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**EVIDENCE**

## Thursday, June 4, 2015

## Chair

**Mr. Dean Allison**

# Standing Committee on Foreign Affairs and International Development

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● (1105)

[*English*]

**The Chair (Mr. Dean Allison (Niagara West—Glanbrook, CPC)):** Good morning, everyone. Pursuant to Standing Order 108 (2), this is our briefing on global action against malaria. We'll get started.

I want to welcome all of our guests here today. We have with us the Roll Back Malaria Partnership. Joining us is Mr. Verhoosel, who is a representative to the United Nations in New York and head of external relations. Welcome, sir. We'll be hearing from you first, after I introduce everybody.

Also representing the Roll Back Malaria Partnership is a senator from the Cameroon Senate, Senator Ngayap. Welcome. We're glad to have you here today as well.

Next to him, from the Medicines for Malaria Venture, we have Andrea Lucard, who is the executive vice-president. Welcome. We're glad to have you here today.

We have quite an international panel today, with someone from Geneva, someone from Cameroon, and someone from the United Nations in New York. We're looking forward to hearing from all of you.

Mr. Verhoosel, we're going to start with you, sir. We will give you the floor for seven minutes. We'll move through the testimony from all of our witnesses, and then we'll spend the next hour asking questions and clarifying anything the members may want clarified.

I'm going to turn it over to you, sir. We're glad to have you here. The floor is yours.

**Mr. Hervé Verhoosel (Representative to the United Nations in New York, Head of External Relations, Roll Back Malaria Partnership):** Thank you, Mr. Chair.

I will do the beginning of my presentation in French and then switch to English.

[*Translation*]

Good morning, Mr. Chair and members of the committee.

My name is Hervé Verhoosel. I represent the Roll Back Malaria partnership at the UN. Secretary General Ban Ki-moon has made the fight against malaria a priority of his second mandate. Canada's priority in maternal, newborn and child health is perfectly aligned with this priority of the UN secretary general to fight malaria.

It is important for the UN and for the Roll Back Malaria partnership to stress the public-private partnership. I gather that, here in Canada, there is also some interest in involving the private sector in development and in health. That is what we are doing by gathering around the same table donor countries, endemic countries, research and development organizations like the Medicines for Malaria Venture, represented here by Andrea, NGOs, and those from the private sector in order to better coordinate the fight against malaria.

[*English*]

Worldwide we have 3.2 billion people at risk of malaria. Almost half of the world's population is at risk of developing malaria, and we have a bit less than 200 million cases of malaria every year. We have 584,000 deaths.

Also, what's amazing is that we can prevent and cure the disease. We have everything today, all the tools, basically to save 584,000 people in the world a year. Sub-Saharan Africa is affected by 90% of the burden of malaria.

Knowing that we have everything to prevent and cure the disease, what we need is political leadership both in endemic countries and in donor countries. With the new United Nations development goals that member states are developing now for the UN, we hope that malaria will keep an important place on the agenda in the future. We are a bit sorry that for the next G-7 malaria is not directly there anymore. But we hope to work with Japan and we hope to have the support of Canada for the next G-7 to put malaria back on the agenda in the future.

It was important for us, in cooperation with the APF, to ask one of your colleagues to come, because maybe I'm not the best witness for you, coming from my desk in New York. Who better than a senator coming from an endemic country, who is also a pharmacist and an economist, to speak with you about the burden every day in his country? That's why, with your permission, Mr. Chair, I would like to take less than seven minutes and maybe ask the senator to speak a tiny bit more than seven minutes.

As some of you do, I very often travel in Africa, and every time I witness the burden on the socio-economic development of the country. Professor Jeffrey Sachs, who is an economist, calculated a few years ago that Africa loses $12 billion every year just in lost productivity. The senator, I assume, will come back to that. Just because people are not at work and they are sick at home, $12 billion is lost in productivity.

Malaria is also the first cause of preventable absenteeism at school for both the children and the teachers. The senator will be able to develop that also.

There are a lot of links between malaria and development in general and, of course, maternal, newborn, and child health.

We really hope to have the support of the Parliament of Canada, the House of Commons of Canada, to keep Canada on track as a supporter of the Global Fund to Fight HIV, TB, and Malaria. Canada has contributed $2.1 billion to the Global Fund since it was launched, including $650 million for 2014 to 2016. Next year Japan will host the next Global Fund replenishment meeting.

I can tell you that today it is an organization that's working well and the money that the Global Fund puts at the disposal of countries is working and is giving results. Since 2000 we have cut in two the numbers of both deaths and cases of malaria. We've cut it in half. That's amazing. We have received half of the money we were asking for from the international community and we have delivered half of the results. We are very much on track and we hope to have the understanding of countries like Canada, and your own understanding as members of this Parliament, that the fight against malaria is a good investment and it gives value for money.

Thank you, Mr. Chair.

● (1110)

**The Chair:** Senator.

**The Honourable Pierre Flambeau Ngayap (Representative, Senator, Cameroon Senate, Roll Back Malaria Partnership):** Thank you, Mr. Chair.

My name is Dr. Pierre Flambeau Ngayap. I'm a senator from Cameroon. I'm very happy to be here today. Canada and Cameroon have the same history concerning language. We are a bilingual country. We speak both official languages, French and English.

Permit me to develop my topic in French, because it's the main language I use as a pharmacist, as an economist, as a teacher at university, and also in the Parliament of Cameroon.

[*Translation*]

Thank you very much.

Today is important because of the privilege that you are granting me, as a parliamentary colleague, to share with you the gravity of malaria. To do so, I will not use epidemiological terms, since it is well-known that this disease is endemic and that it is rampant in some regions, principally in Black Africa, south of the Sahara. It is most appropriate to tell you about the direct impact of malaria on the economic capacity of the African continent.

I am going to give you two or three examples to demonstrate the extent to which malaria affects our continent's ability to develop. The continent develops often with the support of countries like your own. The cooperation between Cameroon and Canada is an old and truly excellent one. It is based on the mutual understanding that unites us.

Malaria is a disease that mainly affects two major sectors of the population in Africa: the young, including children from birth to five years of age, and adults, especially pregnant women. Those two population groups, the most vulnerable and the most severely affected by the disease, are particularly important. The young are the future of the continent while women are the mothers of humankind.

In reproductive terms, pregnant women are particularly vulnerable. When a pregnant woman is afflicted by malaria, her capacity to carry the fetus to term is reduced. The baby the mother carries is often born prematurely. Even if it is not premature, the baby's physiological growth or developmental capacity are affected. Some forms of malaria even attack the nervous system. This is what is called neurological or cerebral malaria. If a pregnant woman does not receive proper care during her pregnancy, there can be a dual consequence: on her own health and on the health of the baby she is carrying.

Children too are particularly vulnerable in early childhood, by virtue of the very fact that they are children. But it becomes most important when they begin to go to school. The main symptoms of malaria are fever, headaches, fatigue and vomiting, all of which require students to stay at home. They cannot go to school with symptoms such as those, hence the high absenteeism rate of children with this disease.

As teachers too may be affected, you can imagine the cumulative absentee rate that it represents. At the end of the day, it means lack of productivity for both children and teachers. Children are not able to reach the level of instruction they might have reached under normal circumstances and teachers cannot complete the curricula for the children.

The third example involves adults working in a company, or, in rural areas, in a plantation. Their malaria symptoms are the same as the children's. People are incapable of moving and must stay in bed. In our countries, generally speaking, malaria is the cause of 30% to 40%, if not more, of hospitalizations and up to 50% of medical consultations, outpatient visits, we might say.

All these factors make the workers less productive, tired, or not there at all. They cannot perform to the level they would if they were in good health. All those factors have a very major impact on overall productivity, the performance of the economy and the country's GDP level. It has been seen that overall productivity drops considerably, sometimes as much as 30% or 40%, because of absenteeism or because people are unable to assume their normal social or economic responsibilities

For those reasons, I was pleased to team up with Roll Back Malaria in this mission. It is important for you to hear from one of your colleagues from the countries of the south who is telling you how important it is for you to continue making the effort you have always made to fight this disease. It must be understood that the fight against poverty includes one essential element, malaria. Malaria is both the cause and the effect of poverty. The efforts you make globally to combat poverty should greatly help to combat malaria. It is one specific way to fight poverty.

Thank you.

● (1115)

[*English*]

**The Chair:** Thank you very much, Senator.

We'll now welcome Ms. Lucard.

The floor is yours.

**Ms. Andrea Lucard (Executive Vice-President, Medicines for Malaria Venture):** Mr. Chair, honourable members of the committee, ladies and gentlemen, my name is Andrea Lucard. I'm an executive vice-president at Medicines for Malaria Venture, otherwise known as MMV, a Swiss foundation that discovers, develops, and delivers effective and affordable medicines for patients around the world, including those you've just heard about in Cameroon. MMV is a proud member of the Roll Back Malaria Partnership. We're responsible for developing the new medicines that will help make the ambitious goals of the partnership possible.

[*Translation*]

It is a pleasure for me to be here today. Thank you for giving me that honour.

The MMV offices are in Geneva, but I will spare you my Swiss French.

I will continue in English,

[*English*]

as you can see, with an Anglo-American accent. I'll be more comprehensible, I hope, and I won't be quite so self-conscious. Nevertheless, I have to say that I very much enjoyed your remarks, which were very eloquent. I need to get the specifics in French for my future.

I'm certain my colleagues will join me in recognizing Canada's long-standing efforts to fight malaria around the world, and particularly the government's international policy focused on maternal, newborn, and child health, commonly known as MNCH.

I'd like to make three points in my remarks this morning. First, you've heard my colleagues speak about the burden of malaria, particularly the disproportionate burden of malaria on pregnant women and children, and speak quite eloquently about the impact on communities and nations. I'd like to re-emphasize that malaria, although deadly, is also treatable provided effective and affordable medicines have been created and are available to those in need. However, as those affected by malaria are also frequently those with the fewest resources, creating effective and affordable medicines that are easily delivered is no small feat.

This is where MMV comes in. The traditional approach to drug development is business-driven, exchanging significant risk and capital investment in exchange for financial return. However, as global health pandemics have multiplied, reliance on this model alone simply does not work for neglected and poverty-related diseases that continue to plague the developing world—indeed, that continue to plague all of us.

What MMV has done to address this for malaria is to leverage best practices, scientific knowledge, and the experience of hundreds of partners to help develop new drugs. We pool and leverage funding from governments around the world, including the U.K., Switzerland, Australia, Japan, Norway, Ireland, and the United States, and get funding in kind from the governments of South Africa and Thailand. We have private sector funding from the Bill and Melinda Gates Foundation, the Wellcome Trust, and extractive companies such as Newcrest Mining in Australia and ExxonMobil Foundation in the United States.

By pooling both the funding and the expertise, we reduce the risk of drug development for all partners, and we're able to deliver drugs more quickly and at a lower cost than a traditional pharmaceutical model The model has worked. When we were formed in 1999, our goal was to deliver one new anti-malarial drug in the first 10 years of operation. This was a pediatric drug to treat those who were most at risk. By 2009 we had delivered two drugs—not one, but two—and those have been rapidly followed by three more that have met regulatory approval or WHO pre-qualification.

The first of the medicines we developed with a major pharma partner has seen 250 million doses delivered in endemic countries. The second medicine we developed with an international health company has seen 25 million courses of treatment delivered, particularly, as the senator spoke about for cerebral malaria, for those children who are in the course of severe febrile illness.

These drugs are effective, but they are far from perfect. They're at risk of succumbing to resistance, particularly in the Mekong region, which can spread elsewhere in the world. The dosing regimens are not a single dose, but are required to be given over several days. As well, they have some side effects that are manageable but not perfect. So we need to do more.

This brings me to my second point, which is common cause with Canada on maternal, newborn, and child health.

● (1120)

I was here in February—you can pity me, albeit I was here with my warmest boots on—to participate in a round table on malaria co-hosted by the Government of Canada, Bill Gates, and Ray Chambers, the UN special envoy for malaria. In fact, just last night I was in contact with the UN special envoy's office, and he noted that they're particularly pleased that Canada is considering creative financing mechanisms to bring private capital and to increase domestic spending for malaria and child health more broadly.

Present at the February round table were some of the many partners within the Canadian MNCH network. We have been warmly welcomed into this network and are reaching out across Canada to leverage our expertise in humanitarian work, in informatics, and in drug discovery to make our work even stronger to benefit the patients in countries like Cameroon. We're working with NGOs such as the Aga Khan Foundation, and research and development partners such as Structural Genomics Consortium, as well as government officials and parliamentarians. We're also reaching out to Canadian small and medium-sized enterprises that have expertise on data collection, which we need to measure our work.

We need to do more, and we are doing more. I'd like to leave you with a couple of actionable proposals and make three recommendations to help strengthen this work, some of which is already being undertaken by the Canadian MNCH network.

As the senator said, we particularly need to protect women who are pregnant. As he noted, women who are pregnant are at risk of losing their fetus, but they are also at substantially greater risk of serious illness and death themselves if they contract malaria during pregnancy. It's a major cause of anemia and associated post-partum hemorrhage, which is itself the leading cause of maternal mortality in Africa. To combat this we need greater research to develop the drugs that are safe for women to use for preventing malaria in the first trimester of pregnancy, and we need to have better delivery for those drugs that we know to be safe both to prevent malaria and to treat it, should the woman become ill.

The prevention of malaria in pregnancy is not only a drugs issue. It is also the use of insecticide-treated bed nets and other ways of using malaria prevention. From our side, however, we speak on the medicine.

We also need to protect children. While malaria is a treatable illness, even better than getting sick and being treated is preventing malaria in the first place. We can work to improve acceptability and uptake of certain prophylactic medicines, particularly in the Sahel region, where seasonal malaria chemoprevention is working at rates of 75% or better for only a few cents per treatment.

We hope a vaccine will come along one day that will solve this problem, but until it does, we need stopgaps and prevention. For those children who get sick in rural areas, MMV is supporting the first ever single-dose suppository for severe malaria, which has been shown to reduce by 50% the risk of mortality in children under the age of five.

Underpinning all of this is a registry to support and monitor the safety of these medicines, especially for pregnant women. We know that civil registration and vital statistics are a key priority for the Government of Canada, and I have to say, just as an aside, it's an incredibly impressive way of thinking about international development. This is one of the backbones of our own development in our own countries, to understand that civil registries on the births and deaths of people are very important.

A key priority for the Government of Canada and Canada's MNCH network, pregnancy registries also fall within routine surveillance systems approved by the World Health Assembly. It is essential to monitor the safety of both existing and new anti-malarial medicines during pregnancy. While there are some basic infrastructures in place to do this, much more needs to be done, including strengthening the registries of pregnant women exposed to anti-malarial drugs for follow-up on their pregnancy outcomes, and using that information to identify and evaluate safety signals so that we can help empower local health authorities to make policy decisions. The overall goal is to strengthen the national health systems within Africa, to improve natal care, and to reduce the numbers of deaths and disability to women, newborns, and children.

We're doing more, and we can stretch even further.

To quickly conclude, malaria remains one of the world's largest killers. It has a huge economic impact, as you've heard. Public-private partnerships, as everybody has spoken about, are a major part of the solution, and we want to work with Canada to eradicate malaria in our future.

● (1125)

On behalf of my colleagues and partners at MMV,

[*Translation*]

thank you again for giving me the opportunity to talk to you today.

[*English*]

I'll be happy to answer any questions that you may have.

**The Chair:** Thank you very much, Ms. Lucard.

I think we'll have time for two full rounds, if we stick to our times.

I'm going to start with Madame Laverdière, for seven minutes, please.

[*Translation*]

**Ms. Hélène Laverdière (Laurier—Sainte-Marie, NDP):** Thank you very much, Mr. Chair.

My thanks to the witnesses for their very interesting presentations.

Before I ask my questions, I must tell you that I lived in Senegal for three years. While there, I saw the damage that malaria can do to a society at all levels. There are also economic and social repercussions, in education, as an example. The problem has broad and significant repercussions.

Mr. Verhoosel, your organization brings together about 500 partners. I personally believe that there can be no single approach when it comes to dealing with global epidemics of this kind. Can you explain a little more how the 500 partners operate and why the partnership is important?

**Mr. Hervé Verhoosel:** Thank you for the question.

● (1130)

The partnership is very important. If you are fighting malaria by yourself, coordination will not be possible, the result not be as good and the cost will be higher. The idea of the partnership is to bring together all the economic players, the donor states and the endemic countries around one table to see who is in a position to do what. How can we divide up the work, country by country or expert area by expert area? Donor countries alone will never achieve a complete result just as the UN and the NGOs alone will never do so. We will only be able to do so by working together.

The work with MMV is an example. This partnership has a board of directors and bodies like commissions, each with its own specialty. Much like here, we have around the same table all the members of those 500 partners you mentioned, madam. They divide up the work, they choose priorities, they develop a global action plan. A few years ago, we developed a global action plan for the first time and the new edition is now complete. It is likely to be released in the coming months.

This global plan is approved by all the partners and areas so that everyone can move forward in the same direction at the same time. The problems are different at regional level. The malaria problem in Africa is different from the one in southeast Asia. We are talking with very different partners in southeast Asia, where, in addition, there is a problem with drug resistance. Hence the importance of the research and development that MMV does. Unfortunately, we are starting to see drug resistance in southeast Asia, and that is a real problem.

Because of the work with the various partners, we really are able to get better results on the ground. At times, it helps us to fight corruption in some countries where it is a major issue. It also enables us to better target our care and our response. Sometimes, the private sector will be more successful in delivering a product to a given village in Africa. I am not sure if I can use brand names here, but I am talking about all those little black bottles of Coca-Cola. Why can you find a bottle of Coca-Cola anywhere in Africa, but you cannot find a mosquito net? Maybe a private-sector company and one of those 500 partners can help us to deliver mosquito nets, and why not in the same truck as the bottles of Coca-Cola? Coca-Cola, in fact, is starting to provide help by distributing medication, especially AIDS medication.

Each of those 500 partners has something to bring to the table. It does not have to be financial. It can have to do with their knowledge, or their presence on the ground. This is a public-private partnership that works very well and we are very happy that we have those 500 partners that MMV is a part of.

**Ms. Hélène Laverdière:** Thank you very much.

We have also talked a lot about the importance of the health care system, and not just for malaria. For Ebola, the challenges for the health care system were quite striking.

Senator, how is the public health care system in Cameroon?

**Hon. Pierre Flambeau Ngayap:** Thank you, madam.

Mr. Chair, I believe that Cameroon is quite a typical case that can be used as an example, because it is right in the centre of the Gulf of Guinea, putting it in the geographical centre of this endemic disease. What can be done in Cameroon can easily be done in the other countries of the sub-region.

In general, we consider that malaria-related care represents between 30% and 40% of public health care costs. You can see the significance: more than one-third of the public health budget goes to fighting a single disease. That shows how significant the disease is. In those same regions, the proportion of the budget is higher than is allocated to other pathologies such as AIDS, tuberculosis or other diseases endemic to the region. That shows both the age of the disease—a lot older than the others—and its persistence and ability to spread, given that poverty is not getting any less. In fact, malaria is a poverty-based disease, showing clearly the significance of malaria in public health policies.

At the same time, if so many resources are being devoted to managing the disease, a distinction has to be made between the resources for prevention and the resources for treatment.

In 2012, 10 million mosquito nets were distributed at no cost to the people of Cameroon, with a population of 23 million. That means that, in theory, a little less than half the population received free mosquito nets.

In 2013, 12 million mosquito nets were distributed. All those nets were the result of your efforts—the efforts of the international community—because they were distributed at no cost.

In one year, the number of mosquito nets distributed has moved in a positive direction. But you see the difference between the 12 million nets distributed and the 23 million inhabitants. A little less than half the population does not yet have access to this minimal level of protection. The mosquito nets cost only $3. You see the effort needed to reduce the disease by that means.

● (1135)

[*English*]

**The Chair:** Thank you very much. That's all the time we have.

We're going to move over to Mr. Hawn, for seven minutes, please.

**Hon. Laurie Hawn (Edmonton Centre, CPC):** Thank you, Mr. Chair, and thank you all for being here.

Mr. Verhoosel, you mentioned that basically half the world's population—3.2 billion people—is at risk. What defines “at risk?” What makes a population at risk?

**Mr. Hervé Verhoosel:** That is a population in a country where mosquitoes carry the disease of malaria, which is 90% of the people in sub-Saharan Africa, but there are also many countries in Southeast Asia, the Caribbean, and South America.

**Hon. Laurie Hawn:** You mentioned that in Southeast Asia one of the difficulties or challenges is drug resistance.

**Mr. Hervé Verhoosel:** Yes.

**Hon. Laurie Hawn:** Why is Southeast Asia different in that respect from Africa, for example?

**Mr. Hervé Verhoosel:** Mr. Chair, the problem of resistance is really an important problem. As in the past, Southeast Asia is often historically the region where the first problem of resistance occurs, meaning that the actual medicine called ACT, which was working very well, doesn't work as well anymore. We see some limited cases of resistance, and the WHO and other partners are working to make sure that we geographically contain that problem of resistance before we try to eliminate that problem.

The risk could be that the problem of resistance could spread to other regions—and, to be honest, that would be catastrophic. That's why many countries, the Global Vaccine and Immunization Research Forum, Bill Gates, and others invest a lot of money in that region at the moment. It's also why the research and development community is trying to work on a potential new generation of medicines for the future, and maybe MMV could develop that a bit more.

**Hon. Laurie Hawn:** Okay, I'll go to you, Madam Lucard, and allow you to develop that a bit more.

**Ms. Andrea Lucard:** Indeed, one of the problems we are facing is multiple drug resistance. Malaria drugs are delivered in combination in order to prevent resistance from developing. What the world saw the last time it was using single-dose therapies was that resistance developed very quickly.

We develop medicines in combination and they're delivered in combination. Unfortunately, because malaria is so common, because the parasite is so virulent, we're developing resistance now to several different medicines simultaneously.

The result of this is that, as Hervé said, the global community is working very hard on containment, but we really must have an entire portfolio of medicines to back up each one of the ones currently being used in order to stay ahead of resistance.

Resistance really could be catastrophic. It's easy to come and pound the table and tell you that the sky is falling, but what has happened is that as we are fighting malaria very well, fewer and fewer people are developing natural resistance, so it becomes critically important that we genuinely have a full pipeline of medicines that will be able to support us.

**Hon. Laurie Hawn:** Are we spending enough and paying enough attention to academia and the research and development side of it today?

**Ms. Andrea Lucard:** "Enough" is an interesting word. Are we paying a lot of attention to it? Yes, indeed.

In fact, from the point of view of MMV, we are continuing to spend a significant amount of time on the discovery of new molecules. This is coming out of academia and biotech from around the world. We have partners in more than 50 countries that are working on discovery to find new mechanisms of action. This is critical.

**Hon. Laurie Hawn:** Are there countries that are leading in that area that we could learn from or help to promote?

**Ms. Andrea Lucard:** What's really important is that we're doing it from multiple countries.

Canada certainly is engaged in this area, and the United States, the U.K., France. We're also beginning to develop a lot more work with scientists in endemic countries, so South Africa has become quite important, Thailand, Cambodia, and other places.

● (1140)

**Hon. Laurie Hawn:** Are we doing enough—again, "enough" is an open word—to help educate academia and researchers in those countries that are directly affected? Are we developing their ability to do more research and development?

**Ms. Andrea Lucard:** That is a really excellent question. Enough? I would say it's not enough. One of the ways that MMV in particular is dealing with this is that we've essentially developed what amounts to a mentoring system. We're finding that there are some really excellent laboratories all around the world, including in endemic countries.

However, what they frequently don't have is experience in drug development. While you can do early stage research, moving from early stage research into drug development needs the mentoring of those people who have been working in this field.

MMV is doing that. In fact, we have open source malaria box, where we're providing compounds and actual mentoring and expertise to help move these kinds of things forward.

**Hon. Laurie Hawn:** Are countries like Canada sending drug development skills there or bringing the research skills here from those countries to collaborate on that?

**Ms. Andrea Lucard:** The way that we've worked it.... Actually, MMV has shipped compounds to Canada for Canada to test.

At MMV, we have an expert scientific advisory committee. It's made up of drug experts from around the world. We have taken that expertise, and as we find compounds that are useful, we essentially direct that mentoring and drug development experience into the most promising compounds. Whether that's people coming in or going out, it's essentially a virtual drug development that we do hand in hand with them.

Does that answer your question?

**Hon. Laurie Hawn:** Yes, thank you.

Senator, with regard to the experience of Cameroon, you talked about basically half of the population being protected by nets and so on. How does that compare with other countries in your region that you're aware of? You obviously cooperate and collaborate with them and share information with them.

[*Translation*]

**Hon. Pierre Flambeau Ngayap:** Experts in analysis on a global scale, like Hervé, will be able to corroborate my remarks. As I said earlier, Cameroon can be used as an example, given its location, its level of development and its ability to respond to any subsidies offered. Those figures are easily transposed to other countries in the region, in terms of the proportion of the population receiving prevention measures like treated mosquito nets or hospital treatment for malaria. Just now, I mentioned that, of every 100 patients in hospital, 40 are there for malaria. Half of the Cameroonians going to medical appointments are doing so for malaria.

That is not all. I am a pharmacist in a privately managed dispensary. Like many other countries, Cameroon has no universal health insurance. Everyone looks after themselves and pays for treatment out of their pockets when they see a doctor or buy medications. Since the people are poor, they do not go to a doctor very often, they go directly to a pharmacist. That is not accounted for as a medical consultation. So we can say that well over half the population is suffering from malaria. In our countries, this is a major, high-priority, overriding public health problem.

[*English*]

**The Chair:** Thank you.

Thank you very much, Mr. Hawn.

We're now going to finish off our first round with Mr. Garneau, sir.

**Mr. Marc Garneau (Westmount—Ville-Marie, Lib.):** Thank you, Mr. Chair.

I've taken preventive medicines when going into countries with malaria. How much of the medicine that we're talking about today is preventive versus medicine that's used once you have malaria?

**Mr. Hervé Verhoosel:** I suppose you're referring to Malarone or products similar to Malarone. The preventive medicines are used more by people travelling to those countries, because when you are living in a non-endemic country, you cannot take it every day for medical reasons and for financial reasons. You cannot take a medicine for prevention. The prevention is very often the use of bed nets treated with insecticide. It's very important is to use the test, and that's dovetailing to resistance. Too often in the past when people had a fever, they would immediately think they had malaria and would take some pills for malaria. They were taking too many pills, even though they maybe were not sick with malaria.

Now we push very aggressively the use of very small diagnostic tests that give results in a few minutes to make sure that before you take a medicine, you have malaria. Most of the medicines are for treatment—at least for the population living there.

● (1145)

**Mr. Marc Garneau:** I have a couple of more questions. I'm limited on time, so please forgive me.

My question is for you, Madame Lucard.

I want to get a sense of what MMV is about. It sounds like you raise capital but it's not clear to me what the venture is. Do you give that capital to drug companies to develop the medicines? Is that what happens? What do you do with it?

**Ms. Andrea Lucard:** What we do is we work with partners, which include drug companies, and also includes academic partners and others, to co-develop the drugs. What we're doing is we provide funding, but we also provide guidance, expertise, oversight, and an outlook for the public interest. About half of our staff are research scientists.

**Mr. Marc Garneau:** Why aren't the companies doing it by themselves?

**Ms. Andrea Lucard:** Drug development is a very risky business. It costs a lot of money and the financial returns are uncertain. The financial returns are even more uncertain if you're dealing with malaria in endemic countries where you're talking about a very low price per treatment as would be sold in the senator's pharmacy. Therefore, they simply cannot undertake this risk by themselves. At the same time, this is where the industrial might and expertise exists. What we really have to do is to take the risk from the pharmaceutical companies, use their expertise, but also make sure that the public interest is maintained. That's what MMV does.

**Mr. Marc Garneau:** Thank you.

How much does the Government of Canada finance either MMV or Roll Back Malaria Partnership at the moment, or does it?

**Ms. Andrea Lucard:** The Government of Canada does not currently fund MMV. Hervé was talking specifically about the Global Fund.

**Mr. Hervé Verhoosel:** Yes, it's the same for the Roll Back Malaria Partnership. Canada was a member of the partnership years ago, but they've left the partnership now. Our main donors are U.S., U.K., France, and such countries. Canada is not a member of the partnership, but Canada is supporting the Global Fund very well. That's very true.

**Mr. Marc Garneau:** Through the Global Fund, okay.

[*Translation*]

You mentioned the advantage of a partnership and I see the advantage: you are talking about 500 members. A partnership is able to look for common objectives, set priorities and work together to implement them. At the same time, if everyone goes off in different directions, a partnership is not very effective.

Can you give me an example of an objective that the partnership, with its 500 members, decided to make into a priority? Since your funds are limited, how are you tackling the malaria problem?

**Mr. Hervé Verhoosel:** The budget of what we call the RBM Partnership Secretariat is a small one. In total, it is about $20 million. In other words, we are not a huge organization. One of our priorities at the moment is to make sure that we help the countries. Basically, the countries are the priority. Support for an endemic country itself is what counts. For example, a lot of countries wanted to get support from the Global Fund to Fight AIDS, Tuberculosis and Malaria, but had difficulty preparing applications. One of the partnership's priorities is to help countries in preparing and monitoring their files. So, when it is necessary, we send technical experts from the ministry of health to help them in preparing those presentations.

Another priority is appealing for international funding. My goal today is not to make an appeal for ourselves, but for the global fund, and for malaria in general. That is one of the primary objectives at the moment. Sometimes, political authorities do not realize that investment in the fight against malaria works well.

With the NGOs and the UN system, which I also represent, we are really trying to make member states understand that. On a technical level, we make sure that only appropriate medications are used. Some countries are still using previous generations of drugs. While that is now less and less the case, those drugs no longer work. We make sure that the drugs and the mosquito nets are used correctly. Sometimes, you send mosquito nets and people do not use them correctly. We are working at a local level with NGOs and ministries of health to find out how we can make sure that the mosquito nets are properly distributed and properly used.

I will tell you a little story about that. We use soccer a lot. At the Africa Cup of Nations, the players recorded TV spots with us to tell 5-year-old kids, who will not listen to us but who will listen to a soccer player, that they have to sleep under their mosquito nets at night. That whole aspect of the appeal works very well

Finally, there is the famous global plan. Developing a global action plan that the whole world will embrace really is a priority for us.

● (1150)

**Mr. Marc Garneau:** My question goes to the senator.

Are you making progress against malaria in Cameroon? Is the number of people who have it or who die from it decreasing?

**Hon. Pierre Flambeau Ngayap:** Yes, it is. Less than 10 years ago in Africa, almost one million deaths per year were attributed to malaria. In the last two or three years, that number has decreased by almost half. Black Africa now only has about 580,000 deaths per year and that can be attributed to concerted efforts both in prevention and in treatment. We have to keep up those efforts, and, in that respect, I conform what my colleagues are saying.

I wanted to be part of this appeal. I know that you can well understand what one of your colleagues said, especially about the medical and economic sector. The efforts have to be "mutualized", not fragmented. We do not want to ask you to take a new approach, but to stay the course that you have charted up to now, to reinforce it if possible and to keep steering towards the same funding destinations. We have not come to ask you to raise funds, but to keep giving what you gave in the past and, if possible, to give more as the result of our appeal.

[*English*]

**The Chair:** Thank you very much, Mr. Garneau.

We're going to start our second round, which will be for five minutes each. We're going to lead off with Ms. Brown.

**Ms. Lois Brown (Newmarket—Aurora, CPC):** Thank you very much, Mr. Chair. Thank you to all of you for being here.

I have two questions I'd like to focus on. Perhaps, Senator, you could address the first one and then the second one will be for all three of you.

Canada has concluded a free trade agreement with Cameroon. I think we are doing some good things there. I know that when I was in Cameroon three years ago, they were talking about 13 billion dollars' worth of private sector money coming into Cameroon, mostly in initiatives to build hydroelectric dams for electricity. Is there an opportunity for the private sector money that's going into countries all over Africa to be incented to participate in some malaria reduction program? Obviously there's a vested interest for them because they need a healthy workforce in order to be productive. Is there some mechanism that could be established there?

My second question is for all of you. You've noted the work we're doing in maternal, newborn, and child health. One of the initiatives is to get front-line health care workers out into the most rural and remote areas and provide care for the most vulnerable people. Being proactive, is there something we can do to help increase the ability of the health care system in a country, particularly in sub-Saharan Africa, to be more robust?

[*Translation*]

**Hon. Pierre Flambeau Ngayap:** Thank you, Mr. Chair.

Ms. Brown, thank you for your question, which is a very important one for Cameroon.

For ten years or so now, Cameroon has been putting a lot of effort into organizing a structured dialogue between the public and private sectors. We now have the Cameroon Business Forum, which meets twice a year. This forum brings together public and private partners to reflect on the common actions they can take to move the most important national initiatives forward. This is very new for Cameroon and it is working very well. There is a new vision on the part of the authorities that puts together transversely what the public and private sectors can do together to solve certain problems.

Globally, of course, we are all using a strategy of economic liberalization where the state is progressively less involved. In Africa, the state is taking a little more time to disengage, but the system is underway. Private-sector participation in major public policy decisions is now positive and anchored in Cameroon's governance strategy.

● (1155)

[*English*]

**Mr. Hervé Verhoosel:** If I may, on that specific question, madam, I just came back from a mission in Cameroon and Benin. We try to meet more and more of the private sector and explain it to them with numbers. We have some companies that are fighting malaria already today who come with us. We organize meetings between companies already active in the fight against malaria with companies that do nothing, to make them understand it is important to start by protecting the workforce. They see, after we go to see them, the direct return on investment that they will have if they spend $3 for that bed net that we were talking about. That is working very well, because they see the direct financial interest.

After that we try to go to the next step, which is more corporate social responsibility. After you protect your own workforce, because you will have more money in your pocket thanks to that, spend a bit of that money to protect the communities around the companies where you are situated, not only on your workforce but the people around you, and that will be good for development anyway. That has started to work very well.

In Benin, for example, we were there to meet with many representatives of different countries, and in Cameroon also. For example, in Cameroon, in Douala there is a very important port, which is big part of the economy in Douala. The head of the medical department of the Port of Douala, after a meeting with him, said "Look, I'll take the engagement now. We have never done anything for malaria, but from now on we will protect the workforce because I understand that it's in our interest."

That is something that member states should try also to promote. That's one of the activities, one of our priorities at the moment, to explain and bring the private sector to the table.

**Ms. Lois Brown:** Mr. Chair, I stand corrected by my colleague. Apparently it's a FIPA that we've signed with Cameroon, a foreign investment promotion and protection agreement, but we are moving forward with trade agreements with Cameroon, and I believe there is great opportunity. I'm very pleasantly surprised to see that Cameroon is now advertising on our television stations, looking for investment coming in. It's exciting.

**The Chair:** It's a good start.

We're going to continue with Madam Laverdière, for five minutes, please.

[*Translation*]

**Ms. Hélène Laverdière:** Thank you very much, Mr. Chair.

Mr. Lucard, we talked very briefly about a potential vaccine. Mr. Verhoosel and the senator might also like to comment. Where are we with the possibility of having a vaccine some day?

[*English*]

**Ms. Andrea Lucard:** Hervé may want to help me with this, but at the moment there is a vaccine in development, known as RTSS. However, recent clinical trials have shown that the vaccine is only partially effective and needs to be given over multiple years in order to be fully effective.

There is a role for that vaccine to play. At the moment the World Health Organization is deciding what the role is for that vaccine, but a fully effective vaccine as we know it for most other diseases is not in the immediate future for us at this point. There will be a role for vaccines, and it is important to continue the development of vaccines.

In the meantime, therefore, in fact on the question about whether we are talking about preventative drugs, indeed, we are. In the Sahel region in Africa, for example, we're finding that giving a dose of two older drugs together, three times, once a month over the rainy season, is having a huge preventative effect of between 75% and 85% for a cost of about 25¢ per month. This is not available to those who would have to take it constantly. This is in seasonal areas.

As a global community, we're beginning to think slightly differently about how to medically prevent malaria. These are the areas that we're beginning to develop, along with the use of bed nets and other interventions.

Does that answer your question?

● (1200)

[*Translation*]

**Ms. Hélène Laverdière:** Yes, that answers it.

**Hon. Pierre Flambeau Ngayap:** I would just like to add that I began my research and development career in France, with the pharmaceutical group Sanofi. Based on that experience, I would invite you to be very careful in raising hopes about vaccines, as we can often do. As long as a vaccine has not been demonstrably perfected and as long as it has not been definitively proven to be effective, the research must go on.

In a nutshell, we must continue to encourage research into a vaccine, with all the difficulties we are aware of, because the anopheles mosquito does not have a simple reproduction cycle. So the vaccine will be as difficult to research and develop as it is for an AIDS vaccine and for other pathologies.

My advice to you remains that, as long as the vaccine has not been definitively discovered, perfected and made effective, we have to continue to put our efforts into prevention. Prevention does not cost a lot.

[*English*]

**The Chair:** Please go ahead, Mr. Verhoosel.

**Mr. Hervé Verhoosel:** The research on a vaccine for a parasite is always very difficult and costs a lot of money.

I would like to inform you here that the Bill and Melinda Gates Foundation has invested a lot of money in that research and development. That's research in different projects, the one in particular that Andrea was talking about but also other candidate vaccines that are potentially in the pipeline.

If, and I say "if", WHO and further European authorities decide that the vaccine today will work in, let's say, 50% of the cases and will be used in the future, then we hope that Gavi would potentially put that vaccine on the list of the vaccines that it will use. As the senator says, that will be an additional tool to complement the bed nets, the test, the residual spray in the house and, obviously, the medicine afterward.

It's not yet the end of malaria but that will save thousands of people.

**The Chair:** We're going to finish up with Mr. Trottier. You have five minutes, sir.

[*Translation*]

**Mr. Bernard Trottier (Etobicoke—Lakeshore, CPC):** Thank you, Mr. Chair.

My thanks to the guests for being here today.

Following on Ms. Laverdière's questions, I am going to try to understand a little more about the development of a malaria vaccine.

What is the difference between malaria and other diseases afflicting the world?

Are we seeing mutations in the disease? Are we still trying to develop new vaccines. In what way does the nature of malaria make that task so difficult?

My colleague the senator could begin, perhaps.

**Hon. Pierre Flambeau Ngayap:** The difficulty with malaria is that its development cycle is long and it involves a number of factors. You cannot get malaria unless you are bitten by what we call an anopheles mosquito, a female mosquito.

However, in order to pass on malaria when it bites you, that anopheles mosquito must have ingested the blood of someone who already has malaria. The mosquito itself is not the carrier of the malaria parasite. The parasite has to come from an already-infected patient. So there are three factors: a sick person, an infected human, a female anopheles mosquito biting you, and a second person to whom the parasite will be passed. There is no direct transmission from person to person.

In that three-part chain, the parasite is transformed, both in the infected patient and in the mosquito, because, when that mosquito bites, the parasite is transformed inside the mosquito and when the mosquito passes it on to another sick person, there is a transformation as well. There are so many mutations between the three elements that it is difficult to find the appropriate sequence in order to identify the vaccine.

**Mr. Bernard Trottier:** So it's complicated, it's difficult, but it is an objective that we need to have. This research still needs to continue.

We can do a lot of things for prevention, things that are not expensive, as you said, because it will likely be very difficult to eradicate malaria completely.

● (1205)

**Hon. Pierre Flambeau Ngayap:** I agree with you. We must continue to encourage research, because vaccination is the ultimate solution in the medium term.

We are going through a stage like the one that preceded the current combined drug treatments. For over 50 years, a prevention treatment used chloroquine. For 50 years, that worked.

But when the resistance started to build up, there was a transition phase of 10 to 15 years when there were no alternatives. Research needed to be sped up to find solutions with drug combinations. The transition phase must also be found to manage the period before the vaccine. Before the vaccine is found, we must continue to focus on prevention and on treating the reported cases.

**Mr. Bernard Trottier:** Okay. Thank you.

Where are we on treatment? In the documents provided by MMV, I read that African children can have malaria six times a year. Does that mean that it is treated six times a year with the same drugs? Is treatment for malaria being improved? I remember hearing that the success rates of the treatments were not very high. Are there tangible measures showing that the treatment is now much more effective than before?

**Hon. Pierre Flambeau Ngayap:** The success rates are quite high today, over 80% to 85%, for both uncomplicated and severe malaria cases. Uncomplicated malaria cases are treated with pills taken orally for three to five days. If the treatment starts early, the disease stops completely after five days. You just have to follow up with boosters. In severe malaria cases, the same drugs are used, but parentarally through IV drips. In those cases, treatment takes seven to ten days and we obtain the same results, a success rate of over 80%.

**Mr. Bernard Trottier:** Is the objective a 100% success rate? Is that a target?

**Hon. Pierre Flambeau Ngayap:** We can come close to a 100% success rate when the patient is looked after quite early. The longer it takes to start treatment, the more likely the treatment is to fail.

[*English*]

**Ms. Andrea Lucard:** I would also add that indeed one of the major activities that we're undertaking is to try to make the course of treatment much simpler and much shorter. It's not only a question of if a medicine is entirely 100% effective, but that you have to take it for a long period of time, which people don't do. We're working very hard on coming up with a single dose point of care cure. This is a very complex activity, and as the senator has said, it's a very complex disease. But this is also something that we're undertaking to make the treatment much stronger.

**The Chair:** Thank you.

Thank you, Mr. Trottier.

To our witnesses, thank you for taking the time to be here today to discuss this very important issue.

**Mr. Hervé Verhoosel:** If I may, Mr. Chair, there's an open invitation, if this committee or some of its members are in Africa, to come to see us, which is the best way to understand. We would be more than happy to organize a visit, if some of you are in Africa or in the endemic zone.

Thank you.

**The Chair:** I guess if we're at the United Nations in New York, we could also come to see you.

**Mr. Hervé Verhoosel:** Bring a bottle of Canadian wine, and yes.

**Voices:** Oh, oh!

**Ms. Andrea Lucard:** And MMV is holding its expert scientific advisory committee meeting in Canada next June, to which you are also all invited, if you're interested in finding the Canadian and global experts in this field.

**The Chair:** Thank you very much.

Senator, we wish you all the best.

[*Translation*]

**Hon. Pierre Flambeau Ngayap:** My door is open all year round.

[*English*]

**The Chair:** We're going to suspend for a few minutes and then we'll come back in camera to talk about our protection of children and youth draft report.

[*Proceedings continue in camera*]