YALE CANCER ANSWERS

Global Partnerships and Education

Hosted by: Anees Chagpar, MD
Guest: George Ssenyange, Yale Medical Exchange Student

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Welcome to Yale Cancer Answers with doctors Anees Chagpar and Steven Gore. Yale Cancer Answers features the latest information on cancer care by welcoming oncologists and specialists who are on the forefront of the battle to fight cancer. This week, it is a conversation about International Medicine with George Ssenyange. George is a medical exchange student and Dr. Chagpar is a Professor of Surgery at the Yale School of Medicine.

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Chagpar So, George, maybe you can tell us the story of how exactly you came here to Yale.

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Ssenyange The story dates back 3 years ago when I was in Uganda at Makerere University during my medical school. In my fourth year, we usually have an exchange program with Yale due to collaboration with Mekerere University. I was in Mekerere University and that is the university I used to study in Uganda. During our fourth year, all students are given a chance to go to universities outside Uganda and we have a collaboration with many universities in America and Yale is among them. So, I happened to be interested in Yale because I think it is one of the best in the country, so I decided to apply for Yale. Many students who are interested in coming to Yale. So, it was a very tight race. There were around 26 students who were shortlisted for this rotation. They pick out 26 best students in the class of 120 medical students and the best 26 are shortlisted to apply and do interviews. So, I happened to be among the 26 and there were 2 slots available for Yale. It was a very competitive process. So, I applied, I gave in my personal statement, my CV and I did a lot of interviews and luckily I was among the people who are chosen out of 26, it was a very competition because they gave us time to wait for the results so the tensions were high. So, after being selected, we did the interviews at the beginning of the year, 2016, in January, so they took time to process the applications and the CVs were put in. So, when the announcements came out in April, it was a very long process and that was the first time I actually traveled outside Uganda. I have never been outside Uganda before.

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Chagpar So, congratulations first of all. I mean that is quite the accomplishment, two students out of over 100 students actually get to come to Yale from your medical school in Uganda. What kind of factors did they look at in deciding which students would come and how does that process work?

03:10.000 --> 04:08.400

Ssenyange Basically, the process, we have one-on-one interviews with the panel, there is a panel that interviews all these students including the principal of the college and the dean and many other people in the program who have gone through the program. So, they are considering your self-confidence during the interview and your ability to express yourself in English. Then, the shortlist was made based on your performance in the class in the previous years because of cumulative GPA, that is to assess the students. So, the CGPA comes into factor and then your confidence during the interview, you have to be very confident during the conduction of these interviews. These are some of the factors they considered.

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Chagpar Yeah. And so, then you made your very first trip outside of Uganda and what was that like? I mean, was it exciting or was it nerve wracking or a little bit of both?

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Ssenyange It was very exciting. Because I never thought I would get onto a plane and fly out of Uganda. So, the first time was very exciting. It was very exciting because in my family, I was the first sibling to board a plane out of Uganda. Most of them had been in the country for all their lives.

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Chagpar And so, you flew on a plane, you came to the US and when you landed here, what were your plans in terms of what your rotations would be like and what were you planning to achieve during your time here at Yale?

04:55.500 --> 07:06.500

Ssenyange My main plans here I wanted to experience medical practice in a worldwide setting. In Uganda, we usually practice medicine in a resource-limited facility. The patients are very many and the resources are less. So, I wanted to see how medical practice is here in the United States. The type of teaching is also different. Their lecturing system is very different and ours is very different, so I wanted to compare 2 systems and then also the magnitude of disease that we deal with in Uganda are not the

same as the ones they do it here in the US. In the US, most of the patients we see mainly are patients with non-communicable diseases. In Uganda, most of the patients have communicable disease -- HIV, malaria, most of them diarrheal diseases especially in the pediatric patients, diarrhea is a very common disease in the pediatric population. So, here, good to see diseases that I would not have seen in Uganda. Then, the diagnostic modalities that they use here to diagnose diseases, they have different tests that we are using to assess the patient as soon as they come in. In Uganda, usually you base most of your diagnosis on the physical examination since most of the patients cannot afford the diagnostic tests. Patients cannot afford the MRIs, x-rays, the blood tests. So, you have to be very conscious while doing the physical exam so that you do not miss out the same. Here, it is like, every patient I saw was being, at least every patient who was admitted, they do some blood tests, at least a full blood count was always mandatory and they used to do the electrolytes called the Chem-7 during my rotation here. So, it was a very good experience. Many things are good to experience that were not particularly being done in Uganda because of the limitation of the resources we have.

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Chagpar And how long is your rotation here at Yale?

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Ssenyange In 2016, I came here for a month. It was a clinical rotation. I was still a medical student then. So, I did a 1-month rotation. I did the 1-month rotation in the infectious disease department at the Yale New Haven Hospital. It was a very interesting rotation. I had a very good attending who was very nice and helped me adapt into the system because the system they were using was very sophisticated. They were using a computer system, they call it Epic to keep up the patient's data and information. In Uganda, we usually use charts and papers, very few hospitals use the computer system. So, it was very hard to adjust. So, she helped me adjust to this system.

07:54.800 --> 08:39.300

Chagpar Yeah. So, certainly, I mean there are many difference in the US medical system as opposed to Uganda, different patient populations, different diseases, different availability of resources, blood tests, x-rays, different electronic medical record system versus a chart system, but was your goal to go back to Uganda and if so, how did your experience in the US help you when you go back because the patients would be different, the availability of tests would be different. So, did you find that it was an interesting experience but not really relevant or did you find that it was really complementary to what you were doing in Uganda?

08:39.300 --> 10:13.000

Ssenyange According to me, I think it was a relevant experience, much as the diseases may be different but some of the principles of medicine - they can be transferrable to apply to our patients. Regarded the diseases may be different, but there are some aspects that you can still apply in Uganda. For example, when I got introduced to how to read an ECG, in Uganda basically as an undergraduate, we do not study an ECG. So, most of the times, the ECG, some people call it the EKG this is for diagnosing the heart problem. So, in Uganda, the under-graduate students do not focus more on the ECG. So, some of the skills I got because here, they try to teach you how to diagnose a patient, the classes are more focused on the diagnostic modalities but in Uganda, the ECG is only read by a physician, people who have specialized. So, us as an undergraduate doctor, I would not normally be able to read an ECG. So, when I went back, I could still be able to read the ECG. Then, the x-rays I got more expertise in reading the x-rays. In Uganda, they do not spend too much time in teaching the undergraduate doctors as to how to read an x-ray because there will be radiographers who are trained to read out these x-rays, so usually they come with reports.

10:13.000 --> 10:27.200

Chagpar Yeah. And the number of x-rays that are done in Uganda is much smaller than the number of x-rays done here. So, you were here for a 1-month rotation back in 2016 and then you went back home to Uganda what happened then?

10:27.200 --> 12:24.900

Ssenyange During that time, i was still a medical student, so I was in my fourth year. In Uganda, we use the British system for medical school. Our system, you do a medical degree for 5 years. So, during that time, I was in my fourth year and had left 1 year to finish medical school. So, after that 1 year, you are supposed to do internship, medical internship in any public hospital. So, after completing my fifth year, I applied for internship, which I did for 1 year from 2017 through 2018. So, in between 2017 and 2018, I was working in hospital as an intern doctor. After that 1-year period, you can decide to go back on specialize and become a physician or gynecologist, any specialty that you are very interested in or you can become we call them medical officers in Uganda, they are like general practitioners but they have not gone back to specialize but they can still practice in other hospitals because in Uganda the problem is that the doctor to patient ratio is very low. So, most of the hospitals cannot afford specialized doctors, so they try to bridge the gap with this medical officers who are non-specialized that can try to treat the diseases that are not very complicated. You can do a cesarean section, you can do minor surgeries - hernioraphies, you can also do circumcisions. Most of the minor surgeries can be done by these doctors, but for the complicated surgeries or complex surgeries are usually referred to the regional hospitals to be handled by the specialized surgeons. So, during that period, I was getting that internship because you cannot get the license without the internship. After the internship of 1 year, at the end of 2018 in November, I came back here for the research fellowship.

12:24.900 --> 12:49.600

Chagpar So, you came back here for a research fellowship. And, had you at that point decided that you were going to specialize in a particular field or was this you are research kind of, just to get some grounding in research before you decided whether you were going to be a medical officer or whether you were going to become a physician of various specialties.

12:49.600 --> 13:43.100

Ssenyange Coming here, I had specific interest in HIV research because HIV is one of the disease that is affecting the population in our country. In Africa, I think we are 10th ranked in terms of prevalence of HIV in Africa. So, I came here to try and get more experience in terms of HIV research because I was in the infectious disease unit, so I got to interact with many infectious disease physicians and I picked an interest in HIV. Even during my high school years, I use to volunteer in HIV research projects, so I did show interest in HIV and I thought this research fellowship would help me look at it at a broader perspective and see what I can accomplish in the field of HIV research and maybe try to apply it in Uganda.

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Chagpar Perfect. Well, we are going to take a short break for a medical minute and then after the break, we will learn much more about your journey into HIV research and potentially what is in store when you go back?

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Medical Minute Support for Yale Cancer Answers comes from AstraZeneca, addressing cancer takes a whole community to celebrate the real difference makers AstraZeneca is introducing Your Cancer. Learn more at yourcancer.org.

14:09.100 --> 15:02.900

This is a medical minute about breast cancer. The most common cancer in women. In Connecticut alone, approximately 3000 women will be diagnosed with breast cancer this year, but thanks to earlier detection, noninvasive treatments and novel therapies, there are more options for patients to fight breast cancer than ever before. Women should schedule a baseline mammogram beginning at age 40 or earlier if they have risk factors associated with breast cancer. Digital breast tomosynthesis or 3D mammography is transforming breast screening by significantly reducing unnecessary procedures while picking up more cancers and eliminating some of the fear and anxiety many

15:02.900 --> 16:00.700

Chagpar Welcome back to Yale Cancer Answers. This is Dr. Anees Chagpar, and I am joined tonight by my guest George Ssenyange. We are discussing the medical curriculum, international exchanges and his journey from Uganda to here at Yale. So, George, before the break you were telling us that you had come for a 1-month period during medical school as an international exchange student interested in infectious disease and after you finished your medical school in Uganda along with 1-year internship, you decided to come back to Yale to do a research fellowship looking at HIV. Tell us about the process of applying for that research fellowship. Was that straightforward, I know that when you were applying just for that 1-month elective, it was a very rigorous process, was it the same kind of thing when you were applying for this research fellowship?

16:00.700 --> 16:46.900

Ssenyange Thank you. For the research fellowship, it was not that hard a process because during my clinical rotation in 2016, my attending was a very friendly person, so she introduced me to my current PI, Professor Sutton, he is a researcher in the infectious disease department. So, I was about to meet him and I told him about my interest in the infectious disease research. So, he was about to invite me for a 6-month fellowship after I was done with internship. So, that was not a hard process luckily, so I was able to come back here for another 6 months to learn more about HIV research.

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Chagpar Excellent. So, this research fellowship is for 6 months and tell us more about your research and what you are doing in the lab.

16:55.500 --> 18:09.000

Ssenyange My project focuses mainly on, I am doing a project on exploring the post-transcription origination of the CCR receptor. CCR5 receptor, it is a receptor on the CD4 cells. In layman language, the white blood cells. So, this receptor is one of the co-receptor, one of the 2 receptors required by HIV to gain access to the human cells, the white blood cells, the CD4 cells, to be able to infect the human body. Without this receptor it will be very hard for the HIV virus to infect the cells. So, what I am looking at is how the body, because there are some patients who there is a specific for the patient in the world that cannot get HIV infection because this receptor in their body is dysfunctional. So, I am trying to look at the mechanism in which the body regulates this receptor to make it less expressed on top of the cell surfaces and in a way prevent the HIV from getting into the cells. That is basically what I am looking at, at the molecular level.

18:09.000 --> 18:49.000

Chagpar Yeah. I mean that sounds fascinating. I mean, if you can get the body to essentially not have or to fight against this receptor that allows HIV to get into the body and if you can turn that off some how and therefore make HIV not get into the body, you could potentially have a huge impact, especially in Uganda where HIV is so prevalent. So, is it your goal to then take that back to Uganda and try to move your research further in that country?

18:49.000 --> 19:27.900

Ssenyange Yes. It is my goal to try and gain some experience in HIV research and techniques and then I can try and move on and do this research in Uganda because most of the labs are not well equipped to do most of the procedures done here. But with time, maybe I can apply for grants that would help us maybe built labs to be able to do this research in the country. And I think it would have a lot of benefits in terms of trying to advance the HIV research and try to help people in my country.

19:27.900 --> 20:41.100

Chagpar Certainly, I mean when we were talking about your experience in terms of the clinical rotation back in 2016, we talked about the fact that many of the patients there cannot afford what is commonplace here, regular blood work, x-rays, MRIs, even the clinical record system in Uganda tends to be paper and pencil whereas here, we have fancy electronic medical record systems, I would anticipate it would be the same in terms of research whereas here, you may have fancy equipment in the lab, fancy techniques to help further your research, but those may not be available in Uganda. So, what is the mechanism by which you can acquire those techniques in Uganda, are there grants that allow you in Uganda to do this research with these new techniques and technologies that you are learning about here or are there ways of doing the same research perhaps in a low cost way that may be more sustainable in Uganda?

20:41.100 --> 21:38.800

Ssenyange I think with the right amount of grants, we can build labs that can do this type of research in Uganda because there are many people who are trained in this research, but they do not have labs where they can apply this knowledge, so if we can get grants that can help us build some of these labs that can do this research and we have population with many patients, so there will not be a limitation to the number of research specimens we can use to conduct this research. So, most people gain knowledge in this research, but they cannot practice it in Uganda, so they end up having to leave the country to go and maybe work in labs outside Uganda because the labs in Uganda do not have equipments. So, I am thinking that maybe if we can get a grant to help us build these labs, then maybe we can progress in this field in Uganda.

21:38.800--> 22:16.100

Chagpar Tell us more about the infrastructure in Uganda. I mean, here when people want to do research, we have things like the National Institute of Health, the NIH and other major organizations whose modus operandi, their reason for being is really to provide grants to researchers. Does Uganda have a similar mechanism, is it possible to get grands through the Ugandan government or where would you foresee getting grants to help you to build this research infrastructure back home?

22:16.100 --> 23:04.600

Ssenyange In Uganda, there are think-tanks and research organization that offer these grants. Actually, my grant that is funding my stay here, I got it through the Uganda Virus Research Institute. It paid for my travel expenses and my subsistence cost while I am here. So, there are organizations in Uganda, though their grants are not very big, but the organizations that offer these grants. The Ugandan government also tries to fund some of these research projects, but most of the people who get the big money grants are mainly from funding outside the state. So, most people apply to different organizations outside Uganda to try and get these grants to do these researches.

23:04.600 --> 23:06.400

Chagpar So, things like Bill and Melinda Gates for example.

23:06.400 --> 23:15.200

Ssenyange Yes, the Gates Foundation. It funds some of the research in the country. CDC also has some projects there.

23:15.200 --> 23:34.500

Chagpar Excellent. And so, after your 6 months here, your plan is to go back to Uganda and to set up a research infrastructure to study HIV. Is it your plan also to practice medicine there, I mean are you planning on getting a residency while in Uganda?

23:34.500 --> 24:17.900

Ssenyange Yes. The main reason I got into the medical career and field is to try and help patients in Uganda because there are many patients out there who cannot get access to good quality medical care. So, it is one of my goals to practice medicine. So, I am thinking of a way of trying to practice medicine and also doing the research, but so I plan to go back and complete my residency and become a physician and then during that period, I can also pursue a PhD in molecular biology so that I can try and merge these 2 fields together in my career to hope and bring out the best and help the people of Uganda.

24:17.900 --> 24:33.200

Chagpar That's fantastic. So, in terms of a clinical specialty, are you thinking about doing your residency in internal medicine or infectious disease to align with your research interests?

24:33.200 --> 24:52.200

Ssenyange In Uganda, if you have to do infectious disease, is part of, is kind of a sub-specialty in internal medicine, so you first residency in internal medicine for 3 years and then you can sub-specialize in infectious diseases to become an infectious disease specialist.

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Chagpar And is that your plan?

24:55.700 --> 25:00.600

Ssenyange Yeah, that is my plan.

25:00.600 --> 25:00.900

Chagpar And you can get a PhD from your home institution as you do that?

25:00.900 --> 25:15.300

Ssenyange Yes, there are different PhD programs in Mekerere University. It is one of the biggest universities in Uganda, so it is the one I went to and I think they have programs that can offer me a PhD program in Uganda.

25:15.300 --> 25:33.800

Chagpar That's fantastic. And then, after you get that PhD and you finish your clinical residency and you become an infectious disease doctor, is it your plan then to become faculty at that university or would you be in private practice?

25:33.800 --> 26:02.800

Ssenyange I would prefer to become faculty in the university because to impact knowledge to the young students who would be interested in this career, but they do not get the right mentorship to

pursue this career, so I think I will prefer to remain in faculty to try and build this a foundation of research in Uganda to help advance the developing research in...

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Chagpar Yeah, I mean it is so fantastic to hear your story of being from Uganda, taking your first trip ever outside of Uganda to come to Yale and having this impactful experience where you learned about infectious diseases and now you are doing research in HIV with a plan to go back and really help your country, help patients there, help to develop research there and help to inspire the next generation of physicians in Uganda. What do you think are really the key problems in Uganda in terms of healthcare delivery? We all know that there are disparities around the world in terms of access to care, but if you were going to change anything, what are the top few things that you think really would be most impactful in terms of reducing global burden of disease?

26:56.800 --> 28:28.100

Ssenyange I think the main problem is that resources are limited. Like I mentioned, there are few health facilities in Uganda. The hospitals and doctors are fewer. Most health center have nurses running them because the medical personnel in Uganda, there are not many trained medical personnel in Uganda. The doctors, especially in the villages, the rural areas, you find one doctor having to take care of over a population of like 10,000 people, so the doctors are not there and then the resources are limited, some of them do not have access to the drugs by the government, they do not reach the health facilities, so we are having that problem. And then, some of the problems that is also impacting the healthcare delivery system is that many people are not educated so they prefer to go to traditional healers. They still have that belief, they do not believe in modern medicine, so they prefer to go to their traditional healers. Actually, there are some women even now who still go to traditional bath attendants to conduct their deliveries. So, that is also another major hinderance in delivering these all services. You may find a place that has these facilities, but people are not sensitive enough to go and use them. That also becomes a hinderance this health service delivery.

28:28.100 --> 29:12.100

Chagpar And many of these problems that you elucidate are very common in many low-to middle income countries, a lack of physicians well below the World Health Organization of 1 doctor per 1000, as you say, in many places especially in rural parts of low-to middle income countries, that number is 1 in 10,000 or even worse. Is that because there are not enough medical schools or there are not enough students applying to medical schools in these countries or that these students leave and never come back, why is it that there are not enough doctors in Uganda?

29:12.100 --> 30:21.300

Ssenyange Currently the number of doctors coming out of medical school has increased because in my year we are around 500 doctors that were produced by the country who are doing internship. The medical officers as well as intern specialties, there are around 500. So, the numbers are relatively increasing but most people leave the country around like 30% of the doctors produced end up leaving the country in 5 years' time and then most doctors do not like to work in the rural areas because the facilitation is very poor, so they are far from the city, they do not get good facilitation, so they end up actually leaving their posts and not working there. They end up coming back to the city to try and get other side jobs in the city. So, you find a place that has a registered doctor on the payroll of the government but the doctor shows up once in a month. So, that also becomes a problem in the service delivery, so you find patients being taken care of by untrained health workers.

30:21.300 --> 31:12.300

Chagpar Yeah, so I mean, part of it I think to your point, how do we encourage physicians to get out into the rural areas where the people are, in part relies on improved facilities, which was another of the obstacles that you had mentioned in terms of access to good facilities, access to care, is that access to care limited by simply the fact that there is poverty and people cannot afford blood tests and x-rays and to see specialized doctors or is it that there is actually a lack of facilities, there is no hospital so even if you have the means, there is not a resource for you within several miles.

31:12.300 --> 31:37.900

Ssenyange Most of the hospitals in the rural areas, the government tries to make them free. The public hospitals are usually free for the rural people who attend the hospitals. So, most of them are free but the problem is that the utilities and the sundries by the doctors and the drugs, most of them do not reach the hospital.

31:37.900 --> 0:32:01.6

George Ssenyange is a Medical Exchange Student at the Yale School of Medicine. If you have questions, the address is canceranswers@yale.edu and past editions of the program are available in audio and written form at YaleCancerCenter.org. We hope you will join us next week to learn more about the fight against cancer here on Connecticut Public Radio.