GiveWell donor briefing, June 7, 2023

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Olivia Larsen: Hi, everyone. Thanks so much for joining us today. I'm Olivia Larsen. I'm a philanthropy advisor at GiveWell. We're really excited to be hosting this virtual event surrounding our work on malaria.

GiveWell has allocated over $600 million toward malaria control and prevention over the past 10 years. Malaria definitely isn't the only thing we fund, but it's a major part of our grant-making. And we've been really lucky to find and work closely with Malaria Consortium, largely supporting their malaria chemoprevention program. Seasonal malaria chemoprevention, or SMC, is a program that provides preventative antimalarial medication to children living in places where malaria is highly seasonal. This protects them from malaria during the period of high transmission, which is often the rainy season.

I was actually able to go with Malaria Consortium on a site visit to Burkina Faso in 2019, where I was able to see the SMC distribution in action. It was incredible to see community health workers going out to try to knock on every door in Burkina Faso to give this potentially life-saving medication to children. For today's event, first I'll be speaking with the chief executive of Malaria Consortium, Dr. James Tibenderana. I'll then speak with two of GiveWell's researchers on malaria, Grace Hultquist and Alicia Weng. We'll close with questions from the audience. So please drop any questions you might have in the chat during the presentation. We'll try and get to as many of those as we can.

And as many of you generously support our work in malaria, we hope this presentation will allow you to get a better sense of what this support means in action, and how you can feel confident in the impact of these programs. So let's jump in, and I'll welcome James onto the screen. Hi, James. Thank you so much for being here today.

James Tibenderana: Thank you very much, Olivia. Lovely to be here.

Olivia Larsen: Yeah. So to start off, I thought it might be nice to learn a little bit about you. Can you share a little about your background and how you came to work in malaria?

James Tibenderana: Well, I'm Ugandan. . . . I'm a medical doctor by training. And I've gone on to do epidemiology and really specialize in communicable disease control. How did I get into malaria? It's a long story. But to cut it really short, it's the classic. Everyone who has grown up in a malaria endemic environment would have experienced it once or twice in their lives. I experienced it several times. I'm fortunate that I survived that.

But I think having had malaria and other diseases, like hepatitis A, one of the things I really appreciated quite early in my life was the value of health care. And I grew up really valuing it and wanting to contribute towards a service that people can access. And so I went on to do medicine. And then literally, I think the public health impact, the public health problem of the disease, just made me gravitate towards it. And ever since then, I've really been in the sector and trying to do as much as I can to really alleviate that suffering that many of us have experienced. But also, it would be a huge good to the world—everyone, whether you're in a malaria endemic area or not—if we got rid of this disease.

Olivia Larsen: And so before you were the chief executive of Malaria Consortium, you were their technical director. Can you tell us a little bit about your main responsibilities, both as technical director in the past, and how that compares to your role now as chief executive?

James Tibenderana: Oh, that's fascinating. Maybe I'll start off with chief executive and then go backwards. I think one thing that has changed between the two roles is the audiences that I either work with or engage with regularly. As the chief executive, I think a key stakeholder that I now work with frequently, is the board. As technical director, largely the technical team, the organization, and our external stakeholders, funders, partners, governments. But I think a key difference here is really working closely with the board to provide the assurance of a charity like ours that's continuing to grow. But to see where we can support the board

in doing their role, but also how the board supports us to be the organization that we want to be.

I think another big element in this current role as chief executive is the strategy and thinking about the future. Where does Malaria Consortium wants to be? When I say Malaria Consortium, I don't mean just James. I mean the entire organization. Where do we want to be over the next five years? And how can we get there? And that's something that happens collaboratively by working internally. But also working with external stakeholders, like yourselves, who are very important and really operate like partners to us.

As technical director, a lot of my work was working with the technical team, ensuring that the implementation quality and the technical quality of our programs was top notch. Making sure we had a pipeline of programs, the operational research, and how that research gets shared with stakeholders like yourselves to be able to provide the funding that we need for our programs. And then I think probably as chief executive, you sort of carry the brand. So I'm very conscious about how I'm doing that in my conversations, as well as the interactions that I have with all the stakeholders.

Olivia Larsen: Well, this interaction seems to be going great so far. And so taking a bit of a step back, why does Malaria Consortium work on malaria?

James Tibenderana: So it's in our history. In 1994, Malaria Consortium started off as a collaboration between the London School of Hygiene and Tropical Medicine and the Liverpool School of Tropical Medicine. And they came together to provide technical support to the UK government's development arm, at that time, called DFID, now called FCDO. So it started off as a resource center providing support in terms of how the UK government was spending money on malaria programs, and how it was designing and evaluating those programs.

And then in 2003, a decision was taken to turn Malaria Consortium into a UK charity. So I think it's the history and then the fact that, when we turned ourselves into a charity—and our founders put together a strategy—the strategy, one, took account of our history, but took account of the public health

burden that malaria was having. And so the ethos was that, how can Malaria Consortium, as a charity, provide additional support to programs in Africa and Southeast Asia to really have an impact?

And what we found is that malaria is that entry point. One, a child may have malaria today and tomorrow has pneumonia, or something else. Adults do have malaria, but have other diseases. And then the platforms that we use to deliver malaria commodities or malaria services are the same platforms within the health system that provide other services. So it's a really important entry point into the health system, into the enormous burden the communities are facing. And also, it really has a case that allows us to make the compelling argument for funding our programs.

Olivia Larsen: What is the overall burden of malaria? And who does it largely impact?

James Tibenderana: The burden is huge. And I'm sure all of you have seen the statistics. Over 200 million cases, more than 600,000 deaths in the *World Malaria Report* of 2022. And that's because of all the efforts that we've taken over the last 20 years to bring it down.

But I think to contextualize it in the real-world setting, a child that is growing up in a malaria-endemic environment will experience anywhere between one to about three episodes of malaria in a year. That brings it to life. And then when you think about the deaths, and the number of deaths that are occurring in these countries, it's sort of substantial. So that's the burden. And that's the burden that is measurable using systems, using modeling. It could be more. Because when you look at the confidence intervals, there's also a range around that.

And that burden is distributed not globally: almost 90% of that burden takes place in sub-Saharan Africa. There's a risk of malaria in South America. There's a risk of malaria in Asia. But when you look at the burden in terms of deaths, 90% of that is taking place in sub-Saharan Africa. And it's children under five and pregnant women who are really carrying that burden.

Olivia Larsen: And what are the symptoms of malaria and the costs of malaria on those families, other than the mortality, of course?

James Tibenderana: So fever is your classic symptom. Headache. Children at that young age are not able to sometimes express themselves and say, I have a fever. So you find a child being very weak, losing appetite, crying all the time. And that's the version we call "simple malaria" or "uncomplicated malaria."

And then when you move to the severe end of the spectrum, children, adults, become unconscious. Children have very low oxygen-carrying capacity in their blood. So you find the child is very anemic and is not able to have enough oxygen. And so breathing difficulties, breathing very rapidly. When you look at the child's eyes, absolutely pale. And then there's a host of other things, like kidney failure. And even coma, sometimes children who lose consciousness start to experience loss of cerebral function as well.

So there's the simple side of the spectrum, which we say is fever, headache, muscle aches, loss of appetite, to the very end of the spectrum. And then the very end, unfortunately, which is mortality, death.

I think you had another part to that question.

Olivia Larsen: Yeah, the economic cost.

James Tibenderana: Yes, very important. There's a review that's been done recently. And it says, look, we need to do more research on the economic cost. But when you look at some of the studies, an uncomplicated episode—the simple one that I've spoken to—will cost a family in dollar terms anywhere up to about $10, $20, depending on access to health care, whether there's a cost in the health system they have to incur. Sometimes they have to access the private sector. When you get to severe malaria, we're about $100, $200 for managing one episode. And if that gets into things like kidney failure, loss of consciousness, there's even subsequent—people have to go to health facilities several times—it could get into hundreds and hundreds of dollars. And probably, even a thousand. So that's the spectrum.

Now, that's direct costs, costs that come out of the pocket. There are the indirect costs. The fact that a mother can't go to the farm. A parent has lost productivity because they're not

able to go to work. There's costs like children not being able to go to school. And these costs don't really get captured sometimes. But that would be the spectrum of direct costs that people have to incur. And remember, these are households where that cost could be anything to about their monthly income maybe. That cost may be half of what they're earning in a month, especially in very, very poor households.

Olivia Larsen: So I mentioned that GiveWell supports Malaria Consortium for your SMC program, which is providing this preventative antimalarial medication. How much of Malaria Consortium is focused on SMC? And how do you decide how to prioritize between your different programs?

James Tibenderana: So that's probably changed over the last five years. And I would say that, more recently, about 60% of what we spend in terms of spend terms will be SMC-related, either philanthropic funding or funding from the Global Fund as well. And really, I would say that quite a lot of our effort is making sure that our SMC program really achieves the optimal impact, and making sure we have the right data, making sure we're doing the right operational research, and working with our partners to really ensure that the quality of the programming is as high as we can make it. So I would say something about 50% to 60% of what we do is SMC-related, broadly.

In terms of how we make decisions, I think we're not, let's say, as quantitative as GiveWell is. But we start off by understanding the burden of disease in a particular location. What are the major causes of illness in the particular target groups that we're looking at?

And then the other element is the WHO recommendations. What recommendations has WHO put out there that provide the normative guidance that countries are working with within their policies? Because we try to operate within the policy framework, as well as within the WHO guidance. It doesn't mean we can't operate outside. Because our operational research is there to ensure that we're informing and improving those policies.

And then you get down to things like the feasibility of our programs. The fact that these programs are feasible in the

context in which we're operating. And then there's some other variables that kick in. Some of that cost-effectiveness analysis that you do. And importantly, the ability for us to get funding for our programs. That has an impact on our decision-making as well.

Olivia Larsen: And so digging into SMC a little bit more, since this program is something that many GiveWell donors support either directly or through our Top Charities Fund or All Grants Fund, I'd love for you to talk through a little bit what SMC delivery looks like in action.

James Tibenderana: So it's a big program. And there's a lot of planning that goes into it before a child does receive the medicine. There's the huge macroplanning, making sure we have the pipeline of medicines arriving at the right time. And then making sure we're able to give the right numbers. Because having the numbers and ensuring you're getting the right number of drugs in the right place is a critical element.

And then at the micro level, then all the planning that has to go into the campaigns, as well as the engagement of the communities. So that's a whole set of activities that take place.

And then when it comes to the actual delivery, there's a lot of work that goes to make sure communities are ready—the communication, the engagement with community leaders, engagement with communities. Sometimes there are people in the community who announce, on this particular day, people are going to be coming to your homes. And if people have any concerns… Having those conversations to really ensure the acceptability is high.

And then with all these trained cadre of community health workers, community distributors, community mobilizers, is that then you have people going to households introducing themselves. How are they identified? And talking with the families. Identifying, taking records of the children in the household who are going to receive SMC. Listening to the mothers if they have any concerns about the medicine. And then one of the things we've had to adapt because of the COVID pandemic is that the medicines get given to the mother, who then administers the medicines to the kids. We have to

make sure that the things are in place, the cups that they're going to use. The spoons, the clean water that's available. That tends to come from households. But all that has to be in place so that when that time comes, that mother can then administer the medicines. It's put on a spoon, dissolved in a little bit of water, and then the child takes the medicines. It's observed to make sure the child takes the medicine. If anything happens, and the child vomits the medicine, then depending if it's within about 30 minutes, then a repeat will have to happen.

Otherwise, when that's completed, the community distributor takes their records, put their mark on the door to show that that child has received SMC. And then says bye and moves onto the next household. So it's an engagement process, and one that really collaborates with the households.

Olivia Larsen: And SMC is something that usually happens in the summer, because that's the season of high malaria transmission. So is it happening around now?

James Tibenderana: Yes, it is. So yesterday, we finished the last cycle. So each month is called a cycle. And when you put the cycles together, if it's four or five, then you have a round. So yesterday, the round for Mozambique came to an end. And so we're very fortunate that we're able to achieve that successfully. At the moment, there is a first cycle taking place in Uganda. And some of that is supported by the Global Fund. But some of that is also supported through philanthropy as well. And then between June and November, we will be having SMC taking place in other countries—in Chad, Togo, Nigeria, South Sudan, and Burkina Faso.

Olivia Larsen: Well, it's exciting that it's happening now. So we were talking a little bit about your role as chief executive. You talked about the strategy that you're working on. And so my last question for you is, what do you expect to see in the next few years for Malaria Consortium?

James Tibenderana: Well, we're midpoint in our current strategy. In 2025, we should be rolling out our new strategy. So I think the important thing to look out for is our new strategy. We're 20 years this year. So hopefully before the end of the year, we shall be marking 20 years of our existence.

But what I think you should expect from the Malaria Consortium—I hope, as chief executive, there's a lot of work we have to do internally as well as externally—is an organization that is really both agile, trying to see how we can have more impact with what we have. So trying to be bold, bigger, better, faster.

Chemoprevention will continue to be something that's very important to us, whether it's seasonal malaria chemoprevention, or some of the other chemopreventive interventions. We do feel it's an important contribution towards the journey towards malaria elimination. So that's something that will continue to be important to us. And I think, as chief executive, I would like to see how we can even absorb more and do more in that space. Because the demand and the need is still great.

Malaria elimination will be a core part of our work. I'm one of those who's really passionate, as I said, in terms of how we really get rid of this disease. So an organization that will be focusing on a couple of things, doing them well. But also trying to ensure we remain integrated. We remain partners that can complement the things that are taking place around the world, whether it's malaria, whether it's our contributions in universal health coverage and research as well.

Olivia Larsen: Those are some big plans. And I'm excited to watch them hopefully come to fruition. Thank you so much for answering all these questions. There's a lot to dig deeper into, and I'm excited to do so in the Q&A portion later. So a reminder, if you have any follow-up questions to put them in the chat. And we'll get to them after I talk to my colleagues, Grace and Alicia.

James Tibenderana: Thank you.

Olivia Larsen: Thank you. Next up, I'm excited to be interviewing Grace Hultquist, my colleague here at GiveWell, who focuses on grant-making to top charities working in malaria control. We'll focus this discussion on GiveWell's role as a grantmaker funding SMC, specifically. Hi, Grace.

Grace Hultquist: Hi, Olivia.

Olivia Larsen: What's the history of GiveWell's support of SMC? How did we find it as an intervention?

Grace Hultquist: So GiveWell began supporting SMC through Malaria Consortium in 2017. And in that first year, our funding for SMC was pretty limited. It supported a target population of around 600,000 children. But as James mentioned, that funding and the target population of kids that it has been supporting has grown pretty substantially every year since. So last year, in 2022, GiveWell funding supported a target population of around 16 million children across seven countries. And that includes countries that have delivered SMC for many years. And also, many countries where SMC is a new intervention that Malaria Consortium is piloting.

Olivia Larsen: That's really exciting. Why does SMC look so cost-effective, especially compared to other malaria programs that might plausibly be as good?

Grace Hultquist: So GiveWell sees the case for supporting SMC pretty simply. As James said, we know that malaria is a major driver of child mortality in sub-Saharan Africa. And we also know from many high-quality studies that SMC is very effective at preventing children from contracting malaria. So reduced malaria means reduced risk of malaria mortality. But also reduced risk of the additional morbidity and economic costs that James was talking about earlier. And finally, the reason why it looks so good in our cost-effectiveness models is because SMC drugs are inexpensive and are delivered through these large health campaigns that are really, really good at reaching a lot of children. SMC is a pretty low-cost intervention, costing just around $7.00 to reach a child with a full course of SMC drugs.

Olivia Larsen: Very cool. And so because this program is so cost-effective, GiveWell recently made our largest grant ever to Malaria Consortium's SMC program. So I want to shout out to the donors who supported this $87 million grant. That was funding from GiveWell's Top Charities Fund at the end of 2022, as well as effective altruism groups from Germany, Switzerland, the Netherlands, and New Zealand.

Grace, can you share a little bit more about our decision to fund this grant and where it will be able to support this

preventative antimalarial medication being distributed to children?

Grace Hultquist: Yeah. First, just to echo Olivia in thanking all of the donors who supported this grant. And also, just to say how thrilled we were to be able to make the grant to Malaria Consortium, which is such a valued partner that does such incredibly impactful work. So this grant was a renewal of support that we have been providing to four countries in the Sahel, which is a region of Africa where SMC has historically been delivered.

So the majority of the funding from the grant will support another year of SMC delivery in Nigeria, which is the largest country program that we support. GiveWell funding supports eight states in Nigeria, and a target population of around 11 million children per year. So a big part of investigating this grant to come to a final decision was closely reviewing Malaria Consortium's reporting from the previous year of SMC delivery, so the 2021 program year. And using the information they had shared about the number of children that they had reached with SMC, and how much it costs to reach those children to update our cost-effectiveness model, so that it was using the most up-to-date evidence available on how Malaria Consortium's programs are actually performing. So just to say again how thrilled we were to be able to make the grant.

Olivia Larsen: Just as a reminder, how does SMC prevent malaria?

Grace Hultquist: So SMC is given to children once a month. It's a three-day course of drugs. And then those drugs, if they're working well, remain at such concentrations in the children's blood, that even if they come into contact with a malaria-infected mosquito, there should be a high enough concentration in their blood of this prophylactic drug to be able to prevent them from falling ill.

Olivia Larsen: And so when we're thinking about where to support SMC, how do we prioritize between different countries, or decide where we want to fund?

Grace Hultquist: Great question. So we don't think that SMC is equally cost-effective across all countries where it could be delivered. We have country-specific or sometimes even region-specific

cost-effectiveness estimates in our models. And the three main drivers of why there would be different cost-effectiveness estimates across locations are malaria burden—so some populations in different locations experience more malaria than others. The cost to reach a child with SMC. So some contexts are more expensive to deliver in or more difficult to deliver in. And then also the likelihood that another funder would support this program if GiveWell did not. So we really try to focus on supporting countries that we think are very unlikely to have enough money to deliver these programs to all the children that they want to if GiveWell doesn't step in and offer more support.

Olivia Larsen: So you mentioned that we are—we think about what other funders might be making decisions in and incorporate that into our decisions. Who are those other major funders? And why can't they step up and, along with GiveWell, fill these SMC funding gaps?

Grace Hultquist: So the other major donors of SMC are the Global Fund, which is a big multilateral that raises funding for HIV, tuberculosis, and malaria programs from wealthy country governments. And then the President's Malaria Initiative, which is a part of the U.S. Agency for International Development. So these two donors provide the vast majority of malaria funding that is spent globally. And they support a ton of other malaria prevention and treatment interventions.

The funding that they are able to raise just has not been sufficient to cover the full at-risk population with all of these really important interventions. And so country governments, who are the recipients of this money, are often having to make really, really difficult decisions about where to cut funding from key interventions. This has become even more acute of a problem recently, because the funding needs to fight malaria has been increasing due to inflation, population growth, the introduction of new and more expensive interventions. But the funding that these bodies are able to raise from wealthy country governments has plateaued. So yeah, this is a real shame. Because as we've been discussing, many of these interventions are highly effective at saving lives. And so we're really dedicated to raising as much money as we can to filling what these two other funders are not able to do.

Olivia Larsen: So support seems like it's, unfortunately, really important. And so we're very grateful to our donors for supporting that. So thank you so much, Grace. Now, I'm going to ask Alicia to come on and share a little bit more about how we find new potential programs to support in malaria. Hi, Alicia.

Alicia Weng: Hi, Olivia.

Olivia Larsen: Historically, GiveWell's core malaria preventions have been SMC and malaria nets. So how do you think about—or how do we think about—funding malaria programs that we haven't yet supported?

Alicia Weng: Yeah, so even with great success with SMC and nets, there remains 600,000 malaria deaths a year. As Grace talked about, SMC and mosquito nets are highly effective. But they also have their limitations. Nets are really effective when used, but coverage and usage remains a challenge in a lot of settings. Similarly, SMC is highly effective at prevention. But it's only suitable for certain settings, where malaria transmission is highly seasonal. And so we think there are a lot of opportunities to keep funding our SMC and nets work and expanding those. But in addition, I think also a ton of opportunity to explore other interventions alongside SMC and nets that keep reaching more people, better target the most vulnerable populations, or can provide more robust protection for people who aren't fully covered by SMC and nets.

Olivia Larsen: One of the things in this category, an intervention that people are pretty excited about, is the malaria vaccine. And so that's a relatively new development in the malaria space. And we made an exciting grant to support that vaccine rollout last year. Can you share a little more about what that grant was and how it's been going?

Alicia Weng: For people who are not as familiar with the vaccine, it's a vaccine called RTS,S that protects against malaria. It's given over three or four doses over the first couple years of a child's life. And it's also really exciting, it's scientifically groundbreaking, but also limited in its effectiveness. So trials suggest it's only 30% effective at reducing malaria among

young children, which is significant. But that's in contrast with other vaccines where we're used to seeing 90% effectiveness.

So it's not a panacea, but it's a really valuable tool to be used alongside bed nets, SMC, these other tools to prevent malaria. So last year GiveWell recommended a grant of $5 million to this great organization called PATH to support Malawi, Kenya, and Ghana's Ministries of Health in the implementation of RTS,S through the end of 2023. So this includes costs of PATH providing technical assistance to the government for the launch, training health care workers to deliver the vaccine, as well as shipment of the vaccine and the procurement of injection supplies that are needed to give the vaccine.

So the vaccine was scheduled to be rolled out in these countries in 2024 with support from Gavi, who's the main funder globally for vaccine procurement and delivery. And we believed our grant would lead to a one-year speed of the rollout. So the impact would be from an additional one-year coverage of children with the vaccine. And distribution is now happening in all three countries. So PATH has completed training of health care workers and launched implementation of the vaccine. And it's on the schedule that we had initially projected. So very exciting to see children getting vaccines in all three places.

Olivia Larsen: That is exciting. Are there other malaria vaccine opportunities that we are considering funding?

Alicia Weng: Yes. So I think the most promising category of opportunities is more grants to accelerate rollout of the vaccine across more countries. There's currently funding going into procurement of the vaccines themselves through Gavi. But a need for more funding for actual implementation and setting up the systems on which malaria vaccines would be delivered. In addition, there's not enough supply of RTS,S to meet global demand for the vaccine. And so there's another vaccine for malaria that's currently in development, being tested in phase 3 trials, called R21 that could help address supply issues. So we plan to keep up with developments with R21 to see if there's room for us to plug into that space and accelerate the rollout of that vaccine as well. I think another category of opportunities is to help enable a healthy market for these vaccines to ensure that doses

are allocated efficiently to places that need them and that prices remain low.

Olivia Larsen: Yeah, that's really interesting. I hope that we find some good opportunities in there. So when we're thinking about these newer types of grants, how do we measure success when it's not as straightforward as it might be with SMC?

Alicia Weng: So we'll often have—at the time of making the grant—we'll make forecasts for key indicators or milestones that need to be hit for the grant to have the impact that we project. So then we follow-up with grantees regularly to track that these grants are hitting those key milestones. And we'll often ask grantees to collect monitoring data for key indicators that input into our cost-effectiveness models.

So, for example, for malaria vaccines, we were looking at the impact of the grant is really from accelerating delivery or rollout of the vaccines. So we looked at, was this incorporated into countries' strategic plans in the time that we expected? Was training completed on time? Were the vaccines and key supplies procured and delivered on time? And then ultimately, have vaccines been delivered? So we'll also look at estimates of coverage. So in this case, it's integrated. It's data that's integrated into routine vaccine coverage reporting. But in other cases, we'll ask grantees to collect pretty intensive independent data on monitoring to check that we're actually reaching the number of people that we expect.

Olivia Larsen: Great. Yeah, thank you so much for all of this, Alicia. It looks like we have a lot of audience questions coming in. So I'll invite James and Grace to come back on screen and we can get started.

Welcome back. So the first question from the audience is about something that is follow-up around something James mentioned surrounding working with communities and making sure that people who are receiving SMC for their children are comfortable receiving it. So this person asked, what proportion of the target households don't accept the medicine at first? And what are the common issues that are run into there? And if there are any steps that you can take to promote acceptability

or make it more likely that a household will be excited about receiving this medication?

James Tibenderana: I'll start the answer from when we first really took—because there's a lot of research that went into SMC at the outset. And when we're thinking about SMC in the implementation setting and the scale-up, we took the tools to a state in Nigeria, and made all our plans, and went out into the field. We got more children coming for SMC than we had planned. We ran out of drugs.

Olivia Larsen: Wow.

James Tibenderana: SMC is hugely acceptable. The acceptance rates are very high. And I think when you imagine the burden that families go through and the impact that they see as a result of this intervention, whether it's in the Sahel, whether it's beyond the Sahel, the consistent issue is high acceptability by communities. Now, they will be, as we know with all things, there will be those who struggle to accept. And some of that has to do with things around safety, if our engagement approach, working with our governments and our communities, was not up to the standard that we would usually expect of that, then you will have some populations that may not be prepared, not be aware, households that may not be in at the time when we go there. But I think consistently, the acceptability rates have been high.

Olivia Larsen: That's great to hear. I think this next question may be for Grace. What are the indicators of success that we look for when we're evaluating an SMC campaign?

Grace Hultquist: That's a great question. So Malaria Consortium conducts coverage surveys after each cycle and round of SMC that it supports. And so the surveyors go door to door visiting a random sample of households that should have been reached by the SMC campaign. And then asking those households questions about whether they were indeed reached and what was the quality of services received.

So we reviewed the reports from these surveys in depth, and we use their results to update our cost-effectiveness models. So specifically, we use the headline coverage rate that is measured

by—so let's say in this state in Nigeria they measured an 80% coverage rate. So we use that to adjust our estimates of how many kids are being reached. And so it actually feeds directly into the decisions that we're making.

Olivia Larsen: That's great. And so Grace, we're getting one question around, what proportion of SMC costs are funded by GiveWell? Maybe this is either for James or Grace. How much has GiveWell, and GiveWell's donors, allowed Malaria Consortium's SMC work to grow?

Grace Hultquist: Sorry, Olivia, do you mean the proportion of the SMC that Malaria Consortium delivers that is funded by GiveWell? That, I might let James answer. Or the proportion of the costs of the programs that we do support that we are covering?

Olivia Larsen: More of the former, I think.

Grace Hultquist: OK, I might kick that over to you, James.

James Tibenderana: So I would say, over the last year, in five years, from GiveWell-directed funding, we've been able to absorb about $370 million for SMC and a bit of nets as well. And in terms of SMC GiveWell-directed funding to Malaria Consortium as a whole organization, I would say that more recently something like 50% of our income or expenditure is associated with GiveWell-directed funding for our SMC, and as I said, a little bit of net activity.

So for us, I think philanthropic funding has been hugely important. And over the last five years, that has literally—in terms of the proportion—doubled our expenditure or our income. But we are seeing Global Fund as one of those major funders for SMC, specifically, in Nigeria, that is beginning to really take on that proportion. That as we were discussing earlier, GiveWell catalyzes and assists to ensure that other donor aid comes in.

But please, the thing we must remember is there is still a gap out there of children in the Sahel, and the other parts of sub-Saharan Africa, where malaria is seasonable, where some of these drug-based interventions can still have a role to play. So we still have a gap that needs addressing.

Olivia Larsen: Thank you. Switching gears a little bit. Somebody asked a little bit more about what Alicia mentioned kind of at the end, about interventions to work on enabling a healthy market for malaria vaccines. Alicia, I'm wondering if you could expand a little bit more about what we might be looking into there?

Alicia Weng: Yeah. So I think a few different areas. One is the actual allocation of doses. So if there is a limited supply of malaria vaccine doses, then there's some uncertainty around how effective three doses of the vaccine is compared to four doses of the vaccine. And so we might fund some implementation-related research to look at that comparative effectiveness and see whether it might be more efficient to allocate fewer doses to more places to reach more people. I think another thing is looking into opportunities to expand manufacturing capacity or other ways that we can alleviate the supply constraints.

And then as I mentioned, there are these two vaccines, RTS,S and R21, coming out. There's been some talk of, can we ensure availability of both vaccines equally so that there's a competitive market? So that having availability of both vaccines can ensure or keep prices a bit lower for both vaccines. I think a lot of other people are already talking about this or have efforts around shaping the market for these vaccines. And so I think the main thing we would be doing is looking at what people are already doing, and whether there is place for additional funding to plug in.

Olivia Larsen: Great. Those are really interesting angles that we could work on. Now kind of bringing a few different threads together. We have a few questions about how vaccines, SMC, and malaria nets can all work together. Or how the existence of other malaria interventions impacts the existence of other malaria interventions.

James Tibenderana: I can say a little bit about that. And what I would like to stress is to think of these interventions in terms of what prevents malaria and then what happens when a child or an adult does get malaria, and then needs to have a diagnosis, treatment, and then follow-up. I think if you think about it in those two domains. So within the prevention domain is what you

stressed—nets, indoor residual spraying, drug-based tools like seasonal malaria chemoprevention, and a malaria vaccine.

I think increasingly we're appreciating that, within that spectrum, how to select the best combination that gives you the maximum impact. The paradigm may not be in every location you give all these tools, all these tools to prevent. But I think what is likely to be more consistent going forward is that, of these preventive tools, what combination gives you the best impact for the funding that is available in a particular location. So that that tailoring will be taking place in different settings, but in addition, as settings change transmission intensity, so location which may have been high transmission intensity, high risk, as that transitions to lower intensity, lower risk, the combination of preventive tools may be slightly different. So I think that's something that we're all working on, and there are various terminologies that are used for that. And so it's important to continue having those preventive tools, be they the ones we currently use, but other ones that are coming on board, like Alicia is commenting.

And then once an adult or a child then gets malaria, it is critical that that is diagnosed as soon as possible and treated. And in that domain, you have the diagnostics, rapid diagnostic tests, microscopy. And then you have the effective drugs that are then used for that treatment. And here, we're only talking about what's called falciparum malaria—there are other malarias that have more complex treatment and diagnostic algorithms.

Olivia Larsen: Another SMC question that's coming through is, whether we're seeing any resistance patterns emerging, which would mean that we might need to change or adapt the medicines that we provide as the preventative medication in SMC?

James Tibenderana: So again, I could talk a lot. I think we've got to look at these things as a continuum. I think the goal has got to be we need to get rid of this disease. We've got to get a world that's free of malaria. That's got to be the goal. And if you keep that goal in mind, then you've got to have a pipeline of tools. So whatever tool we're using now that is effective, we've got to have a healthy pipeline of new tools that ensure that we're continuing to maintain the effectiveness and potentially even improve it.

Now, some of these tools are getting more expensive in terms of their unit costs, which then means that the impact that we need out of those tools is probably going to be even greater. Or the combination. So I think the critical thing, irrespective of whether we have to—it's not a discussion as to whether we should think about resistance or not, because resistance will happen. But we can't say, because resistance is going to happen, we shouldn't be doing the best we can to save the lives that are at risk now. What we need to be having—and I think philanthropy is supporting all the foundations are supporting this, we need a pipeline of healthy drugs for SMC, for preventive tools, vaccines. That pipeline is essential so that we eliminate this disease and have a world that's free of malaria.

Olivia Larsen: Yeah, that makes sense. So basically, a kind of recognizing that resistance might happen, but staying one step ahead, and continuing to innovate there.

James Tibenderana: Exactly. We need to be ahead of the parasite. We need to be ahead of the mosquito. And so we've got to have that pipeline. So yes, resistance is emerging. We've seen that for insecticides. We are seeing that with treatments we have. We're going to see that for some of the drugs we're using. But that shouldn't be the viewpoint, that we shouldn't be doing what we can now to save lives. Because we need a healthy pipeline of the next-generation of tools that can allow us to continue saving lives.

Olivia Larsen: Definitely, yeah. That makes sense. There was a question here that I think Grace may be well-positioned to answer surrounding how GiveWell models the impact of SMC comparing lives saved and the benefits that come from averting a case of malaria, even if that case, luckily, wouldn't have been lethal.

Grace Hultquist: Yeah, so we incorporate many types of benefits into our cost-effectiveness model. The three main drivers of the headline cost-effectiveness estimate are the benefits that we measure from our estimates of how many deaths, malaria deaths, will be averted by delivering this program. And we also include an estimate of how many deaths will be indirectly averted by delivering this program. So as a result of the

improved health of the population, we may see additional benefits from averting additional mortality. We include benefits from reduced morbidity associated with having malaria. And then benefits that we call "development benefits," which are estimates that we include of how much a child's income might increase later in life as a result of not having had a bunch of malaria episodes as a child. So those are really the main drivers of the cost-effectiveness estimate that we have in our model.

Olivia Larsen: Great. And what does that cost-effectiveness model get us to in terms of how much it costs us to save a life?

Grace Hultquist: Yeah, great question. I can pull that up.

Olivia Larsen: While Grace does that, maybe we can—oh, does she have it?

Grace Hultquist: Yeah, as we were talking about earlier, it varies a lot across geographies. But in the four countries that we supported with the grant we were discussing earlier, it ranges from around $2,000 to around $7,000 to save a life.

Olivia Larsen: Great. That's a really low cost, and it's great that we have that opportunity. But not so great that that opportunity still exists. When we think about SMC and how we can continue to understand the benefits, I'm wondering—this might be a question for either James or Grace—I'm wondering how Malaria Consortium is able to fund the monitoring activities that they do to make sure that the SMC is being distributed in the way that it needs to be, or the way that it should be? Does GiveWell consider monitoring and evaluation grants to our charities? Or are they funded another way?

James Tibenderana: Grace, do you want to take that first?

Grace Hultquist: Yeah. So I would just say that, in general, GiveWell really values paying for information that will enable us to improve our cost-effectiveness estimates. And so embedded in the grants that we make to Malaria Consortium to support program delivery is also funding to support the associated monitoring. And we've also been quite excited to provide an additional amount of support to Malaria Consortium annually that they can use as a discretionary research budget. And so that's not the sort of standard M&E that we've been talking about. That is

a budget that they can use to answer targeted research questions about how best to deliver SMC or how SMC will perform in new contexts. So yeah, we find all of that information incredibly valuable, and compared to the cost of delivering the programs—the amount of money that's going into delivery—it's really not a whole lot. And so the value of that is very high to us.

James Tibenderana: And I think that's where we resonate as organization and as a partnership with yourselves, is the value that you put on data and the opportunity you give us to really work at the forefront of ensuring, that with our partners—our government partners and communities—we're able to really get the right data, the right information, and very possibly strengthen the systems. So yes, I would say, Olivia, it's a core part of the program. And we're delighted that GiveWell continues to value information and data. As well as when we have gaps, being able to discuss those with yourselves and our other stakeholders, Global Fund, et cetera, through the SMC Alliance—to identify gaps and then how can we address those gaps collectively.

Olivia Larsen: It's been a great opportunity for GiveWell to be able to work with all of these organizations that are focused on this same really important goal. So it's about time to wrap up. Thank you so much to James, Grace, and Alicia for sharing. I know that I learned a lot. I hope that the attendees did as well. And we really appreciate all of you attending and asking your great questions. If you have any further questions or things that we didn't get to, feel free to reach out to info@GiveWell.org. And thank you so much for your support of GiveWell's malaria programs, as well as the other charities we support. Have a good day.