

GiveWell Virtual Research Event June 8, 2021

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Catherine Hollander 0:00 Hi, everybody. My name is Catherine Hollander. I'm a Senior Research Communications Officer at GiveWell. Thank you so much for joining us today. It's incredible to see 167 people are here to hear about our work. Today's event is going to focus on two research updates. The first will be a conversation with one of our top charities, Malaria Consortium's seasonal malaria chemoprevention program. And the second will be an update on one of the most promising programs that we're considering today, malnutrition. This will be followed by an open Q&A, in which you can ask any questions that you had about the previous two presentations, or any other topics that you would be interested to hear more about from us. So I encourage you to add your questions throughout the event that you'd like to hear about in the open Q&A. And the way to do that is to add them to the chat at the bottom of your Zoom screen. So you'll see a little chat icon at the bottom of your screen. Type your question in there; it'll only go to the panelists, so not to all 100 people that are in the chat. And we'll read out as many as we can during the Q&A session. So hopefully we can get to all of your questions. So throughout the event, as they come to you, I encourage you to add your questions.

Catherine Hollander 1:22 Before I turn things over to the presenters, I just want to take a moment to reflect on the past six years that I've had at GiveWell. I joined GiveWell in the spring of 2015, May 2015. And a lot has changed in that time. And some of our longtime donors that are joining us today might have had a similar experience of watching GiveWell really grow and evolve. And some of our newer donors might be interested to know where we've come from.

Catherine Hollander 1:53 So I just want to highlight two of the really big developments that have happened in the last six years. The first is the amount of money that our donors are collectively giving to the organizations that we recommend. When I joined GiveWell in the spring of 2015, we had just finished a year in which we had directed \$27.8 million from our donors to the organizations that we recommend. And that, to me, sounded like an absolutely enormous, incredible amount of money. And it is an enormous amount of money. And so you know, I'm surprised and pleased to report that last year, we just finished a year in which we estimate that we directed over \$200 million to the organizations that we recommend. So our donors collectively gave over \$200 million to the groups on our list. And when we step back and really think about the impact that that can achieve, it's really incredible to think about. So personally have just been really amazed to watch this growth in our community.

Catherine Hollander 2:59 The second major update that we've seen in the last six years has been the expansion of GiveWell's research pipeline. When I joined in 2015, our research pipeline was really focused on direct delivery programs, in which organizations directly deliver goods like insecticide-treated nets to people who can use them. And these are fairly straightforward ways to do a lot of good. And now we currently recommend and are looking at three different types of organizations, a huge expansion in both the number of opportunities that we're considering, as well as the types of opportunities. So in addition to direct delivery, we're also considering technical assistance and policy advocacy programs as potential future funding recommendations that we could make. The impact of these programs might be significantly more difficult to measure. But

they also might be much more cost-effective because they offer opportunities for leverage.

Catherine Hollander 4:01 In 2015, we had four top charities, and today we have nine. So the number of recommendations that we're making to donors has also increased significantly in the last six years. And with that, I want to turn things over to one of those top charities, Malaria Consortium's seasonal malaria chemoprevention program, to talk about their work and to share a little bit about how they've worked with us in the years since we recommended them in 2016. So with that, I'd like to turn things over to my colleague, Olivia Larsen to introduce our guest from Malaria Consortium.

Olivia Larsen 4:39 Hi, everyone. Thanks again so much for joining us. I'm really excited that we're going to discuss one of our top charities, Malaria Consortium's seasonal malaria chemoprevention, or SMC program. This program stands out on two fronts. First, the SMC intervention itself has been rigorously studied and found to be highly impactful at reducing malaria incidence. Second, Malaria Consortium as an organization has demonstrated its strength in implementing high-quality and cost-effective SMC programs. We first recommended them as a top charity in 2016 and continue to believe it offers donors an outstanding opportunity to accomplish a lot of good.

Olivia Larsen 5:20 In 2019, I was lucky enough to go visit Malaria Consortium's program in Burkina Faso, where I met Christian Rassi, Malaria Consortium's SMC program director, who is here with us today. Christian, thanks so much for joining us. Do you want to briefly introduce yourself and your role at Malaria Consortium?

Christian Rassi 5:37 Yeah, thank you, Olivia. And Hello, everyone. So my name is Christian Rassi. I am the Program Director for Malaria Consortium's seasonal malaria chemoprevention program. I am based in London, and I oversee our SMC work in Burkina Faso, in Chad, in Nigeria and Togo, as well as two SMC research projects we currently have in Mozambique and in Uganda. And of course, a very substantial portion of our funding for SMC comes from philanthropic sources, primarily as a result of having been a GiveWell top charity for a number of years now. So I'm really very glad and very grateful that I've been given the opportunity to be here tonight and to have a conversation with you Olivia and with the philanthropic community about SMC

Olivia Larsen 6:27 Wonderful, yeah, thanks again for being here. So according to the World Health Organization, \$3 billion is invested each year in malaria control and elimination. Over 400,000 people still die of malaria each year. GiveWell itself has given over \$420 million to malaria programs over the years. And yet it continues to be one of our most cost-effective and pressing recommendations. What makes malaria such a big problem still?

Christian Rassi 6:54 Yeah, thanks. Thanks, Olivia. That is, of course, the million dollar question. In fact, if we consider the enormous funding needs that we talk about, it's quite a bit more than a \$1 million question. But I think it's important to start with an acknowledgement that a lot of progress has actually been made in the fight against malaria over the last two decades. So the 2020 World Malaria Report, which you mentioned earlier, reports that global malaria mortality has fallen by 60% since the year 2000, and that about 7.6 million lives have been saved in that period. And that was largely thanks to the wide-scale deployment of malaria interventions such as bednets, indoor spraying, SMC—but also improved access to diagnosis and treatment of malaria. However, it is absolutely true to say that we have seen over the last few years, we've seen a stagnation of progress

in terms of achieving the targets that we've set ourselves for the reduction of the malaria burden. And I think there's now very broad consensus that we're not currently on track to meeting those targets. And there are a host of reasons for this. So some of those reasons are technical. So malaria is generally a fairly difficult disease to control because the vectors, or the mosquitoes—but also the parasites—are very adaptable, and they're just constantly evolving mechanisms and means of circumventing the tools that we have at our disposal for malaria control. I think it's also fair to say that unfortunately, we haven't seen the progress that we had hoped to see in terms of innovations, in terms of malaria control. So say new antimalarials or reliable and easy to use diagnostic tools.

Christian Rassi 8:54 Now, sometimes the challenges might be operational, often due to health system constraints, so ineffective implementation of malaria interventions. And then there are other challenges that frankly go way beyond just malaria, or even public health. So I'm thinking of political instability, population growth, migration, climate change, or—to name two of the biggest elephants in the room—a global pandemic and rising insecurity in many of the areas that are affected by malaria. And then finally, there's the question of sustainable financing for malaria control. So WHO put the gap between the available funding, the amount invested, and the resources needed to meet the targets at \$2.6 billion in 2019. So there's definitely a need for continued support. And I say that fully recognizing that that is not just a call to action for the international donor community, but there's also a need to look at sustainable domestic financing mechanisms.

Olivia Larsen 10:06 Yeah, yeah, that's really helpful. And you mentioned a few malaria programs, including the two that GiveWell supports, long lasting insecticide nets and SMC. Most people know about nets, and the intervention is fairly straightforward, but I think SMC is a bit less widely known. Can you share what exactly SMC is and how it's delivered?

Christian Rassi 10:27 Yeah, of course. So, as you said, in your introduction, SMC is short for seasonal malaria chemoprevention. And as the name suggests, it's an intervention that is specifically targeting areas where malaria transmission is seasonal. So that's the case in areas where there is a long dry season with very little or no rainfall for much of the year. And during the dry season, there are very few mosquitoes around because they need humid conditions and stagnant water to reproduce. So for much of the year, malaria cases are fairly low. But then the rainy season starts, and the mosquitoes start to multiply, people start to get bitten more often and infected more often. And malaria cases just shoot up. And they remain high for the duration of the rainy season and a little while after. And then after the rainy season, they come back right down again and remain low for the rest of the year. That's really a pattern that we see across much of the Sahel region of West and Central Africa. So that's one important aspect of SMC, it's a seasonal intervention. The other important part, and it's also in the name, is that it's about prevention of malaria. So it is not about treating existing malaria infections, but it's about preventing new malaria infections. And in its most basic form, it involves the community-based, intermittent administration of antimalarials to populations that are at risk during the big malaria season. And the objective is to retain or maintain levels of the antimalarials in the bloodstream that's high enough to protect from new malaria infections over the period of highest risk, so during the rainy season.

Christian Rassi 12:23 WHO (the World Health Organization) has been recommending SMC since 2012. And they recommend that it should be targeted at children between three and 59 months of age. So that's children under five. And the reason why we're focusing on young children is really because they're particularly vulnerable to malaria, and they have much higher odds of contracting severe malaria and dying from malaria than older children or adults, who have developed a certain

level of immunity. We use two different antimalarials in SMC; they're called sulfadoxine–pyrimethamine or SP in short, and amodiaquine, or AQ. And the current recommendation that WHO have is for annual SMC implementation, annual "SMC rounds," comprising four monthly SMC administration cycles.

Christian Rassi 13:22 It's primarily delivered door to door by community distributors, and each full course of SP+AQ confers a fairly high degree of protection from malaria for about 28 days, and then the protection declines fairly rapidly thereafter, which is why we give SMC drugs on a monthly basis. And we repeat that over the duration of the rainy season.

Christian Rassi 13:52 I would just make one more point. So while of course the SMC delivery at the community level, the distribution of the SMC drugs, is the core of the intervention—there's actually a lot of other intervention components that need to be in place throughout the year. So starting from planning to supply chain management, procurement, community engagement, to training, supervision and monitoring and evaluation. So while the delivery is seasonal, the intervention is really a year-round activity.

Olivia Larsen 14:25 That's interesting. It's kind of wild that a few pills can just protect a child from malaria for 28 days. So you've mentioned that it's an annual program, what part of the yearly cycle are we in right now?

Christian Rassi 14:39 Yeah, that's a very timely question because the seasonality patterns are fairly consistent across the Sahel. So the rainy season starts in June or July, and it lasts around about until October. And it just so happens that today was the first day of SMC distribution in the 2021 SMC campaign in Burkina Faso. Pure coincidence, but the SMC campaign 2021 started today. And then the other countries we support: Togo will follow next week, Nigeria the week after, and then Chad in early July. Now, I'd love to give you an exact figure for the number of individuals who are involved in the campaign just to give you a sense of scale. Unfortunately, I don't have the data for 2021 yet, but I can tell you that last year—when we reached about 12 million children across our program—we had about 150,000 individuals that were involved across those four countries. Now this year, we're aiming to reach 17 million children across those countries. And so I would really expect the number of individuals to grow this year.

Olivia Larsen 15:52 Oh, that's incredible. Thank you so much for taking some time to talk to us in what may be crunch time for you with organizing the distribution. So yeah, I was able to go see SMC being delivered in Burkina Faso a few years ago. And the scale that you mentioned is something that really struck me. So being at a health center, seeing dozens of community distributors leaving to deliver this life-saving medication. And knowing that at that same time, there were thousands more leaving other health centers to try and knock on every door in Burkina Faso to see if there were children who needed SMC living there. And from what I saw, it seemed like the community distributors were really a part of the communities that they were distributing in. One community distributor ran into his six year old nephew while we were giving out the medication. We also saw a lot of logistics that were really interesting, like how in rural areas the distributors would mark on the doors to see if they had already knocked on that door. But in the urban areas where the kids were more likely to be running around with each other and not in the home, they would use Sharpie to mark the nail to see which ones had already gotten the medication. So I'm just curious, how did you adapt the logistics of SMC delivery for different contexts: urban, rural, different countries, things like that?

Christian Rassi 17:12 Yeah, of course. So the basic implementation model is the same in all countries. But one thing that's important to remember is that we implement SMC through countries' existing health systems and under the leadership of national malaria control programs. So once we start looking at the detail of how the intervention is delivered, all of the differences are usually a function of the different health systems in the different countries. And I'll just give you one example. And it relates to your experience that you just talked about, so who is actually distributing SMC.

Christian Rassi 17:54 So in Burkina Faso, there is a fairly well-developed cadre of community health workers that are a recognized group of health workers who've been employed by the government. They are trained to provide basic health services, and many of the distributors who distribute SMC are from community health workers. So they are recruited from this cadre of health workers. In other countries, that doesn't exist, or not in the numbers that we would require to distribute SMC. So in Chad for example, we recruit volunteers from the affected communities, and we train them specifically on SMC.

Christian Rassi 18:34 Another interesting aspect maybe of adapting—so there are differences in how you implement SMC in urban areas and in rural areas. So in addition to the example you gave, I would also say that one difference is that in rural areas, people hear about SMC and learn about SMC through community structures: churches, mosques, markets, town announcers, etc. Whereas in urban areas, that doesn't really work. So in urban areas, we need to invest a lot more in sharing health messages through mass media, so TV or social media.

Olivia Larsen 19:14 Yeah, that's really interesting. So yeah, every year, the GiveWell team continues researching each of our recommended charities to make sure that they continue to meet our high standards. So this includes incorporating new research into our cost-effectiveness, as well as asking the charities what they would do with additional funds. And so a lot of this for Malaria Consortium is asking questions to you and your team Christian. What are the best and worst parts about working with GiveWell, from a top charity point of view?

Christian Rassi 19:41 Well, obviously there are no negatives whatsoever. No joking aside, I genuinely can't overemphasize the role that philanthropic funding for SMC has played in scaling up SMC across the Sahel and maintaining the momentum that was gained through some of the early implementation projects before the larger, more traditional donors came on board. It was absolutely fundamental. And it really allowed us to maintain and even grow that scale of SMC. And even now when some of the more traditional funders (the Global Fund, the US President's Malaria Initiative), they've bought into the concept of SMC. But even now, the need for funding is so, so substantial that there is a really important role for philanthropic funding. For us, for Malaria Consortium, having that planning security, and that operational flexibility that philanthropic funding is giving us makes an immense difference and it's unbelievably important. I'll just give you one example.

Christian Rassi 20:49 So two years ago, Burkina Faso had reached almost all the health districts in the country with SMC. But there were five districts missing, the urban districts in and around Ouagadougou, the capital city. And we received a request from the Ministry of Health, a very, very last-minute request to cover those remaining districts. Now, in a more traditional funding arrangement, it would have been virtually impossible to respond positively to such a request at really short notice. However, because we had the flexibility of the philanthropic funding, we were

able to make arrangements very, very quickly. And that meant that we were able to protect an additional 400,000 children that year from malaria, which is obviously fantastic. So I honestly can't overestimate how transformative becoming a GiveWell top charity has been for Malaria Consortium. We're immensely grateful to all our supporters, but of course especially to GiveWell.

Christian Rassi 21:51 Now, since you asked about the challenges, I would say that it took us a while to understand your approach and your thinking. You obviously have a very strong focus on cost-effectiveness. Whereas public health NGOs like Malaria Consortium, we tend to have more of a focus on health systems strengthening. So cost-effectiveness isn't necessarily the core of what we think about. So there can at times be almost like a philosophical clash between the way we think, but I would genuinely say that we've established a very constructive working relationship. And while it's true that GiveWell asks many questions, I can genuinely say that those questions are always helpful. And they always prompt us to think about things from a slightly different angle, which I certainly find this experience is extremely rich.

Olivia Larsen 22:49 Yeah, thanks for those kind words and for implementing such a great program, we're really glad to support it. Yeah, in general, our understanding is that the scale up of SMC is often celebrated as a malaria success story. And so in recent years, we as a part of the malaria community have been focusing on if and how SMC can be adapted outside of the Sahel region that you mentioned earlier. Something that we haven't yet written about publicly is that GiveWell has recently supported your trial of SMC in Mozambique. Can you share a little bit more about your findings from that pilot and your plans for the second year of the program in Mozambique?

Christian Rassi 23:31 Yes, absolutely. So, just as background, the current WHO policy recommendation for SMC recommends that SMC should be prioritized in the Sahel because the levels of parasite resistance to the drugs we use in SMC, especially the SP, are low across West and Central Africa. However, we've now reached a stage in the Sahel where we're reaching not all eligible children but most of the eligible children in the Sahel. So WHO is now pushing for SMC to be used more aggressively, including in areas where geographies where parasite resistance to the SMC drugs is a problem. Without going into too much detail, there are good technical reasons to expect that SMC will have a positive impact in those areas. Remember, parasite resistance is defined as treatment failure. So drugs no longer work for curing existing infections, but SMC is a preventative intervention. And mainly because of the way the SMC drugs interact with the life cycle of the parasite, we think it's highly likely that the drugs will have a protective effect even in areas where they are no longer effective for treatment.

Christian Rassi 24:54 So with that in mind, we formed a partnership with the malaria program in Mozambique, and we are conducting a two-year research study to test SMC outside of the Sahel. And we've just completed year one, which involved delivering SMC to around about 70,000 children in two districts in Nampula Province, which is in the north of Mozambique, where malaria transmission is seasonal. Year 1 was primarily about feasibility and acceptability of SMC in this completely new context, but also collecting some initial impact data, which could inform the design of a more robust impact evaluation in year 2. So, we now have some preliminary results from the first phase, which I'm happy to share. I'd just like to stress that they are preliminary results and they're not yet meant to provide definitive answers to the overarching research question of whether SMC is a viable strategy.

Christian Rassi 25:53 But with that in mind, so we found that SMC was feasible and acceptable. We achieved the same kind of coverage rates that we typically see in the Sahel. And we conducted a non-randomized trial, where we followed up with a sample of about 700 children in the two intervention districts and in a third district, which served as a control. And we found that children who had received SMC had malaria positivity rates that were 80% lower than children who hadn't received SMC. Now again, this was from a non-randomized trial, so we shouldn't get carried away. But this is really giving us the confidence that we should go ahead with phase two of the study, which as I say, will be a much more robust impact evaluation, including a properly randomized controlled trial. We're working through the details of the study design at the moment, I can't give you a lot more detail at this point. But we will publish the study design. And we will also publish all of our results. And one final word on this. We've also built in a component that looks at parasite level resistance at different points in time, which we really hope will give us important insights into how effective we can expect the intervention to be in the longer term. I'm afraid I don't have any results from this study yet, but it's really exciting work. It could transform the way SMC is being deployed in a completely new geography.

Olivia Larsen 27:26 That's incredible. It's great to hear how Malaria Consortium is, you know, continuing to innovate. So yeah, thank you so much for your time and for answering our questions. Questions from the audience are coming in the chat to the panelists. So we'll go over that in the Q&A after we talk a little bit about malnutrition.

Olivia Larsen 27:46 So as Catherine mentioned earlier, this year, GiveWell's research team is investigating more new programs than ever in expanded areas of global health and poverty alleviation. Our program review process operates like a funnel. We conduct short shallow reviews of a large number of programs, and then prioritize more intensive reviews for the programs that seem the most promising. We assess how promising a program is based on the strength of evidence, its cost effectiveness, and whether we think that the program would be able to use additional funds to scale up really impactfully. So we conduct the most in-depth reviews of the most promising programs. Once we've found a program that seems really promising, we look for and usually find organizations that effectively implement these programs. Those that meet our criteria are added to our list of top charities. So I'm excited to introduce my colleague Julie Faller, a GiveWell Senior Researcher, who will talk about a promising program we're investigating in our pipeline. Take it away, Julie.

Julie Faller 28:49 Great. Thanks Olivia. Yes, so I'm excited to talk to you about the treatment of malnutrition. We have been working on this investigation fairly intensively and for about a little over six months. And we're excited about it because we think that it could be cost effective and because it seems like there's significant unmet need. But we have real uncertainty about our cost effectiveness estimates for reasons that I'll talk to you about in a few minutes. And so because of that, at the moment, we're moving forward with recommending funding opportunities in areas where we think there's the potential to do good high impact work at the same time as we're advancing a research agenda to try to resolve our uncertainties. So it seems likely that we'll update our estimates of malnutrition treatment's cost effectiveness in the next few years. That could be negatively such that we no longer recommend funding these interventions, or it could be a positive update, in which case we could recommend an implementing organization as a top charity.

Julie Faller 29:49 So what is malnutrition? It's a particular form of undernutrition that presents in two ways. The first of this is wasting, which is failure to gain weight or a rapid weight loss. It's

frequently diagnosed as a low weight for height ratio or a low mid upper arm circumference, which is abbreviated MUAC. The second presentation is kwashiorkor, which is basically swelling or fluid retention. My understanding is that kwashiorkor is quite difficult to measure in surveys, and in addition, surveys are best at measuring prevalence, the number of kids who have wasting at a particular point in time versus incidents, which is cases over a time period. So the most reliable numbers suggest that in 2019, 33 million children experienced MAM and 14 million children experienced SAM, severe acute malnutrition. And those are prevalence numbers, thus likely a lower bound.

Julie Faller 30:42 We also think that malnutrition raises mortality risk. Our estimates are that 7-25% of severely acutely malnourished children and 2-4% of moderately acutely malnourished children would die if they didn't receive treatment. If you're looking at the range of 7-25% and thinking that that's a huge range, it really is. That's being driven by the prevalence of additional medical complications. So that could be for example, having severe malaria in addition to being malnourished, which raises children's risk.

Julie Faller 31:17 So the organizations that we would consider recommend funding to generally or often work in areas where there is government Ministry of Health provided treatment of malnutrition. So given that, what do they do? I find it helpful to think of their work in three big buckets. The first is around healthcare provision and working directly with healthcare providers. This could be providing training or mentoring or supervision to make sure that they know how to diagnose and treat malnutrition. It could also be working with Ministries of Health to provide incentive pay or to recruit additional doctors and nurses in areas where that's a constraint.

Julie Faller 31:54 The second bucket of work is around outreach. And this means going into communities and making sure that parents and caregivers understand how to identify malnutrition among their children and also know where to go to seek treatment in case they do see signs of malnutrition with their children.

Julie Faller 32:11 And then the third bucket of work is around helping with logistical support to make sure that clinics and hospitals can function in low resource areas. And a big important activity here is actually around providing logistical support, such that you can maintain stocks of ready to use therapeutic food (RUTF), which is a key input in the treatment of malnutrition, and which is kind of difficult to manage the supply chain of and so can be subject to stock outs.

Julie Faller 32:41 Okay, so in our current estimates, among the programs that we're considering right now, we estimate that it costs between \$125 and \$600 to treat a child who's malnourished, and that range, the gap between that range is driven by the numbers treated. So it seems like there are significant economies of scale. And also by the risk level of the patient pool. And by that, I mean like how many of the children are moderately acutely malnourished, as opposed to severely acutely malnourished.

Julie Faller 33:12 We estimate that it costs between \$3,000 and \$4,400 to avert a death among malnourished children treated in these programs. And that's competitive with our lifesaving top charities.

Julie Faller 33:24 I mentioned earlier that another reason that we're excited about the treatment of malnutrition, beyond potential cost effectiveness, is just that it seems that there's a big unmet need.

And so to illustrate this, you can take the estimate that we think that about 36 million children were malnourished and not treated in 2019. And if you multiply that by the lower end of our cost per child treated range, you get about \$4.5 billion in need for treatment. Now, that's not precise, because the cost to treat a child varies and some of these areas don't have effective malnutrition treatment programs, but I think it helps us get a sense of the order of magnitude of the unmet need in this area.

Julie Faller 34:10 So we are looking at potentially funding two different implementing organizations. One is ALIMA and one is the IRC for their malnutrition treatment in five different countries, Burkina Faso, Chad, DRC, Niger, and Somalia. And in fact, we recently recommended and gave funding of \$1.8 million to the IRC. That's a bridge grant that's designed to allow the programs that we're considering funding to operate over the next couple of months. And that's because we did not think that we would be able to finish our investigation to decide if we want to fund these programs on a longer time period before they actually ran out of runway. And so we gave that smaller bridge grant to allow the operation as we continue our investigation.

Julie Faller 34:58 So I mentioned earlier that we have some uncertainties at this point in our investigation. And there are two really big ones in terms of how we measure cost effectiveness. The first is around malnutrition treatments' effects on mortality. So there is no randomized controlled trial evidence from contemporary contexts about the effects of malnutrition treatment. And that's because it's believed to be effective. And so it's not considered ethical to track children who we know to be malnourished without providing treatment to them just to observe their outcomes. So in our investigation, what we're doing is using evidence from historical studies that took place in the 70s, 80s, and 90s, and tracked children's outcomes. And we're trying to make adjustments to account for the differences between the context of those historical studies and contemporary program contexts. But as you might imagine, there's a lot of uncertainty associated with those adjustments.

Julie Faller 35:54 The second big driver of our uncertainty is about the numbers of children who are treated as a result of NGOs' work. I mentioned previously that often, although not always, NGOs are working in existing government Ministry of Health systems. So the question to identify their impact really is how many more children are treated because they're there than would be treated just with Ministry of Health services. So we're building out a medium-term research agenda to try to answer some of those questions. And I'm happy to talk about that in the Q&A. But for now, I'll wrap it up so that we can get to that good part, which is your questions.

Catherine Hollander 36:36 Thanks so much, Julie. We have gotten so many questions. So I'm just going to jump right in with questions for our panelists. I'm going to combine a few of them that were on related topics. So you might hear a version of your question that's slightly different, so that hopefully we can tackle a few different areas. So I'd like to start with a question for Christian on malaria in general: is malaria an issue of resources or geography? In an imagined future where people have more economic resources, does the malaria issue go away?

Christian Rassi 37:14 Excellent question. I can obviously only speculate. Wherever in the history of malaria control, we have seen either a significant reduction in malaria cases or elimination as a public health program, including in areas in the US and in Germany and Europe, not too long ago. That's always gone hand in hand with economic development. So there is definitely an aspect of as the economic situation improves, you would expect malaria cases to come down. I do think, though, that Africa is, due to its geography, also a special place. So it's particularly vulnerable for climatic

reasons, for example. And that adds to the effect of the sort of the fragile infrastructure, health infrastructure, fragile states, political instability, etc. So I can't really answer your question in terms of either/or. It's certainly a combination of those two factors.

Catherine Hollander 38:28 Thank you. And Christian, I want to stay with you for just another moment, because we've had a number of questions about the malaria vaccines in development and the potential of malaria vaccines to impact your programs. Could you speak a little bit about what's going on with the vaccine?

Christian Rassi 38:44 Yeah, we're getting that question a lot these days because many of you will be aware that there have been some really promising results that have just been published about one of the two vaccines that are in the pipeline. Now, one of those two vaccines has actually been around for quite some time. It's called the RTSS vaccine. And the efficacy results we've seen have been well a mixed bag. And it hasn't been recommended by WHO for scale up. The other vaccine that's been in the news recently has a very uncatchy name, but I've seen it referred to as the Oxford vaccine on malaria. And they've just published results from a trial that was conducted in Burkina Faso with efficacy results that are very promising, in the same region as SMC. Now that's excellent news. And having an effective malaria vaccine would, without a doubt, transform malaria control. But just a bit like with our own research in Mozambique—it's very early days. It's so far based on one study with a fairly small sample of children. So I think we shouldn't get carried away at this stage. There's quite a bit of research that still needs to be done before we can speculate about how exactly that vaccine can play a role in malaria control. I know there's other research that's been done in Burkina Faso and Mali recently that looked at combining the RTSS vaccine with SMC. The trial protocol has been published, the results haven't I'm afraid. We're told that the publication will happen very soon, and that the results look promising. Can't say much more than that at this stage. But the point is that a combination of a vaccine and SMC might be a potential strategy in the future.

Catherine Hollander 40:46 Great thank you. Julie, I'd like to come over to you for a question on malnutrition. How did we choose to focus on treating malnutrition instead of preventing malnutrition? And are there early or preventative interventions for malnutrition that might be feasible and effective?

Julie Faller 41:02 Yeah, so we are looking at some prevention programs. We're even earlier in our investigation into those programs compared to our investigation for treatment. I think that one big thing to consider when it comes to prevention is just the prevalence of malnutrition in the area. Obviously, it's potentially more cost effective to prevent cases in areas where it'd be higher prevalence. Another reason that we ended up focusing on treatment is just what we estimate to be the very large mortality effects associated with malnutrition once you become malnourished, and it's untreated. So yeah, that's it. It wouldn't surprise me if we ended up investigating prevention a little bit more, probably next year.

Catherine Hollander 41:52 Thanks. And another malnutrition question is why do we focus on childhood malnutrition as opposed to adult nutritional needs?

Julie Faller 42:02 Yeah, so similar to what Christian mentioned, when it comes to malaria, children are just particularly at risk of mortality associated with malnutrition. And the programs that we're looking at fund treatment for children from 6 to 59 months. But actually, most of the children end up being at the younger end. So I recently saw data from a program where 80% of the children

were under 24 months. So in those years, it is both more prevalent to be malnourished, and children who are malnourished at younger ages appear to be at higher risk.

Catherine Hollander 42:40 Thanks. Switching topics, I'm going to come over to Olivia, we had a question on how GiveWell measures the amount of funding that we're directing to our recommended organizations, especially when people might sometimes not be giving through GiveWell. Could you speak to that?

Olivia Larsen 42:59 Yeah, definitely. So yeah, it's relatively easy to track the donations that come through GiveWell's website or through GiveWell, to GiveWell's Maximum Impact Fund, our recommended charities, or GiveWell's operations. We also are able to track, from our recommended charities, when people make a donation and their donation is influenced by GiveWell. They can tick a box that says, "I found out about you through GiveWell or similar," and then the top charities will share that information with us. So that means that our estimates for money moved are probably an underestimate of GiveWell's true influence, because some people who find out about an organization through GiveWell might forget that they did so or forget to check a box or choose not to check a box or anything like that. But in our money moved estimates, we try to be conservative and only track the things that we are really confident come from GiveWell, and then sometimes we also publish another estimate that includes things that we think, you know, may be attributed to GiveWell, but that's not usually our headline figure, because we want to be really confident about that headline figure. So the short answer is we don't do it perfectly, and it's likely to be an underestimate.

Catherine Hollander 44:13 Thanks, and staying on the topic of the money that we direct to our recommended organizations. We had a question on whether the fact that—you know, I mentioned that we had originally had four top charities when I joined and now we have nine—if we think that the number of top charities being larger was a contributing factor to how much funding we're directing to them.

Olivia Larsen 44:33 Yeah, I think that it wouldn't be huge. This is pretty speculative, but I don't think that there are too many donors who have really strong preferences between, for example, SMC or nets, when they're both addressing malaria, or care a lot about vitamin A supplementation and really don't care about malaria and things like that. So I think that the biggest thing that's been driving GiveWell's prioritization or finding new recommended charities has been being able to continue to support our growth. And so if we only right now had the top charities that we had in 2016, we would likely not be able to have as many incredible funding gaps for over \$200 million to fill. So it allows kind of finding new giving opportunities allows GiveWell to grow. And it also allows us to be more cost effective, because when we're thinking about how we allocate funds and how we recommend donors give, we think about individual gaps at particular top charities. So we might think about Malaria Consortium in Chad and compare that to the Against Malaria Foundation in the Democratic Republic of the Congo, and vitamin A supplementation in Cote d'Ivoire. And, you know, all of those could have different levels of cost effectiveness at different times. And the more options that we have between those, the better we can choose the gap that is most cost effective at any point in time.

Catherine Hollander 46:09 Thanks, Olivia. Christian coming back to you, we have a few questions on just how the antimalarial drugs that Malaria Consortium distributes work. So, one of the questions is can you describe how the two drugs work? And how similar or different are they to

the type of malaria prophylactic drugs that say tourists or travelers are typically taking, and in particular, with regard to the side effects that they might have?

Christian Rassi 46:36 So the drugs that we're using, the SP and AQ, have actually been around for quite some time. And they used to be used as antimalarials for malaria treatment. The reason why we think that it might still work in areas where there is resistance to SP in particular, is that the drugs tend to affect the very early life cycles of the parasites in the liver stage. So the parasite load at that stage would be extremely low. Whereas many other drugs affect at the later stages of the life cycle when the parasite load would be quite high. So for that reason, we believe that the drugs might be effective as a preventive drug. In terms of how it compares to the chemoprophylaxis drugs that we might be familiar with from traveling to malaria regions. Yeah, so those drugs are meant to be highly effective for a very short period of time. So you can't really use them over an extended period of time, because you'd have to ask questions about safety, drug safety, pharmacovigilance. It also probably wouldn't be cost effective, because the cost is quite high. The principle though, is similar.

Catherine Hollander 48:08 Thank you. Julie, I'd like to come back down to you for a question about GiveWell's expanded pipeline that I mentioned and sort of the different types of programs that we're assessing. Could you speak a little bit about how we're looking at direct delivery and technical assistance and some of the newer types of programs that we're assessing, and sort of our broad approach for thinking about impact in those areas?

Julie Faller 48:33 Yeah, so I would say that our broad approach is quite similar. In both technical assistance and direct delivery, what we're trying to do is understand the impact achieved for dollars spent on a particular program. I think that what is different about maybe how we had organized our research in the past is that we are considering a broader array of evidence. So we're not just limiting ourselves to programs the impact of which can be confirmed with randomized controlled trials. And I think that we are getting a bit more comfortable with drawing together kind of disparate evidence streams to inform our overall cost effectiveness analysis. Does that answer the question, or should I give particular examples?

Catherine Hollander 49:25 I think that's a good overview. So I'm going to go into the next question, in part because we have so many questions. So I'm hoping to get at least an answer to as many as we can. So this next question is for Olivia, and the question is: regarding philanthropic priorities, it's amazing to me, as I'm sure it is to many others that the handful of proven programs like seasonal chemoprevention and insecticide treated bed nets are not 100% funded by national governments and multinational organizations. As a giver, should I be lobbying to try to encourage governments and multinational organizations to do more to fill these needs?

Olivia Larsen 50:01 Yeah, that's a really good question. And something that GiveWell has been definitely thinking about of late. So in short, it seems like we think it's a pretty challenging question, and not something that we would expect an individual giver to be able to find, you know, a lobbying opportunity that would be likely to beat our recommended charities. So I think my advice to, you know, that specific question asker would be probably not, but it's something that GiveWell is in the early stages of working on ourselves, and so thinking about whether there are opportunities for us to build relationships with, offer support to, and advocate for our priority programs for people and organizations that are making these multibillion dollar decisions about where multinational organizational foreign aid and, you know, national foreign aid are distributed.

Catherine Hollander 51:04 Thanks. And this is a question for Christian and Olivia. I believe this question was asked with an intention of thinking about how to encourage others to give, but maybe the question asker can follow up if that's not right. But the question is: how do you recommend that we discuss malaria prevention with our friends and family? Like, how would you pitch someone on the importance of this issue?

Christian Rassi 51:27 Yeah, maybe I can start on that one. Malaria is, as I implied earlier, it's a complex problem. And it really needs solutions across the spectrum of tools that we have, but especially for those who are most vulnerable—so young children, pregnant women. Prevention is probably the most effective tool. So stopping infections from happening in the first place, while immunity is compromised, is a very effective malaria control tool. So therefore, malaria prevention, has always and will always have to be an important part of any kind of malaria control.

Olivia Larsen 52:07 Yeah, I think that some of the things that have been helpful for me in talking to you know, my friends and family about malaria and why I feel like it's so important to support are some of the stats that GiveWell talks about. It's truly incredible to me to think that \$3,000-\$5,000 can in expectation save a life through GiveWell's life saving recommended charities, and kind of sitting with that and thinking about, you know, would I pay \$3,000-\$5,000 for a child in my life to not die? That seems like a really simple question and is something that definitely can be framed in an aggressive way, but can also be, I think, posed in an inspirational and exciting way. Also, one thing that, you know, always sticks in my mind is that malaria was eradicated in the American South in 1951. And I mean, Christian has made some great points about how it is a complex problem, it's not something that is really simple to solve. But it is something that, you know, has been solved in some contexts and something that we think funding can really move the needle on.

Catherine Hollander 53:25 Thank you. We've had a few more questions on malnutrition come through. So Julie, want to go back to you. Does malnutrition lead to other severe negative impacts short of death? And do we account for that when we're thinking about the potential benefits of recommending malnutrition organizations? And also what are the impacts on future quality of life in children who receive malnutrition treatment?

Julie Faller 53:51 Yeah, so beyond reducing mortality risks, the two ways that we think that malnutrition treatment—the two benefits basically that we model are: a) the consumption benefit for children, just that they do receive additional calories when they're enrolled in the program. Now, that's a tiny portion of the overall benefits, but we essentially treat it equivalently to consumption like we would in any of our other models. The second thing that we think likely has an impact is just on their cognitive development, and then therefore, their long-term outcomes as adults. That evidence base, as you might expect, is a tricky one. There aren't many contexts where you know that a child was malnourished and then can track their outcomes as an adult. So we are extrapolating a bit from different evidence bases, including like twin studies where one twin is higher birth weight than another twin. We've reviewed the econometric literature looking at outcomes after famines. And we're trying to draw this together to get our best guess of the developmental effects of being treated for malnutrition and having that treatment. Again, that is a relatively small benefit we think. And the reason that it seems quite small is just that, as the numbers that I showed you guys earlier make clear, the risk of mortality is really quite high, especially for children who are severely acutely malnourished and have other additional medical complications. So those mortality benefits

just end up looking kind of large.

Catherine Hollander 55:34 Thanks, Julie. I think we only have time for one more question. And I think this is a question that perhaps everyone on the panel could speak to, which is thinking about the way in which GiveWell works with the organizations that we assess or recommend. To what extent are we or can we work with these organizations to increase the cost effectiveness of their work? So not just assessing what they do without working with us, but thinking about whether, you know, there might actually be ways that we can work with organizations to increase that cost effectiveness. Is that something that we can speak to? Perhaps Olivia, maybe you can kick off? And Julie or Christian, if you have additional thoughts, you could add them?

Olivia Larsen 56:18 Definitely, yeah, we definitely want to support organizations, you know, becoming more cost effective. We do this in part through our Incubation Grants program, which allows us to work with charities that might be earlier stage, not yet large or tested enough to actually be GiveWell top charities. So that's one way in which we can help, you know, smaller or less well-established organizations become potential GiveWell top charities. And we really like to work with our top charities too. We hope that our questions can be sometimes helpful in clarifying why they're prioritizing certain areas or why they're making certain decisions. And we also kind of are interested in helping grant out funds that can support organizations to learn more about how they could be more cost effective. I think the Mozambique example for Malaria Consortium stands out for that, as well as a grant that we gave in the past to the Against Malaria Foundation to help them improve their monitoring and evaluation, so that they could better understand the impact that their nets were having on people.

Christian Rassi 57:27 Yeah, I think I can add to that from the point of view of one of your top charities. The types of interactions we have with GiveWell, on a very regular basis, are not just about answering your research questions. They're also about just discussing how we operate, and through the questions that GiveWell asks, and I think I said that in the conversation we had earlier, that really helps us think things through from a slightly different angle than we maybe traditionally would as a public health NGO. So I do think that there's a role just through regular interactions that really help us think through things from a cost effectiveness perspective.

Julie Faller 58:14 Yeah, and I just want to add, in addition, I think we are interested when we find programs that we think could be cost effective and there's nobody implementing them, we're exploring how we can help create programs that aren't currently being implemented. Often through working with an organization to add something new. I would just say that the other thing that I think we on the GiveWell side are really aware of is if we think something's really great, and no one's doing it, it's also always possible that we're wrong and that it's not that great. And so we want to have our eyes open, be ready to listen and learn and find out if in fact, it's not such a great opportunity.

Catherine Hollander 58:54 Thank you so much. This is the conclusion of our presentation. Unfortunately, it's already been an hour. You asked so many good questions, and so many more than we were even able to answer in this Q&A. And, you know, we're so appreciative of you for showing up and spending an hour thinking hard about the questions that motivate us to come to work every day, like how do we have the most impact, how can we do as much good as possible? It's really exciting to be surrounded by a community of people that is asking those same difficult questions and cares a lot about the answer. And you know, it's only with our community that we're able to

have impact. Without you, our donors, we would just be doing academic research, it wouldn't be actually translating into increasing the scale of people that we're able to reach and the amount of good that can happen in the world. So we're so appreciative of that. And if you're interested in where you can donate within GiveWell's list of recommendations to maximize your impact, the best option for that is GiveWell's Maximum Impact Fund, which we grant to our top charity or top charities that we believe can use the funds most effectively at the time they're granted. So that's our number one recommendation for donors who are interested in using our work.

Catherine Hollander 1:00:13 The other recommendation that we would have is one of the best ways that we're aware of to have impact is also to share GiveWell with your friends, make personal referrals, tell people about our work. You know, I've talked about how much the community has grown in the six years that I've been involved with GiveWell, and we're really excited about the amount of growth that we might see going forward. So please do share our work with your friends, with your family, and keep showing up to events like this. We really appreciate it. Thank you so much.