**MGH Pathology Experts Forge New Mode of Diagnosis**

To help physicians improve diagnostic speed and accuracy, Massachusetts General Hospital pathology experts are essentially teaching computers to mine all the information gathered on each patient and make recommendations about that patient’s case. Roughly 70 percent of all hospital decisions about diagnosis and patient care are based on pathology lab tests, estimates Mass General’s Chief of Pathology David Louis, MD. Texts on blood, urine and tissues reveal telltale markers of health and disease. But hidden in the huge haystacks of information generated, he says, “are vast amounts of untapped information.”

Mass General pathologists coined the use of the term “computational pathology” to describe their efforts at developing computer models and algorithms—formulas and coding for solving problems—to mine data and make clinical recommendations.

*To read more, visit [www.massgeneralmag.org/pathology-mode](http://www.massgeneralmag.org/pathology-mode)*

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**MGH Care and Research Keep Student’s Leukemia at Bay**

It’s been close to four years since Nick Cancelliere, then a college sophomore and avid snowboarder, found himself too exhausted to make a second run down the slopes of Killington, Vermont. Later that unforgettable day at Massachusetts General Hospital, testing Mass General’s Leukemia Program, was soon involved. It turned out that Nick had a highly aggressive form of acute myeloid leukemia (AML), a cancer of the blood and bone marrow.

Karen Ballen, MD, clinical director of Mass General’s Leukemia Program, was soon involved. It turned out that Nick was among the one-third of AML patients who have the FLT3 gene, a genetic feature that makes his AML aggressive and potentially fatal.

Nick was fortunate that the Mass General Cancer Center is a national leader in discovering new gene targets and the drugs that may stop their cancer-causing actions. Mass General oncologist Yi-Bin Chen, MD, was conducting a clinical trial of a drug called semaluzumab that targets the FLT3 gene. Dr. Ballen presented Nick with the option to try it to help fight his leukemia. For the past two years, Nick has been taking two pills of semaluzumab a day. The drug is tough on the stomach and gastrointestinal system, but he says it’s worth it. "Our job is to get the best possible outcomes for our patients and there is nothing as personally rewarding as that," Dr. Ballen says. "We want to design more options for patients like Nick to give them a second chance at life."

*To read more, visit [www.massgeneralmag.org/student-leukemia](http://www.massgeneralmag.org/student-leukemia)*

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**MGH Doctor Working on Unique Devices to Help Epilepsy Patients**

Every week at Massachusetts General Hospital, Sydney Cash, MD, PhD, sees patients whose lives are profoundly impacted by epilepsy. Afflicted by short but seemingly unpredictable seizures, many with epilepsy can no longer drive, work or go to school.

Dr. Cash is determined to change this. In his Mass General lab, he and his team are working on a prototype for specially designed eyeglasses that would collect data about epileptic seizures. Such data could help predict when a patient’s next seizure will occur. That could transform the lives of people with epilepsy now and for many years to come.

The eyeglass frames involved are made of black plastic. With no electronic equipment affixed yet, one could mistake them for a dollar-store toy. But these glasses are far more sophisticated than they appear. And they are exactly what Dr. Cash wants for his early-stage research. His Mass General lab creates low-cost prototypes using a device called a 3D printer to test with patients. He believes early-stage patient input will lead to better final products and decrease research and manufacturing costs.

*To read more, visit [www.massgeneralmag.org/epilepsy-device](http://www.massgeneralmag.org/epilepsy-device)*

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**Researchers Launch iPhone Diabetes App**

Can smartphones change the way clinical research is conducted? A team from the MGH Center for Assessment, Measurement and Continuous Health (CATCH) may soon find out. On March 9, 2015, the CATCH team officially launched GlucoSuccess, an iPhone app created to help researchers study type 2 diabetes.

The app was announced by Apple during the launch of its open-source framework ResearchKit. It allows patients to track health behaviors important for type 2 diabetes, such as physical activity, diet and medication adherence, which may lead toward positive behavior changes.

“Our team is focused on harnessing the remarkable power of mobile technology to benefit patients with diabetes,” says Stanley Shaw, MD, PhD, co-director of CATCH. “At the same time, the sensing, computing and communication capabilities of smartphones will enable us to create research datasets of unprecedented size and detail around specific health behaviors and how they relate to blood glucose in individuals and populations.”

*To read more, visit [www.massgeneralmag.org/iphone-app](http://www.massgeneralmag.org/iphone-app)*

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**HUBweek to Highlight Boston Innovation**

Mark your calendars for the week of October 3-10 and Boston’s first ever HUBweek, an annual festival designed to enhance Boston’s reputation as a center of innovation, learning, medicine, technology and the arts. Massachusetts General Hospital joins Harvard University, MIT and The Boston Globe in presenting HUBweek, which includes a number of exciting activities ranging from problem solving to celebration.

Throughout HUBweek, Mass General will convene and host a series of interactive programs that showcase innovations and challenges in healthcare delivery and biomedical sciences. MGH will share its own viewpoint as well as that of other innovators in medicine throughout Boston.

The MGH-hosted programs aim to appeal to a diverse audience including clinicians, researchers, students, national healthcare policy makers, industry representatives and MGH community members, including patients and donors.

*To learn more, visit [www.hubweek.org](http://www.hubweek.org)*

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**To read more, visit [www.massgeneralmag.org](http://www.massgeneralmag.org)**