Putting Precision Medicine on the National Agenda

Well, he said it! Right there in the middle of the State of the Union Address, amidst economic news and reflections on extremist activity, President Obama pulled out a surprise. At least, it was a surprise for me! He called for a bipartisan national initiative on precision medicine, starting with cancer first. In a subsequent press briefing, he indicated that this would be a public-private partnership. As details emerged, it appears that he asked for an investment of $215 million to get this launched.

At first blush, this seems like a good step forward.

Of course, opinions about this have varied from cautious optimism to outright cynicism. Francis Collins, MD, PhD, and Harold Varmus, MD, Directors of the NIH and NCI, respectively, in an editorial in the New England Journal of Medicine\(^1\) spoke elegantly of the promise of precision medicine and expressed concern that this new effort be funded with new dollars, not with reallocation of their existing budgets.

It’s easy to be passionate about this, on one side or the other. We and the public are both pretty frustrated that drugs work better for some than for others. And in select malignancies—lung and breast cancers, for example—treating subsets of patients with targeted agents really seems to pay off. But there’s no simple answer.

A few months ago, when we introduced our new feature, “Molecular Insights in Patient Care,” I spoke of a young woman with pancreatic cancer who was under my care. We had genotyped her tumor which revealed \(HER2\) amplification. I was thrilled. This was actionable and gave us another option down the road. So when the time came, after standard therapy stopped working, we were able to get both trastuzumab and pertuzumab. We started treatment, but it didn’t work. Not even a little. Clearly, in her case, the \(HER2\) amplification was a passenger, not a driver. And I’m sure this story will be repeated over and over as we attempt to move closer to individualized management.

Getting this right will not be easy, and I am sympathetic to the naysayers who point out that this new national investment will not yield much return. But we have to learn. And, considering the advances in immunotherapy, we have to get beyond the idea that precision medicine relates only to the cancer per se, and realize that it relates also to the tumor microenvironment. And of course understand that there are endless genetic variants that affect the way patients metabolize drugs.

So I welcome this new initiative. Emphasizing this will sharpen our focus and help standardize our processes. That is desperately needed, especially as we study smaller and smaller subsets of patients. I appreciate the complexity of the science, but we have to work through that. And I agree it will require the government, the public, and private industry to work together to make progress.

I do have one concern. The investment of $215 million is too small. But it’s a start.

Reference


Massachusetts General Hospital and Harvard Medical School, Boston, Massachusetts, USA; Massachusetts Institute of Technology, Cambridge, Massachusetts, USA; and the Dana-Farber Cancer Institute, Boston, Massachusetts, USA.

Margaret Tempero, MD

Dr. Tempero is a Professor of Medicine and Director of the UCSF Pancreas Center, and the editor-in-chief of JNCCN. Her research career has focused on pancreatic ductal adenocarcinoma especially in the area of investigational therapeutics. Dr. Tempero has served on the ASCO Board of Directors and as ASCO President. She co-directed the AACR/ASCO Methods in Clinical Cancer Research and taught this course and similar courses in Europe and Australia. She was founding Chair of the NCI Clinical Oncology Study Section (CONC) and served as a member and chair of the NCI Board of Scientific Counselors Subcommittee A. She is on the External Advisory Boards of the Pancreas SPOREs at Mayo Clinic and at UAB/Minnesota and the GI SPORE at the University of Arizona. She is, or has been, on the Scientific Advisory Boards of the Lustgarten Foundation, the Pancreatic Cancer Action Network, the V Foundation, The Alberta Canada Cancer Board, and the EORTC. She served as a member of the Oncology Drug Advisory Committee for the FDA. She has served as Deputy Director and Interim Director for the UNMC Eppley Cancer Center. She is Chief Emeritus of the Division of Medical Oncology at UCSF and served as Deputy Director and Director of Research Programs at the UCSF Helen Diller Family Comprehensive Cancer Center.

The ideas and viewpoints expressed in this editorial are those of the author and do not necessarily represent any policy, position, or program of NCCN.