their health. The physician and/or dentist can also access feedback that will permit the monitoring of patient compliance and lead to a customization of interventions. Thus dentists will be able to proactively identify patients at high risk for dental disease through remote monitoring and apply timely preventive actions.

Dental insurers, payers, or commissioners will also need to alter their current business models to incentivize dental providers and patients who embrace this digital dental paradigm. With the new mHealth and big data–driven approaches, insurers will be able to influence and reduce risk as well as address pricing and underwriting risk activities. Insurance plans may provide unifying data analytic hubs that link individual dental providers and patients and provide support with real-time actionable health information and recommendations. Increased reimbursements for mHealth-delivered preventive services may result, along with accountability actions focused on individuals whose behaviors put them at higher risk for dental disease. Data reimbursements may include capitated, risk-adjusted models, so that a lump-sum fee might cover the entire oral health care costs for a patient each year, augmented by a traditional fee-for-service approach for specific procedures.

Clinical Significance

The combination of technologic advances and sociocultural changes will profoundly alter how oral health care is delivered in the future. Dentistry must be proactive and strategic about its responses to opportunities that will create added value for patients, providers, and society. Digital capabilities will continue to evolve and help to shape how dentistry will benefit. Digital technologies, remote patient monitoring, big data analytics, and personalized patient engagement strategies offer an exciting and meaningful future for dental care delivery that should lead to an optimization of patient oral health outcomes.

Shetty V, Hamamoto J, Yale K: Re-architecting oral healthcare for the 21st century. *J Dent* 74:S10-S14, 2018

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