



*Devoted to noteworthy happenings
at the medical school*

Preventing Stillbirth

A stillbirth is a tragedy for any mother. And according to a study in October's *American Journal of Clinical Nutrition*, obese women are at higher risk than their leaner counterparts for such a devastating loss.

Hyagriv Simhan, MD medical director of obstetrical services at Magee-Womens Hospital of UPMC, and colleagues found that hypertension and placental disease seem to cause the most stillbirths among mothers who were obese before conception.

Doctors can advise women to lose weight before they get pregnant. Yet once they conceive, mothers can't undo the risk associated with prepregnancy obesity, even if they shed a few pounds while expecting.

Simhan hopes that will change. Pinpointing the causes and mechanisms of stillbirth could pave the way for effective interventions for future mothers-to-be.

"Prior to and during pregnancy, there should be things that we offer to women to modify their risk," says Simhan, who's also associate professor of obstetrics, gynecology, and reproductive sciences and chief of the Division of Maternal-Fetal Medicine at Pitt. He adds, "What we need is prevention."

—Jennifer Larson

MARTIN BOTVIDSSON/GETTY IMAGES



MICROCEPHALY UNDER SURVEILLANCE

When it comes to combating the international Zika outbreak, the biggest challenge, says Ernesto Marques, an MD/PhD professor of infectious diseases and microbiology at Pitt Public Health, is a lack of information. Marques estimates there are thousands of published scientific papers on Ebola and dengue fever, but only a few hundred on Zika.

"The information is not there. I can't go to PubMed and find answers," he says.

Marques, a member of Pitt's Center for Vaccine Research and a dual Brazilian-American citizen, hopes to add to the body of knowledge with a 12-hospital study planned for this summer in Brazil. The country is currently investigating 4,000 cases of microcephaly—a congenital birth defect causing an abnormally small head, among other effects—linked to pregnant women infected with Zika. Previously, Marques's team found the virus in placentas, amniotic fluid, and infant brains. He is testing the link between microcephaly and Zika—which is usually transmitted by mosquitos (and now we are learning is also transmitted sexually). The study involves 200 babies with microcephaly and 400 healthy babies to test the correlation, as well as look for possible environmental risk factors like pollutants. "It's the very beginning of a long process," Marques says. —Rachel Wilkinson

FOOTNOTE

For Rachel Brick's latest composition, the cellular and molecular pathology graduate student drew inspiration from the Cathedral of Learning, as well as from the medieval soundscapes of the game series *Assassin's Creed*. This winter, she donned a floor-length, hooded cape to film a solo violin music video in the Nationality Rooms, traipsing from Romania to Scotland. The video is still in production, but you can hear Brick's music on SoundCloud—follow [IceRequiem](#).



CAMI MESA

Overheard Randomized Trials and Big Data Get Hitched

Derek Angus, an MD/MPH, has long argued that multicenter megatrials result in the most informed clinical care—especially for complex conditions such as the brain cancer glioblastoma multiforme, pneumonia, or sepsis. Based in part on a blockbuster study he led, a new definition of, and treatment guidelines for, sepsis appeared in the February 23 issue of *JAMA*.

But randomized clinical trials are long and expensive, and they can be discomfiting for patients and clinicians. In a 2015 *JAMA* opinion piece, Angus made the case for a new kind of randomized trial that “fuses” with big data. “The big problem with big data is that there’s no randomization in it, and the singular beauty of randomization is that you can gain causal inference,” he says. Marrying them, says Pitt’s Angus (who is a Distinguished Professor, the Mitchell P. Fink Professor, and chair of critical care medicine), “is an idea whose time has come.”

What’s the fusion you’re proposing?

With the rise of big data and electronic health records (EHR), a number of groups have suggested that you could essentially leverage the EHR to create live estimates of the likelihood of getting benefit from a treatment by running, essentially, a large observational cohort study inside the EHR. But we propose going further: using clinical data in the EHR to influence the ongoing trial.

How is this playing out in the clinic?

We’ve received funding from the European Union and the National Health and Medical Research Council of Australia to launch this program in severe pneumonia patients coming to the ICU. We will be testing multiple antibiotic strategies, whether to immunomodulate the patient with corticosteroids, and . . . different ways of providing mechanical ventilatory support—all at the same time. All generate separate weights of evidence and separate probabilities for different subgroups of patients with pneumonia, depending on how bad their oxygenation is and whether they have shock or not. The trial is simultaneously generating 48 separate measures of treatment effects, as opposed to a single normal trial that generates one. And if any particular combination of therapies in any particular patient subgroup is doing better than the others, the next patient who presents will have the odds weighted in his or her favor toward the best performing therapy. So the trial is constantly learning. We are incredibly excited about envisioning a future where clinical care becomes a constant learning tool. —Interview by Robyn K. Coggins

Faculty Snapshots

Pitt has a new place on the editorial board of *Proceedings of the National Academy of Sciences*. Peter Strick, a PhD and University Distinguished Professor, has been appointed to the Systems Neuroscience board of the journal. Strick is the Thomas Detre Professor and chair of neurobiology, scientific director of the University’s Brain Institute, as well as a member of the American Academy of Arts and Sciences and the National Academy of Sciences.

Pitt’s Health Sciences Library System, directed by Barbara Epstein, received two five-year awards, totaling \$8.4 million, from the National Institutes of Health (NIH). The first renews HSLS’s role as leader of the Middle Atlantic Region of the National Network of Libraries of Medicine (NN/LM). Through this grant, HSLS supports the National Library of Medicine in providing health professionals with access to biomedical information and promoting the availability of reliable health information to the public. The other designates HSLS to serve as the national Web Services Office for the NN/LM.

Ronald Poropatich, an MD and retired colonel from the U.S. Army, has been inducted into the College of Fellows of the American Institute for Medical and Biological Engineering—an honor reserved for the top 2 percent of engineers in this specialty. Poropatich received this honor for his contributions to mobile health and telemedicine in military and civilian settings. In particular, Poropatich was integral to developing and deploying telemedicine for the army beginning in the early ’90s and across several war-torn countries. He also served as the U.S. Army medical informatics consultant. Poropatich is now professor of medicine at Pitt, executive director of the Center for Military Medicine Research, Health Sciences, and senior advisor for telemedicine at UPMC.

This May, Rocky Tuan, a PhD, accepts the “Contributions to the Literature” Clemson Award at the 10th World Biomaterials Congress in Montreal. The honor recognizes his extensive list of publications on musculoskeletal biology and tissue regeneration. Tuan is a Distinguished Professor and executive vice chair of orthopaedic surgery, professor of bioengineering and of mechanical engineering and materials science, director of the Center for Military Medicine Research, and associate director of the McGowan Institute for Regenerative Medicine.

—Kristin Bundy



Strick



Epstein



Poropatich



Tuan

Creative Creations

The 2015 Pitt Innovation Challenge (PInCh), sponsored by the Office of the Provost, the Clinical and Translational Science Institute, and the Innovation Institute, tackled health-related problems in a truly Pittsburgh fashion: by seeking solutions that “bridged” at least two patient life stages. Two top-level grantees, winning \$100,000 each, are affiliated with the School of Medicine.

One winner—also a shoo-in for Most Adorable—is neurosensory environmental adaptive technology (NEATCAP), a hearing-protection device for premature infants. NEATCAP’s team of local inventors is working with Magee-Womens, UPMC Hamot neonatal intensive care unit (NICU) director, Michael Balsan, an MD and associate professor of pediatrics, to evaluate the prototype. This “baby helmet” promises to block high-frequency stressors of the NICU while still allowing voices to reach the baby’s ears, thus reducing infant anxiety and granting parent-child connection at a crucial time for neurosensory development.

ILLUSTRATION TIM GROEN. BASED ON PHOTO COURTESY FRED KIMOCK, NEATCAP.



Another PInCh champ, called Phoenix, is a man-made blood vessel. It was developed by bioengineers advised by Pitt’s Yadong Wang, a PhD. (Wang is the William Kepler Whiteford Professor of Bioengineering; he also holds positions in chemical engineering, mechanical engineering, and surgery.) Phoenix has “the potential to revolutionize vascular access” in dialysis and for many other situations in which resorbable prostheses might aid healing, notes Wang. —*Rachel Mennies*

For Our Kids

Starting June 1, Terence Dermody, an MD, will be the chair of pediatrics for the University of Pittsburgh School of Medicine, as well as physician-in-chief and scientific director of Children’s Hospital of Pittsburgh of UPMC.

At Vanderbilt University School of Medicine, Dermody, the Dorothy Overall Wells Professor of Pediatrics, directed the Division of Infectious Diseases, the Elizabeth B. Lamb Center for Pediatric Research, and the Medical Scientist Training Program.

Dermody is a virologist with interests in viral pathogenesis and vaccine development. His lab, which he will bring to Pittsburgh, has focused on viral encephalitis in infants (using an experimental model, reovirus) and chikungunya virus. He studies how viruses attach to and enter cells, how cells signal and respond to the presence of viruses, and other critical goings-on at the microscopic level. Yet Dermody is also galvanized by big-picture issues.

Much of what physicians and scientists do, notes Dermody, is look for ways to treat and prevent illness. Considering Pitt’s big data and analytics partnerships with UPMC and Carnegie Mellon University, its pediatric research talent, and community support, he says, “We have the opportunity to ask a different kind of question: What are the correlates of wellness? . . . And what is different about the 18-year-olds who are not ready, either medically or psychologically, to be on their own?”

“What has attracted me most to Pittsburgh is the chance to make a difference in the lives of children in a major American city,” says Dermody. “I think this is important. This is our [pediatricians’] space. These are our kids.” —*Erica Lloyd*



Dermody

FOOTNOTE

Share the love—and the expertise. At least eight former Pitt med faculty members have gone on to become deans at other schools across the country in recent history.

Of late, such deanships are held by David Perlmutter (he now oversees the medical school and all health sciences at Washington University in St. Louis), Steven Kanter (who runs the show at the University of Missouri-Kansas City med school), and John Reilly (now leading the med school and health affairs at the University of Colorado).



SPECIAL DELIVERIES

In complicated obstetric crises, a no-risk simulation beforehand can save lives. Pitt ob/gyns used to walk over to WISER (Pitt’s Peter M. Winter Institute for Simulation, Education, and Research) to train for these double-trouble situations. But as of September, Magee-Womens Hospital of UPMC has its own specialized satellite location—complete with a simulated mother with a motor in her belly who births a pseudo-baby. (Nurse Karen Stein is shown with the mommy mannequin here.)

The new center, directed by Gabriella Gosman, an MD and associate professor of obstetrics, gynecology, and reproductive sciences, is also equipped with a simulation information management system (SIMS) that analyzes how trainees perform during procedures. SIMS offers hard data to improve skills, from placing an infant IV to treating preeclampsia. —Imaz Athar

Next Generation

Catherine Byrd, a third-year medical student, recently received Career Education and Enhancement for Health Care Research Diversity Program support and also the 2016 In-Training Award from the Society of Critical Care Medicine. Byrd is researching a novel resuscitation therapy for traumatic brain injury and hemorrhagic shock. Her mentor is Patrick Kochanek, an MD professor and vice chair of critical care medicine and director of the Safar Center for Resuscitation Research.

The prevalence of hepatitis C in U.S. prisoners is high. Estimates run from 15 to 34 percent, but testing for the virus is low. As infected prisoners enter back into the general population, hepatitis C is likely to spread further. Tianhua He, a student at Pitt med-affiliated Tsinghua University who has worked with Pitt’s Public Health Dynamics Lab, helped create a model showing a way to reduce transmission. As first author of a November *Annals of Internal Medicine* paper, she suggests that universal hepatitis C testing in prisons, for which inmates could opt out, would significantly reduce transmission and associated deaths, resulting in health and economic benefits for the entire nation.

Chris Murawski has published 52 papers in peer-reviewed journals and delivered 61 podium presentations at academic meetings—those have been mostly on foot, ankle, and knee repair. The fact that he’s accomplished this volume of study all before his 26th birthday has earned him a *Forbes* “30 Under 30 2016” nod in its health care section. Murawski, a second-year Pitt medical student, has years of experience working with orthopaedic surgery chair, Freddie Fu, an MD; Murawski has his sights set on a career in orthopaedic surgery.

Newly minted PhD Arturo Lopez Pineda won the 2015 Marco Ramoni Distinguished Paper Award for Translational Bioinformatics for his paper discussing the epigenetic regulation of cancer genes—specifically, the discovery of relevant groupings of methylated gene sites that may help differentiate lung cancer subtypes. In December, he successfully defended his dissertation on models of molecular cancer data. “He is truly passionate about using his computational skills to conduct transformative research,” says Vanathi Gopalakrishnan, a PhD associate professor of biomedical informatics and Lopez Pineda’s research advisor. Lopez Pineda recently accepted a postdoctoral research fellowship in genetics at Stanford University.

—Jessica Boddy



HOUSE-NAMING PARTY

The University of Pittsburgh School of Medicine's advising program just "moved" into six new houses, and the school wants you to help name them.

These groups—“like nonresidential Harry Potter houses,” associate dean for student affairs Joan Harvey, an MD, jokes—each contain one advisory dean and roughly 20 students per class year, granting “housemates” access to mentorship, career development, and professional enrichment opportunities. And the houses foster social community through events like meet-ups at Peter's Pub, Arsenal Bowl, or Frick Park. (There was even a House Olympics.)

While Pitt med doesn't yet have a sorting hat for its houses (stay tuned), the school's 2015 orientation instead introduced incoming students to their deans and houses in a spirited scavenger hunt at the Andy Warhol Museum, which culminated in the bestowing of an iconic trophy (see left) upon the winning house, for now known as KMS (named for advisory dean Kathleen McIntyre-Seltman).

As the program anticipates its second year, Harvey is searching for house names—and she wants faculty, staff, students, and alumni to submit ideas. “We're looking to honor special contributors,” she says, “with a connection to Pitt med.” Honorees should come from the school's legacy rather than its present-day achievers—otherwise the sky's the limit. And because Pitt med is home to trailblazers across gender and race lines, Harvey seeks nominations that reflect the diversity of the people who've shaped the school.

Have a great idea? You can send recommendations to harvey@medschool.pitt.edu through the first half of 2016.

—Rachel Mennies

—Photo illustration by Tim Groen