THE TRUCK STOPPED AT 2 A.M. SOMEWHERE IN THE SUDANESE DESERT.

MERHAWIT’S JOURNEY WAS JUST BEGINNING.

IN THE SINAI, THINGS WOULD GET MUCH WORSE.
In late February 1970, my new husband Eric and I arrived in what was then East Pakistan. We had been married just weeks before.

We had come to the northern part of what is now Bangladesh so Eric could study tropical medicine during his pediatrics residency. I volunteered to work on the children’s ward of the main hospital there.

What I witnessed shocked me. We met young patients afflicted with malnutrition, blindness, diarrheal disease and other severe illnesses. One 5-year-old’s growth was so stunted he looked like a 9-month-old. Many children lost their vision because of vitamin A deficiency.

I grew up in comfort in Montgomery County, Maryland, outside of Washington, D.C. This was a new world to me. I had never before encountered people ravaged by a lack of clean water, vaccines, health care and proper nutrition. The reality of a developing country was traumatic and terribly common. The first time we walked into the hospital, my husband saved a child’s life by adjusting his IV fluids. Leprosy plagued the area. I often saw a beggar on the train who did not have a nose.

During our stint there, I saw the full power of public health—its necessity, its importance, its potential to solve the problems of the world. Public health was already in my blood: my mother worked at the D.C. health department. Our time in East Pakistan and later in Japan made me a passionate believer in and advocate for the discipline.

Public health would come to define my career and, in fact, my life.

I’m not a scientist. I’m not a researcher or practitioner of public health, but I’ve brought the talents I do have—creativity, passion and commitment—to public health. I serve public health in a very different way than most. I contribute by raising funds to support it.

People often ask me, “How do you ask for money? Isn’t that uncomfortable?”

No. It’s an honor. Asking for money to support public health was never a problem for me. I don’t even see my job as raising money. I see it as connecting people with their dreams.

Let me give you an example. One of the things I’m most proud of is working with alumnus Stephen Moore, MD, MPH ’93, and his wife Julia to create The Moore Center for the Prevention of Child Sexual Abuse. Established in October 2012, it is the first and as yet only academic center in the world devoted to a problem that affects countless individuals. As a physician whose family has been terribly scarred by sexual abuse, Dr. Moore wanted to do something to prevent the same thing from happening to others. He knew the power of public health.

When he asked me if our School would take on this challenge, I said absolutely we would. The Bloomberg School is not afraid to shine the public health light on the most difficult issues. That’s what we do.

To do my part to make this happen, I build relationships. To do that, I travel. I’ve flown countless miles and had countless meetings during my 29 years at Johns Hopkins. I’ve traveled everywhere from Texas to Tokyo, visiting alumni and donors—many of whom ultimately have become dear friends. Right now as I begin thinking about this essay, I’m 1,200 miles away from East Baltimore, in Florida. I just finished having lunch with a lovely woman. We talked about her parents’ life and their public health work in Nigeria. We worked together to document a student scholarship in her father’s name in the Department of International Health. Next I spoke with an MPH alumnus about establishing a new MPH scholarship in his family’s name.

These gifts represent the future: They may support a student who someday will solve a basic science problem important to the eradication of malaria; or one who plays a role in establishing a policy that will save the lives of malnourished children.

Who knows?

I do know that my work over these many years has been an honor and a joy. What else can you say about a job that allows you to help make people’s dreams a reality?
FOR SEVEN YEARS, ARUNA CHANDRAN, MD, MPH ’04, WAS EVERY BIT THE GLOBETROTTING PUBLIC HEALTH PROFESSIONAL. A JUNIOR FACULTY MEMBER IN INTERNATIONAL HEALTH AND AN IOWA NATIVE, SHE HAD A DOG-EARED PASSPORT AND A PUBLIC HEALTH CAREER MEASURED IN PUBLISHED ACADEMIC PAPERS AS WELL AS FREQUENT FLYER MILES.
In Mexico and Brazil, she examined interventions designed to reduce high rates of traffic injuries and deaths. She studied bacterial meningitis in children in southern India, and in Pakistan she assessed childhood nutrition issues and strategies for mitigating household injuries. Her interest in childhood respiratory disease among Native Americans led her to Navajo and Apache reservations in the Southwest.

Then everything changed. In January 2012, her focus shifted from global to local. Instead of addressing needs around the planet, she chose to confine herself to a mere 92 square miles of it—Baltimore City. That month, she became chief of Epidemiological Services for the Baltimore City Department of Health.

“One thing I missed [while travelling] was living in or near the community I was working for,” Chandran says, explaining her reasons for making the change. “This idea of doing something for my immediate surroundings and local population was appealing.”

Two more compelling reasons to stay put (for now) are due to be born this spring: Chandran is expecting twins, a boy and girl.

A CAREER TIMES TWO

The city health department resides in a low-slung brick building on East Fayette Street in the Jonestown neighborhood. To the west is a phalanx of downtown office towers and the city hall dome. Looking eastward presents the cluster of Johns Hopkins buildings on the hilltop East Baltimore campus, site of the Bloomberg School and Hopkins Hospital. This location is symbolic for Chandran be-
cause, though she has traded red-eye flights for rush-hour traffic, she has not severed ties to Johns Hopkins. Instead, she transferred to the Department of Epidemiology where she continues to teach as an associate scientist.

Now she divides her time between the two symbolic domes in a hybrid public health position.

“I think it’s working out fantastically,” said former Baltimore City Health Commissioner Oxiris Barbot, MD, who recently took over as New York City’s first deputy commissioner of health. “The city [of Baltimore] benefits from a top-notch epidemiologist who is very comfortable both in academia and working in an environment where the demands are coming from all over the place—from constituents and elected officials.”

Chandran isn’t the first epidemiologist to divide her time between the city and the Bloomberg School. Her position, vacant for three years, had earlier been held by research scientist Caroline Fichtenberg, PhD ’07, in a joint arrangement. Johns Hopkins pays Chandran’s salary and the city reimburses the school for time she spends in the Health Department.

Chandran’s office at the Health Department is windowless, so see can’t see the Baltimore skyline or either dome from her desk. It really doesn’t matter since she spends her days looking at Baltimore through the prism of data—the numbers, stats and figures that provide a picture of this city’s overall health. Her job is to “collect, compile and analyze” such data, she says, be it the density of liquor stores, the rate of new HIV infections or the percentage of Baltimoreans lacking health insurance.

“It’s a lot of crunching numbers and interpreting those numbers and attending meetings where I share those numbers,” Chandran explains. “If you look at my life here versus the life of an academic epidemiologist it probably doesn’t look all that different except that now, I have to be ready to answer quickly and be willing to accept some uncertainty and incomplete knowledge because the city doesn’t wait for you to have perfect numbers.”

FROM CLASSROOM TO OFFICE

The seat-of-the-pants reality of serving as head epidemiologist in a big city health department is something Chandran strives to share with students through the pair of classes she teaches at the Bloomberg School: Public Health Practice, and Public Health Surveillance.

“We really have them work on problems of Baltimore City as if they were a health officer at the Health Department,” she says. “It’s a practical and applied approach versus a theoretical and research approach.”

Standing in a fourth-floor classroom before 20 Public Health Practice students who peer at her over their laptop computers and tablets, she launches into a lesson: “The Baltimore Health Department was actually founded in 1793, so it is the longest continuously running health department in the United States,” Chandran tells the future public health professionals. But she quickly leaves 18th-century Baltimore behind to engage the class in the realities of life here in the 21st century.

One of her first duties as chief epidemiologist was to create an interim update to Healthy Baltimore 2015, the city’s 50-page health policy agenda released in 2011. It outlined targeted health improvements sought by 2015 in 10 different priority areas, including better access to health care, reducing the spread of HIV and redesigning communities to prevent obesity.

These Health Department priorities are now the students’ priorities as well. Each will select one to be the focus of assignments for the rest of the class. While this is a practical course, today is one long lecture as Chandran expounds on each priority area. For instance, when discussing the city’s obesity problem she brings up the concept of “food deserts”—areas in the city without ready access to supermarkets or other sources of healthy food. Residents within them often rely on mom-and-pop places that focus on selling candy and snack food. An extensive analysis by multiple city agencies and the Johns Hopkins Center for a Livable Future determined that 1 in 5 Baltimoreans live in these deserts.

“[Researchers] actually physically walked into every corner store and marked off if they have fresh food, do they have produce, and does it look edible,” Chandran tells the class.

Chandran adroitly moves back and forth between being public health professor and in-the-trenches epidemiologist. Days later she is in her Health Department office holding a meeting on the topic of food deserts.

Joining her are Bloomberg School student intern Janani Veluchamy and health department co-worker Laura Flamm, MHS ’11, who coordinates a unique response to this issue: The Baltimarket Virtual Supermarket Program. The innovative online grocery ordering/delivery system is one strategy for reaching a 15-percent reduction in the obesity rate by 2015.

Is the program influencing eating habits and having an impact on the obesity epidemic? Finding evidence-based answers to these complex questions is one of Chandran’s jobs.

The other is to engage students in the issues.

REALITY CHECK

David Celentano, ScD ’77, MHS ’75, chair of the Bloomberg School’s Department of Epidemiology, says Chandran’s dual role brings a new richness to the classroom. “One of the things I’ve been trying to do over the last five years is get much closer to the practice of public health and move our department away from strictly an epidemiological research focus,” he says. “It turns out that over half of our graduates do not go into academia so we really need to be training half of them for life in a health department or an applied epidemiologic setting.”

Chandran prepares her students for real-world topics in the under-the-gun atmosphere that exists outside academia. She assigns her students to write policy briefs, a standard public health document she often is called on to create.

“It’s a document that they have written for other classes before, but instead of them getting two weeks to do it, we give them only 24 hours,” Chandran says. “That is the reality of how the Health Department works, where you have to turn things over very quickly.”

Chandran has been a conduit for many
Hopkins students to work for and with the Health Department through research projects and internships—from PhD students to undergraduate Public Health Studies majors. “I try to find ways to make the students really feel like they have their finger on the pulse of the Health Department,” Chandran says.

Daily, Chandran faces the health realities of Baltimore City where nearly one in four citizens lives in poverty.

Updating the Healthy Baltimore report was a “crash course” in the dynamics of this city’s health, she says. Among its dozens of goals: a 10 percent decrease in the rates of premature death from cardiovascular disease; reducing rates of gonorrhea and chlamydia in adolescents by a quarter; cutting the rate of alcohol- and drug-related hospital admissions by 10 percent; and a 15 percent increase in colon cancer screenings by adults 50 and older.

The report demonstrates that Baltimore is a city of haves and have-nots when it comes to health issues. For instance, those with personal incomes of less than $15,000 a year are more than twice as likely to be obese as city residents making $75,000. African-Americans in Baltimore are nearly three times as likely to suffer from type 2 diabetes than whites, and twice as likely to suffer from hypertension. People with college diplomas are much more likely to get certain cancer screenings.

“Health is not strictly defined by disease condition,” Chandran says. “You can’t be thinking about health without the perspective of poverty and race and ethnicity and gender and all of these things. Academic centers now are finally teaching it that way, getting students to think about a broader perspective of health and public health work.”

Chandran’s dual role affords her a balanced view of the big picture, she says. That’s exactly what she hopes to convey to Bloomberg School students as she engages them in assessing and addressing the health issues of this city, and beyond.

“There are lot of positive things happening,” she says. “Maybe the Health Department needs to do a better job of promoting the good things that are happening.”

1932: The School and the Health Department establish the Eastern Health District, a 1-square-mile research and training area that served as a site for health clinics and research studies.

1941: As head of the Health Department’s Tuberculosis Bureau, faculty member Miriam E. Brailey helps design Maryland’s TB control program and launches a TB screening program.

1951: Epidemiological studies on pediatric lead poisoning conducted by faculty member Anna Baetjer prompt Baltimore to ban the use of lead paint inside homes, the first ordinance of its kind.

1971: Department of Mental Hygiene faculty member Wallace Mandell conducts the first evaluation of federally funded drug treatment programs, including the Health Department’s methadone maintenance clinic.

1980s: Faculty members demonstrate that the provision of contraceptive services in STD clinics can reduce rates of unintended pregnancy and STDs. They also develop innovative STD surveillance and control systems.

1994: Health Commissioner and alumnus Peter L. Beilenson initiates a needle exchange program based on research from the School’s AIDS Linked to the intravenous Experience (ALIVE) Study.

2002: BCHD with the police department and Johns Hopkins Center for Gun Policy and Research launches the Youth Ammunition Initiative to prevent illegal firearm ammunition sales to youth.

2008: Faculty member Donna Strobino works with the Health Department to develop the B’More for Healthy Babies initiative to unite disparate services for pregnant women and their newborns.

—Karen Thomas
BODIES IN THE DESERT

THOUSANDS OF ASYLUM-SEEKING EритREANS, ETHIOPIANS AND SUDANESE HAVE BEEN KIDNAPPED AND TORTURED IN THE SINAI PENINSULA.

SURVIVORS SUFFER YEARS OF MENTAL ANGUISH AND LIVE A STATELESS, HAND-TO-MOUTH EXISTENCE.

THE HUMAN TRAFFICKING CHAIN MUST BE STOPPED.

STORY Tsega Gebreyesus  ILLUSTRATION Michael Glenwood
The truck stopped at 2 a.m. somewhere in the Sudanese desert.

The trafficker called to the six women in the back of the truck he was driving, telling them to send out the dark-skinned girl. "I knew he meant me," recalled Merhawit (not her real name), "The other women gave me up. You have to understand that when people are afraid for their lives, they often do not make noble decisions."

The trafficker told Merhawit, then 17, to follow him. She told him that she preferred to be killed rather than raped and that he should "pick his best weapon to do so." The trafficker grabbed a metal pipe and hit her over the head. "I felt my hands go numb and then slowly the rest of my limbs. I was drenched in a dark blood that covered my entire body. I eventually fainted on the spot in the desert. He left me alone thinking I was dead," Merhawit said.

After the man left her, one of the women risked leaving the relative safety of the truck to check on Merhawit. When she saw that Merhawit was still breathing, she returned to the others and begged them to help her carry the wounded woman to the truck. If the trafficker noticed, she would tell him that she couldn’t leave a "sister’s corpse to rot in the desert." The body, she would say, must be properly buried. The others agreed, creeping out to retrieve Merhawit and lift her into the truck. To prevent the trafficker from noticing their stowaway, they hid her under their seats, praying she would survive.

The truck rumbled on across the border into the endless desert in Egypt, where the man sold the women to traffickers who would take them to the Sinai Peninsula. The new traffickers noticed Merhawit’s condition and gave her some milk to revive her. She’ll never know if altruism or the desire to protect a newly purchased commodity motivated them.

Merhawit’s journey was just beginning. In the Sinai, things would get much worse.

Like many of the women and men I interviewed in Israel as part of my doctoral research, Merhawit is an Eritrean asylum seeker who fled her home in the hope of finding freedom and security. She left Eritrea with her sister who died of an illness while they were crossing the border into Ethiopia. She is one of countless thousands of Eritrean, Ethiopian and Sudanese people who in their flight have fallen victim to a human trafficking chain that, since 2009, has been a source of misery, abuse and torture.

Many of these victims—once their ransoms are paid—are abandoned at the Israeli border. There they find an entirely new struggle for survival. Most of those who make it into Israel to seek asylum are detained and banned from formal employment and citizenship. They lead a stateless, hand-to-mouth existence, taking work where they can and enduring the scorn and resentment of some Israelis.

Before I arrived in Tel Aviv in 2012 to research access to family planning by Eritrean asylum-seeking women in Israel, I knew almost nothing about these horrors even though like Merhawit, I am a member of the Tigrinya-speaking people from the area along the Ethiopian and Eritrean border.

I was born and raised in a tightly knit community of Eritreans and Ethiopians in the U.S. who were resettled from Sudanese refugee camps in the 1980s. Stories of war permeated my childhood. Members of my own family fled the despotic Ethiopian regime that decimated villages where people opposed it. I knew little, however, about the suffering and hardship my family and people in my community endured. I didn’t know how hard it was for them to regain the physical, psychological, economic and political security taken from them.

It was only by speaking with hundreds of asylum seekers like Merhawit that I began to better understand my own family, my own community. Although they are separated from today’s asylum seekers by time, experience and geography, both share the struggle to obtain the basic essentials for a full life. My work with asylum seekers in Israel and my new understanding of my own family’s experiences have reshaped my future and made me commit to helping asylum seekers in their struggle to maintain their resilience in the face of suffering.
A BITTER JOURNEY
Since gaining independence from Ethiopia in 1993, Eritrea has been led by an increasingly authoritarian regime with a zero-tolerance policy to opposition. In addition to forced military conscription, the regime has expelled international NGOs, closed its main institution of higher learning (the University of Asmara) and persecutes anyone who challenges government policies or does not belong to the four state-sanctioned faiths (Eritrean Orthodox, Roman Catholic, Lutheran, and Islam). Today under the military dictatorship, Eritrea is one of the most socially, politically and economically restrictive countries in the world, according to Dan Connell, PhD, an expert on Eritrea and a professor of journalism and African politics at Simmons College in Boston. As a result, more than 200,000 Eritreans have fled the country since 2004, according to Human Rights Watch estimates.

The journey for those who flee is long and often beyond human endurance. Many report going without food for up to two weeks and drinking urine to survive. Every point along the hundreds of miles of roads and open desert is dangerous because of the threats of kidnappers and bandits. Some asylum seekers pay smugglers to guide them from their homelands to refugee camps in Sudan and Ethiopia or other places of relative safety. Yet, according to European and Eritrean researchers and activists, a significant number of those who cross the Eritrean-Sudanese border fall prey to human traffickers roaming the area. Some people are intercepted while en route to or from a refugee camp, while others are abducted while working in nearby agricultural fields, living in border cities like Kassala or even within Eritrea itself.

They are then held in the Sinai while kidnappers extort money from their families—often torturing them as their loved ones listen by cell phone. The ransom demanded for each captive ranges from $25,000 to $50,000, and is largely financed by family members who sell property, beg in churches and take loans from banks and friends, said Sweden-based journalist and human rights activist Meron Estefanos. When the ransom payment arrives via an international network of collaborators, some captives are released, some are sold to another trafficker and others are simply killed. Those who survive torture in the Sinai are taken by traffickers to Egypt’s border and told to run toward Israel.

I REMEMBER ONE PATIENT WHO WATCHED EGYPTIAN SOLDIERS SHOOT AND KILL HER BEST FRIEND AND ONE OF HER CHILDREN. SHE HAD NO WORDS FOR HER PAIN.
pregnant, raped repeatedly by traffickers who watched his wife, then eight months words to describe her pain. I recall a patient friend and one of her children. She had no Egyptian soldiers shoot and kill her best each afternoon became increasingly difficult. The more I continue living in Tel Aviv. The more I met many survivors of human trafficking and torture in the Sinai.

THE PRICE THEY PAY

I began to learn about the asylum seekers’ plight as I conducted my qualitative study of the factors affecting the sexual and reproductive health of Eritrean asylum-seeking women. In addition to the interviews for my research, I volunteered as a translator at the Physicians for Human Rights–Israel Open Clinic and at the African Refugee Development Center in Tel Aviv, where I met many survivors of human trafficking and torture in the Sinai.

I translated for people who were filing legal requests for resettlement. They were demanding the release of detained victims of human trafficking or seeking services for disabled asylum seekers so they could continue living in Tel Aviv. The more I heard, the more I learned that their suffering didn’t end in the Sinai. People continued their fight to endure on a daily basis.

Every step I took getting to the clinic each afternoon became increasingly difficult. What would I hear today?

I remember one patient who watched Egyptian soldiers shoot and kill her best friend and one of her children. She had no words to describe her pain. I recall a patient who watched his wife, then eight months pregnant, raped repeatedly by traffickers while they were held in the Sinai. When they were finally released, she gave birth to a dead baby in the desert. She was hemorrhaging so they had to run towards Israel where they could seek emergency care, forcing them to leave the infant’s body behind. The husband begged the health care workers to recover his son’s body from the desert so that it could be buried.

The bullet wounds, burns and electrocution marks left on the survivors never ceased to stun me. The traffickers even electrocuted and burned people’s genitals. One patient asked me why my eyes widened every time I heard about the torture. “Ajokhee. It’s okay, halefui Tsega haftey. It has passed,” he said. I could not believe that he was setting aside his own pain in order to comfort me.

GIRMAY’S STORY

One night I was at Physicians for Human Rights–Israel, borrowing the gynecologist’s examination room as a makeshift office. A young Eritrean man came in. Girmay (not his real name) was handsome and in his mid-20s, yet he seemed haggard, fatigued beyond his years. He quietly said that he felt obligated to share his experiences if it could help call attention to horrors experienced by asylum seekers. He spoke almost without interruption for three hours.

Fleeing indefinite military conscription in Eritrea, he crossed the border into Sudan, wearing a jelebaya (a long robe typically worn in many parts of the Middle East and Africa). Things fell apart quickly. He joined other migrants who paid smugglers to take them north, but the smugglers later abandoned them in the desert. Shortly thereafter, traffickers scouring the area for new victims abducted them.

Girmay and a group of 30 asylum seekers were stuffed into bags, thrown into a truck in Kassala, Sudan and taken to the Sinai Peninsula. He tried repeatedly to escape, jumping from the truck and attempting to camouflage himself in the sand. Each time he was returned to the truck, he and the others were beaten. The last time they smashed his head with a rock and beat him until he vomited blood. During his seven months of captivity, Girmay did not see the light of day. “They asked for a $44,000 ransom to release me. I told them to do whatever they wanted to me, because I couldn’t come up with the money. ‘We don’t kill quickly,’ they told me.”

Captives were moved from location to location. Girmay and others (including infants and children) were shackled, often naked, and kept in different torture houses. They starved. They were covered in lice.

“[The traffickers] beat us so badly. All of the scars on my legs are from them walking over my body and beating me senseless. They walk on your wounds, you know,” Girmay told me. During his long months of captivity, Girmay was burned with boiling plastic and electrocuted. It was common for women’s vaginal areas and nipples to be burned. Captives were also forced to torture others, including raping their female and male counterparts. This torture would last through the night. He recounts vividly the day that two of the traffickers raped two young Eritrean women in the adjacent room. When one trafficker pulled down his pants and asked for the virgin first, Girmay and his fellow detainees clanked their shackles and screamed for them to stop. “They were taken away and raped anyway,” he said. He recalled sadly the fate of a young Ethiopian woman who was raped and tortured, taken forcibly as a trafficker’s wife, and then, after many months, dragged by her chains to a holding cell to be raped, burned and strung from the ceiling by her arms. Girmay watched countless people murdered, even after their ransoms of up to $35,000 were paid.

To find a way to pay their ransoms, the captives dialed random phone numbers abroad. Many calls were to Israel where many survivors live. In the beginning, Girmay said, he didn’t want to call his family in Eritrea; it was a holiday and he didn’t want them to spend the time mourning for him. When they refused to call anyone for help, the traffickers beat them more, dragged them by their chains and hanged them upside-down. After one man fainted, the traffickers poured water on his face to see if he was alive. When they saw that he was breathing, they told Girmay to choke him to death. “I was horrified. I did it. I pretended to choke him. Thankfully, he didn’t die,” Girmay said. When the newly arrived captives saw those living in the torture houses they were shocked. “Our skin hung from our bodies as

Asylum seekers who escape the bullets of the Egyptian border guards and make it onto Israeli soil are stopped by Israeli soldiers. They are taken to a detention facility in the Negev desert. The first wave of Eritrean asylum seekers who arrived in Israel in 2007 were held briefly and then sent in buses to Tel Aviv and expected to fend for themselves. By 2012, Israel responded to the influx of African asylum seekers by building a fence on the border with Egypt, implementing strict immigration policies and detaining asylum seekers for at least three years without trial (since changed to a minimum of one year). The official stance of the Israeli Ministry of the Interior is that the majority of Eritreans are economic migrants who do not deserve the protection and social support afforded to asylum seekers and refugees under international law.
Girmay paused for a moment as he explained that he remained in the Sinai Peninsula torture houses until, after the seven long months, his family paid $25,000. “When I was freed, I had no strength left in my body,” he said.

The traffickers released Girmay, two men and three women at night. “These people were not as abused as I… I was so weak, the wind blew me over and even the darkness of night was too bright for my eyes,” he said. The traffickers wanted to take the women separately, but Girmay and the other men refused, knowing what would happen to them. Repeatedly, and even at the end, they tried to separate the women and rape them. Finally, a trafficker was charged with taking them all to the Israeli border.

Girmay and the others crawled under the border fences. Israeli soldiers detained them, bandaged and fed them. He and the others were put in a tent. It was January, freezing cold and raining. “Despite the harsh weather I couldn’t feel because all of my nerves were no longer working, and I felt as if all of my skin cells were dead,” he said. “To this day my nerve endings feel permanently damaged.” Finally, he was taken to a hospital and eventually to Tel Aviv.

I recount these details not to shock but to share the reality of the ongoing torture that asylum seekers experience in the hands of human traffickers.

Both Girmay and Merhawit arrived in Israel before 2012, so their detention period was short. Like many asylum seekers during that time, they had significant psychological...
and physical trauma, no understanding of their surroundings and no social support. Many had nowhere to go and, until they found shelter, slept in the park near the central bus station.

After my interview with Girmay, we walked together to the bus stop. I didn’t know what to say to him, other than to express the horror that I felt. I asked him what I should say to other survivors in the future, when they shared their experiences with me. He said “tsinaat nay Lyob yi habkum” or “May the strength of Job be with you.”

“TELL EVERYONE”
Merhawit declined to talk about the month she was held by traffickers in the Sinai. I can only imagine what horrors she endured in the torture houses. Instead, she continued her narrative after she made it across the Egyptian-Israeli border.

She spoke fervently for more than an hour, and often seemed unable to register the questions that I asked her. As she shared her story with me, she cried. She told me she feels vulnerable, depressed and anxious and often dreams of her sister. Now a young mother in her early 20s living in Tel Aviv, with a husband in detention, Merhawit struggles to raise her child without support.

I did my research and translation work in Tel Aviv from November 2012 until September 2013. After my interviews and translation work ended every day, I would walk or bike the seaside route home. I always felt sad, angry and anxious. What could be done to break the trafficking chains in the Sinai and elsewhere? My feelings were heightened by the knowledge that such atrocities would not be tolerated if the victims were citizens of a nation that advocated effectively on their behalf.

Throughout my time in Israel I was constantly reminded that so much of what I have is based on timing, immigration policies and the geographic location of my birth. Luck. This struck me often when I saw asylum seekers, my age or younger, sweeping streets, working in restaurants and at construction sites. I often ran into community activists whose intellectual vitality rivaled that of people I had met in the most prestigious universities in the U.S.—and they were cleaning toilets to earn money to survive. When our eyes met and we greeted each other with “Selam,” pangs of guilt flooded me.

Memories of these encounters still keep me up many nights.

Once, while I was in Tel Aviv, I was talking with a young friend whom I will call Gebre. He told me about his hopes for the future. When he said he wanted to open a bar, I told him that it was a dangerous line of work for a teenage boy like himself. He gave me the strangest look that said, “Do you know what I have been through?” He showed me his wounds, where he had been burned in the torture houses. At work every
day he is insulted because he is African. His boss and co-workers tell him, “You are stupid and black. You are dirty.”

Gebre is a tall and thin 18-year-old, but with the persona of a grown man who is as hard as a rock. He has no choice. To survive, he has to be hard. Then he started to talk about his mother, whom he hasn’t seen in years. In that moment he looked vulnerable, like a little boy. “Before the desert, I was different. I don’t recognize myself now,” he told me.

I am back in the U.S. now, working on my dissertation, but I am not the same. I too have been transformed. The experiences that so many asylum seekers shared in interviews, in conversations, in late night phone calls broken by sobs—they are a part of me now. What do I do with these narratives?

The narratives illustrating the many barriers faced by asylum seekers clarified for me the importance of contextualizing behavior within the wider political, economic and historical framework in which people live. I have resolved to complete the study about access to reproductive health care and to disseminate my findings. I hope my work will serve as an evidence base for improving female asylum seekers’ access to reproductive health services. But I also want to do more. I must speak out about the atrocities that they continue to face. African migrants, including those seeking asylum, continue to be tortured in the Sinai today. It is now, more than ever, essential for my life and work to advance human rights. I will find a way to join researchers and activists who are working toward dismantling this human trafficking chain—and calling attention to the circumstances that force people to take risks that can lead them into the hands of traffickers.

Merhawit’s words during one of our conversations come back to me.

She exhorted me to do something, to use the skills, knowledge and resources I have to make a difference. She told me she didn’t know how to use a computer and that I did, that I could reach many more people than she ever could. This is your responsibility, she told me. Then crying, she said, these words:

“Tell everyone. Tell everyone. I am expecting you to do so. Write it online. Write it everywhere.”

Tsega Gebreyesus is a doctoral student in the Social and Behavioral Interventions Program in the Department of International Health. She wishes to thank the people who made her research possible, her friends and family for their support, friends who read and edited revisions patiently, and all of those—who despite the pain it caused them—shared their experiences wholeheartedly with her.

Photos, Misha Vallejo: Once they survive the Sinai, Eritrean and Sudanese asylum seekers survive a stateless life in Tel Aviv.
FOR KIDS IN BANGLADESH’S SIRAJGANJI DISTRICT—AND ANYWHERE, REALLY—IT’S HARD TO RESIST COOL WATER ON A HOT DAY. YET A FROLIC IN A POND OR RIVER TURNS TOO OFTEN TURNS TRAGIC. DROWNING IS THE LEADING CAUSE OF DEATH AMONG CHILDREN IN BANGLADESH, CAUSING 43 PERCENT OF DEATHS IN CHILDREN AGES 1–4.
Each year, drowning claims the lives of 12,000 children in Bangladesh—the equivalent of 32 deaths every day. Globally, drowning is the third leading cause of unintentional death, with approximately 359,000 fatalities a year.

Bloomberg Philanthropies is taking steps to prevent needless drowning deaths among children, starting with a $10.5 million initiative in Bangladesh to address two major contributors to child drowning: lack of supervision and easy access to water.

The Johns Hopkins International Injury Research Unit (JH-IIRU) is leading the project, which will evaluate the effectiveness of community day care centers and locally manufactured playpens in reducing drowning deaths. The idea is to provide child supervision during parents’ working hours and restrict child mobility in a safe, affordable manner. The project also includes family and community education programs.

“It is imperative that we explore the feasibility of appropriate and cost-effective drowning prevention interventions for child survival,” said Adnan A. Hyder, MD, PhD ’98, MPH ’93, director of JH-IIRU (www.jhsph.edu/IIRU).

Researchers plan to monitor 80,000 children between ages 1 and 4 over two years.

Hyder is also co-authoring a WHO global report supported by Bloomberg Philanthropies on effective drowning-prevention strategies.

—Jackie Powder
HOW AN EVENING CONVERSATION ON THE ACELA TRAIN TO BALTIMORE AND ALMOST A DECADE OF RESEARCH ARE RESHAPING THE SCIENCE OF PROSTATE CANCER
On an otherwise nondescript evening in 2005, a team of three investigators huddled in the quiet car of an Acela train headed back to Baltimore. They were on the trail of an elusive foe, an important clue in the deaths of countless men across the world. These were not police detectives, however, but prostate cancer researchers from Johns Hopkins.

On this night, their muffled discussion veered in a novel direction that seemed particularly promising. Soon, whispers rose to an excited chitter about a new hypothesis. Because the quiet car is an inviolable sanctum for business travelers, it wasn’t long before a conductor emerged in the half-light to squelch the spirited discussion.

Eight years later the outburst on the Acela would lead to a notable discovery in prostate cancer research: a prototype test to predict aggressiveness of the disease.

The resulting study, published in October 2013 in the journal Cancer Discovery, would implicate otherwise-harmless DNA fillers known as telomeres as key factors in predicting prostate cancer mortality in men with this cancer.

**A TALE OF TWO OUTCOMES**

From a public health perspective, the costs of prostate cancer are profound.

Aside from nonmelanoma skin cancer, prostate cancer is the most common cancer among men in the U.S., according to the CDC, and one of the leading causes of cancer death among men. It accounted for 28,560 deaths nationwide in 2010. One in seven American men will be diagnosed with prostate cancer in their lifetimes.

Every one of those diagnoses will hit like a sledgehammer.

A typical course of action involves surgery. In the past, prostate cancer surgery was bloody and complex. Pioneering work by Patrick C. Walsh, MD, at Johns Hopkins revolutionized this surgery, substantially reducing complications. However despite these improvements, and the advent of less invasive laparoscopic and robotically assisted techniques, potential side effects still include incontinence and impotence. A small number of surgeries result in patient death.

“These are serious quality-of-life issues. Prostatectomy is not something you want to go through if you don’t have to,” says Alan Meeker, PhD, an associate professor of Pathology at the Johns Hopkins School of Medicine.

Meeker and Elizabeth Platz, ScD, MPH, a professor of Epidemiology at the Bloomberg School, were the lead investigators on a perplexing cold case that had stumped medical professionals for years: Two men can have prostate cancers that look identical even to expert pathologists, but result in wildly divergent outcomes.

Pathologists review prostate cancers for their characteristics including size (volume) and the Gleason sum, which is based on the degree to which the cancer cells differ in appearance and growth pattern from normal cells. A treating physician can then consider these indicators in combination with the man’s age and the stage of his cancer along with the PSA test, which measures prostate-specific antigen (PSA) in the bloodstream, to estimate the man’s prognosis.

“Take two patients who are the same on paper. Their Gleason score is the same. The volume of the tumor is the same. They’re the same age. They have the same PSA level. And yet, one patient will be dead in seven years, and the other will live two decades and die of old age,” Meeker says flatly.

Balanced against this is the reality that most prostate cancers grow slowly. Current research shows that many men live with it for years and later die of something else.

“Most patients, understandably, want the cancer out. Recent data suggest, however, that for some men surgery can wait or is not needed at all. The trick is to be able to know which men,” says Angelo De Marzo, MD, PhD, a professor and prostate cancer pathologist at the Johns Hopkins School of Medicine and the third investigator on the Acela that night.

From the outset, the trio was looking to address shortcomings of the currently used prognostic tools by finding a biological marker for the severity of this cancer. Like a fingerprint to a homicide detective, such a biomarker would help identify prostate cancer patients with aggressive cancers who require immediate removal of the prostate and those suffering less threatening forms of the disease who might forgo treatment in favor of disease surveillance.

“We thought telomeres might be that biomarker and we got a little carried away on the Acela that night,” Platz says.

Eventually, the team hopes to apply the test they are developing to men whose cancers are detected at a very early stage by screening. “Some of these guys may have a cancer that probably shouldn’t even be picked up, but if it is, now they face the difficult decision about whether to be treated, and if so, the type of treatment,” Meeker says.

“Tissue-based markers like this have the potential to greatly improve treatment and decision-making in men with prostate cancer. This study is an important advance,” says Jerry W. Shay, PhD, an expert in telomeres and cancer at the University of Texas Southwestern Medical Center. Dr. Shay was not involved in the research but penned a commentary accompanying the study in Cancer Discovery.

**TELLTALE TELOMERES**

Telomeres cap the ends of human chromosomes, like the plastic aglets at the end of a pair of shoelaces. They are part of the DNA structure, but their role is protective; they prevent the loss of genes during cell replication and keep the ends of chromosomes from fraying.

In healthy cells, each time a cell divides, small bits of DNA naturally get lost from the ends of the chromosomes. Fortunately, those ends are the telomeres, which do not contain genes. As cells replicate over the course of their lives, telomeres naturally grow shorter, bit by bit. Oxidation from smoking and other causes can also lead to shortened telomeres.

Whether it’s due to aging or oxidation, telomere shortening plays a key role in genetic instability—whole chromosomes spliced end-to-end, cells missing entire chromosomes and others with chromosomes severed at odd places where mother and daughter cells engaged in a tug-of-war over a fused chromosome. Such abnormalities are at the heart of many cancers, not just in the prostate.
Human cells have built-in mechanisms to fight cancer. Some shut down their own reproductive ability as they age, a process called senescence. Others kill themselves when they grow too old, a form of genetic suicide known as apoptosis. Malignancies somehow bypass these protective mechanisms, allowing genetically damaged cells to replicate until things go awry.

In prostate cancer, extensive telomere shortening had been noticed in comparisons with nearby healthy cells. Meeker, De Marzo and Platz were aware of this back in 2005, but the prostate cancer field as a whole had largely ignored telomeres as a potential biomarker. The team’s hypothesis, hatched on the train, was simple: If shortened telomeres play a role in cancer, tumors with the shortest telomeres would be the most chromosomally unstable, and thus the most aggressive cancers.

“We had been working on telomeres for years for different reasons and we thought we should be testing whether telomere length could tell us more about the prognosis of prostate cancer,” Platz explains.

At the time, the team lacked a way to measure the length of telomeres in individual prostate cancer cells, in nearby noncancerous cells including stromal cells, and in healthy appearing epithelial and stromal cells far removed from the tumor.

These three cell compartments make up what is now understood as the cancer ecosystem. Once controversial in the cancer research community because it incorporated otherwise normal-appearing cells outside the tumor, this view has gained wide acceptance. The ecosystem approach—a fundamentally new way of looking at cancer—has opened intriguing lines of scientific inquiry.

Meeker, a telomere biologist by training, developed the method for telomere measuring with De Marzo. Adapting a well-known fluorescent staining technique known as FISH, he tags specific sections of DNA—in this case the telomeres—with fluorescent labels. With proper lighting, the stained telomeres fluoresce bright red when viewed under a microscope. The ember-like glow is an unmistakable indication of their presence and, more importantly, their length. Longer telomeres naturally attract more fluorescent label. Measuring telomeres, then, is as “easy” as measuring the intensity of the glow—brighter glow, longer telomere and vice versa.

The real beauty of the method, however, is not that Meeker can stain telomeres, nor even that the stain could be quantified; these features were well known to science. The big advance is being able to measure telomere length, cell by cell, in patient tissue samples. Earlier systems were able only to resolve broad average telomere length from a mash of ground up cancer and non-cancer cells—somewhat helpful but hardly revolutionary.

Cell-specific resolution allows the team to measure telomere length by type
of cell. They can measure telomeres not only in cancer cells, but also in stromal and epithelial cells, the nearby, noncancerous cells—the all-important ecosystem. This capability was vital to the study's success.

At this point, scientifically speaking, the research team was halfway home. They had a way to measure the telomeres. Now they needed telomeres to measure. Fortunately, Platz knew of the perfect resource that would allow them to test their hypothesis.

Harvard University, where Platz trained years ago, maintains a cohort known as the Health Professionals Follow-up Study, which was designed to study diet, lifestyle and chronic disease risk. Harvard identifies and stores tissues from participants in that cohort diagnosed with prostate cancer and meticulously tracks each man's medical history over time, noting how and when they die, among many other health-related factors. The study reaches back to the mid-1980s and includes some 50,000 men. Not all of them have prostate cancer, of course, but enough do for the team to conduct a meaningful study.

Using this cohort, the team—now expanded to include their Harvard colleagues—in effect traveled back in time, studying real tissues from real patients to learn which men subsequently saw their cancers return, how many died of those cancers, exactly how long after recurrence these men died and how many died of causes other than cancer.

Out of this rich vein, their Harvard colleagues were able to identify a group of 596 men who had undergone prostatectomies, some dating back 20 years or more. The men averaged 65.3 years of age at the time of surgery.

In addition to Meeker's cell-by-cell measuring technique, these other pieces—the population, study design and tissue—were paramount to success. The researcher's enemies are bias and chance.

Bias can take many forms, Platz says. For example, “observer bias” occurs when the data collector, aware of the hypothesis, consciously or unconsciously skews the data in favor of the objective. Chance, on the other hand, is a different sort of beast.

“Sometimes you pick the right study cohort and what look like promising results just don’t hold up,” Platz says. “My job as an epidemiologist is to preempt and root out the bias and chance.”

DERAILED

Vital as the cohort's tissue samples and measuring technique were, they hardly ensured the team's success. The tissue samples weren't yet in a format suitable for efficient measurement, nor had the measurement technique ever been used before on this scale and for this purpose. The going proved slow. In 2005, each step of the telomere imaging and data collection had to be done manually.
“We would stain the samples, and the pathology research fellow would identify the cell types and circle each one by hand on an image displayed on a touch screen. Then the computer could count the pixels in each sample to get the intensity of the fluorescence,” Meeker explains. “It was meticulous and painstaking work.”

After a year of measuring telomeres in 40,000 or so cells, the team completed the exhausting data collection—only to discover their hypothesis, apparently, was dead wrong.

“We thought shorter telomeres in the cancer cells would be associated with poor outcome, but that’s not what the data showed,” Platz says. “There was no association! None. Zero.”

All that time, all that work, seemingly down the drain. “We were very disappointed,” she recalls.

Still, the scientists persevered. The cell-by-cell resolution of Meeker’s technique allowed them to look beyond the cancer cells into other parts of the tumor microenvironment.

When they scrutinized the non-cancerous stroma, they were surprised to find that shortness in telomeres was strongly associated with risk of progression and death from prostate cancer.

During a follow-up brainstorming session in Platz’s office, Christopher Heaphy, PhD, (then a postdoc and soon-to-be first author of the paper published from this work), remarked about how genomic variability in nature is critical to species adaptation, helping species to endure disease, famine, drought and more.

“It was an ‘A-ha moment,’” recalls Platz.

“The genetic variability might possibly help a population of cancer cells in the same way it helps a population of plants and animals in the wild. When a new threat arises, some cells die, but others survive and are stronger for it, helping the line carry on.”

Having changed tracks, they were suddenly back on track. When Platz segmented the men based on variability in telomere length from cancer cell to cancer cell, a clear pattern emerged. Those whose prostate cancers had the greatest variability in telomere length among the cancer cells were the most likely to progress and die of their disease.

All of the men had abnormally short cancer cell telomeres, but those with the worst outcomes were those with more cell-to-cell variability in telomere length among the cancer cells. Perhaps in cancer, like in other biological systems, genetic variability increases adaptability and the likelihood that the population survives and evolves new abilities. These can include aggressive behaviors like the capability to invade surrounding blood vessels and spread to other areas of the body—the lethal process known as metastasis.

During their next meeting, De Marzo suggested looking at telomere length variability in the cancer together with telomere length in the stroma.

“That’s when this phenomenal result appeared,” Platz says.

Greater telomere length variability in the cancer, when paired with shorter telomeres in the stroma, is the very worst combination to have.

At the other end of the spectrum, less variable telomeres in the cancer combined with longer telomeres in the stroma is the best type of cancer. “If one can call any cancer good,” she hedges.

Men with the more-variable/shorter combination had eight times the risk of progressing and 14 times the risk of dying of their prostate cancer. Of the men with the less-variable/longer combination, one died of prostate cancer when, statistically, about six deaths would be expected. That patient lived more than 16 years after first diagnosis—twice as long as men with the more variable/shorter combination.

The numbers were dramatic for what the team now refers to as the “telomere biomarker,” showing clear evidence that it has the potential to distinguish between men in need of aggressive treatment, and men who can forgo treatment altogether.

“Among all of their findings, the most stunning outcome of the team’s research was the clue as to how the cancer microenvironment predicts the cancer’s behavior,” says William Nelson, MD, PhD, director of the Sidney Kimmel Comprehensive Cancer Center at Hopkins, who did not take part in the research. “The cancer-associated stroma is a co-conspirator in the crime. Shortened telomeres are simply an indication of damage. We now have a new place to look to intercept the process of cancer,” Nelson says.

DOWN THE LINE

Though the Platz-De Marzo-Meeker team has ascertained the suspect, more sleuthing remains.

Their first priority: validating the findings. Eventually, an important goal will be to establish thresholds for the telomere biomarker by which to evaluate various tumors to recommend surveillance over treatment. The team is currently developing technologies to automate the evaluation process—necessary if a widely used clinical test is to materialize.

“This is a provocative study that adds to our predictive capability and could result in significantly less-aggressive therapy for men at low risk,” says cancer researcher Shay.

Platz reflects on the sheer scale of team effort necessary to make this discovery. The study included investigators from two major institutions working in several disciplines—biological, clinical and population sciences. It also took essential resources in the form of many federal grants, available participant data, and tissue and other existing infrastructure.

Not least, it took time. Almost a decade passed from the day on the Acela to final publication.

The team now has momentum, and is emboldened by broader implications of their discovery. Their findings about telomeres and prostate cancer prognosis may also apply to other cancers.

The economics of their discovery is striking. Fewer unneeded prostatectomies could result in big health care savings. At an average cost of $19,214, prostatectomies cost some $2.6 billion annually, according to the CDC.

“From the perspective of optimizing population health and best using limited health care dollars toward that goal, the development of better prognostic tools for the most common cancers in men is imperative,” Platz says.