

Johns Hopkins Bayview

health & wellness

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JOHNS HOPKINS
MEDICINE

Research takes flight to treat chronic conditions in developing countries

This winter, Timothy Amukele, M.D., Ph.D., took over as director of clinical laboratories at Johns Hopkins Bayview. In this role, Dr. Amukele oversees the day-to-day operations of the laboratories and works with clinicians throughout the Medical Center, but his work outside the lab is even more unique.

Dr. Amukele was born in Ohio, but moved to Nigeria with his parents as a child. His time there drove his desire for research in the quality of clinical laboratories in developing countries and chronic diseases in sub-Saharan Africa.

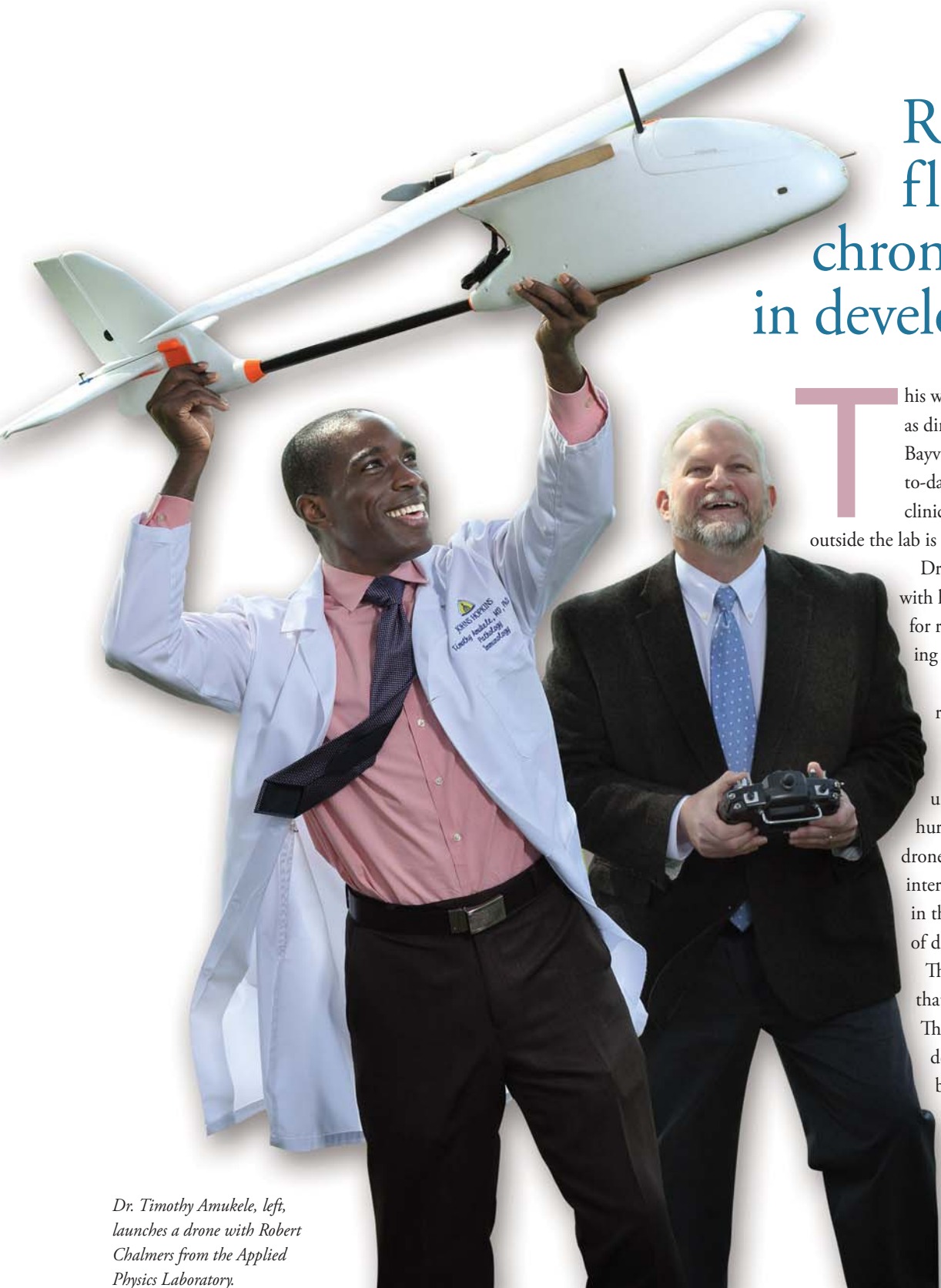
Recently, Dr. Amukele successfully completed research on the use of drones in health care.

After visiting laboratories around the world, Dr. Amukele realized that transporting blood and urine samples for medical testing is one of the biggest hurdles in developing countries. “The idea for using drones first came from the problem of moving samples internationally,” he explains. “There are a lot of places in the world where there are no roads, but with the use of drones, we have access to these places.”

Through his research, Dr. Amukele has demonstrated that blood samples flown on drones retain their integrity. They were not destroyed by the flight. “This is a big deal because blood samples are very fragile and can be destroyed even by riding in vehicles traveling on uneven roads,” he explains.

Dr. Amukele predicts that this initial research and testing should be complete by the end of this year, and hopes that soon the drones will be helping to test and treat chronic health conditions where no roads go.

—Allie Menzel

A photograph of two men, Dr. Timothy Amukele and Robert Chalmers, standing together. Dr. Amukele, on the left, is wearing a white lab coat over a pink shirt and a dark tie. He is smiling and holding a white drone with orange accents high above his head with both hands. Robert Chalmers, on the right, is wearing a dark suit, a white shirt, and a blue patterned tie. He is also smiling and holding a black remote control device. The background is plain white.

Dr. Timothy Amukele, left, launches a drone with Robert Chalmers from the Applied Physics Laboratory.

A Second Chance to Hear

Hearing loss is a medical disorder that affects nearly 36 million adults in the United States. For many, hearing aids or rehabilitation therapies can help reduce hearing loss. However, for those who are partially or completely deaf and don't benefit from hearing aids, cochlear implants may be the best option to improve hearing.

"It's important for people to know the difference between a hearing aid and a cochlear implant," says Heather Weinreich, M.D., neuro-otologist and cochlear implant surgeon. "A hearing aid helps amplify frequencies that a patient may have lost. But for some patients, hearing loss may be so significant that a hear-

ing aid cannot amplify enough for usable hearing. This is when a cochlear implant can be considered."

A cochlear implant converts sound waves to electrical impulses. This gives a person with severe hearing loss the ability to hear sounds and may help them understand speech.

A cochlear implant is a small electronic device that stimulates the nerve for hearing. It has two

parts—one that sits behind the ear and picks up sounds with a microphone, and another that is implanted in the inner ear during a surgery. A thin wire and small electrodes are fed into the cochlea (part of the inner ear). The wire sends signals to the auditory nerve, which sends sound impulses to the brain.

To be considered for a cochlear implant, an individual needs to be evaluated by an audiologist, doctor and cochlear implant surgeon. The surgery lasts two to four hours, and the patient usually goes home the same day.

"It takes a while to get used to hearing sounds in a new way," says Dr. Weinreich. "Rehabilitation therapy helps patients improve communication."

Heather Weinreich, M.D.
Neuro-otologist and
cochlear implant surgeon



To schedule an appointment, call 443-997-6467.

Taking a Closer Look at Thyroid Conditions

Tiredness, cold intolerance, dry skin and hair, and bowel problems are just some of the complaints that might indicate a thyroid condition. A simple blood test can often confirm that diagnosis if it shows increased levels of thyroid-stimulating hormone (TSH). However, correctly diagnosing a person over the age of 70 with a thyroid condition may not be so simple.

The symptoms associated with underactive thyroid—called hypothyroidism—also are commonly associated with normal aging. This

includes elevated TSH levels. Johns Hopkins endocrinologist Jennifer Mammen, M.D., has been studying why TSH naturally increases with age, as well as the increasing mistreatment of hypothyroidism in older individuals. The risks associated with over-treatment of thyroid hormone replacement therapy can accumulate over time. "It can lead to atrial fibrillation and increased risk of stroke, as well as lower bone density, osteoporosis and fractures," she explains. "These are serious health risks, especially for older adults."

Dr. Mammen recommends working closely with your physician. "If you're not feeling better after an appropriate trial of thyroid hormone replacement therapy, your diagnosis and treatment should be reconsidered."

Jennifer Mammen, M.D.
Endocrinologist



To schedule an appointment with an endocrinologist, call 410-550-4906.

Ticktock:

Timely treatment for Lyme disease



Innovative center tackles painful—sometimes chronic—symptoms

Chris Harris was gardening at his Owings Mills home when he noticed an odd bump on his right leg. Although he initially dismissed it as a spider bite, over the next few days he noticed a rash growing around the bump, and he had increasing fatigue and joint pain. He decided to go see his doctor, who immediately referred him to John Aucott, M.D., who would later co-found the Johns Hopkins Lyme Disease Research Center. “After taking one look,” recalls Harris, “Dr. Aucott said, ‘That’s Lyme disease.’”

Little Bite, Big Impact

Transmitted by ticks, primarily during the summer months, Lyme disease has three distinct stages. First, bacteria in the tick’s stomach infects the skin, causing a large, round or oval rash that can grow up to a foot in size. As the bacteria spreads to the bloodstream,

it can infect the heart, nervous system and joints, causing meningitis, arthritis, Bell’s palsy, and even fainting. Finally, if left untreated for six months or more, the infection causes late-Lyme arthritis in the knees and other large joints for around 60 percent of patients.

An Elusive Illness

Although well known, many things about Lyme disease make it difficult to diagnose and treat. Aside from the rash, which may appear in a hard-to-spot location or not



John Aucott, M.D.
Co-founder,
Johns Hopkins Lyme
Disease Research Center

form at all, initial symptoms are indistinguishable from other infections, and many patients don’t get treatment until the bacteria have spread. Additionally, the test used to identify

Lyme-causing bacteria in the blood “can be negative for the first few weeks of infection before it turns positive. This is a very difficult illness to study,” explains Dr. Aucott.

Even after successful treatment, around one in 10 patients will experience symptoms that last for weeks, months or even longer. This is often colloquially called “chronic Lyme disease,” although Dr. Aucott prefers the more precise term post-treatment Lyme disease syndrome (PTLDS) to describe the symptoms, which include fatigue, musculoskeletal pain and trouble concentrating. Discovering the causes of PTLDS is one of the primary goals of the Lyme Disease Research Center, which was formally established in 2015 after eight years of research by Dr. Aucott and his partner, Mark Soloski, M.D.

Surprising Symptoms

Harris’s symptoms were severe enough for a clear diagnosis. Dr. Aucott immediately started him on an antibiotic treatment plan,



Chris Harris is back to work after being treated for Lyme disease.

then gave Harris his phone number. “He told me it was going to get worse before it got better,” remembers Harris. “I had no idea what I was going to face.” The Johns Hopkins professor recalls driving back from teaching an evening class in Washington, D.C., with a 102-degree fever, and “spending the night feeling like I was dying.” After taking antibiotics for a month, he felt better for another few weeks, but soon the symptoms returned. “I was feeling horrible again. I’m a pretty upbeat, happy person, but I felt a sense of powerful depression, and I didn’t understand why.” Dr. Aucott explained that Lyme disease can cause neurological symptoms, including depression, and they agreed on a second round of treatment. After another month of antibiotics, says Harris, “I ultimately got through.”

Despite the months of pain and fatigue, Harris thinks he was lucky. “To think something

as small as a tick can cause you that much debilitating pain is pretty scary. I was blessed to have such a leading authority on Lyme disease to walk me through the process.” A year after his recovery, Harris celebrated by running a 10-mile race in Washington, D.C., and has since kept his life full teaching, helping with Johns Hopkins University baseball team practices, and spending time with his wife and two daughters.

—Martin Fisher



“Watch Chris tell his story at hopkinsmedicine.org/jhbmc/patientstories”

Don’t Wait to Get Tested for Lyme Disease

If you have unusual fatigue, soreness or fever during the summer, you should be aware of the possibility of Lyme disease. “We like to say there’s no summer flu,” says Dr. Aucott, as these symptoms are most often associated with the flu. Lyme presents without a rash in about one in five patients, so if you suspect Lyme disease, see your primary care provider as soon as possible. Faculty at the Lyme Disease Research Center are available for consultation once you have been diagnosed with Lyme disease.

If you have previously been diagnosed with Lyme disease and are still experiencing symptoms like fatigue, musculoskeletal pain, or trouble thinking and concentrating, you may have post-treatment Lyme disease syndrome. Although there is currently no FDA-approved treatment for PTLDS, research at the Lyme Disease Research Center may hold promise for eventual therapies. Your primary care provider can refer you for a consultation.



If your primary care provider has diagnosed you with Lyme disease, they can request a consultation with the Johns Hopkins Lyme Disease Research Center at 410-616-7596.

A Startling Diagnosis

Catching chronic kidney disease before it's too late

Kaitlyn Asbury was like most college students—social, happy and without a care in the world. However, halfway through the fall semester of her sophomore year at University of Maryland, College Park, Asbury started feeling fatigued and experiencing dizzy spells. She could barely get out of bed to go to class and had no motivation to spend time with her friends.

At first, Asbury thought she had mono-nucleosis—a common illness among college students. When tests came back negative, she thought she might be depressed. “I knew something was going on with me, but I couldn’t figure out what it was,” she says.

Seeking Answers

During her winter break from school, Asbury scheduled an appointment with her primary care provider. Blood work determined that she had borderline anemia, a condition that develops when your blood lacks healthy red blood cells or hemoglobin. Asbury’s doctor referred her to a hematologist (a doctor who specializes in diseases of the blood), who ran more tests. This time, the blood work produced unusual results, and after a second round of testing, Asbury was admitted to the hospital. Her creatinine levels—nearly five times the normal limit—indicated end-stage chronic kidney disease. Asbury and her parents were in complete shock.



“Most people don’t realize they have chronic kidney disease (CKD) until it’s too late,” says nephrologist Sumeska Thavarajah, M.D. “CKD usually gets worse slowly, so symptoms don’t appear until the kidneys are badly damaged.”

The kidneys are responsible for removing wastes, toxins and extra water from your body; balancing important salts and minerals in the blood; and releasing hormones to help control blood pressure, manage anemia and help maintain strong bones. “When your kidneys don’t work properly, waste products and fluids can build up in the body, causing swelling, vomiting, weakness and shortness of breath,” says Dr. Thavarajah.

Preparing for a Transplant

After Asbury was released from the hospital, she was referred to Dr. Thavarajah for follow-up care.

More tests revealed that her kidneys were functioning at only 12 percent. She would either have to be on dialysis for the rest of her life or get a kidney transplant. Because Asbury was young and otherwise healthy, Dr. Thavarajah recommended a transplant.

Nearly a year after her diagnosis, Asbury received a new kidney as part of a four-way swap. “My grandmother was a perfect match, but the doctors wanted me to have a ‘younger’ kidney,” she says. Her grandmother’s kidney was donated to an older gentleman in Georgia, whose niece happened to be a match for Asbury. “We were very lucky that it all worked out,” she says.

Dr. Thavarajah notes that Asbury’s case is atypical of most people diagnosed with CKD. “We usually see patients who are older, and have a history of high blood pressure, diabetes or a family history of kidney disease.”

She goes on to say that no matter what stage kidney disease a person has been diagnosed with, incorporating a healthy lifestyle will help slow down progression of the disease.

Sumeska Thavarajah, M.D.
Nephrologist



To schedule an appointment with a nephrologist, call 410-550-2820.

Ready and Reenergized

Since her transplant in October 2013, Asbury has noticed a significant change in her health. "It's nice not having to worry if I'll have enough energy to sit through class or hang out with my friends," she says. "I just feel refreshed."

Asbury returned to school in January 2014 to pursue a degree in criminal justice and is scheduled to graduate this May. She is excited to begin her career as a background investigator for the federal government.

—*Meghan Rossbach*

Join doctors and staff from the Division of Nephrology to learn the "ABCs of Kidney Disease," including the causes, stages and treatment of chronic kidney disease.

May 24, June 28 or July 26
5 p.m.

Medicine Education Center
Johns Hopkins Bayview Medical Center

Free in-person information sessions are held monthly. For more information or to register, call 410-550-2820.

If you are unable to attend in person, the seminar is available online at <https://tinyurl.com/kidneyabcs>

Recognizing the Symptoms of CKD

At first, kidney disease is silent. As it progresses, individuals may experience:

- Worsening blood pressure
- Swelling of the face, hands, feet, ankles or legs
- Changes in urination (color and frequency)
- Fatigue or less energy
- Trouble concentrating
- Poor appetite
- Shortness of breath

Lowering Your Risk of CKD

- Stop smoking or take steps to quit.
- Maintain a healthy lifestyle with diet and exercise.
- Control your diabetes and high blood pressure.
- Avoid certain over-the-counter medications in large quantities, such as ibuprofen and naproxen.
- Limit caffeine and alcohol use.

Preventing Falls at Home and in the Hospital

Falls are a real danger for older adults, but they aren't an inevitable part of aging. Simple changes can reduce your risk of falling long before an injury occurs, or allow you to stay in your home after a fall.

Every year, almost one in three adults 65 or older will fall, according to the Centers for Disease Control and Prevention, and the risk rises with age. Although many falls don't cause serious injuries, falls remain the cause of nearly all hip fractures and the most common cause of traumatic brain injuries.

There are simple steps you can take to reduce your risk of falls:

- Stay active. Keep up regular activity to maintain balance, core muscle and leg strength.
- Use a shower or bath chair and hand bars in bathrooms.
- Remove throw rugs and floor clutter.
- Add brighter light bulbs for better lighting.
- Install hand rails in stairwells.
- Have your vision checked. Update your glasses or lenses if needed.
- Avoid going barefoot or wearing slippers. Wear shoes even when at home.
- Review your medications. Some combinations can make you dizzy or sleepy, causing you to fall.

Patients in the hospital also are at high risk for falling because they often are weak from illness, or dizzy and unsteady from medications or treatments. Getting out of bed without asking for help is a main cause of falls in the hospital.

The falls prevention program at Johns Hopkins Bayview uses hourly rounding by nurses and staff to address patients' pain, positioning and bathroom needs and reduce their likelihood of trying to get out of bed without assistance. Patients are screened each day to reassess their fall risk.

—*Karen Tong*



To learn more about how Johns Hopkins Bayview is preventing patient falls, search YouTube for this video, *Johns Hopkins Bayview Falls*.



For more health and wellness tips for older adults, visit hopkinsmedicine.org/health/healthy_aging.



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DESTINATION: *Healthy Travel*

Vacation is a time to relax and unwind. When traveling far from home, it's a good idea to make a few extra preparations to ensure a healthy trip. Here, infectious diseases expert Robin McKenzie, M.D., offers a few tips to keep in mind before your vacation.

Don't Wait to Vaccinate

Depending on where you are going, the Centers for Disease Control and Prevention (CDC) offers a list of routine, required and recommended vaccinations. Schedule an appointment with your doctor at least four to six weeks before your trip to discuss what vaccinations you need. You also may consider going to a travel clinic, such as the Johns Hopkins Travel and Tropical Medicine Clinic.

Visit cdc.gov for a list of vaccinations for your destination. For an appointment at the Johns Hopkins Travel and Tropical Medicine Clinic, call 410-955-8931.

Hydrate, But Don't Drink Tap Water

Nonalcoholic, decaffeinated beverages, including water, may help ease jet lag.

In many countries, you should drink bottled water instead of tap, even if you are staying at a five-star resort. Tap water may contain infectious organisms that can make you sick. Your doctor may prescribe an antibiotic before you travel in case you get traveler's diarrhea.

Avoid Getting Bugged

Concerns surrounding the Zika virus have increased the media attention on mosquitoes,



but insect-transmitted illness is always a concern when traveling to tropical areas. Follow the CDC's guidelines for insect precautions, which include using an Environmental Protection Agency (EPA)-registered insect repellent, such as DEET, and using permethrin-treated clothing and bed nets.

"We stress the importance of insect precautions around the clock," says Dr. McKenzie.

Keep Moving

Sitting in a car or airplane for a long period of time increases your risk of blood clots. Exercise your legs regularly and stay hydrated. If you can't get up and walk around, try extending your legs and rotating your ankles while seated.

With a little planning, you can help everyone have a fun, safe vacation. Bon voyage!

—Sara Baker

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