HOW OUR FELLOWS HAVE BENEFITED

“BD-STEP allows clinicians and researchers to solve real-world problems with an immediate impact on our nation’s Veterans. Using my education to help others is one of the greatest career successes that I could have ever asked for.”

JEREMY MASON
Assistant Professor of Research Urology, Keck School of Medicine, University of Southern California / Class of 2016 / Modeling Liver Disease Progression

“I developed skills in machine learning, data analytics, and statistics, and enhanced my healthcare domain knowledge through collaboration with VA physicians. The data is incredibly extensive and there is still so much to learn.”

JOANNA SYLMAN
Data Scientist – Analytics, Komodo Health / Class of 2018 / Challenged with Prostate Cancer Progression in Obese Patients

“How our fellows have benefitted from BD-STEP, I learned the role of advanced data analysis in the setting of a nationwide healthcare system and accessed the VA’s large real-world healthcare datasets.”

NATHANIEL FILLMORE
Associate Director for Machine Learning and Predictive Analytics, VA; Instructor in Medicine, Harvard Medical School / Class of 2017 / Clinical and Genomic Factors of Multiple Myeloma Progression

“Through BD-STEP, I gained from BD-STEP allowed me to move into a career with a true impact on the care that Veteran patients receive.”

HANNAH GELMAN
Research Health Science Specialist, VA / Class of 2018 / Using MVP data to assess genotype-guided Warfarin dosing algorithms

“I have the privilege to work with the largest electronic health record in the United States to build my future career.”

JAYAD RAZJOUYAN
BD-STEP Fellow / Class of 2019 / Assessing Frailty to Predict Mortality in Patients with Congestive Heart Failure

“BD-STEP connected me with leaders in clinical care at the VA, which led to my current VA position. It’s fulfilling to use my career to bring cutting-edge treatments to veterans nationwide.”

BRADLEY HINTZE
Data Scientist, National Oncology Program, VA / Class of 2017 / Data infrastructure for precision oncology

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FOR MORE INFORMATION VISIT:
cssi.cancer.gov/bd-step and va.gov/oaa/specialfellows/programs/sf_bdstep.asp

THE BIG DATA SCIENTIST TRAINING ENHANCEMENT PROGRAM
Developing the Next Generation of Healthcare Data Scientists

MISSION

The Big Data Scientist Training Enhancement Program (BD-STEP) is a two-year fellowship program that uses data science to advance cancer research and patient care. A Veterans Health Administration (VHA) advanced fellowship launched in 2015 in collaboration with the National Cancer Institute (NCI), the program provides well-rounded training and unparalleled access to VA data resources and NCI cancer research expertise. Competitively selected postdoctoral fellows work with VA clinicians and cancer researchers to gain valuable clinical exposure and oncology domain knowledge. Fellows use comprehensive health data to pursue patient-centered research projects, improving basic understanding of cancer while also improving clinical care for Veterans.

PARTNERSHIP

VHA
The mission of the VHA is to honor America’s Veterans by providing exceptional health care that improves their health and well-being. BD-STEP connects talented early career data scientists with VA researchers and clinicians to advance healthcare for our Veterans. Through clinically-oriented operational projects and research that harnesses the VA’s big data resources, fellows’ research projects can inform healthcare administrators and empower clinicians to translate findings to improve patient care. VHA provides program leadership, VA Medical Center oversight, and fellow salaries and benefits for BD-STEP.

NCI
NCI leads, conducts, and supports cancer research across the nation to advance scientific knowledge and help all people live longer, healthier lives. NCI’s charge to support workforce development includes training and mentoring the next generation of cancer researchers. The development of data scientists in oncology is particularly important to harness the massive generation of data across the cancer continuum and answer fundamental questions in cancer research and care. Research guidance and support for BD-STEP fellow travel, training, and curriculum development are provided by the NCI Center for Strategic Scientific Initiatives.

A COLLABORATION WITH

U.S. Department of Veterans Affairs
Veterans Health Administration

Developing the Next Generation of Healthcare Data Scientists

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The Big Data Scientist Training Enhancement Program (BD-STEP) was launched in 2015 to train the next generation of healthcare data scientists capable of interpreting and gaining insights from large clinical datasets. The Veterans Health Administration (VHA) is America’s largest integrated healthcare system, providing care to 1.25 million enrolled Veterans each year. The long-term care Veterans receive within this centralized healthcare system provides a rich source of longitudinal patient data—covering patients through periods of health and illness. This is unique to the VHA, as the care patients receive in other US healthcare organizations is often fragmented among different clinical sites, making it difficult to obtain a complete patient profile through the aggregation of medical records. Within the integrated VA healthcare system, there are many untapped opportunities to gain insights from patient data to advance cancer research and care. BD-STEP provides an avenue to access the rich, diverse data available in the VA Electronic Health Record (EHR), including longitudinal clinical patient data and diagnosis and treatment information from the VA Central Cancer Registry. BD-STEP utilizes the expertise of early-career data scientists to analyze these data and facilitate the execution of large-scale system changes in clinical care.

Fellows are placed in four VA medical centers across the country to work with clinicians and interdisciplinary researchers to address important patient-centered health challenges. The sites are guided by an advisory council with VHA and NCI membership, including the NCI’s Center for Strategic Scientific Initiatives, Center for Cancer Informatics and Information Technology. Fellows learn how to access and navigate the VA data and shadow VA healthcare providers and academic researchers to understand real-world needs and the clinical environment. Fellows work with academic and clinical advisors to develop and address important cancer research questions.

Over the course of their research, fellows network with healthcare and data science experts across government, industry, and academia. They receive research mentorship from VA healthcare providers and academic researchers and curriculum oversight by VHA and NCI program leadership. This equips BD-STEP graduates with the skills and connections they need to pursue careers in healthcare data science after graduation.

Since the launch of the program, BD-STEP fellows have initiated diverse studies using VA healthcare data resources. These including predicting hepatocellular carcinoma in hepatitis C patients using a cohort of more than 180,000 Veterans, comparing frailty assessment via clinical teams and machine learning to predict mortality in patients with congestive heart failure, and characterizing dynamic biological changes associated with prostate cancer progression in obese patients. Fellows use computer science and mathematics to gain insights from healthcare data and solve real-world clinical cancer problems, launching their careers in healthcare data science.

Fellows who graduate from the program are more than data scientists; they are interdisciplinary researchers who use data science to make a difference in patient care. Fellows use computer science and mathematics to gain insights from healthcare data and solve real-world clinical cancer problems, launching their careers in healthcare data science. Connections made during BD-STEP last beyond the end of the fellowship, providing a network of support and collaboration for early-career scientists.