

## BUILDING A GENOME-ENABLED ELECTRONIC MEDICAL RECORD

Conducting timely, high quality, comparative effectiveness research (CER) and creating and delivering recommendations for genomic tests in cancer care and prevention are major technical and intellectual challenges. Yet with the increased use of Electronic Medical Records stimulated by the American Recovery and Reinvestment Act, they can be addressed through improved use of information technologies.

This project will create a new Genome-Enabled Electronic Medical Record (GenE EMR). This record will build a foundation for the efficient collection and sharing of relevant family history and personal risk factor data, beginning with HealthHeritage<sup>®</sup>, an existing application for family health history and personal risk factor data collection and clinical decision support, the input of information from new genetic and molecular test results, and facilitating their connection to other clinical data, treatment records, and patient outcomes. This GenE EMR will also be able to display recommendations from reviews conducted by multidisciplinary teams that address the analytic and clinical validity, clinical utility, and ethical, legal, and societal implications for Genomic and Personalized Medicine tools in cancer care and prevention.

The final product will enable real-time clinical decision support for clinicians and their patients in user-friendly formats. This entire application will be designed and developed in a manner that enables it to be embedded and achieve interoperability with a wide variety of commercial and open source Electronic Medical Records nationwide. The GenE EMR will also accept family history information collected using the Surgeon General's My Family Health History Tool.

Concurrent with these efforts, two proof of principle CER studies will be conducted. The first CER will evaluate the clinical utility of family history data collection and individualized recommendations on risk reduction behaviors for cancer prevention. The second will evaluate the impact of genetic counseling for patients at high risk for hereditary cancer. Furthermore, by collaborating with other NCI grantees and with the Evaluation of Genomic Applications in Practice and Prevention (EGAPP) network, the NCI's CaBig<sup>®</sup> network, and the CDC's FamilyHealthware<sup>®</sup> project, these efforts will enable the creation of a national road map for the more efficient and timely evaluation of GPM tools.

This project also provides the basis for creating new jobs and a self-sustaining foundation for these efforts through licensing fees paid for by incorporating the GenE EMR into Electronic Medical Records nationwide. The goals of this entire project are achievable in a 2-year timeframe.

Contact: William A. Knaus M.D. [wknaus@virginia.edu](mailto:wknaus@virginia.edu)