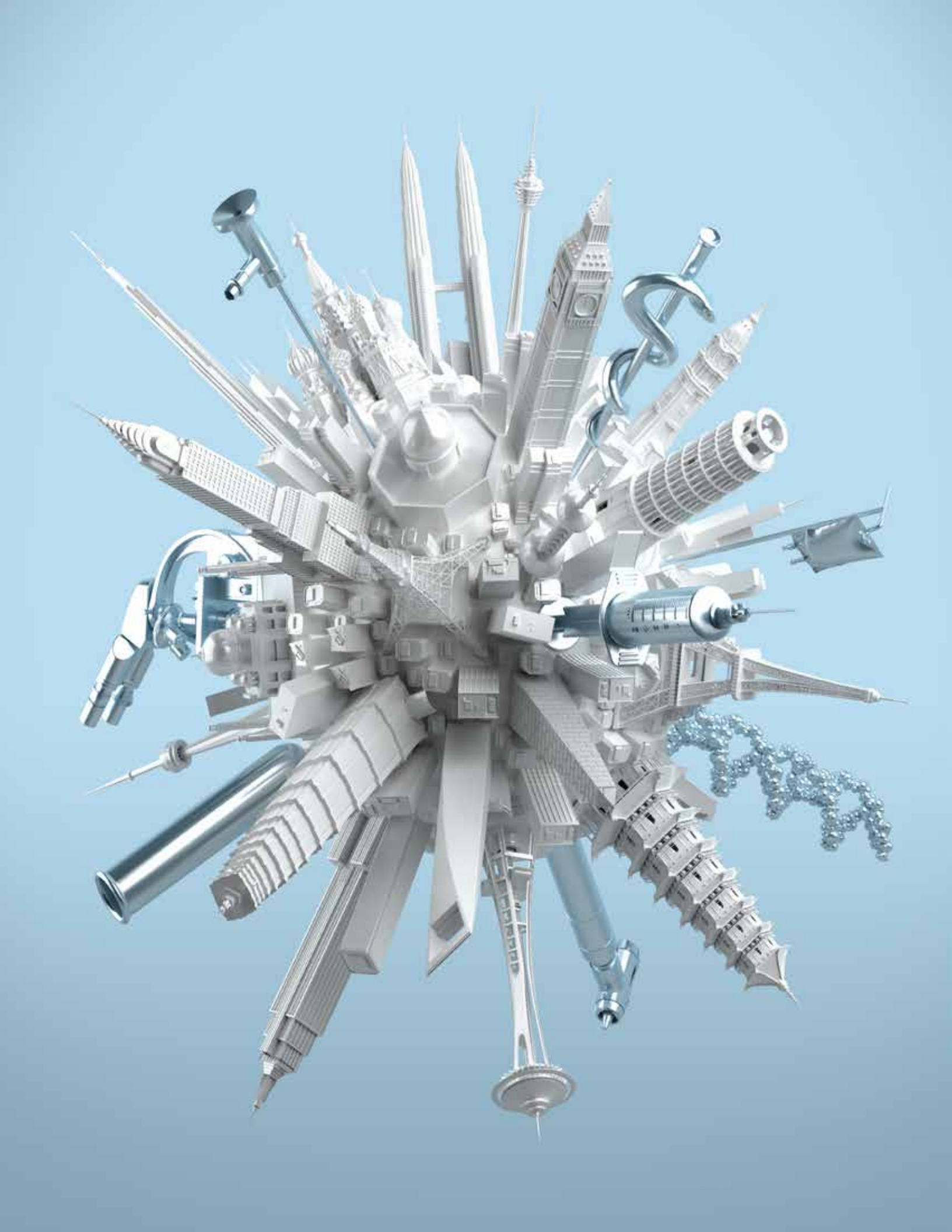
It Takes A Planet

The (Human) Race Against Cancer

In towering, glittering cities, it lurks. • Over sleepy mountain villages, tiny fishing towns, and sprawling suburbs, it looms. • Ignoring borders and barriers, it seeps into every country, settling, disrupting, destroying. • Syöpä. • καρκίνος. • Cancer. • And yet, for every move cancer makes, there is something else lingering, floating, flickering. • Найдвар. • Berharap. • Hope. • Devastated by loss but driven by hope, people unite in an effort to develop new therapies and deliver stellar, compassionate care. No one country, no one laboratory, no one person, holds the solution. • Juntos, buscan respuestas. • Pamoja, wanatafuta m ajibu. • Together, they look for answers.

BY PAIGE ALLEN

PHOTO ILLUSTRATIONS BY SPOOKY POOKY



Around the World:

Solving the Same Problem from Different Angles

There were no other options. There was nothing else that could be done. At 40 years old, he was dying.

In his home outside Shanghai, China, doctors told *Mu Sang that despite having his left kidney removed three months earlier, his renal clear cell carcinoma had spread to his lungs, bones, and liver.

Though there were several targeted drugs that could treat Sang's cancer, access to them was limited throughout China, especially outside the bigger cities.

Eventually, doctors put him on a drug similar to ones available in China's big cities and outside its borders.

Desperate, Sang began to look for a clinical trial that might help. But in China this proved difficult.

"Overpopulation, lack of knowledge about cutting-edge trials, and long approval times prevent patients from receiving the care they so desperately need," Sang said. "I knew my best chance of survival was to come to the United States."

Through a cousin who worked in the pharmaceutical field and lived in Princeton, New Jersey, he found his way to a trial managed by Elizabeth Plimack, chief of genitourinary medical oncology at Fox Chase Cancer Center.

Immediately, he noticed differences between the hospitals and cancer care in the U.S. and China. Due to China's large population, demand for physicians is high and patients struggle with excessive wait times before getting in to see a doctor.

"In China I felt like I had to be an Olympic gymnast in order to tolerate the wait time and commute in between appointments," Sang said. "I felt like I had to compete with other patients in order to be seen by a doctor."

Sang's experience is not unique. Just as cancer rates vary around the world, so do the ways in which it is treated, detected, talked about, and researched. Geography influences individual cancer risk, as well as prognosis, and even whether one's cancer is discovered at all.

Visiting China in July, radiation oncologist Mark Sobczak, medical oncologist Igor Astsaturov, and surgical oncologist Jeffrey Farma observed high quality care hindered by some lack of coordination among physicians.

"With the multi-disciplinary approach in cancer care, medical oncologists work with surgeons and radiation oncologists," Astsaturov said. "It's totally natural for us in the United States. In China, the care is quite fragmented."

Creating an environment that welcomes collaboration is instrumental in helping the nation improve its cancer care, said Sobczak.

"It's an alien concept, sharing patients and responsibility," he said. "It's the single greatest deterrent to moving care forward."

The embrace of traditional Chinese medicines, which still capture the attention of patients over proven treatments, further complicates cancer care.

"Traditional Chinese medicine and herbal medicine still has strong roots there," said Sobczak. "It's a competing effect there while here, patients may pursue habits such as clean eating, yoga, or meditation, which can improve a patient's quality of life in conjunction with surgery, chemotherapy, and radiation."

Standardizing guidelines and reporting metrics will also help China improve its cancer care, said Farma.

* Name has been changed for privacy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"They have a lot of the tools but there are simple things we could collaborate on to improve care, such as relying on National Comprehensive Cancer Network guidelines to dictate care and developing a system of reporting metrics. It would be a great benefit."

Differences in Care

For clinicians and researchers who trained outside the U.S., navigating differences in health systems and cancer care, as well as culture, can be challenging.

In Russia, physicians tend to be more authoritative, making decisions for their patients, said Astsaturov, who received his medical degree and PhD in Russia before moving to North America for his postdoctoral fellowship and residency. Additionally, family members may seek a physician's help in concealing a diagnosis from the patient, for fear of upsetting them.

"I've grown to appreciate patient autonomy and as a physician become very cognizant of my patients making their choices and me being in an advisory role," Astsaturov said. "We recognize that patients have the absolute right to make their own decisions."

Physicians are also sometimes forced to shift how they approach medicine to suit the culture of the country they're working in.

"The tempo in the United States is very different," said Stefan Barta, a medical oncologist at Fox Chase who received his medical degree in Germany and completed residency training in the United Kingdom. "Here, you get a battery of tests and everything happens in the same day or two. Malpractice claims are very common in the U.S. and physicians often practice defensive medicine, which results in higher health care costs."

By ordering a range of tests – even some that may be irrelevant – physicians seek to ensure they've covered every possibility. But the extra tests, in addition to being costly, can create unnecessary problems. A test may reveal a lung nodule, for example, causing a patient to undergo the stress of additional tests and the fear of an impending diagnosis, only for the nodule to be scar tissue.

"As a medical student in Germany and as a resident in the U.K., I was taught to hone my physical examination skills and to make a diagnosis based on symptoms and history," Barta said. "In the U.S., there is maybe too much of a reliance on tests and the skill of physical examination is under emphasized."

While America's medical culture caused Barta to change how he practices medicine, there are some differences he appreciates, such as the latitude to recommend treatments he feels will give his patients the best chance of survival.

Richard Greenberg, a surgical oncologist at Fox Chase, has seen cancer care in Russia evolve over the course of nearly 20 years and many trips.

Much of the cancer care in Russia is centralized, with patients traveling hundreds of miles to stay in large cancer centers in cities like Moscow for the duration of their treatments. New technologies lag behind the U.S. but have made great advances in recent years, Greenberg said.

DANIELA DI MARCANTONIO

POSTDOCTORAL FELLOW

BLOOD CELL DEVELOPMENT AND FUNCTION PROGRAM AT FOX CHASE

JOSEPH V. LABOLITO

The U.S. is considered the best place to do scientific research and I wanted to understand what sets it apart.

I came on a one-year scholarship while completing my PhD and was asked to stay to complete my postdoctoral fellowship. The language barrier was so hard at first and I appreciated how patient everyone was with me. After a while, communication became easier.

Adapting to a different academic system was also challenging. The grant system in the United States is different from Italy – it is more competitive but more clear – and in general, there are more opportunities for people to advance their careers.

I'm not sure if I want to stay or go back to Italy. For my personal life, I would like to go home. My family is very supportive, and they understand the valuable experience I am getting here. From a career perspective, I prefer the American system. But there are other possibilities. I may be able to work in other European countries, like Germany, and be closer to home while still doing the research I want.

VIVEK MODI

POSTDOCTORAL FELLOW

MOLECULAR THERAPEUTICS PROGRAM AT FOX CHASE

I first met Roland Dunbrack when he visited India. I was in the last year of my PhD program and I knew I wanted to do my postdoctoral fellowship in the United States, which is home to universities and hospitals that many in academia regard as the best places in the world to do science.

I knew of Roland's international reputation as a computational biologist and I knew working in his lab would give me experience in the field that I couldn't get anywhere else. From a personal standpoint, I knew I would enjoy traveling and seeing the world.

One of the best parts of living here is becoming immersed in the cosmopolitan culture the U.S. offers and meeting people who have come from different countries. I have met people from many different backgrounds, and we've gotten to know each other and understand each other's opinions.

When I first arrived in the U.S. three and a half years ago, I felt sure I would return to India to start my career. Now, I'm not so sure. The science and the career I could have here make me contemplate staying in the U.S. But there are family reasons to go back. And while I've been very happy during my time here, I've always felt a sense of being uprooted.

"Screening is something new to them," he said. But where clinical practice is concerned, he said, "They really do everything that we do and they do it well."

Geography can influence treatment options in this kind of centralized system. In more remote areas physicians emphasize active surveillance to monitor patients with prostate cancer, Greenberg said.

With active surveillance, doctors may recommend postponing therapy when low-risk cancer is confined to the prostate, and can be closely monitored with PSA tests, physical exams, and serial biopsies. Patients receive treatment if the cancer shows signs of spreading or growing. In areas where patients would have to travel hundreds of miles from their home to receive treatment, this practice has caught the attention of providers.

"In Minsk, they were very interested in screening and early diagnosis," he said. "They're very in tune with active surveillance. They have to rely on that because many of their people live so far away."

Diversity of Thought

With such great differences in cancer care, harnessing the diversity of scientists from around the world is important in furthering the research done at institutions like Fox Chase, said Glenn Rall, director of the postdoctoral program at Fox Chase.

"We are a stronger, better institution because of the diversity of the types of people on the teams here, and that diversity includes age, race, orientation, and socio-economic status," he said. "Your own experience informs how you solve problems and science is nothing if not solving problems."

Over the decades, scientists collaborating across international borders have made historic discoveries.

In 1967, Fox Chase's Baruch Blumberg discovered the Hepatitis B virus in the blood of an Australian aboriginal. On trips to Africa and Asia, Blumberg and his team amassed evidence showing the link between primary liver cancer and Hepatitis B, leading to the development of a vaccine.

In the 1970s, Avram Hershko and Aaron Ciechanover, visiting scientists from the Technion-Israel Institute of Technology in Haifa, Israel, worked in the lab of Irwin A. "Ernie" Rose at Fox Chase. Decades later in 2004, the trio won the Nobel Prize for their research on the regulatory protein ubiquitin.

More recently, the immunotherapy drug pembrolizumab came about from the efforts of Massachusetts-based scientist Gregory Craven and Dutch scientists Hans van Eenennaam and John Dulas. The drug has been remarkably effective for many patients, including Mu Sang. After two years in the clinical trial at Fox Chase that tested the combination of pembrolizumab and the chemotherapy drug Axitinib, his body grew stronger as his tumors disappeared.

In 2017, he completed his last infusion before switching to pills to control the cancer. After six months of observation, he will be able to return to his home and his family for good.

He was dying.

Now, he is living. ◆

JOSEPH V. LABOLITO

Cross-Cultural Collaborations:

Navigating International Medicine

Exploring famous cities, visiting celebrated landmarks, and making memories to last a lifetime are the hallmarks of tourism. But for millions of "medical tourists" crossing borders for healthcare, there are PET scans instead of pyramids, and the exam room replaces the Eiffel Tower.

Patients Beyond Borders, a company that publishes an annual guide to medical travel, estimated that in 2016, 14 million people traveled internationally for medical care, including 1.4 million Americans. The company estimates that the market for medical tourism is worth up to $72 billion, and it continues to grow.

To market the capabilities of the Philadelphia area to attract patients seeking care from around the world, several Philadelphia hospitals – including Fox Chase Cancer Center and Temple University Hospital – founded Philadelphia International Medicine (PIM) in the late-1990s. PIM was created by the hospitals to market Philadelphia as a destination for healthcare services and organize the infrastructure to manage the complexities of coordinating care for international patients, said Alan Howald, associate vice president of business and network development for Temple University Health System.

At Fox Chase, managing international patient care and identifying unique opportunities for global collaborations is done through Fox Chase International.

Non-resident international patients can request a remote second opinion or receive complete cancer treatment at Fox Chase. Participation in clinical trials is frequently one of the main reasons why international patients seek care at centers like Fox Chase, said Johana Vanegas, director of international patient access at Fox Chase.

Fox Chase International staff serves as a liaison between the international patients and the administrative, clinical, and financial teams at Fox Chase.

Vanegas is on call along with PIM to assist patients with any kind of emergencies they may experience during their stay.

"We try to make a difficult situation easier by doing anything we can to help," she said.

Fox Chase has long played a role in developing global relationships and helping advance cancer care abroad.

"Cancer is our enemy, not people," said Mark Sobczak, a radiation oncologist at Fox Chase who has worked internationally. "Our concern for cancer care transcends borders."

Exporting Success

Paul Engstrom, a medical oncologist at Fox Chase, has been actively involved in smoking cessation efforts around the globe. For three years, he participated in a joint research project that studied smokers in Russia that was partially funded by the National Institutes of Health.

Engstrom was instrumental in encouraging Russia to adopt some of the most stringent non-smoking policies in the world. Smoking is banned in airports, restaurants, airplanes, and other public spaces. Cigarette advertisements around Moscow were also taken down.

"We showed the cause and effect of smoking and how it relates to cancer, emphysema, and lung disease," Engstrom said. "While rates of smoking were high and so were lung cancer cases, people didn't see smoking as the problem."

Over the years, there has been greater collaboration internationally and new treatments, such as clinical trials, are developed with an international perspective in order to treat a wider patient population, Engstrom said.

"It's important that treatments have an international perspective," he said. "It's not appropriate to have a treatment at only one institution. Effective treatments should be disseminated widely. The opportunities for collaboration go across countries and borders."

Among Fox Chase's federally funded global activities are tobacco prevention, medical diplomacy, and scientific research, Howald said.

"As an NCI-designated cancer center, we have a responsibility to educate the public," he said. "We have an identity as a global health partner and that allows us to fulfill our mission."

Kurt Schwinghammer, chief business development officer, and David Weinberg, chief medical officer, of Fox Chase International, respectively are tasked with developing international patient care and identifying unique projects around the globe.

Weinberg and Schwinghammer strive to build Fox Chase's reputation globally and improve the international scientific community as a whole.

Among several projects, they are developing biosample repositories in two cities in India and China, to provide a reliable source of tumor, blood, and normal tissue samples to researchers in those countries.

"We're working to build repositories abroad that are of an international standard so that researchers are confident in the sample quality," Schwinghammer said."

Additionally, the department consults with hospitals abroad to help them determine what size hospital is needed, staffing ratios, disease burden, and equipment needs.

"We don't claim to have all the answers or know how specific projects should unfold," Weinberg said. "We don't believe the solution is transporting Fox Chase Cancer Center to China or to India. Everyone involved needs to recognize the prolific differences between health care delivery in the U.S. and in most of the rest of the world. If you don't recognize those differences you're likely to fail."

Building and maintaining relationships around the world can be a challenge. In addition to being mindful of cultural differences, there are political complications – such as sudden changes in government positions – to contend with.

"It doesn't operate in a vacuum," Weinberg said. "It's magnified because the changes happen faster and can be linked to events and trends that are far above health care."

The pair has learned to have multiple projects in the works and take their time identifying the right opportunities.

JOAN FONT-BURGADA

ASSISTANT PROFESSOR

CANCER BIOLOGY PROGRAM AT FOX CHASE

JOSEPH V. LABOLITO

In Spain 25 years ago, there were more limited opportunities in science. It was one of the reasons that a postdoctoral fellowship abroad was always on my mind.

Now, students can stay in the country. It's good to get out, get other experiences, and it's highly valued. But it's possible to stay and have a research career, while that used to be almost impossible.

When I arrived in the U.S. I was caught off guard by the dramatic shift in lifestyle – namely the inability to walk everywhere, like in Europe. I thought Spain and the U.S. were much more similar than they really are.

Despite differences in culture and lifestyle, I found solace in the lab, where the science remained the same and colleagues embraced my different experiences. Diversity of backgrounds helps to open the mind and influences how we work together to accommodate different views.

Funding for science is quite different in the U.S. as well. In the U.S., grant money goes to covering salaries as well as research, while in Spain, it is dedicated mainly to hard research costs. In Spain, scientists can get more done with fewer grants.

> "Countries are acknowledging the need for improvements in health care for their citizens. In some cases, a rising middle class is causing increased demand that the government is trying to figure out how to meet."
>
> — DAVID WEINBERG
> CHIEF MEDIAL OFFICER AT
> FOX CHASE INTERNATIONAL

"We have many hooks in the water at any given time," Schwinghammer said. "When one thing doesn't pan out, we have other potential opportunities. Culturally, as Westerners, we like to get things done today but that's not how it works internationally."

Weinberg said he likes the variety of approaches they get to develop for different situations.

"Countries are acknowledging the need for improvements in health care for their citizens," he said. "In some cases, a rising middle class is causing increased demand that the government is trying to figure out how to meet."

The Growth of Globalism

Rapid advances in communication technology have accelerated international collaboration among scientists and healthcare workers, but cross-border cooperation dates back to well before the Internet allowed for instant connections.

Decades ago, Alton Sutnick developed Fox Chase Cancer Center's first cancer control program. When the National Cancer Institute decided to develop its national cancer control program, Sutnick was asked to assist. He was later tapped by the World Health Organization to develop a cancer control program for the government of India.

Over the course of his career at Fox Chase and elsewhere, Sutnick gradually built connections in Europe, Asia, and South America. In Moldova, he helped expand access to family medicine, incorporating it into medical education and establishing a residency in family medicine based on U.S. models. As a result, family medicine centers began to emerge around the country, allowing citizens to access the health care system.

"I like to look at ways to help the most people," Sutnick said. "When developing family medicine in Moldova, we were able to change the system. When the system changes, it helps everyone. We were able to help 5 million people with one project."

After retiring in 2006, Sutnick started consulting on international medical education, working with universities, ministries of health, and ministries of education around the world. His path led him back to an ongoing relationship with Fox Chase, first through his connections in Russia, and then by creating a relationship with Ben-Gurion University in Israel. This relationship has flourished, yielding many productive collaborations, joint publications, and research grants.

Glenn Rall, associate chief academic officer at Fox Chase, and Jacob Gopas, a researcher at Ben-Gurion University, have developed a friendship that transcends their shared work and the miles between them. The duo plan Skype calls that work with the seven-hour time difference, and spend just as much time talking about their families as they do their science, and shared projects.

"Beyond what benefits it brings to the scientific perspective, it makes the world feel more like your neighborhood, and it has personalized the internationalism of science," Rall said. "Jacob and his family are part of my orbit now and I care about what happens to them. When I hear bad news about Israel, I wonder about Jacob and reach out to him to make sure he's okay."

Since cancer control is complex and multi-faceted, global collaborations take many different shapes, and lead in all directions.

In addition to his tobacco control work in Russia, Engstrom has lectured in China. Richard Greenberg, a surgical oncologist at Fox Chase, has traveled to Russia several times to operate on patients and lecture on urology. In July, three other Fox Chase clinicians – radiation oncologist Sobczak, medical oncologist Igor Astsaturov, and surgical oncologist Jeffrey Farma, traveled to China to give lectures, see patients, and consult with Chinese physicians on some of their most complicated cases.

Working with physicians around the world is one of the greatest ways to affect change, Farma said, because they in turn can educate their network of patients.

"I think it's great for the institution and for improving cancer care around the world," Farma said. "It's really important to have a global perspective in cancer care. To participate in these opportunities is very good for Fox Chase and individually as physicians to broaden our reach."

These partnerships help develop relationships between physicians separated by thousands of miles but united by a common goal.

"We were able to connect, not just white coat to white coat, but person to person," Sobczak said. "Here, we are allies. ◇

DNA, Disposition, and Disparities:

How Researchers Go the Distance to Understand the Difference

Cancer is a small word but one with hundreds of meanings.

It is not a singular disease, but rather a multitude of different ones with just as many causes. Some scientists now focus on tumors in terms of molecular make-up, rather than the part of the body where they form, implying there are many more subtypes of cancer, possibly with different causes and treatments.

The many diseases called cancer affect people differently, depending on individual biology, ethnicity, lifestyle, and geography. Some groups have much higher risk for certain cancers, while others have natural resistance to some first line therapies. To truly control cancer, some researchers focus on these and other differences, leveraging them in approaches to prevention, early detection, and treatment.

"Understanding the biological significance of these differences is important to better understand who is at risk and for what," said Camille Ragin, associate professor in the Cancer Prevention and Control Program at Fox Chase Cancer Center.

In 2006 Ragin, a Caribbean immigrant, founded the African-Caribbean Cancer Consortium (AC3), which furthers the study of genetic, lifestyle, and environmental cancer risk. The consortium now links researchers in 16 Caribbean countries, five African countries, and across the United States.

"As a young investigator trying to identify my niche, it struck me that there was not enough research into disparities," she said. "The number of African Americans included in studies was low. How can we address disparities if we don't have proper representation? Cancer mortality rates are devastating in the Caribbean and Africa compared to the United States. The purpose of the AC3 is to drive collaboration in populations of African ancestry."

In one of its most impactful successes, AC3 was instrumental in making the HPV vaccine widely available across the Bahamas.

"AC3 is very important because it's one hand helping the other to improve the community," Ragin said. We have to help each other to be successful. Helping other countries helps us to be successful."

Now, in the largest undertaking yet, Ragin has been awarded a grant by the National Institutes of Health to create a center of research excellence at the University of the West Indies, a regional university with its main campus in Kingston, Jamaica. Fox Chase will serve as the U.S. institution in the partnership.

"Together, cancer and other non-communicable diseases are the leading cause of death in the Caribbean region," she said. "Our ultimate goals are to stimulate and increase


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collaboration aimed at addressing these largely preventable diseases in the Caribbean, where their toll is disproportionately high."

Sorting Through Differences

In her role as Associate Dean for Health Disparities at the Lewis Katz School of Medicine and Temple University Health System and as leader of the Center for Asian Health at Temple University, Grace Ma studies differences in how diseases such as cancer affect immigrant populations.

"Some populations have a higher mortality of certain cancers," Ma said. "Some of that is genetic, environmental, and some of it is lifestyle or could be a combination of all that."

One of the greatest disparities affecting the Asian immigrant population in America is in liver cancer, where the rate of diagnosis is between 7 and 15 percent, Ma said, compared to less than 1 percent for the general population.

"In first-generation Asian Americans, they are born in Asian countries where hepatitis B is endemic," Ma said. "Similarly, many first-generation African Americans are coming from countries where hepatitis B is pervasive."

Ma began to look at obstacles that immigrant and underserved minority populations face – including language barriers and insurance issues – to identify the best culturally relevant approaches to expanding proven prevention and health care practices.

"In the immigrant population, seeking health care may never be the priority," she said. "They may be focused on making ends meet or working multiple jobs and getting check-ups may not be high on the list."

In an effort to break through some of the barriers to health care, Ma partnered with more than 70 health facilities and practices across the northeastern U.S. that serve large immigrant and minority populations. They identify opportunities to make health care more accessible, such as extending hours, employing more bilingual providers, having onsite translators, expanding patient navigation services, and developing medical service literature in multiple languages.

Ma and her team received National Cancer Institute funding to increase cancer screenings for cervical, colorectal, and hepatitis B- related cancers. Working with Asian community centers, they took advantage of social settings to promote awareness of cancer risk and opportunities for early detection and follow up care. The model proved successful and Ma and her collaborators are in the process of replicating it in African-American and Latino communities.

"We have to work at multiple levels to tackle these barriers by integrating community and clinical systems," Ma said. "Engaging these populations in their active participation in cancer prevention and clinical care is essential in achieving better health outcomes."

Another focus of the Center for Asian Health is to train the next generation of researchers who have an interest

EDNA CUKIERMAN

ASSOCIATE PROFESSOR

CANCER BIOLOGY PROGRAM AT FOX CHASE

COLIN LENTON

Though I'm from Mexico, I went to college and grad school in Israel. Knowing only some biblical Hebrew, I was faced immediately with learning conversational Hebrew.

In many languages, the scientific words translate, but in Hebrew they have different root words. I took a full year of Hebrew to prepare for classes and even then, the first semester was difficult. I needed to take a pre-college course to be on a level playing field with my fellow students, who were more advanced in math and physics than students in Mexico.

Those experiences had a significant influence on the scientist I have become. I was afraid to ask questions because my pronunciation was not great and I sometimes mixed up words – and I still do. I used to be less daring, but I learned to laugh at myself. I learned to ask questions and get out of my shell. This has served me well through my career, and I use the same approach now when coping with my weaknesses.

I always knew I wanted to work in academia and lead my own lab, and in order to achieve that goal in Israel, I needed to complete a postdoctoral fellowship abroad. By then I was married with two children, and the decision to uproot my family weighed heavily, but the opportunity was too great to pass up.

> "Understanding the biological significance of these differences is important to better understand who is at risk and for what."
>
> — CAMILLE RAGIN
> ASSOCIATE PROFESSOR IN THE CANCER PREVENTION AND CONTROL PROGRAM AT FOX CHASE

in reducing cancer disparities in clinical, behavioral, and basic research.

"We're looking for the most effective and culturally appropriate ways to enroll underrepresented minorities into clinical trials, which will hopefully get back to benefiting these populations," Ma said. "Healthcare providers need to be more aware of disparities. Each population has a certain specific type of disease disparity."

Among Asian Americans, breast cancer is the fastest growing cancer, Ma said. Much of the increase can be attributed to Westernization stemming from moving to the U.S., including changes in diet, lifestyle, and reproductive factors.

Carolyn Fang, co-leader and professor of the Cancer Prevention and Control program at Fox Chase and a member of Temple's Center for Asian Health, has studied how Chinese women's risk for breast cancer can change after moving to the United States.

"Generally speaking, breast cancer rates are lower in Chinese women than in American women, but these rates rise following migration to the U.S.," she said.

The predominant thinking, Fang said, is the change in risk is connected to lifestyle factors. Immigrant women may experience dietary changes after moving to a new country, or they may adopt a more sedentary lifestyle. Additionally, women in the U.S. tend to delay child bearing compared to women in rural China who were traditionally more likely to have children at an earlier age.

However, Fang found that dietary changes were not as dramatic as expected, especially if the participants lived in areas like Chinatown. In these neighborhoods, many women were able to retain their traditional Chinese diets, even after seven to 10 years in the United States.

Fang began to explore the psychosocial environment to see how stress and isolation following a move across the globe could impact cancer risk.

"Not speaking the language, leaving family behind, all of that can be very isolating and very stressful," Fang said. "We looked at whether women struggled with acculturation and found that those women who reported higher levels of acculturative stress had higher levels of inflammatory markers in their blood. Those inflammatory markers have been associated with increased risk for certain types of cancers."

While the risk for cancers associated with the Western lifestyle, such as breast and prostate cancers, may increase following migration, Fang said the risk for cancers associated with human papilloma virus and hepatitis B may decrease, because the U.S. emphasizes screening, prevention, and vaccination.

"In some cultures, you only go to the doctor when you're sick. You only go to seek treatment, not prevention," Fang said. "Screening in the absence of symptoms has not been widely endorsed in some cultures."

China trails the U.S. in mammography utilization, largely due to variability in available resources and a lack of national screening guidelines.

Generational and cultural differences – especially relating to the acceptance of sexuality – can also play a role in reducing screening in Asian populations. Getting screened for cervical cancer or having a gynecological exam as a young, single woman can be viewed as a sign of promiscuity, Fang said.

"There are still misperceptions and a lack of knowledge," she said. "There's a bit of a stigma still and some are ashamed. If they don't think about it and sweep it under the rug, then they can pretend it's not real. Others are superstitious and believe that they developed cancer as a punishment for a prior misdeed."

In addition to migration, researchers are studying how genetics play a role in cancer risk and receptivity to cancer treatments.

In January 2017, Ragin and her team found a link between African ancestry and poor survival rates in patients with head and neck squamous cell cancer (HNSCC). They discovered people with the African allele at a certain genetic position have poor survival when treated with platinum-based chemotherapy and radiation therapy, both of which are first-line treatments for HNSCC.

Within the American black population, there is a very large subset of people who migrated to the U.S., Ragin said. While different black populations share common factors, there are distinct differences in culture and diet, which impacts health.

Currently, Ragin is enrolling people from the three main subgroups of the American black population - U.S.-born, Caribbean immigrants, and African immigrants - to study the extent to which diversity matters. The team already knows that differences in screening rates exist – the African immigrant group in particular is lagging behind, with colorectal screening standing at less than 50 percent – and the next step is to determine why.

"If we are going to truly address racial disparities in the U.S. and improve screening rates, we have to recognize the diversity that exists," Ragin said. "This diversity may address some of the failures." ◆

Found in Translation:

Breaking Through the Language Barrier

The words stopped Roman Kontorer cold.

Ракпочек.

Kidney cancer.

Though he knew some English, discussing his cancer diagnosis and the details of his treatment was beyond his level of fluency. He wanted the doctor who treated him to be someone he could understand.

Emigrating from Russia in his 50s, Kontorer settled in Philadelphia, home to a large Russian-speaking community. He asked friends and his primary care physician where to go. Both sent him to Alexander Kutikov, chief of the division of urology and urologic oncology at Fox Chase Cancer Center.

In addition to being a skilled surgeon, Kutikov is an immigrant himself, having moved to the U.S. from Russia at the age of 11. Between 10 and 15 percent of his patients are native Russian speakers, and Kutikov speaks with them primarily in their native language, helping to assuage their fears.

"It's a very scary time and there's lots of nuances to explain," he said. "People are relieved when I can speak to them in Russian. Medicine is complex and it's nice to be able to bridge that gap. I can help them beyond the medicine and alleviate their concerns."

For patients like Kontorer, being able to speak directly to doctors without needing an interpreter is a relief.

"Speaking to the doctor in your mother tongue is a completely different thing," he said. "Dr. Kutikov is a great doctor and highly respected in the Russian-speaking community. I didn't have any fear whatsoever after we communicated."

About 10 percent of Fox Chase clinicians are certified to treat patients in languages other than English, including Russian, German, Spanish, Greek, Hebrew, Mandarin, and Vietnamese. In order to treat patients in other languages, doctors must pass a language proficiency test, or must have trained in their country of origin. The exam asks a series of questions that escalate in complexity, which assures the health system a doctor is qualified to communicate with patients in that language, said Jessica Ruiz-Lebrón, manager of interpretation services for Temple University Health System.

"It's the ideal situation because then they can communicate directly," she said.

As a urologist, Kutikov may treat erectile dysfunction or incontinence, and he knows it can be difficult for patients to discuss such personal matters in front of others.

"Language is a huge barrier and can be very challenging," he said. "Not having that language barrier is incredibly helpful. It's more personal."

In addition to breaking the language barrier, clinicians who can treat patients in their native language are often able to help navigate cultural barriers that may interfere with medical care.

"Alternative medicine such as herbal remedies are very much pursued in the Russian community," Kutikov said. "Navigating that is part of their care."

The medical interpreters provided through the health system also serve as cultural brokers, said Ruiz-Lebrón.

"We sometimes have some insight in regards to the culture and we're able to shed some light on that particular interaction," she said. "If the interpreter is well-versed, they can communicate wives tales or other cultural beliefs to the provider."

Bridging the Language Gap

Interpretation and translation services are readily available throughout Temple University Health System, including at Fox Chase.

Spanish is the most requested language across the health system, and Temple employs nine full-time Spanish medical interpreters. At locations without a full-time interpreter, like Fox Chase, the health system relies on language phones – with interpreters available for over 200 languages – and approved vendor interpreters. The system also uses dual-role interpreters, Temple University Health System employees in other jobs who have taken an intensive, 40-hour training course to serve as interpreters.

"We really discourage patients from using family and friends to interpret for them because of confidentiality, competence, and conflict of interest," Ruiz-Lebrón said.

By allowing friends or family members to interpret for them, the patient's privacy can easily be breached, she said. Friends and family may not be familiar with medical terminology and may mispronounce terms or omit them altogether, which alters the message and leaves the patient in the vulnerable state of being ill-equipped to make informed medical decisions.

> "People are relieved when I speak to them in Russian. Medicine is complex and it's nice to be able to bridge that gap."
>
> — ALEXANDER KUTIKOV
> CHIEF OF THE DIVISION OF UROLOGY AND UROLOGIC ONCOLOGY AT FOX CHASE

Translation services ensure that patients receive discharge instructions, test results, consent forms, and even patient education resources, in their preferred language. Both translation and interpretation services are available to all patients at no charge.

Though he knew English thanks to a naval career that took him around the world, moving to the United States from Georgia in 1998 and navigating a new and unfamiliar culture proved to be overwhelming for Yuri Fayvishenko. To cope, he began smoking more, and soon, he was smoking a pack and a half of cigarettes a day.

At 61, he was devastated when he learned he had bladder cancer. An avid swimmer, he was distraught when doctors told him he would need an external pouch after his surgery to remove cancer.

SANJEEVANI ARORA

ASSISTANT RESEARCH PROFESSOR

CANCER PREVENTION AND CONTROL PROGRAM AT FOX CHASE

JOSEPH V. LABOLITO

In India, I grew up surrounded by cultural and religious diversity and I learned from an early age the value of different opinions and perspectives. Moving to the U.S. to pursue doctoral studies, I was happy to see how welcoming it is and how the country really embraces and celebrates that diversity.

In science, having diversity and gender equality makes it possible to discover ideas you may not have found otherwise. When we work together we can learn so much from each other.

Before starting the coursework towards a doctoral degree, I didn't think too much about anything other than the science. I soon learned the importance of the collaborative environment of the lab. In my program, I wasn't committed to a specific lab and was offered rotations in different labs and projects before deciding on joining a lab for my doctoral thesis. I learned to ask the questions that were important – lab fit, enthusiasm for the project, lab work ethic and so on. I also had the freedom to enroll in inter-disciplinary courses giving me the ability to explore areas I wasn't able to explore before. It's empowering to choose.

Like Kontorer, Fayvishenko knew of Kutikov's reputation, and though he speaks English, he was grateful to be able to converse with his doctor in both English and Russian.

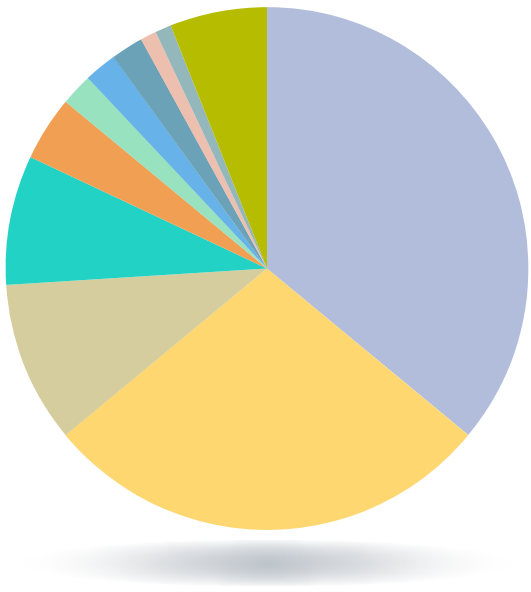
"The many, many Russians who know Dr. Kutikov, are very happy with him and I am too," Fayvishenko said.

After his diagnosis, Fayvishenko quit smoking on Kutikov's advice, and has not smoked in six years. He credits Kutikov not only with saving his life but helping him to regain his quality of life.

"He took me from out of the casket," he said. "Everything is like it was before."

TOP 10 LANGUAGES
(MINUTES)

- 6% Other (16 languages) - 456 minutes
- 1% Cambodian - 80 minutes
- 1% Ukrainian - 85 minutes
- 2% Haitian Creole - 171 minutes
- 2% Arabic - 184 minutes
- 2% Vietnamese - 193 minutes
- 4% Korean - 294 minutes
- 8% Mandarin - 654 minutes
- 9% Cantonese - 753 minutes
- 28% Russian - 2,201 minutes
- 36% Spanish - 2,869 minutes



Summary by Languages: 7/1/2016 - 6/30/2017, Fox Chase Cancer Center

A Foundation in Faith

As culture and spirituality are often intertwined, Fox Chase has two chaplains who help navigate culture and faith as they relate to patient care.

"It is often helpful to be mindful of particular customs patients have and a general knowledge of their background, but there can be so many variations within a religion and within a culture," said staff chaplain Alex Hud. "We ask if there are practices that are important to them and how we can help them. All cultures respond to caring attitudes.

Our care is personally tailored, and so we never go in with an agenda and assumptions. A patients will remember us by how we made them feel. The care is measured by how much we care, not by how much we know."

Primarily, the patients at Fox Chase are Christian, Jewish, and Muslim, Hud said. A booklet of prayers, which includes prayers of numerous faith traditions and was written by staff chaplain Barbara Klimowicz, is available in English, Spanish, Russian, Arabic, Polish, and traditional Chinese.

Klimowicz moved to the United States from Poland when she was 9 and takes a special interest in working with immigrant patients.

"In difficult situations, I try to align myself with the patient and make sure they get the care they need and deserve," she said. "Sometimes there's mistrust and as an immigrant I understand that. I want to gain their trust so when difficult moments come, we can work together for the interest of the patient."

To succeed, Klimowicz knows providers must take patients' beliefs into account when recommending a course of treatment.

"I show them their voice matters and I explain their concerns to their doctors," Klimowicz said. "They feel comforted knowing their feelings are valid. I believe we can solve the most difficult problems with mutual trust."

The chaplains accommodate the needs of patients during their time at Fox Chase, including arranging to have outside clergy members come in, Hud said. Above all, Klimowicz and Hud listen to their patients to give them what they need.

"The common need across all cultures is the desire to know that despite their illness, their life still has meaning and purpose, and we validate that," Hud said. "Their self-worth is not dependent on what they do but who they are. They are a person worthy of self-respect and dignity."