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Chair

Mr. Bill Casey

Standing Committee on Health

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● (1100)

[*English*]

The Chair (Mr. Bill Casey (Cumberland—Colchester, Lib.)): I will call the meeting to order. Welcome, everybody, to meeting number 61, pursuant to Standing Order 108(2), a study on antimicrobial resistance.

We have four guests today to help us through this and to help us learn.

The first one is a return engagement by Dr. Njoo, who is the deputy chief public health officer and acting assistant deputy minister, from the Public Health Agency of Canada. Welcome back.

By video conference from Quebec, we have Professor Marc Ouellette. He is the scientific director, infection and immunity, from the Institute of Infection and Immunity. Thank you very much.

We have Dr. Mary-Jane Ireland, who is the director general of the veterinary drugs directorate, health products and food branch, of Health Canada.

Finally, we have Dr. Aline Dimitri, who is the CFIA's executive director of food safety science and deputy chief food safety officer.

Welcome all. We look forward to your remarks. We have a lot to learn here.

Each witness will have a 10-minute opening statement. We're going to start with Dr. Njoo.

Dr. Howard Njoo (Deputy Chief Public Health Officer, Acting Assistant Deputy Minister, Infectious Disease Prevention and Control Branch, Public Health Agency of Canada): Thank you very much.

Dear members of the committee, good morning and thank you for the invitation to speak to you regarding antimicrobial resistance, or AMR. Let me begin with a quick summary of the issue.

AMR is one of the most serious global health threats facing the world today. It is a complex issue that impacts health, agriculture, trade, and the environment.

Antimicrobial resistance is the decline in the effectiveness of antimicrobial drugs such as antibiotics in treating an infection. Resistance can occur naturally, and any antimicrobial use can potentially promote AMR, but the inappropriate use of antimicrobials in health care, sanitation, animal health, and food production increases its emergence and spread.

Resistant infections are more difficult to treat and can lead to long-term illness, increased health care costs, and death. The Organisation for Economic Co-operation and Development estimates that up to 50% of human infections in G7 countries may be resistant to routinely used antibiotics.

If drug-resistant bacteria become widespread, treatments such as organ transplantation, cancer chemotherapy, and major surgeries such as Caesarean delivery could become so risky that they may not be readily available.

[*Translation*]

To provide a sense of the scale of this threat, in his review of antimicrobial resistance, or AMR, for the United Kingdom, Lord Jim O'Neill estimated that annual worldwide human deaths attributable to AMR could reach 10 million by 2050. This figure would overtake the number of deaths resulting from diabetes and cancer combined.

In its May 2017 report, the World Bank projected that, if no action is taken, the global GDP could fall between 1.1% and 3.8% annually by 2050. This shortfall amounts to a deficit of between US$2 trillion and US$6.1 trillion.

The costs of inaction are enormous. However, addressing the threat of AMR is extraordinarily complex, given that antimicrobials are used in so many sectors. To effectively move forward, we must use an integrated approach to coordinate efforts across the human health, animal health and agri-food sectors, among others, to help prevent and control AMR.

● (1105)

[*English*]

For many years, public and private sector organizations have been working to address AMR across Canada. Their actions, however, have not occurred in a coordinated or strategic manner. The first step towards a cohesive approach to AMR in Canada was the release of the federal framework for antimicrobial resistance and use in 2014. The framework outlines an integrated approach to AMR for key federal departments and agencies under three pillars: surveillance, stewardship, and innovation.

The federal action plan followed in March 2015, building on the framework by outlining the activities that federal departments and agencies agreed to undertake under each pillar. We have made some significant achievements under the action plan and have coordinated and integrated our AMR efforts. My colleagues at the Canadian Institutes of Health Research, Health Canada, and the Canadian Food Inspection Agency who are here with me today will provide details about the work they have under way and how we are working together to address this complex issue.

Today I will outline some of the Public Health Agency of Canada's achievements and I will defer to my portfolio colleagues here with me today to speak to their respective efforts.

Several commitments under the federal action plan focused on the establishment of a robust and integrated AMR surveillance system. The Canadian antimicrobial resistance surveillance system, also known as CARSS, compiles and synthesizes data from the Public Health Agency of Canada's surveillance systems to provide an integrated, national picture of AMR in antimicrobial use, or AMU, in Canada. Since its inception, CARSS' two annual reports have provided an increasingly better understanding of the AMR and AMU situation in Canada.

Working with our partners, we have a clear understanding of the gaps in information that need to be addressed. Key among these is the lack of human health data in the community setting. We have taken steps to assess the feasibility of collecting more and better information from community settings so that we can talk about the complete human health AMR and AMU situation.

[*Translation*]

The Public Health Agency of Canada continues to engage in education and awareness activities to improve knowledge and awareness of AMR among Canadian families, and to reinforce messages on the importance of personal infection prevention and control measures, including hand washing.

We’re also focused on understanding why antibiotics are prescribed and why they aren't always necessary, such as for viral infections. The prescription of antibiotics for viral infections is a key contributor to the development of antimicrobial resistance.

We’re working with our partners to give prescribers and pharmacists tools to help them talk to patients about the appropriate use of antimicrobials. We're supporting evaluation activities to measure the impact of initiatives and share best practices.

Research and development related to AMR is a global priority. We’re continuing to assess how Canada can best support the many initiatives underway.

Within Canada, the Public Health Agency of Canada has worked with our federal partners to develop a list of vaccine research priorities. We're also part of the project under the genomics research and development initiative launched to better understand the critical activities that contribute to the development of AMR and the critical exposure pathways by which resistant bacteria reach humans.

● (1110)

[*English*]

While the federal framework and action plan are a step forward for Canada's AMR response, we recognize that the federal government alone cannot address the AMR challenge and that many other players must be part of the solution. To move toward coordinated and consistent action across the country and meet our international commitments, Canada requires a truly national approach.

This approach is currently being developed by federal, provincial, and territorial governments, as well as professional organizations, non-government organizations, academic institutions, industry, and experts from across the human and animal health sectors. Given the multiple stakeholders and sectors that need to be engaged, a dedicated AMR governance structure bringing together federal, provincial, and territorial government representatives, key stakeholders in the medical and veterinary communities, industry, and academia was established to provide direction and input to the pan-Canadian framework.

The framework, which is in its final stages of development, is underpinned by four core components: surveillance, infection prevention and control, stewardship, and research and innovation. This high-level policy document outlines strategic objectives, opportunities for action, and outcomes to guide collective action in each of these areas, setting the stage for the pan-Canadian action plan, which will be developed following the release of the framework.

Development of the framework required unprecedented multi-sectoral collaboration. Stakeholders exhibited great willingness to come to the table to discuss crosscutting issues. Going forward, it will be critical to maintain this momentum and develop concrete actions, measurable outcomes, and time frames through the action plan to flesh out our collaborative, pan-Canadian approach to AMR.

Canada is well regarded by international partners for our inclusive, multi-sectoral, one-health approach to AMR that involves the human health, animal health, and agriculture sectors, and for our success in fostering collaboration among stakeholders across a range of public and private sector interests. The multi-jurisdictional and multi-sectoral governance structures we have established are applauded by international peers as a strong example of the one-health approach in action. In a practical demonstration of our commitment to international action on AMR, in November 2016 Canada announced $9 million to support the implementation of the World Health Organization's global action plan on AMR.

More recently, in 2017, Canada financially supported the World Organisation for Animal Health's participation in the United Nations' lnteragency Coordination Group on Antimicrobial Resistance, once again championing a global one-health approach.

At the World Health Assembly held just last month, Minister Philpott joined the Alliance of Champions, a group of health ministers committed to increasing awareness, engagement, and leadership on AMR among national and global leaders and strengthening high-level political momentum for action on AMR.

[*Translation*]

In September 2017, Canada will take on a new leadership role as the chair of the global health security agenda's AMR action package. As chair, Canada will work with other leading countries to support the implementation of, and to accelerate progress on, the World Health Organization's global action plan for AMR. This will be done in close cooperation with the World Health Organization, the Food and Agriculture Organization of the United Nations, and the World Organisation for Animal Health.

Canada will continue to advocate for the inclusion of AMR in high-level discussions at the United Nations and other key international venues. Canada recognizes that timely action to address AMR will serve to maintain global health gains made in past decades and support the achievement of the 2030 sustainable development goals.

[*English*]

We have made great strides, but we still have a long way to go. We will continue to develop the federal contribution both to the pan-Canadian action plan and to global efforts to address AMR, to ensure that Canadians and people around the world are protected from this significant threat.

Thank you for inviting me to speak today. I would be happy to take questions later on.

The Chair: Thank you.

Now we go to Professor Marc Ouellette, by video conference.

The floor is yours.

[*Translation*]

Dr. Marc Ouellette (Scientific Director, Infection and Immunity, Institute of Infection and Immunity, Canadian Institutes of Health Research): Thank you, Mr. Chair.

I'd like to thank the committee for inviting me to speak to you about how the Government of Canada is supporting the federal framework on antimicrobial resistance, or AMR.

● (1115)

[*English*]

As you know, the Canadian Institutes of Health Research, or CIHR, is the Government of Canada's health research funding agency, with a mandate to support the creation of new knowledge and its translation for more effective health services and products, and a strengthened Canadian health care system.

Within CIHR, the Institute of Infection and Immunity, of which I am currently the scientific director, supports research in the field of antimicrobial resistance. Outside of CIHR, I am also a researcher at Université Laval here in Quebec City, and my primary research interest is antimicrobial resistance. Since 2003, I have had the honour to hold a Canada research chair on antimicrobial resistance.

Between 2011 and 2016, CIHR invested more than $96 million in antimicrobial resistance research, including an investment of over $20 million in the last fiscal year. These investments have supported world-class research towards the investigation of novel antibiotics and alternative therapies, new or improved diagnostics, antimicrobial stewardship strategies, surveillance of resistant organisms, and methods to improve infection prevention and control.

I would like to give you a concrete example that profoundly illustrates the importance of research in tackling this global issue. Dr. Andrew Morris, a physician and researcher at Toronto's Mount Sinai Hospital, and the University Health Network developed a program focused on reducing antibiotic over-prescription for patients in the intensive care unit. This stewardship program led to a 33% decrease in antibiotic prescription. This has led to improved outcomes for patients and a lower incidence of AMR infections. This program has been so successful that it is being adopted as the gold standard in care by Accreditation Canada. CIHR is proud to support research that will contribute to the expansion of this program into other hospital settings.

[*Translation*]

As my colleague Dr. Njoo just described, the Canadian Institutes of Health Research, or CIHR, is a key player in the implementation of the Government of Canada's framework entitled "antimicrobial resistance and use in Canada: a federal framework for action." This framework outlines three pillars for action, which are surveillance, antimicrobial stewardship and innovation. While contributing to the research components of the surveillance and stewardship pillars, CIHR's primary role is to lead and support the innovation pillar.

The framework's implementation was followed, in March 2015, by the federal action plan on antimicrobial resistance and use in Canada. CIHR has already contributed to all three pillars of the plan through various strategic investments.

In Budget 2015, CIHR was given $1.8 million a year "to support additional research to better understand and address the health challenges posed by antimicrobial resistant infections." Through this ongoing investment, CIHR is able to fund the development of new point of care diagnostic tools. The Honourable Jane Philpott announced the first phase of this funding a few weeks ago. The funding will help support five teams through a $1.39 million contribution from CIHR.

These teams, which are working with industrial partners, will develop tests to rapidly and accurately diagnose antimicrobial resistance at the point of care. The intent of this funding is to create commercially viable diagnostic tools that could be scale-up and, when appropriate, commercialized and implemented.

CIHR is also collaborating with its international counterparts to address the antimicrobial resistance issue at a global level. For example, we're participating in the joint programming initiative on antimicrobial resistance, or JPIAMR.

We're working with over 20 partner countries to address the knowledge gaps in antimicrobial resistance using a “one health” approach. This collaboration allows for the alignment of national and international investments in coordinated global research activities.

[*English*]

CIHR is currently one of the top funders in this major collaborative effort of JPIAMR, which represents, so far, a total investment of $6.7 million, with an additional $3 million in future commitments. CIHR participation in this program enables Canadian researchers to build partnerships with their international counterparts to address important issues related to the challenge of AMR and to develop meaningful solutions.

While CIHR's main role is to fund research, we also often play the role of convenor as a means to better coordinate action and inform our activities in this space. For instance, in November 2016 CIHR co-hosted a forum on antimicrobial stewardship. Held during World Antibiotic Awareness Week, this meeting brought together more than 80 people from multiple disciplines and sectors to discuss the responsible use of antibiotics in clinical settings. This one-day workshop led to the development of five recommendations that were centred around innovation and knowledge mobilization. These recommendations will be used to inform on CIHR future investments in antimicrobial stewardship.

I would like also to point out that Canada has indeed cultivated some of the best experts in the field of AMR, not to mention that it has seen the emergence of a great number of hubs of excellence at a number of universities across Canada.

For example, Dr. Natalie Strynadka, from UBC, has been using an array of molecular imaging techniques to define the molecular blueprints of superbugs. Her team is focused on identifying novel targets for new antibiotics that can penetrate the bacterial cell wall while resisting the bacteria's attempts to eliminate the drug.

Similarly, at McMaster University, the work of Gerry Wright focuses on both the discovery of novel antimicrobial strategies, as well as understanding the basis of antimicrobial resistance.

● (1120)

[*Translation*]

Here's another example. At the University of British Columbia, Dr. Robert Hancock has focused his efforts on designing new therapeutic strategies to address the growing threat of antimicrobial resistance. Dr. Hancock has demonstrated his ability to translate his laboratory innovations into the development of new enterprises. He co-founded the Centre for Drug Research and Development, and four spin-off companies. These include Sepset Biosciences Inc., which he co-founded in September 2016. Sepset Biosciences has developed a rapid diagnostic blood test that can identify sepsis, a type of infection that causes the hospitalization of over 30,000 Canadians each year.

I’ve hopefully demonstrated how CIHR is supporting the federal framework on antimicrobial resistance through its strategic funding of the research community and its ability to convene expertise from across the country and abroad. The types of new research I’ve just described underpin much of the framework.

In conclusion, Mr. Chair, rest assured that CIHR will continue building antimicrobial resistance research capacity in the country and promoting international research collaborations to limit the impact of this problem on the health of Canadians and the global population, and to ensure that we're able to address this growing threat.

[*English*]

Thank you for your attention. I would be pleased to answer any of your questions.

The Chair: Thank you very much for the information.

Now we'll go to Dr. Mary-Jane Ireland, from the Department of Health.

Dr. Mary-Jane Ireland (Director General, Veterinary Drugs Directorate, Health Products and Food Branch, Department of Health): I'd like to thank the committee for inviting Health Canada to discuss the issue of antimicrobial resistance with a particular focus on our implementation efforts as part of the federal framework and action plan on AMR.

Thank you, Dr. Njoo, for the overview of the strategy in the first presentation.

I am pleased to be here today to discuss with you this global public health issue and the actions we are taking to address it from the veterinary drug, as well as human drug perspectives. The activities I will cover today are important and tangible deliverables under the stewardship, surveillance, and innovation pillars described in the previous presentation.

I'll begin by emphasizing the important role that Health Canada plays in protecting human and animal health and ensuring the safety of Canada's food supply.

Through the veterinary drugs directorate and therapeutic products directorate, we review and authorize all new antimicrobial drugs used in animals and humans. We monitor the safety of marketed products, and we require companies to amend product labelling with new information, including information related to AMR as it becomes available.

It is important to remember that Health Canada provides market authorization for the sale of drugs, while the use is regulated by the provinces and territories under the practice of medicine and veterinary medicine. There are also provincial and territorial rules pertaining to the distribution and dispensing of drugs.

As Dr. Njoo discussed, the inappropriate antimicrobial use and overuse in humans, animals, and plants is leading to increases in the emergence and spread of AMR. Health Canada's goal is to promote the responsible use of antimicrobials to reduce the development and spread of resistant bacteria, as well as help preserve the availability of effective antimicrobials for future generations.

I'll now focus on our efforts to address AMR in the animal context, as this is one of my key responsibilities within the veterinary drugs directorate and also because in Canada an estimated 70% of all medically important antimicrobials, which means those that impact human medicine, are sold for use in food-producing animals.

We have made significant progress in building an evidence-based approach to assessing the antimicrobial resistance risks from antimicrobials approved for sale in Canada. Since 2004, our ongoing actions include the implementation of specific requirements for the assessment of new veterinary antimicrobial drug submissions for antimicrobial resistance risks when used in food-producing animals.

The categorization of antimicrobials into four categories is based on their importance in human medicine. For example, category I antimicrobials are of very high importance in human medicine; category II are high importance, and category III are of medium importance. This categorization has helped us to better manage the risks. For example, all category I antimicrobials have specific warnings on the labels recommending against extra label drug use.

The surveillance data from the Public Health Agency of Canada's antimicrobial resistance surveillance program supports the veterinary drugs directorate's market and post-market safety assessments of veterinary antimicrobial drugs.

To encourage the prudent use of antimicrobials in animals, the veterinary drugs directorate works collaboratively with stakeholders, such as the provincial and territorial authorities, veterinarians, industry, and food animal producers.

In addition, we are also making significant progress on important regulatory and policy changes to increase the oversight and promote the responsible use of antimicrobials in animals.

Final regulatory changes to the food and drug regulations were published in the *Canada Gazette*, part II, on May 17 of this year. These changes focus on four key measures.

First, we are increasing oversight on the personal importation of unapproved veterinary drugs for food-producing animals. This means that, moving forward, only those drugs that Health Canada has determined do not pose a risk to public health or food safety may be imported and only in limited quantities. For example, our eligibility criteria do not allow for the importation of prescription drugs or medically important antimicrobials.

Second, we are increasing oversight on the importation and quality of active pharmaceutical ingredients for veterinary use by requiring compliance with good manufacturing practices and establishment licences to conduct these activities.

● (1125)

Third, we are requiring that manufacturers and importers report annual sales of medically important antimicrobials for veterinary use, to support our surveillance programs. This information will help provide a better understanding of the volume of antimicrobials available for use in animals in Canada and support the analysis of patterns and trends of antimicrobial resistance.

Fourth, we are introducing an alternative, less burdensome pathway for companies to import and sell low-risk veterinary health products, such as vitamins, minerals, and botanicals, as additional health management tools. We know that promoting the health and welfare of animals can help reduce the need for antimicrobials down the road.

These regulatory changes will come into force through a phased approach, starting in November of this year, and we will continue to work with stakeholders to help prepare everyone so that we have a smooth transition.

To complement the regulatory changes, we are also working with provincial and territorial authorities and other stakeholders to make important policy changes to promote the responsible use of antimicrobials in animals. These include two key measures.

First, we are proposing to move all medically important antimicrobials from over-the-counter to prescription status. This means that a prescription will be needed from a veterinarian before one is able to purchase the drug.

Veterinarians who prescribe for animals under their care possess the scientific and clinical training to assess the health of animals, diagnose disease conditions, determine the need for antimicrobial drug treatment, and choose the most appropriate course of treatment. Consequently, involving the veterinarians in antimicrobial treatment decisions is a very important component of enhancing antimicrobial stewardship. This is also an internationally recognized best practice. Already, since 2004, new medically important antimicrobials approved by Health Canada are required to be sold pursuant to a prescription. With this proposal, we will establish the same level of oversight for those remaining medically important antimicrobials that, in some cases, were approved decades ago.

Second, we are removing growth promotion claims from the labels of medically important antimicrobials. This is in line with international best practices or principles that these important drugs should not be used to promote weight gain in animals and should be reserved only for treating and preventing diseases.

These two measures will be rolled out concurrently, since they will both require changes to labelling. For example, companies that need to add the “Pr” symbol to labels to identify them as a prescription drug as well as remove growth promotion claims will be able to do so at the same time.

We are proposing to roll out these changes between now and 2018 so that, for example, provinces and territories, which have oversight on the distribution and dispensing of the drugs, will have enough time to make needed changes and also so that end users, such as farmers, are aware and prepared. These changes require extensive consultation and collaboration, and we are making significant progress on this.

Both the regulatory and policy measures are important elements of the federal antimicrobial resistance action plan and have been developed over many years of collaboration with stakeholders and experts in Canada. We all have a role to play, and the prudent use of antimicrobials in animals is a shared responsibility across governments, industry, veterinarians, and the agriculture sectors. We continue to collaborate with all stakeholders to ensure an effective and smooth implementation of these measures that I've just described.

Switching now to the human drug context, I'd like to share with you an update on the progress being made for human use antimicrobials. Under the stewardship pillar, work began in 2015 and will wrap up in late 2018 to include standard antimicrobial stewardship statements to all currently marketed antibiotics to encourage the prudent prescribing and use of these drugs.

Specifically, we are adding text to remind physicians to check for susceptibility of bacterial infections prior to prescribing an antibiotic. We are also adding text to the patient medication information leaflet to inform patients that they should take their antibiotic exactly as directed by their doctor and should not share their medication.

In order to manage the large number of antibiotics on the market, the prudent use statements are being added in a phased approach, starting with antibiotics that have the highest prescribing in adults and children, as well as those of last resort. This is being followed by antibiotics important for treating resistant pathogens in the community, and then all remaining antibiotics.

Beyond labelling changes, we're working with the Public Health Agency of Canada on awareness and education materials about the responsible use and exploring how best to reach physicians and patients.

● (1130)

In conclusion, Health Canada is continuing to take concrete steps to address AMR risks related to the use of antimicrobial drugs with a “one health” approach. Our main goal is to ensure that safe and effective antimicrobials remain available on the market for treating infections for generations to come.

The department is committed to both ongoing collaboration with its partners and stakeholders on limiting and controlling the emergence and spread of antimicrobial resistance and ensuring the continued protection of the health and safety of Canadians and their food supply.

I thank you for your time, and I would be pleased to answer any questions you may have.

The Chair: Thank you very much.

Now we go to Dr. Dimitri from the Canadian Food Inspection Agency for 10 minutes.

Ms. Aline Dimitri (Executive Director, Food Safety Science and Deputy Chief Food Safety Officer, Canadian Food Inspection Agency): Thank you very much, Chair.

Good morning, everyone.

[*Translation*]

First, thank you for giving me the opportunity to participate in this study.

I want to explain what the Canadian Food Inspection Agency, or CFIA, is doing to support the plan entitled federal action plan on antimicrobial resistance and use in Canada: building on the federal framework for action.

The CFIA is a science-based regulatory agency dedicated to safeguarding plants, animals and food.

The CFIA reports to the Minister of Health. Its first priority is the health and safety of Canadians.

The CFIA also supports the Minister of Agriculture and Agri-Food.

● (1135)

[*English*]

We thank the committee for inviting the CFIA to speak to this important subject. Antimicrobial resistance, or AMR as you've already heard, is a complex issue that impacts health, agriculture, trade, and the environment, as our portfolio partners have already expressed.

The international community recognizes the need for a high level of collaboration between countries and their industrial partners, to confront the growing public health problem of AMR. Canada has committed to collaborate with other G7 and G20 countries to support the WHO global action plan on AMR, which was adopted at the World Health Assembly in May 2015.

As you've heard, the CFIA and other federal departments and agencies developed the federal framework in 2014 and the federal action plan in 2015 to deliver coordinated federal actions to combat AMR. The CFIA is in the unique position of having existing and well-established collaborative working relationships with agrifood stakeholders, including producers, growers, feed mill operators, processors, veterinary associations, and our provincial and territorial colleagues.

We are actively taking advantage of these relationships to deliver on actions resulting from the federal action plan. The CFIA has been working with our federal, provincial, and territorial partners in human and animal health, along with industry and academia to develop the pan-Canadian framework, and we plan to develop the pan-Canadian action plan to better integrate action across Canada.

Specifically, I would like to talk about how the CFIA supports the four pillars that have already been mentioned. They are surveillance, stewardship, infection prevention and control, and research and innovation.

Let me talk first about surveillance. The CFIA supports monitoring levels of antimicrobial resistance in Canada by contributing to the Canadian antimicrobial resistance surveillance system, CARSS. We do so through our contribution to a specialized program called the Canadian integrated program for antimicrobial resistance surveillance, known as CIPARS, which is led by our PHAC colleagues.

Still, the reality is that medical professionals are the true stewards of antibiotic use. They are the front line in making sure these agents are used prudently. This includes animal health. For this reason, the veterinary community is a key partner in combatting the threat of AMR while safeguarding animal health.

To improve the surveillance of the use of antimicrobials in agricultural settings, the CFIA, along with Agriculture and Agri-Food Canada, and our health portfolio, are working closely with animal producers and veterinarians. We are doing this through the convening of workshops by the Canadian Veterinary Medical Association and the Canadian Animal Health Surveillance System. These workshops are intended to facilitate the articulation of a clear path forward and the encouragement of a coordinated approach within the different sectors.

Let me talk next about stewardship, along with infection prevention and control. The CFIA supports efforts by the Canadian Veterinary Medical Association to improve the stewardship of antimicrobials. The agency contributed to the development of the "Veterinary Oversight of Antimicrobial Use - A Pan-Canadian Framework for Professional Standards for Veterinarians" and is contributing to the revision of the guidelines for prudent use of veterinary antimicrobial medications.

As a science-based regulatory agency, the CFIA enforces regulations involving the judicious use of antimicrobials in feed to further support the antimicrobial stewardship. Our role is to verify that the compendium of medicated ingredient brochures is followed and that any feed prescribed by a veterinarian is in line with the requirements of the food and drug regulations. As I said earlier, veterinarians are on the front line safeguarding animal health and promoting the prudent use of antimicrobials. We work closely with animal producers and these veterinarians.

Finally, let me talk about research and innovation. Tracking the emergence of new microbes that can harbour antibiotic resistance requires innovative research and development, as you heard from our colleague Marc Ouellette. Indeed, the federal action plan commits to promoting such innovation through funding collaborative research. CFIA laboratories have answered this call, and in collaboration with other partners, we are developing novel techniques and methods to improve the surveillance of antimicrobial resistance in food-borne bacteria, such as through the genomics research and development initiative.

Mr. Chair, progress is being made through our collaborative approach with our partners in government, industry, and academia. Still, there is more work to be done.

● (1140)

[*Translation*]

I hope this sheds some light on how the CFIA is working to implement the action plan on antimicrobial resistance and use in Canada.

Thank you.

I'll be pleased to answer your questions.

[*English*]

The Chair: Thank you very much for your comments.

We will start our round of questions with Dr. Eyolfson.

You have seven minutes.

Mr. Doug Eyolfson (Charleswood—St. James—Assiniboia—Headingley, Lib.): Thank you, Mr. Chair.

I apologize if I'm hard to understand. I've had laryngitis for a few days. I know it's a virus, so I'm not on antibiotics.

The Chair: Do you have a good doctor?

Mr. Doug Eyolfson: Not so far.

Voices: Oh, oh!

Mr. Doug Eyolfson: I've been very interested in the use of antibiotics in agriculture. We know that there has been use, and in the past overuse, so I'm pleased to see these changes restricting antibiotics to just being under veterinary prescription.

I've been speaking to some representatives from the agriculture industry, and they're referring to a class of substances called "ionophores". Are you familiar with that term? Apparently they're used to prevent intestinal parasites.

First of all, are these important in humans?

Dr. Mary-Jane Ireland: Ionophores are not affected by the change we are proposing for category I, II, or III antimicrobials. They are not a category I, II, or III antimicrobial, so they will not be affected by the change to prescription status.

Mr. Doug Eyolfson: Okay. Thank you.

Neomycin was one that they mentioned. Is that one being covered by this?

Dr. Mary-Jane Ireland: Yes. I'll just check my notes, though, to confirm.

Mr. Doug Eyolfson: All right. Thank you.

Are our guidelines in keeping with the World Health Organization's recommendations on antibiotics in veterinary practice?

Dr. Howard Njoo: You mentioned veterinary practice, but that's not really what the World Health Organization is concerned with. The World Health Organization is more on the public health side, the human health side. It's really in terms of antibiotic use and stewardship in the human health world. The WHO is a leader worldwide for that stewardship, but for veterinary medicine there are other international organizations.

Ms. Aline Dimitri: On the veterinary side it's the OIE, the World Organisation for Animal Health. They have been very actively working on guidelines that all countries, including Canada, have been involved in. In fact, at their last general session, they dedicated several hours—I believe it was a six-hour conversation—to figuring out how we make sure that we have recommendations and that everybody who is part of the OIE family will be implementing in their countries.

Mr. Doug Eyolfson: Thank you.

How do our guidelines compare with the guidelines in the United States?

Dr. Mary-Jane Ireland: I just want to confirm that neomycin is affected by the change.

For stakeholders interested in knowing which substances will be affected by the change, there is information, a notice to stakeholders, on our website that outlines the ingredients that are considered medically important antimicrobials that would be subject to a change from over-the-counter to prescription. They can verify that way.

Mr. Doug Eyolfson: Thank you.

Dr. Mary-Jane Ireland: To speak to the international piece and the FDA, the Food and Drug Administration is taking similar steps to what we are proposing. They are moving collaboratively with industry, as we are as well, to remove growth promotion claims from medically important antimicrobials so that such use does not occur.

The second thing is increasing the veterinary oversight over medically important antimicrobials. They are taking the same approach: that a veterinarian should be involved prior to purchase of a medically important antimicrobial. They have different tools at their disposal, but the veterinary oversight is exactly what they are proposing and in fact doing.

● (1145)

The Chair: I want to indicate to Professor Ouellette that if you want to make a comment, just give me a little signal. We'll make sure you get your voice in here.

Thank you.

Mr. Doug Eyolfson: Just to change gears a bit, we were talking about infection control practices in hospitals. I worked in an emergency department for 20 years. I also used to be an EMS medical director.

One of the problems we find is that many people in health care settings use gloves universally, literally every time they touch a patient. I spoke with Dr. Pierre Plourde, an ID, infectious disease, specialist with the Winnipeg Regional Health Authority. Apparently, when health care workers wear gloves, every time they touch a patient they use it as a substitute for handwashing, and you actually get increased infections, yet when I am working with hospital staff in EMS, we cannot get that message through to them, and they're still always wearing gloves.

As part of infection control in hospitals, are there any initiatives to educate health care staff on the proper use of gloves and how not to use them as a substitute for handwashing?

Dr. Howard Njoo: I can say there are lots of initiatives going on, too many to even enumerate. They're all happening, I think, in a somewhat ad hoc manner. There are campaigns such as “Do bugs need drugs”, etc.

In the infection prevention and control setting it's certainly the mantra that we've been saying for years across the country, that handwashing is probably the single most effective method in preventing further spread.

Although I think gloves have their place in, let's say, using universal precautions to prevent this, certainly they're not a substitute for good handwashing techniques. Yes, then, we need to double our efforts. We need to work with the health care providers, with committees in health care settings, and with provincial and territorial governments to improve education awareness among front-line practitioners.

Mr. Doug Eyolfson: Professor Ouellette.

Dr. Marc Ouellette: Yes, I support everything that Dr. Njoo has indicated, except that we should not double our efforts, but quadruple them, because handwashing is a recurring theme, probably, when you study medicine, and it is now in the curriculum.

It's about behaviour, really. There is a lot of research being done to try to remind people how important it is. You're absolutely right that simple measures can make a huge difference.

Mr. Doug Eyolfson: Thank you.

How much time do I have left?

The Chair: You have 50 seconds.

Mr. Doug Eyolfson: Great. It's not going as fast as I thought.

Since many of the questions I had written out beforehand have been answered and there were answers that I liked hearing regarding veterinarians, at this point I have no further questions.

Thank you.

The Chair: Okay.

We'll go to Dr. Carrie.

Mr. Colin Carrie (Oshawa, CPC): Thank you very much, Mr. Chair.

I want to thank the witnesses for being here today.

Dr. Njoo, when you opened, you said that AMR is one of the most serious global health threats facing the world today. I find that the more I read about it, the more scared I become. It almost seems that we've had a few decades of effectiveness with antibiotics and that if we don't do something, we may be losing that for future generations being brought up. This is extremely important work that you're doing, and I commend Health Canada and the Public Health Agency and CIHR and everyone here.

I wonder whether I could get an idea of a timeline. I'm a little confused on this framework thing. The Government of Canada released a framework in 2014 and then an action plan in 2015, but my understanding is that there is going to be a pan-Canadian framework on AMR and antimicrobial use by 2017.

Dr. Njoo, do you want to take the lead on this? It's a framework, an action plan, and now we have another framework. What's up there?

Dr. Howard Njoo: Yes, the first framework you refer to is the federal framework. That's really within the federal family. As you say, that was developed in 2014, and an action plan in terms of what federal departments could or should be doing was released in 2015. As I mentioned in my opening remarks, we recognize that the federal government alone is not the sole solution to the AMR problem. Even besides other levels of government such as provincial and territorial, there are other key players, academia, industry, and so on and so forth.

With that, recognizing that we need to bring other players to the table, we actually engaged in a process to develop what we now call a pan-Canadian framework. We have four structured task groups involving experts from both the animal and human health sectors. The framework has been developed. It's going to be imminently released. It has four pillars. There's the additional pillar of infection prevention control along with stewardship.

Once that plan is made public, I imagine in the coming days or weeks, very shortly, we will get on with the heavy work of then developing a concrete action plan, which will include all the stakeholders beyond the federal family.

● (1150)

Mr. Colin Carrie: It's always fun in Canada developing these things with jurisdictional issues.

Congratulations for moving that forward.

The draft framework, has it been circulated among stakeholders? We're just curious because while you were before us for another framework there was some pushback by stakeholders that they weren't consulted enough or properly.

On this one here, how are we doing with industry consultation, things along those lines, discussion with the physicians? Doug talked about the animal food chain, stuff like that. How are you doing on that feedback?

Dr. Howard Njoo: I think it's been very comprehensive and it's been very encouraging, as I mentioned before. We've had great collaboration on both the animal health side and the human health side. As we speak, I note that it's gone through various approval levels in terms of provinces and territories as well as the federal level for both agriculture and the human health side. It's also gone to ministers for their concurrence.

Mr. Colin Carrie: That I'd be really interested—

The Chair: Dr. Ouellette.

Dr. Marc Ouellette: If I may, I would just add a little on this because I did participate in the 2014 framework and action plan. On the pan-Canadian framework, just to give you an idea, there were four pillars. For each pillar, there were two co-chairs, one on the human side and one on the animal side. Industry representatives were present. Provincial representatives were present. The four pillars then came together in one document and this is the framework. All the provinces looked at this. This was a very serious in-depth consultation on the AMR scene.

Mr. Colin Carrie: It would be very interesting to see what the ministers have come up with as far as the decision-making to move it forward is concerned.

I'm curious, Dr. Ouellette, about moving this forward. We talked a bit about habit. Doug talked about wearing gloves. With doctors being the gatekeepers for antibiotics for human use anyway, over the years there was a practice that sometimes patients would get antibiotics “just in case”, if it was a virus or a bacterial infection.

I was wondering about the medical doctors and the schools. Are they resistant? Are they slow to respond? These are prescribing habits that may have taken years and years and to change them it's important to get that message out. What are you guys doing to get the message out to the educational institutions?

Dr. Marc Ouellette: Thank you for your question.

We're talking about prescribers, and often they're medical doctors but often they're prescribing nurses or other specialists. Actually in the new curriculum, because of the importance of AMR, this is more and more discussed. Now they are young students who are asking for a curriculum on how to be better prepared in not providing antibiotics to somebody who is asking for them when it's not clear yet whether they're required or not. Antibiotics are mostly used in the community, not in hospitals.

It's only 30% of the antibiotics that are for human use, and out of this 95% is in the community. That's really where it will have a lot of impact. Of course, the pressure is big in hospitals, but it's in the community practice also that we have to.... A sore throat may not require antibiotics. This is part of the curriculum now in education and because the problem is getting more and more serious.... Here in Canada, I think we're still doing fairly well, but there are regions of the world where there are no more antibiotics that are capable of treating some very bad bugs, the superbugs that we're talking about.

Mr. Colin Carrie: You mentioned, too, some of the innovation that you're looking at. Just out of curiosity, have you looked back at some of the older ways that we were treating infections years and years ago? They weren't as good as the antibiotics, but for some things, maybe they would have been appropriate. Out of curiosity—I know we were doing some work with different communities, like traditional Chinese medicine—are we learning anything?

Madam Ireland, I believe, talked about vitamins and minerals and how to take preventive wellness approaches. Are we learning anything in that regard, too?

● (1155)

Dr. Marc Ouellette: This is a fantastic question.

Yes, actually Canada has strengths in those alternatives to antibiotics, to antimicrobials. Phage therapy was developed by Félix d'Herelle, a French Canadian researcher. He developed it in Paris, but he was from Canada. That was the first therapy in the pre-antibiotic era, where they were using phages, which are viruses against bacteria. Then when antibiotics came along, this was less popular, but now it's coming back. Actually, we have some major strengths in Canada on phages.

It's the same thing for the microbiome. This is all the bacteria that we have in our body. Most of the bacteria that we have are good bacteria and they're helping us. How do we make this equilibrium between the good bacteria and the potential bad bacteria?

There are many approaches, both in veterinary medicine and in human medicines, to use a more ecological approach. I think the best example, and everybody has heard about it, is a stool transplant for recurrent Clostridium difficile infection. It's not antibiotics. The reason for a stool transplant function is that you provide a lot of good bacteria and now there can be this equilibrium and then people can get rid of Clostridium difficile.

Yes, we are funding and we are interested in going to alternatives. We recognize the importance of developing new molecules because we will need them, but we also have to look at alternatives to antibiotics.

The Chair: Thank you very much.

Mr. Davies, you have seven minutes.

Mr. Don Davies (Vancouver Kingsway, NDP): Thank you, Mr. Chair.

Thanks to all the witnesses for being here today.

Dr. Ouellette, I want to begin with you. In the 2015 spring report of the Auditor General of Canada, the organisms of greatest concern for antimicrobial resistance were identified. Six of the seven identified are common in Canada and those are E. coli, klebsiella pneumoniae, staphylococcus aureus, streptococcus pneumoniae, non-typhoidal salmonella, neisseria gonorrhoeae, and shigella organisms. Pardon my pronunciation. It reported resistance rates from Canada ranging from 0% to 31% for the first six organisms.

I'm wondering if you could help situate the problem here, because in that same report, it said that, according to data from the Public Health Agency of Canada, the number of drug-resistant infections in Canada was increasing.

Can you give us a bit of a flavour for how serious the problem is that we're facing and how urgent the need is to take action?

Dr. Marc Ouellette: I'll start, and maybe my colleagues would like to complement what I'm saying.

The problem is rising. Twenty years ago we were talking about this, but the rates of resistance that we are encountering now are frightening, and I'm talking worldwide, especially in the outer regions of Asia, in India for instance. There are cases of resistance that are very high in human populations. Some of the bacteria that you just named are problematic.

In Canada you've talked about staphylococcus aureus or MRSA. This is a serious problem. It's not going down. I think we should put more effort into this. This is a serious infection and the drug of choice is methicillin, and then infections are MRSA, methicillin resistant, so it does not function. In Canada this is an issue that we have to look at.

For streptococcus pneumoniae, now we have a vaccine. We were talking about alternatives. I think the development of a vaccine has been very helpful in decreasing the rates of streptococcus pneumoniae infections, but unfortunately, the vaccine is effective against the subgroups that were the most frequent, and now there's a deplacement. When you remove something, something else is coming. Unfortunately, these are becoming resistant, and so we will have to look at this.

With the E. coli and the shigella, I mean the problem is more acute in other places of the world. For instance, if you look in agriculture, four or five years ago they were still using some of the class 1 drugs that were helpful also for human medicine. Some of the percentage that you're highlighting were from this equilibrium between the use of those antibiotics that are used both in human medicine and agriculture. Now they've banned those antibiotics and now the resistance rates are going down. It's showing that good stewardship can make a difference.

In a nutshell, I think it's very important that we work on it because —and I'm not sure how to translate that in English. I'll say it in French and hopefully it will be translated:

● (1200)

[*Translation*]

"Prevention is better than cure."

[*English*]

I think we have to be aware of this. We are aware and it's politically quite clear. It's also scientifically quite clear and we have to take action.

Mr. Don Davies: What are the major contributors to the antimicrobial resistance? Is it over-prescription for humans? Is it the use of antibiotics in animals? How would you prioritize or rank the contributors to this problem?

Dr. Marc Ouellette: That's a fantastic question. If we had the answer, we would already know where to focus. This is why it makes it complicated, but interesting, from an academic point of view. This is why Canada and all the other countries also have used this multi-sectoral approach, because if you only focus on prescribing in hospital, it won't work. If you're only taking an agricultural stand, it won't work. There's also the environmental dimension. I don't want to frighten anybody, but they took 10 samples of soil close to sewers in the region of Toronto and out of those 10 samples, seven had some of the bacteria that were highly resistant to the best antibiotics. That doesn't mean it will transfer from the environment to humans, but we have to be aware that they exist already in Canada.

I realize that I'm not really answering your question here, but on the other hand, I think it's really a multi-sector approach that is needed. Maybe some of my colleagues would like to complement this answer.

Mr. Don Davies: Thank you very much.

Ms. Dimitri, in that same Auditor General report in 2015, the Auditor General found that Health Canada had not stopped the importation of unlicensed veterinary antimicrobials, at that point. We know that 13 years earlier, in 2002, the department's advisory committee on animal uses of antimicrobials had recommended that it do so and the AG recommended that Health Canada stop that own-use importation of unlicensed veterinary antimicrobials. The department agreed with that recommendation. Has that importation been stopped?

Ms. Aline Dimitri: I'm going to defer to my colleague Mary-Jane, because they're responsible for the policy work and the regulatory work behind it.

Mr. Don Davies: I wasn't sure which of you would answer.

Dr. Mary-Jane Ireland: I'd be happy to answer that. You're correct that, in his report, the Auditor General did say that Canada should finalize its plans to address own-use importation of veterinary antimicrobial drugs and strengthen its control over the importation of veterinary antimicrobial active pharmaceutical ingredients. With the *Canada Gazette,* part II publication and the new laws published on May 17, we are addressing the own-use importation of veterinary drugs. As I described, moving forward, producers will not be able to import veterinary drugs for personal use on their own animals, unless Health Canada has determined that those specific drugs do not pose a risk to public health or food safety. For example, we would not allow medically imported antimicrobials to be imported for personal use or a prescription drug. By those regulatory—

Mr. Don Davies: Is that as of today or is that in progress?

Dr. Mary-Jane Ireland: That will come into force in November. There's a six-month coming into force period to allow for everybody to prepare.

Mr. Don Davies: Thank you. How am I doing for time, Mr. Chair?

The Chair: You're out.

Mr. Don Davies: That was a good question, then.

The Chair: That was an excellent question.

Mr. Ayoub, you have seven minutes.

[*Translation*]

Mr. Ramez Ayoub (Thérèse-De Blainville, Lib.): Thank you, Mr. Chair.

I want to thank the witnesses for being here.

The topic is very broad. If we aren't scientists or if we're not very familiar with the research in the field, it's easy to be confused. However, as consumers and representatives of Canadian consumers, we're listening to what's being said about the war on antimicrobials. We're talking about 10 million deaths by 2050. This is more than the number of deaths resulting from cancer, a disease we're currently fighting.

In the case of HIV/AIDS, for example, the good news is that we've finally found drugs and some form of treatment. Here, it seems that we're talking about a wheel that will never stop turning. How do we stop it or slow it down while maintaining quality of life? We're looking for quality of life when we use antimicrobials or other drugs.

I want you, the experts, to tell us what we don't know. For example, what would a journalist in the field reveal about drugs that aren't prescribed, but that can be obtained through the Internet; about farmers who use certain substances to produce faster growth; or about citizens who say they don't use pesticides, but whose grass is as green as a golf course?

Can you talk about things happening in the field that we aren't aware of?

● (1205)

Ms. Aline Dimitri: Thank you for the question.

The fact is that we know these things. However, it's difficult to know whether the chicken or the egg came first. In other words, it's hard to determine who contributes the most to the issue.

Our current measures are very broad. In particular, they relate to surveillance in the field, whether it concerns animals or health, and to the change in culture in terms of how we administer antibiotics. All this reflects what we already know about the things happening in the field. Nothing is truly hidden. That said, the fact that a person violates the law by engaging in unlawful conduct is serious. However, we've established systems to monitor this.

Regarding food safety, we conduct carcass surveillance tests to make sure the carcasses don't contain antimicrobials, which shouldn't be found in food. We have a surveillance and traceability system in place to limit and minimize the risk of this type of conduct occurring within the system. In that sense, we work very hard. We want to make sure the items that reach consumers are healthy and safe, whether we're talking about public health or food. We know what's happening.

However, it's important to always keep our eyes and ears open, given that people are still looking for new methods or pathways. We must find out from our foreign colleagues whether new practices in the field require us to take measures or should be taken into account when planning our surveillance system.

Mr. Ramez Ayoub: Thank you for the answer. We could talk about these issues for much longer, but I have only seven minutes.

Along with the microbiological war, we have an economic war. It's not really a battle, but a confrontation between various pharmaceutical companies and chemical manufacturers. There's one we won't name, but I think we all know which one it is. We're still looking for a balance. There are some positive aspects, but there's also the fact that drugs in Canada are among the most expensive. We conducted a study on the matter. At the same time, it would probably be worthwhile to develop new drugs. These drugs would be expensive, but the costs would be covered for Canadians.

How can we balance this other aspect, which isn't scientific but economic?

Ms. Aline Dimitri: The economic aspect is obviously an important part of the equation. That said, it doesn't concern only Canada in relation to other countries. We're all in the same boat. Many of these major companies are multinational corporations. For these companies, the issue must be addressed from an international perspective.

I'll now leave the floor to Mr. Ouellette, then to Mr. Njoo, if they want to add something.

Mr. Ramez Ayoub: Yes. I would be pleased to hear from them.

Dr. Marc Ouellette: Thank you for the question.

You're right. There's an economic aspect. However, we must also take into account that antibiotics are still saving lives. This is the case for people suffering from an infection.

Unfortunately, our collective unconscious leads us to believe that antibiotics are effective, that it isn't necessary to take them for a long time and that they're inexpensive. We have this equation in mind. That said, cancer drugs can cost from $20,000 to $25,000, and add only four months to a person's life expectancy. Everyone knows it's the price to pay. However, this isn't the case for an antibiotic, which will probably save the life of the person who takes it.

There are what we call

[*English*]

"push and pull incentives".

[*Translation*]

If the market is small, the development of the drug costs billions of dollars and the period is short, this incentive can't be applied. Regarding antibiotics, major pharmaceutical companies no longer invest in innovation. However, they invest in innovation when it comes to diseases such as diabetes and cancer. Many organizations are concerned about this issue, which was raised at the Davos forum and on a number of other occasions.

How can these pharmaceutical companies develop antibiotics while making a profit? This involves an economic aspect. The discussions currently concern topics such as the possibility of extending the duration of the patent or granting a bit more protection to a pharmaceutical company for research on an anti-diabetes drug, for example, if the company agrees to develop an antibiotic that won't be economically profitable. Therefore, we're trying to establish push and pull incentives. It's very economically innovative. We're trying to encourage the development of new antibiotics.

● (1210)

[*English*]

The Chair: Your time is up.

Now we're going to go to five-minute periods for questions, beginning with Mr. Webber.

Mr. Len Webber (Calgary Confederation, CPC): Thank you, Mr. Chair.

Just to let you know, I am an urbanite. I am not a farmer. I don't raise cattle. I am pretty much a layperson here.

I have a question.

Dr. Ireland, you brought up the prudent prescribing of antibiotics by physicians for cattle, for example. Let's say I'm a cattle rancher, and I have some sick cows. I call up the veterinarian, who prescribes some antibiotics for my herd. It improves their health, but they're still needing more antibiotics in order to alleviate or to take away whatever is left there.

With the prudent prescribing that's in place now, you reach a limit with regard to the amount of antibiotics a veterinarian can prescribe to cattle, so here I am now with cows that are still sick, and I've reached my limit with antibiotics. What are my options?

Dr. Mary-Jane Ireland: Thank you for the question.

I'm a large-animal veterinarian, although I come from the city, so I can relate to your position.

First of all, there are many types of antimicrobials that are available or at the disposal of veterinarians and producers. If the first line of treatment does not work, there are options for second line and third line treatments. There are times where, due to the nature of the disease or the severity of the outbreak, some animals will be lost. Access to the antimicrobials, for both the veterinarian and the producers, is what we are trying to ensure. We're also trying to ensure that the first line, second line, and third line antimicrobials remain effective now and into the future. With misuse and overuse, they're going to find themselves with fewer options. We'd like to keep all of those options open for their animal welfare and their production systems. These are the family farms, and they need those treatment options.

Mr. Len Webber: Absolutely.

Now I'm going to move into the human use—you brought that up as well—and the same scenario. You have a sick individual, perhaps infected by a vector-borne disease. They go to the doctor. They are prescribed antibiotics to alleviate or get rid of the bacteria in their system, yet they've reached a peak in their prescription, and they can no longer get the rest of that antibiotic to take away that bacteria. The doctor's hands are tied. They cannot prescribe further antibiotics. What's the option for this patient?

Dr. Howard Njoo: Maybe I can answer that.

My understanding is that there is a patient who obviously has a serious bacterial infection that requires antibiotics. Sometimes, based on what they understand the prevalence of bacteria to be within a community, physicians might give a broad-spectrum antibiotic, thinking that will most likely be able to deal with the infection. If it doesn't deal with the infection, and the patient continues to be sick, there's really, in a sense, no limit as to what antibiotics they can prescribe, or the amount. It would be prudent, if it's possible, to actually get a culture or a sample from the patient and test it in a laboratory to see what drugs it is sensitive to. By and large, for most infections that doctors see in a community setting in Canada, there will be an antibiotic that can effectively deal with it.

What Dr. Ouellette and all of us, and many others outside of this room, are worried about is that, with the overuse or the inappropriate use of antibiotics, it's just natural selection. Over time, the bacteria in the community and so on will become resistant if we keep using antibiotics. Then, when you actually need that antibiotic for a particular infection, that particular bacteria that's circulating in the community will be resistant.

● (1215)

Mr. Len Webber: I guess, then—and we studied this just last week with regard to chronic Lyme disease sufferers, for example, who have reached their peak when it comes to the use of antibiotics—there is no option for them now. Is that correct, Dr. Njoo?

Dr. Howard Njoo: Not to get into last week's discussion, but there are obviously differing views in the medical community regarding Lyme disease. In terms of acute Lyme disease and what the treatment is—antibiotics and so on—that's pretty well established. However, for these individuals—some of whom have chronic symptoms that could be consistent with Lyme disease but there's not an actual laboratory confirmation—it is, to be quite honest, a controversy. Many physicians will say that there really is nothing to treat, and that inappropriately giving antibiotics when there isn't an established infection that you can actually diagnose would do more harm in the long term, both for the patient and also for the community at large. That is the ongoing issue. That's how Lyme disease, in terms of some physicians giving long-term antibiotics, affects this issue we're discussing today, AMR.

Mr. Len Webber: Exactly. I feel that a lot of these patients, these chronic sufferers, are put out to pasture and just left on their own.

The Chair: I'm going to have to put you out to pasture now.

Ms. Sidhu, you're up.

Ms. Sonia Sidhu (Brampton South, Lib.): Thank you, Mr. Chair.

Thank you to all the presenters.

My question is for CIHR. The rate of prescription and dispensing of antimicrobials varies across the country. In the north and in Quebec, we have seen that rates are fairly steady: five to six daily doses per person. In Ontario, Manitoba, and British Columbia, it's six to seven. Other provinces continue to increase. Saskatchewan shows eight to eight and a half, and Newfoundland and Labrador shows 10 or more daily doses. What is the reason for the higher prescription rates or daily doses in Saskatchewan and in Newfoundland and Labrador?

Dr. Marc Ouellette: I'll give a first try at that question, and then hopefully my colleagues from the Public Health Agency can complement that.

Basically, providing health is a provincial jurisdiction. Each province has its own guidelines to move forward on how it will deal with that type of infection. This is also why we have this federal framework. However, we understand that if we don't have a partnership with provinces, it will be complicated to try to integrate all the knowledge that we have to have better practice at the end. It's really to try to embed and integrate all the provinces together so that there's more uniformity, so that we'll have maybe one or two guidelines that we could follow—and I'm not talking about universal protocols. In my opinion, we have 13 different health systems, and it's a question of trying to integrate when possible.

I don't know whether Howard has something to add to this.

Dr. Howard Njoo: Thank you, Dr. Ouellette. Sure, I can add to that.

Certainly, the surveillance we do across the country for AMR is good, but it could be a lot better. For example, most of the surveillance we have for human illness is based in hospital settings in terms of what kinds of infections are prevalent. To be honest, we don't have very good data on what happens in the community setting, as I said in my opening remarks. For example, for sexually transmitted infections like neisseria gonorrhoeae, there's certainly a lot of resistance out there, but we don't really have a good, complete picture.

I think your question about the antimicrobial use links in part to having a better understanding of which diseases and infections are prevalent in different parts of the country. We need to link that up with antimicrobial use and prescription practices to see if they actually match up in terms of appropriate prescription based on what actual diseases and infections are occurring. Those are areas that we certainly intend to move forward on with our partners to strengthen, both on the disease outcomes in terms of the community and hospital settings, but also in terms of antimicrobial use and prescription practices.

● (1220)

Ms. Sonia Sidhu: Thank you.

Marc said earlier that 95% of antibiotics are used in the community. With regard to community education, Dr. Njoo, are there any awareness programs out there?

Dr. Howard Njoo: There are a lot of programs out there. Just in reference to a previous question, it's interesting that among health care practitioners—I'll focus on physicians—as Dr. Ouellette pointed out, the young future practitioners in medical schools now are well aware of the issue of AMR. They're getting all the right education on how to appropriately prescribe and so on. That's good, but we can't forget about the practitioners who are already out there. I think there's a greater focus, as well, in various professional organizations. We've supported various types of campaigns, as well, in terms of continuing medical education to make sure that physicians already out there in the community are better equipped to appropriately prescribe antibiotics. There are some things like little educational campaigns, even something as simple as a notepad. It's almost like a prescription pad, except it has little notes in terms of criteria that help guide physicians on how they can properly prescribe antibiotics.

The other part, which I think is sometimes not emphasized enough, is that it shouldn't be all, in a way, on the front-line practitioners, the physicians. A lot of it is also driven by the demands and expectations of patients. A lot of education also needs to be focused on the patients. If they're better aware and educated about the difference between viruses and bacteria, and so on, they will also be in a better position to have good dialogue with their health care practitioners about what would be appropriate treatment for any type of infection they have. What happens now.... I understand how physicians may feel; there's a lot of pressure. A patient may easily go into a doctor's office and demand an antibiotic. The doctor will do the best he or she can to explain, “No, this is a viral infection from what I see. You don't need an antibiotic.” The patient will get really upset and say, “You're not a good doctor. I'm leaving.” The patient will go to see another doctor, and that same scenario will be repeated.

I think, as with many issues in AMR, it's complicated. There are a lot of things we could and should be doing, but hopefully as we move forward, we'll integrate the response so that everyone who has a role to play, including the general public and patients, will do their part.

The Chair: Your time is up.

Dr. Ouellette, you looked as though you wanted to make a comment.

Dr. Marc Ouellette: No, I just support what Howard is saying. Often when we are having meetings or workshops, we bring patients also to share their views and to see how we can move forward to try to improve on this.

The Chair: Thanks very much.

Ms. Harder.

Ms. Rachael Harder (Lethbridge, CPC): Thank you.

I'm going to hone in on the pan-Canadian framework that has been created or is in the midst of being created. Do we know when we will see that?

Dr. Howard Njoo: Yes, imminently.

Ms. Rachael Harder: Imminently. Good.

Dr. Howard Njoo: I would venture to say it will be this year, in the next few weeks or so. It's more about the appropriate approvals in terms of sign-offs, but in terms of the actual document and all the hard work that has gone into it, the actual framework is there.

Ms. Rachael Harder: Mr. Njoo, maybe you could comment on some of the challenges faced as that pan-Canadian framework has come together. Has it been a streamlined process? Has it been difficult? What has that process been like?

Dr. Howard Njoo: It has been very good. Obviously, it's challenging in some ways, as others have alluded to, with the fact that the federal government can't do it alone. Just between governments, having to work with provincial and territorial governments that obviously have the responsibility for the delivery of health care services, we recognized going in that this might have an impact in terms of how the services are rolled out, maybe even budget impacts. To everyone's credit, it has been very good in terms of the final result. They've all signed on and are willing to do their part.

The other part that is also important is dealing with the other stakeholders: industry, the animal health side as well, academics, and so on. As I mentioned earlier, it has been remarkable how all the stakeholders, universally, to everyone's credit, recognize the seriousness of this global threat and they've all come to the table in a good spirit to help do their part.

● (1225)

Ms. Rachael Harder: Mr. Njoo, we're told that this will come out imminently, which is excellent, and then it will really be up to the provinces and territories to implement. Then we will do some assessments in terms of where we are.

Let's say we fast forward to one year from now. What does success look like?

Dr. Howard Njoo: Before we get to that part, the framework itself won't actually have something to be implemented, because it's, in a sense, a high-level policy document. It sets out the parameters in terms of the four pillars and what we want to work on. Once the framework is released, we will get to the heavy lifting, as they say, working through our task groups and with all the partners to develop the concrete action plan.

Ms. Rachael Harder: Will provinces and territories not have a role to play, then, on the framework?

Dr. Howard Njoo: Yes, they will. They will also be part of the development of the concrete action plan in each of the pillars.

Ms. Rachael Harder: Okay, so my question still stands. In one year from now, what does success look like? What will we have accomplished based on this framework?

Dr. Howard Njoo: The framework sets the foundation, and with the concrete action plans, once we actually develop the specific actions in each of those pillars, there will be targets or objectives set out. That's how we will be able to measure one year, five years, or 10 years moving forward.

Ms. Rachael Harder: Okay.

Ms. Aline Dimitri: Perhaps I could add to my colleague's comments.

Given the complexity of the issue we're dealing with, for the first time in a very long time, we're bringing together two sectors that don't always work hand in hand. Success is really having an action plan where we can see everybody bringing to the table what they're going to do in a concrete way. That is what success would look like in a year, because it will take time for us all to sit down and agree on what we can do, by when, and how we're going to measure it.

I know it might not sound like a big milestone, but it is a huge milestone when we're thinking of the massive number of people we're bringing together in a coordinated conversation. They all have to change something in the way they do their business. This is not just about “I'll give you this and you'll give me that.” We're talking about, for instance, on the agricultural side, hard questions such as, do we need to change our husbandry behaviours? How are we going to change the curriculum? When we've already changed the curriculum for vets, do we need to go even further?

Really it is about having a concrete plan where we can see everybody reflected in a concerted effort to address the issue, with a way of actually tracking and measuring that.

Ms. Rachael Harder: Sure, and I think that's exactly my point. It's one thing to put pen to paper, but it's another thing to actually have measurable goals or objectives that are going to be attained and there's actually going to be a reporting mechanism or a measurable way to know that we've achieved something.

It would be a shame if we found ourselves at this table in another five years having this same conversation. We certainly need to make sure those goals are put in place.

I think that's my time.

The Chair: You had one second left.

Mr. Oliver.

Mr. John Oliver (Oakville, Lib.): Thank you very much for the presentations.

I'm reminded a bit of a story I heard about algae growing in a pond. In 20 days, if it doubles in size every day, it would cover the entire pond. You begin on day one with what looks like a very small problem, and on day 17 a quarter of the pond is filled. On the 19th day it's half filled, and on the 20th day it's filled. That's the logarithmic growth you can get in some of these spreads.

In our case, we're looking at 10 million people worldwide, or 50,000 Canadians, if we don't manage it.

I listened to your testimony and read through it. All of you are pretty much saying the same thing: in collaboration, Mr. Chair, CIHR will continue building research capacity, and we're going to work to fight this global threat; from CFIA: we're making progress through collaboration, and there's still work to be done, but we're working on it; at PHAC, we'll continue to develop the federal contribution in global efforts to make sure that AMR will be addressed.

The message you're giving to the health committee, then, is that you're on it, that it's being managed, that there's still work to be done, but you have the capacity, frameworks, and collective efforts to address this problem.

I wish we had the pan-Canadian framework done, so that we could see what's in and what's not in it. I'll ask each one of you, however, is there anything you would like this committee to say in the House and to the minister to further prevent this potential crisis from emerging? Is there anything more that any one of you feels we should be doing?

I'll start with Dr. Njoo.

● (1230)

Dr. Howard Njoo: The one thing I would say that would be important to re-emphasize is that collaboration, which my colleagues have said has happened across sectors, between different levels of government, and so on, just needs to continue. We need to maintain the momentum.

Mr. John Oliver: Okay.

Has anybody anything else that you would like us to...?

Dr. Marc Ouellette: Just taking the time to hear us, I think, showed the importance you're placing on this very important issue. It is recognized now to be worthwhile. We're very thankful that Canada also believes this is an important issue that we have to move forward on.

Thank you for all your support.

Mr. John Oliver: Yes.

Ms. Aline Dimitri: Let me add that what's really important is to also remember that it's a complex issue. It's not something we will be able to turn on a dime. There's a lot of effort that has to go into it. While we may be able to have results immediately in the systems we have put in place, it may take us a while to see, let's say, a decline in the resistance or a complete change in the pattern.

I think, then, that the attention span around this particular file is not a two-year attention span. It is really something that's much longer, and people have to become sensitive to that.

Mr. John Oliver: Okay, thank you.

I noticed that the CARSS report, under surveillance data gaps, said that there are significant data gaps “for rural and northern healthcare settings and First Nations and Inuit communities....”

I'm assuming that some of the burden of AMR is going to fall on third world and underdeveloped areas more than on others. I worry that we already have some difficult health indicators in our indigenous communities.

Will the new framework deal with those surveillance gaps?

Dr. Howard Njoo: As I mentioned earlier, in the new framework, one of the key pillars is surveillance. I think once we get past the framework, into a concrete action plan, yes, it will.

Mr. John Oliver: Will it deal specifically with rural and northern health care settings?

Dr. Howard Njoo: Yes.

We'll look at all the gaps, for example, at indigenous communities, rural settings, also at strengthening surveillance for antimicrobial use in addition to the resistance in the outcomes.

Mr. John Oliver: On the animal husbandry side, there's the use of metaphylaxis, whereby you treat an entire herd because a few are ill, and the use of AMU for growth and to improve feed efficiency. When I looked at the stuff from CARSS, we seemed to be low on usage of antibiotics in humans, but we looked to be very high in the use of antibiotics on our food side.

Do we need to make more substantive changes than what I've heard today from you, Mary-Jane?

Dr. Mary-Jane Ireland: That's a great question.

I think we're making substantive changes already through the suite of regulatory changes and the policy changes, which will place a veterinarian in the decision-making process for medically important antimicrobials, which will avoid the use of these important antimicrobials for the promotion of growth, for which there is no modern scientific evidence that it is effective to do so. This is good.

In terms of the amount of antimicrobials, as I said in my introductory remarks, more than 70% of medically important antimicrobials are used in animals.

There are some very good reasons for that. Number one, animals are much bigger than we are. A 600-kilogram cow, and there are many of them in this country.... When we look at the amount that is used, we need to remember those two key important facts.

Mr. John Oliver: I have a quick question on that.

Do you need any stronger legislative authorities? Right now the antibiotics are in feed. Do you have sufficient legislative authority to prevent the use of those feeds without a veterinarian authorizing them? I don't know enough about the animal side of it.

Dr. Mary-Jane Ireland: There are a couple of things. In prescribing and the practice of prescribing there's some provincial oversight to that under the practice of medicine and veterinary medicine. There's this division of the sale of drugs and the use of drugs that occurs across this country, which is unique.

In terms of the drugs that go in feed, yes, you're right. Antimicrobials and other drugs go in feed because that is the most logical way to treat a large number of animals, either in feed or in water. We have rules around drugs in animal feed. We also authorize drugs to be used in feed, so we have rules within the food and drug regulations to address that. We also have rules in the feed regulations to address that. I think we have coverage on that from a regulatory perspective for feed, which is quite unique, in terms of the use.

● (1235)

The Chair: The time is up.

Mr. Davies, for three minutes.

Mr. Don Davies: Thank you.

Ms. Ireland, I want to pick up on my colleague's questions on that.

Mr. Webber talked about the issue of having a sick animal and getting a prescription to treat that animal, but I think what's of more concern to Canadians are large-scale commercial producers using antibiotics in feed as a prophylactic measure, which seems to me to be something that I think is a leading cause of antimicrobial resistance.

Is that allowed in Canada? Can they put antibiotics in feed, and feed it to a large-scale commercial operation when individual animals are not sick, but as a prophylactic measure? Is that allowed?

Dr. Mary-Jane Ireland: It is allowed. I would consider that preventing disease in a particular herd for which it's known there's a disease pattern, as well as treating a disease, is important. Preventing disease, and the snowball effect of many more animals becoming much more sick, and having to use more antimicrobials, and maybe second line and third line treatments, is a reasonable practice. Yes, prophylactic drugs are approved for use in food animals in both prevention and treatment. They are permitted and considered reasonable.

Mr. Don Davies: Help me situate that. Those are the positive benefits of it. I'm going to assume there's a negative aspect, which is that it's a contributor to antimicrobial resistance or is it not?

Dr. Mary-Jane Ireland: I don't know that I'd want to say that prophylactic treatment is a major driver of antimicrobial resistance. I think what I'd like to say is the misuse, overuse, of antimicrobials is a driver for antimicrobial resistance.

Making sure that a drug is used only when needed, at the right dose, and for the right duration of treatment, is what we're trying to achieve. It's why we are for, one, asking them not to use these things for growth promotion, medically important antimicrobials, and two, ensuring that a veterinarian is involved to make those decisions in collaboration with their client, the farmer.

Mr. Don Davies: I see.

Dr. Njoo, I don't know if we tracked this, but is it possible for us to have a mortality figure? For instance, how many Canadians would we estimate die every year because of antimicrobial resistance? Do we have a feeling for that number?

Dr. Howard Njoo: I wouldn't venture to put out a number. Dr. Ouellette with some of his research colleagues may have a more accurate figure. That's certainly one of the things that moving forward is the type of information we'd look to gather. But I don't have a specific figure right now.

Mr. Don Davies: Maybe I'll end with you, Dr. Ouellette. I'll ask you that question, but I'll give you a second question, and then I'll probably run out of time.

Could you answer that question, and also, could you explain what the difference between antimicrobial and antibacterial resistance is? I'm led to believe there is a distinction.

Dr. Marc Ouellette: Yes, the second one is much easier, so I'll start with the second one.

With antimicrobials there are four classes of microbes. You have bacteria, viruses, parasites, and fungus. All four need drugs. They are usually called antiparasitics, antivirals, antibacterials, and antifungals. The term that is used within Canada, but also accepted throughout the world, is antimicrobial. It's global. But mostly what we are discussing right now is about antibacterials. This is where most of the problem is.

Mind you, there are problems of resistance also with viruses, and with parasites, like malaria for instance, there's a lot of resistance. That's with antiparasitics. With HIV at one point, there was a lot of resistance, and that was with antivirals. Now they've combined drugs and it's a lesser problem.

Regarding your first question, the numbers that are highlighted are mostly from the U.S. and the EU. You could make a rule of 10, but then we're not sure if that's very accurate, for Canada.

Mr. Don Davies: What are those numbers?

Dr. Marc Ouellette: In the multiple tens of thousands, so 40,000 in the EU and in the U.S., so is it 4,000, 2,000, or 1,000 in Canada? That's difficult to say.

Mr. Don Davies: Thank you.

The Chair: The time is up.

I want to thank all our witnesses today for attending, and Professor Ouellette for being so patient for two hours sitting there.

You did a great job.

I want to thank everybody for helping us to understand this issue a lot more.

I'm going to suspend the meeting, while we prepare to go in camera for some committee business.

Thanks very much.

[*Proceedings continue in camera*]