Society has made enormous strides in medicine, but for millions of people, adequate health care remains out of reach. At the Pratt School of Engineering, we’re developing new solutions to reduce disparities around the world.

In 2006, Duke committed to a campus-wide initiative to address the critical need of improving global health—the Duke Global Health Institute. Pratt has been deeply involved since the beginning, both in education and research.

In classrooms, faculty members are teaching students how engineering can address the unique health care challenges facing resource-poor regions. In labs, researchers are developing remarkable devices, like a non-invasive malaria test that can detect a miniscule number of parasites in people’s bodies. Many students are helping design, test, and implement these new technologies. Others are directly serving communities by installing rainwater harvesting systems in Uganda or building a health clinic in Honduras.

This exceptional work impacts global health in many areas—from medical engineering to the environment—and is a true reflection of Duke’s interdisciplinary spirit. Pratt’s faculty and students want to do even more, but funding is limited. With the support of alumni and friends, we can expand our efforts. Our goals are simple, yet ambitious: to educate tomorrow’s most innovative problem solvers and improve the health of men, women, and children worldwide.
Within the global health curriculum, Pratt students are gaining broad knowledge about the world ... while doing a world of good.

In problem-focused courses, they learn about fundamental global health issues such as poverty, politics, and aging populations. They also delve into region-specific problems, like inadequate water sanitation, and discover how engineers can tackle these challenges.

Many students are serving society by doing hands-on engineering work. Through Engineering World Health’s Summer Institute, they travel to Guatemala and Tanzania to help hospital technicians repair broken equipment. And through Duke Engineers for International Development (DEID), they identify the needs of communities and implement solutions on-site, such as outfitting clinics with running water and electricity.

Students also have the opportunity to tackle global health challenges through research. Many are working in Duke’s labs, helping professors engineer life-saving medicines and technologies. For example, one Pratt Undergraduate Research Fellow worked on a gene therapy pill to treat diabetes, which is especially vital in locations where sterilized needles are hard to come by. Others participate in interdisciplinary project teams with faculty and students from across Duke’s 10 schools. Together, they conduct field research to address complex questions like, “How does gold mining in Peru impact human and environmental health?”

Student demand for this type of learning is growing, outpacing Pratt’s current funding capacity. Increased private support will provide the resources to develop new courses, expand our immersive learning programs to additional global sites, and give more engineering students the chance to engage in research and make their mark on the world.

YOUR GIFT OF $25,000 OR MORE can enhance the student experience by allowing us to create new global health courses and faculty-mentored research opportunities. You can also support experiential programs like Duke Engineers for International Development and Engineering World Health.

YOUR GIFT OF $100,000 OR MORE can support Pratt Grand Challenge Scholars as they engineer better medicines. Or, you can provide valuable research funding to an Undergraduate Research Fellow or a Bass Connections project team.

Preparing Tomorrow’s Problem Solvers

THE BASS CONNECTIONS CHALLENGE

The symbol indicates giving opportunities that may be eligible for a special 1:2 match, thanks to the Bass Connections Challenge. Bass Connections is a new campus-wide initiative launched by a $50 million gift from Anne and Robert Bass. Its objective is to teach students how to tackle complex, real-world problems through multiple disciplines. Students can delve into any of the five Bass Connections themes, one of which is global health.

By making a gift to Pratt in support of global health faculty, fellowships, project teams, and certain types of educational programming, you may be able to increase the impact of your gift by 50 percent. To qualify, gifts must be $100,000 or more. The maximum match available for any donor is $1 million.
Creating a Healthier Future for Women

Around the world, women make up 70 percent of those living in poverty. Accessing adequate health care is an enormous challenge for many of them. The consequences are startling: nearly 800 women die every day from complications during pregnancy and childbirth—and even more from breast and cervical cancer.

At Pratt, we strive to improve these statistics. We recently established the Center for Global Women’s Health Technologies (GWHT), a dynamic hub for education and research focusing on women’s chronic diseases, such as breast and cervical cancer, and on maternal-fetal health.

One of GWHT’s goals is to increase the pipeline of engineering experts who can make a difference. Our students conduct research in resource-limited communities to gain first-hand knowledge of women’s health care needs. Back at Duke, they work in teams with professors and peers to translate their findings into practical, low-cost technologies that can save lives. These meaningful, collaborative learning experiences encourage students to pursue careers within the field.

Because GWHT is new, we need funding to build its programming. Through the Duke Forward campaign, we are seeking partners to help jump-start and sustain faculty- and student-led research and provide experiential learning opportunities in several international sites. With your support, we can become a leader in improving women and children’s health worldwide.

YOUR GIFT OF $100,000 OR MORE can provide GWHT with several years of start-up funding as we grow our curriculum and expand our research and educational programs to locations across the globe.

SPECIAL TOOLS FOR UNIQUE CIRCUMSTANCES

Nimmi Ramanujam, director of the new Center for Global Women’s Health Technologies, wants to invent a new world of health care for women. The professor of biomedical engineering and global health has already invented several innovative technologies that address the needs of women in developing regions.

Why is special technology needed? “Often, in resource-limited settings, the infrastructure we take for granted—like hospitals equipped with pathology labs and the electricity needed to operate those facilities—does not exist,” explains Ramanujam. “Also, many women can’t travel long distances for routine screenings and multiple treatments. They need health care delivered in their local communities, which lack resources and trained technicians. That’s why medical tools must be inexpensive and simple to use.”

For example, to detect cervical cancer, Ramanujam and her team identified a need for a low-cost, low-power portable sensor that can quickly pinpoint suspicious areas that may require a biopsy. They developed a solution: a spectroscopic screening device, which was successfully tested in Haiti.

At GWHT, students play a key role in creating, testing, and bringing to market similar technologies. Ramanujam is particularly committed to drawing more women into this type of work, and medical engineering in general, where they are underrepresented. “It’s important to increase young women’s exposure to successful female scientists and engineers, as well as provide them with meaningful experiences. This helps their self-confidence,” she says. By emphasizing peer camaraderie and supportive mentoring, GWHT provides students with a rigorous, empowering learning environment.
Fueling Research That Matters

Pratt has been ranked among the country’s top 10 most productive engineering schools for research. In the global health arena, our scholars have developed several revolutionary devices. One example is a pouch containing antiretroviral drugs that mothers can use to prevent transmitting HIV to newborns. Another under development is a simple tool that minimally trained health care workers can use to screen patients for hypertension.

The faculty members directing these efforts are serving society in profound and lasting ways. The continued success of our research programs depends on their leadership and ingenuity.

It also depends on the work of graduate students. They provide fresh ideas, make invaluable contributions to faculty-led research, and mentor and supervise undergraduates in labs. By recruiting the most talented graduate students, Pratt enhances its ability to attract and retain outstanding faculty.

To remain a preeminent research school known for remarkable innovations in global health, we must offer faculty and graduate students competitive financial packages. Privately funded professorships and fellowships can help draw the best minds in global health engineering to Duke—and keep them here.

Our researchers also need funding as they evaluate global health needs and build out ideas. Needs assessment, proof-of-concept, and seed grants are all hard to come by. Your support can help ensure that critical research continues—the type that saves countless lives.

YOUR GIFT OF $100,000 OR MORE can establish a Pratt-Global Health Research Fund to provide scholars with resources to go into the field, identify health needs, and get new projects off the ground.

YOUR GIFT OF $250,000 OR MORE can establish an endowed fellowship for graduate students who are concentrating their research efforts within the field of global health.

YOUR GIFT OF $1.5 MILLION can endow an assistant or associate professorship, allowing Pratt to recruit and retain emerging stars in the global health field.

YOUR GIFT OF $2.5 MILLION can endow a distinguished faculty chair, helping Pratt hire and retain outstanding faculty members who will advance Duke’s research in global health while they teach and mentor our students.

IT’S ABOUT HELPING PEOPLE

“If you ask most biomedical engineers why they decided to get into the field, 9 out of 10 will say they wanted to help people,” says Matthew Novak, a Ph.D. candidate. That desire is what sparked Novak’s interest in global health.

While on a joint Pratt/Duke Global Health Institute fellowship, Novak worked as an intern at the World Health Organization in Geneva, Switzerland. “I researched ways to increase the developing world’s access to reliable diabetes diagnostics tests. The tests we use here are expensive, have many working parts, and need to be refrigerated. My job was to recommend how to create pared-down designs geared toward the needs of lower-income countries.”

Back at Duke, in professor William Reichert’s lab, Novak is focusing on improving the performance of implantable glucose sensors, which typically work for a week and then fail. “Hopefully, my research will have an impact in the West and in lower-income regions of the world, where diabetes continues to grow.”

HOW WILL YOU MOVE DUKE FORWARD?