



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