October 8, 2012
8:30 am CT

Operator: Please stand by. We're about to being.

Operator: And ladies and gentlemen, good day, and welcome to the Human Heredity and Health in Africa (H3Africa) Consortium Media Teleconference, hosted by the National Human Genome Research Institute, which is part of the U.S. National Institutes of Health, and Wellcome Trust, a charity in London, England. This call will last for approximately 60 minutes.

There will be three primary speakers who will provide brief remarks, and then callers will be invited to ask questions. To enter the queue to ask questions, press star and 1 on your touch-tone phone. You can leave the queue by pressing star and 2 on your touch-tone phone. This call will be recorded, transcribed, and available as soon as possible on the Web site of the National Human Genome Research Institute at www.genome.gov.

Now I will turn the program over to your moderator, Eric D. Green, Director of National Human Genome Research Institute at the National Institutes of Health. Please go ahead, sir.

Eric Green: Thank you, good morning, or afternoon, everyone, depending upon where you're located. It's late afternoon here in Addis Ababa, Ethiopia where we are gathered for the inaugural meeting of the new research consortium that is the topic for this telebriefing. I'm Eric Green, Director of the National Human Genome Research Institute, also known as NHGRI, at the U.S. National Institutes of Health, also known as NIH.

I have the profound pleasure of welcoming you to this telebriefing on behalf of the NIH, and our partners at the U.K. Wellcome Trust. Today we're announcing the first research grants for the Human Heredity and Health in Africa Program, also know as H3Africa, and with this comes the launching of the H3Africa Consortium.

The rapidly expanding opportunities for using genomics research to elucidate the genetic and genomic bases of human disease are truly spectacular. H3Africa grew out of the strong desire to make sure that Africans and African scientists and clinicians benefit from these opportunities, and effectively capitalize on the worldwide genomics revolution.

To do this, the NIH in the U.S. and the Wellcome Trust in the U.K. forged a new partnership called H3Africa, which was announced in 2010. It aims to provide research funding to enhance genomics research capabilities in Africa, including pan-African collaborations in addition to collaborations with U.S. and European researchers.

During this telebriefing you will hear from some of the African researchers who are now beginning their genomic studies of important human diseases. While we will only have time to hear from two of these researchers, looking at rheumatic heart disease and kidney disease, other researchers receiving H3Africa grants will focus on studying the genomic basis of diabetes, obesity, tuberculosis, and Africa sleeping sickness.

We will also hear from a leading African researcher studying the ethical issues associated with resuming genomics research in Africa. In addition to the research projects, H3Africa aims to develop and enhance key infrastructure to pursuing genomics research that related to biorepositories and to a bioinformatics network.

The reason we're starting in H3Africa a biorepository program is to ensure the availability of robust, international, biorepositories on the African continent that can store and distribute African samples. Such biorepositories will give Africans a site for safe and high quality storage of their biological samples that will be distributed on their terms for subsequent research studies.

In a similar way, H3Africa is establishing a pan-African bioinformatics network that at its onset will include nodes of computational expertise in more than 15 African countries. This network will initially provide a framework for integration of and communication among all of the H3Africa research and resource projects.

If successful it will possibly expand to include other sites in Africa that are carrying out genomics and genetics research. In doing so, it'll help to establish a critical mass of bioinformatics expertise, thereby contributing to the larger goal of H3Africa to improve the infrastructure for genomic and population-based research in Africa.

More than half of NIH's contribution to H3Africa comes from the NIH Common Fund, a program created to support multi-disciplinary programs across NIH.H3Africa also enjoys broad support from several NIH institutes and centers with ongoing research interests in Africa, including the National Human Genome Research Institute, The Eunice Kennedy Shriver National Institute of Child Health and Human Development, the National Institute on Drug Abuse, the National Institute of Neurological Disorders and Stroke, the National Institute of Allergy and Infectious Diseases, the NIH Office of AIDS Research, and NIH's Fogarty International Center.

NHGRI will manage NIH's contributions to H3Africa, which is $5 million this year, working closely with our colleagues in the various other NIH institutes and centers. NIH has committed a total of $25 million of grant support over five years for this program,

and meanwhile, the Wellcome Trust has committed almost $13 million over the same five years.

The overall goal of H3Africa is both simple and profound. We hope to enable African researchers to lead genomics research in Africa on biomedical problems of importance to Africans. This project is structured so that African researchers are the principal investigators, not the junior partners. And the biological samples collected in Africa will stay in Africa. That is why we're invested in infrastructure like biorepositories.

H3Africa is intended to develop a sustainable, collaborative research enterprise that will enhance genomics research in Africa and eventually improve health on the continent. Through this work the Africa scientific community will make important breakthroughs on a number of diseases, from understanding their causes, to the development of new approaches for diagnosis and, hopefully, treatment.

And now I'd like to introduce Dr. Pat Goodwin of the Wellcome Trust, who will discuss the Trust involvement in H3Africa. Dr. Goodwin?

Pat Goodwin: Thank you, Dr. Green. Hello, everybody. I - as Dr. Green said, I'm Pat Goodwin from the Wellcome Trust, and we've been delighted and excited to work with the National Institutes of Health over the last three years to develop this initiative. And I

think it's also important to say that during this time we have done this in consultation with African scientists.

We're now delighted that the Trust is supporting three research networks under the H3Africa initiative, and together they involve 16 African countries, and are studying three diseases, sleeping sickness, rheumatic heart disease, and diabetes, which affect the health and quality of life of many Africans.

But now I think it's time to hand over to the principal investigators themselves to actually tell you more about the project.

Eric Green: Thank you, Dr. Goodwin. Before we hear from the African scientists, I did want to take this opportunity to acknowledge Dr. Jane Peterson of NHGRI, who serves as the Lead Coordinator for H3Africa and NIH, as well as Dr. Mark Guyer, who is NHGRI Deputy Director, both of whom have been deeply involved in designing and launching this important project from the NIH side.

And they are here in the room and are available to answer your questions, as are many other people from both funding agencies. So once we get into the question and answer period, you might be hearing from some of those individuals as well, in addition to being able to speak to the H3Africa researchers.

So now, permit me to introduce several principal investigators who will speak about the research projects. Dr. Dwomoa Adu, from the University of Ghana Medical School, Dr. Bongani Mayosi, from the University of Cape Town, South Africa, and Dr. Clement Adebamowo, from the Institute of Human Virology in Nigeria. We're also delighted to have in the room many of these other principal investigators involved in H3Africa, as I mentioned earlier.

So let's start with Dr. Adu, a nephrologist, who will first describe his genomic study of chronic kidney disease.

Dwomoa Adu: Thank you very much, Dr. Green, and good afternoon or good morning, as the case may be. Progressive damage to the kidneys leads to chronic kidney disease, and studies from sub-Saharan Africa as well as some other parts of the world show that about one in ten individuals have some degree of chronic kidney disease.

Such individuals may have the progressive kidney failure over a period of years. These more severe stages of chronic kidney diseases have a prevalence of 4 percent and they're a major risk factor for cardiovascular disease and death, and also to more severe kidney failure. When the kidneys fail, then dialysis -- kidney machine treatment -- is needed to prevent death.

Kidney failure appears to be more common in sub-Saharan Africans than in whites in the U.S. and Europe, and also clear that at an earlier age with peak incidents are between 20 and 50 years. We estimated that some 50 million people suffer from pre-dialysis, chronic kidney disease in sub-Saharan Africa, and more than half a million individuals in this region die annually from renal disease.

For our research project we will study 4,000 kidney disease patients and 4,000 unaffected controls using genomic techniques to determine whether their genes are also associated kidney disorders in Africans. The project is organized at the collaborative research effort that involves investigators based at ten institutions in African countries, in Ghana, Nigeria, Ethiopia, Kenya, and South Africa, and three countries outside of Africa back in the U.S.A., Canada, and Israel.

This grant will also establish two genomic research laboratories in Africa, and train several African genomics research scientists to study important health problems in Africa. The need for this type of research is clear. Recent data from hospitals in Ghana and Nigeria show that 15% of all medical admissions have kidney disease, and that 10% of all deaths in medical wards are due to kidney disease.

Most of these patients are aged between 20 and 50 years, and this makes chronic kidney disease a disease that affects and kills young, economically active Africans, unlike in developed countries, the causes of chronic kidney disease in Africa have not been

clearly defined due to a lack of well conducted epidemiological studies and disease registries.

Small single center studies in Africa suggest that inflammation of the kidneys and hypertensive kidney damage are the leading causes of chronic kidney disease in adults. This is in comparison to the developed world, where diabetic nephropathy and hypertensive kidney disease are the leading causes of chronic kidney disease.

The impact of chronic kidney disease on overall survival is more pronounced in developing countries due to the lack of treatment, such as dialysis, and the expense of modalities such as dialysis and kidney transplantation. The cost of a year's dialysis is about $20,000, and we estimate that fewer than 2% of individuals with kidney failure in Africa have access to chronic dialysis.

Kidney failure thus imposes incalculable human suffering and a catastrophic human burden sub-Saharan Africa. The tragedy for those who start dialysis that impoverish their families and then they will still die. Recent studies in African Americans have identified a strong association between genetic variants of single genes in kidney disease.

Since African Americans originated from sub-Saharan Africa, it is reasonable to propose that these genetic variations are found in Africans, and contribute to the development

of kidney failure. The role of these variants in all forms of chronic kidney disease among sub-Saharan Africans is unknown We anticipate that these studies, which are funded by a grant from the National Institute of Health of the U.S.A. will lead to new insights to the causes of chronic kidney diseases in sub-Saharan Africans, and hence to novel treatments.

Eric Green: Thank you, Dr. Adu. We'll now hear from Dr. Mayosi on his project related to genetics of rheumatic heart disease and molecular epidemiology of streptococcus pyogenes pharyngitis.

Bongani Mayosi: I welcome this opportunity to speak on rheumatic heart disease, which is an important cause of heart disease in children and young adults in the world. It's a condition that results from infections of the throat by the streptococcus bacterium, and if it is not treated with penicillin, it could result in rheumatic fever and rheumatic heart disease in a portion of the population.

We're talking about 3% of the population, and it occurs, in particular, in social conditions of poverty. In fact, rheumatic fever, rheumatic heart disease, have largely been conquered in the industrialized countries of the world through improvement in social conditions, and in particular in housing conditions and access to primary healthcare.

The problem is that rheumatic heart disease continues to be a major problem in children and young adults living in the developing world, which means that it is an important cause of heart disease among 80% of the world's population, and it is the main caused of heart disease in sub-Saharan Africa. For example, of the 2.5 million children under the age of 15 years with rheumatic heart valve disease, about half of them live in Africa.

We seek to do four things with the funding. Firstly, we are building a network of investigators in eight African countries who are going to be able to do research on this particular condition. We will be investing in staff who will do the research, so that the objective of our work is achieved.

Secondly, we will collect a large number of cases of rheumatic heart valve disease, about 2,500, as well as 3,500 controls, and we will do a genetic study to try to identify genetic factors that will put people at risk. We think that studying genetic factors that put people at risk for rheumatic heart disease will help us to understand the causes of this condition in biology, and in particular it may also help us to pick those individuals in a population who are at risk, and help direct preventive efforts towards those individuals.

Importantly, we intend to use this study to train at least 16 African scientists and clinicians who will become the leaders in the future in the investigations of people with

rheumatic heart valve disease as well as other conditions that have genetic determination.

But we don't stop there in building an infrastructure for research studying rheumatic heart valve disease and training leaders in genomic research, but in our study we're going to be looking at important social issues that are raised by the research, that are related to ethics of doing research, that are related to legal issues of doing research, so that our work benefits society in general.

We are very excited to be part of this consortium that has been funded by the Wellcome Trust and the NIH, and we look forward to a situation where Africans working on heart attack problems can provide information and knowledge that will be of benefit to all the people of the world. Thank you.

Eric Green: Thank you, Dr. Mayosi. Last, but not least, we will hear from Dr. Clement Adebamowo, who will discuss some of the many ethical issues associated with genomics research projects in Africa.

Clement Adebamowo: Thank you very much, and it's really a great pleasure to be here, to be talking about this issue, and it's indicative of the importance that the Wellcome Trust and the NIH puts on the importance of ethics in the context of research in Africa, and in the rest of the world in general.

So we all know that research invents the future and is a public good, that we all have an interest in promoting. It contributes to improvements in personal and aggregate community health by reducing the incidence and severity of illness and death. It increases individual and community productivity and wealth by increasing the amount of years of economic productivity, reducing loss of income due directly to the cost of treatment and indirectly from loss of income.

And so investment in health and in health research and participation in health research is a moral obligation that we all have, and Africans, great moralists that they are, recognize this, and believe very strongly that they are obliged to participate in health research whenever possible. This aligns with findings from our research on ethics in Africa. Yet, not all Africans are privileged or opportune to participate in research. So society owes a debt of gratitude and has a moral responsibility to protect those who choose to participate.

This challenge, to protect research participants and prevent them from egregious harm, is a joint responsibility of the researchers, communities, government, bioethicists, sociologists, and indeed all participants in the research enterprise.

Historically, because of the nature of things, Western societies have taken the lead in developing many of the moral philosophical and ethical concepts that guide current practice of research. These prevalent ethical frameworks underlie current approaches to

managing ethical review of research and responsible conduct of research. Though some of these derive from ancient African moral philosophies along with development of monotheism, they have spread throughout Europe and have now returned to modern Africa.

In modern Africa our communities derive their ethical frameworks local traditional religions, Islam and Christianity – the latter are practiced in unique ways in different African societies. These modern and uniquely African ethical framework guides the way modern Africans respond to invitation to participate in research.

Genomics research has a special place in the pantheon of research activity, partly because of how we feel about the nature of genomic determinants of health and of illness. Africa continues to be plagued by epidemics of infections, non-communicable diseases. Of course the most important in recent times is HIV/AIDS, but we know that many Africa countries are now plagued by non-communicable diseases as many developed countries.

So Africans retain a very strong interest in research in these areas, and utilize their cultural, ethnic, religious, social, economic, and religious experiences influence their response to invitations to research participation, contributions of biological samples to biobanks and biorepositories, the use of those samples in future unspecified use research, the sharing of samples across international boundaries, and the uses to which

those samples are made, particularly as it relates to activities that some Africans may find offensive to their religions.

Our research suggests that Africans put a lot of premium on the value of trust, and researchers in Africa have a great responsibility not to betray that trust, because modern Africans believe more in the transactional relationship between the researcher and the research participant much more than the fact that they have signed an informed consent document.

So as the different projects in H3Africa move forward, and as we have heard from the different Principal Investigators today, all the projects have integrated research ethics to a varying extent into their project. And we think that this is the most important way to ensure that research in Africa is conducted in an ethical and responsible manner.

We believe that these efforts will yield significant health benefits in the areas of both communicable and non-communicable diseases to Africans. We believe that Africans understand the value of research, and we believe that their ethical frameworks do provide adequate mechanism to guide the research ethics review.

We also note that there are specific research plans and funding opportunities in ethics of research within the H3Africa project, and we think that this is going to lead to very exciting results that will improve community buy-in into the research, dissemination and

adoption of research results and prevention of individual and community harms. Thank you.

Eric Green: Well, thank you. Let me thank all three of the speakers that you just heard from. And with that, I'll open up the phone to your questions, and I believe the operator is going to moderate by selecting the individuals. And please make sure that we - the operator has to do it - please introduce yourself and tell us the name of the organization when you ask your question.

Operator: Thank you, sir. And yes, I will introduce the people as they do join in, and it is star 1 on your touch-tone telephone at this time, star 1 if you'd like to ask a question. Once again, ladies and gentlemen, that's star 1 on your touch-tone telephone. We do have a question coming through. The question comes from Munyaradzi Makoni.

Munyaradzi Makoni: Yes, I wanted to know what sets apart the researchers and why is it the largest number of winners of this grant from South Africa? Thank you.

Eric Green: I didn't understand it. Can you repeat the question? We couldn't quite make out here in the room what the question was.

Munyaradzi Makoni: Okay, I wanted to understand how did you select the winners to get this grant? Which set them apart from other researchers? And also I want to find out why is the largest number of winners from South Africa.

Eric Green: So we can answer that. First of all, ((inaudible)) the answer ((inaudible)) I wouldn't regard these necessarily as winners, and the people that didn't get the funding as losers. In science we don't like to think of them in those terms. We picked the most meritorious applications based on the amount of funds available, and those are the individuals who are funded.

Dr. Mark Guyer is going to - who's the - from NHGRI, will answer it, and then we would love Wellcome Trust to add anything beyond what he says about how NIH went through the process.

Mark Guyer: Yes, I think the basic answer is that these grantees were chosen by a process of peer review, the same - both NIH and the Wellcome Trust have defined processes of peer review that involves submission of applications, starting with announcements of what the program is involved. Investigators then submit applications.

Those are reviewed by committees that are established for that purpose. And then, the results of that review at NIH go through another one or two levels, and those

applications that are judged as having the highest scientific merit, are the ones that were chosen. Pat, do you want to talk about the Trust's process?

Pat Goodwin: Well, that is very similar. Everything goes up to peer review, and the applicants have the opportunity to come and talk to a committee of the Trust's external advisors, who then decided on merit, which ones should get the award. And the Trust will only fund things of scientific excellence. And we're delighted that we have three scientifically excellent projects to fund.

One is from South Africa, or led by someone from South Africa. One is led by someone by Ghana, one is led by someone from Uganda, but in all three projects they reach out across Africa. And in total I think, if we look at the initiative as a whole, 24 countries in Africa are represented.

Mark Guyer: And I will also add that essentially the number of grants that were made were limited by the amount of funds that the agencies had available and our determination and based on the requested budgets of how much each of these awards really required to achieve its goals. The NIH has reissued solicitations so that we will be making another round of awards in about a year for collaborative centers research projects and biorepository.

Eric Green: Okay, next question?

Operator: Again, ladies and gentlemen, that is star 1 on your touch-tone telephone if you do have a question, star 1 at this time, please. We do have another question coming through. The question comes from Becky McCall with The Lancet.

Becky McCall: Hi, yes, I just wanted to ask, is this about building research capacity in Africa or is it more about the genomic science? And if it is the genomic science, could that be carried out anywhere else other than Africa or does it have to be carried out in Africa?

Eric Green: I can start by answering that. I'm looking around out - my colleagues are welcome to join in. I would - the first question was, is it just about capacity or is it also about doing genomic research. I think the answer is both. That's why there's a multipronged aspect of H3Africa, as we described.

And it's also building infrastructure as well as carrying out specific projects, and with the idea that we needed to both have the capacity to, in the long run, build on that expertise, and in the short run to start doing specific projects to demonstrate that the infrastructure we're building is effective and also to hopefully have that be catalytic to create additional opportunities for other similar research projects.

Why does it have to be in Africa, if I understood the question, was does it have to be in Africa in order to - you know, why are we doing this in Africa. And I guess what I would say, watching what is happening in the United States, and my colleagues can speak to what they're seeing in the U.K. and in Europe, is that the genomics is very unusual, in that it is extremely facilitative and really accelerates research projects in many different areas across the biomedical research spectrum.

And everything from very basic research to increasingly more medically-oriented research, translational research, eventually clinical applications, and to me the notion of having any part of the world left behind, capitalizing on this remarkable revolution, would be tragic. And so to start to be able to build that expertise and be able to capitalize on what genomics can do meant it needed to be done here.

And it needed to be done by African scientists, not on behalf of Africa, and not elsewhere. I mean we just felt this was the right way to make sure the continent is not missed in the genomic revolution. Does anybody want to add to that, around the room?

Pat Goodwin: This is Pat Goodwin for the Wellcome Trust. Just to reiterate, I agree with what Eric has said. There is no point in building capacity for capacity building's sake. You can only build capacity properly around good - a good scientific project. So the capacity-building and the genomics, and also it's not just genomics in H3Africa.

There's also a very important clinical phenotyping aspect to it as well, which is absolutely fundamental, and must be done in Africa. So we really must think of the two together. And the Wellcome Trust's view has always been that we shouldn't ever just parachute in and just take samples out of Africa. We must empower African scientists to do their own research.

Clement Adebamowo: This is Clement Adebamowo. So one of the strongest drivers of the whole H3Africa concept, one is to start the development of in-country, in Africa, genomics research capacity for research and training. In order to kind of reverse some of the worst aspects of current paradigm of conducting research where a lot of what African scientists do is to collect samples and ship them to laboratories in the more developed parts of the world.

And so by getting African scientists to design scientifically rigorous and peer-reviewed research, we have already begun to build capacity. By getting them to collaborate with centers in different parts of Africa, we are already reversing the trend by which people first look to Europe and America for collaboration, and ignore nascent technologies and capacity that's in Africa.

So H3Africa has that huge potential to rewind and to kind of reduce or eliminate years and years of one might see as some degree of research exploitation. And once that capacity is developed and is on the continent, in Africa, then Africans can do whatever

they want with it, and they can use it to address public health issues of the greatest importance to their own population.

Eric Green: Okay, next question.

Operator: And again, ladies and gentlemen, star 1 if you do have a question. Mr. Green, there appears to be no further questions at this time.

Mark Guyer: Can I just add...?

Eric Green: Sure.

Mark Guyer: I just want to add one more component of the response to the previous question about why Africa, and that is - it hasn't been mentioned yet - but Africa has the largest amount of genetic diversity in the world, of all places in the world. Most genetic diversity is here in Africa, and the ability to take advantage of information about genetic diversity for allowing us to learn much more about human biology, human disease, can be done in Africa to take advantage of that, but it should be done by ((inaudible)).

The one final thing I want to say is that I heard a great phrase this morning from Dr. Alash'le Abimiku who's the PI of one of the biorepositories and who talked about

changing the situation from one of brain drain to brain gain. And I think that is, in a nutshell, what H3Africa is all about.

Eric Green: Okay, operator, are there any other questions?

Operator: There are no questions at this time.

Eric Green: Okay, well thank you again for joining this telebriefing. You will find materials related to this announcement on the H3Africa Web site, and its URL is H3africa.org. You'll also find the same materials available by contacting the NHGRI Office of Communications that is referenced in the media advisory on the press release. This concludes our call, and thank you very much for your attention.

Operator: Ladies and gentlemen, this does conclude today's conference. We appreciate your participation. You may disconnect at this time.

END