



Personalized Medicine

VA's Office of Research and Development is at the forefront of developing safer, more effective treatments based on new knowledge about the role of genes in health and disease. The goal is to provide medical care that is personalized to the genetic makeup of individual Veterans. This approach is referred to as personalized medicine. Genomic analysis has already provided tremendous insights into the origins of diseases that affect large numbers of Veterans, such as diabetes and cancer. Genomic analysis may also help predict Veterans' response to certain drug treatments.



Examples of VA Research Advances

Survey finds most Veterans in favor of genomic research – A majority of Veterans who have received health care through VA would support and participate in genomics research, according to a study by the Genetics and Public Policy Center at Johns Hopkins University. VA initiated the study to ascertain Veterans' attitudes and preferences before moving ahead with plans to create a database of genetic information based on participants' DNA samples, combined with information from VA's electronic health record. Experts believe such a database, with appropriate privacy safeguards, would be a powerful tool for researchers seeking links between genes, environmental factors, and health outcomes.

ALS study under way – Researchers at VA's Pharmacogenomics Analysis Lab in Little Rock are analyzing DNA samples from Veterans with ALS (amyotrophic lateral sclerosis, or Lou Gehrig's disease) and working with epidemiologists at the Durham VA to identify genetic and other factors that may contribute to the disease.

Gene variant linked to worse kidney cancer outcomes – Researchers led by Dr. Raj Dahiya at the San Francisco VA found that while one variant of a gene known as bcl2 is generally associated with longer survival in patients with renal cancer, another variant of the gene may actually predict worse outcomes.

Facts About Personalized Medicine

With the recent completion of the Human Genome Project and other gene-mapping efforts, researchers have a detailed map of humans' genetic structure. Research is now focused on how to apply this knowledge to medical care, with the goal of customizing patients' care based on their individual genetic make-up. This might involve, for example, predicting patients' risk for a certain condition or their response to a particular drug. Researchers have been laying the groundwork for this field by scanning huge batches of DNA—often obtained through research studies—and analyzing which genetic variations are statistically associated with particular diseases or other health characteristics.

