Integrating genetic testing in electronic health records saves time, study finds

September 21 2022

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Making it possible to directly order and work with the results of genetic testing through patients' electronic health records—instead of through third-party portals—has resulted in significant time savings for

clinicians, according to a new study in *Genetics in Medicine* from researchers at the Perelman School of Medicine at the University of Pennsylvania. Although the gains per patient were measured in minutes, enabling ordering and managing tests through the electronic health record (EHR) represented at least a 75 percent reduction in what is largely clerical work, which could add up in a big way.

"Genetic counselors order testing on multiple patients every day," said the study's lead author, Katherine Nathanson, MD, the Pearl Basser Professor of BRCA-Related Research and Deputy Director of the Abramson Cancer Center at Penn. "So if you order tests on three patients per day and return results on three patients per day—which is a very reasonable estimate—that means you save 45 minutes per day, based on what we saw. That is a big deal."

The average time it took a clinician to order a test for a person's genomic information—data gleaned from personal DNA—through the new process developed by the Penn researchers was two minutes. When clinicians had to go outside of the EHR, test ordering averaged eight minutes, with the longest time being 20 minutes, a 75 percent time savings.

When clinicians were managing results, the average time in the EHR was clocked at just a minute (some completed the task under a minute). Those who had to manage results outside of the EHR averaged five minutes, with the longest time seen being 11 minutes—an average time savings of 80 percent.

Testing a patient's genomic information can be useful for a number of conditions, ranging from determining the risk of breast cancer and certain heart conditions to providing insight into which medications would work best.

But genomic testing includes a wide swath of information and can be difficult to order and gather in a readily usable way. That's why in 2019, the PennChart Genomics Initiative (named after the uniform, proprietary EHR used at Penn Medicine) formed, combining elements of Penn Medicine's Information Services team with various clinical and research departments, aiming to make ordering and using genomics data easier. Effectively, this team marshaled all genetic testing information into a single tab in the PennChart EHR and made it "communicate" with outside entities that perform testing. This made Penn Medicine one of the first health systems in the country to integrate the processes for ordering and receiving results with multiple national genetic testing laboratories.

Now, instead of having to leave the EHR, genetic counselors and other clinicians can directly order testing through PennChart, have the results return to the EHR in an organized way, and immediately use this data.

"We know that there are many medical conditions where genetic testing would potentially change medical management of the patient," said Marylyn Ritchie, Ph.D., director of the Institute for Biomedical Informatics and a study co-author. "By making it easier to order the test and understand the results, we are improving care for our patients and reducing the burden on providers."

With more of a focus being placed on genomics as clinicians strive to increasingly personalize patients' treatments, the workload for those ordering and consulting genetic data will increase. With that in mind, breakthroughs like what the PennChart Genomics Initiative has achieved will become all the more important.

"We plan to further streamline the process so that genetic counselors can work to the top of their scope of practice," Nathanson said.

More information: Kelsey S. Lau-Min et al, Impact of integrating genomic data into the electronic health record on genetics care delivery, *Genetics in Medicine* (2022). DOI: 10.1016/j.gim.2022.08.009