THE $1,000 GENOME

Kevin Davies, Bio-IT World

Although I've been writing about "the $1,000 genome" since 2002, it was two key events in 2007 that really sparked the concept for this book. The first was the presentation to Jim Watson in May of his digital genome sequence on a portable hard drive -- the first "personal genome" decoded using a new kind of DNA sequencing technology. Although the cost of Watson's genome was about $1 million, that was still a fraction of the $2.3 billion spent on the Human Genome Project.

The second was my first conversation with the co-founder of 23andMe, a pioneering consumer genomics company offering tantalizing personal genomic information at an affordable price (less than $1,000) to the public at large. Since then, tens of thousands of people have sent saliva samples to various consumer genomics firms. In a handful of cases, some recounted in the book, the results are nothing short of life-changing, and possibly life-saving.

Since 2007, the cost of genome sequencing has plummeted at an astonishing rate. Today, anyone can get their genome sequenced for less than $20,000, and that price will inevitably drop to $1,000 in the coming years as new technologies arrive. Imagine getting a full genome scan as easily and routinely as an MRI -- and without the claustrophobia! Even better, imagine a Star Trek Tricorder device reading your complete genetic code in a matter of minutes! That's a very real possibility in the next few years.

The bigger question, however, is whether that is going to make a difference to the health of yourself and your family? Having access to your full genome isn't magically going to reveal whether you're going to develop diabetes, cancer or heart disease, but it is going to become a fundamental part of your medical record. Among the challenges ahead of us discussed in the book: Will our genome data be kept private? Will we be subject to insurance or employment discrimination if we have our DNA sequenced? What can my genome really tell me about my disease risk? Who is going to explain that analysis to me -- not to mention my family doctor?

My intention in The $1,000 Genome isn't necessarily to answer all those questions, but to raise awareness of the rapidly approaching era of genome sequencing and increasingly personalized medicine. The technology will be with us very soon: the medical, legal and health care professions need to start preparing now. As should you!