

## Why ‘precision medicine’ initiative will fall short of hype

President Obama’s new budget is expected to include hundreds of millions of dollars for so-called precision medicine. The initiative, which he introduced last week in his State of the Union address, has bipartisan support and is a bright spot in the otherwise tight funding environment for medical research. Unfortunately, precision medicine is unlikely to make most of us healthier.

The basic idea behind it is that we each have genetic variants that put us at increased or decreased risk of getting various diseases, or that make us more or less responsive to specific treatments. If we can read someone’s genetic code, then we should be able to provide him or her with more effective therapeutic and preventive strategies.

But for most common diseases, hundreds of genetic risk variants with small effects have been identified, and it is hard to develop a clear picture of who is really at risk for what. This was actually one of the major and unexpected findings of the Human Genome Project. In the 1990s and early 2000s, it was thought that a few genetic variants would be found to account for a lot of disease risk. But for widespread diseases like diabetes, heart disease and most cancers, no clear genetic story has emerged for a vast majority of cases.

Age, sex, body weight and a few simple blood tests are much better predictors of Type 2 diabetes, for example, than a genetic score based on how many snippets of “risky” DNA you have. And the advice for those at risk to exercise more and eat more healthfully remains the same.

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