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**Bill & Melinda Gates Foundation
Malaria Forum – Day 2
Opening and Foundation's Vision For Malaria
Bill & Melinda Gates Foundation
October 17, 2007**

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FEMALE SPEAKER: Please welcome the director of infection diseases development with the Bill & Melinda Gates Foundation, Doctor Regina Rabinovich. [Applause]

REGINA RABINOVICH, M.D.,M.P.H.: Good morning, everyone. I hope you had a terrific time at the space needle last night. We do have a very rich and full program today so let's go ahead and get started.

I think it's safe to say that our first speakers this morning truly need no introduction. We are here because of their vision, their passion, and their drive. They have embraced not only the malaria challenge, but the challenge of countless people in situations of need across the planet. May of us wake up in the morning and wonder, what can we do to make a difference, and we commit ourselves to that. Bill and Melinda woke up one morning and decided that their lives were going to be about making that difference. It is my honor and pleasure to introduce the co-chairs of the Bill & Melinda Gates Foundation, Bill and Melinda Gates. [Applause]

MELINDA GATES: Well, thank you for that warm greeting and welcome to Seattle. Bill and I are both so pleased to see so many of you in the room today. And we want to thank you for your dedication for working on the issue of malaria. So many of you who are here have been working on malaria when no one was watching. And, I think the fact that so many people are

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paying attention to malaria today and are caring about malaria is really a testament to your work, to your vision, your persistence, and really, the faith that the world has in the work that you're doing. So, we're here today to both celebrate that and talk about a long-term course for malaria.

In the history of humanity, it's likely that no disease has ever caused more suffering or harm than malaria. Malaria was written about in Chinese medical texts—the symptoms of it—over 5,000 years ago. And, we know that malaria was responsible for bringing down city-states in ancient Greece. And, there were also untold deaths from malaria during World War II. But even now, a century after Nobel prizes were awarded for discoveries relating to malaria and its transmission, malaria is still epidemic in many, many parts of our world.

Malaria deaths peaked in the 1930's with the total number of cases of around 3.5 million. And then, because of the global effort to fight this disease, the number of cases came down to about a low of about a half million in the 1960's. But then, anti malarial efforts dropped off and the disease has been on the rise ever since. Now there are 500 million cases of malaria every year and, as you well know, a million people die of the disease every single year. That's like taking the entire population of the New York City school district and saying, they're all wiped out next year. All those children

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are gone. We wouldn't let that happen here and we shouldn't let that happen anywhere in this world.

But, over the course of the last century, malaria changed from a disease that afflicted a broad range of countries to a disease that affected only poor countries. It changed from a celebrated cause of our scientists and our politicians to a source of suffering that the rich world was, frankly, willing to accept. And, the poor world has nothing that they could do about that.

Today though, the world is coming back to this cause in large and enthusiastic numbers. UNICEF's report released just yesterday describes record levels of funding, distribution of bed nets, and anti malarials that are being used. Global procurement of artemisinin based combination therapies grew from 4 million in 2004 to over 10 million in 2006. We also have record funding for research, more coordinated efforts, and greater scientific tools than we've ever had before. Bill and I believe that these advancements in science and medicine, your promising research, and the rising concern of people around the globe, represent a historic opportunity, not just to treat malaria or control malaria, but to chart a long-term course for eradicating malaria.

We know that the word "eradication" is troubling to some of you in this room. People with deep knowledge of malaria are concerned about eradication. Can it happen? It's

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an audacious goal. To reach a day when no human being has malaria and no mosquito on this planet is carrying that disease. It's a long-term goal. It will not come soon. But, to aspire anything less is just far too timid a goal for the age that we're in. It's a waste of the world's talent and it's a waste of the world's intelligence. It's wrong and it's unfair to the people who are suffering from this disease.

The goal of eradicating malaria has the power to create great expectations, grand efforts, and record funding. And, when you ask people to donate time and money to save lives, they can be very, very generous and we're starting to see that in the case of malaria. When you ask them to give time and money to eradicate a disease, their generosity can multiply. Those are the benefits. But there're also great risks. If high energy and high expectations don't lead to success, it saps money and morale. People give up. Governments, foundations, and corporations cut their funding, and the malaria will surge back and come back very, very quickly. We know that.

In 1955, the WHO vowed to eliminate malaria from the earth. U.S. Congress put record sums of money behind the eradication effort beginning in 1958. Presidents Eisenhower was behind it, George Marshall, Senator John Kennedy. Armed with DDT, chloroquine and money, and a lot of enthusiasm, the world did make dramatic advances against malaria. In Sri

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Lanka, malaria cases dropped from 1 million in 1955 to 18 cases in 1963. Not 18,000 cases, 18 cases in Sri Lanka in 1963.

Optimism was so high, that the young Andrew Spielman, who would later become an expert at Harvard on diseases and mosquitoes was told by his mentor at Johns Hopkins that he'd chosen, in fact, the wrong field. His mentor said, "By the time you finish your thesis, all the insect-borne diseases and problems will be solved."

But the world wasn't ready for a long fight. As President Eisenhower said in a special message to Congress in 1957, "I propose that the United States join with other nations and organizations which are already spending over \$50 million a year on anti malarial activities. In five years, these activities are expected to eradicate this disease." The fight turned out to be more difficult than expected. Mosquitoes developed resistance to DDT and the parasite developed resistance also to chloroquine. Gains were made, but eradication seemed remote, and so, enthusiasm faded, funding slowed, and then everything unraveled from there. Control efforts were cut back.

And, when the disease began spreading again, populations were especially vulnerable, because people in areas where malaria had been made scarce, had lost their resistance and their immunity. And, meanwhile, research into malaria had stopped, because the world had been so confident of eradicating

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it. And so, there were no new medicines, insights, or insecticides. Over the next 10 to 15 years, the number of malaria cases increased by a factor of 6 in India and a factor of 9 in China. Based on this history, some might argue that it's better to simply try to control malaria than to eradicate it, since trying to eradicate and then failing could be worse than never trying to eradicate at all.

So, why should we embrace the goal of eradicating malaria? Why not just control it? Why not just reduce malaria? Well, the first reason to work on eradicating malaria is an ethical reason—the simple, human cost. Every life has equal worth. Sickness and death in Africa are just as tragic as sickness and death in America. In Africa and other areas of the developing world, malaria keeps adults from going to work, students from going to school, and children from growing up. Any goal short of eradicating malaria is accepting malaria. It's making peace with malaria. It's rich countries saying, we don't need to eradicate malaria around the world as long as we've eliminated it in our own countries. That is just unacceptable.

If the first reason to eradicate malaria is the human cost, the second reason is the financial cost. If we plan only to control malaria, we will never eradicate it. That means we will keep bearing forever the human cost of malaria. Even if we keep paying forever, even as we keep paying forever, the

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financial costs of trying to treat and control it, to provide even an 80-percent control coverage globally, we will need to spend billions more each year, every year, than we do today. If, on the other hand, we plan to eradicate malaria, we can look toward a time when the human cost of malaria and the financial cost of fighting it are both gone for good.

In the end, the goal of total eradication is the only way to address the classic problem in disease prevention. How do you insure that prevention remains a funding priority as you get fewer and fewer cases? This we know is very, very difficult.

The third reason to go for eradication comes from epidemiology. The ability of the parasite to develop resistance to insecticides and medicines tells us that no set of control strategies can control malaria for very long. Malaria is smart. It's deadly smart. It's like playing a chess game against a computer that knows all the rules and constantly is changing its play as soon as it starts losing. This means that, without eradication, we will continuously adapt our strategies to the parasite and the parasite will continuously adapt to us in a back and forth battle that we will never win and will never end.

When I think of what it would mean to eradicate malaria, it brings back a memory from a trip I took some years ago to Zambia. I was visiting a small rural clinic where I saw

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a number of children who were waiting for treatment. And, there was a young girl there who clearly was fighting the parasite in her body. She was very sick and the doctors at this rural health clinic were referring her on to the district hospital and they were waiting for an ambulance to come and pick up this little girl. And, the physician from the foundation who was traveling with us looked at the little girl and said that, in fact, her case of malaria was quite far along and he doubted that she would make it. We didn't know what happened to this little girl after the trip and I thought at the time though, how tragic for this child and for her mother who was sitting there with her. But, how much more tragic for all the families in Africa whose children never make it to a rural health clinic and see a health care worker, much less a doctor, and certainly don't make it to the district hospital. These children are fated to a death where they die at home with their families, year, after year, after year.

That, to me, is why we have to eradicate malaria. Because, little boys and girls in Africa are going to get bitten by mosquitoes. They're going to play at dusk and get bitten. They might have a bed net if they're lucky, but their arm might stick out at night. It's a fact, they're going to get bitten by these mosquitoes. And, because we can't fix the whole health care system in all of Africa, they're going to die in their village or die at home without ever having the care of

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a doctor or medical attention. No child should die of malaria in today's world. No child. And, the only way to end death from malaria is to end malaria.

It's fair to ask, how is such a thing possible? Is such a thing possible? Here's how we see it. To eradicate malaria, you have to end transmission and there are multiple places where you can intervene in the disease. You can reduce the number of infected mosquitoes. You can keep mosquitoes, obviously, from biting people. You can keep people who are bitten from getting infected. And, you can keep people who are infected from transmitting malaria back yet to the mosquitoes. Those are the intervention points.

If we could find a tool that was 100-percent effective and, if we could implement it completely in the transmission process, we would break the cycle of transmission and eradicate malaria. But this just isn't possible today with the huge number of cases that are out there and the current tools that we have available. But, it is possible using the tools we have and addressing all the steps along the way in a multi pronged approach to dramatically drive down the number of cases. Then, if we make the cases few enough, and the map of malaria small enough, we could, theoretically, with a new vaccine, or a new medicine, or a new insecticide, identify and target one step in this cycle, totally stop transmission, and end the disease.

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What will that take? If we're going to eradicate malaria, we have to persist and succeed in three crucial areas. We have to take on and solve the complexity first, of this disease. Conquering malaria is one of the most ambitious medical quests of our time. The resistance to insecticides and drugs means the mosquito and parasites are moving targets. Winning will take intelligence, ability, and speed. Above all, it will take a relentless research into new vaccines, new medicines, and insecticides by some of the top scientific minds in the world.

We also have to have tremendous coordination in every aspect of the area. This means coordinating research so different laboratories aren't duplicating the same work over and over and so they can do the research with the benefit of one another's insights along the way. It also means coordinating the work in the field so that we use every tool we have in the most effective combinations and no one area gets neglected.

Finally, eradicating malaria will take commitment, long-term commitment. Not a commitment simply to reduce malarial deaths or eliminate malaria from certain regions of the world. Those are important milestones, but they are only milestones. A commitment to eradication means a commitment to intensifying the effort as fewer and fewer people get infected. It's counter intuitive, but it's absolutely essential.

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We understand the risks of declaring a goal of eradication. We understand the mistakes of the past and the obstacles of today. But, your work gives us confidence and it makes us optimistic. Bill will talk about the promising developments we see and why we're confident that this generation can succeed where past generations have failed.

Bill? [Applause]

BILL GATES: It's a privilege for Melinda and me to host this conference and to see so many people who are doing brilliant work on different aspects of malaria. If the parasite were as ingenious as they say, it would target this hall. There is no greater threat to the future of malaria than the energy and intelligence of the people here today. Thank you for coming to Seattle.

What is the most repeated failure in all of global health? It's likely it's the commitment to eradicate malaria. So, why would anyone want to follow a long line of failures by becoming the umpteenth person to declare the goal of eradication? There's one reason. We should declare the goal of eradicating malaria, because, with enough time we can eradicate malaria. Today, I want to make the case that we have a real chance to build the partnerships, to generate the political will, and to develop the scientific breakthroughs that, given time, will end this disease.

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My optimism starts with the rush of new actors who are bringing fresh ideas and new energy to the fight against malaria. The biggest players today were not in the game five years ago. The Global Fund for AIDS, TB and Malaria had just been created. President Bush had not yet announced the major initiative against malaria. Neither had the World Bank. In the past five years, companies like Novartis, GlaxoSmithKline, ExxonMobil and Sumitomo had become very involved in this fight. All these groups are now doing more than they've ever done, all at the same time with long-term commitment. The infusion of new money is allowing countries with high rates of malaria to look, for the first time, at comprehensive national programs where they can coordinate a wide variety of tools for maximum effect.

No single approach will work alone, but several partially effective approaches can have a huge impact. Zambia is an inspiring example of a nationally coordinated effort. Three million long lasting, insecticide treated bed nets are being distributed there this year. And, the country is close to reaching its national target of 80-percent of households with at least one net, up from 20-percent just two years ago. Any pregnant woman can now get preventative medicine as well as nets for herself and children under five. And, pregnant women at antenatal clinics in Zambia have reached 62-percent for

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intermittent preventative therapy, one of the highest levels of coverage in Africa.

Earlier this week, representatives from Zambia and three other countries—Ethiopia, Tanzania, and Mozambique— met together here in Seattle, along with major funders of malaria, to discuss how they are each moving towards national scale up and learning from each other. It is a breakthrough that these countries are working towards national programs today. This kind of coordination is a huge advance.

Medicines, bed nets, and insecticides are capable of breaking transmission at the intervention points Melinda talked about. When you use a series of partially effective interventions in combination, they can have a synergistic effect. For example, the more successful prevention is, the fewer people you need to treat. And the fewer people who are infected, the less chance they can spread malaria to others. So prevention increases the reach of treatment and treatment is a form of prevention. They're both much more effective when you coordinate them, which more and more countries are doing today.

I'm also very optimistic because of the extraordinary breadth of research underway in medicines, vaccines, and other control tools. The transformation in malaria treatment began with the Chinese discovery of plant-based artemisinin and the subsequent development of artemisinin combination treatments

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which make it much harder for the parasite to develop resistance. As you know, artemisinin based combination therapies, or ACTs, are the most effective anti malarial available today. But, they're also expensive. Supplies are limited, and they require multiple doses over three days.

We need to discover new drugs that are not only effective, but also, cheap to make and easy to take. Fortunately, the Medicine for Malaria venture has the largest and most diverse portfolio of new drug candidates in the history of malaria. One of their most promising projects is an approach to improving on artemisinin with a completely new synthetic peroxide. In early animal studies, a single dose of synthetic peroxide drug cured malaria, something we've never seen before. This opens the possibility for a single dose cure of malaria for people. That by itself could transform our fight against the disease.

But that's not all researchers are up to. MMD and other partners are also making great progress with new plant technology and metabolic fermentation to provide artemisinin at the quantities and savings we need to meet global demands. If you could add these advances to the ability to make the drug synthetically, you could make as much medicine as you need and far more cheaply and predictably than we do today.

Developments in vaccine research today are just as exciting. Researchers with the Path Malaria Vaccine Initiative

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are using several different scientific approaches in pursuit of a vaccine. Some are working on the classic approach, which is to pick a few promising antigens and test them. Others are focusing on sporozoites, creating a weakened form of the parasite that would generate a short-lived injection that would then generate immunity. Yet another group is looking at molecular targets using the latest tools. Never in the history of malaria have so many scientific approaches been used in the pursuit of new vaccines. In addition to vaccines and medicines, researchers with the Innovative Vector Control Consortium are studying a variety of ways of making mosquitoes less capable of transmitting the parasite. They're also working on new pesticides to make them more effective in preventing mosquito borne disease in humans.

I'm also optimistic because we're finding ways to stretch the reach of market forces to get the private sector more involved. GlaxoSmithKline is doing fantastic malaria vaccine research in a way that we hope will become a model for big drug companies. Our foundation pays the cost of the clinical trials. GSK bears the opportunity costs. They're pulling top scientists off work that could lead to more lucrative studies. Since they're not in the business of doing breakeven R&D, it's the most you can ask a big company to do and still have any expectation the CEO will keep his job. This is a terrific model and I hope it sets a precedent for what

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drug companies are willing to do in global health. The potential benefit to humanity is immense.

In a clear and recent example, the Manhica Health Research Center in Mozambique recently finished a small clinical trial of the world's most advanced malaria vaccine, RTSS, developed by GlaxoSmithKline Biologicals. This was the first study to test the vaccine in young infants. The trial results, according to a paper published in the *Lancet* today, serve as a proof of concept that the vaccine is safe, is well tolerated, and significantly reduces malaria infection and clinical malaria in infants 10 to 18 weeks of age. The study reports that the vaccine efficacy for new infections was 65-percent over a three and a half month follow-up period and that it reduced episodes of clinical malaria by 35-percent during a six month follow-up from the initial vaccination. Now, these are only interim results, but they're encouraging because they represent a significant step toward fighting malaria infections in an age group most vulnerable to severe illness and death from malaria.

There are more phase Ii studies to be completed and, if all goes well, a large-scale phase III study should begin next year at 10 African trial sites. Melinda and I would like to recognize the many groups that have worked together on this study—the government and people of Mozambique, the hospital clinic at the University of Barcelona, the Spanish Agency for

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International Cooperation, the PATH malaria Vaccine Initiative, and GlaxoSmithKline Biologicals. I want to offer special recognition to Manhica for running the trials. Running a successful trial requires organizing large numbers of trusting people in an infectious area where you know the baseline. When you consider the difficulty, every drug is a miracle drug just for making it through the trials.

More than a decade ago, Pedro Alonzo, with a grant from the Spanish government and the help of researchers from Mozambique funded by the government, set up Manhica in one of the most malaria infested parts of Mozambique. I visited the center. And, it has the health research facilities of a university in a poor rural setting and the value to public health is priceless. Pedro runs the census, so he really knows who the kids are and what the baseline is. And, he's got the relationship with the community. So researchers don't just wait until they have the vaccines they want to test and say, okay, let's find a place where we can go get the trust of the community and figure out the baseline. He's already done that. It's an extraordinary asset in the search for a vaccine.

We are now working with other committed investigators to expand this approach. Fred Binka and INDEPTH are crucial to this effort. One of their projects, the Malaria Clinical Trials Alliance, is replicating the Manhica effort by working

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to strengthen research sites in preparation for what we hope will be phase III trials next year.

These are just some of the reasons why we believe we should declare the goal of eradicating malaria. There's no doubt that, if the world dedicates the time and the money, we can develop the tools in the laboratory and coordinate them in the field in a way that will eradicate malaria. The question is, will citizens and the governments of the world give us that chance? Right now, the U.S. government, the World Bank and other institutions face a new funding cycle. But, funding malaria and eradicating malaria is not a short-term job. It's not a four-year event or even an eight-year event. That can't work with malaria. If you stop halfway, you don't get half the benefit. You actually could end up with 0-percent of the benefit. The progress counts only if we keep it going.

President Bush, by launching the President's malaria initiative has provided a historic level of funding for malaria. If the world's ultimate goal is to eradicate malaria, then the record funding that began with this president must not end with this president. Melinda and I say to every presidential candidate, if you win this office, you will inherit the record commitment to fighting malaria. The world needs you to sustain it and enhance it. Malaria will not be eradicated without the full support of the President of the United States.

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Likewise, the World Bank has committed record funding to fighting malaria. We call on the new president, Robert Zoellick, to sustain and enhance it. And, the leaders of every developed donor country should generously support the work of the Global Fund to enhance it's key role in fighting malaria. We call on heads of states in countries suffering from malaria to implement well coordinated, integrated, country-wide programs. And, we call on donor countries to step in and fund these efforts. We call on major donor agencies to work with infected countries to agree on a global plan for malaria, the concrete steps that will make it possible to scale up programs and ultimately eradicate the disease. This includes not only funding, but implementation and monitoring. Then we need these programs to join together to execute the plan.

In addition, we call on heads of states and head of foundations and corporations to insure that, as new tools and technologies are developed over the next several years, we can find ways to make them accessible and affordable to those who need them most. Today, we call on world leaders to fund the Affordable Medicines Facility for Malaria, a financing mechanism that will provide artemisinin based combination therapies at reduced prices for those who need them most. ACTs are an incredibly effective treatment for malaria. But their prices put them beyond the reach of most people living in developing countries. If this treatment remains unavailable,

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people will resort to cheaper, less effective drugs. They may take a form of the drug that will drastically increase the risk of resistance, reducing the effectiveness of this last remaining malaria treatment before the world has time to develop another. We can't let that happen.

We call on the malaria community to press forward with innovation. We have to access what sets of tools and situations will be necessary to achieve eradication. Then we have to make the investments in innovation necessary to develop the tools and create the situation that makes eradication possible.

Finally, Melinda and I would like to say, to the people here in this hall, the hopes of the world rest on you and your colleagues. If you show the world that we can end this disease, you'll unleash the energy and the caring and the commitment we need to meet that goal. So, keep on fighting and never lose heart when things go wrong. If one approach fails, take up another. We're not done and we will not stop working until malaria is eradicated.

Thank you very much. [Applause]

REGINA RABINOVICH, M.D., M.P.H.: So, we thought that, after those comments, you'd have some questions. [Laughter] I know that it's a lot to cover and I'm really thrilled to hear this. So, I want to open it up. This is your opportunity in the face of the challenges that Bill and Melinda have presented

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to- Here we go. Over here. Microphone. Identify yourself please.

MELINDA MOREY: Melinda Morey. So, I appreciate the fact that you all are willing to make audacious goals. If there's anything that can make 39 billion look small, I think you've probably just announced that. [Laughter] So, what are you going to do-you called on a lot of different players to sort of rise up to this challenge-what do you do if everyone doesn't want to rise up to the challenge or chooses a different course?

MELINDA GATES: You want to start?

BILL GATES: Sure. Well, hopefully we find other players to step in and take their place. [Laughter] And, you know, global health, there's a lot of things where success breeds success. The success with smallpox, I think was a very positive thing. We're very committed to polio because we think success there will breed positive excitement. A failure there would definitely be a setback for malaria and all diseases. Just the whole idea of success would seem so remote that that would hurt a lot. I think that, certainly, we can only speak for ourselves. Our commitment won't wane no matter what happens in this area. It's a lifetime commitment on our part. And, I do think people will join in. I think they see the importance of it. The visibility is higher today. And, people love to be associated with the progress that's being made.

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MELINDA GATES: Yes, I'd just like to add, I think if you thought about malaria even three years ago and you said, would the women's NBA—for the visitors that are outside the United States, the Women's National Basketball Association—be associated with malaria, or would a TV show like American Idol raise money for something like malaria, we would all scratch our head and said, no way. But, when you start to see the new players that are coming into this, I mean the huge commitment from the President's malaria initiative, Global Fund, the World Bank, but then, all of the new players that are coming in, Ray Chambers effort with Malaria No More, I think we're going to be able to start galvanizing even more people into the cause. And, what excites me about that as well, when you start to think about Rick Reilly writing a column in Sports Illustrated, you're reaching a whole new audience. I mean the number of people who are in their thirties who now come up to me, or in their twenties, and say, what is this about malaria? I want to give something. That's not something that was associated with the disease before and I think it's something that's a great model from polio where Rotary got so behind polio. I think we're going to start to see groups like that start to get behind malaria and I think that's where you'll also get new sources of energy and funding, which would be great.

REGINA RABINOVICH, M.D., M.P.H.: Great. Other questions? Janet.

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JANET HEMMINGWAY: Janet Hemmingway. IVCC and Liverpool School of Tropical Medicine. I'm delighted to hear that we're looking at the three-pronged approach with pesticides, drugs, and vaccines going through, but it's been a logistical nightmare putting that together in Africa where you need a huge amount of capacity to deliver that. And we're already seeing, with new initiatives like the PMI, a lack of human resources on the ground to be able to do that. How do see we're going to close that capacity gap as well as closing the tools gap for what we need to put into place?

MELINDA GATES: Well, I think this is a great question and one that is particularly on the minds of the health ministers who are in the room. In fact, we had the chance to meet with several of them last night. And, I think, they're all looking at this issue because, how do you expand capacity in Africa? Do you do it at the rural health clinic? Do you do it with different types of workers who maybe aren't a trained nurse or a doctor but you expand a community health worker's role, or even start to train community health workers for these rural areas?

I don't think any country—I don't think there's going to be one model that a country takes and everybody else follows that model. I think what we're hearing is that the health ministers are each looking at their individual needs. Tanzania has a huge population, 36 million people, versus a Mozambique

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is smaller or some of the other countries are smaller populations, and so, they're looking at, what's the right model for their country. But, I think the fact that they see that Global Fund is flexible in terms of how it's granting the money in malaria, so that they can start to tackle this human capacity problem, is certainly starting to give them optimism.

We're very well aware of the problem of coordination. It's huge. And, I think some of the countries who are already working this issue are working both the operations end of it—the moving the malaria and that's doing the spraying, working on the artemisinin based therapy—but in conjunction now, we're starting to get to tackle the problem of how do you get capacity out there in the rural health districts.

BILL GATES: I agree human capacity is a challenge, but probably not, in some ways, as much of a challenge as it is for life-long treatment with antiretroviral drugs for AIDS. That is, the amount of medical expertise, the need to have a supply chain that works forever and does medical tests. That's probably the hardest thing to do. Also, in the case of malaria, the interest in the community, when you say, okay, this is an intervention that's going to reduce malarial deaths, you know, they know that that's what's causing these deaths. And, their interest in getting involved in helping us come up with solutions is much greater than say in the case of AIDS where the connection of the behavior to the disease is not

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quite as strong. So, I do think that, by working with the countries the right way, the human capacity things, with appropriate funding, should be very solvable.

REGINA RABINOVICH, M.D., M.P.H.: Other questions?

Brigette [misspelled?].

BRIGETTE: Extraordinary, audacious goals and high aspirations may call for some radical organizational changes in thinking. I'm just thinking whether you have some ideas about how various players can give up some of their parochial interest and really create something on a world footing that puts the best talents together, sets aside those parochial interests, and goes after this disease in the way you want to. And clearly, this is a disease that doesn't respect national boundaries. You need national plans, but you also need regional action in a coordinated fashion. I wonder if you have some thoughts on how to make all this happen in an organizational sense?

BILL GATES: I think that's a huge challenge. And, it was interesting in talking with the health ministers from the countries, the number of people that come to them, visit them, have surveys that they want to fill out. It's good that there's a lot of actors, but that can also be a challenge. I think it's great that we picked some countries, many represented here, to try and see how the various organizations come together in a synergistic way. And certainly, there've

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been some challenges with that, but that's what we're learning about. I think the UN has a great initiative where, in some countries, they appear as a single entity for all their different activities. I think that's a very, very good approach. I think there's a lot of ways about how data is gathered that could be standardized and use modern tools to bring that all together so we're all looking at data in the same way. The coordination part of this is definitely one thing that we'd need to improve.

MELINDA GATES: One of the things that I saw when I was visiting Zambia that I was so impressed with was the NGOs coming together and sitting at the table and committing to when their next meeting was, and their next meeting was to get together. And, as we sat at the table and they were exploring with each other, okay, how difficult it had been that particular year to get their supply of bed nets and why and all the different approaches they'd tried, they sat at the table and committed, okay let's work on this piece together. Or even, once they got the bed nets, distributing them and why it was hard to get them out to the rural areas in particular parts when it had gone into the rainy season. Seeing them commit and even private industry, the mining companies saying, okay, we've tried this incentive with some of the people in our area to indoor residual spraying to work. And so I think, the more the countries—and then it was very coordinated between the rural

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and the district and all the way through the country. And I think the more the countries can do that, which is force the partners to come to the table, and once they've done it once or twice and it becomes an effort that everybody's working on, I think it really changes the way you can do malaria in the country. And, the health ministers are more than aware of that and working that issue as well.

ROGER: Yes. Roger [inaudible] I am sure within five years to ten years we will have a vaccine against malaria. And the need for this vaccine will be hundred of million dose. And, what will be the investment to manufacture these doses vaccines, the number of dosage, because we know that, if we invest today for plan for vaccines, we'll have the reserve within five years to six years. And now we have to invest and to think about when we will have this vaccine hundred of million dose we'll need for this one. What is your idea about this.

BILL GATES: Well, even if the vaccine is expensive, it'll be about the best bargain the world has ever seen. If it's a long-term efficacious vaccine, which, you know, ten years is probably not enough to expect that, but maybe double that time period, you could be very optimistic about it, then the world has got to find the money. Because, the amount of money you save just on treatment costs—The burdens in the health systems in many of these countries, malaria is a very

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substantial part of the burden. And so, if you could just free up those resources to deal with other diseases, the money's got to be there. I do think this idea of advance commitment funds that are being pioneered in some other areas, malaria will be a perfect thing for that type of facility. So, I don't think that, if we get a vaccine, that finances will stand in the way of it being made available.

REGINA RABINOVICH, M.D., M.P.H.: Michel, I saw your hand raised, up here at the front.

MICHEL KAZATCHKINE, M.D.: Thank you. Michel Kazatchkine from Global Fund. Thank you for your words, strong words and commitment. This is just a follow up question on Roger's comment. I strongly believe national plans and country ownership is absolutely essential in moving global health issues. When I think of AIDS, TB, and malaria, I'm also thinking there is a strong rationale in the case of malaria for regional cooperation, maybe much more than in the other diseases. It is immunological, geopolitical, but one country cannot succeed with the neighboring country failing. That will not solve the problem. And, I was wondering whether you would have any ideas in terms of organizational ideas in terms of building regional coordination.

BILL GATES: Well, of course the area that's most important here is Africa, and so, there's an interesting questions of whether any of the African institutions, helping

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to support them and building them up is part of this effort. You may have countries where their commitment, or just the level of governance means that it's particularly difficult in those countries to get things going. I was very impressed talking with the health ministers we have here. I hope that other countries have people as committed and as talented and, I'm afraid, we can't make that assumption as we go forward with the plan. So, helping strengthen some of these African based regional groups and continent wide groups may be an important part of the fight against malaria. And, if we strengthen those institutions, I think there'll be benefits that go even beyond the single disease.

REGINA RABINOVICH, M.D., M.P.H.: I believe Doctor Margaret Chan up here at front if you could get her a microphone.

MARGARET CHAN, M.D.: Thank you very much. And, first and foremost, Margaret Chan from the World Health Organization. I like to thank the foundation for convening this malaria forum bringing together, not only the key players, but also important newcomers like my good friend Roger and many of you in the audience. I just would like to follow on a couple of points raised by previous speakers. Thank you for putting the elephants in the room on the table for us to address. I just would like to touch on two points. The first one is about the one raised by chairman of Global Fund. Are people prepared to

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give up some of the work that they are occupying now? And then, the question about who should be doing what? And also, Melinda's point about countries. Things are already happening on the country. We should not be naive about what is happening on the ground. As we are talking here, every minute, children are dying, and we are still struggling and debating whether or not malaria elimination or eradication can be done.

Well, to be honest with you, when you look at the millennium development goals set by world's leaders in year 2000, I do not believe the world's leaders, close to 190 of them, when they commit themselves and sign onto that millennium development goals, they know that there's a high chance of them not being fulfilled. Why did they do that? I think the politicians understand, in order to take big steps forward, to improve global public health, we need leaders like Bill and Melinda and others in the audience to take very ambitious goal. Yes, a certain time coming back, we be haunted. WHO has been haunted many times. When we set targets for smallpox eradication, when we set timelines for polio eradication, we failed. Yes we did. But don't forget the momentum. As Bill put it, things continue. And, never before have we been so close to polio eradication. Never before have we seen successful public health goals like smallpox eradication. Many of you in the audience make major contribution. Come on. Let's be brave. And I want to thank both of you for taking

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that very brave step forward and challenge us. We have to make it work in the interest of humanity. I be one, pledge WHO's commitment to move forward with all of you. And, I dare you to come along with us. Thank You. [Applause]

REGINA RABINOVICH, M.D., M.P.H.: Doctor Steve Hoffman.

STEVE HOFFMAN, M.D.: I like, I think, everyone in this room, thank you so much for what you're inspiring us to do today. In 1991, there was a dinner celebrating the end of an IOM study on malaria, and I actually sat next to Tony Falchi at that dinner and he said, "It sounds to me like we need a Marshall Plan for malaria vaccine development." Now, that was 1991. We actually began work on the CSP vaccine which is the predecessor of RTSS in 1984, and it's 2007 and we're hoping the vaccine will be licensed and deployed in another five years. What are your thoughts—and we actually have known for more than 30 years that we can totally prevent malaria by immunization. What are your thoughts about—and we've also heard today about what is sounding like a Marshall Plan to actually use intervention measures against the mosquitoes and treatment to actually control and hopefully set the stage for eradication for malaria, but we've also heard from you that, an inkling, that you think that vaccination may be the final lynch pin to that process. What are we going to do, or what are your thoughts about what we can do to actually speed up this process

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and create the Marshall Plan for immunization that you're creating for control?

BILL GATES: Well, I think the increase over the last five years has been very exciting. Tony Fausch[misspelled?] and I were talking last night that NIAID has had, which has been pretty substantial. And, he was talking about, it's one of his highest priorities, if he gets more flexibility with his overall, but shouldn't malaria be one of the major beneficiaries of this. Certainly, the idea of finding drugs, new drugs, against these developing country diseases, it's been a gap that there's really been nobody who's had the responsibility to drive that. And, a private industry has an incentive problem and government agencies don't really think of themselves as doing all the steps including ultimately the trials.

Now that there's more energy behind this, in models like the one we have at GSK, I'm very optimistic. I mean, I expect all the big pharmaceutical companies to have programs as ambitious, putting top scientists involved, as GSK does. You know, we want to hold them up and have them feel great about what they're doing. But also, there's a subtext there, which is everyone else can also do similar things. And it would be great if RTSS in particular was successful because that would set such a wonderful example of bringing top pharma scientists into a largely neglected world health problem.

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In the 1980's, if it hadn't been for the U.S. Army funding, there might have been almost nothing at that time. I mean, it was very small, but I think the army was a significant part of what was going on. So, we have to make sure there's people who are involved and care. I don't see much risk. I know, for our part that we're doing more and no number of setbacks will deter us from being in the area.

MELINDA GATES: Bill, the only thing I wanted to add was just, this notion of having a portfolio of products so that, as one doesn't succeed, we've still got other candidates that are moving through the pipeline, both for the vaccine and the medicines and the insecticides. I'm not sure that was something that was going on in 1984. And so, when we talked about coordination at the country level, there's also got to be coordination at the scientific level so, as we get one that doesn't work or we get an insight on one that's working, there's coordination to try and learn from those insights and move forward. And, I think that is definitely part of our plan and part of some of the structures that have been set up with MVI and MVV. So that, that coordination does happen even at that level as well.

BILL GATES: Yes, that's particularly important if a combination vaccine is the eventual tool that we focus on.

REGINA RABINOVICH, M.D., M.P.H.: Marcel Tanner, up front.

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MALE SPEAKER: Regina, I'm afraid that we're going to have to draw this to a close.

REGINA RABINOVICH, M.D., M.P.H.: I have 1 minute and 48 seconds left. [Laughter] Excuse me.

MELINDA GATES: You can tell how decision making happens.

BILL GATES: That's negative. It's negative.

MALE SPEAKER: Well, it's actually overtime.

REGINA RABINOVICH, M.D., M.P.H.: Oh. Okay. Well, we give up. I'd like to thank Bill and Melinda for their time, not only for what you said, but for your willingness to take the first set of questions that I'm sure that we'll get about the goals and the challenge that you've laid in front of us. So, thank you very much. [Applause]

MALE SPEAKER: Well, I'm sorry to have to do that. I'm sure we could have spent the rest of the morning and perhaps the rest of the day interacting with Bill and Melinda, but they will be here for the rest of the morning and I did want to have them have the opportunity to hear from you and we do have a very full agenda for the rest of the morning. I'd just like to point out to all of you that, we obviously couldn't invite everybody who's involved in malaria who would be interested and so, a good many of the proceedings here are being web cast by the Kaiser Family Foundation. There's a sheet on the tables

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telling how you can find that and also there'll be a link on the Gates Foundation web site. So, please do look for that.

Again, I'd like to thank Bill and Melinda. As you can see, their leadership is tremendously important and their contributions, and those, as you can tell, are not simply the very important financial contributions, but their intellectual leadership as well.

Well, we're going to take a short break. I would like you to return by 10:20 promptly because, as I indicated, we have a very full agenda. So, let's get started immediately after the break. Thank you very much.

[END RECORDING]