



How will dentistry look in the coming years?

Although it is impossible to predict the next major breakthrough in dentistry based on past and present trends, more than a decade ago we wrote an editorial titled “How dentistry will look 10 years from today.” It may be time to look at our predictions and to add our thoughts for the coming years.

Our first forecast was that new dental materials and technologies will emerge and will require future training in the new techniques. Obviously, this happened faster and in a more robust manner than we could envision. In addition to new restorative materials, digital and CAD/CAM dentistry became integral to the standard of care. Scanners, intraoral cameras, milling machines, 3D printers, and other 3D imaging systems are now common in academic institutions as well as in private practices. These new technologies have been shown to improve and be conducive to more efficient treatments. Unfortunately, the relatively high cost of equipment will delay the implementation of these innovations in developing countries and the existing gap in access to high-quality oral health care may further increase. In the coming years we will see more devices relying on Artificial Intelligence (AI) for diagnosis, treatment planning, outcome measures, precision individualized medicine, and marketing. To that end, all disciplines of dentistry will need to adopt and develop new guidelines employing the new technologies and AI. As a profession we have to make sure that the new guidelines are evidence-based and rely on properly designed and peer-reviewed validation studies. As the AI use increases, so will the importance of using equitable data to train these systems to achieve consistent and impartial outcomes in all populations.

We also see an effort to support oral health employing telehealth (teledentistry) appointments. During the COVID pandemic our institutions developed a system of teledentistry consultation appointments for older adults, immune compromised patients, and patients with special needs. We believe that dental practitioners will employ more teledentistry services combined with AI technologies but this will require extensive conversations with all constituents to reach a consensus that will lead to well-established implementation criteria.

The second point we discussed in the 2010 editorial was the change in the patients’ demographics. The trend we noted then has continued and further expanded. The life expectancy of patients suffering from chronic illnesses, cancer survivors, and patients with special needs has increased significantly in recent years. More patients maintain their teeth for most of their lives, and those who do not, seem to prefer implant-supported fixed protheses based on implants. To overcome this hindrance, dental practitioners must have a more profound education and training in general medicine; this will require significant curricular adjustments and the recognition that integrated medical and dental Electronic Health Records are essential to provide patient-centered care. At least in the United States, recently graduated dentists require additional postgraduate training to be prepared for these challenges. Across North America and around the world, we see more clinics for patients with complex medical conditions and special needs opened. However, in addition to the paucity in the clinicians’ training, low reimbursement rates that do not account for the outcomes of oral health in the overall medical context, combined with escalating equipment costs, impose additional financial burden on the provider.

Other bold predictions for the next decade would be the emergence of Augmented Reality in dental education and in practice, the possible emergence of self-repairing restorative materials, and salivary testing that will help to develop individualized strategies to manage oral inflammation that has well-documented systemic effects.

Furthermore, similar to other health care disciplines we will see in the coming years a challenging workforce environment. The COVID pandemic brought to the forefront the problem of the shortage in auxiliary staff such as dental assistants and hygienists, as well as a shortage in specialty clinics in rural areas. In order to improve access to care we need to think creatively, diversify the workforce, and promote incentive programs and training programs.

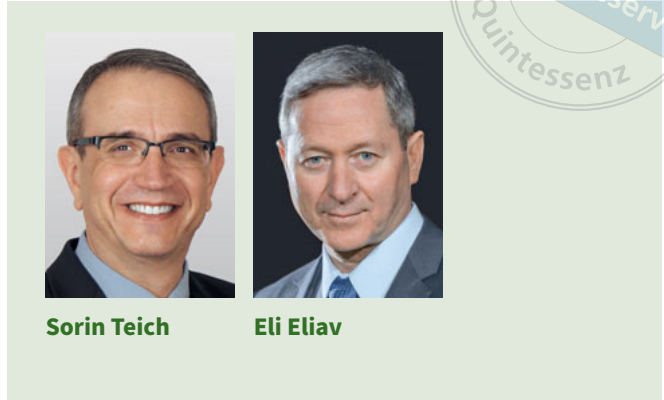
One of the solutions we suggested in the 2010 editorial was the development of different tracks of study. The aspiration towards a patient-centered care concept will require more techno-



logical or more medical-oriented tracks, which would be taught through basic or specialty trainings. Although some specialties include already technical or general medicine aspects, this concept may require a major revision in the dental education curricula.

Dental schools and continuing education courses not only will face the challenge to recognize and implement new scientific and technological developments but also should be prepared to educate faculty and practicing dentists to think outside their comfort zone in a dynamic and rapidly changing environment.

New technologies, their impact on the cost of care and dental education, the interface between dentistry and general medicine, and challenges in the dental workforce are aspects that will continue to be relevant for the profession. The real challenge is to “amalgamate” all these aspects in one, cohesive field to create the essential ingredients for the future success of dentistry.



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