Genetic testing may not trigger more use of health services

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People have more and more chances to participate in genetic testing that can indicate their range of risk for developing a disease. Receiving these results does not appreciably drive up— or diminish—test recipients' demand for potentially costly follow-up health services, according to a new study in the May 17, 2012 early online issue of *Genetics in Medicine.*

The study was done by researchers with the Multiplex Initiative, a multi-center collaborative initiative involving investigators from the National Institutes of Health's Intramural Research Program, Group Health Cooperative in Seattle, and the Henry Ford Health System in Detroit.

The tests are available from a growing number of commercial producers, and health care providers have been uncertain whether people who received information only about risk would follow up by demanding diagnostic testing to check for predicted illnesses.

The study is the first to use electronic health records—rather than self-reported behavior—to measure the impact of genetic testing on the subsequent use of health services by commercially insured, healthy adults. Self-reports, which can be affected by memory lapses and other problems, tend to be less accurate.

"Our study was a best-case scenario, because we chose 15 genes reliably associated with relatively small risks for eight common diseases that health behaviors can affect," said the study's first author Robert J. Reid, MD, PhD. Dr. Reid is Group Health's associate medical director of

research translation and an associate investigator at Group Health Research Institute. Those diseases were type 2 diabetes, coronary heart disease, high blood cholesterol, hypertension, osteoporosis, lung cancer, colorectal cancer, and melanoma. "We hope that testing positive activates patients to make behavior changes that could lower their risk, such as quitting smoking," he added, "without causing them to make many extra visits to their doctors."

"Understanding personalized genetic information is important because it is becoming more readily available and we need to figure out how to integrate it effectively and efficiently into the clinical care we provide," said coauthor Eric B. Larson, MD, MPH, Group Health Cooperative's vice president for research and Group Health Research Institute's executive director.

"There are a lot of unanswered questions about how genetic test results can be used to guide people toward making positive lifestyle and health behavior changes," said Colleen McBride, PhD, chief of the Social and Behavioral Research Branch at the National Human Genome Research Institute (NHGRI). "This study goes a long way toward bringing data to these debates and shows that people are not likely to make inappropriate demands of health delivery systems if they are properly informed about the limitations of genetic tests."

Genetic tests, such as those used in this study, can detect common variants of genes associated with modest changes in the chances of developing particular diseases. "Multiplex" means simultaneously performing many genetic tests on one blood sample.

"Good next steps would be to see whether any patients were motivated to make long-term behavior changes—and whether those individuals at highest risk went to their doctors more often," Dr. Reid said. "But this study wasn't designed to answer those questions."

The study included 217 healthy people age 25 to 40 who elected to participate in genetic susceptibility testing that their health plan offered. The researchers analyzed the participants' health care use in the 12 months before genetic testing and the 12 months after it. They also compared the test group's health care use with that of about 400 similar plan members who declined the testing offer.

The researchers counted the doctor visits, lab tests, and procedures the people received, particularly those services associated with four of the eight conditions that the multiplex panel tested. Most of the procedures or screening tests that were counted are not among those currently recommended for people in this age group who don't have symptoms. The researchers found that participants in genetic testing did not change their overall use of health care services compared with those not tested.

Each person who chose to undergo the multiplex test was found to carry at least one at-risk genetic marker. Individuals in the population carried an average of nine at-risk variants. Having a risk version of one of the 15 genes on the multiplex genetic test does not mean that a person is certain to get the condition—only that he or she might have a slightly greater chance of developing the health condition. Many things other than genetics contribute to the risk of common diseases, including such lifestyle factors as diet, exercise, smoking, and sun exposure.

"Much is written about using genetics to personalize health care," said co-author Lawrence C. Brody, PhD, chief of NHGRI's Genome Technology Branch. "Some think this new generation of genetic tests will be a very positive addition to medicine; others believe they have the potential to make things worse." Dr. Brody designed the panel of genetic tests used in the Multiplex Initiative.

The NHGRI Division of Intramural Research and the National Cancer Institute, both at NIH, along with Group Health Cooperative in Seattle

and the Henry Ford Health System in Detroit, launched the Multiplex Initiative in May 2007. For the first two years of the study, the investigators accumulated data from 2,000 Detroit area residents who were offered a multiplex genetic test for eight common conditions.

Once enrolled, participants were asked to review information online about the multiplex genetic test and to decide whether they were interested in taking the test. Those who agreed to genetic testing met with a research educator, who provided more information about the risks and benefits of testing and obtained the patient's written consent. Test results were mailed to participants. Trained research educators called the participants to help them interpret and understand their results. The study also included follow-up interviews with participants three months after they received their results.

More information: For more information about the Multiplex Initiative, see multiplex.nih.gov

Provided by Group Health Research Institute

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