

Battle for the Brain: Preventing Alzheimer's

Autoimmunity and Cancer

Saving Money *and* Improving Care?

"What Pills Do You Take?"

Aliki in the ICU

Medicine is a public trust
THE JOHNS HOPKINS CENTER
FOR INNOVATIVE MEDICINE





David B. Hellmann, MD., M.A.C.P. Aliko Perroti Professor of Medicine; Vice Dean, Johns Hopkins Bayview Medical Center; Chairman, Department of Medicine

PARTNERSHIPS AND SLOW HUNCHES

Milestones are important, and this year marks an important one for the CIM: We're entering our second decade! In 2003, the generosity of the Miller family made possible a lecture series on a topic they care about very much: clinical excellence. This year marked the 11th annual Miller Lecture, and it has become an important event throughout Johns Hopkins, one we look forward to each Spring.

But we knew that we could do more: Clinical excellence is just one part of the culture of academic medicine, and in my mind, this culture badly needed an overhaul. I had been thinking that history repeats itself, not always in a good way, particularly in academic medicine. People come up with a solution to a problem, just as the founders of Johns Hopkins Hospital did in 1889, when they revolutionized the way medicine is taught. The problem changes, but the solution that worked a century ago doesn't change to keep up. I talked about this a lot with Bill Brody, then President of The Johns Hopkins University, and Richard Paisner, a lawyer and businessman with a lot of good ideas, and in 2004 Bill Brody said, "Go and create a center."

Around this time, I met the Pulitzer Prize-nominated author, Ken Ludmerer, at a conference in Canada. We went for a hike and spent several hours just talking about medicine. I had always believed that health care is supposed to involve everybody – not just doctors, nurses, and the patient, but the patient's family, therapists, scientists in the laboratory doing research on the patient's disease, the community where our patients live. After talking with Ken, I knew that our Center for Innovative Medicine had to be built around the idea that Medicine is a Public Trust – the message you see on the cover of every Breakthrough.

So that's where we started. Our original ideas haven't changed, but they've evolved. We keep asking, how can we use the three tools of academic medicine – discovery, caring, and teaching – to become a more effective public trust in medicine? I am very proud that almost everything we've done at the CIM has involved partnerships on multiple levels. With the Miller-Coulson family, we also created Bayview Scholars and the Miller-Coulson Academy for Clinical Excellence (see Page 10). With a wonderful Greek philanthropist named Aliko Perroti, we created the Aliko Initiative, which truly has changed the culture of how inpatient medicine is taught at Johns Hopkins. It has also inspired similar initiatives at other hospitals. (For more on the latest Aliko developments, see Page 18.) With support from many other generous people, we have created multidisciplinary cores, like the Amos Proteomics Center, and the Lowe Family Genomics Center.

The CIM has always been anti-"Ivory Tower," or "silo." We're all about breaking down walls, getting people to talk to each other, to use their different perspectives to tackle problems in smarter ways. (For good examples of collaboration, see the exciting stories on Pages 4 and 7.) We love thinking out of the box, because life, and illness, and healthy communities don't come with orderly, labeled categories.

Steven Johnson, author of *Where Good Ideas Come From*, talks about slow hunches. Good ideas don't usually happen with the click of a light switch or an apple falling on your head. Instead, they kind of bubble up, ever-changing, until they take shape and make sense. I have the same notion about the CIM: It has been a slow hunch. Exactly how we can do better is always evolving.

I look forward to sharing our unfolding story with you.

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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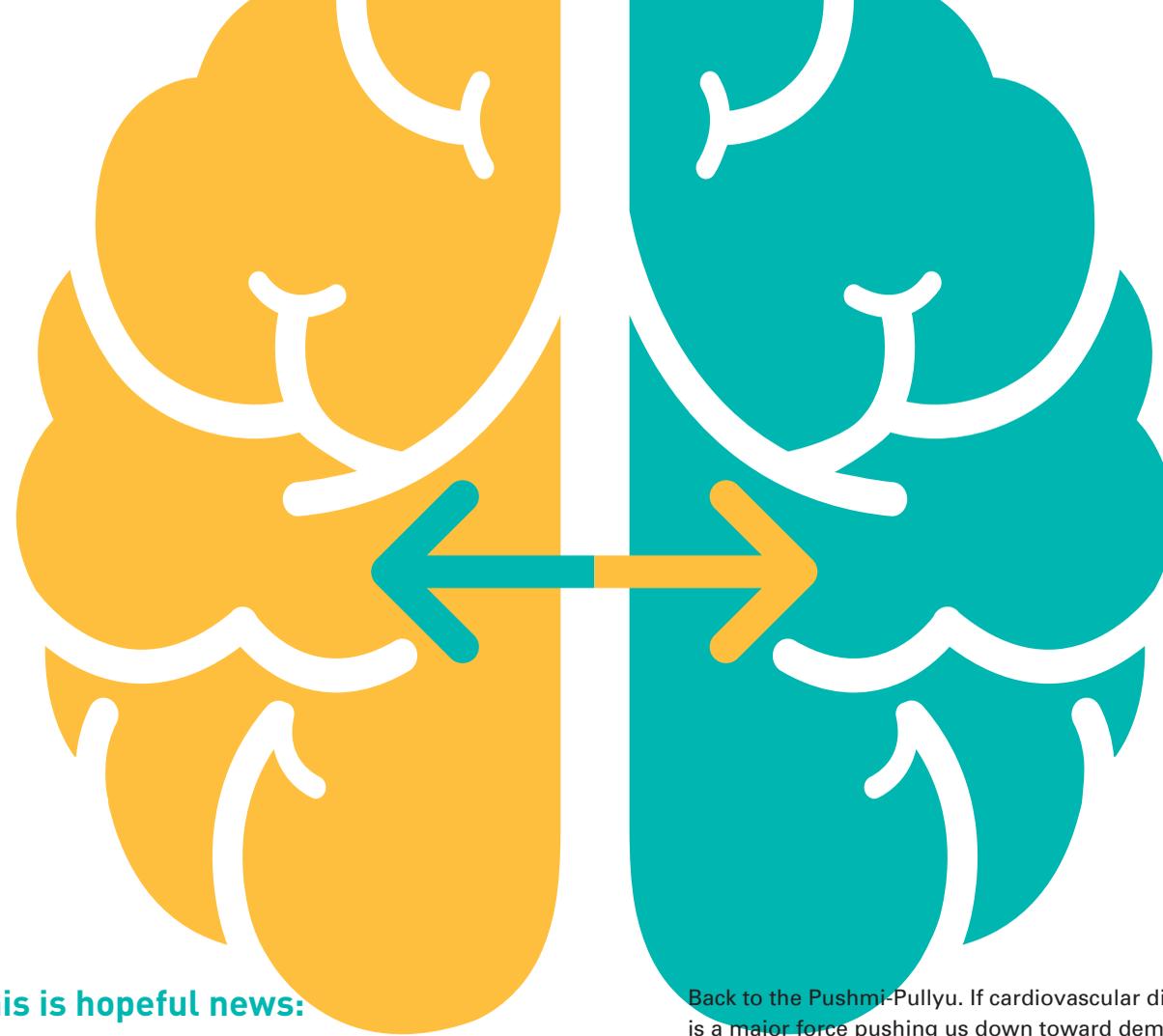
Battle for the Brain: Preventing Alzheimer's

Sometimes, diseases only show up at autopsy. People live a good long life and never show any signs of trouble, and yet, when they die, there it is under the microscope. For whatever reason, the disease never caused a problem, and these people died *with* it, not *of* it.

Could Alzheimer's ever be considered such a disease?

Exciting research at Hopkins and elsewhere suggests that for many people, the answer is yes. But first, let's take a moment to consider the Pushmi-Pullyu, a character in Hugh Lofting's Dr. Doolittle books: It's an animal with two heads, both of which try to go in opposite directions – two forces, one pushing, one pulling. That's similar to what Chairman of Neurology Richard O'Brien, M.D., Ph.D., sees happening in the brains of people as they age. Some people, at autopsy, have Alzheimer's pathology – the telltale brain plaques and protein tangles – and yet, they never develop any cognitive impairment. Others have the same pathology, and yet they die with dementia. Why?

Ischemic disease – stroke or mini-stroke – may be the game-changer, the key factor that weights the scales toward dementia. "With a given amount of Alzheimer's disease pathology in the brain, there are two forces at work," explains O'Brien: "One is driving you to become demented, and the other is protecting you from being demented. The biggest force that we've found thus far is cerebrovascular disease." If, say, a man has significant atherosclerosis or if he's had a stroke – even if it's asymptomatic – and he has plaques and tangles, that is a very powerful predictor that he will develop dementia. The body has a limited capacity for what scientists



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now can help influence our
risk of dementia later.**

call "insults." Stroke is an insult; plaques are an insult. Like a boxer who can only withstand a certain number of punches, the brain has a tipping point, too. "It's thought that either one of these alone isn't enough, but the two existing together in the same brain are enough to tip you over."

But the very good news here is that doctors are getting better at treating the risk factors that lead to stroke. In fact, two studies published this year have found that the incidence of dementia has declined over the last 30 years. "The primary reason for that is the treatment of coexisting cardiovascular risk factors," says O'Brien. "None of those treatments prevents the Alzheimer's pathology from building up," he cautions, "but it prevents it from becoming manifest. So you die with your plaques and tangles, but you're still cognitively intact."

Back to the Pushmi-Pullyu. If cardiovascular disease is a major force pushing us down toward dementia, what could pull us in the other direction and protect us from it? "Cognitive reserve," says O'Brien. "This means, if you leave out the downward pull and just look at people with a given amount of Alzheimer's pathology, some will be demented, and some won't – and there are factors that predict this, as well." A major factor in cognitive reserve is education. It turns out that people who go to college tend to have more cognitive reserve than people who don't. Physical fitness seems to play an important role in preventing dementia, and so do certain personality traits. For example, studies have shown that people who are conscientious, or who have a positive outlook may somehow have extra protection against dementia. (It's not clear why this is; someone who is conscientious might also exercise more and have a better diet.)

"All things being equal, people who go to college are much less likely to get demented," says O'Brien, "people who are very fit are much less likely to get demented, and people with certain types of personality traits are less likely to get demented. Our latest data suggest that obesity is playing a similar role, too."

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Important Clues from Spinal Fluid

There is a major resource in studying Alzheimer's disease that has gone largely – well, untapped: Cerebrospinal fluid.

But Rich O'Brien and Marilyn Albert, Ph.D., director of the Alzheimer's Disease Research Center, are hoping to change that with the BIOCARD Study, a long-term study of 300 people whose parents had Alzheimer's disease, which raises their own risk. "We've followed them now for 15 to 20 years," O'Brien says. Every two years, the volunteers return for cognitive testing, brain MRI scans and a spinal tap. "It's hard to talk somebody into getting one spinal tap, and these people get one every two years. They are heroes. Imagine the dedication they have to do this."

Spinal fluid, notes O'Brien, "is essentially brain fluid, so what you see in the spinal fluid is the next best thing to a brain biopsy." Each two-year checkpoint creates a little time capsule of biomedical data. The scientists can track changes for years before someone develops any cognitive symptoms of Alzheimer's. Out of the 300 volunteers, about 50 have developed significant symptoms.

Interestingly, "what we've found in general is that the effects of *aging itself* on brain proteins, metabolites and lipids – if you compare young people to older people – are far greater than the effects of Alzheimer's," says O'Brien. For instance, "if you compare a 30-year-old and a 70-year-old, there are about 150 different proteins that change significantly in the spinal fluid, which means they're also changing in the brain. But if you compare the spinal fluid of a 70-year-old with Alzheimer's disease and a 70-year-old with no evidence of Alzheimer's, the difference is only about 50 proteins. So aging is a far bigger assault on the brain than Alzheimer's is. The things that change with Alzheimer's are also the same things that change with age. They just change more. I think that's a huge insight."

These data suggest that Alzheimer's is either an "accentuation of aging, or a failure of normal protective mechanisms associated with aging," O'Brien says. "Our impression is that to understand what's happening in Alzheimer's, you have to understand what's happening in the brain as it ages, because age is the single biggest risk factor for Alzheimer's disease. When something changes with age, it could be

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Cognitive reserve, O'Brien explains, "is a very robust thing. If you look at the neurons of people with high levels of cognitive reserve, they're pretty resistant to the toxic effects of Alzheimer's disease pathology. They actually have bigger neurons in the key areas of the brain; their neurons are more healthy, even though there's a lot of Alzheimer's disease pathology."

This is hopeful news: The choices that we make now can help influence our risk of dementia later. In a report recently published in the *Annals of Internal Medicine*, scientists followed up on about 20,000 people who took part in treadmill testing in the 1960s as part of a cardiovascular study. These people are now in their eighties, nineties, or are deceased. "By searching the Medicare records for dementia diagnoses," says O'Brien, the scientists "found that the people who had been in the fittest 30 percent of that group had a dementia rate that was half that of the other people in the cohort," which confirms that "one of the side effects of regular exercise is a significant reduction in your risk of dementia." What the molecular magic of exercise consists of is unknown, but O'Brien believes that it's likely to be a molecule released by muscle.

What about doing crossword puzzles or signing onto Luminosity? O'Brien doesn't think that doing a puzzle here or there is enough on its own. He cites a study published in the *New England Journal of Medicine*, in which people who did crossword puzzles had a lower rate of dementia than did people who spent a lot of time watching TV. But this might be because the brains of people who choose to do crossword puzzles are very different from those of people who like to watch TV. "If you forced the people who are watching TV all the time to do crossword puzzles, would they have a lower incidence of dementia? I doubt it." What about diet? O'Brien suspects that the Mediterranean diet might also have a significant effect on dementia, "because of its effects on cardiovascular health – just because the data's pretty clear that if you can prevent cerebrovascular disease, your chances of becoming demented are much lower." ■

because there's something wrong and the brain can't respond, or it could be something good, like cognitive reserve, and the proteins go up as a way to protect your brain. But people who have Alzheimer's, or who are going to get it, are not able to make these adaptive changes."

O'Brien believes the spinal fluid holds the key to finding ways to treat or prevent Alzheimer's dementia. "The thing we're most interested in is the idea of synaptic changes that we can see in the spinal fluid. What seems to start failing early on as you age, and more so in people who get Alzheimer's, is a class of neurons called inhibitory interneurons." About 90 percent of the neurons in our brains are "excitatory." One neuron sends

"The things that change with Alzheimer's are also the same things that change with age. They just change more."

an excitatory signal to another, to tell it to do something. "That's an important way the brain communicates. But the job of inhibitory interneurons is to put a damper on all this excitation and to fine-tune it. Our data suggest that these are the neurons that get into trouble as people age, that they seem to be more sensitive to damage," and this constant excitation might cause brain degeneration. Michaela Gallagher, Ph.D., the Krieger-Eisenhower Professor of Psychology and Neuroscience, in separate work at the Homewood campus, is running a trial using an anti-epileptic drug called Keppra (levetiracetam) "to try to damp down this excitation and to see if that can prevent people from going on to develop dementia. That's just one example of a potential intervention based on knowledge of the aging process. There will be others."

O'Brien believes so strongly that the spinal fluid holds vital clues to understanding Alzheimer's dementia that he is working to have spinal taps included in the Baltimore Longitudinal Study of Aging, which gathers blood and medical data from thousands of volunteers over decades. "Spinal fluid seems to me to be the secret."

Autoimmunity and Cancer Discovery Generates Powerful New Ideas About Treating Both

Scleroderma is a devastating autoimmune disease characterized by hardening of the skin. Now, Hopkins scientists have discovered that it's also something else: the unfortunate consequence of the body's ferocious battle to fend off cancer. It's a casualty of war. The implications of this – for treating other autoimmune diseases, and also for using the body's own weapons to fight cancer – are profound.

Just think about it: What if most of the people – hundreds of thousands, all over the world – who develop an autoimmune disease such as rheumatoid arthritis, lupus, vasculitis, myositis, or scleroderma, actually get sick because their immune system is so amazing that it successfully attacked and killed off a cancer? "This is a powerful notion," says rheumatologist and Vice Dean David Hellmann, M.D., "and it is potentially changing how we think about how cancer develops, and how autoimmunity develops and how to treat it."

This finding, published in the January 10, 2014, issue of *Science*, has been hailed as a landmark. Some commentators have suggested that the study will stand on its head the current notion of cancer and of autoimmunity – that it could revolutionize both fields.

The *Science* study was small, and it only involved patients who had been diagnosed with both scleroderma and cancer at around the same time. But in these patients, scientists found the same cascade of events: Cancer mutated a normal gene that produced a protein that caused an immune response that led to scleroderma.

STRIKING SIMILARITIES

Like most revolutions, this one began quietly, with some clinical observations that piqued the interest of a veteran rheumatologist. Fred Wigley, M.D., Director of the Johns Hopkins Scleroderma Center of Excellence, has cared for thousands of people with rheumatic illnesses, particularly scleroderma, over the years. Wigley had seen cancer and autoimmunity before; it is well known, particularly in myositis, that people who develop an autoimmune disease are at higher risk of developing cancer. But two patients, who came to the clinic in 2006 and 2007, had some striking similarities. "They had new-onset scleroderma, really aggressive disease, and had been diagnosed with cancer within a few months of getting their scleroderma symptoms," says rheumatologist Ami Shah, M.D., a co-investigator on the study.



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Antony Rosen, M.D., Director of Rheumatology and Vice Dean for Research at the Johns Hopkins University, had “for a really long time had been thinking that maybe cancer itself is a trigger for the development of rheumatic diseases,” Shah notes. “Fred said, ‘I know Antony’s going to be interested in these patients. Now let’s figure out how we can partner with our patients to study the biology.’ The idea was that if we could get their clinical data, obtain cancer tissue to study, and figure out what the timing was trying to tell us, then we could understand this better.”

Meanwhile, scientist Livia Casciola-Rosen, Ph.D., in other research, had found that the same molecules targeted in myositis also show up in higher quantities in cells that are repairing muscle injury: the same signature of antigens is expressed in cancer tissue, but not in normal tissue. “Maybe,” says Antony Rosen, “the immune response starts against the cancer and then cross-reacts against muscle tissue, which gets injured and is in the process of repairing. Maybe the muscle is an innocent bystander of an immune response that was initiated against the cancer.”

To see if something similar was happening in scleroderma, Shah and her colleagues in the Scleroderma Center recruited patients with scleroderma and cancer, and obtained their blood samples and cancer tissue specimens for further study. That work, done along with Casciola-Rosen, Rosen, Wigley, and Laura Hummers, M.D., was published in *Arthritis and Rheumatism* in 2010. “In that study, we found something which was incredible and unexpected,” says Casciola-Rosen. “Ami found that the distance between cancer and scleroderma is very variable, but – something that had never been noticed before – there’s a subgroup of people in whom cancer and scleroderma occur at the same time.”

And what those people had in common was that they made antibodies specifically designed to fight one particular molecule, called RNA polymerase III. “The people who have that immune response against this molecule have an incredibly fulminant, aggressive form of scleroderma. This led up to the idea that maybe the immune response was targeting a form of the molecule that is present in the patient’s cancer – that this turns on the response, which subsequently cross-reacts with the patient’s

normal tissue and causes this process we recognize as scleroderma.”

Adds Shah: “When we looked at the tumors, we saw that this molecule was really enhanced in these cancerous cells. We didn’t see that in tumors from people who had other antibodies, so we didn’t think it was a general cancer effect. We thought, ‘Wow, this is really specific,’ that we’re seeing this antigen expressed in the cancer, we’re seeing somebody making an antibody response to this antigen, and we’re seeing that they’re getting these two diseases close together in time.”

Cancer mutated a normal gene that produced a protein that caused an immune response that led to scleroderma.

The next step was to team up with geneticists with expertise in studying the cancer side of the equation. Fortunately, because this is Johns Hopkins, two of the best in the world happened to be right in the neighborhood: Bert Vogelstein, M.D., Clayton Professor of Oncology and Pathology, and Kenneth Kinzler, Ph.D., Professor of Oncology. The results of this collaboration became the *Science* paper. Vogelstein and Kinzler sequenced the key gene, called POLR3A, in tumors from eight patients who had the antibodies to RNA polymerase III. They also sequenced “a bunch of other autoantigens in cancers from patients with scleroderma with a variety of immune responses,” explains Rosen. “We chose people with other antibodies as controls. They discovered that RNA polymerase III was mutated in three out of the eight cancers from patients who make those antibodies. But it was not mutated in cancers from patients with scleroderma with any other immune response.”

The rheumatology group then took those observations and showed that the immune response in scleroderma is initiated by the mutation in RNA Polymerase III. In other words, the POLR3A gene was mutated by the cancer, the mutated form was then recognized by the immune system as an enemy. Then, the original form was also recognized

“This changes our view of how autoimmunity may begin. It also changes our view of what the therapy for autoimmunity may need to be. If it’s induced by a cancer, maybe we should be trying to find and cure the cancer rather than fighting the autoimmune system.”

and attacked, as well – suggesting that once this response has been activated, it attacks the protein in both cancerous and normal tissues.

They also found that there were RNA polymerase antibody patients who did not have a POLR3A mutation detected but who had lost their second copy of the POLR3A gene. “This is very exciting,” says Rosen, “because it suggests that the immune response was editing the cancer – that the immune response was able to select against cancer cells expressing the mutation.”

Of the patients with the antibodies, only 20 percent ever manifested a cancer throughout the course of their lives; some of these people were followed for two decades. “Only 20 percent get cancer and it’s always early,” says Rosen. What about the other 80 percent? In those people, the vast majority, “this immune response is successful – it gets rid of the cancer or keeps it under control,” and by the time they have developed scleroderma, the cancer is long gone. “But the self-sustaining tissue injury remains.”

IMPLICATIONS AND MORE QUESTIONS

If this hypothesis proves correct, “our view of autoimmunity as an abnormality of the immune response may be wrong,” says Rosen. “Autoimmunity, in fact, may be an immune response doing a task that is absolutely critical to the survival of the host – and that is, getting rid of the cancer.” And then, on relatively rare occasions, that immune response misfires, cross-reacts with self tissue and creates a separate problem such as scleroderma. “This changes our view of how autoimmunity may begin. It also changes our view of what the therapy for autoimmunity may need to be. If it’s induced by a cancer, maybe we should be trying to find and cure the cancer rather than fighting the immune system.”

An even broader implication: If the immune system is a powerful force, able to edit tumors and keep them under control, the autoimmune response

– if it could somehow be tempered to avoid the debilitating side effects of scleroderma and other rheumatic diseases – “may in fact be lifesaving,” says Rosen “and may represent a potent anti-tumor mechanism that we may be able to harness.”

Will it be possible to find evidence, in the 80 percent of the people with scleroderma who didn’t seem to have a cancer, that there used to be one? “It’s possible that in those 80 percent, cancer triggered their autoimmune disease, but their immune response was so robust that they eliminated or somehow immunologically controlled their cancer so that it didn’t emerge clinically,” says Shah. “Could it be that treating an underlying cancer could actually be effective scleroderma therapy? If the cancer is the trigger and you treat that, do you treat the downstream disease that develops? If this is indeed the case, it could revolutionize the way we treat scleroderma.”

The huge potential for finding new immunologic weapons to treat cancer is very exciting, Shah agrees, but that’s not what she’s thinking of right now. “At the end of the day, I want to help people with scleroderma. That’s what’s really interesting to me as a rheumatologist.”

It may be that there is a “golden window,” right when scleroderma symptoms first begin, that cancer is there, too, actively being fought off by the body. And this may be the critical time when scleroderma is vulnerable, and curable. “We’re very interested in studying patients with new-onset scleroderma,” says Shah, “because those patients may still have evidence of an underlying tumor. If we study patients with longstanding disease, they may have mounted a really good immune response and eradicated an underlying cancer. But those patients who are fresh in the disease process may hold the key to telling us whether there could be a hidden cancer that we could treat, and improve our patients’ quality of life.”

In addition to Rosen, Shah, Wigley, Vogelstein, Kinzler, and Casciola-Rosen, these authors also contributed to the the *Science* paper: Christine Joseph, Ph.D.; Erika Darrah, Ph.D.; Andrew Skora, Ph.D.; Francesco Boin, M.D.; Andrea Fava, M.D.; Christopher Thoburn, B.S.; Isaac Kinde, B.S.; Yuchen Jiao, M.D., Ph.D.; and Nickolas Papadopoulos, Ph.D. ■

A Celebration of Caring

On May 2, Hopkins' best and brightest gathered to honor some of its finest clinicians, just as they have every year since 2008. But this year at its annual Excellence in Patient Care Symposium, the newest members of the Miller-Coulson Academy of Clinical Excellence were inducted at The Johns Hopkins Hospital, instead of at Johns Hopkins Bayview, for the very exciting reason that the Academy now encompasses both academic medical campuses.

The venue was perfect: Historic Hurd Hall, named after Hopkins' first Professor of Psychiatry, Henry Mills Hurd, who was also the first director of the Johns Hopkins Hospital, a position he held for 22 years. When Hurd Hall was dedicated in 1932, Judge Henry Harlan, a Trustee, said that Hurd's "statesmanship, tact, kindness, and breadth of vision; his harmonizing influence and generous appreciation and admiration created between Hospital and University a spirit of cooperation and admiration for achievements of the other and marked the relationship of the Hospital and Medical School."

How fitting, then, that this was the place where we would honor some of Hopkins Hospital's most remarkable clinicians. The Miller-Coulson Academy is an outgrowth of the Center for Innovative Medicine, led by Vice Dean David Hellmann, M.D. It exists because of the support of a remarkable family – Mrs. Anne G. Miller, the late G. Thomas Miller, Richard B. Worley, Leslie Anne Miller, Sarah Miller Coulson, and the late Frank L. Coulson, Jr. – who are dedicated to promoting, rewarding, and furthering clinical

excellence. The Academy uses a rigorous clinical portfolio to evaluate clinical accomplishment among faculty members who have been nominated by their peers; the portfolios are reviewed by an external review committee, made up of respected clinicians from top academic medical centers, and the nominees are then chosen by an internal committee. Comments from patients, nurses, and other colleagues are also taken into consideration.

The first five classes of Academy inductees came from Johns Hopkins Bayview Medical Center. This year's 11 inductees were all from Johns Hopkins Hospital, and next year's class will include inductees from both campuses. The Academy's expansion came at the direction of Dean and CEO of Johns Hopkins Medicine, Paul Rothman, M.D. "Clinical excellence is the heart, the soul, and the DNA of Johns Hopkins Medicine," Rothman told the packed auditorium.

"All of us at Johns Hopkins are dedicated to delivering the promise of medicine," said Hellmann as the Symposium began, "the ability of great doctoring, discovery and teaching to improve the health of our patients, their families and our community, to make the public trust of medicine better." The day also celebrated what Hellmann called "the transformative power of generosity." The history of Johns Hopkins is "also the extraordinary story of the ability of generous friends to help us become better, for our patients and for the world. Anne Miller and her family are such friends." In addition to supporting the Miller-Coulson Academy, the Miller Family makes possible the annual Miller Lecture. This year, Katrina Armstrong, M.D., Physician-in-Chief at Massachusetts General Hospital, gave our 11th Miller Lecture. Her subject: "Unraveling Health Disparities in the U.S.: Have We Made Any Progress?"

Many of the inductees' patients came to see their doctors join the Academy. Before Scott Wright, M.D., Director of the Academy and of Clinical Excellence at Johns Hopkins, introduced the inductees, he asked patients to raise their hands. Many hands went up, to loud applause. "If this initiative helps us retain excellent clinicians, the rewards will extend to the next generations of physicians and to our patients for many years to come," Wright said.

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Meet this year's inductees:

Daniel Brotman, M.D., SHFM, FACP

Professor of Medicine; Director of the Hospitalist Program at the Johns Hopkins Hospital

One of Brotman's patients said: "In my 50 years of experience as an adult patient dealing with physicians in more than 10 countries, I can say that Dr. Brotman is the very best at combining compassion, caring, personalized attention, and cutting-edge medical knowledge."

Jonathan E. Efron, M.D.

Mark M. Ravitch, M.D., Endowed Professor in Surgery; head of the Department of Surgery's Colorectal Service

Efron comes from a medical family, with two brothers who are also surgeons (including his brother, David; see below). Efron quoted his father, a surgeon, who said, "'Do today's work well, and tomorrow will take care of itself.' This is how I define my approach to every patient: focus on the moment. When you're with an individual, focus all your time and energy on that person. In a hectic world, where a new crisis comes by every moment, focus all your attention on that individual, and treat all people with kindness and respect."

Rosalyn Stewart, M.D., M.S., M.B.A.

Associate Professor of Medicine, Pediatrics, Nursing, and Public Health; Associate Program Director for the Internal Medicine and Pediatrics Urban Health Residency Program; and Associate Track Director for the Osler Internal Medicine Urban Health Primary Care Track

"What I do is not that flashy," Stewart said. "I will never be on 'Hopkins 24,' because frankly, metoprolol is just not that exciting. But I do think, every day, I try to make a difference in patients' lives, to create a better place for them."

Christopher Wolfgang, M.D., Ph.D.

Chief of Hepatobiliary and Pancreatic Surgery at the Johns Hopkins Hospital; Associate Professor of Surgery, Pathology and Oncology at the Johns Hopkins University; Paul K. Newmann Chair of Pancreatic Cancer Research

Pancreatic tumors are terribly aggressive, Wolfgang said, and unfortunately, often "things do not end well. So why choose this field? For me, the attraction is that there's enormous opportunity for improvement of the lives of these individuals. Not only by care at the bedside, but also through innovation at the bench top. I hold hope that my generation will finally move the survival curve for these patients, and there are certainly recent developments to suggest that this is the case." However, right now, "we save so very few lives. The most important thing we can do for our patients is best summed up by William Osler: 'Care more for the individual patient than for the special features of the disease. Put yourself in his place. The kindly words, the cheerful greeting, the sympathetic look – these the patient understands. Some of our most grateful patients have the most difficult and terminal problems. They often appreciate but do not understand the complex plans and therapies. But what they cherish is simply to know that we care and provide hope. And this we can always do for them.' Please do not think that we are satisfied with this current state of affairs, but hope for the future of this patient population lies in the bench top, with work driven by clinicians – yes, clinicians who think like a scientist." Wolfgang added: "Each life, and every moment, are so precious."

Kimberly Peairs, M.D.

Assistant Professor of Medicine and Oncology at the Johns Hopkins University School of Medicine; Clinical Director of General Internal Medicine at Green Spring Station; Faculty Leader for the Longcope Medical Firm

It is essential, Peairs said, "in the face of new health care pressures and changes in technology that we not lose sight of the fact that patient care is, and should be, a personal and human interaction, and that we strive to continue to commit to that."

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Hugh Calkins, M.D.

Nicholas J. Fortuin, M.D., Professor of Cardiology and Professor of Medicine at the Johns Hopkins University School of Medicine; Director of the Clinical Electrophysiology Laboratory, the Arrhythmia Service, and the Arrhythmogenic Right Ventricular Dysplasia Program at the Johns Hopkins Hospital.

One of his colleagues said: "Dr. Calkins is in a class of his own. He is a truly exceptional physician who has managed to become a world leader in Electrophysiology, all the while maintaining an incredibly humble and personable demeanor."

David Efron, M.D., FACS

Associate Professor of Surgery, Anesthesiology & Critical Care Medicine and Emergency Medicine; Director of Trauma and Chief of Acute Care Surgery in the Johns Hopkins Hospital Department of Surgery

Efron is the brother of Jonathan Efron (see above); another brother is also a surgeon; their father is a surgeon and their mother, a nurse, "continues to be by far the best clinician I know," he said. "Surgery, for me, is part calling, part addiction, part obligation. As surgeons, we love to operate, but in the end it must be right. What do we achieve by picking up the knife? Often we have to," yet sometimes it's better to practice "what my father calls the 'masterful art of surgical inactivity.' The point is, each time it's different. The patient is really what grounds us. That's what it's all about."

Paul Manson, M.D.

Distinguished Service Professor of Surgery at Johns Hopkins University and the Division of Plastic Surgery at the Johns Hopkins School of Medicine; Chief of the Department of Plastic Surgery at Johns Hopkins Hospital from 1990 to 2010

Said a physician colleague: "His compassion, fund of knowledge, and experience set him apart from all others."

Ross Donehower, M.D.

Professor of Oncology and Medicine; the Virginia and D.K.Ludwig Professor in Clinical Investigation of Cancer; Director of Medical Oncology and the Fellowship Program in Medical Oncology

Being a good oncologist, Donehower said, "is all about basic human skills." Oncologists need to get to know their patients "at some level other than what disease they have or what treatment they're receiving," to have honest and candid discussions with them, and to serve as their advocates. "What happens to the patient is important to us, and we're going to be there when the treatment is discontinued or no further treatment is available." Oncologists also need to be able to tell their patients the truth "in the most optimistic way. A prognosis you might hear about six months of survival is notoriously inaccurate. But what you have to provide the patient is some relatively accurate idea of what is the best-case and worst-case scenario, and update that as you go forward."

Marcia Irene Canto, M.D., MHS

Professor in Medicine and Oncology at the Johns Hopkins University School of Medicine; Director of Gastroenterology Clinical Research at the Johns Hopkins Hospital; Johns Hopkins Gastroenterology Program Director for Howard County

One of her trainees said: "Dr. Canto is the consummate physician, and she embodies all the traits that Hopkins embraces, as teacher, clinician, and researcher. I cannot think of anyone better suited for this initiative. I base these statements on my experience with her as a mentor and professional colleague for more than a decade."

Justin McArthur, MBBS, MPH, FAAN

Professor of Neurology, Pathology, Medicine, and Epidemiology; Director of the Department of Neurology at Johns Hopkins; Director of the Johns Hopkins/National Institute of Mental Health Research Center for Novel Therapeutics of HIV-associated Cognitive Disorders

"It is a joy," McArthur said, "to be able to help someone in need."

"Anyone can do great things if you give them a bundle of money. But to take a small amount of money and have the vision to know where to plant that money and where to plant those seeds, and to nurture them into something like this is called leadership."

Last Words

As the Symposium drew to a close, Ron Peterson, President of The Johns Hopkins Hospital and Health System and Executive Vice President of Johns Hopkins Medicine, told the inductees: "We expect you to continue doing what you do best, which is to care for our patients in the best possible way that you know how. But also, please impart your knowledge to other colleagues and to those who are training here."

And finally, Mrs. Anne Miller told the crowd, "This is not about the Millers... We gave a very small, infinitesimally small amount of money, as a token of appreciation for the wonderful care and the service, the friendships that we've had for almost 50 years at Johns Hopkins. Anyone can do great things if you give them a bundle of money. But to take a small amount of money and have the vision to know where to plant that money and where to plant those seeds, and to nurture them into something like this is called leadership."

Frank L. Coulson, Jr. Award for Clinical Excellence 2014 Resident Award Winners

This award, created in memory of Frank L. Coulson, Jr., goes to one resident from each department. Roy Ziegelstein, M.D., the Miller Scholar and Vice Dean of Education, was unable to be at the ceremony but addressed the awardees by video, taped in his office. He held up an award for clinical excellence that he won 25 years ago, when he was a resident. He keeps it on his desk, and said that it "continues to motivate me to this day. I hope you will keep this award on your desk, for the next 25 years and beyond." Ziegelstein, who is also a member of the Miller-Coulson Academy, told the residents that Frank Coulson "would have been absolutely delighted to have congratulated you personally today," because he loved to mentor and teach young people. "Frank would have been so happy for each of you residents. He would have greeted each of you with a smile. He probably would have told you a joke. And as you come up to accept your award today, please feel Frank's presence, and a gentle pat on the back as he would have congratulated you on this tremendous honor."

George Arnaoutakis <i>Surgery</i>	Asa Margolis <i>Emergency Medicine</i>
Mona Bahouth <i>Neurology</i>	Emmanuel Menga <i>Orthopedic Surgery</i>
Mark Bilezikjian <i>Physical Medicine & Rehabilitation</i>	Michael Sacerdote <i>Radiology</i>
Kaisorn Chaichana <i>Neurosurgery</i>	Mira Sachdeva <i>Ophthalmology</i>
Matthew Crim <i>Internal Medicine</i>	Katherine Shaw <i>Medicine-Pediatrics Urban Health Residency Program</i>
Margaret Grala <i>Pediatrics</i>	David Smith <i>Otolaryngology</i>
Michael Grant <i>Anesthesiology</i>	Monica Stanton <i>Internal Medicine</i>
Timothy Harris <i>Radiation Oncology</i>	Debasish Sundi <i>Urology</i>
Monica Lemmon <i>Child Neurology</i>	Hoseong Steve Yang <i>Dermatology</i>

Better Value

Saving money *and* improving medical care? Is that even possible?

Some of us worry when we hear about hospitals cutting costs. Maybe we think, “If they skimp, I hope it’s not on Dad!” Well, here’s some good news: Doctors don’t want to skimp on Dad, either – or Mom, or anybody. On the other hand, just about everybody agrees that medical care is expensive. So what if we could find a way to save money but provide even better care?



This is what Eric Howell, M.D., Division Director of the Collaborative Inpatient Medicine Service, does every day. Howell has a big job: He’s in charge of the hospitalists at three Hopkins medical centers: Johns Hopkins Bayview, Howard County General Hospital in Columbia, and Suburban Hospital in Bethesda. A respected clinician and member of the Miller-Coulson Academy for Clinical Excellence, Howell is also one of those rare people who can look at a whole lot of numbers and facts and – instead of glazing over – find patterns and significance. He gets statistics on performance from the three hospitals and from data sets that he puts together himself, and a few months ago, he noticed that for patients with similar health problems, there was considerable variation in the care they received.

“There’s a tension between trying to treat everyone as an individual and at the same time, making sure that, to the degree care can be standardized, it is,” says Vice Dean David Hellmann, M.D. “If there’s significant variation in care, it should be warranted.” Say, for example, a woman is at risk of developing a blood clot. Is she put on a blood thinner? Maybe yes, maybe no, depending on who’s seeing her. But “if she’s not put on a blood thinner, it should be for a good reason, like an aneurysm in her brain – and not because sometimes we order it and sometimes we don’t.”

The hospitalists provide care that costs nearly 100 million dollars each year. “Even if we shave off a few percentage points in cost, that’s millions of dollars saved.”

Variation in care is a big problem nationwide, says Howell. “Medicine is an art and a science, and I favor measuring how we do in implementing the science part, and – when it’s appropriate – doing what we can to standardize the art part.” Traditionally, “physicians and society have focused on the quality and not the cost part of the value equation,” he continues. “What we pay for our medical care is very high – about twice that of the average industrialized country.” Are we getting good value? Not always, he says. “All of that also translates into hospitalists.”

When Howell noticed the variation in care among the three hospitals, he mentioned it to Hellmann, who helped him formulate ideas to provide better value, “either by increasing quality or reducing costs, or both.” Soon, Howell had come up with a plan for research and quality improvement and about \$250,000 in funding from the hospitals for data analytics. But to go further, “I needed help,” he says. He needed more sophisticated data systems, and he needed mentoring and expertise in quality improvement, which he received in collaboration with the Armstrong Institute for Patient Safety and Quality at Johns Hopkins. The nice thing about this type of quality improvement is that it happens in real time; when problems are identified, adjustments can be implemented very quickly.

“At Hopkins, not every patient is a hospitalist patient, but we do provide care that costs nearly 100 million dollars each year,” says Howell. “Even if we shave off a few percentage points in cost, that’s millions of dollars saved. I’m a physician, so I believe firmly in patient-centered care and quality, and my approach to reducing costs is that you also have to improve quality.”

For example: Patient length of stay is a huge driver of costs to both hospitals and patients. If patients can go home from the hospital sooner – if it’s appropriate for them to do so – this can save everyone a lot of money. But will this also improve quality of care? Yes, by getting people up and around sooner. “Many of our patients are elderly,” says Howell. “When they lie in bed for even a few days in the hospital, they get deconditioned; they lose muscle mass, get weak, and then have to go to a skilled nursing facility. So we’ve partnered with a

Many of our patients are elderly. Just a few days in the hospital can cause them to lose muscle mass, get weak, and need to go to a skilled nursing facility. A partnership with a physical medicine and rehab doctor is getting these patients up and around earlier, so they can go home sooner.

physical medicine and rehab doctor, Erik Hoyer, and he is helping our community hospitals get their older patients walking sooner. That will shorten length of stay, and it will also improve the health of patients – so there’s increasing quality and driving down costs. The hospitals like it because they are able more rapidly to provide a room for someone waiting in the ER, and the patients like it because it gets them moving, and able to go home sooner.”

Another example doesn’t really involve patients at all, but doctors’ work schedules. It turns out that whenever the “attending physician of record” changes – when that doctor, having worked several days in a row, gets a day or two off – this increases the patient’s length of stay. “So the fewer handoffs you have between attendings of record, the shorter the length of stay and also the higher the quality of care.” The problem is, you don’t want doctors to be on for too many days at a time, because they start to fatigue and burn out,” says Howell. “So we’ve developed innovative scheduling to improve continuity and reduce the incidence of burnout. It’s a four-day schedule; long days, but four days.” Howell’s research also showed that most patients – 80 percent – are in the hospital for less than four days, “so we can have 80 percent of our patients with one doctor. That reduces length of stay and improves quality.” Also, because it’s better for doctors as well as patients, “it’s a win-win.” ■

What a Springboard!

Since its beginning 10 years ago, the Center for Innovative Medicine has had an Advisory Committee made up of very impressive people. If you had to pick the smartest person in the room, you'd do just as well to play "rock, paper, scissors," or maybe just cut for high card. This is because they're all smart.

They're all creative thinkers, too, and the group's leader, Vice Dean David Hellmann, M.D., has encouraged them to say what they think. Not always easy when the meeting starts at 7:30 in the morning, but these people do share their thoughts, offer supportive criticism, and generate new ideas just by the kind of synergy that happens when they get together. Hellmann not only brings in different speakers each month, but gives Committee members summer reading to do – books that may not have anything to do with medicine, but that have a lot to do with innovation.

It's probably not surprising, then, that many members of this group have gone on to assume positions of high leadership throughout Johns Hopkins. Recently, we asked some of them to talk about their experiences on the CIM Advisory Committee. Here's some of what they had to say:

"The CIM, in a very intentional way, brought together some people who wouldn't typically interact to talk about important areas that we generally don't create space to talk about. The breadth of the topics was rather staggering: from, how do we develop scientific collaborations with the NIH branches on the Bayview campus to, how can we empower all of the Bayview community, including nurses and staff, to make a positive impact in their local environment.

"If you think about the people who participate in the CIM, there are relatively few who wake up and say, 'I'm staying in my silo today.' I'm very sure that the nature of our discussions, and the types of people interacting together has flavored my thinking. In the same way, I believe a number of other people were influenced and have moved into positions where they have an opportunity to potentially influence other people. The impact has been substantial. It is a fantastic group of

people who are really committed to making things better and making a difference. The opportunity to share ideas and engage in a vigorous way with that group of people under David's leadership has been extraordinary."

Landon S. King, M.D., Executive Vice Dean; Professor of Medicine, The Johns Hopkins School of Medicine; CIM Bayview Scholar

"Even though everything we discussed wasn't always relevant to me directly, the sense of being part of something extra special within the Bayview campus really helped me feel more engaged.

"The book club...It was a privilege to be able to participate in intellectually stimulating experiences that weren't always even medically related. I appreciate that I was able to do that, and I look for opportunities to give those experiences back to other people, to create intellectually stimulating experiences just for their own sake.

"The people who participate in the CIM are an incredibly diverse group, and to hear the same innovation being discussed by someone with an entirely different background has helped to create a much more rounded professional in myself – so I grow, because I get to see the world through the lens of others."

Steve Kravet, M.D., President, Johns Hopkins Community Physicians; Associate Professor of Medicine, Johns Hopkins University School of Medicine; CIM Miller-Coulson Scholar

"What struck me most at my very first meeting was the cross-cutting representation of the people who were there. In fact, at the beginning I couldn't quite figure out who was invited and why they were invited; it seemed

to break the usual boxes of who was included. I think it was because David was interested in including people who were open-minded and who liked to communicate between silos. It was not an old boys' club, not exclusive. No topic was out of bounds, and it wasn't all about science. Sometimes it was just about an idea.

"The CIM is one highly opinionated group of people, but also people who are really willing to listen. I knew instantly that here was a place where it was safe to express opinions; you didn't need to be a 'yes woman' or a 'yes man,' you could disagree with the speakers and disagree with David. It was all done in a very collegial way.

"The ideas that originate in these meetings are diffusing throughout Hopkins. Some of that is because David invites people to participate who not only have ideas but also are willing to implement them. They're not just a group of people who talk about things, but who do things. You can't underestimate the fact that David invests in good ideas and uses this as his petri dish for bringing together people he thinks are smart and motivated, and invites speakers who have creative ideas and new ways of making a positive change. He has used the CIM funding to bring people together in this culture that is designed for change. He strategically invests in those ideas, and that's how Aiki and other initiatives started. They had their first cell divided in the CIM."

Cindy Rand, Ph.D., Professor of Medicine, Division of Pulmonary & Critical Care Medicine, Johns Hopkins University School of Medicine; Associate Dean for Faculty at Johns Hopkins Bayview and Johns Hopkins Hospital; Deputy Director, Patient-Centered Care; CIM Bayview Scholar

"First of all, David always has the meeting in his office, which keeps you from sort of coming in and checking out. David is a particularly present guy, and the meeting is set up in a way where everyone has to be present. Bayview has a very particular culture of collaboration across divisions and departments and even disciplines. It speaks to how close people can get and are willing to get, and it speaks to how comfortable they are.

"The reason it works is that we all believed in that culture before we came to it; the difference is, we made it institutional. It's a lot different to say, 'I believe in collaboration,' than it is to make it systemic or structural. When the Chairman of Medicine, the Vice Dean for the campus makes it part of a regular meeting, it makes a 'there, there' – which is probably

patient-centric. A lot of what the CIM did was talk about putting the patient first and then building out from there. We've adopted that as our mantra."

Jonathan Ellen, M.D., President and Physician-in-chief, All Children's Hospital; Professor and Vice Chair, Department of Pediatrics, Johns Hopkins University School of Medicine; Vice Dean of Pediatrics, Johns Hopkins University School of Medicine at All Children's Hospital, Tampa, Florida

"What David has created with the CIM, I would say there are three things that stand out. One, he's assembled a really terrific group of people. They're very accomplished, but also, they are not shy about having opinions. And they are a pretty diverse group, with a variety of different talents,

"If you think about the people who participate in the CIM, there are relatively few who wake up and say, 'I'm staying in my silo today.'"

just as powerful as whatever information is being imparted. So it's structural, it meets on a regular basis, and David's expectation is that you come. People want to come, so it becomes a part of campus life. David holds it in his office, and it sets the tone – so space can set culture. David believes we're all stewards of a public trust, and he's able to make that structural and cultural rather than just individual behavior.

"At All Children's Hospital, we're building a culture that I think is very similar to David's, which is very mission-centric,

backgrounds, job descriptions, and titles. That creates a really rich environment. I'm not sure there's another environment that I've been involved with where there's that kind of diverse talent.

"Number two, at every meeting, there's always a presentation by somebody. The presentations are quite varied; it's not like a faculty meeting, where you can pretty much guess what's going to be presented. Even though it's not formal, like for Grand Rounds, it's a presentation in front of respected, admired colleagues; because of that, I think it stimulates people to put together their thoughts. It's

"We all believed in that culture before we came to it; the difference is, we made it institutional."

one thing to share thoughts over a cup of coffee or a sandwich in the cafeteria – and I think that's incredibly valuable, too – but this is sort of a step above that. I have never heard a presentation in that meeting where I thought that the person didn't really think a lot about what he or she was presenting. It makes you think things through very carefully, and there's something very positive about that exercise.

"Three, the environment is very, very safe. I've seen some of these same people in other contexts, other environments, where they don't necessarily express their views as they do at the CIM.

There's something about the CIM that prompts people to speak up and share their thoughts. If you combine those three things, what it's meant for me... I've learned a ton. I've heard things that I wouldn't ordinarily hear about. It's stimulated me to think differently about what I do. The environment that I think the CIM has is the kind of environment that I try to create in the groups that I lead and the teams that I work with – where people feel very comfortable sharing their thoughts, disagreeing with other people politely and respectfully, where people are heard and diverse opinions are welcomed."

Roy Ziegelstein, M.D., Sarah Miller Coulson and Frank L. Coulson, Jr., Professor of Medicine; Vice Dean for Education, Johns Hopkins University School of Medicine; Executive Vice-Chairman, Department of Medicine; Inaugural Miller Family Scholar

"The CIM places value on not necessarily thinking about things the same way we'd always thought about them, not necessarily doing things the way we'd always done. I've always felt in science that many of the questions are not different, but what differs in generation to generation is the tools, the technologies, the approaches that are available to think through the same problems. That's one of the key attractions of the CIM, that the challenges and the opportunities and the tools of our times give us ways to think about things again and maybe solve them, where we previously couldn't.

"There are opportunities for thought that have allowed me to reach my own conclusions, which I would never have done had I not been in the group, having people around me giving their ideas and perspectives. My recognition of how important that interface is, in terms of understanding and making new discoveries, came from months and months of thinking and discussion and focusing in the CIM.

"David also leads with generosity, direction and energy, and makes space for people to develop their own ideas within the broader framework he guides. It is no accident that so many of the participants in CIM have thrived in developing their programs."

Antony Rosen, M.D., Mary Betty Stevens Professor of Medicine; Vice Dean for Research; Chief, Division of Rheumatology; Deputy Director, Innovation; CIM Cosner Scholar

Body and Spirit

Treating the whole patient



When Mrs. C. saw a chaplain standing with the Aliko team at her bedside, she thought, “Oh, no, I didn’t realize I was that sick!” She soon learned that the chaplain – an intern, like some of her doctors – was every bit as hopeful of her recovery as the doctors; he was just there to offer care of a different kind. The chaplain is part of a groundbreaking program on the Aliko service, which gives young physicians the extra time and teaching to get to know their patients as people. The goal is treating the whole patient.

When the program started a year ago, “it did take a little explaining, because many patients feel that if the chaplain shows up, something’s bad going on,” says Laura Hanyok, M.D., who heads the Resident Continuity Clinic and also directs faculty development for the Aliko Initiative. “But no, they’re just part of the team.”

This partnership is thanks to a new curriculum being implemented by the Rev. Dr. Paula Teague, a Society of Friends (Quaker) minister and Director of Clinical Pastoral Education for the Academic Division of Johns Hopkins Medicine, and Patrick Hemming, M.D., a former Aliko resident and now a fellow in general internal medicine. The curriculum was developed by an interdisciplinary group that included Ty Crowe, Director of Pastoral Care at Johns Hopkins Hospital; Monica Sandoval, M.D., a fellow in palliative care; and three Clinical Pastoral Education supervisory education residents: Tahara Akmal, Emmanuel Saidi, and Thomas Rogers.

As part of the curriculum, chaplain interns rotate on the Aliko service, participate on rounds and morning teaching sessions with the team, and offer a new dimension to medical training – helping residents and interns learn how to address issues of spirituality.

In academic terms, what’s happening here is “inter-professional education,” says Hanyok. “It’s the idea of having different professions learning together, learning from each other and with each other.” Chaplains and house officers “have traditionally learned in silos,” she adds. “They learn their stuff, the medical team learns its stuff, but we don’t really talk to each other.”

One immediate effect of working together has been for doctors to get a better sense of what the hospital’s chaplains have to offer patients. “Many of us, myself included, thought that chaplains were based on your religious belief,” says Hanyok – that a Methodist patient would call for a Methodist minister, and a Catholic would ask for a priest. “But the hospital chaplains are not like that at all. They serve everyone, including the people who don’t want to talk about any particular religious faith, but just their spiritual needs in dealing with their illness.” Since this program has begun, more house officers have referred patients to the chaplain service, she notes. “Chaplains have also been available to help the medical team when they need to process something difficult like an unexpected patient death. That’s been a big asset.”

A Different Angle

The Clinical Pastoral Education curriculum’s leaders recently asked participants to discuss their experiences. Here’s some of what they had to say:

Walking Together

“One of my patients was discussed by the Aliko Team as being unwilling to get up and do the walking that was so critical to her getting better. The intern and I went into visit the patient together and I said, “Mrs. J, would you be okay going on a little walk with me?” The patient and I had a good rapport, and I thought she might have trouble saying no to me. And sure enough, she said, “Well okay, Chaplain, for you I will.” We walked up the hall and back to her room. When we got back, she said, “You know, I could do that again.” And we did. It was a great breakthrough for this patient, and the team really appreciated that I could push her a little and get a positive result.” – A chaplain intern

Accepting Help

Mrs. R. was depressed because her illness kept her from taking care of her husband of 40 years. She seemed to take little interest in the plan of care for her recovery. Aliko team doctors asked the chaplain to talk to her, hoping for insights into how to reach her. “I discovered that she was the caregiver for many in her community besides her husband. She felt she was letting everyone down because she was sick. We talked about giving and receiving: In

order for someone to give, someone has to receive, and maybe it was time for her to receive. By not receiving the help of her family, friends and medical team, she was preventing them from giving. Her eyes changed as she grasped this concept. We ended the visit in prayer, her spirits seemed lifted, and she realized that this period of receiving would allow her to return to giving in the future.” At a team meeting a bit later, the chaplain explained what had happened; then “one of the interns came in and expressed complete surprise; he reported that the patient was now in good spirits and motivated to engage in the plan of care. The Attending simply looked at me and said thank you.” – A chaplain intern

Dealing with a Patient’s Death

“As residents and interns, we had seen patients die, but I think I wasn’t aware of how much it had affected our medical students when the patient was transferred to the ICU. After the patient died, we learned that the chaplain intern had actually been there in the ICU with the patient and family. We were able to sit together as a team to hear a little bit more about what had happened, and had everyone reflect on their experience with that patient or other experiences with patients’ deaths in our training. Then the chaplain helped us close with this blessing of the hands. It was really nice to have the chaplain facilitate that, and just to be more reflective in our patient care.” – A medical resident

“Many people use prayer for healing, whatever their religious or spiritual beliefs are, but that’s not something we even traditionally ask about.”

For the chaplain interns, the opportunity to learn with the medical team is “pretty unique,” says Hanyok. “Chaplains have little to no medical or nursing expertise, so really understanding how all of that works is helpful to them.” In turn, what the chaplains bring to the bedside is training that helps them be especially attuned to emotional nuances. “We’ve had experiences where the chaplain has been more aware of the patients’ feelings or responses to what’s happening – maybe they’re having trouble processing or handling their illness – and has been available for them, maybe coming back and praying with them afterward, or occasionally with the team, if that’s something the team feels comfortable doing.”

The spiritual aspect of the patient is often overlooked by doctors and nurses, Hanyok says – even though studies have shown that prayer, meditation, and the emotional support of a church or synagogue can help patients recover faster, have

a more positive attitude toward making lifestyle changes and going through rehabilitation, and deal with pain or disability better.

“That’s why the hospital feels this is important,” says Hanyok. “On the Aliko service, we would like to think that we’re focusing on being patient-centered, but spirituality was something that had not been explicitly focused on. Studies show that physicians either don’t know how to bring up issues of spirituality, don’t feel comfortable talking about it, or don’t know what to do with the information even if they have it.” To help young doctors get the hang of having such conversations, the Aliko service is using the FICA Spiritual Assessment Tool – pre-written questions to address the patient’s spiritual needs and concerns.

“From a medical perspective, it’s still one of those things that doctors feel is a little more challenging to talk about,” says Hanyok. “A lot of patients want to know if their doctor is spiritual, if they could pray together. Many people use prayer for healing, whatever their religious or spiritual beliefs are, but that’s not something we even traditionally ask about. One of our goals is just to help interns and residents feel comfortable getting over that barrier, to see it as not just a scary subject.” ■

“What Pills Do You Take?”

Mike came to the hospital late Tuesday night. The hospitalist asked him about the medications he was taking, but he felt pretty groggy and couldn't remember everything. Mike wound up on the hospitalist service, where the quest to figure out all of the medicines he was, and wasn't, taking had just begun.

Janet Record, M.D., associate director of curriculum for the Aliko Service, believes so strongly in getting an accurate medication history that she has added specially trained pharmacy technicians to do this for patients on the hospitalist service. Because hospitalists take care of more patients than house officers do, they have less time to spend with each one. “A lot of admissions happen overnight,” she says, “and when you're trying to gather the entire history and physical, the medication portion can be very rushed and cursory.”

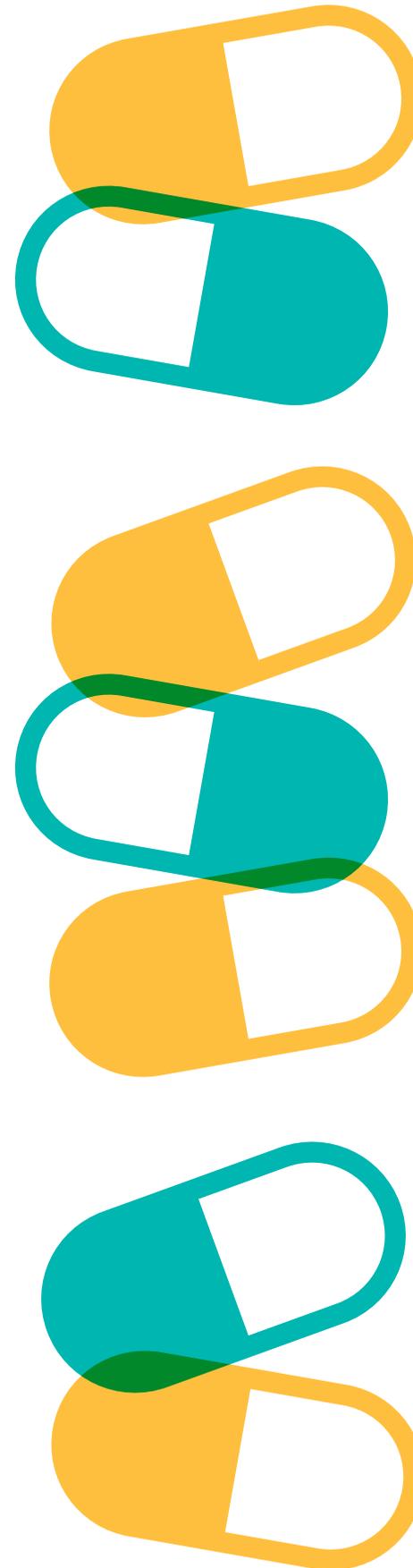
There are several reasons why the medication history taken when a patient first gets admitted to the hospital probably needs to be fleshed out:

- A lot of patients, for many reasons, don't take everything they're supposed to. It may be because they can't afford it, or they don't have a way to get to the pharmacy to pick up a refill. Or maybe they try to save money by taking pills as needed – for example, only when they feel sick, or taking it right before a visit to the doctor's office.
- Many patients take a lot of different pills every day. Some in the morning, some in the evening, some twice a day, some three times a day. Some people have a written list, some don't.
- It is very difficult to recall, right off the bat, the names of all these pills, the dosages, and how often you take them – even when you're in top form. It's even harder when you're sick enough to be in the hospital.

Also, the answer to the question, “What pills are you taking?” might not reflect what's actually happening day to day. “The patients might respond with what they're supposed to be taking, what's been prescribed for them,” says Record, “because they think that's what the physician is asking. Sometimes they say, ‘I'm taking this, and this, and this.’ Then if you ask them what pharmacy they use, they say, ‘Oh, I don't have a pharmacy,’ and you also find out that they're homeless.”

Or, the patients tell the doctors what they think they want to hear. “So if the physician says, ‘Are you taking these as prescribed,’ yes is probably what most people feel comfortable saying. But we teach residents on the Aliko service to ask in ways that are open to more honesty.” Record came up with indirect ways for the Aliko-inspired pharm techs to ask these questions, such as: “Do you have any concerns about your medications, such as cost, side effects, forgetting to take your pills, or getting to the pharmacy?” Then, the pharmacy technician goes over the paper and electronic charts and visits the patient again, saying something like, “I know you've already gone through your medicines, but I'm here to make sure we got it just right. Would it be okay if I go through each one with you?”

Together, the pharmacy tech and the patient go through the medications one by one. A conversation might go like this: “We have it in the record that you're taking the metoprolol.” Pause, and the patient might say, “Yes, I take 50 mg twice a day,” or “I'm not sure.” If the patient doesn't respond, the tech might say, “We have your dose as 25 mg,” and the patient might say, “That sounds right.” “How often do you take it?” “I take that once a day,” or “I take it three times a day,” or “I take it when I feel like my blood pressure is high.”



It is very difficult to recall the names of all these pills, the dosages, and how often you take them – even when you're in top form. It's even harder when you're sick enough to be in the hospital.

The next question is, “What pharmacies have you been using?” The technician then calls those pharmacies to see what's been filled recently. “Then,” says Record, “we might find out that there were other medications that didn't come up before, or maybe the patient with heart failure hasn't filled that Lasix prescription for five months.” The end product is an objective piece of information that the doctor can talk about with the patient and, later, with the patient's primary physician.

What if it turns out that the cost of all those pills is simply too much for the patient to handle? “Cost is a big barrier,” says Record. “But we always try to find some type of plan, like prescribing off Wal-Mart's \$4 list. We also can provide a temporary voucher.”

If necessary, they prioritize. “We can say, ‘You absolutely need to take this one,’ for example, Plavix, if the patient has a new stent. ‘In order not to have a heart attack, you need to take this every day.’”

Spending this much time and care to find out what someone is taking is critical, Record says. “It's often central to why the patient's not doing well.” One woman recently was admitted with low blood pressure, confusion, and acute kidney failure. “I asked her husband to bring in the pill bottles from home. She had been in the hospital and a rehab facility, back and forth, and had just gotten home after being shuffled between facilities. She had been given a lot of different prescriptions, and no one really knew all the pills that she had at home. That was the whole reason she was in the hospital, was that she'd taken too much blood pressure medication.” ■

Aliki in the ICU

They don't call it Intensive Care for nothing. It's tough in the ICU. These patients are as sick as they come. Doctors and nurses are working hour by hour just to keep them alive. Families are stressed out, fatigued, and emotionally drained. Is this any place for the Aliki Initiative – known for its emphasis on spending extra time with patients, and getting to know them as people?

Yes, say Janet Record, M.D., associate director of curriculum for the Aliki Service, and Colleen Christmas, M.D., director of the Residency Program at Johns Hopkins Bayview. And the impetus for bringing the Aliki approach to the ICU, which will happen this summer, is coming from two directions – from Aliki leaders, and from the residents themselves. “It's not uncommon to hear an intern or resident, on the Aliki service after a rotation in the ICU, talking about the drastic difference in the environment and the priorities,” says Record. “The residents are recognizing that they are not participating in as many family meetings as they would like, to talk about goals of care – for example, when do the physician and nursing teams feel like the end of what we can offer has been reached, what are the goals of the patient, and are we doing things in line with what the patient would want.”

Traditionally, training and care in the ICU have been very focused on stabilizing patients who are in a precarious state of health, and that's “as it should be,” says Christmas. “But unfortunately, the way our care is designed, doctors in training hardly ever find out what happens to those patients after they leave the ICU. We're only starting to understand

that patients suffer all kinds of cognitive and physical effects after being in the ICU.”

It's important for residents in the ICU to see beyond the patient in the bed, to the person. “Residents are usually asked to evaluate patients and provide the assessment and plan according to organ system,” says Record. “When all the discussion is in that framework, you have to make yourself remember to think about them as a human again, as a real person. What we want is for residents to take a functional history, to find out what this patient's usual day was like, what kind of things the patient was able to do and enjoyed doing, what goals were important.”

Sometimes, patients come into the ICU unconscious and leave the same way, and the doctors never get to talk to them. Other patients – people with a GI bleed, for example, or people with emphysema in respiratory failure who need a breathing machine at first, then come off of it – are able to talk. Even if they aren't able to speak at first, “their families can help us get a picture of who this patient is,” says Record.

But the Aliki approach here is twofold. First is getting to know who the patient is. Second is follow-



ing up on that patient weeks or months after the ICU stay is over. “If you are taking care of someone who's critically ill, and trying to make decisions about how aggressively to care for them and what next to do in their management, but you don't have any information about outcomes after that, you can't really have a very well-informed discussion with family members,” says Christmas. “We're trying to use some of the principles we've created around Aliki – getting to know patients' lives before they got sick – to inform our decisions about their likely prognosis and recovery. We also want to find out what happens to patients after they leave the ICU and bring that information back to the doctors who took care of them. I think that coupled action of learning about how they were, and how they turn out, can really help the residents learn how to have more informed communication with the family about treatment options and likely outcome scenarios.”

“We're only starting to understand that patients suffer all kinds of cognitive and physical effects after being in the ICU.”

Christmas and Record are working with pulmonary and critical care specialist Dale Needham, M.D., Ph.D., to develop the curriculum. At the Johns Hopkins Hospital, Needham has done pioneering work in implementing early physical therapy into the ICU, getting patients up and around sooner, which has shortened their length of stay and also helped patients do better after they get home. One of Needham's ideas is a journal for the ICU, says Record, “where the nurse and doctors can write things down, family members can write in it, so the patients have kind of a timeline of what people were thinking and doing during that time when they were confused.” The ICU journal has helped reduce symptoms of post-traumatic stress in patients, she adds. “Our program is focused on resident learning, so residents will be taught reflective journaling, and asked to do this on their own.”

“Residents are usually asked to evaluate patients and provide the assessment according to organ system. When all the discussion is in that framework, you have to make yourself remember to think about them as a human again, as a real person.”

At multidisciplinary follow-up sessions, residents and attending physicians, nurses, therapists, palliative care specialists, physical therapists, occupational therapists, chaplains, and social workers will “come together and learn from what the patient is still dealing with afterwards,” says Record, either from a video of a home visit or, if the patient feels up to a return visit, from the patient directly. “All of us need to learn more about what can happen after an ICU stay.”

In the ICU, adds Record, “the family members and patients are just in extreme circumstances. They're placed under such stress, that makes communication potentially a lot more challenging, especially if there are differing opinions from family members.” One important component of the curriculum, being developed with the help of Paula Noe, M.D., a palliative care specialist, will be for residents to learn how to conduct collaborative, helpful family meetings.

“Certainly, residents need to learn how to acutely manage seriously ill people, but it can't be entirely devoid from thinking about recovery, and what's going to happen to that person longer-term,” says Christmas. ■

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“Sometimes, it’s not just in a diagnosis or a cure that we make a difference, but in an isolated spontaneous moment.”

Lakshmi Krishnan, Rhodes Scholar and Johns Hopkins medical student, at the Miller-Coulson Academy of Clinical Excellence Symposium in May. Krishnan won the Academy’s first essay contest. She wrote about how she had trouble connecting with an inpatient and her family, who were from another country, until one day they watched silly music videos on her iPad. Once the ice was broken, their relationship changed significantly.

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