

# The DNA Exchange

BY LAURAHERCHE | DECEMBER 19, 2011 · 10:31 PM

## On The Old Saw: That Personalized Medicine Will Cost Money In Theory But Will Be A Money-Saver In Practice\*

June, 2011 marked the 10<sup>th</sup> anniversary of the great ‘Mission Accomplished’ moment of the Human Genome Project, when President Clinton, with no regard whatsoever for his own personal safety, stood directly in between Francis Collins and Craig Venter to announce the completion of “the most important, most wondrous map ever produced by humankind.” In November, in honor of the occasion, the [American Museum of Natural History](#), in partnership with the [Council for Responsible Genetics](#), hosted a panel discussion entitled “The Human Genome and Human Health – Will the Promise Be Fulfilled?” This was an opportunity for four very smart people to recap the discussion of everything that hasn’t happened as predicted in the last 10 years (Oh, the missing heredity! Oh, the shortcomings of personal genomics!) and why, in retrospect, this was all entirely predictable, as things generally are in retrospect. And then the two scientists on the panel predicted that we are on the cusp of great things and the two social scientists on the panel warned that great things come at a steep price and we all agreed, and why not? After all, we almost always are, and they almost always do.

The thing about making predictions is that it is hard to get it wrong if you go with generalities (it’s always something!) and even harder to get it right, if you are going after specifics. Thousands of people will have a heart attack this year. The guy sitting in front of you with the ten pounds of jelly donut hanging over his belt buckle? Hard to say. So we in the prognostication business cling to certain reliable, gospel truths. ***Technology will get faster and cheaper every year! Understanding pathophysiology will lead to cures! You will meet a tall, dark, handsome stranger!*** No – sorry, that one isn’t us. ***New studies will illuminate the relationship between genotype and phenotype!*** Hallelujah.

Here’s another one: ***personalized medicine will save us money!*** Can I get an amen? It’s something we hear all the time, in medical journals and newspapers and political speeches. “The savings from personalized medicine,” said a man in the audience at the panel discussion, nodding his head with conviction, “how soon we will see that?”

“Well,” said Dr. Robert Green, renowned neurogeneticist from Beantown ([Hah-ward, of course](#)) “I am not convinced that it will save us money. I think it might cost us money.” You could almost hear the band stop playing.

Is he right? The [Personalized Medicine Coalition](#) cites savings as one of the intrinsic advantages: “The cost of health care in the United States is on an unsustainable upward climb. Incorporating personalized medicine into the fabric of the health care system can help resolve many embedded inefficiencies, such as trial-and-error dosing, hospitalizations due to adverse drug reactions, late diagnoses, and reactive treatments.” ([The Case For Personalized Medicine, 3<sup>rd</sup> Edition.](#))

But think about it. Someone comes into your office carrying their personal genomic printout from 23andMe or Navigenics or whoever comes next. They have an increased risk of Condition X. What do you suggest? Step 1: increased screening and testing. Well maybe the testing modalities are not that good. Too bad. You suggest them anyway, because it is downright cruel to tell a person they have an increased risk of the dreaded Condition X and that THERE IS NOTHING TO DO ABOUT IT. Why do we send people who are BRCA 1 or 2 positive for bi-annual screening of their ovaries? Because it is a great screening test? Noooo. Because it is all we have to offer? Bingo.

And remember, that printout is going to contain multiple increased risks. So, step 2: return to step 1, and repeat.

Now, conversely, someone comes into your office with a paper saying that they have a decreased risk of Condition Y. Do you tell them to stop doing screening? Skip their annual physical? Start smoking cigarettes? Noooo. Because you know perfectly well that SOMEONE with exactly this genotype is going to get Condition Y, and you don't want to be responsible if it turns out to be THIS GUY (see Paragraph 2 on the challenges of prognostication).

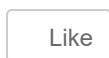
We are forgetting the medical equivalent of [Moore's Law](#): that visits to the doctor result inevitably in EXPONENTIALLY MORE VISITS TO THE DOCTOR. Call it **Dr. Moore's Law**: Medical Care Generates Additional Medical Care at a Rate that is Exponential.

Now, please, don't get me wrong. I realize that, at times, personalized medicine is going to save us money. Pharmacogenetics improving the use of medication will save time, money, and lives. Preventing certain forms of chronic disease like diabetes, if we find a way to intervene for those most at risk, will save a fortune. But right now, the savings are much more speculative than the costs. A reflexive adherence to the dogma that personalized medicine saves money creates a hype that can only lead to disappointment. Making medicine better is a huge goal: making medicine solvent is too much to ask of any fledgling field. Feeding the hype is tempting, because it generates the sort of excitement that brings in attention and funding. But ultimately, propagating a dogma that generates unrealistic expectations will snatch defeat from the jaws of victory, as our real-life success stories are weighed against the myths of our own making.

**\*Gratuitous Kant reference. Philosophy students: please enjoy.**

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