Expert Predictions for 2019

NOVEMBER 7, 2018

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As 2019 looms before us, it is fair to say that significant—and perhaps surprising—advances will be made in the precision medicine and omics arenas, as there were in 2018. Can you say multi-marker, multi-drug CDxes? (More on the significant advances in the field in 2018 in our next issue).

While we don't know for sure what lies ahead for 2019, four leaders in the field recently stepped up and provided *Clinical OMICs* with their predictions of what they believe could be significant advances in the coming year. Perhaps it was who I asked, but data was the common theme among all four predictions: how data inform clinical care and wellness, who owns the data, and how they are generated. Have your own predictions? Send them to canderson@clinicalomics.com (mailto:canderson@clinicalomics.com).

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Preventive Genomic Testing of Apparently Healthy People Dramatically Increases

--Robert Green, M.D., professor and director, Genomes2People Research Program

There are several factors that I believe will lead to widespread genomic testing of apparently healthy individuals in 2019. These include (1) further reductions in the cost of sequencing, (2) steady increase in the sophistication of variant classification, (3) substantial evidence suggesting that downstream harms and healthcare costs of such testing are modest, and (4) increasing evidence to support the clinical benefits of such testing.

Our research has contributed to the evidence base through randomized clinical trials of sequencing healthy adults in the MedSeq Project and healthy newborn infants in the BabySeq Project. Both of these studies suggest that monogenic disease risks (MDR) are far more common in healthy individuals than previously suspected, and that "deep phenotyping" of such individuals after MDR identification discovers symptoms and signs of the underlying disease that were previously missed. Econogenomics analyses have also suggested that downstream medical workups are appropriate and downstream medical costs are modest. Based upon this, we have launched a Preventive Genomics Clinic at Brigham and Women's Hospital where apparently healthy individuals can get advanced genomic testing, far beyond anything currently available direct-to-consumer or through most medical providers.

An important contributor to widespread genomic testing in the coming year is that several prominent healthcare systems such as Geisinger, Northshore and Sanford in the U.S., and the National Health Service in the U.K., have recently decided to incorporate aspects of genomic screening into the everyday practice of medicine. The bold experiments will rapidly generate data at scale that will help understand the costs and benefits of such implementation.

A number of consumer-directed laboratories and telegenetics medical practices, such as Genome Medical, are offering preventive genomics testing to consumers who request it, while providing high quality medical counseling and consultation for those who receive positive or negative results.

Finally, the All of Us Research Program, with its plans to recruit 1 million diverse Americans into a research biobank, will be launching a return of genomic results pilot that provides some actionable genomic information back to any of its participants who elect to receive it.

These multiple threads are creating tremendous acceptance for the notion of genetically testing healthy individuals, and for these reasons, I think 2019 will be the year that population testing with genomics dramatically increases.

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