

NOTA BENE

IDEAS FOR THOUGHT LEADERS

THE ROLE OF THE PHYSICIAN
IN 21ST CENTURY HEALTHCARE

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The Role of the Physician in 21st Century Healthcare

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INTRODUCTION

For thousands of years, the practice of medicine has followed the long-standing traditions typical of a profession. A physician possessed a unique body of knowledge and skills and put them to use in the care of patients. As such, the doctor-patient interaction was paramount and served as the foundation of a personal, caring relationship that has stood the test of time. But the forces that are changing 21st century medicine are on track to disrupt millennia of tradition.

These forces involve powerful change agents that are initiating a new concept of what it means to practice medicine. Consider, for example, the following:

- The *locus of medical knowledge* is steadily moving out of the minds of physicians into the public, digital sphere. As patients, other providers, and companies increase their access to this information cloud, the foundation of the professional guild as the sole owner of this body of knowledge becomes diminished;

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- Scientific and technologic progress will continue to *reduce the ability of physicians to solve patient problems singlehandedly*. This represents an additional profound change in the dynamics of the personal, caring relationship that has been the hallmark of medical practice since time immemorial;
 - The *medical marketplace is increasingly driven by technology* that directly accesses patients offering both diagnostic and treatment options. This further shifts the locus of control from physicians to patients.

Of course, many other types of caregivers, in addition to physicians, are expanding and changing their roles. In a real sense, scope of practice is becoming a fluid state for all healthcare practitioners dependent on local needs, changing technologies, and legislative initiatives that vary from state to state. Solutions are being developed, for example, for home care that includes not just telemedicine but also artificial intelligence. Further, entirely new kinds of caregivers—yet to be comprehended—are waiting in the wings. But it is the physician’s role that historically and culturally has dominated the healthcare landscape, and it is the challenges to this role that are the subject of this essay.

21ST CENTURY HEALTHCARE TRENDS

Consumer empowerment through increasingly direct access to knowledge via multiple channels is potentially the most disruptive force within the classic doctor-patient paradigm. This empowerment will continue to be fostered by the steady loosening of restrictions on those domains historically within the hands of medical practitioners (e.g., direct appeals to individuals and targeted populations for drugs, laboratory tests, therapeutic modalities, and various analytic services). This trend has some disturbing features, as one observer has noted, “...self-testing and self-interpretation could cause even more problems than they aim to solve...it is not clear that healthy people or patients can be trained to use diagnostics more wisely.”¹ Indeed, this is becoming a conundrum of modern medical practice.

Healthcare is in the midst of a “technologic convergence,” compelling one historian to pronounce the 21st century as the age of “dataism.”² A vast and growing list of health-related technologies, including such diverse fields as material science, artificial intelligence, sensors, robotics, 3D printing, big data capture

and analytics, enhanced real-time social networking, and a seemingly endless supply of apps are increasingly working together in rapidly coalescing, dense, dynamic data clouds.

Five key trends are apparent:

1. *Care anywhere*

Technology is enabling patients using wearables and insideables to receive growing portions of their care wherever they happen to be physically located. This is a fundamental change to the classic office or clinic visit.

2. *Care by teams*

The one-on-one doctor patient relationship is gradually being augmented by relationships with multiple kinds of health professionals, some of whom have yet to be defined.

3. *Care by large data sets*

Collections of ever-increasing data sets are becoming standard for patients, and an entirely new interpretive and functional infrastructure is required to manage and analyze them.

4. *Care by machines*

As I have noted previously, machines will outperform humans in a growing list of tasks.³ Learning to manage the interface

between patients and machines is an existential challenge of 21st century medicine.

5. *Globalization of the health economy and medical services*

The concept of the “local” practitioner is morphing to a regional, national, and even international model. This presents a formidable test to conventional medical practice.

These trends make a compelling case for a “reboot” of medical education and medical practice. A new model needs to evolve, one which emphasizes new forms of knowledge acquisition and skills in technology management. Physicians must become experts in a variety of skills currently not emphasized in medical training, including:

- *Mathematical skills necessary to understand the meaning of the diagnostic and therapeutic probabilities calculated by Watson-like technologies.*
 - “The new tools for tailoring treatment will demand a greater tolerance of uncertainty and greater facility for calculating and interpreting probabilities than we have been use to as physicians and patients.”⁴

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- *The communication skills necessary to interpret these probabilities to patients in a language and context they understand.*
 - “The greatest clinicians...have a sixth sense for biases...The discipline of medicine concerns the manipulation of knowledge under uncertainty.”⁵
 - *Knowing how to work with AI and highly technological machines.*
 - “The challenge here is to allocate tasks, as between human beings and machines, according to their relative strengths.”⁶

In addition, physicians will: apply sophisticated management and team skills in delegating and understanding responsibilities within multiprofessional care teams; adapt their clinical practices to performance measurement and value-based payment; and proactively promote population health in addition to treating individual patients.

The challenges facing physicians in 21st century medicine are indeed formidable. Rising to these challenges is certainly feasible, but the profession needs to overcome a classic conundrum in that “all professions seem to share the bias of finding difficulty in imagining

any thoroughgoing re-engineering of their own discipline.”⁷ The inability to do so may significantly diminish the paramount role that physicians have held for millennia.

THE REKINDLING OF TRADITIONAL SKILLS

While the focus thus far has been new skills required for 21st century medical practice, there are some “old” skills that are critical and in need of rekindling. I agree with the observation that “[t]here are some things people come to know only as a consequence of having been treated as human beings by other human beings.”⁸ This, I believe, must be the defining feature of 21st century medical practice, lest the human touch becomes abrogated by technology.

By making a determined and conscious effort to return to their historical roots, physicians can excel at two traditional skills: (1) respecting the right of patients to make choices according to their values and understanding how these values impact care decisions; and (2) having real and tested abilities to provide the uniquely human services that patients need, most notably empathy and compassion.

In this context, patients are viewed as a physician's most important teachers. It is only through the objective and emotional interactions with patients that caregivers become expert clinicians. Clinical expertise derives not just from superior pattern recognition, but from an openness to engage patients in determining what most matters to them. When physicians view their patients as their most important teachers, the mutual sense of gratitude and respect cements the duality of the relationship and enhances the clinical experience for both parties.

Empathy and compassion have a long and valued background in the history of medicine. Joseph Campbell defined compassion in medicine as “suffering with the patient.”⁹ Before the era of scientific practice, this arguably was a defining characteristic of the profession. As care became more objective with increasing amounts of scientific rigor, compassion may have lost its place as the prime driver of the doctor-patient relationship. Yet, it is likely that compassion will become, as it has in the past, the key to clinical practice in the coming era of technology-enhanced healthcare. The late Paul

Kalanithi wrote “...the [caregiver’s] duty is not to stave off death or return patients to their old lives, but to take into our arms a patient and family whose lives have disintegrated and work until they can stand back up and face, and make sense of, their own existence.”¹⁰ Or, in the words of Anatole Broyard: “Not every patient can be saved, but illness may be eased by the way caregivers respond.”¹¹ Having real and tested abilities to provide the uniquely human services that patients need is the path of going beyond probabilities to address human complexities.

The historical greats of medicine, such as Hippocrates and Osler, would certainly recognize this important need. Hippocrates is credited with having written: “It is more important to know what sort of person has a disease than to know what sort of disease a person has.” And Osler has said that “Medicine is science of uncertainty and an art of probability.”¹² It has never been more important in the history of medicine to be guided by sympathy and concern for the sufferings and misfortunes of others and to be steered by the principle that your patients are your best teachers.

As we enter the most exciting time in the history of medicine, science will further unlock the mysteries of biology with new insights into disease and aging; highly effective and individualized therapies on an unprecedented scale will become available with the result of enhancing health and well-being. I am also optimistic that solutions will be found to solve the insidious problem of health disparities, perhaps on a global scale using new and affordable technologies. The profession of medicine is at considerable risk in the 21st century: it bears the most to gain and the most to lose. It is urgent for the profession to “reboot” itself—along the entire spectrum from education and training to organization and practice—if it is to remain paramount in 21st century healthcare.

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