COMMENTARY

Maintaining our Humanity in the Digital Age of Medicine

Jeffrey Siegel, MD[1]

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ABSTRACT

This critique on the changes in health care delivery is from a physician's viewpoint. I believe that modifying these changes, with humanistic values in mind, will benefit both patients and clinicians going forward.

INTRODUCTION

I've been thinking about the changes in medicine and how the Generation X physicians like me have a role in transmitting what we saw and learned at the tail end of the prior iteration of medicine in the 20th century. What we learned can, and should, have an impact on medicine now and on the tsunami of change heading our way.

HOW MEDICINE USED TO BE

I can remember my uncle practicing internal medicine from the basement office of his home in Bayonne, NJ. He saw patients at home and rounded in the hospital. It was very inefficient and very hard. What he did not have to do was document everything he said or did, but we know now that the lack of detail was a problem. Information asymmetry was absolute, the doctor knew everything, and patients were in the dark, making physicians authorities but keeping people in a fearful fog of medical arcana. This could never have been considered an efficient way to do a job, and medicine was clearly trailing other professions that were leveling the playing field between the customer/client/patient and the professional/practitioner.

There was a good reason for this asymmetry and lag. Until recently, medicine has been finding its way, with practitioners, not just academicians, keenly involved in discovering diseases, testing methods, and treatments. The delivery of new discoveries in health care is not usually as simple as it is in other endeavors delivering a new product or service. The addition of new tests and treatments with their implications has made the conversations that must occur between patients and clinicians all the more complicated. Humans are not widgets, and making the process into widget production was not something to occur without a fight, for good reason.

HOW MEDICINE IS NOW

Disassembling the process of medical care was bound to happen, as the study of health services and the encroachment of business processes have done thoroughly. Simple processes made inordinately complex continue to be untangled to their elements. Much of that is good, such as a move away from antiseptic, monolithic medical environs back into people's lives and homes. Yet, while these many good changes are occurring, we are in danger of disenfranchising humans—practitioners and patients—from seemingly innately human interactions. It is then reasonable to ask: What is the value of human relations in health care if patients are just interested in getting services as efficiently as possible, and we are asked to deliver them with the most minimal of human contact? Is that the only goal for health care? Isn't health care a medium in which our humanity and relations—2-sided relations—should be of primacy? If we streamline everything to the point of obviating human interactions, are we contributing to the health of our society or are we participating in the creation of an efficient and insensate society?

Electronic medical records (EMRs) have been growing in fits and starts for decades. The challenges have been numerous and herculean, with the basic issues of integration of legacy systems and syntax being hard enough to overcome. Lost in the mix of these challenges was the primacy of the human interactions occurring on a daily basis over and over again. The computerized machine brings fields to fill, and the competition for the physician's attention between the computer and the patient began in earnest. At this point, the computers have won, hands down. This does not make physicians happy; it makes us burned out. The data entry has taken us out of our primary role. We can't think too broadly or inquisitively about issues when we are scribes. That's why the future iterations of EMR development must have the machine working for the patient and the physician, and not the inverse. The toxic effect of the reversal of these roles is felt every day by practitioners and patients. The bar was set too low, or not even at all, for how an EMR in the room with 2 people would affect that relationship. This is a primary imperative for future systems development; new systems must be rooted with the value of human interaction as a core priority of design.

HOW MEDICINE SHOULD BE

So where does this leave us in medicine, and what can we do to specifically change things going forward? The good news is that the dynamics of the primary care system as it presently exists are reaching a breaking point. In the large medical system that I work in, we have been using our present EMR, a national standard bearer, since 2007. I have been involved in multiple innovation projects and practicing internal medicine this whole time, yet I have not once met a person of any job title from our EMR vendor. That is an astounding intimation of a disconnect between the end users and designers of a system that is ripe for massive disruption. If a system is not responsive to its customers, hacks will be developed to improve function. That has occurred in our system internally, but it is inevitable that those flaws will be appropriately seen as a massive opportunity for external businesses to help what is now the dire state of primary care delivery. Just as the personal computer industry and the Massive Software Company Whose Name Cannot be Spoken were

Author Affiliations

[1] West Los Angeles Medical Center, Los Angeles, CA

Corresponding Author

Jeffrey Siegel, MD (jeffrey.d.siegel@kp.org)

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so dominant in the 1990s, the world has changed dramatically since that time. The technology companies that will survive and thrive will be those whose leaders and systems designers recognize that some of the primary values in deciding on system design were flawed and must be changed. End users, such as physicians, nurse practitioners, physician assistants, and patients, must be involved on the design end of EMR systems in addition to information technology executives and insurers. That involvement will be dismissed as innately leading to analysis paralysis, and it may take a lot of time, but the alternative is our present unsustainable dynamic. Computer clicks, time, and the effect on interactions between patient and practitioner are not trivial asides; they are primary issues that must be of utmost value. The leviathans who thought end users had to suffer with what was brought to them can easily end up themselves being dinosaurs, unable to adapt, if they do not rethink their flawed value ecosystem.

As we seek to naturalize the medical record, we should get back to human interactions at the center of health care. As much as convenience is critical for the delivery of care, it behooves us in medicine to realize there is an innate role of teaching and guidance that must be at the core of the patient-physician relationship. The rebalancing of information asymmetry does not replace human experience. Even as artificial intelligence (AI) programs doing deep learning can outwit a diagnostician, a key here is that the genius of much of AI is based on experiences of humans to build the information pool being used to build algorithms and even create observations. Just as we have made a poor decision to have our information used by social media with, what we know now, are scant or unintended returns, we should be wary of how information will be used in medicine. The machines and the systems should work for us. What is at stake is our humanity. The machines will be better at much of what we now do. Should we work for them or have them work for us? The key will be in the systems and guideposts we put into place. It will be great to have bots (Internet robots) do a lot of work for patients and physicians, but a world where we talk to bots instead of each other and have AI algorithms making decisions for us is a future that we should avoid.

In the same way that EMRs need to have end users involved in design, it will be imperative to have human values inculcated into the AI algorithms that will be increasingly used in the electronic record. As much as we know that values have evolved and mostly progressed over time, we are at risk of placing limits on AI systems with values that may be considered archaic to a fully evolved humanity. This will include decisions to pursue care for conditions on the basis of cold hard calculations. These decisions and many others must be made by human arbiters. AI can be used only as a guide. For instance, pursuits of treatment in oncology that may have seemed futile on the basis of extant calculations in the past were integral to the human will to survive that would not necessarily be in the interests of an algorithm. This continued pursuit most likely led to the sparks of creativity that have bent the arc of oncologic care outcomes now. Placing human survival at a premium in this setting might impede the progress of an absolutely rational entity, but it is a risk we must take. There are values to set as guideposts, such as the primacy of human life, that will need to limit the supposed progress of AI. Our technical capacity has outstripped our sociologic sophistication, and we must place limits on technical overreach until society can (or may never!) be in sync with an absolutely rational entity.

CONCLUSION

There was a lot wrong with the Golden Age of medicine when physicians were gods and the public was in the dark. It is just as important to realize that we have much work to do to avoid making the machines our new gods. ❖

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A Very Precious Commodity

But by the neglect of the study of the humanities, which has been far too general, the profession loses a very precious commodity.

— William Osler, MD, 1849-1919, physician, pathologist, teacher, diagnostician, bibliophile, historian, classicist, essayist, conservationalist, organizer, manager, and author