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In his office, Faculty of Medicine, Makerere University.  
Interviewed by Julia Royall  
Kampala, Uganda  
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JR: We need you to say your name and where you work and acknowledge that you know you are being recorded.

FK: I am Fred Kironde and I work for Makerere University, Faculty of Medicine, and we are right now carrying out an interview on connectivity.

JR: Now you were in on this from the very beginning, over 10 years ago now, when the African scientists wanted better connectivity. What kinds of things has better connectivity allowed you to do?

FK: First of all, my ability as a teacher and as a researcher has improved tremendously because of the ability to number one, be able to obtain hard copies of journals which are required for us to maintain knowledge of what is being published around the world. Secondly we have been able to respond to calls for grants, calls for meetings, conferences and other international opportunities. Before we couldn't obtain these. Either through email or through accessing the internet.

JR: And before you weren't able to do that? Or how did you do it before?

FK: Before we had systems such as requesting for hard copies from the bigger libraries such as NIH or such as our own library, but the process was very long. We would get these hard copies within a month, or even up to three months. But now we can instantly get this information.

JR: Tell me a little bit about your particular area of research and the kinds of things that you do and what you demand of connectivity.

FK: Well Julia, as you know, I am a researcher, I am a scientist working on infectious diseases especially malaria and other debilitating parasitic infections such as schistosomiasis (??), and this kind of work changes very fast. There are so many publications that are put out on a weekly, monthly basis, and we need to keep updated on these and therefore we need access to be able to get hard copy of publications in this field. And we could not do that before. We definitely need internet and email access.

JR: How do you communicate – what kinds of people do you write to? Are there people in Africa that you correspond with? How does that ....

FK: I correspond with to the many co-investigators, some of whom are in Africa but some of whom are outside Africa. I also communicate to colleagues who are teaching in various universities, scientific collaborators, most of whom are outside Africa. Some of whom are in Africa, but the only way that we could communicate is either by good fast internet or good fast email systems.

JR: Can you talk a little bit about the Antimalarial Drug Resistance Network and what worked? That was kind of an experiment and some things worked and some things didn't.

FK: Yes, we were part of a larger group of Africans who worked together to form a consortium that looked at how drug resistance in malaria parasites were evolving. At the time that we got into this, Uganda was using a composit drug, combination of chloroquine and primquine (sounds like). And we exchanged a lot of information with teams that were working in southern Africa, in West Africa and others in East Africa, and we shared experiences. And ?? parasites ?? and they were changing very rapidly and they were getting a combination of chloroquine and primaquine (??) and there was therefore a need to move on to the artemisinin combinations. And the internet and the email systems that were available helped us to exchange information and data, and even be able to publish faster. And now Uganda has moved on to artemisinin combinations therapy and the ?? were part of this policy change for our Minister of Health.

JR: So you really feel like you were able to, with your colleagues, move into a policy change.

FK: Yes, we contributed to a policy change.

JR: Would you have been able to do that before?

FK: Not very easily because we could not communicate as fast and exchange our data. Some of the work that we did, we had to share samples. We had to send some specimens to West Africa, West Africa had to send us some samples so that we could standardize the assays. We couldn't have done that as fast as we did.

JR: Now, you have probably written a paper about this.

FK: Yes we have written at least three to four papers in collaboration with some of my colleagues locally, the group led by Dr. Moses Kamya, the ?? program, of

which I am a member. We also within our group here in the Faculty of Medicine, we have written some papers. We have also written jointly some papers with the group in Mali, which is led by Djimde, and published about the evolution of the resistance to panceta (sounds like) in association with, collaboration with that group.

JR: And just once more the question would you have been able to do that before, and what would have been the barriers?

FK: We would not have been able to do that because of limited collaboration, which was due to the fact that we could not communicate as fast in that time. Just to give you an idea, we used to communicate by fax, and fax had its problems again. The quantity of materials that you could communicate by fax, it was not as big as what you could communicate by email today. For example, one of the publications that we put out with others in West Africa, we could be able to revise the manuscript and so on within a very short time. Within one or two weeks, and the paper could be sent out. We would not have been able to do that before because we were using the weaker system that could not take as much material, published material, in terms of faxes. And we can do that now, especially using PDF files.

JR: So it's faster...

FK: Much faster, and can take larger volumes of material and you can talk back and forth because you can send in the morning and the other people could reply in the mid afternoon and in the evenings, and you can send them material overnight and in the morning they can respond. And you couldn't do that by using the fax system.

JR: And do you think the quality....tell me a bit about the quality of your work.

FK: The quality of our work, again for similar reasons improved. We can tutor better our students, we can be able to carry out assays across the country much better. For example now I have five PhD students and four masters' degree students, and I couldn't do that without the internet. I am able to do that today, for example, I can send common regimens (sounds like) to all my students and they can read what I have said to them and by the morning, they will have responded to me. I couldn't have done that before using faxes. Now I can be able to do that. As far as ?? is concerned.

I can call meetings better. I can call meetings and send notices to all collaborators that we are going to have a meeting tomorrow or the day after and then a meeting

can be held. These are just a few examples. What faster communication can do for us.

JR: And what did you talk about sending assays around the country?

FK: The question of being able to send specimens? From here to others for standardization. Well first before you send you have to communicate and tell them these are the numbers we need, we need these age groups, we need these things. So the communication that is required before you exchange material is now much faster and you can also be able to trace better whether the samples have arrived or not. You can also trace better the progress, compare the results, standardize between different laboratories, because communication is better. Identify across various groups and you can check whether any errors have occurred. That's what I meant by exchanging of materials for testing across different laboratories.

JR: And this whole idea of being able to be part of the international world of science. Talk about what that was like in the old days and what it is like now.

FK: There were groups that would work together. We collaborated with a number of groups, but communication was not as fast. Now, what we have now, you can be able to communicate very easily, you can add on people to our threads of communication. You can be able to talk to more people using email. And that was not possible. Initially it was letters, mail, sending letters through the post. Later on, fax, but the fax could not be able to do exactly what you are doing now. Today with communication you can add on 10 or more people and they exchange ideas through one single email. Then more people can respond back to you. That is the future, with the faster email system and the internet.

You can send your collaborator a web page where they can check material. You can deposit material on a given an address, and everybody can access that material.

JR: You know my interest is not just how much faster it can be, but what difference it ultimately makes. Can you look down the road a bit in terms of malaria research and see if this particular tool is going to enable the morbidity and mortality rate to be reduced?

FK: I'll just give you one particular example. Before internet and connectivity developed 10 years ago, we could not access basic information about the genome of the malaria parasite, or of the mosquito anopheles vector. We could not. Within the last 10 years, data banks have been developed, for example for falciparum we have the PlasmoDB, which is spearheaded by David Roos in the US and we can be able to access basic data from the gene banks of the malaria parasite species.

Plasmodium vivax and others. The work is better. The quality of the work is improved. For example we can identify the work which are structural, which would be the possible candidates for vaccines. So the quality is improved because there is a lot of data that can be stored that we can access from different databases, for example, PlasmoDB.

JR: Is there a downside to all this?

FK: Well a little. For example we get lots of spam mail or we get emails where people are soliciting things that have nothing to do with our work and so on. But we try to reduce that by filtering out junk mail and so on. For example in a day I get about 50 to 60 emails and 20% of that can be junk mail. So that is a nuisance. You have to read it. A third of your email can be junk mail. That is one of the negatives.

JR: It sounds like you have a lot of positive sides to it.

FK: Yes, there are positives. A number of providers can filter out the junk for you. And then the rest you can remove it by yourself. And you learn and as you learn you do it much faster than before to remove the junk material which is not useful.

JR: Is there anything else that you'd like to add?

FK: We are very grateful for the assistance we have received from colleagues who have been able to facilitate some of our work through improving our connectivity and the way we communicate with other scientists around the world. In particular I know that about seven or so years ago, we received assistance from NIH in improving our connectivity and we are very grateful to this group. We are also very grateful to a number of groups such as that led Dr. David Roos who was able to deposit data on the internet, so that we can access, at least to lead that activity. So we are very grateful for these things. That is what I would like to add.

JR: Great. The topic of this session at this conference is really the challenges of research networks in Africa, so I wanted to include some voices of some people who have succeeded. What more do you think could be done to improve research networks within Africa? Like the original Antimalarial Drug Resistance Network that had Nigeria, Mali, Uganda, Tanzania and others.

FK: I think that sustainability can be a problem. The institutions that have received the connectivity need to sustain themselves. In terms of research, in terms of hiring young people and keep them, be able to retain these young people to get their masters' and PhDs and to be able to retain them and reduce brain drain. And the connections that we have be supported with funding, so I would like to see

more fund raising in these institutions so that we can sustain what we have been able to achieve.

JR: Do you actually put connectivity on your budget when you do proposals?

FK: Yes. In our group we call it communications, so communications is part of the budget lines when we request for support.

JR: And the funders understand that.

FK: Yes the funders understand that. So for that line we write communications.

JR: We've come a long way Fred! Thank you.

FK: My pleasure, thank you.