THE
CONNECTOR

ANANTHA SHEKHAR: MEANINGFUL CHANGE
HAPPENS WHEN WE WORK TOGETHER
BY CHRISTOPHER SOLOMON
PHOTOGRAPHY BY AIMEE OBIDZINSKI

There's an issue with the way we teach our care providers. In the real world, doctors and nurses work shoulder to shoulder every day with pharmacists and discuss how to help their patients. Surgeons turn over post-op treatment to therapists. No one professional can meet the multiplicity of a patient's needs.

For the most part, these caregivers learn how to work together on the job. Miscommunication can mean medical errors, poorer outcomes for patients, perhaps even unnecessary death. But when these professionals actually make care decisions together and know how to collaborate, patients do better and are more satisfied, studies show. Team members also feel more valued.

And yet for all these benefits, schools often allot only a day or two in the curriculum for interprofessional education. The University of Pittsburgh wants to do better—and accrediting agencies now demand better.

When Pitt went looking for the right person to oversee its health sciences schools, it wasn't looking for someone who was content to manage the status quo of six nationally respected programs. The search committee wanted someone who would forge new connections; someone who would see new paths forward.

It found Anantha Shekhar at Indiana University, home to the nation's largest medical school. This summer, Shekhar, an MD/PhD, joined Pitt as the John and Gertrude Petersen Dean of the School of Medicine and senior vice chancellor for the health sciences. Taking the job, he says with eagerness, was an opportunity for him "to bring together all of the health sciences—not just medical, but nursing and public health and various other kinds of ways one can disrupt health care."

One achievement on Shekhar's long resume while in Indianapolis was to bolster the institution's interprofessional collaborations.

At one point in that work, he encountered a snag: IU has no pharmacy school. Shekhar was undeterred. "He reached out to another university that had a pharmacy school, to bring them into the fold, so that he could make a complete health professions team," says Jacqueline Dunbar-Jacob, dean of Pitt's School of Nursing and a member of the search committee that helped bring him to Pitt. Such effort to get schools at IU, and beyond, talking to one another was "just incredibly exciting" to the committee, says Dunbar-Jacob.

Shekhar has made a career of pushing past existing fences and into the fertile fields that lie beyond. Since his arrival at Pitt on June 1, he already has begun to tackle that issue, modifying what was to be a medical school building to create shared space among health professionals. He also assembled a group from the various schools to produce an education plan, says Dunbar-Jacob.

The year's upheaval has not much slowed his efforts, she says.

"The University of Pittsburgh is only as successful as our students and scholars," says Chancellor Patrick Gallagher. "That's why, when we sought to fill this position, we looked for a leader who could spark unprecedented levels of collaboration, innovation and impact. Anantha was it—he checked every box on our ambitious list—and the future of Pitt Health Sciences looks even bolder and brighter in his capable hands."

Shekhar doesn't cut the figure of a trespasser across borders and a tilter at siloed institutions. In conversation he speaks with the even, approachable voice of a psychiatrist, which he is. (He met his wife, Gina, a child psychiatrist, in residency. The couple has two children, an attorney and a cancer geneticist.) Even on a Zoom call, he wears a tie, knotted neatly below a trim mustache that is salted with his 63 years. In meetings, he is known for listening more than talking.

Time and again at IU, however, where he was on faculty for 29 years, some of his most intriguing successes resulted from a willingness to walk right past the tired lines that separate disciplines and link people with different perspectives to see what results. He is a shepherd who favors his flocks mismatched, believing that a diversity of skills and views make for more productive, vigorous offspring than what the standard flock delivers.

"I have really enjoyed bringing people together, connecting the dots," he says.

Shekhar now brings that passion to an enormous job at Pitt. In his new role, he helps shape the careers of more than 6,000 faculty and staff and the success of 5,000 students. He is responsible for encouraging the growth of Pitt's medical research enterprise and succeeds Arthur S. Levine, who steered the health sciences to national research prominence and more selective admissions during his two-decade-plus tenure.

The upside of such responsibility is having a hand on so many levers.

"What I could do in Indiana, I can do three times faster and three times bigger with Pitt. There's tremendous skill here," he says.

He works closely with UPMC, which operates a large health insurance company, UPMC Health Plan. "We have an insurance product that could actually pay for transforming health care," he says. "So, that was a really unique opportunity that very few academic centers can provide."

In a late August discussion, Shekhar outlined eight ambitious goals he has for the

health sciences throughout the next five years. (See "Bold Goals.") One goal is to boost Pitt's ability to get novel discoveries into the clinic where they can help patients. Drug development often takes a dozen or so years to go from laboratory to marketplace, says Shekhar, yet that doesn't always need to be the case. For example, with new therapeutics such as CAR-T cells, "theoretically, they can get to at least patients, if not to market, within the first three years or so," he says. Doctors take these cells from the patient, modify them, then return them to the same patient—so the process often is considered safer and the approval happens faster.

Pitt already is a standout among research institutions; it garnered more than $700 million in research grant expenditures in

departed in May 2020, when Shekhar oversaw all research at IU's School of Medicine, NIH funding grew there by 73%.

How Pitt grows these grants leans in part on Shekhar's long-standing talent for bringing people together who don't always talk to each other.

"Pitt is very strong in—and a lot of its rise over the last 20 years under Dr. Levine was related to—sort of individual laboratory-scale research. So, a lot of R01 grants from NIH, the bread and butter of biomedical research," says Jeremy Berg, associate senior vice chancellor for science strategy and planning in the health sciences and former editor of Science magazine.

"But I think the opportunity now is to try to do things that are more team science, more

collaboration had its challenges: Purdue's world-famous engineering program was an hour away, for instance. At Pitt, Shekhar again sniffs advantage: "Pitt has its own engineering school, plus we have Carnegie Mellon University next door."

More collaboration yields more ingenuity which yields more breakthroughs. Then, says Shekhar: "We increase the number of patents issued. We increase the number of commercial entities using a patent to build a product."

Yet, right now, "There are many, many barriers for an average investigator, or even a bright young scientist, to think about commercialization of their products or think about translation," he says. He'd like to see more CEOs of startups and other business executives available to brainstorm with sci-

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fiscal 2020. Several health sciences schools were in the top 10 among peers for National Institutes of Health research dollars. Pitt can do even better, Shekhar says.

In fiscal 2019, University health sciences researchers secured 83 U.S. patents; garnered 152 licenses, options and deals; and began 15 startup companies. The University hovers around the top 50 universities in the world for innovation, according to Reuters. Shekhar wants the University to reach the top 10 within five years. Part of how the University gets there is via another goal: dramatically increasing NIH funding.

Grants that researchers receive from the NIH are a good benchmark of a university research program's health, says Shekhar. He wants Pitt to increase overall NIH grants by 10% year after year for the next five years:

"What that will actually do, really, is place us in the top two or three medical schools in the country."

That goal may sound pie in the sky. Yet Shekhar has a track record in the department of the unlikely: From mid-2015 until he

research that brings together basic scientists and clinical translational scientists and to try to tackle problems that can't be solved by just one lab," he says. "That's where Pitt has lagged behind many of our peer institutions." Those projects are often larger and more ambitious. Dozens of existing centers and institutes already reach across departments, schools and universities here. Berg has been working with Shekhar to identify opportunities where the University may be particularly well-placed to win these large interdisciplinary grants.

"It doesn't take a heavy hand" to encourage such work, Berg says. "It's just a question of starting the discussion and getting people talking to each other, and then the scientific opportunities and enthusiasm will take over."

At IU, Shekhar brought in research powerhouses Purdue University and the University of Notre Dame to form the Indiana Clinical and Translational Sciences Institute. It was, and remains, the only statewide institution of its kind. Shekhar was its founding director. Indiana's institute broke down long-standing barriers between the universities. But

entists. And a commercial zone, in which drugs for testing can be manufactured to high standards.

Shekhar wants to foster a culture of entrepreneurship so that talking to an expert about commercializing an idea is about as routine as heading to the corner café for a cup of coffee. Such explorations should be seen as natural, not something a few enterprising scientists here and there decide to do.

And then, once a venture lifts off, he wants to keep that venture and its energy here in Pittsburgh. "There's a whole ecosystem that we need to create for this to happen, organically and all the time."

Shekhar entered medicine, in part, because he was fascinated by the brain—how it works, why it makes us do what we do.

Then, sadly, while in medical school at St. Johns Medical College in Bangalore, India, the experience of a close boyhood friend gave him an intimate look at brain pathology. His friend, who was a student in the veterinary

school, began to have trouble seeing. One night, as the two walked together, the friend walked straight into a pillar. It turned out that a brain tumor was pressing on his optic nerve. Soon the young man's personality changed and then changed again. Shekhar's friend died a few months later. By the end, his friend

complex motivations, reactions," he says. "So, that sort of helps me be much more tolerant of deviance from my own mission, if you will, and at the same time be more empathic. It also helps me get to the idea of what would be a win for that person," he says. "That's very critical, especially when you are trying to

closures and reopenings. Immediately, he sat at the head of the table for a new advisory group responsible for guiding University decisionmakers as they respond to the virus. Shekhar also pulled together a panel of physicians and other medical experts to staff Pitt's COVID-19 Medical Response

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felt no sadness at what was happening, only happiness. The tumor had stripped him of grief, of regret.

"That sort of led me to saying, 'How does the brain regulate everything we do and everything we feel?'" Shekhar says. Today in addition to being a psychiatrist, Shekhar is a well-respected neuroscientist. His work has resulted in five novel approaches to treating psychiatric disorders that are in various stages of commercialization. (See "On Path to the Clinic.")

People don't always like change. Shekhar acknowledges that his even demeanor and his training have served him well as he's asked others to stretch beyond their comfort zones. "People are very complex and have various

persuade people to do things that they may not naturally think about doing."

Among all of this—the getting grants, the making stuff, the cajoling—he tries to never lose sight that it is only a means to bigger ends. What's at stake? Delivering the best care, healing our patients, making our communities healthier.

The world shifted seismically in the months between when Shekhar accepted the job in January and when he arrived on campus. He came on board in the thick of a global health crisis, assuming the responsibility to keep tens of thousands safe at an enormous institution—and within neighboring communities, too—while navigating

Office, which oversees COVID-19 testing, contact tracing, reporting procedures and isolation and quarantine protocols at all five University campuses.

Meanwhile, Pitt scientists are determined to find a way out of the pandemic. Three coronavirus vaccines are under development here along with promising potential interventions.

Not only the coronavirus convulsed American society this year, of course. There has been new focus nationwide on structural racism and social equity. In June, some 400 medical school students and faculty attended a virtual town hall. At the meeting, Shekhar was asked to respond to a nine-page list of demands, several of those devoted to making the School of Medicine more equitable and welcoming.

It was his third day on the job.

"It was trial by fire," he recalls. That day, he mostly listened.

"He was careful not to overpromise and say that all these changes can be made right away," says Pooja Humar, a second-year medical student who was on the search committee that had identified him. But Shekhar says these issues have long been important to him. At IU, he'd established several programs to increase minority representation.

At Pitt, Shekhar made social equity a top priority. He's creating an ombudsperson program, which students across all the health sciences schools will be able to use to confidentially and anonymously address their concerns. He created three fully paid scholarships for underrepresented minori-

ON PATH TO THE CLINIC

As a neuroscientist, Anantha Shekhar has focused his research in part on developing treatments for psychiatric disorders that don't currently have effective treatments. Five of his efforts have been spun off into startup biotech companies. Here are three:

Most drugs that treat schizophrenia are dopamine blockers. Karuna Therapeutics, a public company, is evaluating a treatment that Shekhar and colleagues demonstrated in the early 2000s operates through a different mechanism. The treatment, now in phase 3 trials, seems to help sufferers think more clearly. Shekhar hopes it will be a "breakthrough."

Gate Neurosciences is another company, private at this writing, that is at work on several compounds for depression, bipolar disorder and anxiety disorders, he says. "One of the drugs works within 24 hours to improve depression and suicidal behavior."

Anagin is developing new treatments for post-traumatic stress disorder and chronic pain. —CS

ties. Shekhar also created a Rapid Response Team of more than two dozen faculty and students—with strong representation from the Black community—to help review the student concerns raised.

Low numbers of Black and Latinx faculty in the health sciences is an issue nationwide, and Pitt is no exception. He wants to see a significant increase in minority representation in the health sciences faculty in the next five years.

Humar has noted—with approval—that the medical school's curriculum has changed already. Required sessions now address bias and racism in medicine. Students and faculty discuss specific cases and ways in which a doctor-patient interaction reflected a lack of thought, or blind spot, or prejudice.

The curriculum is on Shekhar's desk for other reasons, too. In America medical school usually runs four years. It is not uncommon for a student to emerge with $170,000 to $200,000 in medical school debt alone, says Shekhar. As a result, a majority of students, staggering under this burden, head into high-paying specialties such as dermatology, radiology and anesthesiology.

We aren't hurting for specialists in these areas, notes Shekhar. "Whereas you don't get that many pediatricians, family medicine doctors and primary care doctors whom we need more of to actually improve our health care."

A national movement has been under way to change medical school. If the curriculum could be rejiggered to teach students the bulk of what they need to know in three years, then part of the fourth year could be a paid hybrid year in which the student is a trainee. That could reduce a student's debt by as much as $75,000, says Shekhar.

Pitt is now moving to join other universities that have adopted this model, but it will take time. A new curriculum may be ready for students entering in fall 2022.

With the world in disarray, some might wonder if all of this is a lot to tackle—if maybe a steady hand on the tiller would be job enough.

But to Anantha Shekhar, now has always been the right time to get to solutions. ■

BOLD GOALS

This summer, Shekhar laid out eight ambitious goals to make our academic health center—Pitt Health Sciences and UPMC—among the very best in the country by 2025.

1. **Research excellence. Be top 3 in the nation.**
A first step: Recruit, retain or rebuild in the most promising areas of science to grow NIH funding by an average of 10% per year.

2. **Educational excellence. Be top 10 in the nation.**
A first step: Transform the curriculum so that it provides the best integration of biological, social and cultural determinants of health and disease and the comprehensive basis of clinical medicine.

3. **Clinical excellence. Be top 10 in the country.**
A first step: Partner with UPMC to build more transformative therapy programs, on par with Pitt's famed transplantation program.

4. **Translational excellence. Be top 10 in the country.**
A first step: Align top research programs with tech transfer pathways and entrepreneurs in residence.

5. **Community engagement and health justice. Be best in class.**
A first step: Design community programs that make our neighbors healthier. With UPMC, put Allegheny County on track to being among the top 10 healthiest counties in Pennsylvania.

6. **Faculty diversity, growth and leadership development. Be in top quartile of the country.**
A first step: Create a cluster hiring program to increase underrepresented minority faculty.

7. **Commercialization and product development. Be top 5 in the nation.**
A first step: Create a precommercial incubator and begin plans for a biotech corridor.

8. **Interprofessional education. Be a top performer among university health sciences.**
A first step: Create an interprofessional education program across all six health sciences schools.