NIH NATIONAL CANCER INSTITUTE

WHAT COLLABORATION CAN DO FOR THE FUTURE OF CANCER CARE

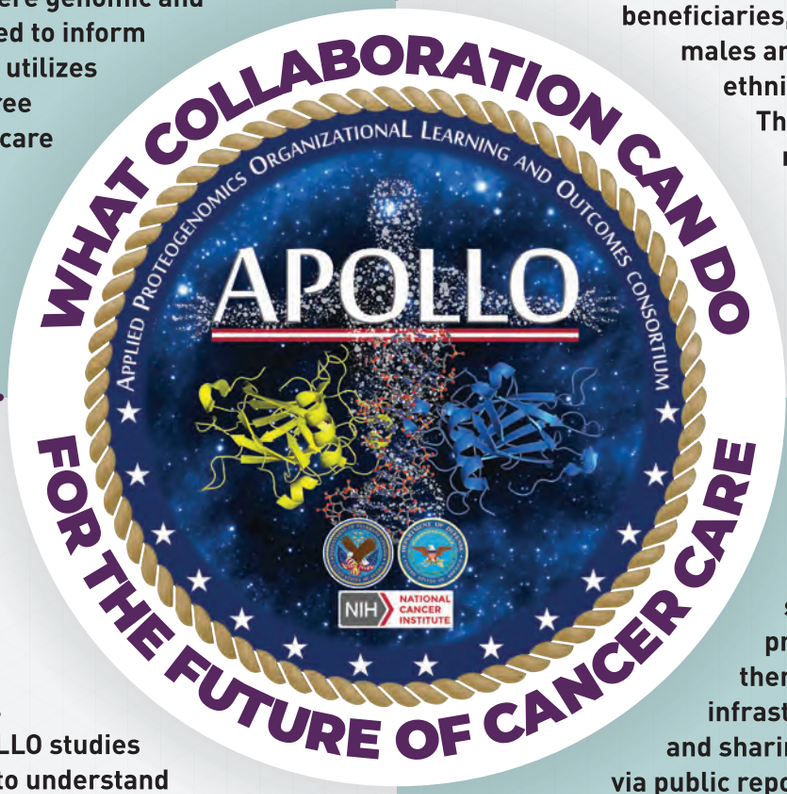
INFORMING PATIENT CARE

The Applied Proteogenomics OrganizationaL Learning and Outcomes (APOLLO) network is a collaboration among NCI, the Department of Defense (DoD), and the Department of Veterans Affairs (VA). Together, these federal entities are working to create the nation's first healthcare enterprise where genomic and proteomic data will be used to inform future therapies. APOLLO utilizes the resources of these three entities to create a healthcare feedback loop, called a learning healthcare system, to gain insights that translate into improved patient care.

DIVERSITY & PATIENT OUTCOMES

SOLDIERS TRANSITION INTO THE VA HEALTHCARE SYSTEM AFTER AN AVERAGE OF 15 YEARS OF SERVICE, MAKING LONG-TERM HEALTH MONITORING POSSIBLE FOR APOLLO ENROLLEES.

APOLLO uses the military healthcare system (DoD and VA) to access data for a patient population that is representative of the broader American population. Active duty military personnel, military beneficiaries, and veterans include males and females from all ethnicities and walks of life. This diverse group allows researchers to develop therapies that account for demographic differences that can affect a patient's response to treatment.



PROTEOGENOMIC SCIENCE

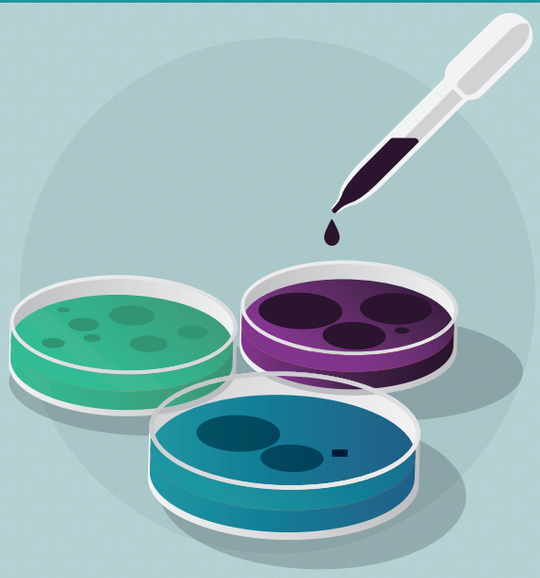
Proteogenomics is the comprehensive study of a patient's set of genes and proteins. Leveraging NCI's expertise from proteogenomic research programs like the Clinical Proteomic Tumor Analysis Consortium (CPTAC), APOLLO studies protein expression levels to understand patients' unique responses to therapies. The use of proteogenomics may one day ensure that a patient receives the right care at the right time and in the right setting to optimize quality and achieve outcomes important to the patient.

DATA & WORKFORCE DEVELOPMENT

APOLLO uses tools to analyze large proteogenomic datasets and search for clinically significant variations to predict response to targeted therapies. APOLLO uses NCI's infrastructure for data storage and sharing to make data available via public repositories. Researchers, clinicians, and informaticians work together to gain insights from APOLLO patient data that can be incorporated into a learning healthcare system to inform cancer care.

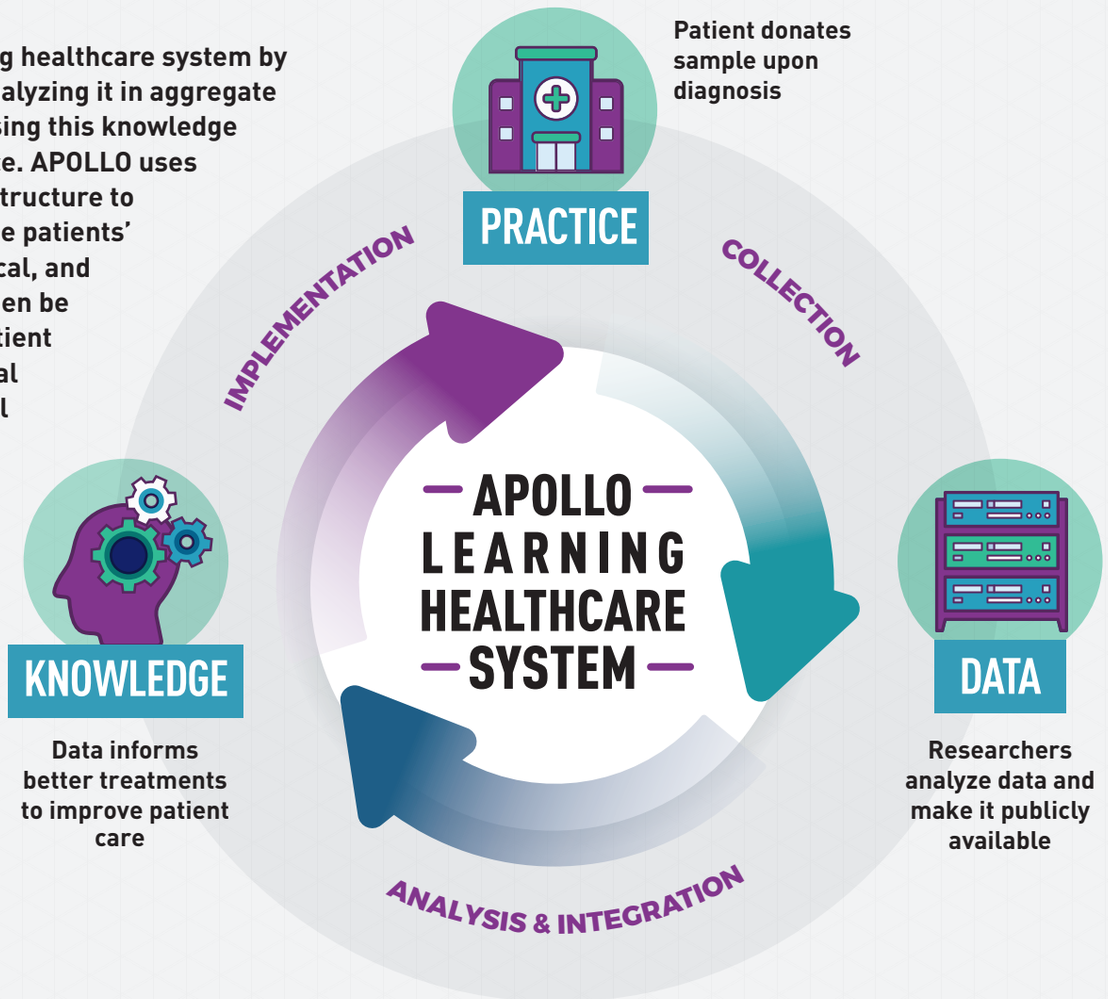
APPLIED PROTEOGENOMIC ORGANIZATIONAL LEARNING OUTCOMES (**APOLLO**) NETWORK

TRANSLATIONAL & CLINICAL SCIENCE



APOLLO aligns the ongoing clinical activities of the NCI, DoD, and VA to accelerate the translation of scientific knowledge into cancer care. APOLLO studies a patient's genes (genomic analysis) and the proteins these genes encode (proteomic analysis) to gain a better understanding of tumor biology and improve patient care. Genomic analysis has improved outcomes for many cancers by enabling targeted cancer treatments, and recent advances in technology have made it possible to conduct complementary proteomic analysis. Donated patient tissue is handled with strict biobanking standards and analyzed using state-of-the art genomic and proteomic technologies. Data are used to determine best laboratory practices and to discover clinically relevant information by considering both genomic and proteomic data. Insights from APOLLO studies will also be introduced into VA clinical care through learning healthcare system activities.

APOLLO creates a learning healthcare system by collecting patient data, analyzing it in aggregate to gain knowledge, and using this knowledge to improve clinical practice. APOLLO uses a robust computing infrastructure to capture, store, and analyze patients' genomic, proteomic, clinical, and outcome data. Data can then be rapidly translated into patient care using a unique clinical infrastructure. This model allows APOLLO to learn from each patient's experience to shape the therapies of future patients.



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