



## The “I” in TeamStudy

**THE FOOTBALL PLAYERS HEALTH STUDY** at Harvard University, a cross-Harvard project that involves researchers at HMS and its affiliate hospitals, recently launched TeamStudy, an iPhone-based research app. Funded by the NFL Players Association and designed and tested by former players, TeamStudy focuses on health issues that matter most to those athletes, such as memory, balance, heart health, pain, and mobility.

The app allows individuals—former players as well as the general public—to enroll directly in the study, guiding them through an interactive informed-consent process. The app also allows participants to easily complete tasks and surveys directly through their iPhone.

“Traditionally, we study participants in one location, failing to capture their real-life, day-to-day experiences and activities,” says Alvaro Pascual-Leone, the HMS associate dean of clinical and translational research, an HMS professor of neurology at Beth Israel Deaconess Medical Center, and the principal investigator of TeamStudy. “Using this technology, we will be able to quickly identify patterns that could lead to treatments for health conditions faced by former NFL players.”

—Sara Silvestro

## Custom Fit

Collaborative effort advances search for targeted treatments for rare conditions



A NEW ALLIANCE, driven by patients and formed by researchers, means to leverage genomic medicine and bioinformatics to better serve patients with rare or unknown conditions. The Patient-Empowered Precision Medicine Alliance comprises HMS, Boston Children’s Hospital, and other collaborating institutions, and will focus on developing tools to improve the precision of diagnoses and lead to customized drug treatments for patients.

“Thanks to the increased public availability of high-quality data sources,” says Isaac Kohane, the Marion V. Nelson Professor of Biomedical Informatics at HMS and head of the School’s Department of Biomedical Informatics, “we now have the opportunity to ‘compute’ the right drugs at a time scale and cost far below those of drug development.”

Matthew Might, an HMS visiting associate professor of biomedical informatics, leads the alliance’s pilot project. The

project team will screen for treatments for a group of subtle genetic disorders by applying a precision medicine algorithm Might developed while seeking treatments for his son, who was diagnosed with *NGLY1* deficiency, a rare syndrome.

The goal of the alliance is to develop a scalable infrastructure for delivering precision medicine at any clinic or hospital. This point-of-service delivery is meant to relieve patients of the need to navigate the health care system on their own or travel great distances to receive fragmented care.

The patients’ port of entry to the alliance is a center hosted by the Department of Biomedical Informatics at HMS, one built upon the model developed for the Undiagnosed Diseases Network. The network matches experts in genome sequencing with patients who seek a formal diagnosis of their rare, or rarely encountered, disease.

Using Might’s algorithm and applying it to selected diseases, the alliance will try to match patients’ genetic disorders with existing therapies within twelve months. To achieve this, the group will use targeted screening methods that employ a patient’s own cells or unique mutations as well as novel bioinformatics algorithms that compare a patient’s data against those in pharmaceutical databases. In some cases, it may be possible to repurpose existing drugs for uncommon diseases.

—Sara Silvestro