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<http://www.wsj.com/articles/book-review-the-patient-will-see-you-now-by-eric-topol-1421106779>

BOOKSHELF

Doctor Android

In the same way that Luther challenged the Catholic Church, smartphones are poised to upend the medical profession.

By DAVID A. SHAYWITZ

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We instinctively reach for our smartphones when we need to take pictures, get directions, deposit checks or reserve a table. Eric Topol, a cardiologist and digital pioneer, thinks that they are ready to perform at least one more task: revolutionize health care. In “The Patient Will See You Now,” he argues that smartphones will democratize medicine by bringing data and control directly to the people.

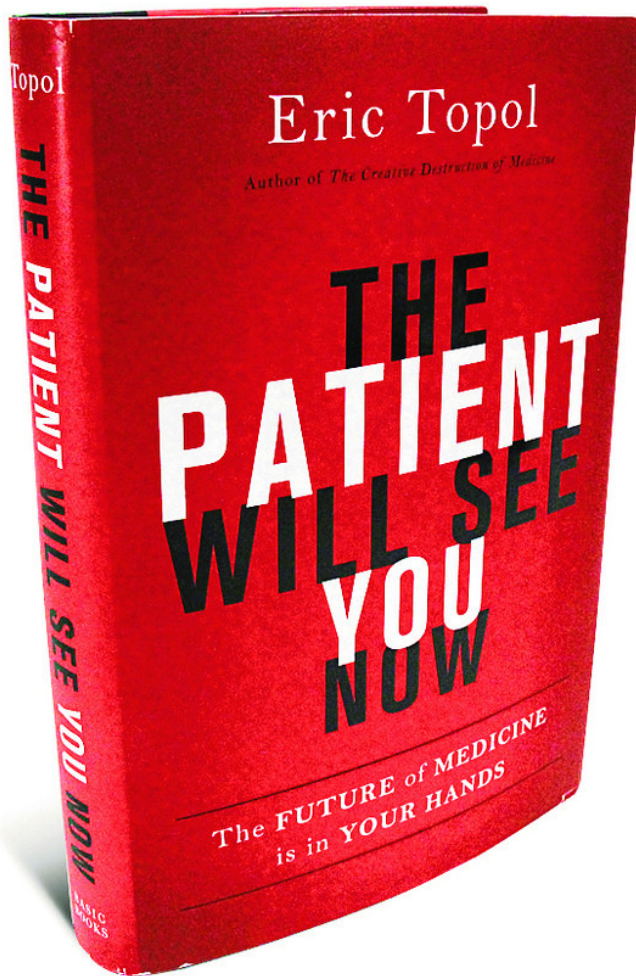
The power of doctors, says Dr. Topol, “can be likened to that of religious leaders and nobility” in centuries past, when knowledge and authority belonged to a small elite. He notes that we’ve never seen “a discrete challenge to the medical profession” akin to Luther’s challenge to the Roman Catholic Church or democracy’s challenge to monarchy and despotism. “But we’ve not had the platform or landscape for that to be accomplished. Until now.” Smartphones, he says, enable a range of medical applications to move from the hospital to the home, and they shift medicine’s locus of control from doctor to patient.

Your phone is intrinsically powerful, Dr. Topol says. Already its built-in microphone “can be used to quantify components of lung function and analyze one’s voice to gauge mood or make the diagnosis of Parkinson’s disease.” Add wearable sensors and you can record a broad range of physiological data, like heart rate and rhythm, respiratory rate, and blood pressure. Or connect your phone to the emerging family of “lab-on-a-chip” devices—gadgets that snap onto your phone to form an integrated medical instrument—and you may soon have “the perfect point-of-care device.” You may also be able to subject tiny samples of blood, urine or saliva to analysis and watch the results appear, in moments, on your screen. Several companies, Dr. Topol says, are even working on smartphone-enabled gadgets to sequence your DNA or detect cancer by telltale molecules in your breath.

Dr. Topol doesn’t stop at the body’s surface. “We have approximately four hundred embedded sensors in our cars,” he observes. “Why shouldn’t we have any in our bodies?” He describes experimental work on sensors that could be implanted in tissues or transported in the blood, sending signals about, say, medication levels or heart-muscle damage. Such a future, he suggests, is being invented today.

How would all this information-gathering and smartphone-driven analysis affect the average person’s connection with his physician? “You will still be seeing doctors,” Dr. Topol tells us, “but the relationship will be radically altered.” You’ll bring your data, your preferences, and your computer-generated diagnoses and recommendations to the doctor—sometimes via a smartphone-mediated virtual visit—and he will partner with you to guide interpretation and suggest the next steps.

The insight at the heart of Dr. Topol’s message is that patients know themselves better than anyone else and are deeply invested in their own health. They have an incentive to monitor their health more comprehensively than a physician ever could and pursue treatment with a unique intensity of purpose. Doctors, for their part, must learn to cultivate rather than shun “involved” information-enabled patients and may be surprised to discover that “off-loading data and information is liberating.”



THE PATIENT WILL SEE YOU NOW

By Eric Topol

Basic, 364 pages, \$28.99

cardiac surgery by the appearance of the scar. He envisions the benefits of smartphone-mediated diagnostics yet bemoans the effects of excessive testing, which seems a likely result. He argues that medical professionals shouldn't stand between you and your data yet seems to discount the profound effects of misinterpreting complex and high-stakes results, such as those that may emerge from prenatal tests.

As much as Dr. Topol strives for balance, he is a “techno-optimist” at heart, instinctively drawn to the promise of new technologies. While often inspirational, he has a tendency to get far out over his skis, describing sketchy early efforts—like the use of the smartphone to diagnose schizophrenia—as if discussing established facts. He dwells on the upside potential of gadgets even as he points to the unintended consequences of more established technologies, such as the costs of robotic surgery or the

cumulative radiation exposure from advanced imaging procedures. He invokes the transformational power of information yet acknowledges that restaurant calorie displays don't seem to work and that patients judge the quality of

Dr. Topol also embraces an absolutist view of patient autonomy, declaring that a doctor, on his own, “should never order anything. Any medications, lab test, scan, procedure, or operation needs to be fully discussed, making the decision to act a shared one.” One has to wonder if most patients would agree. As Atul Gawande, the surgeon and New Yorker contributor, has written, patients “are glad to have their autonomy respected, but the exercise of that autonomy means being able to relinquish it.” **Even in the techno-future, many patients may feel relieved to off-load responsibility for their data and care to physicians and may dread the involvement that Dr. Topol celebrates. But he is right about one thing: Patients deserve the choice.**

In certain ways, **“The Patient Will See You Now” demonstrates a problem at the core of its thesis: the challenge of distilling information.** Steve Jobs’s greatest gift was described by one of his early colleagues as his ability to take “enormous complexity and make something a human being could use.” “The Patient Will See You Now” offers up an overwhelming amount of information that cries out for the sort of elegant, human-centered interface that Dr. Topol imagines. **Even so, his vision is compelling, combining an empowering view of technology with the recognition that medicine requires something more.** The best physicians heal even when they can’t cure, Dr. Topol notes, and “there will never be algorithms, supercomputers, avatars or robots to pull that off.”

Dr. Shaywitz is chief medical officer of DNAnexus and co-author, with Lisa Suennen, of “Tech Tonics: Can Passionate Entrepreneurs Heal Healthcare With Technology?”

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