



A team at Children's Hospital of Pittsburgh of UPMC evaluates X-rays to decide next steps in care. The pediatric intensive care unit (PICU) at Children's emphasizes a team-based, multidisciplinary approach to rounds and treatment—and this approach is believed to contribute to its low mortality rate. Pitt's Schools of the Health Sciences want this culture to go viral.

PHYSICIAN, KNOW THYSELF, AND OTHERS TOO
BY ROBYN K. COGGINS

IDENTITY TRIUMPHS

The blue, green, and red teams round through Children's Hospital of Pittsburgh of UPMC's pediatric intensive care unit early on a Friday morning. On the blue squad: Rajesh Aneja, MD medical director of the PICU; fellow Jessica Wallisch, an MD; pediatric resident Catherine Polak, an MD; and three observing Brazilian fellows. They stroll genially through the multicolored corridors, expanding the team as needed—a respiratory therapist for this patient, a transplant consult for that one.

Each team orbits with an electronic medical record cart, Wallisch sometimes putting a foot on its wheeled base like a kid riding a shopping cart, while expertly coordinating a ringing phone, a pager, and requests from staff.

Midway through blue rounds, “Dr. Raj,” as everyone calls Aneja, and the team stop at a young girl's room. White patches of tape cover her motionless face; tubes from her mouth graze her smooth right cheek. (Details have been changed to protect patient privacy.)



Rounds at Children's include nurses, nurse practitioners, respiratory therapists, pharmacists, social workers, residents, fellows, and attendings. Family members also attend rounds.

PHOTOGRAPHY | MARTHA RIAL

“Cardiac arrest at home, six days ago,” Aneja explains, his voice somehow soothing. The girl’s nurse, Erica LeBlanc, an RN, stands near the door, ready to update the team on her progress overnight.

“Still no gag? Cough?” Aneja asks.

“I wouldn’t say she necessarily coughs; it’s more of a gag,” LeBlanc clarifies.

“She doesn’t have a pupillary response or a corneal,” Wallisch adds, which prompts resident Polak to present on yesterday’s tachycardia, the girl’s fluid buildup, and her slowly decreasing blood pressure. Then it’s respiratory therapist Brian Stiles’s turn to detail another litany of information while Aneja jots notes and Wallisch types the data into the electronic medical record.

Some of the team pores over graphs housed directly in the records, while others look to

is what we do oftentimes here, requires lots of talented people all working together.”

No physician—or nurse or physical therapist—is an island. There’s too much medical knowledge to retain, too many cascading decisions to make, too much for any individual to do in a day. The team approach helps keep Children’s PICU mortality rate exceptionally low, around 2 percent. Everyone is present, everyone has the same expectations and knows the next steps.

Over on the blue team, Aneja and company are sussing out a treatment strategy. “So the main issues now are, one, you need a long-term plan. It seems like she’s gonna survive this. And we need to formulate [that] plan of care after discussion with Mom,” Aneja says.

This case comes with an added complication: Nurse LeBlanc has contacted both

girl has been given about half that dose since she arrived and is scheduled for it again this afternoon.

“So you want me to not give this lower dose? Wait first?” asks Nurse LeBlanc.

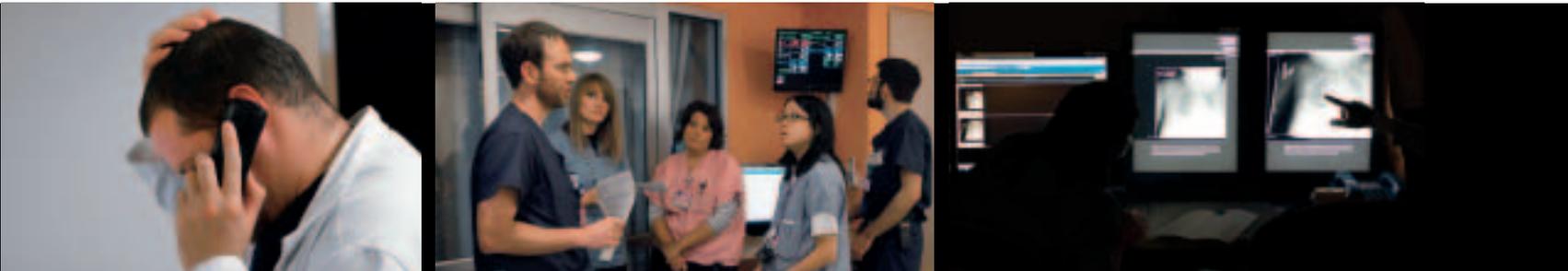
“Can we give 2 mcg/kg extra clonidine? Can we, Carol?” asks Aneja.

“Oh, we can order 2 mcg/kg.”

“Carol will make it happen!” Aneja announces, and the crew seems satisfied.

Vetterly and her fellow pharmacists are vital in the PICU, where children are frequently on a cocktail of medications. She computes dosages on a small calculator and considers potential treatment interactions while others present on the patient. It’s common for attendings to totally defer to her expertise—pharmacists often manage and prescribe all of a patient’s meds here.

As the team moves to its next patient, Kayla Stalma, an RN, teases Aneja about never work-



the screen above the patient’s door displaying biological data. They’re debating next steps until the girl’s parents can give input on a care plan. Throughout rounds, other parents in fuzzy slippers and old rock band T-shirts appear sleepily outside rooms to listen to the day’s updates and add their own observations and questions. No parents wait at this bedside.

The PICU is “open,” meaning the team coordinates care between different specialists and professionals, rather than one person dictating treatment. As Robert Clark, MD chief of pediatric critical care medicine, puts it: “It’s more of an orchestra here than it is a solo act.” After his red team rounds, he explains the interplay between each member of the staff, dimples cratering his cheeks, his voice soft:

“[In] children [you] might have a domino effect,” says Clark, who’s also professor of critical care medicine and pediatrics as well as associate director of the Safar Center for Resuscitation Research. “Any sort of intervention you might do, there’s a consequence that affects other organ systems or parts of the body. . . . Managing that, managing family dynamics, managing disease processes in the face of development, managing multiorgan failure, which

parents, but a custody dispute has stifled communications. Regardless, the team wants to consult them before moving forward. They decide that Aneja will try calling the parents today; maybe hearing from the doctor will spur conversations. Later, a social worker—a 24/7 linchpin of collaboration in the PICU—will stop in to further facilitate talks between the medical team and the family, whether in-person or in a conference call. Social workers like Gwen Harcar listen to family concerns and connect them with much-needed support and coping resources. (They often listen to doctor concerns too—everybody needs a good listener, after all.)

For now, the team focuses on keeping the girl stable. “Let’s hear from the pharmacist on this,” Aneja says. He wants to increase the girl’s clonidine, a drug that helps control the storm in the sympathetic nervous system often seen after brain injury in cardiac arrest. It helps in lowering blood pressure and also acts as a sedative. “What’s the upper limit?” he asks Carol Greco Vetterly, PharmD clinical pharmacy coordinator.

“Oh, 25 migs [mcg/kg] per day is the highest. There’s lots of room,” she replies. The

ing—this is his first day back after a few weeks away.

“The docs are awesome,” Stalma says later. “We call them by their first name; they listen to the nurses. They hear you.

“It’s a group effort.”

It’s tempting to simply say that the PICU exemplifies teamwork—which is true. But these professionals are doing something more remarkable than a double play or producing a stage drama; they’re working together in a communicative, interdependent way within a system that’s historically been hierarchical and fraught with egos.

Interprofessionalism—defined by the World Health Organization as “when multiple health workers from different professional backgrounds work together with patients, families, carers, and communities to deliver the highest quality of care”—falls in that hard-to-quantify space between intention and action, hearing and listening. It’s an art, and a difficult one. Because who doesn’t think she’s a team player? Who isn’t aiming for high quality care?

But if becoming better and better is the goal, as it is at Pitt, how do we start conversations among well-meaning, well-educated people to make collaborative, PICU-like scenarios a broader care reality?

The PICU's emphasis on collaborative care, or interprofessionalism, or multidisciplinary work—whatever one's preferred term of the many that describe it—has been a long time coming.

A 1972 Institute of Medicine report chronicled the need for this kind of care after a conference called Educating for the Health Team. It noted that health workers . . . *are proliferating in random fashion; each defines certain functions for itself either by self-arrogation or by delegation but almost never in collaboration with other health professionals; new professions appear to fill in the gaps left between the perimeters of existing professions; educational programs duplicate each other, as do facilities; many, many small programs appear in response to local needs.*

Like the little Dutch boy plugging holes in the dike, health science professionals had been acting quickly, if a little shortsightedly, to address

interprofessionalism as well as communication and problem-solving skills.

A few years ago, Pitt's six Schools of the Health Sciences anticipated the need for interdisciplinary work and sought to make their students' training, and Pittsburgh's clinics, look more like the collaborative PICU.

For the past eight years, a 12-person working group across the schools has been identifying opportunities to work together and try out small-scale reforms—from student mixers to forums to curriculum shifts. Susan Meyer, a PhD and pharmacy's associate dean for education who is administrative leader of the working group, serves as a touchstone and advocate for interprofessionalism at Pitt. Professor of psychiatry and of health policy and management Loren Roth is also a longstanding champion of the effort.

been separated by history and convention and the nature of identity formation. All those things have acted until now to prevent what is necessary team behavior and equal respect to all, period."

He says that as medicine shifts from an ethos of treating disease to preventing it, there's an increasing need for skills other than and in addition to a physician's.

Though less common today, old-school bully doctors disrespecting nurses is only one example of obstacles to interprofessionalism in practice.

What if studies show that surgery and physical therapy for chronic back pain have about the same efficacy? Which path does the care team choose, and who decides? Even in the PICU, the team waited for Aneja before beginning rounds, and treatment decisions were

Structured patient handoffs to the PICU started about six years ago, according to chief of pediatric critical care, Robert Clark. "You can try to read notes and come up with an impression, but it's not the same as sitting across from [team members]," he says. "A lot of that can make an impact, since the stakes are higher here." Electronic medical records have helped create a more complete data picture, but they can't capture the interpersonal art of medicine: "You can't put nuance into an electronic medical record," Clark says.



the problems arising in their respective fields. They needed more fingers; they needed someone to truly fix the leaks—a broad, long-term view. Contemporary clinicians and educators have been challenged to overcome this history of scattered experts, disjointed protocols, and intercultural misunderstandings.

About half of all American adults now have some type of chronic medical condition—like heart disease, diabetes, or hepatitis. And nearly a quarter, or 60 million, have multiple, ongoing health conditions. The resulting panoply of interactions and complications needs to be treated together. As the Boomers age, as researchers gather ever more immense clinical data sets for better treatments, flying solo won't be an option, even in private practice where MDs are typically seen as the boss.

On the national level, the Affordable Care Act incentivized "accountable care organizations"—multiprofessional efforts to treat Medicare patients—on the theory that an ounce of coordinated prevention and care should make for many pounds of cure (and savings). The Liaison Committee on Medical Education recently—finally, some might say—updated its standards to ensure that all accredited medical schools teach

Roth, MD/MPH associate senior vice chancellor for clinical policy and planning for the health sciences, might even object to the fact that we have to list the six schools: dental medicine, public health, nursing, pharmacy, health and rehabilitation sciences, and medicine. His definition of interprofessionalism includes a more diverse roster of members, like ambulance drivers, janitors with keys to facilities, interior decorators who make patient rooms comfortable, IT professionals who build record systems—really anyone who, however indirectly, helps patients. He balks at separate alumni magazines, separate buildings, and language that divides the schools.

Roth got to thinking about interprofessionalism in his former position as UPMC chief medical officer and senior vice president of quality improvement, and now he's part of the interprofessional working group that meets in the Falk Library of the Health Sciences, which this reporter erroneously characterized in conversation as "neutral ground."

"Neutral ground," Roth scoffs. "Between the warring parties, we have to have neutral ground? I just don't see it that way. We're all health care professionals, and I think that we've

ultimately his call. Could he cede some of his clinical autonomy to a nurse or rehab specialist?

Or take, for instance, an MD graduate who never encountered the increasingly common setting where a nurse practitioner treats most of a clinic's patients. Without training in such a situation, the MD could feel unmoored, underprepared, perhaps even hostile as she enters an unfamiliar role.

Resolving these professional conundrums comes down to identity and self-awareness: It means knowing where you and your colleagues fit within a larger system. It means being able to step up when your expertise is needed and step down when someone else knows best.

"What you really hope," Roth says, "is that as the evidence comes in, [interprofessional efforts] are evaluated objectively. Costs is one way. The patient experience is another. Disease outcomes is the third." He's reciting the so-called Triple Aim of care—a pyramid of values that the working group and others use to explain their reformative standards.

"And the challenge of an academic institution," adds Roth, "is to actually try to collect that data and to analyze [them] in such a way that a practice can be developed rationally."

Everette James, a JD and MBA, wants to give educators those analytics. James is director of the Health Policy Institute, Pitt's nearly 35-year-old effort to turn health science expertise into applied research and legislation. He's also the former Pennsylvania secretary of health, newly honored M. Allen Pond Professor of Health Policy and Management, and associate vice chancellor for health policy and public planning.

This summer, James and Meyer directed All Together Better Health VII. The international conference on interprofessional practice and education was the first-ever held in the United States. Professionals from across the globe exchanged ideas for new models of care and education.

"It elicited a lot of connections on campus," Meyer says. "Because it was here, it was an opportunity for a lot of our people to present their work. They're finding out about each other and what's available. I've gotten calls from groups . . . who want to evolve the culture more. So it really has made connections among

and night shifts.

Another incubator is using an electronic "dashboard" to alert geriatrics staff when patients tip into categories at high risk for serious medical events based on their vitals and other data.

Many of these more than a dozen incubator sites focus on transitional moments—as care responsibilities move between staff or parts of the hospital, or from clinic to home—and use technology in new ways to aid clinicians on a larger scale.

Working group member Hollis Day, MD associate professor of medicine and an advisory dean at the med school, suggests that clinics lacking a particular expert can create a "virtual team" of advisors to solve patient problems. But she's especially interested in how educators get the art of collaborative diagnosis and treatment into the curriculum.

"Just because you work next to a nurse does not mean that you work *with* a nurse," says Day. "And so I think unless we are incredibly explicit about what we are doing and why, and

training is that students from the different professions stayed in the room to observe one another, rather than performing their parts separately and reconvening. The result?

Wow, I had no idea that occupational therapy did this!

I really liked the way the pharmacist asked these questions.

Turns out health care workers of all stripes often have little idea what other practitioners actually do. Even faculty participants sometimes say they're surprised by their colleagues in other schools.

"This is totally different than anything we were taught," Day says. "You're taught about your profession and how to teach to your profession. You're not taught necessarily how to teach a PT [physical therapist] or an OT [occupational therapist]."

But lots of Pitt people are trying to learn. Perhaps the longest arm of the working group's reach is the annual half-day Interprofessional Forum mandated for all first-year health sciences students. October's forum filled a Scaife Hall auditorium to the aisles with an estimated 650 attendees. Of course, getting strangers to mingle is not so simple. But each

Nurses and respiratory specialists steward much of the care at Children's PICU, and doctors-in-training at Pitt are increasingly learning to cede some power and follow care plans designed by other health care experts, like pharmacist Carol Greco Vetterly (far right, in white).



people and stimulated more activity."

Pitt is part of the Nexus Innovations Incubator Network—a health care reform-backed undertaking of the National Center for Interprofessional Practice and Education, based at the University of Minnesota. Through data sharing and relying on the "wisdom of teams," the Nexus, an 11-state network, hopes to launch America into a more connected era of health care.

"It's a really important feedback loop," says James. "We've got to make sure that our education and training programs stay abreast of changes and that we adjust [them] to make sure our graduates are ready to go and practice."

Pitt's Nexus trial sites at Falk Trauma Clinic and the intensive care units at UPMC Presbyterian and Montefiore are testing out new staffing configurations, particularly integrating "advanced practice providers"—nurse practitioners, physician assistants, and other highly educated clinicians—for drop-in hours

how we are integrating and helping each other out, then that message is not necessarily passed on to the students."

Day heads Pitt's Standardized Patient Program, a training venture that gives health sciences students and faculty a chance to hone their clinical skills. Standardized patients (SPs) are actors trained to present with symptoms, a backstory, and behaviors to test specific skills in a realistic setting.

In interprofessional SP sessions last May, Day would give a didactic lesson on, say, translating medical jargon to plain English, then present a case that puts those skills to the test. One simulation tackled the case of an ill elderly patient who fell, injuring her jaw. Students entered a mock examination room, greeted the woman, and got to work—just as a health professional would. They took her medical history, asked follow-up questions, and looked for social and environmental factors that might prolong her illness. What's unique about Pitt's

student received a color-coded packet denoting assigned seating, which resulted in mixed student groups.

On stage, faculty from all six schools presented a case study of an older man who had fallen at home, needed medication adjustments, but was wary of taking too many pills. The profs spoke to the standardized patient as though they were really treating him. There were some starkly different approaches between professional groups. Medicine suggested putting the man in a nursing home, to the shock of occupational therapy students, who are taught to help others "age in place" when possible. Students got a chance to discuss these treatment divergences with the people sitting next to them.

"It was really obvious from the Interprofessional Forum that it's not possible for one person to take care of a patient," says first-year PharmD student Nayanika Basu. "There's no way you could think of all the ways your knee moves and the drugs you have to take specifically for your legs. There's no way [one person] can have all that knowledge."

The event was informative; yet Basu—and many other students we spoke to for this story—said she'd like interprofessional opportunities in a smaller, more intimate setting where establishing bonds is realistic. Approaching someone in a packed auditorium is tough. "The med students can be kind of intimidating," Basu says. Frankly there isn't much interaction between the budding dentists and pharmacists who share Salk Hall, let alone between pharmacy and medical students or public health scholars who inhabit different buildings, she says.

So maybe some of the divide is geographic—a university campus can seem fragmented and insular once students are deep in their studies. Or maybe it's a lack of urgency and imagination on everyone's part. Whatever the cause, the training of health care professionals is still largely divided into instructional silos; and there are subtler separations like field-specific jargon and uniforms that uphold old hierarchies.

Closing these divides takes more than a half-day seminar, which is why Day organized those smaller refresher SP sessions last spring for more

advanced students from the six schools. The working group also presented to the health sciences board in May with suggestions for further expanding their efforts.

Meyers, Day, and the rest of the working group want to train students in ever more collaborative settings arranged by functional strengths, rather than traditionally perceived abilities. And they try to lead by example.

Day's favorite case of interprofessionalism in action: a man she treated on a geriatrics unit who couldn't stand without passing out. Physical therapists and their students, nurses and student-nurses, two med students, pharmacists, Day, and family coordinated his medication, physical activity, and social support. They were able to create the right conditions for a successful walk halfway down a hall.

"It was the most beautiful thing I had ever seen," Day says, beaming.

"He was so happy, the family was so happy, the students and the therapists were so happy because they all worked together. . . .

"And that's what sticks in your mind about

why this is so important."

Second-year med student Alyssa Bruehlman says there's lots to overcome. "So many of us, especially getting into medical school, were taught that you really were on your own. It's difficult to get out of that mindset," she says. "As I'm simultaneously trying to succeed to become a physician, I've also got to learn these skills that help round me out as a team member." A new group she helped found, Primary Care Progress @ Pittsburgh, will give her more opportunities to practice with other health sciences students.

Enacting interprofessionalism comes down to a shift: toward shared values, clear and flexible roles, and, above all, communicating well. That shift requires interrogation of the self: How do you come across to colleagues as honest, accurate, and respectful?

Roth says the answer is simple: "You have to have a will to do it. You have to believe that it's worth a try." ■

UTILITY PLAYERS

With the rise of interprofessionalism, more medical facilities are seeking out nurse practitioners and physician assistants (PAs) for their own know-how. Where physicians have become too encumbered to attend to some of their traditional tasks, duties like taking medical histories, giving physicals, and writing prescriptions can be taken on by other skilled players. (The PA master's has been deemed the most desirable advanced degree by both *Forbes* and *Money* magazines.)

Pitt alum Thomas Piemme (MD '58), coauthor of *The Physician Assistant: An Illustrated History* (who helped bring about that profession), explains that the value of PAs and other similar positions is strongly related to shortages in primary care. "We are training too many physicians to be specialists," he says.

Yet advanced practice professionals can benefit specialties and specialty sites as well. In a surgery practice, for instance, Piemme notes, "a PA can take care of patients postoperatively." Likewise, a nurse practitioner can order lab tests and interpret the results, a nurse anesthetist can manage anesthesia, and a physician assistant to a surgeon can suture an incision, allowing the surgeon to get ready for another case. According to the Institute of Medicine, this coordination promotes a much safer, and more efficient and effective, means of care, because teams are less apt to make mistakes.

While physicians still captain many teams (and that's no longer a guarantee), they aren't necessarily the best at every medical job. As the health care field changes, so does the roster. —Nick Moffitt



Getting all six Schools of the Health Sciences together at once can be tough. The annual Interprofessional Forum, captured here by Mike Drazdzinski/CIDDE, is one way Pitt gathers everyone together in their first year of classes to learn from one another.

