

breakthrough

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Aiming Higher

What is Clinical Excellence?

“Teach a Man to Fish”

The Dark Side of Statins

App Downloaded, Life Uplifted

Medicine is a public trust

THE JOHNS HOPKINS CENTER
FOR INNOVATIVE MEDICINE

breakthrough



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Aliko Perroti Professor of Medicine; Vice Dean, Johns Hopkins Bayview Medical Center; Chairman, Department of Medicine

INSPIRATION, AND RE-IMAGINING THE POSSIBILITIES

Welcome to our summer issue. In our cover story, we talk about holding up a mirror – in this case, to our practice of medicine – being honest about what we see, and then using that to teach others and improve ourselves. That’s not always easy, but it’s part of what we set out to do when we started the Center for Innovative Medicine. If you’re new to the CIM, we started with the belief that medicine is a public trust, and worked our way from there, developing initiatives to transform the doctor-patient relationship and reshape the culture of academic medicine.

I wish you could have been here on April 26, when we combined two of my favorite events: The Miller-Coulson Academy’s Excellence in Patient Care Symposium, and the Miller Lecture. It was a glorious morning, all due to the generous support of the Miller family (see page 4), and I think everyone in the audience came away inspired to try harder, to raise our sights, and to rethink what we are capable of achieving.

What is clinical excellence? For millennia this was right up there with great art in that it was hard to define, but people knew it when they saw it. Thanks to the members of the Miller-Coulson Academy, there are not only definitions, but scholarly publications that define and measure clinical excellence in different specialties. What makes a great doctor? One measure of success is how our patients feel about us. I was fortunate to see some wonderful patients there in the auditorium. One of them, Mr. Jerry Braunstein, age 83, came all the way from Florida to say a few words on behalf of his doctor, Judy Huang, a neurosurgeon who is one of our three newest inductees into the Academy. It meant so much to everyone that he and other patients could join in this celebration.

In reading over the stories in this issue of *Breakthrough*, I was reminded of a quote from the author, Peter Drucker: “Management is doing things right; leadership is doing the right things.” Here at the CIM, we are doing our best to combine both of these. In a couple of stories, you will see that we are pretty frank in talking about what hasn’t worked, and where there is room for improvement. We talk about this in the story on the Miller Lecture (see page 4), and the story on our new management in the internal medicine practice (see page 14).

I am also proud that, in a story about technology – how the iPad made a giant change in one patient’s life (see page 16) – our doctors have mixed feelings. Not about the technology in this case. They’re just worried because they don’t want anything, ever, to replace the bond between a physician and a patient. That relationship is too important. Speaking of relationships, the collaboration that we prize here at the CIM – so much so that it is one of the essential tenets of our Pyramid model for medical education – was cited as a useful model in the *New England Journal of Medicine*, in an article about accountable care at academic medical centers.

This is what we hoped for when we began the CIM six years ago: That what we do here will make a difference in the lives of our patients, the community, and our own faculty and staff, and that the answers we come up with here will help solve problems at other centers, too.

Best wishes,

David B. Hellmann, M.D.

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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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Aiming Higher

Examining the very real possibility that entirely new targets are within our reach

They are two important milestones of our academic year: The Miller-Coulson Academy of Clinical Excellence Symposium and The Miller Lecture. And this year, both of those events occurred in one special, combined program. It was a great day – a celebration of the very best things about academic medicine, marked by the induction of three new members into the Academy.

Above all, it was a day of broadening and raising our expectations of what is attainable: Not just the college commencement, “aim high” kind of talk, but examining the very real possibility, as challenged by our Miller Lecturer, Peter J. Pronovost, M.D., Ph.D., that entirely new targets are within our reach.

Pronovost is a critical care physician, an anesthesiologist who holds professorships in three schools at Hopkins: the School of Medicine, the School of Nursing, and the Bloomberg School of Public Health. As director of the Quality and Safety Research Group, he developed a method for reducing the deadly infections that often accompany central line catheters. The results have been so startling – every hospital that follows his approach has virtually eliminated these infections – that his protocol is being implemented state by state, and in other countries, as well. At the heart of his success are many of the core values of the Center for Innovative Medicine, particularly in our Pyramid model for academic medicine, the brainchild of the CIM’s co-founder, David Hellmann, M.D., the Alike Perroti Professor of Medicine. The Pyramid model puts patients at the very top, because patients and their

families are the reason we are here. Then, each side of the Pyramid – teaching, patient care, and research – depends on the others for support, and collaboration is essential. At the foundation is our entire work force. The Pyramid creates a culture in which everybody has ownership, and everybody can make a difference.

NO RESTING ON LAURELS ALLOWED

Hellmann has said that the best clinicians are unflinching; “they have the courage to hold up a mirror to their practice, and be brutally honest about what they see. They are committed to improving it, and sharing what they discover with others.” Pronovost made reference to this, and then reeled off some areas where medicine could stand a good, hard look in the mirror. “Patients across the country get the recommended therapies half the time; 100,000 people die each year from infections, 100,000 die from blood clots, and another 100,000 die from diagnostic errors,” he states. “In my field, in the ICU, one in 10 patients dies from something that we didn’t think they had. How do we reconcile this dichotomy between really committed clinicians and the amazing biotechnology discovery engine that Hopkins symbolizes, with the brutal reality that sometimes we fall short?”

“We changed our mental model from: ‘these infections are inevitable,’ to ‘they’re preventable.’”

Central line-associated blood infections used to kill about as many people each year in the U.S. as breast cancer. That number is dropping now, thanks to Pronovost’s work. But it didn’t change until several important things happened. “For decades, we thought these infections were inevitable, just the cost of doing business” with very sick patients. One day, he encountered the mother of a little girl who had died of one such infection. She wanted accountability. Could he assure her, she asked Pronovost, that someone with a central line was less likely

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Every specialty has its tough moments, and unforgettable patients. New Academy inductee Ilene Browner, M.D., a geriatric oncologist, told the Symposium’s audience about “M.L.,” whom she first met when she was a first-year fellow, and he was newly diagnosed with Stage 3 lung cancer.

When Browner entered the room after reading M.L.’s chart, she found “a stoic Korean gentleman and his terrified wife.” The couple’s English was limited, and the three of them spent the next hour learning to work around that, using gestures, facial expressions, and pictures.

That struggle to understand each other forged “an incredible bond between us,” Browner says. In subsequent visits, she learned about M.L.’s life in Korea and America, his transformation from struggling businessman to successful entrepreneur, “his pride in his accomplishments and his family, his love of golf, of good food, and certainly a good cocktail. And, without ever telling me in words, his fears about his illness and its treatment, and more importantly about the welfare of his family. This was the information I needed to address his physical and personal needs.”

For three years, Browner, M.L. and his wife shared “the journey known as cancer. M.L. often told me that he liked our visits,” she says, “even when he was sick and getting treatment, because he could practice his English without feeling self-conscious, and voice his complaints and concerns without feeling weak. And because he felt that I understood what he really wanted and needed.” M.L. cared for Browner, too: “On snowy mornings, he would have the operator page me, to find out if I needed a ride in his big, white, safe truck.”

M.L. lost his battle with cancer, but Browner and his family have stayed in touch. “I’ve been fortunate to witness his daughter’s marriage, the recent engagement of his son, and the upcoming birth of his first grandchild.” M.L.’s daughter once told Browner that she took care of her father’s body and soul. “I hope never to lose the intensity, the urgency, and the devotion that I felt when I first met M.L., and that I feel every time I meet a person who comes to me for clinical guidance, as we work together to find or create a solution that not only sustains, but enriches life for as long as it lasts.”

to die that day than four years earlier? “I started telling her about this program and that program,” and Pronovost says he rambled so much that he reminded himself of the game, “Whack-a-mole.” But in the end, he had to look into her eyes and admit that no, the odds of not dying from an infection in the central line had not improved. In fact, at Hopkins, “we were probably one of the worst in the country for infection rates.”

So he decided to start with that endpoint – reducing infection, as soon as possible – and work backwards to change the system. “I was criticized for it,” he says, because “most research is ‘feed forward,’ from basic to clinical.” Nonetheless, Pronovost went to the Centers for Disease Control’s guidelines for avoiding central line infection, and found that they were “elegant, scholarly, and near useless at the bedside.” The guidelines were 300 pages long, and recommended doing 90 to 95 things. “As a clinician, I can’t do 90 to 95 things.” Pronovost decided to whittle the guidelines down to one simple checklist, with items like: “Wash your hands, clean your skin with a soap called chlorhexidine, avoid putting catheters in the groin, cover yourself and the patient, and ask every day if I still need this catheter.” Then he looked in the harsh mirror of his own habits, and those of his colleagues, and found that “I was doing those

The problem, in the case of that little girl, was that “no one owned her infection. When the clinicians said, ‘this is our problem,’ we all began to tackle it together. There was no magic in the checklist. We simply helped hospitals believe they can do it.”

things, our hospital was doing those things, 30 percent of the time.” Why? Because everything was spread out, or not stocked, and if he had to go to eight different places to get a mask, a gown, and other equipment, “I made a decision, that the 10 minutes I could spend running down the hall, I could go in without it,” and spend more time with that patient and the next ones, too. So they made it easier. “We got a cart, took eight steps down to one, and the compliance went up to 75 percent. That was good, but still not good enough.” Next, Pronovost got the nurses involved; if they saw a physician not putting on a cap, or forgetting one of the steps, their job was to speak up – and to page Pronovost if anybody had a problem with that. “I was never paged, compliance went up to 98 percent, infection rates went down to 2 percent.” What was happening was a culture change, and also a shift in the mindset. “We changed our mental model from: ‘these infections are inevitable,’ to ‘they’re preventable.’” With further research, Pronovost and colleagues isolated the causes of the remaining 2 percent, and virtually eliminated central line infections at Hopkins – and then in Michigan, and onward from there.

The key, he believes, is that “we changed the norms. No one person was going to be great, everybody needed to be great.” The problem, in the case of that little girl, was that “no one owned her infection. When the clinicians said, ‘this is our problem,’ we all began to tackle it together. There was no magic in the checklist. We simply helped hospitals believe they can do it.”

Pronovost loves the example of Roger Bannister, an Englishman, who in 1954 was the first to break the four-minute mile. Nobody thought this was possible, Pronovost says, and the record had stood for 2,000 years. Then, after Bannister broke it, other runners did, too. “The only thing that had changed was their belief that it was possible.” ■

Raising the Bar for **Clinical Excellence** in Academic Medicine

“Prior to the Academy, there was very little scholarship written about clinical excellence,” says Scott Wright, M.D., director of the Miller-Coulson Academy. “We’re changing that.”

One paper, “Clinical Excellence in Academia: Perspectives from Masterful Academic Clinicians,” published in the *Mayo Clinic Proceedings*, and written by the Miller-Coulson Scholars, Colleen Christmas, Steven Kravet, Samuel Durso, and Wright, “served as a starting point for a definition and measure of clinical excellence. Our Academy members have taken this definition and built upon it, and are publishing papers on what clinical excellence is in different specialties.” The Academy has developed methods and materials to teach clinical excellence, and members have “taken the show on the road,” Wright adds, teaching the principles of clinical excellence to faculty at other medical centers. Their work has been welcomed. McGill University, in Montreal, is using some of the Academy’s processes to make clinicians feel more

valued, and Ohio State University has created a new promotion track, using the Academy’s clinical portfolio as the means of measuring faculty success.

The selection process for the Miller-Coulson Academy is rigorous; each potential inductee must

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“Our Academy members have taken this definition and built upon it, and are publishing papers on what clinical excellence is in different specialties.”



“Much of what we do is made possible by the sustained generosity of the Miller Family,” says David Hellmann, co-founder of the Center for Innovative Medicine. Here, from left, are: Anne G. Miller, G. Thomas Miller, Richard B. Worley, Leslie Anne Miller, Sarah Miller Coulson, Frank L. Coulson, Jr.

prepare a 40-page clinical portfolio, which then gets reviewed by an external review committee, made up of experts from around the country. In the last year alone, Academy members have had some 21,300 patient encounters. In their combined careers, they have published or collaborated on 683 peer-reviewed papers that have appeared in some of the country's top medical journals, and then have been cited hundreds of times in other medical literature. They have also served as award-winning teachers and course directors at every level of medical education, teaching medical students, interns and residents, fellows, and running continuing medical education courses for community and academic physicians. Also, the members' "Reflections on Clinical Excellence" blog is read by physicians around the world, many of whom post comments (you can get to this blog from our webpage, at: <http://www.hopkinsmedicine.org/innovative/>. Click on the link to the Miller-Coulson Academy of Clinical Excellence.)

Here are this year's inductees into the Academy. In future issues of *Breakthrough* and on the Center for Innovative Medicine's website, you'll get a chance to meet them and all the Academy's members, and hear what they have to say about the practice of medicine.

Ilene Browner, M.D., a specialist in geriatric oncology at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins Bayview, who is very interested in holistic care, and who is earning her Ph.D. at the Bloomberg School of Public Health at Johns Hopkins;

Michael Crocetti, M.D., M.P.H., an award-winning teacher and dedicated mentor, who in July will become Chief of Pediatrics for Johns Hopkins Community Physicians; and

Judy Huang, M.D., a neurosurgeon, award-winning clinician scientist and teacher, who also serves as Co-Director of the Neurosurgery Residency training Program, and Director of Medical Student Education in Neurosurgery. ■

Watching and Learning

Aaron Bobb, a fourth-year medical student, took a brand-new elective this year: He spent a half-day with each of the members of the Miller-Coulson Academy. His goal: Inspired by what he had seen watching David Hellmann, Roy Ziegelstein, and others, he wanted to learn how to talk, and listen, to patients like the best clinicians do. He kept a blog of his experiences, and spoke briefly about them at the Symposium. "What I found out," he says, "was that these doctors were all extremely different." Some had a light touch with patients, some were more serious. Some talked a lot, and some mainly listened.

"I've seen a lot of the challenges of medicine, the struggles of working long hours, of working...with a complicated system. The Academy members I shadowed didn't sugar-coat these difficulties. But they also didn't let them define their outlook on medicine."

Bobb came into this experience having heard a lot of talk about "how medicine isn't what it used to be, it's less rewarding, there's less autonomy, and it's more impersonal, and more rushed. I've seen a lot of the challenges of medicine, the struggles of working long hours, of working with patients with no or inadequate health insurance, working with a complicated system. The Academy members I shadowed," he continues, "didn't sugar-coat these difficulties. But they also didn't let them define their outlook on medicine." Most notably, "they also found pleasure in medicine, performing a thorough physical, educating a patient, or just connecting on a personal level. The entire tone of their encounters was different and more rewarding." Bobb met patients who had traveled hundreds of miles to see these doctors. "When the doctors would turn their backs, the patients would whisper to me how wonderful their doctor was. I want to get to that level."

Here are a few of the insights Bobb recorded in his blog:

After watching one of the Academy members deliver bad news to his patient, I asked if he had a systematic way of approaching such situations.

"It's like asking a girl out," he replied. "There's no instruction book. You have to feel it out – it'll be different for every patient."

I have to admit, I was disappointed. Part of my reason for taking this elective – shadowing most of the members of the Academy for Clinical Excellence – was to learn the elusive secrets of medicine, the tricks to ensure that my future patients will hold me in high regard.

While I haven't discovered any secrets, I have noticed that all of the Academy members provide small, often subtle gestures of respect for their patients. None is earth-shattering, and no gesture on its own would change a patient's opinion of a doctor. But when two or three are combined during the course of a patient visit, a sense of compassion and respect is clearly conveyed to the patient.

"When the doctors would turn their backs, the patients would whisper to me how wonderful their doctor was. I want to get to that level."

Below are a few of the gestures I've noticed:

Tell patients that you haven't forgotten about them. One afternoon a fellow was unexpectedly absent, so the attending doctor was running late for most of the clinic. In between seeing patients, she would stop into an exam room where a patient was waiting, and let the patient know that she hadn't forgotten about them, she was sorry to be running late, and she would be in to see the patient as soon as possible.

Thank patients. Several times during this elective, I've heard doctors thank their patients. It might be during the greeting ("thank you for coming"), at the end of the history ("thank you for providing all of those details – it's very helpful"), after an admission that the patient hasn't quit smoking ("thank you for being honest with me"), or at the end of the visit (again, "thank you for coming").

Often the Academy doctors will not only provide their card, but will write an additional email or phone number on the card, or will tell the patient which of the several ways of contacting them will be most likely to get through.

Give patients a reliable way to contact you. Often the Academy doctors will not only provide their card, but will write an additional email or phone number on the card, or will tell the patient which of the several ways of contacting them will be most likely to get through.

Introduce me (the med student). Often the medical student and the patient feel the same hesitance about interrupting the attending doctor. If the attending begins the encounter without first introducing everyone in the room, the introductions will likely never be made. This ends up making both the med student and, more importantly, the patient feel a vague sense of discomfort throughout the visit.

(Briefly) evaluate medical concerns that are entirely outside of your speciality. In a clinic for patients with renal transplants, a patient mentioned in passing that he recently slipped on some ice and fell on his shoulder. He had a negative x-ray, but still had some residual soreness. The doctor took a minute to examine his shoulder. I believe that small action reinforced the patient's sense that his doctor cared for his whole person, not just for his kidney.

How do Aliko doctors achieve dramatically low rates of hospital readmission for patients with heart failure? By teaching them how to take care of themselves.

What is it about congestive heart failure that makes people who have it keep needing to go back to the hospital? The readmission rates are high, nationwide. It may be easier to understand why if, for a moment, we picture ourselves in the hospital slippers of someone who has this condition:

We feel bad, our ankles are swollen, we don't have much energy, maybe it's a little hard to breathe. And some dietician comes in with – ta-da! Our new, life-changing, heart failure diet plan. What does heart failure mean, anyway? That our heart is going to stop? It sure is beating hard right now, with this news. All of a sudden, our daily list of life chores must include monitoring our “fluid intake volume.” What the heck is that? How much salt do we get every day? How should we know – and now we're expected to read every single label of every can of soup we buy for the rest of our life? It's overwhelming.

Statistics agree. “About one out of every five people who are discharged after being in the hospital with heart failure has to be readmitted within 30 days,” says Roy Ziegelstein, M.D., The Sarah Miller Coulson and Frank L. Coulson, Jr., Professor of Medicine, and co-chair of the Aliko Initiative. This unplanned readmission is a huge problem, one that is becoming a national health priority, in large part simply for financial reasons (see side story).

What's the best way to fix it? “A cardiologist might say that it's pretty clear what the problem is,” says Ziegelstein, who is a cardiologist, “that these people need to be readmitted because they weren't optimally cared for during their hospitalization.” In heart-doctor talk, that would be because the patient didn't get “dried out.” Heart failure is all about fluid volume. “If they're volume-overloaded, they're ‘wet,’ they have shortness of breath, leg swelling – all the symptoms and signs related to having too much fluid,” he explains. When someone in this boat comes to the hospital, this drying-out process can happen in a tightly monitored setting, with every cubic centimeter going in or coming out accounted for. “Many cardiologists would say, ‘the bottom line is that the majority of people who are hospitalized are on a general medical service; they're not under the care of a cardiologist. They're discharged still volume-up, because there's this push to get people home, to shorten the length of stay.’”

One fairly common solution is a disease-management program, involving calling the patients at home, and asking them to weigh themselves faithfully, to make sure they're staying on their “dry” weight. “Then, if they develop any symptoms, they get seen promptly in the office, to make sure they don't need more diuretics, but by hell or high water, the goal is to make sure they don't come back to the hospital,” says Ziegelstein.

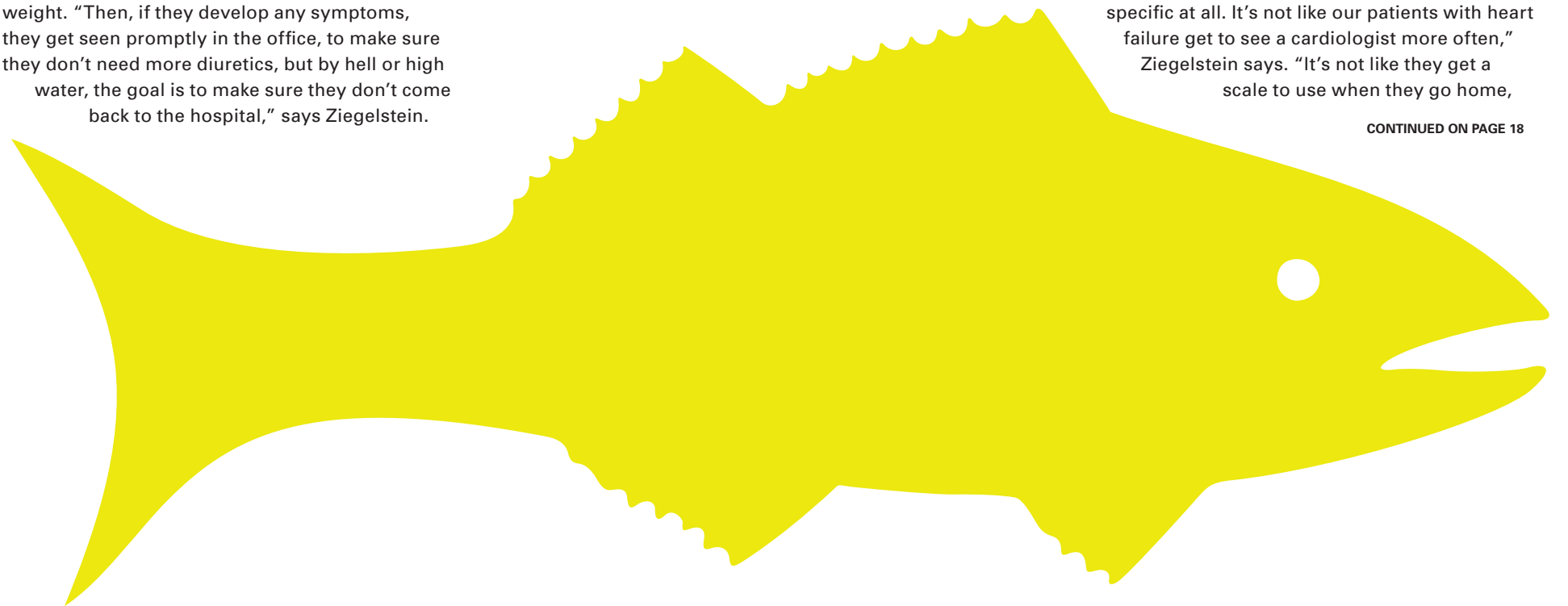
It's the Chinese proverb: Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime.

This kind of intensive management program works, he adds, but it seems to work best only while the management is intensive. Without that rigorous oversight from a nurse or doctor, without those regular phone calls, the temptation is to slack off, to become less vigilant, get discouraged – and maybe wind up back in the hospital. Also, disease management programs tend to address a single illness, but “most patients with heart failure have other health conditions that require ongoing care, and that may require readmission to the hospital if not managed appropriately – even if their heart failure is,” he notes.

And then there is the Aliko Service. Faculty, residents, interns, and medical students on this teaching service, named for its benefactress, Mrs. Aliko Perroti, have fewer patients under their care at any one time, and as a result get to spend more time getting to know them. Recently, Ziegelstein, with co-chair Cindy Rand, Ph.D., internist Janet Record, M.D., and colleagues compared patients on the Aliko service with patients on the other three general medical teaching services at Johns Hopkins Bayview, admitted over a period of nearly two years. “We divided them into two groups, Aliko and non-Aliko,” Ziegelstein says. “Of the patients admitted with the principal diagnosis of heart failure, 14 percent on the non-Aliko teams were readmitted within 30 days for the same diagnosis, compared to only 4 percent on the Aliko team. We thought this was pretty striking, because this is actually a 70-percent relative risk reduction in the need for heart failure readmissions.” Their results were just published in the *Archives of Internal Medicine*.

The Aliko Service doesn't have a disease-management program for heart failure. “In fact, I would say that we don't do anything that's heart failure-specific at all. It's not like our patients with heart failure get to see a cardiologist more often,” Ziegelstein says. “It's not like they get a scale to use when they go home,

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Team's Discovery Links Statins to Immune System Reaction, Muscle Damage

With momentum generated by sharp observation, creative thinking and plain old hard work, scientists in the Myositis Center have discovered a rare, potentially dangerous side effect of statins, drugs used to lower cholesterol for millions of people.

Myositis is inflammation of the muscles; it can have many causes and can range from mild to severe. The immune system is often involved – which means that the body is mounting a defense to something it perceives as an enemy – but even this response differs from person to person, at the most basic levels. That's why, at the Myositis Center at Johns Hopkins Bayview, every patient who walks through the door has a blood test for antibodies. Think of it as a biochemical pat-down, a frisking for potential weapons the body may be using to fight off invaders – which, themselves, may be making things worse.

“Some people have well-known antibodies, some have antibodies which were not previously recognized, and others don't seem to have antibodies,” explains Antony Rosen, M.D., Director of Rheumatology. The antibody analysis measures particular proteins that the antibodies react to; the proteins are labeled on the basis of their size. Last year, scientists in the Myositis Center noticed that the same distinct pattern of proteins, labeled 100-kd and 200-kd, kept cropping up on these analyses. And the patients who had this new and unusual pattern also had some unique clinical features: very high blood levels of muscle enzymes called CK (creatinine kinase), and significant muscle damage on their biopsy specimens; in fact, they had necrotic (dead or dying) muscle cells, plus some nasty-looking, infiltrating inflammatory cells. Clearly, their muscles were under attack and the body was calling out the immune system's cavalry; but what was causing this?

The 100-/200-kd antibody pattern was present in about half of the biopsy samples of patients who had necrotizing myopathy. Of these, it turns out, 63 percent had taken statins – drugs that are known to cause muscle damage in a small percentage of people who take them (see side story). All of the patients got better when their immune systems were suppressed, and many experienced a relapse of muscle weakness when doctors tried to taper off the medication, although over time, they eventually “quieten down,” as the body stops fighting itself, Rosen says. The scientists' work on this unusual immune-mediated myopathy and its treatment was published in the journal, *Arthritis & Rheumatism* in September 2010.



The researchers, with more questions than answers, then worked to identify the antigen, the “invader” that triggered the antibody response. The Center's co-directors, Lisa Christopher-Stine, M.D., M.P.H., and Andrew Mammen, M.D., Ph.D., and colleagues including investigator Livia Casciola-Rosen, Ph.D., set out to come up with a better test, as opposed to the very general, open-ended analysis they had been using. What they had, in effect, was a wide net, like shrimp trawlers use; they needed something more like a baited hook.

“They did a very simple experiment,” explains Rosen, who collaborated with them in further work, published in the March 2011 issue of *Arthritis & Rheumatism*. “They said, ‘We know that it seems to be associated with statin use. If you treated cells with statins and used these antibodies, could you detect the antigen in higher amounts? It was a home run.’” And this, Rosen adds, led to what he describes as a “thought experiment.” Some scientists, ranging from senior investigators to graduate students, were sitting around, brainstorming. Someone noted that one of the major targets of statins, a protein with a string of names that's abbreviated HMG CoA reductase, becomes more powerful after statin exposure; the body becomes

“Even in this day and age, luck is an important part of discovery, and your ability to harness luck is really proportional to how many people with diverse knowledge and skills you have in the room. The more diverse the representation of knowledge, the more likely you are to make a discovery without doing an experiment.”

more susceptible to it. Someone else noted that the molecular weight of this protein is 100k; it joins up with another molecule to form a dimer (basically, a set of identical twins), whose molecular weight is 200k. Coincidence? No way. In further, painstaking lab work, the scientists confirmed that “what's causing the problem in these patients is the very enzyme that the statins target.” The scientists devised an ELISA assay – a test easily translatable to more general use – and proved that they could diagnose this condition using a simple test.

They Lower Cholesterol, But in a Few People, They Cause Muscle Trouble

There's a drawback to statins, drugs taken by millions of people worldwide. They're great at lowering cholesterol, but not always so friendly to the muscles. In fact, muscle problems – ranging from pains and an increased likelihood of muscle injury, to inflammation, weakness, and permanent tissue damage – are known, though not terribly common, complications of statins, and most of these go away when you stop taking the drugs. Some people aren't so lucky, and their bodies develop an immune response.

Regenerating muscle cells also churn out high levels of HMG CoA reductase, Rosen says, which explains why in these patients, symptoms persisted even after they stopped taking the statins. Suppressing the immune system, in effect, allowed the body to recover because it shut off the expression of HMG CoA reductase. In these studies, the scientists demonstrated the link between an environmental trigger (taking the statins) and the development of a sustained autoimmune response.

Among the many lessons learned by this work, Rosen says, is “that even in this day and age, luck is an important part of discovery, and your ability to harness luck is really proportional to how many people with diverse knowledge and skills you have in the room. The more diverse the representation of knowledge, the more likely you are to make a discovery without doing an experiment. That moment of saying, ‘I think the antigen is HMG CoA reductase’ – everybody resonated around the same concept at the same time. It was a most amazing event.”

This research has sparked many more questions, and more research. “Everybody who's working on it can write a grant,” Rosen says, “because they're all working on different aspects.” One question is, what caused this response in the patients who had not taken statins? Other environmental factors may be to blame, Rosen suspects. Are there genes that make someone more susceptible to statins? Exploring these issues may help scientists be able to predict in advance who should avoid using these cholesterol-lowering drugs. ■

One of the smartest things a good leader can do is recognize when someone else can do a job better – and then, make a change. That goes for institutions, too, and recently, Johns Hopkins Bayview did just that, bringing in a Hopkins-owned system to run our internal medicine clinics.

“It’s the right thing to do,” says Melissa Helicke, Assistant Dean of Johns Hopkins Bayview. “As Johns Hopkins Medicine grows, what we need to be doing as an organization is looking for the experts within our larger organization and using them, rather than trying to recreate them.”

The internal medicine practice at Bayview has always included several different types of outpatient clinics. There’s the house staff practice, where residents see patients, and “teaching attendings” (members of the medical faculty) oversee those residents and see patients, as well; and there’s the private practice group, doctors who see patients, but who are not also teaching residents.

Steve Kravet, M.D., renowned clinician and one of the Miller-Coulson Scholars, saw patients in those clinics, had a leadership role in the Department of Medicine, and then became president of Johns Hopkins Community Physicians (JHCP), which runs 26 primary care practices throughout Maryland, and is expanding into specialty care, too. In large part because of Kravet’s deep ties to

Bayview – with his colleagues, and also with his patients, many of whom he has taken care of for years – “we had this opportunity,” says Helicke. “The idea was, ‘let’s hire JHCP, the experts in running primary care throughout Johns Hopkins, let’s use their expertise, and see if they can help us manage our practice better.’”

Collaboration is good. So is problem-solving by re-configuring pieces that are already part of the same institution to work together in new ways; in fact, this idea, “One Hopkins,” is one of the goals of Ronald Daniels, President of The Johns Hopkins University.

“One of the principles of the Center for Innovative Medicine is to focus on interfaces,” says Kravet who, with Helicke is a member of the CIM’s Advisory Committee. “Bayview is an outstanding institution, and so is JHCP, both in their own ways. This collaboration gave us the opportunity to leverage the strengths of both, the academics and the practice, in a way that will benefit our patients, our community, and our learners.”

It’s not that there was anything specifically wrong with the internal medicine practice before, Helicke adds. “There are lots of things that we’re proud of. We’ve got great residents, great teaching attendings, great physicians who provide great care to their patients, and great staff who are very dedicated to the practice. But for whatever reason, the whole has not been greater than the sum of its parts. The residents provided feedback on their annual survey that they wanted a better ambulatory care experience, the physicians would tell us that it wasn’t efficient, staff engagement scores were pretty dismal, and the practice manager position was vacant for about a year. I think the care in the exam room between the patient and physician was really good, but the experience before and after wasn’t as good as it could be.”

The transition, which just took place in December, was complicated, and involved some turnover, some restructuring, and lots of adjustment. “It has been a massive change,” says Helicke. All of the employees switched from working for Johns Hop-

kins Bayview Medical Center to JHCP. The swap in management meant Bayview could take advantage of JHCP’s job descriptions, advancement ladders, training programs, and administrative structure. JHCP also brought in a new electronic medical records system, called Centricity, “which is very patient-focused and physician-focused,” Helicke adds. “In terms of work flow, prescription management, and communication between providers and staff, it is far more advanced and user-friendly than what we currently have here at Bayview or anywhere else at Hopkins.”

Physicians who work in the practice are hired through JHCP as well as the School of Medicine, and are compensated differently. “They get more of a share of what they earn,” explains Helicke. “More of their pay is patient-based.” The practice’s medical director, Heather Jones-Agee, a full-time clinician, reports to a regional medical director at JHCP; she works closely with Michelle McNeill-Emery, the practice administrator, who reports to a regional operations director within JHCP. So there’s infrastructure specific to primary care delivery “that we just didn’t have on our own,” Helicke adds. “In academic medicine, we’re good at lots of things. We’re not as experienced with outpatient primary care delivery.”

“To my knowledge, no academic medical center gives its doctors much training, if any, about how to be a leader. And those skills are very different from what we learn how to do in medical school.”

Academic medical centers, including Hopkins, are notorious for taking physicians who are excellent at something – teaching, research, or patient care – and rewarding them for that by giving them administrative jobs, which they may or may not be

We’re not bragging. Really. We truly are that good – just look at all the “best” awards from U.S. News & World Report! We’re Hopkins! Number one, baby! Well, maybe there is some room for improvement. A teeny bit. You didn’t hear it from me.

It’s not exactly a curse, but the downside of being an internationally ranked hospital in a world-class medical center is that you sometimes get locked into the idea that it’s a sign of weakness to try something new. “It’s hard to be good at everything,” says Melissa Helicke, “and we’re great at a lot of stuff. But you can’t be good at everything all the time. So, instead of trying to recreate it, it makes better sense for us to go to the experts, and let them run it the way that it needs to be run. We tried the status quo for a long time.” Then it was time to take a risk, and try something – well, not the status quo. “Only through doing something different do you hope to have a different outcome. More of the same doesn’t seem to be an answer to improvement.”

good at, and assuming that greatness is somehow interchangeable. That, like a useful LEGO, someone who works well one place will function just as well in an entirely different kind of job. “To my knowledge,” says Kravet, “no academic medical center gives its doctors much training, if any, about how to be a leader. And those skills are very different from what we learn how to do in medical school. A lot of us learn on the job, but some struggle. I’m not sure they always set us up for the best success.” Bringing in a medical management group with a successful track record, he adds, is a win-win for Hopkins, and could have greater implications, as well. “We think of this as an experiment that could well shape the future of academic primary care.” ■

App Downloaded, Life Uplifted

Who Knew a Free App Would Make Such a Difference?

The patient is the most important part of the Center for Innovative Medicine's Pyramid model (see David Hellmann's letter on Page 2). But the key to this – to practicing what we preach, and truly focusing on the patient – is understanding that, just like fingerprints and snowflakes, every patient is different.

Ten people may show up in a clinic with the exact same illness, the same causes, even the same bad habits. They may weigh the same, be the same age and eat strikingly similar diets. But our doctors know that if they try to treat all of these patients just the same, they are not going to be successful. For example, some people learn differently. You may be a visual learner – you need somebody to show you how to knit, or program your cell phone, before you can get the hang of it. Or, you may have an upbeat attitude toward your care that will help you get better more quickly than, say, someone who gets discouraged at the thought of taking a bunch of pills morning and night, or counting calories, or walking more and sitting less.

The very best doctors learn to be creative, not just in how they treat their patients, but in how they communicate with them.

This is why the very best doctors learn to be creative, not just in how they treat their patients, but in how they communicate with them – if, at first, you don't succeed, etc. Sometimes, this part of the job sounds a lot easier than it actually is.

Which brings us to a patient we'll call George. He's a doctor, a psychiatrist, who recently became deaf as a side effect of endocarditis, inflammation and infection in his heart. In addition to grappling with the serious medical problems, the complicated infections, that have put him in the hospital and made him feel lousy, George has not been able to practice his profession, because he can't hear his patients talk. He is frustrated, uncertain, and to a degree, isolated. Also, because he is extremely smart, and knows so much about medicine, from his hospital bed he tends to launch a barrage of complicated questions at his doctors. The problem is that they have to write down their answers. George is not terribly good at waiting, and often fires off the next question, or two, or three, before his doctors can get the first answer written down.

George needed a break, and recently he got one – and more – thanks to a free iPad app. This is how it happened:

"When we met him, we initially focused on treating his illness, a bone infection," says Kevin Zhao, M.D., an intern who spent a lot of time taking care of George on the Aliko Service. "But as we tried to communicate with him, it was increasingly frustrating. Every day, I'd bring a pen and notepad, and start writing answers to his questions, but the challenging thing is, we could never keep up with him. It was impossible to keep up the pace, and very frustrating for him, as well." Making things more difficult was that George had a complicated medical plan, involving three consulting teams in addition to his primary care team. "There were lots of doctors around, and no one was really adept at communicating with him." They tried different strategies; Zhao even brought in an iPad – one of four purchased with a grant from the Picker Foundation – and tried typing his answers instead of scribbling as fast as he could. It helped a little, but did not solve the problem.

One day, during rounds at the bedside with his resident, Sean Agbor-Enoh, M.D., the team was accompanied by a tech-savvy medical librarian, Cheri Smith, who uses her iPad to answer research questions as the team is rounding. She suggested that a free app – a dictation software program



"A lot of times, technology probably holds us back a little bit. In some primary care offices, you see physicians typing on computers instead of listening to the patient, because they're trying to multitask and get all the documentation done. But this was a case where it was purely beneficial for the patient."

called Dragon Naturally Speaking, which puts what you say on the screen, almost as you say it – might help. The doctors downloaded the program, took it for a test drive, and brought it with them the next morning when they came to see George.

"Our communication improved dramatically," Zhao says. "We were able to talk right into it, and in almost real time, it would show the words, he would be able to read it, and for the first time in four or five days, we were able to have a back-and-forth conversation. Even though we always sat face-to-face at the bedside, that was probably the first time we really made eye contact as we talked, because other times, we were always scribbling, and trying to keep up with him while he bounced questions."

The most remarkable aspect of this was that George saw the potential value of this app in his own life. "He realized it was something he could use to communicate with other people when he left the hospital," Zhao says, "and that he could get back into his psychiatric practice."

"Wise use of technology" is one of the issues important to the Center for Innovative Medicine, with the caveat that technology should be a means to an end. "People want better care," says the CIM's co-founder, David B. Hellmann, M.D., the Aliko Perroti Professor of Medicine and Vice Dean. "I don't know of any patients who long for wise use of technology. I think they want to be put first, and they want their team to work together."

In fact, Colleen Christmas, M.D., program director for the Internal Medicine Residency program, who describes herself as "a bit of a Luddite," and now perhaps a recovering technophobe, notes: "I still believe that doctoring is mostly about human experiences and forming a personal relationship with people. So I am a skeptic when it comes to applying technology to facilitate that. I do think there's a risk. If we get all excited about gadgets, and become more fascinated with the technology in our hand than with the patient, that would certainly be detrimental to what we're striving for. But if used in the right hands, with the main goal of improving a person's health and well-being, it can also be a pretty powerful tool."

In George's case, she adds, "not only was it wonderful for the patient care that we were trying to deliver, but he was better informed about his care and able to make treatment decisions, and the team felt like they were finally developing a therapeutic relationship. And it actually had a big impact on other aspects of his well-being that go beyond the hospital walls. When someone says, 'I have my life back,' that's pretty amazing."

To see a man go from being devastated to having hope was remarkable for everyone involved, Zhao adds. "A lot of times, technology probably holds us back a little bit. In some primary care offices, you see physicians typing on computers instead of listening to the patient, because they're trying to multitask and get all the documentation done. But this was a case where it was purely beneficial for the patient. It made up for a deficit that we had, and enhanced our ability to communicate with this man." And George now faces a future in which he can go back to work, and take care of his patients. ■

CONTINUED FROM PAGE 11

Patient-centered care, in this case, is not so much education itself, as in making sure the patient understands it. Mr. X could go home with the greatest, most user-friendly educational materials available, but they will just become clutter on his bedside table if he doesn't make the connection between what's in there and how he needs to change his life.

and other patients don't, it's not that they get routine phone calls from the nursing staff. It's none of that. Instead, our focus is really on empowering patients; that's a buzzword now, but our goal is to stay patient-centered."

Patient-centered care, in this case, is not so much education itself, as in making sure the patient understands it. Mr. X could go home with the greatest, most user-friendly educational materials available, but they will just become clutter on his bedside table if he doesn't make the connection between what's in there and how he needs to change his life.

The key difference, Ziegelstein believes, is not trying to watch the patients like a hawk after they leave the hospital, but teaching them how to watch over themselves. It's the Chinese proverb: Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime. Another study, currently under way, is looking at whether the Alike patients will turn out to have lower rates of readmission for other causes, too, not just heart failure. "Our hypothesis is, if you

Why is Rehospitalization a Hot-Button Issue Now?

One word: Money. Heart failure is, by and large, a diagnosis of older people – the Medicare population – and unplanned readmissions for heart failure account for an estimated \$17 billion in Medicare payments each year. "Rehospitalization is a huge target now of medical centers around the country," says Roy Ziegelstein, M.D. "You might say it should always have been a big target, but if you think about it, the financial incentives for hospitals have not been aligned with trying to prevent readmissions. Now, in President Obama's health care reform, there will be financial incentives for hospitals to reduce readmissions, and financial penalties if they need to be readmitted."

This has met with across-the-board grumbling from the health care industry, Ziegelstein adds, "but I think most of us would say this makes some degree of sense. Particularly if it's something that could have been avoided with better care."

Already, action is being taken on the state level to attempt to lower costs. The Maryland Health Services Cost Review Commission is launching a new initiative, called Maryland Hospital Preventable Re-Admissions, to "reward those efforts that reduce the number of readmissions and that also increase the quality of care and decrease cost," according to a recent state policy paper. "While not all readmissions are avoidable, many clearly are," said the paper. This initiative would provide a system of payment incentives based on a hospital's number of readmissions, as compared to a state target rate.

empower people, and make it clear to them what they need to do to stay healthy, if you explain the importance of adhering to specific medications, diet, exercise, activities, and explain what the risks and consequences might be of not doing it, if you very carefully try to identify the things that would facilitate those healthy behaviors, and also the barriers to them that might be approachable, then we believe the effects that we observe will be noted outside of just heart failure and readmission." ■

Thinking Big, Thinking Small

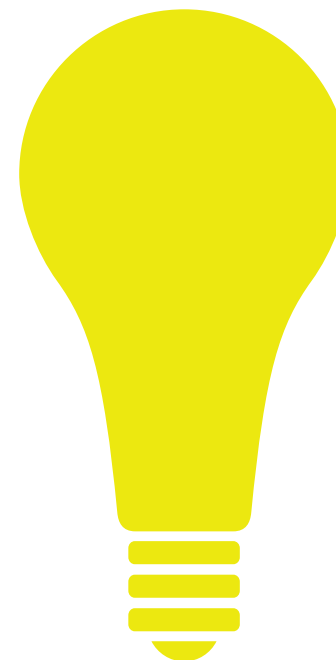
A wink, a smile, a hug, some hand-picked flowers, a warm quilt, a short note. Little things, all of them, yet in their power to brighten a day, they are mighty.

The Center for Innovative Medicine understands this, and hopes that by helping doctors, nurses, and staff around here do little things, we can make a big difference in the lives of our patients. Meet the Pyramid Fund, named after the CIM's Pyramid model of academic medicine (see page 4). The idea for this novel fund is that if anyone at Johns Hopkins Bayview has a good idea for something that might make the hospital stay better for patients or their families, small grants – from as little as \$100 to as much as \$1,500 – are available to make it happen.

"The goal is to draw on our staff's ideas of how they can help patients and families by enhancing their comfort, convenience, communication, education, and overall patient experience," says Cynthia Rand, Ph.D., deputy director of patient-centered care.

"It might be a ready supply of condolence cards, so staff can follow up with families, or snacks available to families when they spend the night. We really don't know – that's the exciting part." One recent example of a good idea came from a physician, who wanted a small stool that could be rolled from room to room, so he could sit at each patient's eye level at the bedside and talk. "Unfortunately, bureaucracies can be very cumbersome," says Rand, "even with good ideas. It can sometimes be difficult to do very simple things."

Currently, some small monies – say, five to twenty bucks – are available to reimburse staff, "if they feel the need to provide a parking voucher for a family, or a taxi for someone in distress," says Rand. "But this is meant to be a little different." The Fund's award size is larger, and could also be used to offset larger expenses – a piece of furniture, maybe, or a color printer for educational materials.



"The idea is, what can we do to make the experience better?" Another novel feature of this fund, Rand adds, is that "we very much want to reach out to every level of staff, from housekeeping to the chair of medicine."

"Saying, 'you're empowered,' is good, but actually putting our money where our mouth is – that's even more powerful."

The idea is ownership. "We hope this encourages people to put their good ideas on paper, but more importantly, to feel empowered that they can implement those good ideas and improve the patient's time here. Part of the Pyramid is that we want everyone to feel like they're part of something special. Saying, 'you're empowered,' is good, but actually putting our money where our mouth is – that's even more powerful. We believe that the people who work at Bayview really do know the best way to take care of patients. I can't wait to see what they come up with." ■

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**"Your dedication to education, your sacrifice, your readiness
to serve...Hippocrates would be proud."**

Jerry Braunstein, a patient of Judy Huang, M.D., one of the newest inductees to the Miller-Coulson Academy of Clinical Excellence, addressing the doctors in the audience. Mr. Braunstein, age 83, came from Florida to speak at Academy's symposium, held along with the Miller Lecture this April.

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* Deceased