

# DIGITALIZATION IN OPHTHALMOLOGY: REDUCING HEALTH CARE COSTS



It is predicted that, by 2030, 154 million people 65 years and older will live in the European Union. In 2014, this group of individuals represented 14.5% of the EU population; by 2040, it will grow to 21.7%.<sup>1</sup>

The aging of the population brings with it an obvious rise in chronic ocular conditions such as cataract, glaucoma, and age-related macular degeneration (AMD). It also carries the associated burdens of frequent office visits and regular monitoring of patients—both of which add to today's burgeoning health care expenses.

Innovations in diagnostic devices and in treatment technologies such as lasers have improved patient outcomes, but the costs of these tools may become too great to be covered by health care providers, the government, and even patients. Having done some research into these areas, I am excited by several recent technological developments that could help meet the challenge of controlling costs related to patient care, especially in the aging population.

Tremendous advances in smartphones and other mobile gadgets have been made in the past few years. Ophthalmologists are not ones to be left behind in this technological explosion, and, nowadays, smartphones are standard equipment for us. One reason for the boom in our smartphone use is the large number of medical applications (apps) available. Some of these apps can make smartphones helpful tools in the practice of evidence-based medicine, mobile clinical communication, patient education, disease self-management, and remote patient monitoring.<sup>2</sup> Such uses can provide cost-effective alternatives in situations ranging from screening for amblyopia in children to monitoring AMD in an elderly patient.

Six smartphone-based ophthalmic photography systems are now available in the App store (Apple) and Google Play (Android), and the quality of some of these systems is comparable to widely available office-based imaging equipment.<sup>3</sup> Beyond capturing retinal images, smartphones can be adapted to measure visual acuity and even visual fields. The power of such systems is enhanced by connectiv-



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ity to cloud computing and electronic health records.

Additionally, the ability of digital systems to connect to and feed information into vast databases can facilitate the study of surgical outcomes on a wide scale. Although this area will need greater refinement for the best application of its power, it has the potential to provide important information for physicians and for pharmaceutical researchers alike.

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