

**Global Health Working Session: Neglected Health Threats:
Silent Killers, Practical Responses
2006 Clinton Global Initiative Annual Meeting
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[START RECORDING - PART 1]

GEORGE STEPHANOPOULOS: - resources. Even though these are diseases that with relatively little money, relatively little attention, could get solved, and could be eradicated from the world. What are we talking about here? We're talking about bacterial and parasitic diseases that include things like hookworm, snail fever, river blindness, leprosy, trachoma, intestinal worms. Things that we may have seen in our country or in some of your other countries years and years ago, and have been eradicated, but are still plaguing so much with the developing world, a billion people now suffering from these diseases. More than 2 billion at risk and it's costing billions, if not trillions, of dollars to the global economy.

What struck me about this, and what really hit me, is a paradox at the heart of this problem. These diseases can be treated for almost no money. Forty cents, 50 cents a year compared to \$200 a year for HIV/AIDS. Yet, because it's so inexpensive to treat them, it's not in the interest of the big pharmaceutical companies to come up with the treatments, because it's just not economically viable.

So that's one of the things we want to address today, and we really don't have, we couldn't have a better panel for this. First of all, of course, President Jimmy Carter, the 39th president of the United States, and who, for the last

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generation now, has in the Carter Center been dedicating his own time and been focusing the attention of the world on so many different problems, but especially this problem of neglected diseases. And we were just talking for a couple of minutes before we came out here. The president's efforts on Guinea worm have eliminated this disease in 99.7-percent of the world. [APPLAUSE] There is only a tiny group that is still suffering from this disease.

I'm also joined by Dr. Sam Zaramba, right here, the director general of Health Services in Uganda. He is entrusted with the health of 26 million people. Uganda was one of the first countries to recognize how much of a threat these neglected diseases posed to developing nations, and in 2003, it launched a model snail fever eradication program that has treated over 3.6 million people.

Finally Dr. Peter Hotez, the president of Sabine Vaccine Institute and the chair of the Global Network for neglected tropical disease control at George Washington University. He is perhaps best known for his creation of an experimental vaccine to prevent hookworm, related malnutrition and anemia, and he has spent his career highlighting these programs. And as you'll see, he knows more about it than just about anyone else in the world, and can't wait to tell you about it.

Then let me begin with you, President Carter. Let's

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take a big question, step back from the start. Why, in your mind - you've been studying these now for more than 25 years - why has this cluster of diseases been neglected?

PRESIDENT JIMMY CARTER: Well, what the Carter Center does is to deal with issues and major problems that are not being addressed by others, and when you start talking about [inaudible] or [inaudible], or lymphatic filariasis -

GEORGE STEPHANOPOULOS: I can't even pronounce them.
[LAUGHTER]

PRESIDENT JIMMY CARTER: You see people's eyes cloud over, but the fact is that these diseases are afflicting literally hundreds of millions of people in the most devastating way. For instance, the first time I ever saw Guinea worm, was at a little village in Ghana. I went to several villages and three-quarters of the total population were afflicted with Guinea worm. They couldn't walk. They couldn't go to school. They couldn't go to the field to cultivate their crop. The first, most memorable vision of Guinea worm I saw was a young, beautiful woman, who was holding her breast in her arm. I thought she was holding her baby, but her breast was swollen up and a Guinea worm was coming out of the nipple of her breast. She later found that she had 11 other Guinea worms emerging from her body. The Guinea worm is caused by drinking filthy water, and later the

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worm develops about 30 inches long, and it takes 30 days to come out of the human body.

That whole village was afflicted. There were three and a half million cases of Guinea worm we found the first year in 22 different nations across the continent of Africa and in Asia. We now have reduced it down to, as you say, three-tenths of 1-percent. In fact, except for Ghana and Sudan, we only have 60 cases of Guinea worm left in the world. It's likely to be the next disease to be eradicated.

We had another disease called river blindness that exists all over Africa. Also onchocerciasis, in six nations in Latin America. We began to treat onchocerciasis. Last year we treated, the Carter Center did, 11.5 million people with the free medicine that Merck gives us so that people won't go blind. This is practically an unknown disease in this country. Schistosomiasis is another disease. It's a horrible disease, and lymphatic filariasis is elephantiasis, it's where arms, legs and sexual organs swell up.

These kinds of problems are very pertinent, and what the Carter Center does, is we let the local people do their own work. We only send in one expert per nation, and the nation of Uganda, for instance, we have 35 countries in Africa. They do their own work. The overwhelming sense is the need is great. The knowledge in the developed world, the

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rich world, is not there, and the people are suffering horribly, and they can do their own work.

And the last thing I'll say is that what we have found is that the people in Africa who have suffered so much are just as intelligent, just as hard-working, just as ambitious, and their family values are just as good as ours. They just need a chance to correct their own problems.

[APPLAUSE]

GEORGE STEPHANOPOULOS: Let me just follow up before I go on to Dr. Hotez. When you first decided at the Carter Center to look at these neglected diseases, could you figure out, as you were looking at them, why they hadn't gotten more attention, either from the local governments or from the developed world?

PRESIDENT JIMMY CARTER: Well, fortunately for the Carter Center, we are next door to the Centers for Disease Control, so we had experts from CDC when they found out that I was interested in it that came over and put all of these burdens on our shoulder. These are things that are not being done by anybody else. Will the Carter Center take them on? Having been president, what I can do is go to a country, meet with the president of that nation, or the king, or prime minister and instead of just working with the minister of health, I can work with a leader of a nation, and all the whole cabinet, including the minister of health and

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transportation, finance and so forth. We can get the top level of government to deal with these sometimes remote diseases that even the leaders in that country don't know about. That's how we got involved in a wide range of neglected diseases.

GEORGE STEPHANOPOULOS: Dr. Hotez, you've heard President Carter talk about Guinea worm, about river blindness, but why don't you give us all an education now in the kinds of - what we're talking about when we're talking about neglected tropical diseases?

PETER HOTEZ: Sure, I'd be happy to. Before I do that, I just wanted to thank the Clinton Foundation for this opportunity. I've been working on vaccines for neglected tropical diseases such as hookworm for 25 years, and if you had told me back then that I could be sitting in this venue with President Carter and George Stephanopolus and Dr. Zaramba, I would have said this is some kind of adolescent fantasy.

[LAUGHTER]

GEORGE STEPHANOPOULOS: Hope it doesn't turn into a nightmare, but go ahead.

PETER HOTEZ: So I'm very grateful. I'm grateful to Chris Jennings, Chris Daws [misspelled?], Sarah Richland for this incredible chance.

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So, what we're talking about are a group of 13 parasitic and bacterial infections. As you mentioned, many of you may never have even heard of these diseases. They go by very fancible names such three protozoan infections, calazar [misspelled?], Chagas disease, African sleeping sickness, a group of worm infections, hookworm, Guinea worm, river blindness, schistosomiasis, lymphatic filariasis or elephantiasis. Three very important bacterial infections, buruli ulcer, leprosy and trichoma.

You could say, well, what do these infections have in common? What they are, they are chronic and disabling conditions that are the exclusive purview of the estimated 2.7 billion people who live on less than \$2 dollars a day. Only these people get these diseases, so it's not even like AIDS or TB, which are very important, not only in the developing world, but in North America and Europe. These only occur among the very, very poorest people in low-income countries of sub-Saharan Africa, South America and Asia, especially sub-Saharan Africa.

They have very long-term important effects, so for example, hookworm infection. What that has the ability to do - hookworms are centimeter-long parasites about this big, that attach to the intestines and suck blood out of the intestine, so that children who are chronically infected with these worms will lose about a teaspoon of blood per day, so

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they suffer from chronic anemia. The chronic anemia - now we have excellent evidence to show that chronic anemia will directly lower your child's IQ and will directly stunt physical end growth. So they are impairing intellectual and cognitive development. A University of Chicago economist recently estimated that chronic hookworm infection in childhood will reduce its future wage-earning capacity by 50-percent.

These are not only important health problems, but they're also very important economic problems. We're talking about \$49- to \$50 billion a year lost from hookworm alone. Then there are some important causes of blindness, the trichoma, river blindness, onchocerciasis will cause chronic blindness. Usually it will occur in the case of river blindness among someone who is the breadwinner in the family, so you will see in these sub-Saharan African villages, people who are led around by a stick by their child or grandchild when they should be at the height of their wage-earning capacity, being led around. Probably the most pathetic of them all is the lymphatic filariasis, which causes horrible and very painful disfiguring deformation of the lower lip and the scrotum, and other genital organs, so that these people become ostracized by their community. They can't even go seek medical attention because their families are too horrified to even bring these individuals out into the

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sunlight. Yet, we have now an incredible opportunity to control all of these diseases. Notice that I didn't say anything in particular about death. Yes, they do kill about 530,000 a year, but that's not their impact. Their impact is more subtle.

GEORGE STEPHANOPOULOS: I want to stop you before you get to the opportunity, because I want to get to that in a minute, but first let me ask Dr. Zaramba, and if you could share with us your personal experience in Uganda. You've been working very hard on snail fever, but also a cluster of other problems and I wonder if you could address particularly the interconnection between these diseases and extreme poverty.

SAM ZARAMBA: Thank you very much. It's a pleasure alone for me to be on this panel with President Carter. I want everybody to join me to salute President Carter for the wonderful work here that is done on neglected diseases.

[APPLAUSE]

I'll just tell you, these diseases afflict the poorest of the poor, and quite often as said, you go to a country, the headquarters and they do not know of the affliction in part of the country. The disease afflicts those that cannot help themselves. The whole range, the children, the adults, the women, the men are affected. As Peter has said, these are disabling diseases. Sometimes

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people have come to accept them as part of the norm. You can't believe it, if you look at a disease like [inaudible], in some communities, some communities can't accept that it's part of development, but the man, if you are [inaudible], at one time or another you also have to mistreat, meaning that you'll pass blood in your urine. And these are accepted, but you get to a point as you grow up, your tummy must come forward, must have pointed belly. It's accepted.

So it's a real pity that we still have these diseases in the developing world. Diseases we call umbilical diseases. It seems that some of you must collaborate [inaudible] that there used to be [inaudible]. Now these diseases are called untold, because they are called untold in poverty in Africa. They afflict the active adults as part. Chronic anemia itself is disabling enough to make you incapable of being productive. They are contributing, the diseases are contributing immensely to poverty in Africa, because they are silent, those who live in Africa and those [inaudible] have decided literally about [inaudible]. We take them as the norm. That's why I praise President Carter for having the vision to come in and support this.

GEORGE STEPHANOPOULOS: But you didn't take us the norm in Uganda. How did you address it and how did you attack it?

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SAM ZARAMBA: Now coming to what we did, I personally, having been a clinician, and having seen some of these diseases, I convinced my friends in the Ministry that we have to do things in a different way. The fact that they are not supported, they are not funded, that we must do something to ensure that we peg them on those programs that are well funded.

The best example was the immunization programs. We have had a number of complaints, particularly in the eradication of polio, and as everybody knows, polio has had a lot of support world over. We have had reactivation of [inaudible] of measles all over the world. So we said since we cannot get extra funding for some of these neglected diseases, why don't we peg the treatment on these campaigns, so that we have an integrated service delivery during the campaigns?

What we did was to find, we have some support for the elimination of slow transmitted [inaudible]. We have some funding [inaudible]. We have a bit of funding for lymphatic filariasis. We decided to cut out the programs at the same time, because we are talking about mass drug distribution in the communities. I can tell you that quite a number of our supporters are not happy with the exercise, because they thought we were going to submerge the programs, especially immunization. By the end of the day, we are able to convince

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them that there is synergy if we are to work together. Indeed at the end of the day, we had more coverages of immunization by including these neglected diseases.

GEORGE STEPHANOPOULOS: We'd like to get into more of the synergy session. I'd ask all of you, if you have any questions for the panel, we're going to be coming back after your table top discussions. Please give them to your facilitators at the table. They'll put them into the computer and we'll try to get to those in the next session.

President Carter, I was struck when you mentioned that you learned about this from the CDC. You had been president of the United States. The CDC worked for you when you president of the United States. Why haven't these diseases gotten more attention at the federal level and what are the prospects for that right now?

PRESIDENT JIMMY CARTER: Well the problem with many of these diseases is that they don't afflict even in developing nations. The elite people who live in the capital cities, who run the government and that sort of thing. They are in the most remote parts of the most undeveloped countries. For instance, Guinea worm itself, we had to go into almost 24,000 individual villages to teach the village leaders what causes Guinea worm and get them to correct their own problem.

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That's one very serious effect of it, and the other one is that quite often, as you just heard from the minister, the poorest people are the ones that suffer from all this whole gamut of neglected diseases. As we have learned how to deal with guinea worm, we've also learned a lot about lymphatic filariasis, schistosomiasis and trichoma that exist in the same community. We sometimes, the Carter Center goes into the villages, into the homes, get to know the problems, and then we share what we learn quite often with ministers of health in the capital cities. So we've pulled a gamut of continuity between the central government of a country, 35 of them in Africa, down to the village and into the homes.

Another very serious problem is that, say, onchocerciasis, which is a very serious blindness disease, river blindness. We get free medicine from Merck and Co., which I don't know how much it costs Merck, but they give it to us all we want. We've now handed out 83 million doses of the free medicine since we started getting it, about 11 million a year. But to get that free medicine from the shipping point into the interior and in somebody's mouth, is a tremendous undertaking. That's what the Carter Center does. We actually go into the villages. We put the medicine in the mouth, because you can't just send it in. Because if a person has river blindness with horrible itching and sores on the back and discoloration of the skin, knowing they are

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going to get blind, they would rather have that tablet than a diamond of the same size. So that tablet is extremely valuable. We have to actually put it in people's mouths, and that's a very difficult thing to marshal in London, or in Washington, or even in the Scandinavian countries that are very strongly declined to benevolence. The incubation of the idea, the commitment to it and the public awareness that I can bring as a former president, I think has been very valuable. I've learned a lot in the process too, of course.

GEORGE STEPHANOPOULOS: Dr. Hotez, you now believe, as you were saying earlier, that perhaps we are in a unique moment that presents an opportunity to eradicate many of these diseases.

PETER HOTEZ: Yes, that's absolutely right. It's actually a fascinating story which I'll have to abbreviate because of time, but it's one where actually the drug companies are in a sense, the good guys in this, because what happened, it started out in the 1970s. Merck and Co. had discovered a drug for parasitic worms, called ivermectin, which goes by the trade name of Mectizan. They developed this not because of human disease, but because worms of sheep and cattle are a billion-dollar-a-year industry - and dogs, don't forget dogs.

They made this veterinary product. They had it on the shelf. They were making something like 10-percent of

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their sales from this veterinary product, and then it came to light that this drug was very effective at reducing the number of circulating microfilaria that caused lymphatic filariasis, elephantiasis, as well as having a huge effect on reducing and preventing blindness, from river blindness, from onchocerciasis.

It was then that Roy Vagelos, who I'm sure you must know well, the president and CEO of Merck, actually championed the idea that he was going to give this drug away free of charge to as many people who need them, because obviously these people don't have two nickels to rub together in order to purchase it. They're making their billions on the veterinary product, let's give it away.

The result of that has been extraordinary. Onchocerciasis has been eliminated in 18 countries in West Africa. The Carter Center has had an important role in that, but it didn't stop there because Pfizer then stepped up and took a drug for zithromycin, Zithromax, that they make equal amount of money, because otitis media, ear infections among our kids, are also a billion-dollar-a-year industry in the United States. But guess what? It has an important impact on preventing blindness from trichoma. The CEO of Pfizer mandated that it be given away. Same with GSK with a drug called Albendazol, and the only one that we've now been able

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to persuade to donate yet it Bayer to give away a drug called [inaudible].

The drugs are free. Now you can argue that the flip side of this is that drug companies are never going to take research and development on new drugs, that's why for our hookworm vaccine, we have to develop in the non-profit sector, but I'll save that for later. The point is now the drugs are free.

And so in the last four to five years, I've been working with Professor Fennick, [misspelled?] who is from the Imperial College, London, who is in the audience, with David Mullenu [misspelled?] at the Liverpool School of Tropical Medicine, with Frank Richards from the Carter Center. We've started looking at maps of the world's picture of neglected tropical diseases and realized that guess what? These neglected tropical diseases are not occurring in isolation. They are occurring in clusters so that people who live in these very poorest countries are poly-parasitized. What that means is if you swoop down into one of the villages where the Carter Center goes to, you might see the same child infected of aspiurus worms, hookworms, whipworms, possibly even schistosomiasis, and maybe the beginning stages of lymphatic filariasis.

So that there were a number of public, private partnerships that were developed in association with

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pharmaceutical industry that was now implementing the individual donated drugs for each of their individual diseases. By harmonizing these public, private partnerships in the new network that we've recently established called the Global Network for neglected tropical disease control.

Sorry, it has a complicated name. GNNTDC. What we could do now is deliver this in a rapid-impact packages, we call it. Four drugs, Albendazol or Mabendazole, you can use either of the two. One from GSK, one donated by J&J. Praziquantil, Mectizan from Merck, and Zithromax from Pfizer. The drugs are free, we can now administer these to control or eliminate seven neglected tropical diseases simultaneously for 50 cents a person.

What we are saying is that for 50 cents a person, because these neglected tropical disease in aggregate produce a disease burden that is equivalent, almost equivalent to HIV/AIDS and as equivalent to malaria or TB, but for 50 cents a person, we can almost equal that impact by simultaneously controlling and eliminating these diseases.

GEORGE STEPHANOPOULOS: What are we talking about in aggregate? What would be the cost annually?

PETER HOTEZ: The cost for?

GEORGE STEPHANOPOULOS: For sub-Saharan Africa, if you were to package and transport this cluster of drugs.

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PETER HOTEZ: Right, by the way, 50 cents is all for delivery costs, because the drugs are free. [Interposing] We've been able to do this, with in association with public-private partnerships that are already working on the ground in those regions. So for instance, the Schistosomiasis Control Initiative, working in six Africa countries; the International Trichoma Initiative working in multiple Africa countries; The Global Alliance to eliminate LF, again, working; and the Africa [inaudible] for Onchocerciasis Control. The cost thus far has been 50 cents. In some cases it's gone up to 79 cents a person, but that's the range. So that, in theory, if you could continue to scale this up, what we're talking about is the simultaneous control or elimination for 500 million people in sub-Saharan Africa at risk for these neglected tropical diseases for about approximately \$250 million a year, which sounds like a lot of money.

GEORGE STEPHANOPOULOS: Doesn't sound like a lot at all actually, no. Dr. Zaramba, we have a group of fairly powerful people here, but also if you pretend you're in the Oval Office right now, and you could ask the president for one thing to help you do your job in Uganda. What would you ask the President of the American people for?

SAM ZARAMBA: There are so many things I would ask. [LAUGHTER] As far as neglected diseases are concerned, I

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would want the president to put neglected diseases on the front, because talking about these other diseases, as you say, by the time HIV/AIDS comes in, the patient is already compromised. Maybe he is anemic, and then HIV/AIDS will just take over. When it comes to malaria itself, an anemic patient succumbs to malaria very easily.

What would I ask? I would ask the president of America to make sure that everybody supports these neglected diseases, so that if the bucket [misspelled?] comes, like my friends in HIV/AIDS, they should already remember that there is a disease that is making the condition of the patient they are treating worse, and ensure that we have integrated disease management. Like we are talking yesterday, unless we support the systems of our government, look at the entire system, the human resource, the infrastructure, provision, logistics, making sure that this stuff is getting to those who deserve them, we cannot succeed.

I wish to see everybody supporting the entire chain of service delivery, and keep remembering that neglected diseases, as much as they are eliminated in the first world [misspelled?], they are still a big problem in the developing world. A big, big problem, as President Carter said.

GEORGE STEPHANOPOULOS: It's now time, we're just about ready to turn over to our tabletop discussion, so I'm

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going to call up Daniel Stone of America Speaks to instruct everyone in how to go through the next half-hour.

DANIEL STONE: All right. Thanks very much. We have now heard from our esteemed panel. Their knowledge, their ideas, and their experiences about this very serious issue of neglected tropical diseases. They've told us how serious the impact is of these diseases. They've also told us that largely this impact is due to a level of neglect about these diseases by the countries in which they're prevalent as well in the international community. We now want to engage you in the conversation and to take advantage of the wealth of ideas and expertise that resides in this room.

We want to have a table group conversation for the next half-hour, and we want to engage you in question. The question we would like you to talk about at your tables is, what types of incentives would encourage industry, NGOs and governments to more aggressively develop new approaches and therapies to prevent or treat neglected tropical diseases. Again, as you have your discussion, your facilitator will lead you through it, will capture your thoughts, they'll all be sent forward to our theme team and we will be feeding back to you the results of the entire rooms thoughts after our panel reconvenes in about half an hour. So have a great discussion and we'll see you in half an hour.

[END RECORDING]

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[START RECORDING - PART 2]

FEMALE SPEAKER: Ladies and gentlemen, the discussion period is now over, our moderator and panelists are now rejoining us.

GEORGE STEPHANOPOULOS: Well, your moderator is joining you. We'll get the panelists up here in a second. We'll get started as soon as the president gets up here. [APPLAUSE] Chris Jennings, our group chair, is compiling all the work you did at the tabletop discussions, but in the meantime, we want to address some of the questions you all had for the panel.

Let me begin, Dr. Hotez, with you. We talked about the diseases, treatments that were relatively inexpensive, but I wonder if you could talk for just a couple of minutes about those diseases that may require more expensive treatments that may not have been developed yet. And how do we create the incentives to get those drugs produced?

PETER HOTEZ: Sure, the drugs that we're proposing to use in this integrated manner for the so-called rapid impact package are the drugs that we have on hand today. What we feel is that there is a moral obligation to do the very best we can maximizing the use of these drugs which are available, which are donated, which can be easily used, which are generally safe. This doesn't mean that these drugs are going to solve all of the problems for neglected tropical diseases.

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So for instance, while we think these drugs will be very useful for the future elimination of lymphatic filariasis, or river blindness, we know that because of high rates of re-infection and possible concerns about drug resistance. The drugs will probably not do the job for eliminating hookworm, for instance, or possibly even schistosomiasis in many endemic areas. For that reason, what we need is version 2.0. Version 2.0 are what we think are vaccines. We've had a lot of interest in developing a new generation of controlled tools, using the vaccine. So we do the best we can with what we have in hand, and now we're going to look at developing vaccines.

For African sleeping sickness, [inaudible], we have an equally important problem. For instance, with African sleeping sickness, the drug of choice for treating the central nervous system stages of this disease, and it occurs because parasitic trypanosomes cross the blood brain barriers, a drug called melarsoprol. What is melarsoprol? The active ingredient is arsenic. What you essentially do is you arsenic poison your patient with the idea that hopefully that you arsenic poison the parasitic trypanosome before you arsenic poison the patient. That doesn't happen all the time, so this drug alone kills 5- to 10-percent of the people with African sleeping sickness. Imagine bringing your child to a clinic, and being told that the child is going to

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receive a drug that has a one in 10 or one in 20 chance of dying.

So what we've done is to look at not only implementing this rapid impact package, but creating a series of what we call product development partnerships. What I like to call guaranteed money-losing companies. We've created what I call the Human Hookworm Vaccine Initiative, where we are actually developing a new recombinant hookworm vaccine, which hopefully will be developed for less than a dollar a dose. But because there is no commercial market, you can't develop these products in the poor profit sector. The shareholders would object. So we create our guarantee money losing company, which are located in laboratories on the campus of George Washington University. If you are ever in Washington D.C., I invite you to come visit what I sometimes also call the bio-medical equivalent of "The Producers."

GEORGE STEPHANOPOULOS: Now how big of an operation are we talking about here?

PETER HOTEZ: Well, it's surprising that - You need large funds, but not enormous funds, so we are supported entirely by the Sabine Vaccine Institute, which in turn is supported by the Bill and Melinda Gates Foundation. They provided \$18 million dollars in 2000 for us to launch the Human Hookworm Vaccine Initiative. We just got re-funded this year with two grants from the Bill and Melinda Gates

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Foundation. Now we've taken this drug all the way through clinical trials. So it's a new model, the idea that we would work with the FDA, file an investigational new drug application, an IND with the FDA, and do all the things that you do in industry practices, in terms of process development, G&P manufacture, quality control, quality assurance, but do it in the nonprofit setting.

I don't know if Victoria Hale is still here, but she's done something very similar with her remarkable institute or One World Health, where she is now looking at new generations of drugs for [inaudible] and African sleeping sickness. There are a couple of others. There's the drugs for Neglected Disease Initiative in Geneva. This is a new paradigm for thinking about how we're going to make the next generation of control tools.

GEORGE STEPHANOPOULOS: And Dr. Zaramba, one of the things we've talked a lot about today is getting the drugs to the people who need them. One of the questions we had from the audience is, is there a general investment in infrastructure that would help address this range of neglected diseases, or do we have to address the individual diseases piecemeal?

SAM ZARAMBA: I think it's high time we addressed all the diseases together. What we are doing in Uganda at the moment is twice a year, we cut out campaigns. The Child

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Survival campaigns of stepping up immunization, providing vitamin A supplementation. The [inaudible] of all the children, plus most times, their mothers, because they are brought by their mothers. Then addressing the specific diseases, area wide is a bucket of them, where sleeping sickness, we provide the treatment for sleeping sickness. Where we have [inaudible], we combine [inaudible] at the same setting. So twice a year, in April and October, we have those integrated service deliveries, and I think it's been very beneficial. We have been able to cover quite a number of people.

Now as for investment, we have said we really must invest in the system, because at the end of the day, it is the same people who are delivering the service.

GEORGE STEPHANOPOULOS: Can you specify what you mean by that? When you say you are investing in integrated system, what exactly are you talking about?

SAM ZARAMBA: If you look at the communities, the same nation, or national assistance is delivering the services we are expecting in those very poor communities, so if you are to deliver quality service, we must make sure that this [inaudible] is available, is able to mobilize the community, seize, operate the supplies, the drugs are in place, seize operating from a health unit that is operational, and is able to attract people to come in or is

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able to get to the communities for the outreach services. The entire system of such delivery must be supported and must be a universal need to succeed at all.

GEORGE STEPHANOPOULOS: President Carter, you are almost done with the job on Guinea worm, so people here wanted to know two things. One, are you developing new technologies or treatments for other neglected diseases, and what kind of help does the Carter Center need in that work?

PRESIDENT JIMMY CARTER: I'd like to respond.

GEORGE STEPHANOPOULOS: I'm sure, right.

PRESIDENT JIMMY CARTER: Well, first of all, I'm not arguing with Peter, who is an expert, but you have to remember that some of the medicines that he described just prevent blindness or further problems with say, lymphatic filariasis or schistosomiasis. You have to give the medicine every year to prevent further deterioration and blindness. Ivermectin, which we distribute, for instance, you have to give a dose every year, to every patient, otherwise they'll eventually go blind. The same thing applies to lymphatic filariasis - or schistosomiasis, rather - you have to give the medicine every year. What we really need is more research and more commitment to diseases that we get rid of adult worms that enter the body rather than just the micro filarial, microscopic worms that cause the illness. That's one thing.

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I would say that the thing that we're doing now, is combining a comprehensive approach to all the diseases that affect an entire state or an entire nation. That's what the Minister was mentioning a while ago. For instance, one big project that they have now is to deal with not only these neglected disease, but malaria in the entire nation of Ethiopia, with 75 million people. So our project, in harmony with the Minister of Health and Education in Ethiopia, they have agreed to furnish 80-percent of all the bed nets required, we will furnish the others, and the Carter Center will be in charge of making sure that we have bed nets for every home in the entire nation.

GEORGE STEPHANOPOULOS: Does that suggest putting together what you're saying now and what Dr. Zaramba is saying? That if someone had \$2 million to throw around, rather than focus on a disease, would they focus on a country and try to come up with a comprehensive strategy for that country?

PRESIDENT JIMMY CARTER: Yes, it is. That's exactly what the Minister just said, and that becomes more and more obvious as you get involved in large countries like Ethiopia with 76 million or, say, in Nigeria with twice as many people. The government of Ethiopia has not committed themselves to having two bed nets for every home in Ethiopia. The Carter Center will be responsible for making sure that

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does happen. These bed nets now can last seven or eight years, killing the mosquitoes that land on the bed nets, not just repelling them. The mosquito's treatment will also deal with lymphatic filariasis because mosquitoes carry the same disease. So you are dealing with all the malaria into our country, and everybody that might have lymphatic filariasis, just by putting in the bed nets.

That's going to cost the Carter Center \$15 million that we don't yet have, to answer the other part of your question. [LAUGHTER] At the beginning of the year, we're going to buy these bed nets which cost roughly \$5 each, and so we will be sure that by August of 2007, we have the bed nets to cover every person in every part of Ethiopia that is afflicted or in danger with malaria and/or lymphatic filariasis.

That generic approach is one thing. The other is for the pharmaceutical companies to develop a macro filaria, that will kill not just the microscopic worms that cause the symptoms, but get rid of the adult worms that live in large sores in the body that provide a constant stream of micro filaria every year. That has to be done to get rid of these diseases.

GEORGE STEPHANOPOULOS: I think it's time now for Chris Jennings to come up and present the results of all the work you all have done.

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CHRIS JENNINGS: Well, George, another incredibly productive session. I think I actually have more nuggets than themes, which means that a lot of individually unique ideas that we think are very much worth highlighting as well as cross-cutting themes. We always start, as you know, with the themes, so I'll just go quickly through them. I want to thank you all for your participation.

First, what was uniformly discussed was this must be a party for governments within the developing world, not just the developed. We must consider making advanced purchasing commitments to encourage the development of new drugs. This is the whole idea, where if people know they have markets, they might produce more drugs for these neglected diseases. That delivery and distribution is part of the problem, so a lot of the focus tends to be about developing new drugs, but we have to talk about delivery and infrastructure. Most importantly, that we take advantage of that infrastructure that is currently available on the ground, I think, as Dr. Zaramba was saying earlier in his presentation.

In the second slide, it really moves towards communication, which is to talk about how we can demonstrate to local communities and economies how important these diseases are to economic development as well. Of course, media, media, media, in terms of communication. Communicate about NTDs. About the size of the problem, who is affected

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and, just as importantly, that a solution does exist, that these are treatable diseases and can be done.

Now, as for the nuggets that were unique but complementary to the themes, first we have a discussion to pre-compete and guarantee markets again. I think that supplements that first point. Re-brand neglected disease to curable disease. Then it sounds more hopeful. Then it sounds like something that you can get done. Thirdly, a percentage of drugs sold in developing countries could help potentially help fund the incentives to develop new drugs in these markets that are not going to have much money to pay for these drugs. That NTDs can be, I think this is true a niche for smaller foundations. In other words, you pick a disease potentially, and actually you can push for the eradication. That might be more efficient and more effective than trying to have a broader foundation do everything. Examine the potential for non-health corporate partners to support distribution of NTDs, and again, that's just a question. Any volunteers? We're ready to invite you to participate.

Lastly, President Carter, there was this request by you and for the president to just call them up and they might actually respond even more. This will be your pitch.

[LAUGHTER] So I'll conclude with that.

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PRESIDENT JIMMY CARTER: You give me the phone numbers and I'll call them up. [LAUGHTER, APPLAUSE] I'm not kidding about that.

GEORGE STEPHANOPOULOS: We didn't think you were.

PRESIDENT JIMMY CARTER: Get the phone numbers over here to this table. I will call tomorrow.

GEORGE STEPHANOPOULOS: Dr. Hotez, as you see what the group came up with, even working on this basically your entire adult life, what jumps off the page?

PETER HOTEZ: The first two, I think, are very interesting points. I think the point is the first one is that it must be a priority for governments within the developing world not just the developed. Well, I'd like to say that it really has been a priority for the developing world. This is not simply, this global network of implementing the rapid impact package.

GEORGE STEPHANOPOULOS: Do you view that? I thought I heard you say otherwise.

PETER HOTEZ: It's not just neo-colonialists, but for instance, what we're doing in our network, with the Schistosomiasis Control Initiative, which is a partner member of the network. The International Trichoma Initiative. It's not just a bunch of people from Kansas swooping down into sub-Saharan Africa. This is actually being implemented by the local Ministry of Health, and I would cite Dr. Zaramba. What

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he has done in Uganda is probably a poster child for the opportunity to really make a huge impact, and I'm sure that, as Sam could say, that it's his people that are doing the implementation.

GEORGE STEPHANOPOULOS: Was it difficult to convince your entire government to make it a priority?

SAM ZARAMBA: The biggest problem in the developing world, that we are overwhelmed with the problems. Now, when you present a bunch of problems and the partner decides to pick on one particular problem, that's because the demand is so much, you just go with them. Neglected disease to where they are very well known within our government and the most strategic plans that I've seen in the African region are [inaudible] neglected diseases as one of their minimum health package that they must deliver to that population. It's just a question of -

GEORGE STEPHANOPOULOS: I saw you nodding your head when we got to the nugget about re-branding the diseases from neglected to curable.

SAM ZARAMBA: I think quite a number of people I've worked with will know that I have possibly not liked this one neglected disease, I would definitely go with the curable disease because they are curable. As you have heard, treatment is so simple. Very cheap, but for some reason, we have not taken these too seriously. I would want everybody

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to really take it up right from here, that we can contribute something to these diseases that are causing so much disability and so much impoverishment. Anybody talking about poverty eradication without talking about neglected diseases has not completed the equation, so please, if ever anybody is looking alleviating poverty in the developing world; please remember that these diseases must be taken into account.

GEORGE STEPHANOPOULOS: President Carter, do you think this idea here of making these diseases a niche for smaller companies and foundations is the way to go, or do you think it is something that has to be taken on a larger scale? Obviously, you don't want to have to make that choice, but is the niche there?

PRESIDENT JIMMY CARTER: I think the niche is there, not just for smaller organizations. For instance, Merck and Co. has basically adopted onchocerciasis, or river blindness as a major commitment of theirs, and they have to the Carter Center when they founded this veterinary medicine to work with river blindness, and asked us to develop a protocol, or procedure to distribute the medicine that wouldn't interfere with their veterinary medicine. Merck has gotten a tremendous amount of publicity, and their people have been inspired because they are actually addressing a particular disease that they can identify. I think this would work very well with other countries as well.

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Secondly, the word curable is not exactly accurate, because some of these diseases, we don't yet know how to cure them. We know how to delay, we know how to minimize –

GEORGE STEPHANOPOULOS: Treatable?

PRESIDENT JIMMY CARTER: Treatable, that's a better word. Treatable. We can cure some of them, and prevent them, but others you have to treat every year, because the disease is still in the body. That's a very serious problem.

In answer to that other question, sometimes some nations do take the initiative locally. Uganda is a good example because they have a fine Minister of Health who understands medicine. Ethiopia is another one that's outstanding in every way, but many of the other countries don't treat the diseases seriously, because the rich world is just concentrating on HIV/AIDS, malaria and tuberculosis, with Global Funds.

GEORGE STEPHANOPOULOS: So they know that's how they get the match there.

PRESIDENT JIMMY CARTER: That's how they get the money, so they neglect these minor diseases. I think it's very important for the rich world, including WHO and others, to concentrate on these other diseases that cause just as much suffering, and maybe affect a wider range of people, and are more easily cured because a lot of countries, ministers

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respond just to where is a rich world offering us money. I think it has to work both ways.

The problem is, too, that the poorer the country is, the less likely they are even to know about the Global Fund. You go to the Central African Republic – I've been there – they didn't have a typewriter, and they had no idea that a Global Fund existed when I went there visiting with Bill Gates Senior, as they were exploring the possibility of doing something about AIDS. So the poorer the country is, the more they need help from the outside world.

PETER HOTEZ: If I could just address very quickly the foundation issue, first of all, God bless the Bill and Melinda Gates Foundation, if it wasn't for them, we would have – [APPLAUSE] I would have still been struggling to even to undertake process development, much less manufacture and quality control of the vaccine. The problem is we can't keep going to the Bill and Melinda Gates Foundation forever.

GEORGE STEPHANOPOULOS: For a long time, but yeah, not forever, right.

[LAUGHTER]

PETER HOTEZ: We do need other foundations to step up. For instance, we now believe we have the technology in hand to develop a new vaccine for schistosomiasis. We're all dressed up and ready to go. We've got the infrastructure to make the vaccine, because the infrastructure paid for by

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investments from the Gates Foundation. We've got the proteins identified to make the vaccine. We've got everything but the important dollars now to go ahead and make that. It gets very difficult to continue to go back, and back, and back to the same foundation. We need some others, so what we'd like to do is leverage those funds from the Bill and Melinda Gates Foundation and look at other opportunities.

SAM ZARAMBA: What we need, really, are more players. We need more players to come in and support the programs. As we have said, we cannot continue having the same passions. President Carter has been active for a very long time, and we are surprised that other people have not seen him. They have not seen that he is contributing heavily to the elimination of the suffering of the developing world. As Peter says, the more people who will get on board, the better.

GEORGE STEPHANOPOULOS: I think that is the perfect introduction for Donna Shalala, who is going to join President Carter in accepting the commitments, but first let me thank Dr. Hotez and Dr. Zaramba for your contribution today. Thank you all very much. [APPLAUSE]

FEMALE SPEAKER: Ladies and gentlemen, Donna Shalala.
[APPLAUSE]

DONNA SHALALA: Let me begin with our first commitment from Victoria Hale, the CEO and founder of One World Health, a nonprofit drug company. Four years ago, at

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the International Women's Organization that I belong to, asked me to mentor a young scientist who had this idea about a non-profit drug company. I met Victoria Hale. She didn't need a mentor. She needed someone to tell her she wasn't crazy. [LAUGHTER] That's about what I did. Victoria?

[APPLAUSE] Victoria, of course, and One World, has developed a new affordable lifetime cure for visceral leishmaniasis using an off label existing antibiotic, black fever, for those of you who don't know the scientific term, which is the second largest killer after malaria among the parasitic diseases. Their commitment is to develop a comprehensive medical supply model initially in one of the most remote areas of the world in rural India, then to expand to Bangladesh, Nepal, Sudan, Ethiopia, Kenya, and Brazil. We're talking about 500,000 cases. A commitment, Mr. President, if you'll make a couple of phone calls for \$27.4 million over five years. Victoria Hale. [APPLAUSE] Congratulations, Victoria. [APPLAUSE]

Mr. President, may I present George Barrett, the president and CEO of CAVA of North America, a great Israeli company, a world leader in generics and affordable antibiotics. For 500,000 people in northeastern Brazil, they'll now get antibiotics because George and his colleagues will develop effective supply lines and working with NGOs, educate people about lower respiratory diseases. This is a

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commitment of \$5 million over three years from a very great Israeli company. Thank you.

[APPLAUSE]

Lois Quam, CEO of Ovations, a United Health Group company. I should disclose I'm a director of United Health. [LAUGHTER] So wherever she is committed, I'll make sure they double it. [LAUGHTER] Is Derrick [inaudible] going to come up too or just? All right. Derrick, of course, is a former WHO executive who ran the campaigns against smoking and junk food. The focus here is on centers of excellence, which Lois has been a leader in to combat chronic diseases. Sixty-percent of the deaths in the world are from chronic diseases. We'll be talking about chronic diseases in the next panel. It's a five-year commitment. I'm sure it's millions of dollars. They are going to start in China and India where 70-percent of the deaths are from chronic diseases. Ovations, a leader in this area, a great private public company, are making a substantial commitment to work in those countries. Lois, congratulations.

[APPLAUSE]

Finally, will Pierre Lefevre from the World Diabetes Foundation, please come up? The commitment is for three new projects to treat diabetes in Cape Town, South Africa, including a school based intervention for youngsters between 10 and 13 focused on type 2 diabetes. It's a commitment over

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three to four years for almost \$1 million. We'd like to thank the World Diabetes Group. [APPLAUSE] Congratulations, Pierre.

Give a big hand to all of these commitments.

[APPLAUSE]

That's it, Mr. President, except do not leave. We're starting the panel immediately. Thank you. [APPLAUSE]