



Overheard Before the Crisis

A neighbor who just won't turn her music down. Lingered grief after a spouse's death. Sometimes daily stressors are just too much to bear, and their crest doesn't always come during business hours.

In 2008, UPMC and Western Psychiatric Institute and Clinic opened re:solve Crisis Network—a consolidated 24-hour hotline, walk-in clinic, and mobile dispatch that anyone in Allegheny County can use to speak with clinicians and peer counselors during tough situations. We spoke with re:solve's medical director, John "Jack" Rozel (Res '04, Fel '05), who's also an MD assistant professor of psychiatry at Pitt.

What set you on this path to crisis psychiatry?

[As a volunteer at a suicide hotline in college], I was just thunderstruck by how much of a difference being on the phone with someone—listening, empathizing with them—often really not saying much, certainly not giving them advice, but saying "tell me about what's going on," makes. I've really been in the field ever since. And I remember at the time thinking, *Wow, if all I'm doing is listening, imagine if I really knew what I was doing.* I know now, 25 years later, that the most important part is still listening.

What's a typical re:solve call?

Just like the cardiologist wants to meet someone before a mild angina progresses to a triple bypass, we want to work with people as early as possible. But that also means when someone comes and says, "Hey, I need help from you guys," that person doesn't have to be suicidal, that person doesn't even have to have a psychiatric diagnosis, which sets us apart from other mental health and behavioral health crisis and emergency services out there. We're really not focused on or especially interested in the diagnosis; we are focused on what's going on today.

How did re:solve come into being?

What UPMC and WPIC did was spend a lot of time doing focus groups with people living with mental health issues . . . to determine what a crisis center had to be. One of the questions they asked was, "If you had a crisis, where would you go?" The number one answer was "the emergency department." Now, an emergency department is great if you have a full-blown emergency or a life-threatening situation. But when you're feeling really stressed out, we can give you support and help you find your strength. —Interview by Chuck Staresinic; introduction by Robyn K. Coggins

Faculty Snapshots

Professor of pediatrics Alejandro Hoberman, an MD, received the Academic Pediatric Association's Research Award at the Pediatric Academic Societies meeting last year. Hoberman also presented the results of a multi-center study of children with vesicoureteral reflux, or abnormal backward urine flow from the bladder, in children with urinary tract infections. The study showed that giving the kids prophylactic antibiotics in low doses reduced the risk of UTIs by 50 percent compared to placebos.

Juan Carlos Puyana and investigators at four other institutions will use a \$1.6 million grant to expand the use of mobile health and informatics technologies in low and middle income countries. The effort is part of a National Institutes of Health-funded Fogarty International Center program. Puyana's project will develop an electronic medical record designed for trauma patients in Colombia, Paraguay, and Guatemala. His team will train researchers in information and communication technology and address expertise gaps. Puyana is an MD associate professor of surgery, clinical and translational science, and critical care medicine.

Ericka Fink earned a \$1.87 million grant from the Patient-Centered Outcomes Research Institute to study rehabilitation in children with acute brain injuries. Fink is an MD and associate professor of pediatrics, of critical care medicine, and of clinical and translational science. Her three-year study will compare standard treatment to care supplemented with physical, occupational, and speech therapies within 48 hours of injury. Fink's team will evaluate whether early rehabilitation therapies improve children's cognitive, physical, and quality of health outcomes.

The British Medical Association awarded the fifth edition of *Bailey's Head and Neck Surgery: Otolaryngology* first place in the surgical subspecialties category at their annual book awards, outshining 640 other entries. The "outstanding" text was edited by otolaryngology and communication science and disorders professors Jonas Johnson, an MD, and Clark Rosen, an MD and founding director of Pitt's Voice Center. Johnson is a Distinguished Service Professor, the Dr. Eugene N. Myers Professor, and chair of otolaryngology; he also holds appointments in radiation oncology and in oral and maxillofacial surgery. —RKC

PHOTO BY KIPP MADISON, ILLUSTRATION BY MICHAEL LOTERERO.



Hoberman



Puyana



Fink



Johnson



Rosen

Predicting Rejection

Different people have different immune system responses—that’s an obvious but challenging fact to work around, especially in organ transplants in children. Kids’ immune systems are already immature, plus most children who need transplants have a weakened immune response. That makes managing rejection tricky: Dial up immunosuppressive drugs too high, and they can cause lymphoma; drop them too low, and patients risk rejection.

The doctor’s tool to detect rejection has been a biopsy—but there was no tool to predict it. Now Rakesh Sindhi, MD professor of surgery, and colleagues have developed a test that can.

Pleximmune, approved by the FDA this August, is a cell-based test that can predict acute cellular rejection with 80 percent accuracy. Sindhi’s team focused on liver and intestine transplants; tests for kidney and other organ transplants are in development.

“The liver . . . likes to shake hands with any immune system,” says Sindhi, who’s also codirector of clinical pediatric transplantation programs and research at Children’s Hospital of Pittsburgh of UPMC. “The intestine . . . is the exact opposite. Like every organ that sits at the interface of the body and the environment, it’s constantly seeing a bunch of bugs; [so] these organs tend to have lots of rejection”—a staggering 75 percent likelihood of rejection in the first five years after transplantation, in fact.

To develop his risk predictor, Sindhi first tested nonself cells against recipient cells using flow cytometry to determine a baseline immune system response. Then he tested donor cells just before transplantation against recipient cells. Express the two results as a fraction, and you get a personalized rejection risk index.

“Sometimes the patient looks fine,” Sindhi says, “but the test tells you otherwise.” —RKC



CATHERINE LAZURE

The Genetics of Autism

No one fully understands the genetic causes of autism, says Bernie Devlin, a PhD who has been studying the subject for 10 years. But researchers are starting to assemble the pieces. “What we are trying to provide are the genetic puzzle pieces to understand the neurobiology,” he says.

To that end, the University of Pittsburgh’s Devlin, a professor of psychiatry, of human genetics, and of clinical and translational science, coauthored two studies published in *Nature* and *Nature Genetics* in 2014.

Researchers know that the genetic architecture of autism spectrum disorder (ASD) involves interplay between common and rare genetic variants. But to what degree might autism be linked to rare variants versus an unusual expression of common ones?

In their *Nature Genetics* letter, Devlin and collaborators reported that after analyzing 3,871 subjects with ASD and their genetic makeup, they estimated that 48 percent of the genetic risk of autism comes from common variants of genes prevalent in the entire population. Each of these has a very small impact on risk, notes Devlin. Yet it’s important to learn more about the roles they play, he says.

What about the other 52 percent of genetic risk? Much of that remains to be characterized, but the scientists’ *Nature* paper points to suites of genes involved in the risk.

Their findings don’t mean much to potential parents just yet, says Devlin. But now another piece of the puzzle is laid out. —Nick Keppler

FOOTNOTE

Search for “anterior cruciate ligament” articles, and you’ll run into familiar names from Pitt orthopaedic surgery. In 2014, faculty from the Pennsylvania Commonwealth System of Higher Education claimed the most authors overall; Pitt faculty published 536 of the PCSHE’s 582 publications. (Freddie Fu authored 275 of those.) All the publications on the subject in Canada totaled 703.



STACY INNERST

EMILY HEART(MAP)S PITTSBURGH

It's a bit surprising that just last year, there wasn't a cohesive record of where to find automated external defibrillators (AED) in U.S. cities. Lucky for us, Pitt's own fourth-year bioengineering PhD student Emily Bayer found 507 of the heart-jolting devices throughout Allegheny County in October 2014.

An ongoing, multicity crowdsourcing project called HeartMap challenges citizens to find defibrillators in their respective cities and report back, so HeartMap can create a central database to aid emergency services (including 911 operators). A Pitt/University of Washington team of emergency medicine researchers will also be probing the data.

Bayer followed some pretty interesting leads: "It was amazing to learn about all the different types of people who have used these devices to save lives in Pittsburgh—from police officers to Boy Scouts to a ticket scalper who just happened to be at the right place at the right time."

How did Bayer get to claim HeartMap's \$5,000 grand prize? By "setting a goal . . . to find at least 20 to 30 a day and spending two to three hours a night following leads."

—Nick Moffitt

Appointments

Children's Hospital of Pittsburgh of UPMC has recruited cardiologist **Bernhard Kühn** from Harvard University as its director of research for cardiology. Kühn, an MD, is also the third scholar in the Richard King Mellon Foundation Institute for Pediatric Research, a program that allows talented young researchers to pursue promising projects. Kühn's research is focused on new ways to coax heart muscle to repair itself, to prevent and treat heart failure in children.

Robert P. Edwards (MD '84, Res '89) assumed the chair of obstetrics, gynecology, and reproductive sciences this January, after the retirement of longtime professor and chair, W. Allen Hogge. Edwards has been a full professor in the department since 2008 and previously served as its vice chair for clinical affairs, as well as the director of gynecologic oncology research and outreach at Magee-Womens Hospital of UPMC. His work on gynecological cancers and human papilloma virus has resulted in more than 175 peer-reviewed papers and numerous clinical trials.

James Herman, an MD cancer epigenetics researcher from Johns Hopkins University, has

joined Pitt. He is a professor of medicine and coleader of the Lung Cancer Program for the University of Pittsburgh Cancer Institute (UPCI). Some of his research investigates gene silencing and the way that DNA methylation changes can alter gene expression. As a medical oncologist, he will care for patients with thoracic malignancies at the VA Pittsburgh Healthcare System.

Jules Sumkin, a DO, is now chair of the Department of Radiology. Sumkin is the chief of radiology at Magee-Womens Hospital of UPMC and codirector of the Women's Imaging Fellowship, where radiologists are trained on breast imaging techniques like MRI and tomosynthesis—a newer imaging approach that he helped develop—and obstetrical ultrasound. Sumkin holds the UPMC Chair in Women's Imaging at Pitt. He has been with the University since 1986 and began the development of tomosynthesis in 2005. —NM



Kühn



Edwards



Herman



Sumkin

NIH AWARDS*

\$457 MILLION

\$185 MILLION

\$1.46 BILLION

ENDOWMENT FUNDS

\$2.19 BILLION

OPERATING REVENUES

\$525 MILLION

2.52 MILLION SQ. FT.

RESEARCH SPACE

\$702 MILLION

1.35 MILLION SQ. FT.

1998

2014



NIH AWARDS TO FACULTY
TOP 15 EDUCATIONAL INSTITUTIONS
Award dollars in millions.

INSTITUTION	RANK	AWARD
Harvard University	1	\$1,523
University of Pennsylvania	2	\$634
Johns Hopkins University	3	\$630
University of California, San Francisco	4	\$614
University of Pittsburgh	5	\$457
University of California, San Diego	6	\$446
UCLA	7	\$445
University of Washington	8	\$438
University of Michigan	9	\$418
University of North Carolina at Chapel Hill	10	\$396
Washington University in St. Louis	11	\$392
Stanford University	12	\$386
Duke University	13	\$372
Yale University	14	\$361
Columbia University	15	\$350

Source: NIH Web site, Dec. 10, 2014 (Awards by Organization)

GOING UP

It's been 16 productive years since Arthur S. Levine, the John and Gertrude Petersen Dean and senior vice chancellor for the health sciences, was recruited to the University of Pittsburgh. Take a gander at some of these impressive figures on the health sciences. Pitt has made an extraordinary climb during that tenure—ascending as the country has lived through some serious swells and groans (mostly groans) in National Institutes of Health funding. Things won't get easier with clinical revenue streams likely diminishing. Strategic community, industry, and international partnerships have become key. And with long-standing talent and topnotch recruits streaming across campus, Levine is confident Pitt will continue to rise.

—Robyn K. Coggins and Erica Lloyd
—Illustration by Michael Lotenero

* Includes University-wide NIH program funding. Figures on endowments, operating revenues, and research space are for the health sciences schools.