Interview with…
Prof. Richard Adegbola, member of the Project Advisory Group (PAG)

Prof. Adegbola is head of the bacterial diseases program at the Medical Research Council (MRC) in The Gambia

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All the interviews in this series are available on: http://www.meningvax.org/press-reports.htm

Professor Adegbola, how would you introduce yourself in a few words?
I am originally from Nigeria, and my training is in medical microbiology. I graduated from the Lagos University Teaching Hospital with an equivalent of bachelor's degree in medical microbiology and parasitology before furthering my education at the University of Dundee in Scotland, from where I received a MSc and a PhD in medical microbiology in 1981 and 1983 respectively. I did some undergraduate teaching in electron microscopy and parasitology at the Ninewells Medical School and teaching hospital in Dundee before doing postdoctoral work at Biomedicum in Uppsala, Sweden. After I finished my education in Europe I went back to Lagos to work and teach at Lagos University Teaching Hospital and was there for about a year. But I really wanted to teach in the university department so I crossed over to Lagos university where I worked as senior lecturer/head of the microbiology unit. I had been there for some years when I saw an advertisement to work on childhood pneumonia at the Medical Research Council (MRC) in The Gambia. I've been at the MRC since then [1990]. Initially I started working on the etiology of pneumonia where we showed very clearly that the two main pathogens causing pneumonia in Gambian children are *Streptococcus pneumoniae* and *Haemophilus influenzae* type b. The studies we did then were similar to what we are trying to do now with meningococcal meningitis—looking at the immunogenicity of a new vaccine. I started my work here as head of microbiology. I was responsible for both research microbiology and diagnostic microbiology. Following the reorganization of the MRC in 2004 I was appointed head of the bacterial diseases program. I became a Fellow of the Royal College of Pathologists (London) in 1998 and was awarded the designation of Chartered Scientist (Csci) by the UK Science Council in 2005.

Why did you turn to medical microbiology?
By accident, really, and that happens to many Africans, because of our setting. When I was growing up, I was very good in geography and wanted to be a geologist to work in the oil industry. I needed a scholarship to go to university, but the people who offered scholarships at the time were interested in supporting people into medicine or medicine-related subjects, so I switched to microbiology. I don't regret it at all, I think I have been very lucky to work in facilities that can provide support for me to do that kind of work.

How did you get to join the PAG, and did you expect to be nominated?
I have no clue how it happened. I was just doing my work, but I was happy to participate, the reason being that part of the work I do in The Gambia for bacterial infections is

meningitis, and I am aware of the devastating effects of epidemic meningitis in the meningitis belt in Africa. So I thought it was a good opportunity to be able to contribute.

What can you bring to the advisory group and the project, do you think?
I think I can bring my experience with clinical trials. I have been fortunate to participate in several trials after I joined the MRC. We are very fortunate here at the MRC because one can start with the etiology of the disease and investigate the immunogenicity or side effects of a vaccine and take that to a trial implementation, I have that experience with Hib and I think I can take that experience to bear with both evaluation of the meningococcal A vaccine and its implementation in an African setting.

Would you briefly describe your experience in clinical trials?
I've led a major Phase IV vaccine trial for a Hib conjugate vaccine. The study started in 1997 and I was fortunate enough to lead the effectiveness study which has shown very clearly that Hib has been eliminated from The Gambia. I also led the pneumococcal conjugate vaccine trial briefly until Professor Felicity Cutts took over as the Director of the program. I am currently a principal investigator (PI) for another trial that's taking place in Basse that is looking at an alternative vaccine dose for pneumococcal conjugate vaccination. I am also the PI for a community randomized trial at Sibanor villages aimed at determining impact of vaccination with a pneumococcal conjugate vaccine against carriage of *S. pneumoniae*. The general picture is the same for any Phase II trial: usually the aims are to determine safety and immunogenicity. You have to know how to do informed consent, how to sensitize the communities, and I think I have experience that I can bring to bear to the PAG in these aspects of vaccine trials.

When you first heard of MVP, what did you think of the project?
I was excited about the idea of wanting to focus on a monovalent vaccine, because my experience with other multivalent conjugate vaccines is that cost is prohibitive. I thought that the MVP approach of focusing on just one serotype was innovative. Actually, I was one of those who thought initially this might be the way to go, with regards to making an affordable vaccine available. It is clear that vaccines are now better made because of advances in technology, but then they become more expensive. Focusing on one serotype, and then deal with it, might be the way to go forward. I think there's a lesson to learn for other people who are interested in making vaccine available—it is the MVP system. The more valences you add, the more complicated it is to make, and the more expensive it becomes.

There have been unsuccessful attempts to make meningococcal conjugate vaccines for Africa. What makes you think that MVP can succeed where others have failed?
I think the MVP approach is very sensible. Dr. LaForce, the project director, had a very sensible approach by meeting with the people and discussing with them to find out what vaccine should be developed and how much money they would be willing to pay. Ensuring that African public health experts take part in the decision-making process is clearly one way of moving things forward and making things acceptable to people because they don't see things as you sitting down there somewhere in Europe and taking all the decisions and throwing them to them. It's probably one way of doing things and making them more readily acceptable to people, and that may be one of the reasons why this may be successful.

Are there other diseases here in Africa for which the MVP approach could be used?
Clearly, there's the pneumococcus, which is the subject of my interest. A pneumococcal vaccine with nine serotypes would cover about 70-80% of pneumococcal disease that we see in The Gambia. But that is going to be pretty expensive. On the other hand, we know that serotypes 1 and 5 cover about 33% of the disease, so one idea is, "Why can't you just even go for a two-valent vaccine?" It certainly would be easier to make than a nine-serotype vaccine.

What kind(s) of issue(s) should MVP focus on during Phase II?
Vaccine safety. That's all in the protocol actually, to make sure that what we want to give to the children in this setting is not harmful to them, and to demonstrate that the children that have been vaccinated respond fully to the vaccine.

MRC is one of the leading medical research facilities in Africa. How did it get there?
In my opinion our strength lies in the partnership between the Gambian government and MRC. All our vaccine studies are done at government establishments. We use in our trials facilities that government has; we contribute to that, we supplement their efforts, we work with them. In fact, most of our trials are described as Gambia government-MRC joint activities. So the people actually take ownership of our vaccine trials. For example, for the Hib trial, we actually used government vaccinators. What we were doing was making sure that all the materials and the things that they needed were available, and of course, we were doing appropriate and adequate documentation of events. But we worked with them. And I think that that's a major contributing factor to our success with them. That's not just to pretend. We have several meetings with the government, even before getting to a proposal stage, where we discuss what we want to do. So from top down, everybody is aware of our activities. People can express their opinions and say, "I don't agree with this." Things are worked out with the government, and if they are not suitable to them, the government will not allow it. This gives assurance that we are not forcing things down people's throat because MRC has been here for this many years. I think both the government and the population trust us. So there's a balance there that I think you don't find in many other countries.

There are also other structures that tend to strengthen that feeling of trust. A scientific coordinating committee was established at the MRC about 20 years ago so that nobody can do any project here, no matter how small or big, without going through a system of verification and evaluation by a scientific committee. In addition to that, there's also the ethics committee, which is a joint committee of Gambian government and MRC where every project, no matter how small or big, is criticized and evaluated, evaluated again, and commented on. That tends to give people confidence that things have been examined and looked at before they are allowed to be performed in the community. People here know that if they have complaints, there's an institutionalized structure that they can approach. One area where we tend to have issues is any study that has anything to do with taking blood, because blood is considered to be sacred in the community, and people are reluctant to giving samples of something that they consider sacred. But if you give them concrete reasons for why each of the samples is necessary, you still get them done. The ethical committee scrutinizes that, and they give the amount of volume that you can take within a particular age group, so that you are not doing anything harmful to the participants.

Do you think that people really understand that the vaccine is being trialed?
Oh yes! Although the literacy level in The Gambia is low, particularly among women, the mothers are very intelligent, and they understand what's going on when you take the time to explain things to them. Many of them have children who attend school and understand things, and usually what we do is give them all the papers so that they can take them home, and someone reads and explains to them.

Have you developed any kind of special relationships with the communities over time?
Oh yes! One of the strengths of MRC activities is field study, and one of the strong elements of field studies is field workers, who are well trained. Some of them, like field supervisors, go for external training at the Pan African Institute for Development (PAID-WA) in Cameroon. Part of their training is on how to approach the community. You start from the head of the village, the alkalo, and if it's acceptable, he brings the heads of the compounds together. If they agree, you then go to the compound. If the head of the village does not allow you to come into the village, that's the end of it. But even if the village chief and the compound heads approve a study, individuals within that village still can say no through the individually administered informed consent.

How often does that happen?
About 10% of people refuse to participate in our studies, as a general rule, in The Gambia. It depends on the study. Some people may refuse to participate because of the blood draws. Or they feel they have been offended, maybe by MRC staff. For instance, somebody has gone to the clinic and was asked to wait in a queue, and he was in a hurry, and he does not think that the staff gave him enough attention, so he decides that he doesn't want to have anything to do with MRC. So you have various reasons for which people don't want to participate. There was a time when we were interested in finding out why people refused, but it was suggested that it might be unethical to want to find out because someone who refuses is entitled to refuse without giving any explanation. But we can speculate on some of the reasons why they refuse. For instance, we know of a particular community where the compliance rate is always low, and we know that one of the reasons is that they have many of their children who travel out, and some of them feel—because in our studies we don't give money—that we should be giving money to participate in that kind of study. Sometimes, we get some of our experienced field workers to go back to the community and explain, and some people decide to participate. Some refuse because their religious leaders tell them not to participate. But if you explain the importance of the study, some of them may decide to participate. It is also important to give the community feedback. After doing a trial, people want to know. "You have taken blood from us, so what is it that you found? What does it mean to us?" People don't want to see you when you are coming again for your next study. Going back to the community to share the results of the study helps to strengthen the relationship, and they feel useful.

Field workers who go out to the communities must, at some point, be in contact with traditional healers. How would you describe the relationships between traditional healers and MRC staff? Does the MRC put traditional medicine men out of business?
Well, it depends on the approach. In African setting, I don't know that you can actually put traditional medicine men or herbalists out of business because when a child has meningitis and the mother gives him antibiotics, they still go there because they still believe that they need that kind of support. In some countries, like Nigeria, they are trying to define a role for them. Because, whether you like it or not, people will go to them. Let's take the example of

tuberculosis. The disease is treatable, one of the reasons why there is failure in treatment is non-compliance because you need 4 to 6 months of treatment of taking tablets, and when people take tablets for a month or two, they start feeling better, so they stop the treatment, but the disease is not gone and usually comes back. So one way of coping with that is DOT, or "directly observed therapy." The idea is to have someone there to make sure that you are actually taking the tablets, to ensure compliance, and one of the ways to do that is to go to traditional healers because people respect them. You give the medicine men the drugs, the people go to them, and they make sure that you take your tablet in their presence.

The death rate for under 1 year olds is about 80 per 1,000 in The Gambia, and the death rate for under 5 is about 120 per 1,000. These two rates are among the lowest in Africa. What role, if any, does MRC play in such low mortality rates?
Obviously, there's the impact of immunization. The figures are the average for the country, they may be higher in some parts of the country, particularly in hard to reach areas, when it may be difficult to get children fully vaccinated. A vaccine trial is also a source of benefits for the community: when we are studying a particular community or village, the study participants are of interest to us until the end of the study, even if the sickness is unrelated to what we are doing. It's part of our ethical responsibilities to provide them with appropriate investigations and treatment, particularly because we work in a setting where health care facilities are not optimal. Going back to what I said before, mothers in The Gambia are aware about vaccines, and they take their children to vaccination clinics. Vaccination days are like a party! Mothers are well dressed, they are all there. People here in The Gambia realize that they have benefited a lot over time, because the Hepatitis b vaccine was evaluated here, was found to be efficacious, and was given to The Gambia. *Haemophilus influenzae* type b vaccine was the same.

How important is MRC to The Gambia?
MRC is one of the largest employers in The Gambia with about 800 staff, and it must be one of the top five in terms of remuneration as well. So it is well recognized that MRC is contributing to the country. Even though MRC is a British organization, we are completely internationalized. We have some 20 nationalities at MRC. It's not surprising to me because we are interested in tropical medicine, and to have the kind of setting that we have with the facilities to back it up is very unique. You have facilities that you can use to do studies that, to a large extent, are comparable to what you can do in Europe, so I guess that that's one of the things that encourage people to come here. Clearly that's what has kept me here for so many years. This is where the problem with infectious disease is, and we have a setting that takes you through—from determining where the problem is, where and how can you intervene, and how you can evaluate the impact of that intervention… right there. It's a unique setting in the sub-region.

Your final thoughts?
I hope that the MVP project will work. I am really excited about the possibility that this may work and that epidemic meningitis may be eliminated from the belt, because apart from the sufferings and devastation that it brings to people, it affects other issues. Virtually everything is paralyzed, and it affects the economy. So if it works, it definitely should add to the eradication of poverty in the affected African countries. So, for me it is a pleasure to be able to contribute a little bit to this project.

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