Next Generation Health at Johns Hopkins University Applied Physics Lab

What is APL

JHU APL is a division of Johns Hopkins University. The Lab is the nation's largest and oldest university affiliated research center (UARC) with 6,700 staff members. As a UARC JHU APL operates in the public's interest rather than stakeholder and provide independent and objective advice to the government. The Lab serves as a bridge between academia, industry, and government by employing expertise in using technology and applied systems engineering to create operational capabilities.

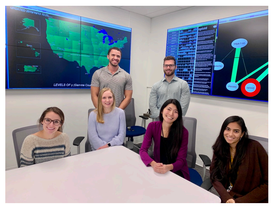
APL's mission areas

- Air and Missile Defense
- Civil Space
- Cyber Operations
- Homeland Protection
- National Health
- National Security Analysis
- National Security Space
- Precision Strike
- Research & Exploratory Development
- Sea Control
- Special Operations
- Strategic Deterrence

Our Group

The Next Generation Care Delivery Group is a group of engineers, scientists, and health domain experts who apply analytics and systems approaches to address complex health and operational medicine problems. We integrate expertise in healthcare delivery science, systems engineering, operations research, and medical technologies to dramatically improve the safety, quality, and value of healthcare and warfighter readiness. We embed in military training sites, hospitals, clinics, and deployed care facilities to assess and model system operations. Our staff define future systems to support prolonged care and optimized training regimens. We apply our engineering and analysis expertise along with our understanding of what makes reliable, data-driven, and scalable quality health systems to engineer next generation closed-loop healthcare delivery systems.

Vision: Applying analytics and engineering to realize high value care delivery exceeding patients and provider expectations



Focus Areas:

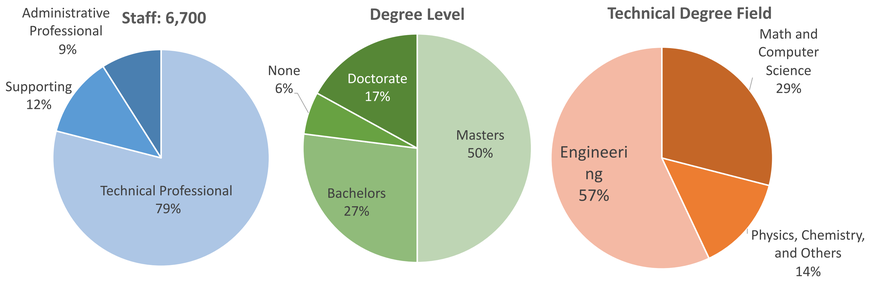
- Integrating expertise in health delivery science and healthcare engineering to transform care delivery and warfighter readiness
- Evaluate, engineer, and implement system solutions that improve the quality and value of healthcare decision making

Core Competencies

- Systems and industrial engineering
- Health Delivery Science
- Data analysis, optimization, modeling, and simulation

Life at APL

With a wide selection of challenging, impactful work and a robust educational assistance program, APL promotes a culture of lifelong learning and excellence in a positive environment that embraces diversity, encourages creativity, and supports inclusion of new ideas. Whether as an intern, recent college graduate, or experienced professional, members of the APL community make critical and impactful contributions to the challenges facing our country.



Full Time at APL

- Continued Education Opportunities
- Retirement Contributions
- Flexible work schedules
- Unique Travel Experiences
- Direct site work
- Independent Research & Development Program

Internship Program

- Tours of some of our 700+ labs
- Mentorship opportunities
- Social and networking activities
- Competitive pay
- Flexible start and end dates

Affinity Groups

One of the most important channels for APL diversity is the growing number of Affinity Groups. These self-organized clubs welcome and encourage participation by all staff members, and Laboratory management provides strong support for these activities, including active participation.

- African American Culture club
- Allies in the workplace
- APL Veterans Club
- Hispanic Awareness club
- JHU Black Faculty and Staff Association
- SWE@APL
- Young Professionals Network

Social Events

APL Wellness

Team Building

FUN!

National Health Mission Area Projects

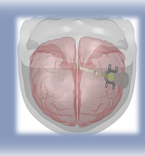
Connected Corpsmen in the Community

Between deployments, corpsmen are often relegated to minor roles that potentially degrade skill sets and subsequently diminish readiness. Connected Corpsmen in the Community (CCC) works to meet Navy Medicine's mission to ensure a medically ready force and ready medical force by leveraging enlisted providers to provide safe and accessible care for active duty service members in non-military treatment facility environments connected through virtual health technology. In addition to implementing sites across the country, APL is working with providers to expand scope of care, developing an automated data tracking and analysis system for CCC metrics, and investigating virtual health technology platforms for support of delivery of care in operational and low resource environments.

Highlight: APL's ESSENCE surveillance tool helps manage crisis from opioid epidemics to Zika outbreaks (Oct 2017)

Amputee Care at Military Hospital

Military Hospitals provides a full continuum of care to patients with amputations for 2-5+ years, requiring an extensive amount of resources to ensure proper care. However, defining immediate and long term amputee care cost as well as the value of specialized amputee services is challenging. APL is developing an operational model to describe the component costs of care to a Military Hospital amputee population by completing a population analysis, defining patient pathways, benchmarking against similar programs, and completing value measurements.



Highlight: APL Researchers are capitalizing on recent advances in computer vision…to augment the capabilities of two commercial retinal prostheses (Oct 2019)

Trauma Assessment

Military health is investigating the best alternatives to minimize that gap between peacetime trauma volume and the experience necessary to maintain critical skills required in operational environments. As a result, APL investigated and reported the feasibility of utilizing military medical centers as a means for maintaining a medical force ready to satisfy wartime trauma requirements by converting a military medical center into a certified Trauma center. APL developed a detailed roadmap to Level III and Level II trauma center status by creating a requirements model to capture various sources of information, conducting a gap analysis to determine areas needing additional work, and performing a geographic analysis of patient mix and recapture volume.