Medical Xpress

Using genetics to customize drug therapy

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Geneticists at the University of Pittsburgh Graduate School of Public Health will provide their scientific expertise to a new initiative aimed at preventing and reducing the adverse effects of medications in people with mental illnesses.

The research project will take a personalized medicine approach to managing drug therapy by analyzing each patient's genetic makeup to determine potential adverse reactions to medications. Funded by the Polk Foundation, it will be led by NHS Human Services, one of the nation's largest providers of human services, in collaboration with Pitt Public Health; CareKinesis Inc., a medication therapy management services provider; and Coriell Life Sciences, a pharmacogenomics testing vendor.

"An individual's genetic makeup defines how many common drugs are processed by the body and who is at risk for an adverse drug response from such therapies," said Dietrich Stephan, Ph.D., professor and chair of the Department of Human Genetics at Pitt Public Health. "Individuals can suffer immensely from the very drugs that are meant to improve their health if given drugs they cannot tolerate, often resulting in increased emergency room visits and elevated health care costs."

For example, some people are genetically predisposed to metabolize certain drugs faster than the average person, causing them to have a stronger, more immediate response to medication. When someone is prescribed multiple medications, such responses can cause unexpected and potentially dangerous drug interactions.

"The people at highest risk, such as the aged and mentally ill, often are prescribed a multitude of drugs with no insight into their genetic susceptibilities," said Dr. Stephan, who also serves as associate director of the Institute for Personalized Medicine, a collaboration between Pitt and UPMC. "In this study, we aim to systematically implement comprehensive genetic testing in these populations and develop the evidence around improved outcomes and reduced costs that allows such testing to be broadly delivered to the general population and reimbursed by insurers. The Institute for Personalized Medicine, as part of UPMC, has the scale to be able to broadly implement pharmacogenomics to improve lives across a multitude of providers both nationally and internationally."

Dr. Stephan serves as chair of the clinical advisory panel for the 28-month, $350,000 initiative, which is funded by a grant from the Polk Foundation to NHS Human Services Foundation, the charitable arm of NHS Human Services.

"Our primary goal is to increase the quality of life for individuals in behavioral health services, and the funding received to conduct this important research is a significant step in the right direction," said Joe Martz, chief executive officer of NHS Human Services.

Study participants will be selected from a pool of adults with mental illnesses served by NHS in Allegheny, Beaver, Dauphin and Lehigh counties, and who currently are prescribed or will be prescribed at least one psychotropic medication during the study period. Participation in the study will be voluntary and oversight will be provided by Robin Grubs, Ph.D., director of Pitt's genetic counseling program, one of the country's oldest and most rigorous counseling programs, and also by nationally recognized ethicist Lisa Parker, Ph.D., of Pitt's Center for Bioethics & Health Law, who also provides oversight for the National Human Genome Research Institute.

Provided by University of Pittsburgh Schools of the Health Sciences