

breakthrough

Special Issue: CIM at 10

The Good Doctor

Medicine for the Greater Good

Precision Medicine

Milestones

Medicine is a public trust

THE JOHNS HOPKINS CENTER
FOR INNOVATIVE MEDICINE



breakthrough



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OUR PUBLIC TRUST

We dreamed and we believed. But we didn't anticipate how tremendous it would be, 10 years after we started the Center for Innovative Medicine, to see how far we've come.

I hope you'll read this issue of *Breakthrough* cover to cover, but you may want to start with the Milestones on Page 23. By no means is it everything we've accomplished over the last decade, but it's close. You may notice that we've grouped our initiatives into three categories: The Good Doctor, Medicine for the Greater Good, and Precision Medicine. Although there's certainly overlap, these are the major areas where the CIM is making a huge difference – at Johns Hopkins, in academic medicine, in our community, throughout the country, and beyond. The projects we've started have created ripples: Other medical centers are looking for ways to “Aliki-ize” their young doctors, for instance. Other academic institutions, inspired by our Miller-Coulson Academy, are setting up their own programs to honor clinical excellence. Our Cores and our Precision Medicine programs are changing the way clinicians and scientists work together, and that is disseminating throughout the Johns Hopkins culture, as well.

All of this falls under our guiding belief that Medicine is a Public Trust. This is our inspiration to think differently, to change the way we interact with each other, and to dedicate ourselves to doing more for our patients and our community. We believe the Public Trust exists within our walls and that it extends far past them.

The rest of the issue, as always, gives you a glimpse of what's happening here. To see more, I invite you to visit our website at www.hopkinsmedicine.org/innovative/about, and to look through the back issues of *Breakthrough*. They're all there, and I hope you will be as excited as I am to celebrate our history and imagine the great things we can achieve together.

Finally, I'd like to mention our writer, Janet Farrar Worthington. Hiring Janet was one of the best decisions we made. I met Janet years ago when her husband, Mark, was one of my medical residents. I discovered that she was an extremely talented writer who had a great love for history, medicine, and animals; I was also impressed that Patrick Walsh, the renowned Johns Hopkins urologist, chose Janet to co-author their bestselling book on prostate cancer. Many of you have told me how engaging and readable *Breakthrough* is. Janet's clear prose and exceptional ability to tell a good story have allowed *Breakthrough* to be the only Hopkins publication that does not use photos. We knew CIM was different and that our supporters were different, too, in their deep level of engagement. We thought we could tell you our stories best through prose, not pictures. What is striking about Janet is that she also believes passionately in what the CIM is doing: “It has been my privilege to write about profound ideas and exceptional people,” she says.

It has been my privilege to share our work with you, and I look forward to our next decade together.

David B. Hellmann, M.D.

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The Good Doctor

Celebrating excellent clinicians who listen, care, and take the time to know their patients as people.

Medicine for the Greater Good

We believe that it's not enough to provide superb clinical care within our walls. We are reaching out, changing our culture, and expanding our vision.

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Precision Medicine

Individually tailored, highly personalized medicine – because cookie-cutter, one-size-fits-all treatment isn't ideal for most people.

Milestones

See how far the CIM has come over the last 10 years.

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WE BELIEVE

Medicine belongs to the public. Our mission is to create a different kind of academic medicine, to tear down ivory towers, share knowledge and dedicate ourselves toward one goal – making life better for patients.

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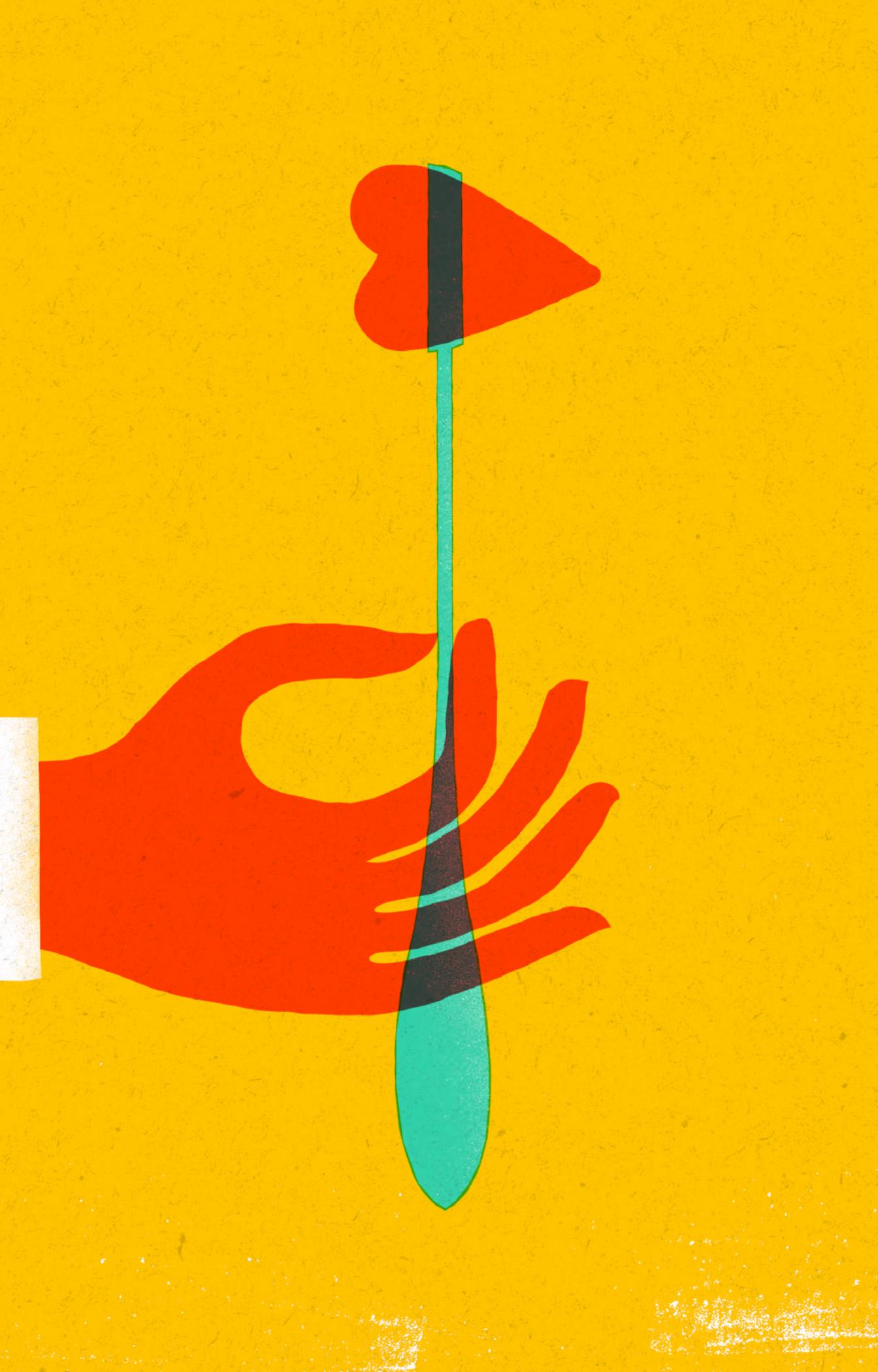
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on the web

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LISTENING AND CARING

THE GOOD DOCTOR

Good doctors take the time to know you as a person. They pay meticulous attention to your symptoms and history. They care and empathize, notice and listen. The Good Doctor is the focus of two of our greatest programs: the Aliko Initiative and the Miller-Coulson Academy of Clinical Excellence.

This is Hell

How Courage, Grit, and Faith got Linda Mobula through the Worst Two Weeks of her Life

At the CIM, we think a lot about “the good doctor,” and the qualities that distinguish an excellent physician. We respect perceptive diagnostic skills; we also value compassion, empathy, and caring. We don’t talk much about courage, mainly because it doesn’t often come up on the physician side. It’s different for our patients; they know all about the courage, grit, and faith it takes to keep going through pain, fear, uncertainty and difficult treatment. But courage for doctors? And grit, and faith?

Sometimes courage is just showing up. It’s dragging yourself out of bed in the morning after a terrible sleep that was mostly nightmares, and going to see who died in the night. It’s taking care of people with an infectious disease you thought you understood, and wondering if you – like your colleagues – are going to get it, too, despite your meticulous precautions. It’s lying to your worried family back home, telling them everything is fine, wishing you believed it. It’s trying to connect with patients when you feel physically separated by suffocating protective gear that muffles your voice and blocks most of your face, that weighs you down and saps your strength, when you can’t get the smell of decontaminating chlorine bleach out of your nose or the pictures of the dying out of your head.

Courage, says Linda Meta Mobula, M.D., M.P.H., who earned her M.P.H. at Hopkins, did her residency in medicine at Johns Hopkins Bayview, and did a post-doc fellowship in general internal medicine at Hopkins, “is not the absence of fear,” – she thinks about this quote a lot, from author Ambrose Hollingworth Redmoon – “but rather the judgment that something else is more important than fear.”

Last summer, Mobula felt that fear for two solid weeks as a physician at the Ebola Case Management Center of the Eternal Love Winning Africa (ELWA) hospital in Monrovia, Liberia. Mobula, who works for the United States Agency for International Devel-

“If it weren’t for the fact that we supported each other, it would have been very difficult to make it through.”

opment-HIV/AIDS and is a Science and Technology Policy Fellow with the American Association for the Advancement of Science, was asked to help by the Disaster Assistance Response Team of Samaritan’s Purse, a medical missionary group. She had practiced medicine in tough situations before, starting at Hopkins, where working in the ICU taught her “how to deal with critical patients and emergencies,” she says. “That has helped me with all the disasters I’ve responded to, but I don’t think any amount of preparation helped with this. We were all overwhelmed.”

An expert on providing health care in crisis, Mobula has worked in medical hotspots throughout the world. But nothing, she says, prepared her enough. The center had just expanded from six beds to 12. “As soon as I got there, everything went downhill,” Mobula says. “We were told that 10 more patients were coming.” The plan was to move to another location within the compound, put up tents, set up beds, and create an isolation unit. But local residents were protesting outside the compound, shouting and chanting. “They were basically threatening to burn the clinic down, because they thought

“They were basically threatening to burn the clinic down, because they thought we were bringing Ebola into the community. They also thought that we were experimenting on people.”

we were bringing Ebola into the community,” she says. “They also thought that we were experimenting on people. Because of that, we decided it wasn’t safe to expand our clinic.” Many of the protesters had been child soldiers during Liberia’s civil war, and the situation threatened to turn violent.

Mobula was working with Liberian colleagues as well as doctors and nurses from Samaritan’s Purse, Médecins Sans Frontières (MSF, better known in America as Doctors Without Borders), and Serving in Mission. MSF “were overwhelmed in Sierra Leone and Guinea, and they did not feel that they had the capacity to open up a center in Liberia,” she explains, but “they had a physician and wash technical advisor come assist us in setting up the clinic, and I’m so glad they were there, because MSF are the world’s experts on Ebola.” The CDC was there, too, providing epidemiological support, helping track down contacts of those who had become infected.

That first evening, “we found out that one of our co-workers had contracted Ebola. As a result, a lot of the health care workers stopped coming to clinic, because of fear.” The doctor with Ebola was Kent Brantly. The next day another co-worker, Nancy Writebol, became sick. “That created even more fear,” Mobula says.

It was especially unnerving because no one knew how Brantly and Writebol had become infected. “They were extremely meticulous in donning and removing protective equipment,” Mobula says. “We all became extremely fearful.” She started having nightmares. “My nightmares would consist of me vomiting. I would wake up in the middle of the night and check my temperature. Wake up, check my temperature again.” For a couple of days, “we told our families everything was fine, don’t worry.” But it wasn’t fine.

Mobula took care of Brantly. “I hadn’t met him before he got sick,” she says. Months later, she had dinner with Brantly and his wife in Washington, D.C. “He had no idea what I looked like. He said, ‘I could only see your eyes.’ It was so emotional, such a wonderful reunion.” In addition to receiving the experimental drug zMapp, Brantly received a blood transfusion from an Ebola survivor he had treated in Liberia. Later, Brantly donated his own blood to U.S. journalist Ashoka Mukpo, physician Richard Sacra, and nurse Nina Pham; all have since recovered.

One-third of the patients were health care workers. After a devastating civil war, Liberia’s health infrastructure was already “extremely fragile,” Mobula notes. “When you add an Ebola outbreak, which they had never experienced before, that weakened the infrastructure even more. There is only one physician for every 100,000 people in Liberia. Unfortunately, a lot of Liberian physicians have passed away.”

The clinic’s personnel shortage took its toll. “Two of our colleagues were sick, and we had to isolate everyone who had been in contact with them,” says Mobula. ELWA staff met with the CDC, MSF and the USAID missions, and “we basically told them we couldn’t go on unless we had more support.” At the time, Mobula says, she felt that she was failing the patients. “I felt guilty, because I thought, we have to do everything we can, but we just realized it was impossible,” and the disease was spiraling out of control. At that point, Liberia’s president declared a national emergency, and the Ministry of Health and MSF took over and added a second clinic. “Unfortunately, I heard that as soon as it opened, it filled within a day, and patients were either turned away or they died at the door.”

Despite the fatigue and fear, Mobula worried about her ability to provide compassionate care, hidden as she was beneath layers of personal protective equipment. She could do little to show empathy except for “nodding or looking into the eyes of my patients with concern. We were advised not to touch our patients more than required for administering treatments, even while wearing full protective gear. I often wondered if these communication barriers caused them additional distress.”

What helped her and her colleagues keep going was “faith in God and prayer,” Mobula says. One New Testament verse kept going through her mind: “My power is made perfect in weakness,” written when the Apostle Paul was dealing with his own illness: “If it weren’t for the fact that we supported each other, it would have been very difficult to make it through. It really was a nightmare.” ■

Note: At press time, Mobula had returned to Guinea to help with the Ebola outbreak there. Mobula notes that her views and opinions are her own and do not represent those of the USAID.

The Gift of Time

How the CIM's Aliko Initiative has Transformed the Way Residents Feel about their Work

Kenneth M. Ludmerer is Professor of Medicine, Professor of History, and the Mabel Dorn Reeder Distinguished Professor of the History of Medicine at Washington University in St. Louis. He is also a distinguished, Pulitzer-nominated author who has written extensively about medical education. In his just-released latest book, *Let Me Heal: The Opportunity to Preserve Excellence in American Medicine* (Oxford University Press: 2015), he writes about some of the things we are doing here at the CIM, including the Aliko Initiative. Here's an excerpt:

Institutional leaders David B. Hellmann and Roy C. Ziegelstein listened to the concerns of Bayview house officers, who repeatedly pointed out that intense time pressures and high patient workloads did not adequately allow them to learn or heal. Accordingly, in 2007 Hellmann and Ziegelstein created a new program for internal medical house officers at Bayview, the Aliko Initiative, that aimed to develop "caring doctors who have a genuine and deep appreciation of the importance of knowing each patient's unique personal circumstances and who make patient care recommendations that apply the best evidence to the individual patient." The explicit goal of the program's founders was to enable physicians-in-training not only to master the mechanics of delivering medical care but to learn the art of healing.

To accomplish this, Hellmann and Ziegelstein reduced the number of patients assigned to each resident on the Aliko team by one-half. Traditional internal medicine teams at Bayview admitted ten patients every fourth night on "long call" and four patients during an intervening "short call." The Aliko team admitted five patients on long call and two on short call. In addition, the Aliko house officers visited their patients after discharge at home or in institutional facilities, thereby receiving the opportunity to spend more time with patients both during and after hospitalization. With the reduced census, the Aliko team members had more time to read, reflect, participate in teaching sessions, make home visits, and engage in mentored experiences designed to improve their skills at history taking, counseling, and developing individualized treatment plans. The thrust of the Aliko experience was to help house officers develop an understanding of each patient as a unique person within his or her own home and community.

"It's given me time to be the kind of doctor I've always wanted to be and do the things I should be doing for all my patients."

The Aliko rotation, which was required of all Bayview internal medicine house officers, quickly became the program's most popular feature. Initially house officers worried that fewer patients would mean less learning. They quickly discovered that the Aliko service provided sufficient clinical experience and that the additional time for reading, reflection, bedside teaching, conferences, home visits, and clinical discussions resulted in more learning than would be received on the standard rotations. Equally important, house officers on the Aliko service felt more fulfilled in their work. One intern remarked, "It's given me time to be the kind of doctor I've always wanted to be and do the things I should be doing for all my patients." A senior resident at the end of her residency even said that "the Aliko rotation made her love medicine again and reminded her of why she once dreamed of becoming a physician."

Upping Their Game

The Miller-Coulson Academy Launches a Coaching Program

A senior resident at the end of her residency even said that “the Aliko rotation made her love medicine again and reminded her of why she once dreamed of becoming a physician.”

The key to the Aliko Initiative’s success was the reduced patient load. This provided house officers, in the words of the program’s leaders, with “the gift of time.” With this time, house officers were more attentive to detail, more reflective, and more engaged with their patients and teachers. They also had more time and energy for reading and teaching students. One Aliko house officer described how he detected one problem after another with his patients because of the opportunity to do a more thorough job while on that rotation. “Had I been managing twice the number of patients that month, none of this would have been possible.” This house officer also described how the gift of time helped him and his fellow residents find meaning in their work:

“When I think about how I train in a hospital with limited resources and a patient load that I can barely handle, I realize how lucky I am that the Aliko service even exists. I am thankful that my residency program has made it a priority for residents to experience the gratification of really doing the best job that we can for our patients and not just repeating the usual mistakes produced by a volume-driven system. I understand now why the Aliko rotation resurrected that senior resident’s love for medicine. The Aliko service provided...us with a rare oasis in our training where we could practice the best medicine that we possibly could, rekindle the passion that brought us to our careers in the first place, and discover new passions.” ■

Let’s say you’re a musician, a violinist. You’ve been playing most of your life, and you’re pretty good. But you want to get better, so you find a teacher and start taking lessons again, and you notice that your technique is being tweaked – little changes here and there – as she watches you play. And suddenly, you’ve improved. You had been on a plateau for a long time, and now you’ve moved up to the next level.

It’s good to have a coach, someone with your best interests at heart, who can watch you objectively, see what you’re doing that’s good, and see what you could be doing better. There’s no shame to it: the very best musicians, athletes, singers, and public speakers get their performances fine-tuned all the time, to keep them at the top of their game.

But doctors... well, they don’t. Atul Gawande, a surgeon and writer, also plays tennis. One day, during a free afternoon at a medical meeting he took a lesson with the pro at a tennis club, mainly just to have someone to play with. “I served a few points, and the tennis coach in him came out,” Gawande wrote in *The New Yorker*. “You know, he said, you could get more power from your serve. I was dubious. My serve had always been the best part of my game. But I listened. He had me pay attention to my feet as I served, and I gradually recognized that my legs weren’t really underneath me when I swung my racquet up into the air. My right leg dragged a few inches behind my body, reducing my power. With a few minutes of tinkering, he’d added at least ten miles an hour to my serve. I was serving harder than I ever had in my life.”

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Not long afterward, Gawande realized that his surgical performance had plateaued, too. Maybe he had reached his professional peak – or maybe he had simply stopped getting better. “I’d paid to have a kid just out of college look at my serve. So why did I find it inconceivable to pay someone to come into my operating room and coach me on my surgical technique?” Gawande did bring in a coach, a retired surgeon whom he respected; the surgeon found a bunch of small things that Gawande could be doing differently. Having an outside pair of eyes has helped; his complication rate has gone down. Also, he says, “I know that I’m learning again.”

We have an ideal cadre of coaches – the 30 master clinicians who are members of the Miller-Coulson Academy of Clinical Excellence – who could help our physicians up their game.

At Hopkins, we have an ideal cadre of coaches – the 30 master clinicians who are members of the Miller-Coulson Academy of Clinical Excellence – who could help our physicians up their game. To make the most of this deep pool of talent, and to help young doctors on their own path toward becoming master clinicians, the Academy is starting a coaching program. It is named in honor of the late G. Thomas Miller, philanthropist and prominent Pennsylvania attorney, who died in July 2013 at Johns Hopkins Bayview, at age 90. “Mr. Miller was a mentor of many, and a great teacher,” says Scott Wright, M.D., Director of the Miller-Coulson Academy. “This is a natural program to emerge from the Academy because our core mission is to promote clinical excellence, and to move all of us at Hopkins along the continuum from competence towards excellence.”

“We want to look for what people are doing right and try to get them to do more of that.”

The G. Thomas Miller Coaching Program will offer one-on-one coaching, mostly to young doctors but to any Hopkins physicians who request the help of an extra set of eyes and ears to help improve their performance as clinicians. “It’s really nice,” says Wright, “because there’s no other program like this to help people become clinically stronger.” Wright and Academy member Meg Chisolm, M.D., a psychiatrist, who is leading the program, solicited contributions from Academy members and came up with a curriculum that has been approved by the Hopkins Office of Continuing Medical Education.

“We’re going to focus primarily on people hired within the last two years,” says Wright, “and try to watch and observe them and offer coaching help before any patterns or tendencies are set deeply, so they can get on the right path and be practicing in a way that will help them to become excellent physicians and masterful clinicians.” Participants will be asked to identify areas where they might need help, come up with a goal and a plan to reach it. “Part of the curriculum involves coaches watching them practice and giving them feedback. We will also have the learners shadow members of the Academy and watch how they take care of patients, interact with their staff and provide clinical care.”

The key, Wright believes, is that this will be a positive thing. “We want to look for what people are doing right and try to get them to do more of that. The coaches will be very supportive, not judgmental or critical in any way. We all as doctors want to have fantastic relationships with our patients, and we want to make sure that we’re communicating effectively, that we’re empathetic, caring, and kind.” This program, he hopes, will also help doctors get more satisfaction and enjoyment from their clinical work.

“After you finish your residency, you can practice the next 30 years and never have anybody watch you and give you feedback,” says Wright. “This is our effort to help our clinicians be the best they can be.” ■

Success

On the Importance of Thick Skin and Risk-Taking

Why did a bunch of medical types get an investment guy to lead a book club? This question, or something similar, must have been on Michael Hankin's mind when David Hellmann asked if he'd be interested in heading the discussion for our CIM Committee. His second thought might well have been, why this particular book? But he said yes.

Start-Up Nation: The Story of Israel's Economic Miracle, by Dan Senor and Saul Singer, examines why a tiny nation – Israel has just over 7 million people, few natural resources, and it's surrounded by countries that actively hate it – generates more start-up companies than Japan, India, Korea, Canada, and the United Kingdom. As Hankin and two Brown Advisory colleagues began reading it, they realized that their firm shared many of the qualities that were highlighted in the book. "Brown Advisory started inside an investment bank (Alex Brown & Sons Bankers Trust) in 1993, went private in 1998, and has grown from a very small firm to a much larger one, growing at roughly 20 percent per year for 20 years now," says Hankin, the firm's President and CEO. What Brown Advisory and Israel's successful entrepreneurs have in common, Hankin realized, are qualities like "a willingness to embrace people challenging your view, a can-do attitude, and never being satisfied with the status quo."

Survival instincts. "When you're starting out, there is a certain amount of, 'if you don't succeed, you will not survive,'" says Hankin. "That feeling, I think, is a big part of why some people do succeed. They know there's no other choice." But as companies grow, they tend to take fewer risks: "People just become more conservative as they move up the

success curve away from this start-up mentality. It seems that having those survival instincts is a big part of getting things going."

Willingness to fail. Even if you fail a lot, "you just have to hang in there and keep trying." Years ago Hankin, a lawyer, worked with Howard Head, inventor of the oversized tennis racket and modern ski. Shortly before he died, Head was planning a children's museum exhibit "that was all about trial and error, how many times you will fail before you succeed, and how that was just part of building something successful. That was motivational to me."

Feedback. Honest answers are good, Hankin says. They help make you stronger, just as a sword is tempered by heat. "You have to have a thick skin. You have to believe that being challenged will ultimately lead to better decisions and better outcomes."

"I make such better decisions when I'm willing to accept people asking me questions and challenging me."

The conversation was dynamic, says Hankin. "Clearly the people in the room enjoyed it, and it was clear that they had open minds about discussing a book that had nothing to do with Hopkins, that it was worth doing. I think most people walked out thinking about the importance of creating and supporting and protecting an environment where people can take risks. I was fascinated by it. I make such better decisions when I'm willing to accept people asking me questions and challenging me. I'm a big believer in an environment that allows that to happen." ■

REACHING OUT

MEDICINE FOR THE GREATER GOOD

We believe that it's not enough to provide superb clinical care within our walls. We are part of a neighborhood, and we have embraced it with our Latino Health Center, MERIT mentoring and community outreach programs. We're also changing our own culture, and expanding our vision as an International Public Trust.

Culture Change

Primary Care Comes to the Medical School

Roy Ziegelstein, M.D., Vice Dean for Education in the School of Medicine, has been to plenty of meetings in his academic life, but he remembers one, two years ago, that he describes as “a shocker.” Paul Rothman, M.D., had just come on board as Dean and CEO of Johns Hopkins Medicine, and was meeting with a group to review medical education. Ziegelstein wasn’t Vice Dean yet, but he was there to talk about a course he directed in the medical school curriculum. During the presentation, “the Dean asked two educational leaders, “What about primary care?” Rothman was told by both, in effect, “‘Hopkins doesn’t do primary care.’ That took him aback, and it was a shocker to me.”

But in the greater context of Hopkins culture, Ziegelstein says, the answer was maybe not so shocking. Most residents at Johns Hopkins pursue subspecialties, and until now the few medical students each year who decided to pursue primary care would often admit their career choice with great trepidation, “as if they were confessing to something profoundly embarrassing,” he notes. Primary care has not been part of the culture at the School of Medicine. And that matters “because the culture of where medical students train is critical to what they’re going to do in practice.” Ziegelstein cites a 2013 article in *Academic Medicine* showing that students who practice “in an environment where primary care is badmouthed very rarely enter primary care.”

“I want to change the culture at Hopkins, so that primary care is viewed alongside subspecialties as a venerable career path for our students. I don’t want students to feel embarrassed about choosing primary care any more. They should be proud of it.”

But the culture is changing, for several reasons. One comes from the top, from Rothman, Ziegelstein, and others at Hopkins who recognize the importance of primary care. Hopkins, with its renowned Bloomberg School of Public Health; School of Nursing; the 30 master clinicians in the Miller-Coulson Academy of Clinical Excellence; strong programs in geriatric and pediatric primary care, and the Johns Hopkins Community Physicians (the largest primary care group in the state; whose President, Steve Kravet, M.D., is a Miller-Coulson Scholar), a respected group of expert primary care physicians; has ample opportunities for students to capitalize on the institution’s many strengths as they learn primary care.

“When I decided to come to Hopkins, I knew I would be trained to be an amazing doctor, which is what I want to be, but I knew I was entering a world where primary care was not front and center. I have been encouraged by the changes that I’ve seen happening.”

Two, the country needs more primary care doctors – internists, pediatricians, ob/gyns, family practitioners – generalists who represent the first line of care. An increase in primary care physicians was recommended recently by the U.S. Department of Health and Human Services’ Council on Graduate Medical Education (COGME), says Ziegelstein. “COGME recommended an increase in the number of primary care doctors from 32 percent of the current physician workforce to 40 percent over the next few years. It’s going to take a while to do this, but it’s important. And it’s not just about the numbers,” he states. “Our country needs primary care leaders, and Johns Hopkins has always been about training leaders in every field in medicine. If our institution can’t train the next generation of leaders in primary care, who can?” He adds that “some people believe that you cannot be a top-flight research institution like Hopkins and also be a top-flight primary care program. But that’s actually not true.”

And three – a dynamic push is coming from the students themselves. “Each year, the AAMC administers a questionnaire to all medical school graduates around the country,” says Ziegelstein, “and our graduates consistently report that primary care aspects of their training are not covered as well as other subjects in the medical school curriculum. Far fewer of our students answer that they’re going to pursue primary care specialties than the national average.”

One of the medical students advocating for change is Juliana Macri, who is head of the student advisory panel for this new primary care track. She is part of a Hopkins chapter of a national organization called Primary Care Progress. “We had a meeting last year where we made a list of things that we wanted to try to make happen at Hopkins,” she says. “One was a primary care track, or improved primary care in the medical school curriculum.” Macri led a working group that came up with a proposal and presented it to Ziegelstein and other faculty, who had already begun moving in the same direction. “They were very receptive to recognizing that there are deficits in our curriculum and that there need to be changes.”

Colleen Christmas, M.D., Director of the Internal Medicine Residency Program at Johns Hopkins Bayview, is the director of the new track (see side story). “Colleen has done a wonderful job reaching out to medical students,” says Macri, “and seeing that the needs they identify are prioritized. She’s making sure the medical students are front and center in this. We have a lot of ideas, and we have the best sense of what we’re missing.”

One thing Macri hopes will happen when the program, which will be voluntary, begins in 2015 is that students who choose the primary care track will get to spend a lot more time in an outpatient setting. “Right now, we have very minimal outpatient exposure,” she says. In January of the first year of medical school, students begin a yearlong clerkship in an outpatient clinic. However, Macri notes, “the students placed in pediatric or specialty clinics won’t ever see adult primary care visits or the complete picture of primary care. Also, it’s early on in our medical training; we don’t take endocrinology or cardiology until halfway through our second year, so we don’t yet understand the basic pathophysiology or pharmacology of diabetes or heart disease... it’s much more of a clinical skills experience, where you learn how to interview and examine patients, but you’re not really at the knowledge level to truly understand or participate in the care decisions that are being made.”

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In the third year of medical school, students do their “core clerkships,” in traditional primary care specialties like pediatrics, women’s health, and internal medicine, but only pediatrics includes a mandatory outpatient portion. “You get very little outpatient time,” says Macri. “So it’s actually possible to go through four years of Johns Hopkins and never see a diabetic follow-up visit or a regular hypertension outpatient visit, which is pretty alarming, considering that those are the biggest health problems facing future physicians today.”

The opportunity for students to see patients and develop relationships with them over time is very limited in many medical schools, says Ziegelstein. “It certainly was for me. I actually saw a patient zero times in clinic. I don’t think I ever set foot in a clinic in medical school; my training was in the inpatient setting. That’s not primary care; primary care is all about longitudinal relationships. We’re not teaching our students properly if we don’t give them those experiences.”

“Many of the master clinicians in the Miller-Coulson Academy are primary care physicians, and they’re ready and eager to support students who want to be in this track.”

It must be noted, Ziegelstein points out, that the stage for learning in medical school has always been the hospital. More than a century ago, when Johns Hopkins Hospital was founded, that’s where the sick people were, and Osler revolutionized medical teaching by bringing students to the bedside where they could “learn by doing,” instead of sitting in the classroom. Even now, “it’s not surprising that the fastest-growing field in medicine is hospitalist medicine,” says Ziegelstein. “It’s just taken off like wildfire. But to some extent, the hospital-based care is the antithesis of primary care.” Years ago, the TV doctor was Marcus Welby, the respected family physician. “Now it’s ‘Gray’s Anatomy.’ Primary care doesn’t have the same caché. At Hopkins, it most definitely does not have the same caché, but that’s the whole point. It should.”

Years ago, the TV doctor was Marcus Welby, the respected family physician. “Now it’s ‘Gray’s Anatomy.’ Primary care doesn’t have the same caché. At Hopkins, it most definitely does not have the same caché, but that’s the whole point. It should.”

Macri hopes the primary care track will create more of a “culture of acceptance” for primary care among those who decide to become specialists. “It’s not just important that we are training good primary care doctors, but also helping subspecialists to understand how to work with their primary care colleagues to make care for the patients better – more coordinated, more thoughtful and careful, and less expensive. When I decided to come to Hopkins,” she adds, “I knew I would be trained to be an amazing doctor, which is what I want to be, but I knew I was entering a world where primary care was not front and center. I have been encouraged by the changes that I’ve seen happening.”

Scott Wright, M.D., Director of the Miller-Coulson Academy of Clinical Excellence and a primary care physician, says that “there are many outstanding clinicians, teachers and researchers who will provide wonderful mentorships to students who elect to participate in this track. Many of the master clinicians in the Miller-Coulson Academy are primary care physicians, and they’re ready and eager to support students who want to be in this track and who then may go on to become leaders in primary care.”

Adds Ziegelstein: “I want to change the culture at Hopkins, so that primary care is viewed alongside subspecialties as a venerable career path for our students. I don’t want students to feel embarrassed about choosing primary care any more. They should be proud of it. And when Paul Rothman asks next time, ‘What is Hopkins doing in primary care?’ there will be a very clear answer for him.” ■

“Limitless Possibilities”

“Our hope for the primary care track,” says Colleen Christmas, M.D., Director of the Residency program at Johns Hopkins Bayview, who also practices primary geriatric care, “is that it won’t only serve the students who sign up for it. We also hope to have a bigger impact beyond that, to influence the culture of the entire medical school.”

Christmas believes Hopkins is ideally poised to train leaders in many aspects of primary care. “Certainly the primary care doctor is the main coordinator of care, but we need to be developing leaders who understand transitions of care, working with the system, inter-professional teamwork – leading teams and working with teams. Our students should have an enhanced understanding of how an Accountable Care Organization works, and how one as a physician can advocate for policy that’s favorable to patients in the primary care system. They need to know about health care disparities and population management. Luckily, we have all of those ingredients at Johns Hopkins. We’re so lucky to be doing this in a place where there are renowned experts in all of those things.”

What’s population management? “It means taking the panel of patients that you see in your office and treating them as a group.” For example, says Christmas: “Say I take all my patients over the age of 60, and look at my rate of providing pneumococcal vaccines. If I find when I look at that data that I don’t do as well with patients in a certain zip code or a certain demographic as I do with other patients, I can come up with interventions to change that.”

“There’s increasing recognition that a good, high-quality health care system stands on primary care as its solid base. Without that base, health care systems tend to be very expensive and have more errors.”

Population management is a new tool made possible through electronic medical records. “It’s not a skill I learned, frankly,” Christmas says. “A few years ago, none of us had electronic medical records or knew anything about population management, because there’s no way you could do that with a paper and pencil chart. But using electronic records to improve your own practice and do outreach to the community is really powerful and exciting. It’s a way to promote health rather than just treating disease.”

Hopkins is ideally poised to develop leaders in primary care.

The possibilities in the primary care track at Hopkins “are limitless.” Christmas hopes that maybe, in a few years, the primary care track could be developed into a M.D.-Masters program where “students could take a couple of years out of their curriculum and delve into these issues more deeply.”

It’s not an either-or situation, she adds. “We’re not going to say we don’t like specialists anymore – we love and need specialists. But we need to figure out how to do a better job in getting people who are interested in primary care to develop expertise in it and to feel valued, to feel like it’s a viable option. There’s increasing recognition that a good, high-quality health care system stands on primary care as its solid base. Without that base, health care systems tend to be very expensive and have more errors. It makes sense that Hopkins be integrated with a strong primary care work force. With our super-bright Hopkins students, that’s a recipe for success.”

Giving Back

The CIM has an International Advisory Board.

Philanthropist Stephanie Cooper Greenberg helped make it happen.

The history of Hopkins is a history of philanthropy, beginning with the great Quaker whiskey merchant himself, Mr. Johns Hopkins, who left \$7 million of his fortune (in 1873, this was the largest philanthropic bequest in U.S. History) to endow both a university and a hospital. Here at the CIM much of our history, too, has been made possible through the generosity of people who believe in what we are doing, who share our vision and want to be part of making it happen.

In October, for the first time, our International Advisory Board (IAB), made up of 20 people from as far away as Japan, Brazil and China, came together to discuss the progress we have made in our 10 years and to talk about our future together. This meeting was largely possible through the efforts of one of our greatest supporters, Stephanie Cooper Greenberg. Greenberg came to the CIM the way many of our IAB members did – through David Hellmann, M.D. She happened to meet Hellmann through a friend who was his patient. Then she saw a copy of *Breakthrough*, and liked it so much that she read every back issue. She became, as she puts it, “a keen observer of what the CIM does,” and found it to be “an elegant center for thought, thoughtfulness, cultivation of ideas and innovation, discovery and empathy,” she says. “Here are all these remarkable people who care so deeply about their patients. It’s such a positive, actual working message; what they practice is not just an idea, they do it every day. I honor the work they do for other people, how they go about practicing medicine, and how they interact with each other.”

But it’s one thing to admire, Greenberg adds, and another “to say, ‘I want to play a small part in this. I’m not in the trenches with you, but I want to support what you’re doing because I believe in what you’re doing.’ I think that’s really the message here of why there’s such a powerful connection to the CIM and the work that goes on here.”

For the first time, our International Advisory Board, made up of 20 people from as far away as Japan, Brazil and China, came together to discuss the progress we have made in our 10 years and to talk about our future together.

“We like investing in institutions that get it right and do great things.”

Less than a year ago, Hellmann identified the people who would become the IAB members, and asked them to meet in Baltimore. Although Hellmann had worked with many of these philanthropists individually, he had never brought them all together. Greenberg helped convince him that “maybe it is time, as the Center matures and has a proven track record and also has important new projects coming on, that maybe these disparate admirers would want to be there as an Advisory Board to show support, and also provide help from the outsider’s perspective, to be advocates for what’s taking place at Johns Hopkins Bayview, and be great stewards of the Center as laypeople.”

Remarkably, “no one said no,” says Greenberg. “The response was immediate and enthusiastic.” At the meeting, a dozen CIM leaders presented brief summaries of their work – many of the projects you’ll see in our “Milestones” section on Page 23. “It was like a wheel, with the CIM at the center, and all these beautiful spokes – the Miller-Coulson Academy, Alike Initiative, Medicine for the Greater Good, the MERIT mentoring program, the Latino Health Center – and as they presented, you could see how it all relates back to the CIM, how they collaborate and innovate. Tying it all together tells a very powerful story, and we all realized how far David’s vision has come, how invested the faculty and staff and residents and medical students are. Our goal is to tell that story and also unify the center. We really want to be a part of what you’re doing at the CIM.”

Greenberg and her husband, Erwin L. Greenberg, in a \$45 million co-investment with the Johns Hopkins University, recently created the Johns Hopkins Greenberg Bladder Cancer Institute. “We like investing in institutions that get it right and do great things,” Greenberg says.

For the CIM, “sustaining support over time is incredibly valuable, so that people can have the freedom to explore, to discover, to figure out how to make a better culture here. Medical systems don’t often pay for beautiful institutions like the CIM. There is a need for outside support, philanthropic support, and it’s there because people believe so strongly that this Center is a model for the way it should happen. You sort of scratch your head and say, ‘Why isn’t everybody like that?’

“For someone like me and these Advisory Board members, we believe that something extraordinary is happening here, a positive change in the culture of academic medicine. I think the ripple effect will reach generations of medical students, residents, fellows, practicing physicians and mentors. It will be sustaining, because it really, really works.”

“I want to play a small part in this. I’m not in the trenches with you, but I want to support what you’re doing because I believe in what you’re doing.”

In her free time, Greenberg and her three Dalmatians visit Hopkins as therapy teams. “We were right up there with aromatherapy when we started,” she jokes, “and people were asking, what is this crazy dog thing? Now, units throughout Hopkins are asking for therapy dogs, because they’re realizing how much it benefits the patients,” and this is what she appreciates about Hopkins, she adds. “They never forget that there is a patient, there’s a real person who may benefit from having a dog visit. Or having a Center for Innovative Medicine. They never lose sight that these are people who have come to them at a very vulnerable time; patients don’t want to be there, they want to be well. In a small way, the therapy dogs relate to everything else. The dogs love it, too; they feel they have a higher purpose in life, and I feel I have a higher purpose because of our role at Johns Hopkins. Our role is to support great things here.” ■



INDIVIDUALIZED TREATMENT

PRECISION MEDICINE

Cookie-cutter, one-size-fits-all treatment isn't ideal for most people. Precision medicine is highly personalized and individually tailored. It's happening here in our multidisciplinary research cores – including Genomics, Proteomics, Food, Body and Mind – where scientists and clinicians from different disciplines collaborate to tackle problems from many angles.

Food, Body, Mind

Gastroenterology meets Neuroscience,
meets Microbiology, meets Immunology, meets Psychiatry

“Why do I feel bad?” “Could it be that something in my diet is making me depressed?” “How do I know if what I eat is making me sick?” These are questions that, even a few years ago, doctors and scientists didn’t really ask because the connections weren’t there yet. That has changed considerably.

The gut-brain connection is the focus of the new Johns Hopkins Food, Body & Mind Center, where the science, if Hollywood were to pitch the story, is a fusion: Gastroenterology meets Neuroscience, meets Microbiology, meets Immunology, meets Psychiatry. The collaborations are new because, frankly, nobody thought to put these scientists and clinicians together until recently. Nobody realized just what an important role the gut plays in diseases – illnesses like diabetes, heart disease, depression, even cancer. Now, with the help of a generous gift provided by Mrs. Courtney Amos and Mr. Paul S. Amos, the new Center is one of a few places in the world dedicated to studying the links between diet and disease, and also the role of good and bad bacteria in making us sick and keeping us healthy.

The Center, which opened in July, is co-directed by Pankaj “Jay” Pasricha, M.D., who also directs the Center for Neurogastroenterology at Johns Hopkins Bayview, and Glenn Treisman, M.D., Professor of Psychiatry and Behavioral Sciences. Pasricha and Treisman see patients together, along with doctors including Emily McGowan, M.D., who specializes in allergy and immunology, gastroenterologists Sameer Dhalla and Ellen Stein, and nutritionist Carmen Roberts, R.D. “We evaluate these patients and come up with integrative, holistic, and compassionate ways to address their problems,” says Pasricha. The center has just received Johns Hopkins Internal Review Board approval to start studying some of the mechanisms by which food can affect physiological processes, and “our next priority is to start enrolling patients.”

Pasricha, Treisman and Cynthia Sears, M.D., who chairs the Center’s Scientific Advisory Board, wanted the word, “compassionate,” to be part of the Center’s mission statement because many of their patients come to them by way of a rather long road. Basically, they’ve been through a lot – medicines that may not have worked, for example, or doctors who may have addressed one of their problems without realizing the whole body was involved. Understanding that journey requires some basic knowledge of the gut-brain axis.

A few very important points to consider:

- **The gut has at least as many neurons, or nerve cells, as the spinal cord;**
- **The gut produces 90 percent of the body’s serotonin and half of its dopamine; these are powerful *neurotransmitters* that affect mood, help the mind stay calm and focused, and are natural anti-depressants;**
- **The *enteric nervous system* is a massive juggernaut of nerve cells lining the muscular walls of the intestines, but also the esophagus, stomach, and rectum; these nerves control *peristalsis*, the series of muscle contractions – think of toothpaste being squeezed through a tube – essential for swallowing, digestion, for absorption of food and bowel movement. This conveyor-belt of food and digestive products from one end of the body through to the other is known as *motility*;**
- **When the enteric nervous system is out of kilter, it can result in conditions including irritable bowel syndrome (someone could repeatedly experience diarrhea as well as constipation) or gastroparesis (the stomach muscles or the nerves that drive them stop working, and food doesn’t move out of the stomach the way it should);**
- **These enteric nerves also affect immune responses and inflammation;**
- **The *microflora* in the gut are way more important than anyone realized even a few years ago; this *microbiome* is made up of communities of bacteria and other organisms. Tiny changes here can have big effects on our emotions and gut motility;**
- **The reverse is also true: Changes in our mood can also affect everything in the gut.**

The gut has at least as many neurons, or nerve cells, as the spinal cord.

So the patients' symptoms the doctors in the Food, Body & Mind Center might expect to see on any given day might include nausea, swallowing difficulty, abdominal pain, diarrhea, or constipation; joint pain, swelling, inflammation or rash (from food allergy or intolerance); depression or anxiety; and also problems with the metabolism, such as insulin resistance and type II diabetes. Pasricha has shown in mouse models of diabetes that there is remodeling of the enteric nerves that help control insulin production; he believes that a new approach to treating diabetes – by changing the way the nerves signal to each other – may be on the horizon.

Pasricha is involved in many research projects involving multiple aspects of the gut-brain axis. He is very interested in the pancreas, in exploring “how the gut can be a signal that drives metabolic disease,” he says, and “finding the mechanism by which gastric bypass surgery relieves insulin resistance and diabetes.” He also is working to learn more about how the nerves work in the gut, namely, “all the triggers in the gut wall that allow the entry of foreign substances, and perhaps invoke either an immune response or have toxic effects on the rest of the body.”

Although Pasricha is a gastroenterologist, this work defies a single discipline. “In my practice, there are so many patients with functional bowel disease who also have additional psychosocial problems, such as depression,” he says. “We learn to treat them as full patients. A lot of the drugs they use affect both the brain in their head and the brain in their gut.”

This is where Glenn Treisman comes in. Treisman, who was recently honored as the Eugene Meyer III Professor of Psychiatry and Behavioral Sciences and Medicine, “brings a deep understanding of the pathophysiology and neuropharmacology of both nervous systems,” says Pasricha. “His presence is an invaluable asset for the Center and a major draw for patients and their referring physicians. Glenn and I learn a lot from each other as we try to work out a rational way to approach these patients, so the same kind of drugs can affect both their GI symptoms and their mental and behavioral symptoms.”

The gut produces 90 percent of the body's serotonin and half of its dopamine; these are powerful neurotransmitters that affect mood, help the mind stay calm and focused, and are natural anti-depressants.

THE WORLDS OF THE MICROBIOME

Now, what about the gut bacteria? Sears, who has spent years studying the pathogenesis of enteric infections and infectious diseases, has recently extended her research, plunging deeper into understanding the broad interactions between the gut's microflora and our health. Rapidly expanding evidence, she says, suggests “that the complex communities that we carry with us – which are on every surface of the body, on every orifice and on the mucosa associated with that orifice – are essential to health. But they're also associated with disease, both at the local place where these communities reside, and then distantly. They influence liver function, the function of the deep tissues, the enteric nervous system. There's data to suggest they affect heart disease, they may be related to pancreatic conditions, may be linked to our mood and psychiatric disorders, as well as our weight. This concept is amazing, particularly the idea that they can influence our mood and how we function in life.”

CONTINUED ON PAGE 22

The center's purpose, Sears believes, "is to provide superb medical care to individuals who are experiencing issues that often involve intestinal symptoms combined with a sense of dysphoria – not feeling well, and often a little difficult to put your finger on a specific diagnosis." Related to the diagnosis may be "things that we're not even very good at classifying," and one goal she shares with Treisman and Pasricha is to seek specific mechanisms and potential markers to help address problems in more focused ways.

Many patients come by way of a rather long road. Basically, they've been through a lot – medicines that may not have worked, or doctors who may have addressed one of their problems without realizing the whole body was involved.

To give an idea of the complexity of the microbiome: One way to study it is to sequence the bacteria in stool samples. "But we know that the bacteria that are adherent to the mucosa (the mucus lining) in the colon are not necessarily the bacteria in the stool." So, there are mucosal communities of bacteria, and also fecal communities. "You can look at what's there through sequencing, or look at the function of that community, looking at the genes that are present, at pathways, at metabolites in blood as well as urine."

One area of research in the Center involves neural imaging – new ways to look at the nerves. New advances in imaging can help the scientists "try to make connections between precise bacteria, or molecules, or metabolites," says Sears, "and see if this changes the function of those tissues." The good news, even though what they're studying is so complicated, is that "there has been a real revolution in the technology. It has gotten vastly less expensive and faster. We can do things that weren't even remotely feasible a little over 10 years ago."

The ideas are as mind-boggling as the advances in technology. Imagine that you have depression, and you've been told, "You need an antidepressant," and you are still struggling, and one day a doctor tells you, "The problem could be in your gut." This discussion is very new, says Sears. "Our hope is that we will be able to identify the bacteria that produce the right metabolites – the ones that make you feel better," to change the function of the microbiome. "So if the microbiome has bad molecules, that we could modify it or treat it in such a way that you get good molecules and change the balance."

Will this eliminate the need for antidepressants? Probably not, Sears says. "But there are a lot of people who probably don't fit into classic psychiatric criteria, who don't feel well. So this idea that we can use food and possibly 'good' bacteria to modify function and make someone feel better, and help turn someone's life around, is very intriguing." ■

Imagine that you have depression, and you've been told, "You need an antidepressant," and you are still struggling, and one day a doctor tells you, "The problem could be in your gut." This discussion is very new.

Milestones

Important Happenings in the CIM Over the Last 10 Years

The Good Doctor

The Bayview Scholars

They are among the best and brightest scientists and clinicians we have here at Johns Hopkins Bayview. With the support of dedicated philanthropists including the Lowe Family, the Miller-Coulson Family, Mr. and Mrs. Hugh Cosner, Mr. Aristidis Alafouzos, the Amos Family, and Mr. and Mrs. Fred Mirmiran, these scholars are able to spend more time doing what they do best: helping people who are sick. For a list of the Bayview Scholars, see page 25.

The Aliko Initiative

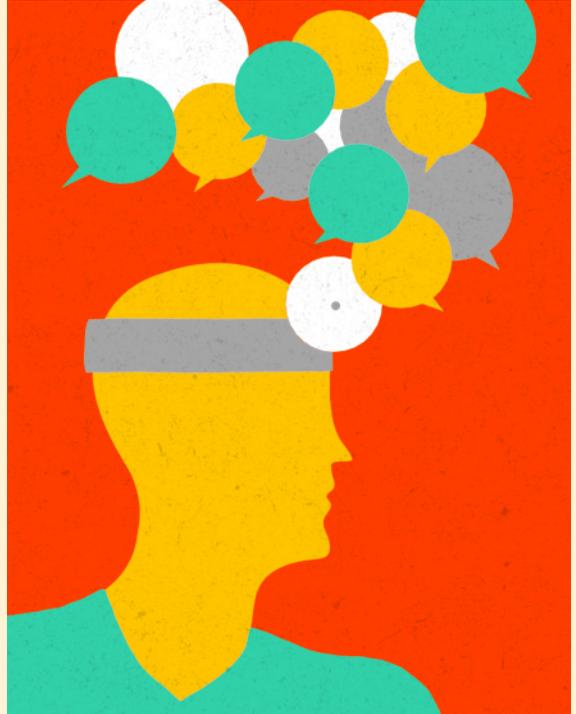
Launched in 2007, this was the nation's first effort to change medical education by focusing on personal care. Thanks to the generosity of Mrs. Aliko Perroti, our young physicians have learned how to listen better, be more observant. The Aliko Initiative's key features: **Fewer patients for each doctor**, so the doctor can spend more time with each one. **Doctor-patient relationships** that don't end when the patient is wheeled out of the hospital. **Evidence-based medicine**, so that medical tests and treatments are appropriate, and based on scientific studies. **Patients get to report** how well their doctors did, and are asked whether they think their doctors got to know them as individuals. The Impact has been tremendous: 230 residents have been "Aliko-ized," 320 medical students have been "Aliko-ized," 24,000 inpatients at Bayview have been on the Aliko service, 200,000 patients have been touched by Aliko graduates, and thousands of patients have received follow-up calls and house visits.

Clinical Excellence Initiative

In 2006, the Miller-Coulson Family funded the DMR project – for "Define, Measure, and Reward" clinical excellence. At its helm were four **Miller-Coulson Scholars** – Colleen Christmas, Steven Kravet, Samuel C. Durso, and Scott Wright. In academic medicine, the primary rewards seem to come to publishing scientists. The DMR project was a venture into uncharted territory, an attempt to quantify and define the qualities that make an excellent clinician, and to come up with a reward system.

Our Book Clubs

We like summer here at the CIM. Even though an academic medical center never closes, in the summer the structured pace eases up a bit around here. We have fewer meetings, not so many talks and lectures, and these quieter weeks are the perfect time for our CIM Committee members – a group of remarkable people who are willing to think differently – to do some summer reading. It's hardly ever medical stuff; instead, we look for books outside our field that help us think creatively. We've read many great books over the last 10 summers. Some of them include: *Thinking Fast and Slow*, by Daniel Kahneman; *Made to Stick*, by Chip Heath and Dan Heath; *Team of Rivals*, by Doris Kearns Goodwin; *Diffusion of Innovations*, by Everett Rogers; *Meaning in Life and Why it Matters*, by Susan Wolf; and *Start-Up Nation*, by Dan Senor and Saul Singer.



Miller-Coulson Academy of Clinical Excellence

The four Miller-Coulson Scholars had a mission, and it took them two years of painstaking work. First, they defined academic clinical excellence, through meetings with physicians at institutions across the country, empiric research studies, and an exhaustive review of the medical literature. Then they developed the Clinical Portfolio to measure the academic clinician's performance and contributions. They established an external review Board, identified potential academy members, and in 2009 they elected the first class of Master Clinicians at the first Miller-Coulson Symposium of Clinical Excellence. The Academy, directed by Scott Wright, recently expanded to the Johns Hopkins Hospital campus at the request of Dean and CEO of Johns Hopkins Medicine, Paul Rothman. There are now **30 Miller-Coulson Academy Inductees**.

Frank L. Coulson, Jr. Award for Clinical Excellence

In 2012, the Miller-Coulson family and the Miller-Coulson Academy created a new annual award for young doctors who have shown clinical excellence. The Frank L. Coulson, Jr. Award for Clinical Excellence honors the late Frank Coulson's life, his personal commitment to professional excellence, and his great interest in clinically excellent physicians. Roy Ziegelstein, the Sarah Miller Coulson and Frank L. Coulson, Jr., Professor, told recipients: "an award to people like you who are early in their career is an absolutely fitting tribute to Mr. Coulson. Frank was the leading bond salesman for Goldman Sachs for four decades. But I think the part of his work that he enjoyed the most was mentoring young people. He really would have loved to have met each of you."

Medicine for the Greater Good *

The Miller Lecture

The Miller-Coulson Family has been so generous to the CIM over the years. Our first initiative together was the Miller Lecture, which has become an important and highly anticipated event at Johns Hopkins every year, as we come together to focus on medical excellence.

Breakthrough

In our first issue, in 2007, David Hellmann said, “The name of this publication is important. It’s not just scientific breakthroughs... it’s a breakthrough in thinking and in focus.”

International Partnership

In 2007, faculty from Johns Hopkins Bayview’s world-renowned Division of Geriatric Medicine and Gerontology and from Peking Union Medical College, China’s flagship medical institution, joined forces to establish a geriatric medicine program at PUMC. The partnership is “a great example of the CIM’s goals,” says David Hellmann, “focus on the patient, collaboration, and wise use of technology, on an international level.”

A New Model for Academic Medicine

The customary model for academic medicine is a triangle, whose three sides stand for Teaching, Patient Care, and Research. This model worked well for more than a century. But David Hellmann felt that the two-dimensional triangle needed to make more room for patients and the community, to encourage collaboration between scientists and clinicians, and to highlight the critical work of nurses, therapists, and staff. So in 2008 he came up with a better model, a three-dimensional pyramid.

The Carol Ball Medical Floor

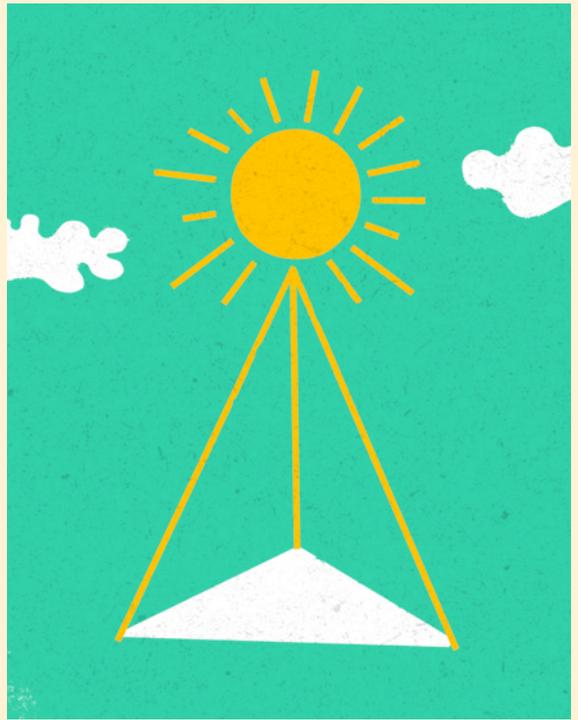
Designed with the Pyramid concept – the creative rethinking of the traditional triangle model of academic medicine – in mind, this short-term stay unit was designed to be patient-centered and interdisciplinary, a flagship for innovation. In 2010, a 63-bed ward was transformed into a 38-bed unit where pilot programs are tested, the approach is interdisciplinary, and thoughtful measures to make the environment as patient- and family-friendly as possible are encouraged. The Carol Ball Medical Floor is the only unit in any Johns Hopkins Hospital named for a nurse.

Pyramid Fund Grants

This Fund started in 2011, named for our Pyramid model. Grants are deliberately small – from as little as \$50 to \$1,500 – but that’s the point. Open to all staff and faculty at Johns Hopkins Bayview, the Fund encourages little ideas that have the potential to make a big impact on patients’ lives. “The enthusiasm for this blew me away,” says David Hellmann. Indeed, says Cindy Rand, Deputy Director of Patient-Centered Care, “there are a lot of people around here who really care.”

Center for Behavior and Health

“Unhealthy behaviors account for as much as 60 percent of all medical care costs in the United States,” says David Hellmann, whose efforts were instrumental in getting the new Center started. “Even if someday the human genome project can perfectly predict all diseases, it won’t matter if we cannot also get patients to adopt healthy behaviors.” Unhealthy behaviors include: poor diet, inactivity, and lack of exercise, cigarette smoking, drug addiction, alcohol addiction, and poor sleep.



Healthy Community Partnership at Johns Hopkins Bayview

This program started in 2012, but it’s based on nearly 20 years of collaboration between clinical psychologist Dan Hale and geriatrician Rick Bennett, President of Johns Hopkins Bayview. How do you help patients get more information – sometimes when they don’t even realize they have a disease or medical condition? You go out into the community. Respectfully.

Johns Hopkins Community Health Partnership

If health is the first wealth, says David Hellmann, “Hopkins has not been very attentive in providing that for people in the neighborhood, although that’s what we were founded for. We own the responsibility for trying to make this better.” Hopkins leaders believe J-CHiP, funded by a three-year, \$19.9 million innovation grant from the Centers for Medicare and Medicaid Services, is the long overdue opportunity to transform the health of our closest neighbors.

Medicine for the Greater Good *

This innovative program, started in 2013 by one of our Chief Residents, takes our doctors beyond our hospital walls and out

into the community, where they hope to help people make lasting changes in their health care.

MERIT

Medical Education Resources Initiative for Teens (MERIT) was started by three young teachers working in inner-city Baltimore. Two of them have gone on to become Johns Hopkins medical students. MERIT gives disadvantaged students who want to go to medical school a decent shot at actually making their dream come true, and we’re doing all we can to help, with internships, mentoring, and support.

Latino Health Center

Our neighborhood is changing, and Hopkins is changing, too. As the Latino population has skyrocketed in the rowhouses around Bayview and the Broadway campus, Hopkins has opened its arms to welcome them. Centro Sol (“sol” means “sun” in Spanish), which opened in 2013, is focused on brightening the health prospects for the growing Latino community. The result is a multidisciplinary, family-centered approach to caring for Latinos that involves pediatrics, obstetrics-gynecology, internal medicine, and psychiatry.

Precision Medicine

Our Cores

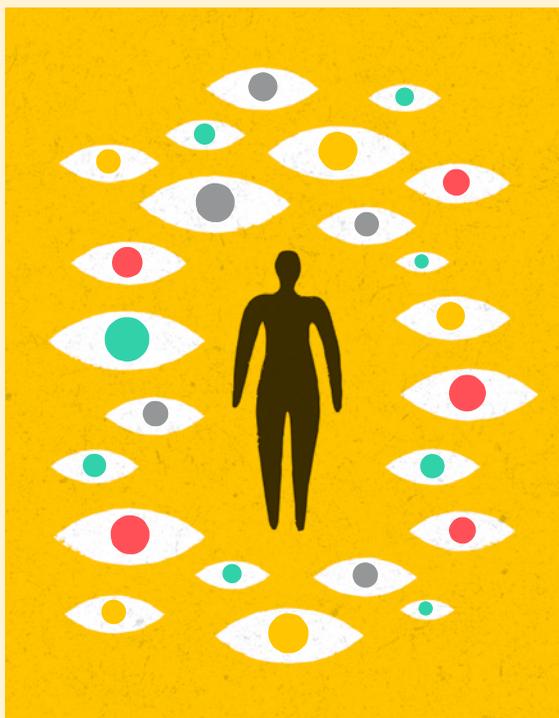
We value Cores here at the CIM very much, and we have several: The Bayview Lowe Genomics Core, the Biostatistical Core (BEAD), and the Amos Proteomics Core, the Johns Hopkins Food, Body and Mind Core, and cores in histology and cell sorting. Cores allow us to achieve critical mass. When the right people come together, with different skills and areas of expertise that complement each other, we begin to see results that happen much faster.

The Bayview Lowe Genomics Core

In 2004, immunogeneticist Kathleen Barnes was given the chance to build a genetics and genomics program from scratch, with the help of interdisciplinary support and a gift from Mrs. Joan Carl, in memory of her mother, Mary Beryl Patch Turnbull, by supporting research in her name. Soon philanthropist David Lowe, who has also funded much of the autoimmune disease research at Bayview, invested in the Genomics Core, which now bears his name. Barnes has turned the Core into a genetic research powerhouse.

The Amos Family Proteomics Core

Proteomics is the science of reading the ticker tape of protein in our blood. Established with the generosity of the Amos Family, the Bayview Proteomics Center is one of just 10 centers funded by the Hopkins National Heart, Lung and Blood Institute. Our Proteomics Core scientists have made important discoveries that help explain the mechanisms that cause some forms of heart failure, helped identify a newly discovered form of myositis, and provided important insights into the fundamental causes of rheumatoid arthritis.



Precision Medicine

It started in 2011 with two pilot projects involving patients with rheumatic diseases, but we hope it will have applications throughout medicine. Precision Medicine is highly individualized, focused care in which subsets of patients are identified and their treatments are custom-tailored. "Precision medicine is all about patients," says Antony Rosen, who is heading this initiative.

Vital Score App

In 2013, clinical psychologist Hillary Hatch, on the faculty of the Center for Behavior and Health, developed an app for the iPad, called Vital Score. It's a simple tool that she hopes will help doctors do what they really want to do – help the patient become healthier – by shifting the patient's perspective from changing behavior to improving self-care. It is upbeat and friendly, an arm around the shoulder rather than a kick in the pants. The app is an ice-breaker, something for the doctor and patient to talk about together. "It's a score, not a judgment," says Hatch.

Physicians for Responsible Ordering

Started by our medical residents, PRO is poised to save millions of dollars in hospital charges to patients. The key to changing the culture of ordering too many tests: A very focused approach, and well-defined, easily measured goals, says Jeff Trost, Deputy Director of Clinical Practice for the Dept. of Medicine and the group's faculty leader. In its first year, PRO's promotion of prudent test-ordering for patients with chest pain reduced the charges of blood tests at Johns Hopkins Bayview by more than one million dollars.

Johns Hopkins Food, Body & Mind Center

Changes in the gut's microflora can affect the mood, causing depression and anxiety. Our new Johns Hopkins Food, Body & Mind Center, which opened in 2014 thanks to a generous gift provided by Courtney and Paul Amos, is exploring the connections between our two brains – the one in our head, and the smaller, very important one in our gut. The goal is to advance scientific knowledge of the mechanisms by which foods affect our physical and mental health.

The Bayview Scholars

Over the years, they have included:
 Felipe Andrade, Lowe Family Scholar
 Kathleen Barnes, Mary Beryl Patch Turnbull Scholar
 Cynthia Boyd, Bayview Scholar
 Colleen Christmas, Miller-Coulson Scholar
 Bruce S. Bochner, Cosner Scholar in Translational Research
 S. Chris Durso, Miller-Coulson Scholar
 Linda Fried, Cosner Scholar in Translational Research
 Frank Herlong, Bayview Scholar
 Landon King, Bayview Scholar
 Steven Kravet, Miller-Coulson Scholar
 Stuart M. Levine, Lowe Family Scholar
 Constantine G. Lyketsos, Alafouzos Scholar
 Parviz Nikoomeh, Mirmiran Family Scholar
 Cynthia Rand, Bayview Scholar
 Antony Rosen, Cosner Scholar in Translational Research
 Philip Seo, Lowe Family Scholar
 Michael T. Smith, Alafouzos Scholar
 John H. Stone, Cosner Scholar in Translational Research
 Jennifer Van Eyk, Amos Family Scholar
 Scott Wright, Miller-Coulson Scholar
 Roy C. Ziegelstein, Miller Scholar

** There are two "Medicines for the Greater Good." One is the actual program begun by our residents, and the other is a philosophy, the way we are implementing our fundamental belief that Medicine is a Public Trust.*

Medicine is a public trust

THE JOHNS HOPKINS CENTER FOR INNOVATIVE MEDICINE

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**“All the experts are experts on what was.
There is no expert on what will be.
To become an expert on the future, vision
must replace experience.”**

David Ben-Gurion, Israel's first prime minister, quoted by Shimon Peres in the Foreword to *Start-Up Nation: The Story of Israel's Economic Miracle*, by Dan Senor and Saul Singer. This bestselling book was the CIM Committee's summer reading. Story on Page 9.

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* Deceased

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