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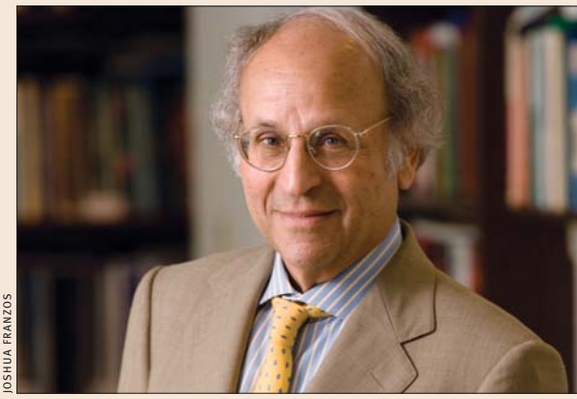
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JOSHUA FRANZOS

The Simple Life is not a simple life.
—Mason Cooley

Two critical components of health care reform are more complex than perhaps first imagined.

I'm glad to see the Obama Administration is tilting health care reform toward prevention. We know that much of the burden of the cost of care relates to potentially avoidable, chronic diseases—obesity and type 2 diabetes, COPD, lung cancer, cirrhosis, and the like. And we suspect that many illnesses outside the realm of those so closely linked to lifestyle choices are also avoidable. If under health care reform we are going to extend access widely, then we not only have to keep the cost of health care under control, we need to reduce it. So preventing illness becomes critical.

How do you do that? If you're going to prevent illness, it helps to be able to predict it. That's where genomics comes into play. Just a few years ago, we thought that once we mapped the human genome, we'd be well on our way to understanding the origin of most conditions that afflict us. The next step would be targeted therapies. I'm simplifying what the thinking was here, of course. Yet, the reality of decoding disease turns out to be much more complicated. As it turns out, the results of genome-wide association studies are disappointing. With the exception of diseases like sickle cell anemia that are caused by a mutation in a single gene, common chronic diseases are very complex genetically. Obesity and most cancers seem to involve many genes, each with a small effect. Many other common conditions, including schizophrenia and autism, may as well. Beyond that, diseases may involve single nucleotide polymorphisms (small genetic variations at the nucleotide level, nicknamed "snips") in ways that are very difficult to understand. And some of what we were calling "junk DNA," now known to encode untranslated microRNAs, turns out to have a critical role in suppressing messenger RNA. Contemporary genomics offers a window to learning about the wonders of the bodies we inhabit, yet the field isn't necessarily a quick ticket to new therapies.

And what the administration deems a $20 billion problem is equally intricate—the digitizing of medical records. There's no standard in the United States for medical records. So those electronic records we do have aren't interoperable in this country, never mind with our European or other counterparts. Such a system could be enormously valuable. Yet as we sort this out, we should be mindful that being wired doesn't intrinsically mean better care. As Pamela Hartzband and Jerome Groopman cautioned in *The New England Journal of Medicine*, we don't want each record to become a mystifying and unintelligible data dump of lab results (as they are in some systems). Nor do we want to create a cut-and-paste approach to care in which physicians copy the diagnoses of others rather than take time to think independently about the patient when writing a history. And wouldn't it be nice if physicians were able to spend more time interacting with the patient during an exam, and less time with a computer screen?

As educators, we need to put forward a holistic approach to care that does not substitute electronics for the doctor-patient relationship. And we will need to train physicians regarding prediction and prevention as we prepare them for the next chapter—personalized medicine—once we do make sense of our genomes in all of their complexity.

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