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OPHTHALMOLOGY AND VISUAL SCIENCE

**PLUS:**

New Institute Targets Infection,  
Inflammation

Future Docs Value Compassion

Innovative Implants for Pain

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SPRING 2015



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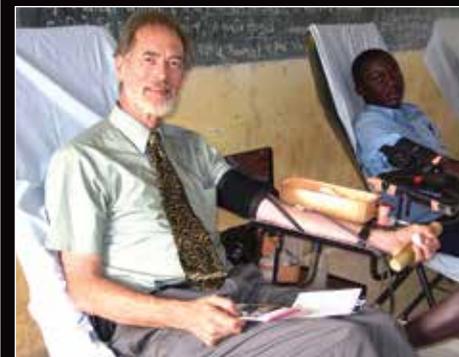
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# A Brilliant App is Born

MD-PhD student Amit Chaudhari heads up a team that developed a new phone app, which matches patients with health care services in their locales. **BY MARYANN BRINLEY**

What if a patient in Newark with chronic conditions or disabilities could take easy advantage of local health care opportunities? With the tap of a finger on a cell phone?

In a city where people with comorbid conditions and unmet medical needs are systematically disadvantaged when seeking primary health services, where emergency room visits and hospital readmissions are out of control, and where medical and dental clinics, research treatment centers, and support groups are right around the corner, a simply designed phone app will soon be able to match patient to service. It's called CareGoggles.

Amit Chaudhari NJMS'17, an MD-PhD student who is finishing the Rutgers Graduate School of Biomedical Sciences (GSBS) doctoral work at Kessler Institute for Rehabilitation doing research on stroke, hates it "when the good in the world goes unnoticed." Good programs are looking for patients. Patients need good programs. Yet, there is an alarming disconnect. Chaudhari points out that a typical course of insurance-paid rehabilitation is only two weeks, but most patients need far more recovery time. "There are so many opportunities, clinical trials, for instance, for people who can't afford care. They just don't know about them."

This is where CareGoggles, the brainchild of Chaudhari, Kelsea Sandefur, Gabriel Felix, and Ted Alexander, comes in. This team, known as Health SAGA LLC, has a com-

bined experience of 12 years in medical rehabilitation. CareGoggles was Chaudhari's idea initially but when a chance to win funding for this mobile health application came up last year, the entire team got behind the project, presented it flawlessly and won the first leg of The Nicholson Foundation & Rutgers Healthcare Delivery Innovation Competition. This event or "idea-thon" was held last October and was "nerve-racking," according to Chaudhari. "We had five minutes to present and we were competing against 14 teams." When the judges announced they had won \$5,000, the four team members were ecstatic. A spin-off, virtual challenge in April will offer the team a chance to compete for a grand prize of \$50,000.



**"There are so many opportunities, clinical trials, for instance, for people who can't afford care. They just don't know about them," says Amit Chaudhari.**

Since then, they have hired software developers to take their platform to the next level with 22 of the most-searched medical conditions on WebMD, including everything from stroke to diabetes and Alzheimer's. In English and Spanish, CareGoggles will focus on two primary areas: Using GPS technology, the app will alert users to relevant locally available primary health care services, including clinical research projects, with the kind of key contact information that is often hard to find online. It will also offer a diagnosis-specific notification tool to remind users of pressing issues, like taking medicine, keeping a doctor's appointment or self-monitoring in other ways. "We want the app to help prevent problems, not just manage conditions, and to empower patients to



The CareGoggles team (l to r): Gabriel Felix, Amit Chaudhari, and Kelsea Sandefur. Not shown: Ted Alexander

take responsibility for their own health."

Chaudhari points out that a significant number of Newark residents have smartphones so downloading and using this tool will be easy. "Mobile technology has become an integral aspect of modern life even in low-income, minority populations." Available on iOS or Android formats, the app does not ask for names or personal information so there will be no collection of private data. A user or anyone acting on behalf of a patient simply types in a health condition and with geo-tracking, up to 120 nearby sites and services will appear. This geographic feature "sets us apart from Google," Chaudhari explains.

A pilot program will be tested through the Student Family Health Care Center. Future marketing plans include hospitals, bus wraps and other health care settings. On discharge, all Newark patients should leave with CareGoggles installed. With a website, a Facebook page and a Twitter feed, the feedback on the app is coming in and it is positive. The "likes" are adding up, Chaudhari says. "It's pretty exciting." ●

# HOW TO WIN THE WAR

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*Pulse* spent a day catching up with William Gause, David Perlin, Nikhat Parveen and Salvatore Marras, just four among so many researchers engaged in this battle. **By Maryann Brinley**

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**I**t's a scary struggle. Forget guns, bullets, bombs and drones. Humans are entangled in a far more lethal world war than the conflicts often described in the news. The numbers and potential kill factors are frightening. Ebola is just one recent enemy amidst many. Every year, two million people develop hospital-acquired infections, for example, and existing antibiotics are often useless. ● The good news: When it comes to fighting the battle against infection, inflammation, disease and immunity gone haywire, there are new weapons in the research labs. Let's talk about helminth worms, for instance, or enzymes with crab claws to unhinge bacteria, and secrets in dirt. Let's also applaud the rapid battlefield tests being designed by NJMS researchers. There is an overall plan taking shape with strategic headquarters at the Institute for Infectious and Inflammatory Disease (I3D) on the NJMS campus in Newark.

IBD

Diabetes

*Borrelia burgdorferi*

*Anaplasma phagocytophilum*

*Francisella tularensis*

*Escherichia coli*

*Mycobacterium tuberculosis*

AIDS

*Babesia*

*Brucella melitensis*

*Acinetobacter baumannii*

Cardiovascular disease

Ebola

*Yersinia pestis*

Malaria

*Burkholderia mallei*

*Klebsiella pneumoniae*

*Enterococcus faecium*

*Rickettsia spp.*

*Burkholderia pseudomallei*

Fungal Disease

Asthma

*Bacillus anthracis*

Sepsis

*Staphylococcus aureus*

Obesity

*Pseudomonas aeruginosa*



David Perlin



David Alland

“It’s time to join forces to tackle disease at the intersection of inflammation and infection,” says one of the directors of I3D, William C. Gause, PhD, senior associate dean of research. Born two years ago, the Institute has brought world-class scientists together to build upon the expertise at cutting-edge facilities like the Public Health Research Institute (PHRI), the Center for Immunity and Inflammation (CII) and the Center for Emerging and Re-Emerging Pathogens. “We are at the crossroads of discovery with unprecedented opportunity to develop new treatments for a wide range of deadly diseases,” according to Gause. “What if a simple diagnostic test could rapidly detect the world’s most contagious diseases? What if the body’s own immunological defenses could be harnessed to combat inflammation without compromising our resistance to disease?”

### Inside the Antibiotic Labyrinth

Perhaps no one has seen more of this war upfront than David Perlin, PhD, executive director of PHRI. Last year, the National Institute of Allergy and Infectious Diseases (NIAID) and its Centers of Excellence for Translational Research (CETR) chose Perlin as the principal investigator and awarded him \$26 million to develop new antibiotics. Always straightforward, he says, “We have a worldwide crisis with major unmet needs. There aren’t sufficient drugs and too many are in the same chemical classes that make them resistant to just about everything. The pipeline for new antibiotics is running at a trickle. In fact, the medicine cabinet is empty in many cases.”

A combination of factors led the world into this war-with-no-weapons bind. Pharmaceutical companies once built their businesses on medications for acute conditions and have not made new antibiotic development a priority for decades because it’s not profitable enough. “When you get sick, you take an antibiotic for 10 to 12 days at most. That’s it,” Perlin explains. “Chronic conditions like high blood pressure or cardiac disease require drugs longterm, where the real money is.” Meanwhile, bacteria continue to develop resistance so the need for new antibiotics is ongoing. The Food and Drug Administration (FDA) also set the bar for drug approval too high requiring years of clinical trials not for safety but for efficacy, a rule that has finally been changed for antibiotic-resistant conditions. “Why would a company spend a billion dollars and 10 to 15 years on a drug that only affords them three to four years of U.S. patent protection?” Perlin asks.

“To jumpstart the drug discovery process,” Perlin has five projects with six core areas of expertise, in a new “Center to Develop Therapeutic Countermeasures to High-threat Bacterial Agents.” War-like words like “countermeasures” and “high-threat” are used on purpose, he explains, because “we want drugs that are novel and could potentially be used for strategic national purposes. It’s a battle against these pathogens.”

By choosing key players with deep experience at each point in the drug “discovery to market” process, including Cubist, an antibiotic

pharmaceutical company, he has put together a “group much like an academic-based pharma company. This could become the paradigm for how to do early phase drug discovery especially in areas of unmet needs.”

A significant component of this grant involves researchers from the Center for Emerging and Re-Emerging Pathogens run by David Alland, MD. Alland focuses on different aspects of *Mycobacterium tuberculosis* biology, epidemiology, and rapid diagnostics, and his group is looking at novel targets to develop new anti-TB drugs. He designed a test for TB endorsed by the World Health Organization in 2010 and is now working on one for Ebola after receiving \$640,000 from the NIH.

Other NJMS researchers have a variety of backgrounds. From medicinal chemistry (Joel Freundlich, PhD), pharmacokinetics (Veronique Dartois, PhD), structural refinement (Min Lu, PhD), *in vitro* screening (Nancy Connell, PhD), to the sophisticated animal infection modeling in Perlin’s own domain, “we can move compounds through rapidly,” Perlin explains. A separate board includes prominent pharmaceutical executives “to help us prioritize. Imagine if you are generating thousands of compounds. You need advice picking the ones the pharmaceutical world would deem appropriate to develop.” The aim is to license these discoveries out to companies. “Academic scientists are good at discovering small molecules but they don’t have the resources to do the compound refinement” or the ability to carry out small and large animal studies, as a prelude to human clinical trials.

## “Dirty” Secrets and Crab Claw Enzymes

At the early end of discovery is Sean Brady, PhD, from Rockefeller University. “I’ve known Sean for years and he has really cool, innovative research,” Perlin explains. “He’s utilizing nature, bumping it up to go faster.” Actually, Brady is looking for drugs in dirt, sifting soil samples for uncultured, novel bacteria that could lead to antibiotics. “Genetic evidence hints there are many more bacteria out there,” Brady believes, with “vast chemical and biosynthetic potential.” His Laboratory of Genetically Encoded Small Molecules uses gene sequencing to synthesize “a rich, undiscovered source of useful natural products.” Historically speaking, he’s on the right track. Many current antibiotics, including tetracycline and vancomycin as well as cancer drugs and immune therapeutics, have roots right in nature.

What if the answer to the antibiotic crisis was hidden in plain sight? Besides leading the medicinal chemistry area, Freundlich is focused on learning from hundreds of thousands of molecules that have already been tested for antibacterial activity. The data resides in publicly accessible electronic archives, dormant for years until he and longtime collaborator, Sean Ekins, PhD, demonstrated how computational models can leverage this information to predict new antibacterial agents.

Then there is Richard Ebright, PhD, from Rutgers’s Waksman Institute of Microbiology, where the groundbreaking antibiotic

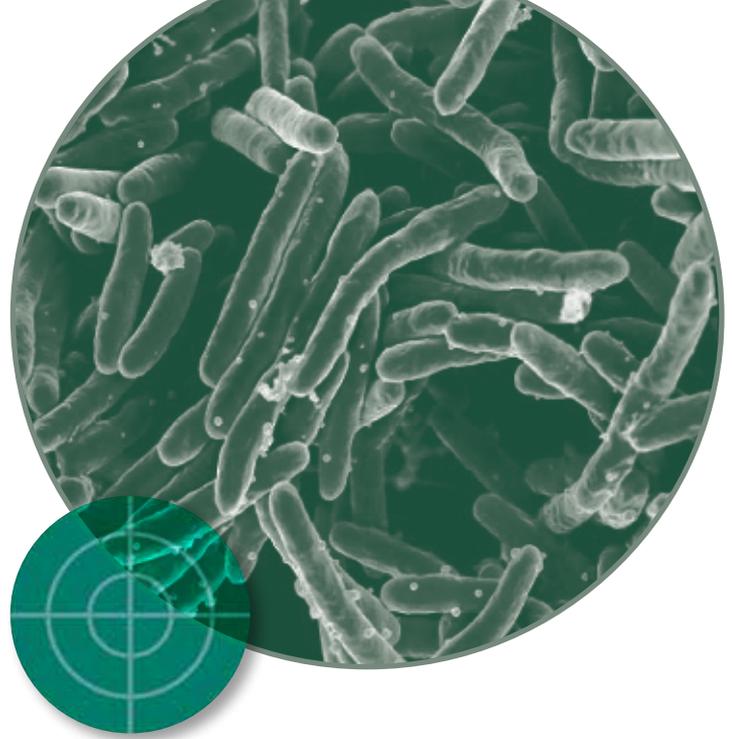
streptomycin was developed in 1943. He “is looking at a promising molecular target that can overcome existing antibiotic resistance,” Perlin explains. “He has the right kinds of molecules to jump the divide from preclinical to clinical.” Three compounds interfere with the action of bacterial RNA polymerase, an enzyme with a “shape reminiscent of a crab claw,” Ebright says. It uses a “pincer hinge” to stop bacteria from obtaining DNA genetic information.

## Worms and Immunity

Asking big questions and digging deep for answers to immunity and inflammation come naturally for Gause, an intense, no-nonsense researcher whose lab interests have focused on how worms, helminths, trigger immune switches.

“Worms?”

Yes, this is metazoan parasite theory. “This research could be important in the development of vaccines against a variety of pathogens,” he explains. Helminths have coevolved with vertebrates for millions of years, shaping the activation and function of immune responses. To understand them in the lab is key to finding answers to many mysteries



David Alland designed a test for TB endorsed by the World Health Organization in 2010 and is now working on a diagnostic test for Ebola.

of immunity. When helminths and other metazoan parasites enter, exit, or migrate through their host, macrophages (disease-fighting, white blood cells) are activated in defense. Then, in a complex, type 2, trained immune response, the second time the host is exposed to the parasite—in the same way a vaccine works—the macrophage remembers just what to do. Lesson learned, the host survives, stronger than before, immunological memory bumped up. “If our own body’s macrophages can be effectively trained to fight invaders for which traditional vaccines are ineffective, they could destroy viral invaders like HIV or Ebola,” he explains. This differs from type 1, innate immunity where the body launches a vast array of defenses against infectious agents or invading pathogens, sending phagocytic cells like macrophages and neutrophils into battle, sometimes with unwanted side effects from toxic antimicrobial products.

Gause has found another piece to this immune puzzle through his worm work. The type 2 immune response triggered by helminths produces cytokines and factors that are different from the harmful inflammation of innate immunity that can lead to a variety of diseases and conditions including: cardiovascular disease, diabetes, implant failure, chronic wounds, inflammatory disease, and even obesity. In fact, this type 2 immunity has regulatory cells that block bad inflammation associated with type 1 immune response. It also can directly enhance wound healing and tissue repair. Harnessing components of the type 2 immune response to control harmful inflammation and enhance wound healing is an active area of study in the Gause laboratory.

## Breakthrough Tests

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In a perfect example of the kind of collaboration needed to win any war against pathogens, two researchers have been reaching across laboratory lines for a breakthrough test for Lyme disease. Victims are already applauding because up until now, the science helping them has been inadequate. The ticks and bacteria have been winning.

At the conference table on the third floor of PHRI, the air of excitement is palpable. Nikhat Parveen, PhD, is an associate professor in the Department of Microbiology, Biochemistry and Molecular Genetics who studies tick-borne pathogens, syphilis and multi-drug resistant bacteria like *Pseudomonas aeruginosa*. Salvatore A. E. Marras, PhD, an assistant professor in the same department, shares a PHRI lab on the other side of the building with Fred Kramer, PhD, and Sanjay Tyagi, PhD, the team that invented molecular beacons 20 years ago. Together, Parveen and Marras have designed a sensitive, multiplex test not only for *Borrelia burgdorferi*, the spiral-shaped bacteria transmitted by ticks that cause Lyme disease, but also for two other tick-transmitted pathogens that coinfect the critters and wreak havoc in humans: *Anaplasma phagocytophilum*, an intracellular bacterium, and *Babesia microti*, a parasite similar to what causes malaria. Both are dangerous and often undetected.



Salvatore Marras and  
Nikhat Parveen



William C. Gause

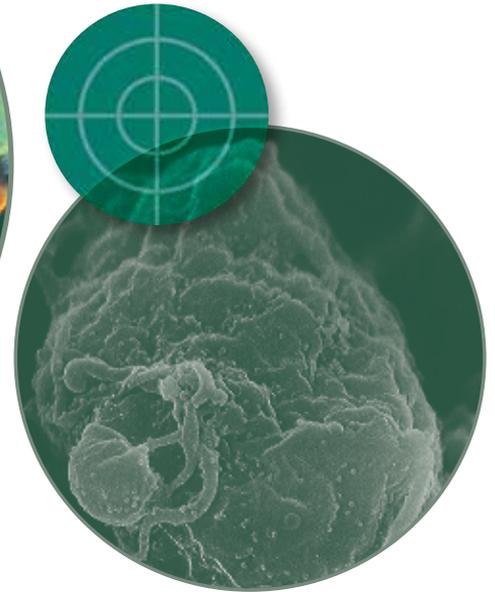
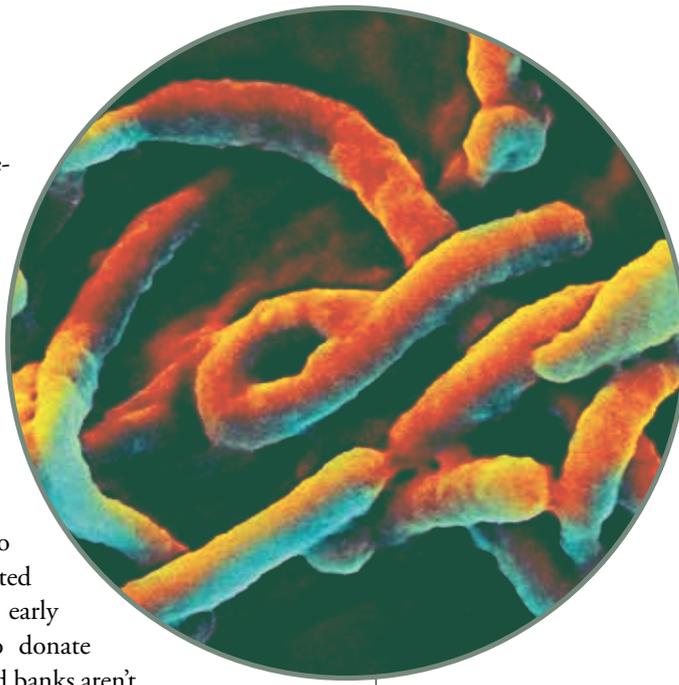
“All three pathogens use white-footed mice as a reservoir host and white-tailed deer populations to spread long distances. Babesia grows in red blood cells and the infection may remain asymptomatic. Anaplasma thrives in white blood cells. Both can lead to severe, fatal disease,” Parveen explains. “These two pathogens can also be transmitted by blood transfusions but it is difficult to check for them.” And, because infected patients don’t always feel sick in early stages, they have been allowed to donate blood, endangering the supply. Blood banks aren’t testing for Babesia and Anaplasma because efficient, cost-effective diagnostic assays haven’t been available.

Marras relishes teamwork. “This is so mutually beneficial. The introduction of molecular beacons has made it possible to detect RNA and DNA molecules in living cells and in clinical samples to quantify and detect multiple pathogens simultaneously.” Kramer and Tyagi describe the probes like this: “Imagine a magic reagent to which is added a droplet of body fluid from a patient. A glow appears in the tube and the color of the glow identifies the pathogen responsible for the patient’s illness.”

News of this test has already created excitement among patients. “You would not believe the overwhelming response to our first paper in 2009. We were still editing, but because the manuscript was online,” Parveen recalls, “I was getting calls from everywhere. These people are suffering and want answers so our assay is very timely.”

The Centers for Disease Control and Prevention (CDC) estimates that only one-tenth of Lyme disease cases are accurately diagnosed. Clinical manifestations are tricky and testing hasn’t been effective, unable to distinguish between active and underlying disease. And since antibodies against the pathogens persist in blood for a long time, it has even been difficult to confirm a cure. Patients are also susceptible to secondary infections that might explain some of the random symptoms reported in Lyme disease.

What’s next? They have applied for a patent and are speaking with a Massachusetts company that is ready to start developing the assay for field application, particularly for the blood bank samples. Parveen plans more human blood testing and is working with physicians like Kristine Gedroic, MD, a Harvard-trained specialist who has Lyme disease patients in her integrative medical practice in Morristown; Kathleen Casey, MD, of Jersey Shore University Medical Center; Melvin Weinstein, MD, Chief of Infectious Diseases, Allergy and Immunology, Robert Wood Johnson Medical School (RWJMS); and Tanaya Bhowmick, MD, RWJMS. Finding more patient samples from the northeastern U.S. and Europe where tick-borne diseases



“If our own body’s macrophages can be effectively trained to fight invaders for which traditional vaccines are ineffective, they could destroy viral invaders like HIV or Ebola,” explains William Gause.

are prevalent is on Parveen’s to-do list. She also wants to expand her technical expertise to develop assays for early detection of emerging multi-drug resistant Gram-negative bacteria in hospitalized patients and for efficient diagnosis of syphilis.

Parveen says, “Our test will be able to diagnose from early to chronic stages of Lyme as well as babesiosis and anaplasmosis in one assay. It is so sensitive and specific that any level of the pathogens present can be found.” Coinfections with these three pathogens have been increasing,” she adds. “There is a lot of tick-borne disease in Europe where Lyme originated hundreds of years ago though it was first diagnosed in the U.S. in Lyme, Connecticut. You see a lot of Lyme disease from Massachusetts to Maryland but not in Newark.”

What you do see in Newark, however, are world-class scientists advancing the war against infection, inflammation, and immune disorders. ●

Visit the I3D Website: <http://research.njms.rutgers.edu/i3d/index.php>

LAWRENCE H. MARUM, MD'73, MPH

# Oh The Places He Has Gone

BY MARYANN BRINLEY

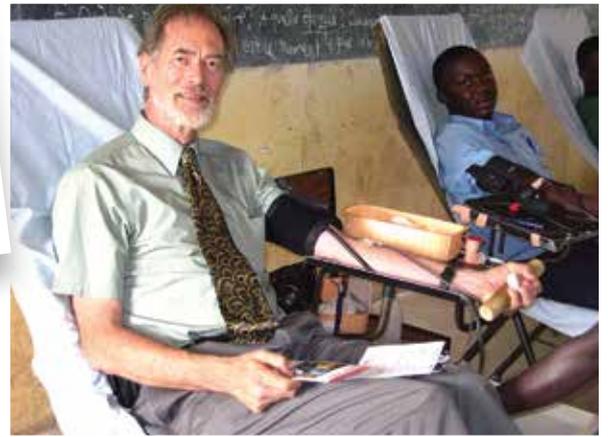
The countries that pepper Lawrence (Larry) Marum's CV read like a wish list in a travel magazine for adventure-seekers: Zambia, Kenya, Malawi, Uganda, Bangladesh. "International health has been my passion," he says. "I've spent more than 25 years living overseas and working there in public health though I also worked as a rural pediatrician in California." He has just completed six years as country director in Zambia for the Centers for Disease Control and Prevention (CDC) and he laughs when asked about his bucket list for retirement, "I don't have huge travel plans because we've had the privilege of living in so many parts of the world."

Born and raised in New York and northern New Jersey, he graduated in 1969 from Wheaton College in Illinois where he met his wife, Elizabeth, whose own work in international health has been spent running programs for the CDC, the World Health Organization, and USAID. Their careers have been lived in tandem. "It's wonderful being married to my best friend," he admits. "She even shared the medical school experience with me because we were married after my first year. She worked as a psychiatric social worker then." Elizabeth later earned her PhD at the University of California, Berkeley.

Marum recalls med school classes, labs, and lectures in the "metal Quonset huts across the street from Martland Hospital." He remembers Donald Louria, MD, "a most formative" teacher, and being on the same team with Jim Oleske, MD, in clinics. "Jim was ahead of me and was a great influence.



Lawrence Marum has spent more than 25 years living and working overseas. "International health has been my passion," he says.



We were going into homes for lead poisoning and taking care of patients with drug addictions. This experience really launched my thinking about health and medicine in a community sense, not just individual care." And, as a med student, he spent four months in Western Kenya, which whet his appetite for Africa. His international health career has had several areas of focus: training maternal and child health workers and starting immunization programs in Bangladesh, research and teaching on HIV in Uganda, developing malaria programs in Malawi, HIV surveillance and blood safety in Kenya and globally, and starting cervical cancer and maternal mortality programs in Zambia. He is currently working on the post-Ebola response planning for West Africa to build the capacity to prevent and contain the next epidemic. But HIV has been the major theme throughout his work in Africa.

Marum and his wife devoted their professional lives to HIV-AIDS because of two events. The first was a personal tragedy: "We were working in Bangladesh together and returned to Berkeley, California, for the birth of our first daughter who was born with a hypoplastic heart. She lived only a few days." Afterward, Elizabeth became the director of the hospice in Sonora where she persuaded her board to include AIDS patients. "This was in 1984," at the height of the epidemic and there was so much ignorance. "She ran one of the first hospices to care for these patients and began focusing on HIV-AIDS." Later, "As a pediatrician, I treated a young hemophiliac who had HIV," he explains.

"We were eager to return overseas," he

says. In 1990 with 6-year-old twins, Sonja and Paul, "I was hired by Case Western Reserve University to lead studies relating to mother-to-child HIV transmission in Uganda." Elizabeth was hired by the CDC to lead the U.S.-funded HIV programs in Uganda where she developed the first HIV testing and counseling program.

In Uganda, he recalls, "We saw a country devastated by the worst HIV epidemic in the world. But we also saw an opportunity to contribute and give hope." Now, almost 25 years later, "We have a situation in Africa where more than 7 million people are on anti-retroviral drugs and we can now talk about epidemic control. To see this happen in our lifetime is quite a transformation." His CDC work has also allowed him to watch countries build capacity to respond to health threats. "I am training people in epidemiology and surveillance so they can use data to make decisions."

Their twins are 30 now and in the U.S. with Paul finishing graduate work in public health and epidemiology. He wants to work in disaster response and complex humanitarian emergencies. Their daughter, Sonja, is in California where they hope to spend at least part of their someday retirement. "We have a parcel of a former sheep ranch with an orchard that we've been watching grow," he says. With a friend, they also own a house in Kenya "where we can stay in touch with colleagues. It's down the road from the district hospital we helped to strengthen so volunteering in the pediatric AIDS clinic is part of

*Continued on page 39*

## 1960s

**James P. Murphy, MD'66** has been working full time at Tamale Teaching Hospital, Tamale, Northern Region, Ghana, as an otolaryngology consultant since July 2007. He is also Senior Lecturer at the University for Development Studies, School of Medicine and Health Sciences, Tamale, Ghana.

**Joseph DeGross, MD'67** reports that at 73, he continues to spend 6–8 hours a week in his office, noting that it is good for the brain. His children and three of his grandkids are all grown up. Semi-retirement life in East TN is lovely, but so is traveling to see kids and grandkids up north and down south. He hunts birds in the fall, and enjoys boating, fishing, golfing, writing, and enjoying life with Sandy. Life is good!! He hopes that all of his classmates are prospering and healthy.

**James DeGerome, MD'68, FACP, RACG** has re-released an updated version in soft cover of “The Cure for the American Healthcare Malady.” It is available on Amazon, subtitled: Socialized Medicine: The Apple in the Garden of Eden.

## 1970s

**Cheryl Byt Montemurno, MD'72** writes that she retired as of June 13, 2014.

**Alan E. Matook, MD'73, M.Sc.** is currently Physician Advisor, Clinical Documentation Improvement at Hackensack University Medical Center Mountainside, Montclair, NJ.

**David Brody, MD'74** retired from the practice of gastroenterology on March 31, 2014.

**Alan Javel, MD'74** has continued to play softball—three games at a stretch while receiving chemotherapy, and has been in two different tournaments this year in Las Vegas and St. George, UT.

**Kenneth P. Rubin, MD'75** is the current director of the Inflammatory Board Disease Center at Englewood Hospital and Medical Center, Englewood, NJ.

## 1980s

**Joseph N. DeLuca, MD'84, PhD** published two books last year, “Inspirational Sentiments to Become a Better Person—a Starter Manual,” and “Snippets—Memories to Enhance Healing, Health, and Wellness.” He is practicing in Altamonte Springs, FL, as both a primary care physician and clinical psychologist. The books are available through of barnesandnoble.com and amazon.com.

**Capt. Lawrence Fox, MD'86, PhD** is certified as “WatSan,” supervising donning and doffing of protective gear during care of Ebola patients at the NIH.

**Diane H. Landauer, MD'86** writes that her son turned 16 and is a full-fledged driver!

## 1990s

**Gene Tolomeo, MD'94** was selected by the 2014 New York State Society of Physician Assistants as the Physician of the Year.

## 2000s

**Maria Gonzaga, MD'07** opened a new OB/GYN medical practice, Comprehensive Women's Care of Columbus, PC in Columbus, GA in June 2014.

**Kate Twelker, MD'10** matched to NJMS for her trauma-surgical critical care fellowship next year and is excited to return home.

**Adam Handler, MD'11** tells about his momentous year. He graduated from a pediatrics residency and joined his father in practice. “And throughout it all, I'm forever grateful for my medical school experience that helped get me to where I am today.”

## IN MEMORIAM

**Nicholas Willson, MD'63** passed away on July 31, 2014. Born and raised in Upper Montclair, after his completion of medical school, he was a Lieutenant Commander in the U.S. Navy as well as a medical officer in the Neurology Department at the Naval Aerospace Medical Institute in Florida. At the time of his retirement, he was the Director of the Central Reference Laboratory-Neurotoxicology Laboratory of the New York Psychiatric Institute.

**Andre Guay, MD'68** passed away on December 16, 2014 in Portsmouth, NH. He served as Lieutenant Commander in the U.S. Navy and retired after 37 years of medical practice at the Lahey Clinic located in Burlington, MA. He is survived by his wife of 49 years, Barbara (Madore) Guay, and his children, Andrea Guay, Danielle Megliola and Stephanie Deihl, and their families.

*We wish to acknowledge **Joel S. Policzer, MD'76** whose name did not appear in the NJMS Honor Roll 2013–2014 as a generous contributor to the Founder's Club.*

## Marum

*Continued from page 36*

my retirement vision.” The couple has also supported four orphaned Ugandan children. “One just graduated from Makerere University and they are all maturing and starting families so that has been very rewarding.”

Five years ago, Marum was diagnosed with pancreatic cancer. “Fortunately it was a neuroendocrine cancer, so it is slower growing,” he explains. He's healthy, working actively and playing tennis and squash, as well as skiing after “Whipple surgery and high-tech ablations. I'm very glad to be alive,” he says. This personal part of his journey—and the death of his daughter so many years ago—are “two very powerful influences on our lives, our priorities and our interests.” ●

*To get in touch, email: LMarum@cdc.gov*

## Heinrich

*Continued from page 37*

health education in New Jersey and its affiliate, Foundation Venture Capital Group (FVCG), which provides very early stage investment funding for biotech start-ups. “Being involved in NJHF has allowed me to further explore and support the breakthrough research and outstanding educational programs at NJMS,” he says. “I feel I've been able to help the school's growth and development, and as a graduate that's very important to me.”

Heinrich, who celebrated his twenty-fifth wedding anniversary last June, makes a point of adding that the best thing he ever did was to marry his wife. “Life is respect and value and compromise,” he reflected “Having the support around me from her, and our two sons, has really given me the insight and the will to help others. Throughout the years, NJMS has come to play a very important part in our lives.” ●

*To get in touch, email: heinrich@njms.rutgers.edu*