HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

# Standing Committee on Health

HESA • NUMBER 078 • 1st SESSION • 42nd PARLIAMENT

**EVIDENCE**

## Thursday, November 9, 2017

## Chair

**Mr. Bill Casey**

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● (1535)

[*English*]

**The Chair (Mr. Bill Casey (Cumberland—Colchester, Lib.)):** We'll call meeting number 78 of the Standing Committee on Health to order.

We're very pleased to have you here as witnesses. We're looking forward to your testimony. Hopefully you can help us find our way through this antimicrobial study.

Our guests today include, from the Canadian Veterinary Medical Association, Dr. Duane Landals, chair of the prudent use guidelines expert advisory group. We have from the Chicken Farmers of Canada Mr. Steve Leech, national program manager, food safety and animal welfare. From the National Farmed Animal Health and Welfare Council we have Mr. Robert McNabb, co-chair. As an individual, we have Dr. Scott McEwen, professor at the Ontario Veterinary College, University of Guelph.

I welcome you all. We're going to ask each of you to make an opening statement of a maximum of 10 minutes. Then we'll go to questions from our members. Hopefully, we'll learn a lot from you today. I'm sure we will.

We'll start with Dr. Landals.

**Dr. Duane Landals (Chair, Prudent Use Guidelines Expert Advisory Group, Canadian Veterinary Medical Association):** Thank you very much, Mr. Chair and committee. Thank you for this opportunity to present to you today on this very important topic.

I am representing the Canadian Veterinary Medical Association. With your indulgence—I know the time is limited—I'm going to follow my speaking notes fairly closely, for two reasons: one, to keep me on track so that I don't digress, but also for the translators, because I have a tendency to speak rather rapidly. I'll try to avoid that for the translators; however, I want you to know for sure that I'm willing at any point in time to interrupt to answer questions or elaborate on some of the points of my presentation.

As a short introduction, I am a member of the Canadian Veterinary Medical Association's pharmaceutical stewardship advisory group. I also chair the multi-sectoral antimicrobial surveillance expert advisory group for that organization. I am a past president of the CVMA and a past president of the Alberta Veterinary Medical Association. I have also served two terms as vice-president of the World Veterinary Association, so antimicrobial use has been quite a bit in my blood.

I am a veterinarian. I owned and worked in a rural mixed practice in Alberta for 35 years. I practised as a clinical veterinarian for 25 years and spent 14 years working for the Alberta Veterinary Medical Association, which is the professional regulatory organization responsible for the practice of veterinary medicine under provincial statute. Some of my views are thus from both a regulator's point of view as well as a practitioner's perspective.

Our association, the CVMA, provides a national and international forum for 7,200 veterinarians working in all of Canada's provinces and territories in private, generalist, and specialist practices, in research, as educators, and as public servants. In addition, we count 7,300 veterinarian technicians as affiliate members. Our members, as practitioners, provide services to pets, livestock, and all other animals and make our interests rather broad—into all species of animals. In addition to their contribution to public health and food safety, healthy and humanely raised animals are vital to Canada's reputation as a producer and exporter of billions of dollars in animals and products of animal origin.

In this industry, veterinarians provide unique expertise on the health and welfare of all types of animals, not just food-producing animals. We have expertise in areas of animal health and disease; an understanding of the biology of domesticated and wild animals; practical experience and understanding of the care and management of animals of all species; and practical experience in the recognition of signs of suffering in animals. Those are very important things, when we talk about the way we use pharmaceuticals in our industry.

The Canadian Veterinary Medical Association strongly supports the responsible use of antimicrobials by veterinary professionals to protect both animal and human health and welfare. Veterinarians are best positioned to assess the benefits and risks of antimicrobial use in animals and have a professional responsibility to explain to their clients the importance of judicious use of antimicrobials.

To conserve the efficacy of antimicrobial drugs, veterinarians strive to achieve a balance between maximizing animal health and welfare and minimizing antimicrobial resistance. There is the constant balance between what is the very best for the patient and what is best for the population in general, and those may be in conflict, not necessarily the same. It's the veterinarian's professional responsibility to look at both sides when making clinical judgments.

For over 20 years, the CVMA has been an advocate for federal regulatory and policy changes to enhance the responsible use of antimicrobials. In this regard, our association participates in national organizations, such as the National Farmed Animal Health and Welfare Council, who are here today, and Antimicrobial Stewardship Canada. These organizations have developed, in collaboration, antimicrobial resistance and antimicrobial use strategies. The key focus is antimicrobial resistance, but our efforts are around antimicrobial use so that we can mitigate antimicrobial resistance.

AMR, antimicrobial resistance, is an international issue. It does not know boundaries and it doesn't respect borders. On an international scale, our association is part of the Government of Canada's delegation to the OIE, the World Organisation for Animal Health. Both the OIE and the World Health Organization have stressed the importance of raising awareness of health risks posed by antibiotic resistance and promoting good practice in how we use these drugs to limit the emergence of antimicrobial resistance. We've also been involved in writing joint papers with the American Veterinary Medical Association and the Federation of Veterinarians of Europe, understanding that responsible use is not unique to one country or one jurisdiction.

We are strong supporters of One Health and we know the One Health model. International One Health Day was last week, and World Antibiotic Awareness Week is this upcoming week, from the 13th to the 19th. The CVMA supports these as great opportunities to help showcase the One Health approach to this important problem.

The One Health approach is an approach to medicine that recognizes that human health, animal health, and environment health are inextricably linked, that we all need to work together to resolve some of the major problems we have.

● (1540)

We believe that veterinarians and registered veterinary technologists have key roles to play in the health and welfare of animals and that they treat them in a manner that supports One Health. While our patients are animals, we're very concerned about the health of the human population as well.

We collaborate in recognizing that antimicrobial resistance is a growing threat in Canada, and I don't think we need to convince anybody in this room of that. It's in Canada and around the world. It's crucial that public health, veterinary, agricultural, and regulatory communities work together to minimize the emergence and continued spread of antimicrobial resistance. It's time we break down silos between our various departments and segments to get to a common goal. Our goal, and everyone's, is to mitigate any impact of resistance that antibiotics have on human health.

In some of our actions, the CVMA works with international and national partners to urge action on eliminating unnecessary antimicrobial use and improving stewardship in humans and animals; improving surveillance of antimicrobial resistance and antimicrobial use; preventing and controlling the spread of all infections, including those that are drug-resistant; and stimulating research and innovation.

We have developed a number of activities. In 2017 we facilitated a workshop on the foundational work to build a national system of surveillance of antimicrobial use in animals by the veterinary community. This was funded by the Canadian Food Inspection Agency with in-kind support from our association. Key partners in animal health, including producer groups and human health practitioners, were involved in looking at how we can collect data to get a better understanding of the existing state of antimicrobial surveillance so that we can understand what the uses are in the veterinary or animal health context.

I chaired that workshop. We felt and hoped that the workshop was a phase one of a multi-year project to get to a point at which we can have a better understanding of the level of use, the reasons, and the use in different species of these products, which is information that is not readily available in Canada right now.

In a separate project funded by Agriculture and Agri-Food Canada, we started to review our prudent use guidelines. These were published by the CVMA in 2008 to help practitioners do an appropriate job when they decided to use an antimicrobial—when they should use them and how they should them. We're updating these and extending them to six sectors across the industry: swine, poultry, beef, dairy, small ruminants, and companion animals. We hope to have a pilot prototype toolset to review the effectiveness of the guidelines before we move forward in expanding that project. The participants in that workshop were Canadian veterinarians, veterinary researchers, educators, and government officials.

I have personally been working on a separate project with the CVMA looking at the use of antimicrobials and providing guidelines for veterinary care of honeybees. When we expand our control of antimicrobial use there may be many unintended consequences and things we haven't thought of in honeybees, aquarium fish, and some of these other species. Obviously the ones we capture with a net are very important to deal with, but may not have been on the table with the mainstream commodity groups that we think of regularly.

In following up on the Canadian government's platform for a pan-Canadian framework, the CVMA worked hard developing a doctrine that we call the “Veterinary Oversight of Antimicrobial Use—A Pan-Canadian Framework for Professional Standards for Veterinarians”. In 2016, we developed this document in partnership with the Canadian Council of Veterinary Registrars.

Again recognizing that veterinary medicine is regulated provincially, we have different practice standards among provinces and need to get to a national goal. These need to be brought together and harmonized. We spent a lot of time working on this doctrine and helped provide some guidance for the provincial regulatory bodies so that, when they put standards of practice in place for veterinarians on how they prescribe, dispense, or use pharmaceuticals—and antimicrobials particularly—we have some commonality among the provinces and territories.

We believe that of all of these initiatives together the CVMA will be part and will support or guide the evolution of veterinary oversight of antimicrobial use in Canada over the next several years. The Canadian Animal Health Products Regulatory Advisory Committee, of which the CVMA is a member, participates with the drug industry, food industry, feed producers, Health Canada, and the Canadian Food Inspection Agency in addressing the planning, implementation, and the potential impacts of the regulatory changes as we move medically important antimicrobials to the Prescription Drug List in 2018.

It's a very significant change for the animal health and veterinary industry. It's important that we have strategies in place, and communication strategies, to ensure that we can do this properly and get to the goal we want, which is ultimately eliminating the unnecessary use of antimicrobials and evaluating when we use them, why we use them, and making sure we're doing it properly.

● (1545)

Communication is going to be a very important part of that, and the veterinary drug directorate of Health Canada has agreed to develop a landing page for information and to give us updates and time frames on what the changes are and keep individual sectors current. As well, the Canadian Veterinary Medical Association is committed to ensuring that veterinarians are up to date on all the changes as they come in place and what implementations they need to do.

Through the One Health approach, the CVMA feels that we can really help Canada achieve its goals in our “Federal Action Plan on Antimicrobial Resistance and Use in Canada: Building on the Federal Framework for Action.” CVMA is a national organization, but we work with provincial veterinary groups. It's very important as we move forward to make sure we get those collaborations together.

In closing, we're encouraged by the Canadian government's involvement in this. We're very happy to present to the committee today. Thank you very much.

We really look forward to further federal government leadership in areas about enhancing partnerships with stakeholders, coordination amongst stakeholders, and coordination between provinces and territories as we move forward with a very important national initiative. We won't get to our common goals without that help and support, so thank you for your attendance and your time.

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

Now we go to the Chicken Farmers of Canada and Mr. Leech.

**Mr. Steve Leech (National Program Manager, Food Safety and Animal Welfare, Chicken Farmers of Canada):** Thank you very much.

Chicken Farmers of Canada appreciates the opportunity to speak to the Standing Committee on Health regarding antimicrobial resistance. Canada’s 2,800 chicken farmers are engaged on the issues of antimicrobial resistance and use, and we take that responsibility quite seriously.

For years, Chicken Farmers of Canada has actively engaged with stakeholders to implement initiatives with respect to antimicrobial use, to be able to demonstrate the responsible use of antimicrobials within the Canadian chicken sector. Our commitment to antimicrobial resistance is demonstrated by our actions, including taking the steps to eliminate the preventive use of antibiotics of importance to humans.

CFC has implemented an AMU strategy in conjunction with our industry partners, and the four guiding principles to that are reduction, surveillance, stewardship, and research. I'll touch on each of those over the next few minutes. This strategy, covering all chicken raised in Canada, works in collaboration with the pan-Canadian framework on antimicrobial resistance and use in order to achieve common objectives held by the government and by industry. Our farmers are proud of the work they're doing and the fact that this helps to achieve the government objectives as well.

While we have established a reduction strategy, it's important to note that antimicrobials are and will continue to be essential tools to protect the health of animals and the safety of our food supply. If our birds and our flocks get sick, we need an ability to be able to treat those birds. Our strategy provides a sustainable means of meeting expectations while at the same time meeting animal health objectives.

Our reduction strategy is a phased strategy with three steps. The first step was to eliminate the preventive use of category I antibiotics, those that are most important to humans. That was done in May 2014, and through surveillance from the Public Health Agency of Canada we have been able to demonstrate that it has been an effective ban.

The second step to our strategy is to eliminate the preventive use of category II antibiotics by the end of 2018. It will be followed by the third step, which is an intention to eliminate the preventive use of category III antibiotics by the end of 2020.

This strategy will continue to allow for the use of antibiotics to treat disease, and in fact that is a cornerstone of our strategy. There are markets for “raised without the use of antibiotics” products, but it's our opinion that this is not sustainable for the entire industry. Antibiotics will continue to play an important role, and that's why our strategy focuses on prevention rather than full elimination.

The second part of our strategy is stewardship, which is a key and important aspect on the farm and involves a number of different aspects, from responsible use through to infection control.

On the infection control side, CFC's raised by a Canadian farmer on-farm food safety program, which is a program recognized by the federal, provincial, and territorial governments, is a complete set of biosecurity, cleaning, disinfection, and pathogen reduction standards that are mandatory for all chicken farmers across Canada. This is a compulsory program that is enforced using the authorities provided under supply management.

From a federal government regulatory perspective, CFC is collaborating with and supporting Health Canada as it moves forward to implement some of the initiatives that you have heard about, which promote greater oversight of antimicrobial use within agriculture.

Of most importance from a stewardship perspective, Canadian farmers need access to the same tools that our international competitors have. Unfortunately, that's not the case right now. When we look at putting in place reduction strategies, we look at using different tools, feed alternatives, and these types of things. Unfortunately, Canadian farmers don't have access to the products that are available in Europe or even in the United States. An example of this would be probiotics.

While these products that we're talking about are not alternatives —they're not full replacements; there is no silver bullet—they are an important tool in our tool box as we move forward, because we have seen them be successful in other jurisdictions. That is why Chicken Farmers of Canada strongly recommends that there be an expedited priority to the current government initiative between the Canadian Food Inspection Agency and Health Canada to help rectify this problem. Providing the solution by allowing more products onto the market would bring us more in line with international competitors, and it would help meet our common objectives of antimicrobial use and resistance.

To turn our attention to surveillance for a moment, surveillance of antimicrobial resistance and use is integral to increasing our knowledge and understanding the impacts of use, and to help guide both industry and government policy initiatives.

CFC has been collaborating with the Public Health Agency of Canada on surveillance initiatives for a number of years, both on antimicrobial use and resistance levels. As I mentioned, some of that research was able to demonstrate the effectiveness of the industry ban on the preventive use of category I antibiotics.

● (1550)

The work that CIPARS is doing through the Public Health Agency of Canada is critical to Canadian agriculture, but we would recommend even more attention be placed on surveillance in order to better track trends in antimicrobial use and resistance, and the reasons for these trends. Increasing the number of samples and the number of sample sites will provide greater validity and credibility to the results coming from CIPARS, and will also provide greater insight into the trends that are being observed and the potential reasons for those trends. AMR can be a very confusing puzzle, and proper surveillance will help Canada develop appropriate stewardship policies. That's needed at an increasing level as we move forward through our reduction strategy, but also the pan-Canadian framework.

On the research and innovation side, going forward, research and the commercialization of those results will become increasingly important. CFC contributes research funding through the Canadian Poultry Research Council. From an antimicrobial use perspective, we've focused our attention on feed alternatives, vaccine development, biosecurity, chick quality, management practices, and these types of things, which have an integral part to play in our strategy. Over half of our funding that we put towards research goes to issues of antimicrobial use and resistance.

Right now, the industry is actively participating in Agriculture and Agri-Food Canada's Canadian agricultural partnership research cluster, which is a five-year research program starting in 2018. For our part, we'll be contributing $500,000, with a priority being placed on antimicrobial use, resistance, and vaccine development, as I indicated.

As Canada progresses through this strategy, continued involvement from the federal government in conjunction with industry—both through grant programs and Ag Canada researchers—will be required to foster the innovation that's needed to get us to our end point. As a recommendation, we ask the committee to stay on top of the partners to ensure that funding and support for this progress and innovative research continues.

Lastly, as we focus on Canada's use and reduction strategy, we must always enter the open lines of communication and dialogue with our most important audience: Canadian consumers. It's a very important piece of the puzzle as we move through. From an agricultural standpoint, an important core message for consumers is not to confuse the issues of antimicrobial resistance with that of antimicrobial residues. Often, that is a confusion, and it's really important to make sure that doesn't happen in order to ensure continued confidence in our food supply.

Through various social and traditional communication outlets, Chicken Farmers of Canada has been reaching consumers with important messages about our food and the food supply. Antimicrobial use and resistance has been an important part of that, explaining how antimicrobials are used in agriculture and getting that out through different venues. We need support from government and those outside the food production industry to support those messages and continue that trust in the Canadian food supply that I spoke about.

In conclusion, the CFC has established a responsible antimicrobial use strategy and reduction timelines to give assurances about the sustainability of the Canadian chicken sector. We're confident in the actions that we've put in place to focus our attention on the elimination of the preventive use of antibiotics of human importance while maintaining the use of antibiotics to treat diseases. CFC's leadership in antimicrobial resistance and use will continue to evolve as we commit to working with industry stakeholders and the government on this file as it moves forward.

Thank you. I look forward to your questions.

● (1555)

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

Now we'll go to the National Farmed Animal Health and Welfare Council.

Mr. McNabb.

**Mr. Robert McNabb (Co-Chair, National Farmed Animal Health and Welfare Council):** Thank you very much for the opportunity to appear before this committee. I am the industry co-chair of the National Farmed Animal Health and Welfare Council.

The council was formed in 2010 out of an action item from the strategy by the same name that was developed in 2009. Subsequently it was designated as a subcommittee of the FPT Regulatory ADMs of Agriculture Committee.

The council is made up of three primary partner groups from different departments within the federal government, representatives from the provincial governments, and non-government organizations such as CVMA and a number of commodity groups, as well as academic institutions.

The council considers issues in a One Health context. In the agriculture community, that also includes the economic health of our constituents, but its primary focus, of course, is public health, animal health, and environmental health. The council supports a collaborative approach to issues of importance to animal agriculture, recognizing the roles and authorities of the respective organizations; the federal, provincial, and territorial governments; and the industry itself.

We provide advice to our constituents, primarily reporting through the FPT regulatory ADMs and identifying where we can organizations or individuals that could perhaps lead in some of the actions we recommend.

On antimicrobial resistance specifically, the council has completed three reports between 2012 and 2016. This reflects, we believe, the council's recognition that AMR is a global and urgent issue.

The first report was "Antimicrobial Resistance and Antimicrobial Use Initiatives in Humans and Animals in Canada". It was published in 2012, and it's a collection and categorization of antimicrobial resistance initiatives in Canada in both human and animal medicine.

The second study was "Antimicrobial Use and Antimicrobial Resistance—Strategies for Animal Agriculture", in 2014. It provided eight recommendations, many of which have been achieved, including a meeting of both human medicine and animal agriculture, which was hosted by the Public Health Agency of Canada in 2015.

Our last and most recent publication was "Antimicrobial Stewardship in Food Animals in Canada", in 2016. That report focuses primarily on stewardship, which in animal agriculture includes infection prevention and control. It also recognizes the importance of surveillance and innovation in successful AMR intervention.

How do we define antimicrobial stewardship? There are a number of definitions, but the one we've captured in our documents is that antimicrobial stewardship is an active, dynamic process of continuous improvement. It involves coordinated interventions designed to promote, improve, monitor, and evaluate the judicious use of antimicrobials so as to preserve their future effectiveness and promote and protect human and animal health. It includes a 5R approach of responsibility, reduction, refinement, replacement, and review.

The concept and practice of antimicrobial stewardship continues to evolve in human and veterinary medicine. It is generally accepted that it will be the cumulative impact of numerous interventions or actions that will have a positive impact on reducing antimicrobial resistance.

Antimicrobials are important in animal agriculture. Modern medicine for both humans and animals is based on the availability of effective antimicrobials. The continuing efficacy of antimicrobials is important in animal agriculture, both in disease control and related animal welfare considerations.

There is growing concern about resistance of bacteria to antimicrobials, and the impact of such resistance to human and animal health. This is of particular concern in the case of those antimicrobials, as has already been outlined, that are important in human medicine.

We strongly believe the cornerstone of our stewardship efforts is that they should be used judiciously and prudently. Animal agriculture provides safe food for Canadians, as well as exporting both live animals and animal products around the world. Animal agriculture creates employment in rural communities and supports a number of sectors.

Throughout its history, Canadian animal agriculture has demonstrated that it can and will progressively adapt and change practices with changing knowledge and technology. We respond actively to societal imperatives. Canada has a strong network of veterinary practitioners—as was recently evaluated by the OIE, the global organization for animal health—with a profound knowledge of animal agriculture.

● (1600)

We believe that stewardship is a shared responsibility in national producer organizations. Sustainability and on-farm food safety programs are the cornerstone of delivering the message and the wherewithal to producers on how to implement judicious and prudent use of antimicrobials.

Producers, individually, can do a number of things in reducing the use and the need for antimicrobials, namely biosecurity, genetic selection for disease resistance, nutrition, housing, various management practices, and some of the alternatives that my colleague mentioned earlier.

For veterinarians, we've heard from the CVMA, as well as their respective provincial licensing bodies. They have a very significant role in the oversight of the use of antimicrobials.

As we move forward, there are other leadership opportunities that we recognize and that we will undertake to review. There's opportunity for all stakeholders to demonstrate their leadership in their various sectors. There are a great many activities on many fronts. It's framed by the pan-Canadian framework for antimicrobial use and resistance, and the action plan is currently under development. The council is demonstrating, through its own leadership, and ensuring that antimicrobial resistance is the centre stage at our annual forum—and has been since 2013. We did actively participate in the development of the pan-Canadian framework. We take any opportunity that we can.

Communication, as was mentioned, is going to be key—communication to build awareness and some of the extension and education and training for producers, veterinarians, and others in this sector—to the stewardship of antimicrobials.

Partnership is a big part of that, which is primarily led by the Public Health Agency, in developing that pan-Canadian action plan.

Research and innovation has been mentioned and alternatives to antimicrobials and risk mitigation tools are going to be needed. Reducing the need for antimicrobials in an investigation of those alternative production systems will be important. Research is a cornerstone of that.

Surveillance was mentioned, and we, too, support the enhancement of surveillance on the use and the resistance of antimicrobials.

There's an organization called the Canadian Global Food Animal Residue Avoidance Databank, which has a tool that veterinarians can access, and we believe that it can play a key role in providing advice beyond the current mandate that it has right now.

Finally, there is assessing regulatory needs required to create a change in the production environment and other activities that we have partnered with through the CAHPRAC organization that Dr. Landals mentioned.

In conclusion, I'd like to say that the council has taken this responsibility very seriously, and our ultimate objective is to ensure that antimicrobials that are available for the treatment of disease in both animals and humans remain effective.

Thank you.

● (1605)

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

Now we'll go to Dr. McEwen, representing the Ontario Veterinary College.

**Dr. Scott McEwen (Professor, Ontario Veterinary College, University of Guelph, As an Individual):** Good afternoon, and thank you for the invitation to appear before you to discuss antimicrobial resistance.

I'm a veterinarian by training, and an academic by occupation. I've worked on AMR for many years as a researcher and consultant with several public health organizations in Canada and abroad, particularly over the last 20 years with the World Health Organization, but I don't represent any organization or group today.

Antimicrobials are used in animals for the treatment, prevention, and control of bacterial infections and in some species for growth promotion. The majority of antimicrobials used in animals are medically important, that is, they are members of drug classes that are also used in humans.

The AMR threat is perceived to be most acute in human medicine, but it does affect all sectors. Concerns about antimicrobial use in animals are not new. Since the early 1960s there have been numerous expert reports calling for restrictions in order to protect human health, particularly regarding the widespread use of medically important antimicrobials in livestock feed for growth promotion and disease prevention. The need to avert a public health crisis is the main driver for calls to action on AMR. While there are some important pathogens of animals for which AMR is a growing problem, generally speaking, there's not been a sense of impending AMR crisis in veterinary medicine.

Twenty years ago, I detected a perception among some in the veterinary and farming communities that AMR, particularly as it impacted human health, was not their problem. This is changing, I'm pleased to say. There's a growing awareness, particularly, but not exclusively, in the scientific arena that antimicrobial use in any sector—veterinary medicine, human medicine, plant and animal agriculture—can select for resistance in any other sector, given the ease with which resistance spreads.

Decades of research and surveillance have helped us to better understand the human health impact of antimicrobial use in animals. While we probably will never fully understand the overall magnitude of the impact, the available evidence shows that such use contributes to the selection and spread of AMR among food-borne pathogens of humans for which there is an animal reservoir, for example, the salmonella and campylobacter species. It also selects for resistance in many other bacterial species that may either be opportunistic pathogens of humans, such as E. coli and enterococcus, or donors of resistance genes for other bacteria.

While antimicrobial use in both food-producing and companion animals contributes to AMR, concerns are greatest for food-producing animals due to the much larger volumes of drugs used in that sector and the efficiency with which bacteria are transmitted through the food chain, despite our best efforts to control them.

I think it's important to recognize that the Government of Canada has already made some significant accomplishments in addressing the problem of AMR from animals. When as a researcher I began to study AMR in the late 1980s, Canada, like most other countries, was doing very little in the veterinary and agriculture sectors to address AMR problems, even though they were known to exist. Regulatory, food safety, and animal production quality assurance efforts focused almost entirely on the prevention of harmful veterinary drug residues in foods from animals and not on resistance.

In the 1990s and early 2000s, as resistance concerns came to the fore internationally, Health Canada, including what is now the Public Health Agency of Canada, responded by including AMR in the human safety evaluation of new veterinary antimicrobials, and by creating the Canadian integrated program for antimicrobial resistance surveillance, or CIPARS.

In 1999, Health Canada formed an advisory committee on animal uses of antimicrobials and impact on resistance and human health. In 2002, this committee issued a report with 38 recommendations. I've gone over them, and by my estimation, 34 have been implemented over the last 15 years or are part of Health Canada's current strategy to improve stewardship. These address a wide range of matters, including AMR stewardship, antimicrobial stewardship surveillance, infection prevention and control, as well as research and innovation. I think this is significant progress.

In my opinion, the veterinary drugs directorate within Health Canada performs its challenging mandate quite well, especially considering the constraints placed by our federal system of government. VDD should be commended for the progress it has made in improving the regulation of antimicrobial drugs as it pertains to resistance.

● (1610)

Secondly, CIPARS performs critically important AMR and antimicrobial use surveillance functions for Canada. As you've heard, surveillance provides information that is absolutely essential for identifying where the resistance problems are, what actions need to be taken to address these problems, and what effects these actions are having on resistance outcomes. CIPARS is performing these functions very well.

It should be pointed out as well that scientists within CIPARS and VDD make very important contributions to international efforts to address AMR by working with their sister organizations in Europe, the United States, and elsewhere, and through key international organizations like WHO, OIE, and Codex Alimentarius.

Notwithstanding these accomplishments, I believe much more can be done by our federal government to address the problem of AMR. Most importantly, the government should provide strong national leadership that recognizes that AMR is a very serious global public health problem for which action is needed in both public and private sectors. The federal government should ensure that appropriate national-level public sector actions are taken to address this problem and that there is overall coordination with partners in provinces and territories, and with industry and the health professions.

In August of this year, the pan-Canadian framework for action was published. The framework recognizes the One Health dimensions of AMR, and was developed with input from a wide range of stakeholders and experts. I think it's comprehensive and thorough. It addresses the most important pillars of stewardship, surveillance, infection prevention, and research. But there is urgent need for an accompanying plan of action with deliverables, outcomes, and time frames. In my opinion, it's most urgent to preserve the effectiveness of medically important antimicrobials. This requires improved stewardship in all sectors, including veterinary medicine and agriculture. There are numerous approaches to achieving this, but there are two that I would draw special attention to—namely, setting national targets for reduction in overall consumption of medically important antimicrobials in animals, and establishing additional restrictions on the use of these antimicrobials in animals.

Some European countries, such as France, the Netherlands, and the United Kingdom, have made up to 50% reductions in consumption of these antimicrobials in animals by setting national targets and, in the case of the Netherlands and Denmark, by measuring antimicrobial consumption at the farm and veterinary clinic levels and implementing strategies to encourage veterinarians and farmers to do their part to meet these targets.

The recently developed evidence-based WHO guidelines on the use of medically important antimicrobials in food-producing animals —the guidelines were released just a couple of days ago—identify several important restrictions on the use of these antimicrobials in animals, restrictions that should be implemented in all countries, including Canada. There is clear evidence that reducing antimicrobial use reduces antimicrobial resistance. Several European countries with strong surveillance systems have shown that restrictions on the use of antimicrobials for growth promotion, disease prevention, and treatment are effective, and have relatively minor negative effects on therapeutic antibiotic use, food-producing animal productivity, animal health and welfare, food safety, the environment, and the economy.

Thank you very much.

**The Chair:** Thank you.

I have to tell you that from a layman's point of view, I am impressed with the length and depth of the knowledge and with how much you've been involved with this subject for so long.

We'll go to questions now. We'll start our seven-minute round with Mr. McKinnon.

**Mr. Ron McKinnon (Coquitlam—Port Coquitlam, Lib.):** Thank you, Chair.

In our discussions with witnesses speaking to us in regard to medical uses, what came up over and over was the need for a national coordinating organization establishing national standards, national protocols, and so forth for testing and surveillance. It sounds to me like you're all recommending the same sort of approach for animal medicine as well. Is that true?

**Dr. Duane Landals:** Yes, absolutely. There's surveillance of resistance and surveillance of use. They are slightly different. We tend to lump them together. I think there is a need for both. Certainly in our workshop we were in agreement that we would like to see surveillance for a better understanding of what antimicrobials are used, where they're used, and why they're used, as opposed to the primary data we now have, which is what is being sold at the wholesale level. You don't know the specific implications of that. I think better data needs to be there so that we can measure what's being used. If we target reductions, we'll know we're making reductions, for what reasons, and where they're at.

There absolutely is a need for improved surveillance of use at some level on the chain beyond the wholesale level, such as at the veterinary use or end-user level.

● (1615)

**Mr. Ron McKinnon:** Would anybody else like to comment?

**Mr. Steve Leech:** I think the good news here is that there is already a lot in place. We spoke about the Canadian integrated program for antimicrobial resistance surveillance, which is a surveillance program out of the Public Health Agency of Canada that has been in place for over a decade. It started out just looking at resistance levels, but they are also looking at on-farm use levels of antibiotics. There has been a lot developed there. A relationship has been built in terms of how this surveillance can be done and how the data can be analyzed. I think that has been an important vehicle for both industry and government to understand from a credible data source.

From our perspective, we would like to see that expanded. It is in a small number of sites. We are looking at the need to increase the amount of surveillance that's done, especially as we move through the pan-Canadian framework, and really try to understand some of the resistance trends that we see out there and why we see differences in some provinces and regions. That's an integral part of the strategy moving forward, and we need to continue that support for surveillance.

**Mr. Ron McKinnon:** Excellent.

Is there anybody else?

**Mr. Robert McNabb:** I would simply concur with what has been stated. We have been advocating for both expanding the mandate and increasing the capacity for CIPARS under the Public Health Agency for a number of years now.

**Mr. Ron McKinnon:** Would you see this surveillance and coordination system as a separate system, or should it be part of the same system that one might envision for medical use as well?

**Dr. Duane Landals:** I think there are enough differences in the systems and in the activities of the sectors that it would be difficult to coordinate them. The human medical side has standard prescriptions that go to pharmacists, and it has a number of data collection points that are already in place. That's different from how antimicrobials are prescribed, dispensed, distributed, and used in animal health. I don't know if it could be the same system, although there is obviously a need for some parallels.

**Mr. Ron McKinnon:** Do they not need to be tracking the same kind of information, what antibiotics are in use for what purpose?

**Dr. Duane Landals:** You are tracking for some of the same purposes. I don't know if it's a difference in.... Maybe some of the other panellists can comment, too.

One of the challenges we have in animal use is getting to a common basis of what the products are. If you are treating a chicken and a cow, there is a big difference in the mass of the animal and the amount of antibiotic. First, you need to come to some system of standardized daily dosing, or something, so you get levels that are realistically comparative. I don't think that's as big a challenge on the human side; it's a little different.

The outcome is that you want to know what drugs are being used, why they are being used, and at what points you might intervene to implement a reduction.

**Mr. Ron McKinnon:** Mr. Leech, it seems to me that you are suggesting—and Dr. Landals as well—that you need data captured at the producer level as well. Would that be true?

**Mr. Steve Leech:** Definitely.

I think the methods of data collection would be different between animals and humans. On the animal side, we have focused on collecting that information right on the farm level. That's where the most credible data occurs. There are a couple of different reasons for collecting the information on the agriculture side. One is, obviously, to figure out use and use trends, but also, now that we are at the stage of implementing reduction strategies, to determine the impact of those strategies.

As I indicated, the Public Health Agency of Canada reports have helped monitor the success of our ban on category I for preventive use. That will be needed going forward. That's one reason why we need to expand the surveillance, to make sure that we are covering the whole country and to understand what's going on in the domestic market.

I think there is also a comparison that needs to be made between animal and human use to understand the differences. From the CIPARS studies, we know that the types of antibiotics used in poultry production are different from those used in humans. The most frequently used antibiotics on the human side, the fluoroquinolones and the cephalosporins, are not being used in poultry production. Those are very important aspects to understand when you are looking at resistance patterns, the impact of agriculture, and the interaction with humans.

● (1620)

**Mr. Ron McKinnon:** I wonder, Dr. Landals—and perhaps Dr. McEwen—if you could comment more on the interaction between animals and humans in terms of antimicrobial resistance and how one affects the other.

**Dr. Duane Landals:** I'll let Scott start with that. He's the expert.

**Dr. Scott McEwen:** As I said in my opening remarks, the scientific evidence suggests the major contributions to antimicrobial resistance problems in people, which arise from animals and animal uses of these drugs, are the food-borne enteric bacteria. They're common food-borne pathogens like salmonella and E. coli, which have campylobacter, which tend to have an animal reservoir. That's the best documented set of organisms for which we identify the resistance flowing through the animal production and food chain system, but there are others that are there.

Recently, over the past eight to 10 years, there has been an emergence of methicillin-resistant Staphylococcus aureus, which is a common human pathogen, but there is an animal-adapted strain that's spread around the world and is becoming more prevalent in production animal species as well as in horses and sometimes in pets.

There is recent data that just came out from Europe this week that indicates it's increasing its presence in human disease in Europe. So there are some other pathogens that flow from farm animals and from pets and horses, but there is a large component of resistance, which is a bit of a black box. It includes an environmental reservoir, as well as organisms that we don't monitor in our surveillance programs that well, which harbour resistance genes, and which act as donors of those genes for pathogens of animals and people.

As I said, I don't think we'll ever find out what the actual magnitude of the impact is from the animal sector on people, but it contributes through those various ways.

**The Chair:** Thanks very much.

Ms. Gladu, go ahead.

**Ms. Marilyn Gladu (Sarnia—Lambton, CPC):** Thank you to our witnesses for all of your work and your information.

I'm quite impressed with the way that you are far down the path in coming to a standardized approach. Specifically, Mr. Leech, you talked about the phased strategy of the category I antibiotics that were eliminated, the preventive category II and the date that will happen, and that you have these protocols and standards.

We heard testimony from people who were speaking about human antimicrobial resistance, and it was clear that globally there wasn't a protocol, it was very complicated, and then they weren't anywhere near where you are in terms of having a plan.

I wondered if you could comment, any of you who know, whether it is the same kind of thorough plan across all industries or whether it is just with the chicken industry.

**Mr. Robert McNabb:** I'll perhaps start, representing a number of the commodities. Of all the food-producing groups, they are all very conscious of the issue and, of course, have been part of the consultations on some of the regulatory changes that are upcoming, including the movement to prescription-only for categories I, II, and III.

As was alluded to, they've all had an on-farm food safety program for, I would suggest, the better part of 15 to 20 years. Those are evolving into much more comprehensive programs of sustainability. So it's consciousness of not only food safety, but environmental protection, and the community, which includes human health.

As information and tools are provided to them, they're adapting it to their production systems.

**Ms. Marilyn Gladu:** Very good.

We heard testimony from Dr. Neil Rau, who said that when he considers the antimicrobial situation in Canada and the deaths from resistance, he doesn't see that animal microbial resistance is a huge factor here, but he did say that in many countries across the world, it is of larger concern.

Innocently, I thought, if we import meats and products from those from other countries, is there a risk? Could you comment?

● (1625)

**Dr. Duane Landals:** I'll start, if I may. I believe there is a risk and, as he said, antimicrobial resistance doesn't know any boundaries. If one country in the world is producing a lot of resistant superbugs, they're going to get elsewhere in the world very rapidly. I think that Canada needs to do what Canada needs to do, because that's our jurisdiction, but we also need to interact with the international community and ensure that there's a global plan to address resistance.

**Ms. Marilyn Gladu:** Do we know where the areas of problem are?

**Dr. Scott McEwen:** I'm not aware of any data that indicates that there is a greater problem from the animal sector in other countries than there is in Canada, but I can understand where the impression would come from, because we've had some events and cases in which there has been global spread. The most recent of these involves resistance to a drug called colistin. This is a drug that is not used much in Canada. We have some data to indicate that comparatively little is used here. It was used in large quantities in animal agriculture in other parts of the world including Europe and China and some other regions.

There was a strain of bacteria, in the family Enterobacteriaceae, that had resistance to this drug, and it was on a transmissible element that made it highly mobile. There was a lot of concern about this, because this drug has become a treatment of last resort for a very important set of pathogenic organisms within this group, Enterobacteriaceae, which had become resistant to carbapenems and other important drugs of humans.

There are some parts of the world, such as Brazil and other areas, where colistin is the last drug they have for critically ill patients. Their evidence has demonstrated that this probably emerged in China—though nobody really knows— because it's a very large country; it has the biggest pig population in the world; and they're using very large quantities of colistin in poultry and swine production. That's where it was first reported, whether or not that's where it was generated.

Then quickly, because of the improvements we've had in surveillance so that we now can use rapid DNA testing of bacteria, it was shown to be present in collections of these bacteria in several parts of the world. That may be where that statement came from, but I'm not aware that there is any one country around the world that you would call a hotbed of resistance from animals that's been spreading to people.

**Ms. Marilyn Gladu:** Very good.

What should the federal government do to support you, and what should we not do so that we're not in your way?

**Mr. Steve Leech:** I think one aspect that's come up here is a leadership role. I think there's a strong leadership role for the federal government to play in bringing together the provinces as well as the industries in order to move forward. It requires a combined effort from the human side and from agriculture. We've seen some of that happen with the pan-Canadian framework. I think that needs to continue.

One of the aspects that I brought up is providing the tools for industry to be able to put in place these reduction strategies and to move forward with meeting our common objectives. From our side, it's the access to products.

**Ms. Marilyn Gladu:** Access to products available in Europe.

**Mr. Steve Leech:** Exactly.

The great news is that a lot of that research and a lot of that innovation has already been done; it's a case of getting them into the Canadian market to where they are already internationally.

**Ms. Marilyn Gladu:** Are there any other comments?

**Mr. Robert McNabb:** I personally don't think I could add much to what Steve said. I would just say we need to work collaboratively to reach the desired solutions with industry and through the federal-provincial approach. Agriculture is multi-jurisdictional in its undertaking, and it's going to require very much a collaborative approach.

**Dr. Scott McEwen:** It's my impression that it's your job to decide what's best for Canadians and to set the major direction and provide that leadership. A tangible way of doing that is, as I said, by setting those targets, because doing that focuses the attention of everyone on how we're going to get to that place. I realize that's not an easy thing to do in our current system but I'm sure you've had experience with that sort of thing before.

**Ms. Marilyn Gladu:** Thanks.

**The Chair:** Mr. Davies.

● (1630)

**Mr. Don Davies (Vancouver Kingsway, NDP):** Thank you to all the witnesses for some really excellent testimony.

Dr. McEwen, I want to put this question to you. I want to step far back to try to get an understanding of the scope and urgency of this issue. I think we all started off as lay people wondering, as a health committee, how serious a problem this is. We understand well the importance of antibiotics, and we're worried that overuse of antibiotics in both the animal and the human world may be getting us to a point where we are really running the risk of having antibiotic-resistant bacteria, so we're running the risk of having serious pathogens for which we have no effective antibiotic.

Can you help us understand how close we are to that situation? How urgent is the need to deal with this?

**Dr. Scott McEwen:** I think that question is probably better placed to medical experts when they're here, if they haven't been here yet and are coming. I speak from the veterinary side on the animal dimensions of the public health problem, so all I can do is quote figures that have been developed in the medical sector.

As I said in my opening comments, that's where the crisis is best described and most clearly articulated. It's clear in that sector that there is a major crisis in bacteria like those I already mentioned: the gram negative enterobacteriaceae, some of the gram positives like methicillin-resistant Staphylococcus aureus and enterococci, and some of the sexually transmitted diseases. There are serious possibilities of running out of effective antibiotics for those. The best evidence we have in terms of the animal contribution to that is through these food-borne enterics.

WHO put out a top 10 list earlier this year, and salmonella was on that list. Non-typhoidal salmonella nowadays in developed countries mainly has a food-animal reservoir, so there's an impact there for sure.

At the end of the day, we've tried for many years to come up with a quantitative estimate of the percentage of the impact that comes from animals. That's been very evasive, and I have my doubts we'll ever get to that point. I think now what we're settling to is what you've heard from us today, that all sectors have to do their part to reduce overuse wherever they can with the goal of bringing down resistance in all sectors. We can be strategic in terms of where the most important emphasis is and fine-tune it, but I think our approach needs to be that we take steps to reduce overuse to improve infection control and prevention, to improve surveillance, and all those other things as well.

**Mr. Don Davies:** Thank you.

Dr. Landals, it's my understanding that on December 1, 2018 all medically important antimicrobials for veterinary use will be sold by prescription only. In your view, what will be the impact of that change?

**Dr. Duane Landals:** There certainly will be an impact with that change. The objective of the change is to meet the goal of veterinary oversight of the use of antimicrobials in food-producing animals and to make a realistic expectation that veterinarians will be engaged. The drugs are made to be prescription only; that's how that's been implemented, so that will have an impact. I don't think it's an insurmountable impact. Most livestock producers and animal owners have a relationship with a veterinarian, and if they have a legitimate disease, they'll be able to get those pharmaceuticals prescribed and appropriately dispensed.

I think the biggest change is going to come in the antimicrobials that are used in animal feed, because veterinarians have not been involved in that. We have some work to do over the next short while to train veterinarians how to write those prescriptions properly and how to get the information to the feed mill that they need to safely mix the drugs appropriately to the required levels and whatnot.

There is some work to be done, but I don't think it's going to be a crisis impact, if that's your question. I think it's just something we'll manage, and we'll move forward. I think it will be a positive step forward.

**Mr. Don Davies:** Mr. Leech, I think you briefly touched on the issue of poultry probiotics. Can you maybe expand on that for us? What role should those probiotics play in reducing antibiotic use in poultry?

**Mr. Steve Leech:** When we look internationally at reduction efforts that have taken place, we see that a lot of alternative strategies have been put in place, whether they be management or other. Certainly vaccine alternatives and feed alternatives are part of that. It's a large tool.

Really, what we're looking at is maintaining the health of the gut of the chicken from day one all the way through and making sure we don't have disease incursions. That's really where these probiotic and prebiotic acids come into play that other countries have had some success with. It's different from farm to farm, and certainly one of the reasons we have an implementation period is to figure out exactly what works.

Quite frankly, I think one of reasons we've gone with the implementation period we have is to hopefully have access to those products. The industry has certainly gone out on a limb in terms of putting forward the reduction strategy that has been agreed upon, but part and parcel of that is having the products available in order to move forward. That's why it's such a crucial area, but it has a time significance to it now in order to meet our objectives.

● (1635)

**Mr. Don Davies:** Mr. McNabb, I want to get a question to you if I can.

To what degree do stressful, crowded, or unsanitary conditions necessitate the use of antibiotics in livestock? In other words, would improved animal welfare practices lead to a reduction in overall antibiotic use?

**Mr. Robert McNabb:** I have to first admit that I'm not an expert in that particular area, but in my experience, we know that proper accommodations will play a role in reducing the stress of animals. Whether or not that is directly impacted by the need or not for antimicrobials, I couldn't say.

**Mr. Don Davies:** Dr. McEwen or Dr. Landals, do either of you have an opinion?

**Dr. Scott McEwen:** It's well-known that antibiotic use is higher in conditions of intensive agriculture. However, it's also well-known that there are many excellent managers who are able to raise animals in confined conditions and intense conditions with minimal use of antibiotics through good husbandry practices, good hygiene, good health management, and good biosecurity. The techniques are available. There is the use of vaccines and other products that are available. I don't think we're going to get away from intensive agriculture, but we do need to encourage people to use good production practices.

**The Chair:** Okay, time's up. Thanks very much.

Now we go to Ms. Sidhu.

**Ms. Sonia Sidhu (Brampton South, Lib.):** Thank you to the presenters.

Dr. McEwen, do you think veterinarians receive sufficient education and training with respect to AMR?

**Dr. Scott McEwen:** I don't teach vet students; I haven't for about 10 years. My teaching responsibilities are mainly in veterinary public health aspects, food safety, and environmental health. However, I know as a student a long time ago that we got quite a bit of training on antimicrobial resistance. The principles really haven't changed. We've learned a lot more about the epidemiology of it. Some of the molecular aspects are new, but the basic biology, that if you use antibiotics you will eventually get resistance, has been known since the 1930s and 1940s, so those principles are in place. The basic procedures we use in order to try to reduce the spread of resistance have been around for a long time. Yes, veterinary students and medical students get good training in therapeutics, in microbiology, in clinical medicine, and in the understanding of antibiotic resistance.

Having said that, it is recognized that it's one of those crosscutting issues that can fall between the cracks. Usually, and certainly in our veterinary curricula, there isn't a course in antibiotic resistance where you learn everything. There are bits in this course and in that course; you get some in clinical medicine, some in animal production treatment. We can always improve on it, and we can always try to encourage students to be better stewards. I'm sure that's going to happen in the future.

**Ms. Sonia Sidhu:** Dr. McNabb, you also mentioned awareness and education for the producer. What is your thought about that? What kind of education do we need to provide to the producers?

**Mr. Robert McNabb:** I think it's through various means of communicating with producers. Certainly within the programs that I mentioned—the sustainability programs, your on-farm food safety programs—there are specific training materials that are provided to producers. I think it is through reminding them and taking every opportunity through various means. We know, particularly in adult education, that it's repeat, repeat, repeat. It's a matter of providing them with different forms of the information, not only what's expected through the regulatory regime, but also what they can do as stewards to increase biosecurity, and providing them with the tools that will all help in this area.

● (1640)

**Ms. Sonia Sidhu:** Mr. Leech, you mentioned category I, category II, and category III antibiotics, and you said that some antibiotics are less effective on human health. Is there any evidence for that? Could you explain that?

**Mr. Steve Leech:** I'm just trying to refer back to the statement in my mind. Maybe what I was talking about at the time was the surveillance information that we have that indicates that there's a different level of antibiotics used in human medicine than in poultry production. Where we see a lot of category I antibiotics being used on the human health side, surveillance through the Public Health Agency of Canada has show that those aren't being used in poultry production. The devil is in the details in terms of what types of antimicrobials are being used in different commodities, in different sectors, at different times. That's really important to take into account. If we just talk general numbers of kilograms of use, what is actually being used, and how that has an impact, that's where some of the surveillance information really comes into play.

We talked about the government maintaining the ability to use antibiotics for treatment and support for that, and that's a really important factor in terms of what antibiotics are being used and in terms of being able to demonstrate that through surveillance.

**Ms. Sonia Sidhu:** How can we ensure the health and safety of Canadians who consume chicken or other animal products while also combatting the spreading of AMR?

**Mr. Steve Leech:** That's the important point, and the last item of my presentation was on communication to the public. We need to be confident in the food supply we have right now. As we make changes, it doesn't mean the product that's currently on the market is bad. We're looking at future changes in antimicrobial use. Again, we're going back to that surveillance information, looking at the information coming from that, and making educated changes.

That certainly doesn't mean that consumers have to be concerned about the product on the market right now. Part of our active communication to consumers is proper handling and cooking of product, and that stays true even with these changes coming into place. Bacteria is ever-present and everywhere, and certainly will continue to be. Those key messages for consumers will stay the same even as we move through this process.

**Ms. Sonia Sidhu:** Thank you.

**The Chair:** We're going to start our five-minute rounds with Mr. Webber.

**Mr. Len Webber (Calgary Confederation, CPC):** I'm very much a layperson with regard to AMR. I find this fascinating.

Thank you all for being here today. My questions will be layperson questions because I'm not that familiar, but I did take some notes during your presentations.

Are the guidelines different or similar between companion animals and food-producing animals? Can you give me more clarification on the guidelines between companion and food-producing, and the difference between the two?

**Dr. Duane Landals:** Obviously there are different guidelines for different food-producing species because they're managed and raised differently. The point that the veterinary community is not concerned or interested is that we have some guidelines that are federal rules on prescription only, for example, that impact all species. Therefore, when the drug is made prescription it's prescription for all species for all indications, so that starts to have some effect on how they're used in companion animals. As I mentioned, honeybees, aquarium fish, or some of the smaller species are not really on the radar.

For the veterinarians, all those rules become the same. You need to establish medical need before you generate a prescription, and a drug can't be sold unless there's a legitimate prescription. Those rules are the same. However, the management protocols on how you use the pharmaceuticals and what might be prudent use in one species certainly can be prudent in another species, which would include small animals. Again, from a veterinarian's point of view, we have veterinarians like me, when I was in practice, who dealt with all species and we have veterinarians who deal with only one species and become expert in it. We rely on their expertise to help us develop those guidelines and what's the best, most prudent use in the individual species.

● (1645)

**Mr. Len Webber:** That's interesting.

Chicken Farmers of Canada, Steven Leech, I thank you, and I thank all 2,800 of the chicken farmers you represent. I love chicken. I eat it for breakfast, lunch, dinner, and nighttime snacks, so thank you for the work you do.

**Mr. Steve Leech:** That's great to hear.

**Mr. Don Davies:** I have a point of order, Mr. Chair. Can we put in a good word for bacon?

**Voices:** Oh, oh!

**Mr. Len Webber:** I like bacon as well, but not like chicken.

In any event, I'm curious about the consumer going to the store. Are there label requirements for consumers for them to be able to know what they're consuming and if that particular chicken has had antibiotics in the past? Just a silly question, but please—

**Mr. Steve Leech:** Not at all, there's a lot of confusion with labels so it's very top of mind. There is a federally inspected label for antimicrobial use. Any product that goes through a federally inspected plant can use the terminology "raised without the use of antibiotics". That's what's being used in Canada. A consumer seeing that at the retail store will have the confidence that no antibiotic has been used in the raising of that product from the hatchery all the way through to grow out. That is the clear term that needs to be used.

It does become a little murky going down to the provincial and levels lower than that in some of the terminology being used, but certainly at the federal level it's quite clear.

**Mr. Len Webber:** What percentage of chickens out there have had that requirement to consume or use antibiotics?

**Mr. Steve Leech:** It's a good question. I've been harping on surveillance. Surveillance is one of the key areas we need to continue working on so that we have a better handle on exactly the amount of usage throughout the industry.

Certainly, over the last number of years, the amount of "raised without the use of antibiotics" products and chicken has been increasing. More importantly, I spoke to the fact that we don't think "raised without the use of antibiotics" is sustainable for the entire industry. We've seen the demand for products raised without the use of antibiotics of importance to humans, categories I to III, start to increase.

Certainly, as an industry, that's where we'd like the attention to be placed so that we still have tools in our tool box and are focusing on the most important antimicrobials.

**Mr. Len Webber:** Dr. McEwen, you talked about a 50% reduction in antimicrobials in other countries. Where are we, percentage-wise, in Canada with respect to our reduction in antimicrobials? Are we around that percentage?

**Dr. Scott McEwen:** To give you an idea, the latest version of the "Canadian Antimicrobial Resistance Surveillance System Report 2016" indicated that in Canada, medically important antimicrobials are used in animals to the extent of 160 milligrams per kilogram. That's the average across the country. The United Kingdom recently underwent a targeted reduction program, and the goal was to get to 50 milligrams per kilogram. Other European countries are lower. Some are higher than that. That gives you a ballpark estimate. We're in there with some of the European countries.

Many countries around the world do not monitor antimicrobial use yet. As Mr. Leech has pointed out, and I agree with him entirely, we need better surveillance of use. The OIE is doing a lot to try to get that adopted around the world.

**The Chair:** Time is up.

We'll go to Mr. Ayoub.

**Mr. Ramez Ayoub (Thérèse-De Blainville, Lib.):** Now it's time to have the French version of the question.

[*Translation*]

Thank you everyone.

Like my colleagues, I found your remarks very interesting. You are top scientists, whereas I am a neophyte in the field. My questions will more akin to philosophical considerations. They will also pertain to your approach.

Certain witnesses have said that some doctors write too many prescriptions. Those witnesses mentioned ear infections in children as an example. The parents absolutely wanted a solution and antibiotics were the miracle solution.

Do we see the same trend among those who raise animals? Do they want a faster and simpler solution, which ultimately costs more? I would really like to explore the aspect of costs. Does the same trend exist in this field?

Mr. Landals, you may answer my question.

● (1650)

[*English*]

**Dr. Duane Landals:** Thank you. I apologize for not being able to answer your question in French.

**Mr. Ramez Ayoub:** That's okay. You can do it in English.

**Dr. Duane Landals:** I don't personally like the term "over-prescribing", but I think we have a significant amount of unnecessary use. Over-prescribing implies almost an intentional effort to put more drugs into an animal than what you might need. I think there are circumstances where we have habitually or traditionally used antibiotics because we've always done it that way. Maybe we need to look at it and we can reduce it.

Again, to the growth promotion claims, the uses are there for growth, but they will go away, and that will cause a significant reduction. That probably is over-prescribing. They weren't prescribed; we were just using them.

I think there's a good case to be made that we have to ask, every time we use an antibiotic, why we're using it. Is it really needed? Is there something else we can do instead to prevent the need for that drug and move forward? But I don't think we have rampant over-prescribing per se.

[*Translation*]

**Mr. Ramez Ayoub:** I would like to comment on your answer.

Have we not reached that point because, in the past, either people did not worry about it, or they produced at a lower cost and as quickly as possible to get the product to table? Is there not a link? Why can we no longer ignore the scientific phenomenon that keeps increasing and to which we must respond? Have we reached that point because there was pressure and bad prescribing or use habits? We talked about education earlier. Is it because of this whole phenomenon that we have reached this point now?

[*English*]

It could be Mr. Landals, Mr. Leech, or Mr. McEwen.

**Mr. Steve Leech:** I think there's a difference between over-prescription in how antibiotics are being used and looking at the risk factors that we now know of, which are being highlighted through the World Health Organization and the OIE. Understanding the potential crisis that is front us, what do we do about it? How do we operate differently on both the human health side and the agriculture side of the equation?

I think that's the greatest reason that we're now looking at it. We understand that there is a risk, and we need to make sure that, from a production standpoint, we're taking ourselves out of the equation.

**Dr. Scott McEwen:** Maybe I can add to that.

Part of your question is how we got to the place we are now, where there seems to be so much use. Part of the reason was that antibiotics were such effective agents for controlling, preventing, and treating diseases that they were widely adopted in animal medicine, as they were in human medicine, especially before resistance problems started to diminish that.

The other big factor in veterinary medicine, which differs from human medicine, is that their widespread use for growth promotion was a major factor that led to the high volumes of use there. That then tipped over into disease prevention because it's thought that they do both things.

In the early years, it was demonstrated that they had about a 10% benefit to the rate of growth and efficiency of feed. That has diminished a lot—almost down to 1% now—and they were relatively cheap, so they were a cheap and effective mechanism for enhancing production. I think those are the major drivers for how we got to the place we are at today.

[*Translation*]

**Mr. Ramez Ayoub:** I'm not sure if you will have the time to answer my last question, but it pertains to the influence of the antibiotics industry. We have not talked about that. I have not heard that, but no doubt there is an influence. There is an influence as regards antibiotics for human use, so I imagine it also exists in the agriculture sector.

Antibiotics are an industry; it is about selling medication. What influence or pressure does that bring to bear? I have not heard anything about that. I don't know if you have anything to say on that subject.

● (1655)

[*English*]

**Dr. Scott McEwen:** I think it needs to be said that without a pharmaceutical industry, we would be nowhere in terms of having antibiotics. They're a critically important part of that. We need to have a supply of antibiotics to do the good things that they do. Having said that, I think the pharmaceutical industry and other parties have had a vested interest in promoting these products. That sometimes conflicts with efforts to curtail their use.

One of the tricky aspects of stewardship is reaching the right balance with that. This includes that industry, the veterinary profession, and the farming industries as well.

**The Chair:** The time is up.

Now we go to Mr. Van Kesteren.

**Mr. Dave Van Kesteren (Chatham-Kent—Leamington, CPC):** Thank you, Chair.

Mr. Ayoub was really zeroing in on what this is all about.

I think we had forgotten through all the other questions that this started out as a method for rapid growth or increased growth. So that I understand this correctly, you're saying that's really not necessary anymore. They've figured out new methods to—

Before you answer that, I have to ask you another question. Are antibiotics affecting the human population? Are we becoming resistant to the same antibiotics? Is that the challenge for us?

**Dr. Scott McEwen:** In a quick answer to your first point about the reduction in the beneficial effect to growth and feed efficiency with growth promoters, it's pretty well documented now that there has been a reduction from about 5% to 10% down to about 2%.

We don't really know for sure why that is. It's thought to be in part because we now have better production systems. We have better animal management. We have better biosecurity. We have better systems to prevent the spread of disease in animal populations. We have better quality feed and better feeding regimens. All of those things, plus the emergence of resistance, may also diminish the effectiveness of these growth promoters.

The second question—which, with all of my talking, I've kind of forgotten—is whether people are getting resistant to these. It's the bacteria that are getting resistant; bacteria in people, animals, and in the environment.

**Mr. Dave Van Kesteren:** My next question is about the need for antibiotics in the animal population. Is it because we've adopted these factory methods of farming, the close quarters of animals, the way we finish off beef, or the way we finish off chickens? Is that the problem? In the past, did we have more room for growth? Did we not have the rapid growth? Is that the reason we are using these antibiotics?

**Dr. Duane Landals:** That may be part of it. We use antibiotics because animals get sick. In the extensive agricultural circumstances of cows out in the pasture, they get sick as well, and they need antibiotics, but the volume used is not nearly as much because you're dealing with a single individual animal. You get more intensive circumstances if you have larger volumes of animals. Consequently there is a tendency to treat the whole group of animals, so the use goes up. I don't think it's fair to blame it entirely on modern agricultural practices.

**Mr. Dave Van Kesteren:** We're getting better. We do a better job at cleaning our barns and disinfecting, but there is that reality because of the close quarters.

I don't have much time, so I want to ask another question.

Somebody mentioned this and it just made me remember that my father-in-law was in the milk industry, and they used to do a bacterial count. His was always low and he would always say,"You know, the guy down the road has filthy farming techniques and his are always high, but it really doesn't matter." They would, of course, use pasteurization to correct that problem.

Is that part of the problem too, that not all farmers are maybe quite as diligent in their cleaning techniques?

The second part of my question is if they can do the pasteurization, can we not irradiate meat, so we would take care of that problem too if we are that worried about salmonella? I'm not suggesting it's a good idea, but if we do it with milk, why not do it with meat?

● (1700)

**Dr. Duane Landals:** Well, I think that's partially true. There are two parts to your question, the somatic cell count or the cell count in the milk could come from.... Infection can come from other things. It comes from trauma, bad milking machines, and a number of different indicators. Of course, in the dairy industry they look at that because when it gets too high, that milk is no longer processed into cheese and whatnot, so it is rejected. There is a gradient of what your cell count can be before suddenly you're starting to lose your milk stream.

That is a good example of where you can monitor what's going on. That's not always involving antimicrobial use, but if you have mastitis in a dairy herd then you have a higher incidence of wanting to use dry cow treatment, which increases the use in the herd.

There are ways you can reduce that need for antibiotics through management techniques, for sure.

**Mr. Dave Van Kesteren:** My question about the pasteurization and irradiating meat.... Did you want to answer that, Steve?

**Mr. Steve Leech:** There are two parts to that question. On the irradiation side of things, it's not allowed in Canada. Health Canada has not approved that process for meat products, so that is certainly a regulatory hurdle.

Also, in terms of why antibiotics are used by the neighbour down the road, antibiotics are used to prevent and control disease. There are a lot of reasons for that disease incursion, and there are a lot of reasons bacteria come into a population—into a flock in our case. It can be in the chicks. It's not necessarily management. It can come in from a number of different supply sources coming into the farm, etc. All of those are different, and we see differences in regions and in provinces of the country. All this needs to be handled differently. That's part of the issue, moving forward.

**The Chair:** Time's up. Thanks very much.

Mr. Ellis.

**Mr. Neil Ellis (Bay of Quinte, Lib.):** Thanks for coming in today.

Scott, I wanted to touch on something you said in your 10 minutes. You said alarm bells were going off in the sixties on this. I can't remember the sixties, due to my age, and now we're 50 years later. When this happened in the sixties, was there not any type of preventive...or any of the organizations...?

This will be a two-part question. I commend your pamphlet here on the chicken farmers, but your steps started in 2014. What happened in those 50 years? Did this just happen in the last five years, or 10 years? We're in a panic now.

**Dr. Scott McEwen:** I am a history nut, and the history of antibiotic resistance and its control on the animal side is really fascinating. It would probably be a topic for a book someday. It's a situation where there have been periodic crises that have gotten the public's attention, gripped the imagination, been in the press, and led to blue ribbon panel evaluations, scientific investigations, and expert committees. Some of those have resulted in recommendations that were adopted, and others haven't.

I'll give you two examples. In the U.K., there was an outbreak of multidrug-resistant salmonella in calves. It caused a lot of problems in animals and people, and it led to what was called the Swann commission. The history books let students learn about this. The Swann commission recommended that there be a clear separation in the antibiotics used for production purposes, for growth promotion, and those used for therapy in animals and people. In Europe, that was adopted. There were feed additives where antibiotics were used for growth promotion, and other antibiotics were used for therapy in animals and people. That wasn't done in North America and other parts of the world.

A second history lesson is this. In the 1970s, the United States Food and Drug Administration recognized that the issue of overuse of antibiotics in feeds was a public health problem, so the FDA set about to withdraw the approvals of drugs like penicillin and tetracycline in animal feeds for that reason. They went to the U.S. Congress, but there was a lot of lobbying against that by interests on the other side. They were told they couldn't do it until they had a higher standard of proof—better scientific evidence that this was actually taking place. They set about trying to get that, with the National Academy of Sciences, and they came back with good evidence that it was happening, but because of the complexity of antibiotic resistance, it was not as ironclad as it would be for other health problems, so they weren't able to follow through on that.

That has been the story all the way through history. The complicated nature of antimicrobial resistance and the multiple parties that have a role in it have made it difficult to have a coordinated effort to deal with the problem. That's kind of where we are today.

● (1705)

**Mr. Neil Ellis:** Mr. Leech, in 2014, was this mandated, or was it your organization saying, "Let's get aboard, start a step, and get rid of the steps we are going through by 2020"?

**Mr. Steve Leech:** It was mandated by our organization. We use the on-farm food safety program to make it mandatory for our producers. The implementation date was May 2014, but looking at the history books, we see that there wasn't ubiquitous use throughout the industry. There were segments that were using category I antibiotics. We had a year-long implementation period, as we are doing now, and during that period we saw people reduce their use and put in different practices.

It's the industry that has done it. I think it's something to behold, in North America and even Europe, that we've been able to use some of the reports coming from surveillance and make these decisions on behalf of the industry.

**Mr. Neil Ellis:** As for sources, I'll go back to education and ask whether you have followed up with universities. Obviously, things change in education in veterinarian schools. Looking at your age—and I say that respectfully—I imagine that when a lot of you went to school as veterinarians, this wasn't on the radar screen. Are our universities in line with this as a Canadian factor? Are they in agreement with all the information that's out there? Has that program changed?

I guess what I'm getting at is, for professional updates for veterinarians, who are spread across Canada, are there particular professional days that they have to go through? How do we educate veterinarians so they know? Is that the college? How do you teach an old dog new tricks?

**Dr. Duane Landals:** You asked a number of questions in there. I'll try to answer them.

What's different from when we were trained? Yes, they had invented penicillin when I went to school, so I was familiar with it—I joke about my age as well—but I think we've learned a lot about antibiotics and antimicrobial use. We've learned about treating our patients and about what's best for the animals we're dealing with. I think the difference I see in the education now is that as we become aware and the community becomes aware, the veterinarian students are also being made aware that when they treat an animal, they also have an impact on human health or environmental health. That extension of the logic is the “balance” I mentioned in my presentation. I think that's being taught now in the schools. I think that's coming out.

As for the general veterinarians who are already out there in practice and are not still in school, every province has some degree of mandatory continuing education. Some of the provinces have made it mandatory that they have specific courses on antimicrobial resistance and antimicrobial use. All of the licensing bodies are looking at providing that continuing education for their members.

**Mr. Neil Ellis:** With regard to the water supply—

**The Chair:** I'm sorry, Mr. Ellis, your time is up.

Now we go to Mr. Davies.

**Mr. Don Davies:** Thank you.

I understand that this week the WHO launched new guidelines on the use of medically important antimicrobials in food-producing animals. As I understand it, they're recommending that farmers in the food industry curb or stop using antibiotics routinely to promote growth and prevent disease in healthy animals. To what degree do current Canadian practices adhere to those WHO guidelines?

**Dr. Scott McEwen:** I'll start, and then the other guys can chip in.

I was on the committee that developed those guidelines, so I'm really familiar with them. One thing I will say is that when Mr. Leech gave his presentation and he mentioned the things the poultry industry is doing, I was ticking off the boxes mentally. They've basically implemented most—perhaps all, if we look at the fine print—of those recommendations.

I suspect that's not the case for all the animal commodities. We haven't yet completely stopped the use of growth promoters, and one of the major recommendations in the WHO guidelines is to stop that. But there is progress.

● (1710)

**Mr. Don Davies:** Would you suggest that we stop the use of growth promoters in Canada?

**Dr. Scott McEwen:** I would have to concur with that. At Health Canada it's on track that by December 2018, I think, all over-the-counter antibiotics will stop being used in Canada. The growth promoters are the biggest part of that. We have a requirement then for veterinary prescriptions.

**Mr. Robert McNabb:** If I may clarify, it's antibiotics that are labelled for growth promotion that are being removed. There are other growth-promoting products that are still legitimate and aren't in this particular discussion.

**Mr. Don Davies:** Because they're not antibiotics?

**Mr. Robert McNabb:** They're not class I, II, or III; they're class IV. Take ionophores in particular; there's no equivalent in human medicine, and they are growth-promoting products. They also have other treatment aspects.

The pharmaceutical industry is already moving and voluntarily removing growth promotion off their labels. It will become mandatory as of December 2018, as I understand it.

**Mr. Don Davies:** What about the other side of the coin here, the prophylactic use of antibiotics in healthy animals? Leaving aside growth, what about that aspect?

**Dr. Scott McEwen:** We've heard a bit about some of that in the poultry industry. In my opinion, that's the next big issue to confront. It has to be emphasized that in the WHO guidelines there's an emphasis placed on the classification of drugs in these various categories. The higher the level of restriction is related to the higher level of category.

Again, Mr. Leech said in his opening address that the poultry industry does not any longer use category I antibiotics prophylactically. That's an important step, but we still across Canada use a lot of medically important antibiotics prophylactically, and many in healthy animals. I think that's an important area in which to make progress.

**The Chair:** Thank you, Mr. Davies. Your time is up.

That completes our testimony today.

To the guests, thank you very much on behalf of all members on the committee. You certainly brought a different dimension to our study and made us think about a lot of different things, I'm sure. I want to thank you all for taking the time to come and provide us with your expertise and information.

Members, we have a little committee business to attend to.

First, we have agreed on our letter for Bill C-45. Is it the committee's wish to make it public?

Are there any comments?

Mr. Davies.

● (1715)

**Mr. Don Davies:** Thank you, Mr. Chair.

I always presumed it would be. It was a public hearing, televised. The letter was written judiciously, with recommendations, so I think it should be made public.

**The Chair:** If there's no other opposition, we'll just do it.

Mr. Van Kesteren.

**Mr. Dave Van Kesteren:** The Conservative Party didn't vote in favour of the letter, so I wonder if there could be some disclaimer that it did not have the full support of the committee.

**The Chair:** How do you do that?

The clerk has made some good points. It was done in camera, so we can't say who voted for it and who voted against, but it was agreed to by the committee. I would think the Conservative Party is perfectly free to put out another comment if they want to.

**Mr. Dave Van Kesteren:** Okay.

**The Chair:** Mr. Davies.

**Mr. Don Davies:** I wonder if in some fashion, whether it's to amend the letter or do a short cover letter enclosing the letter to the minister, it might just say that the letter was approved by a majority of the health committee. That preserves the anonymity of the in camera meeting.

**The Chair:** Yes. It doesn't say who voted, who supported, and who didn't. Is that okay with you?

**Mr. Dave Van Kesteren:** That's a fair compromise. For obvious reasons, if some of our supporters come back and ask, “What were you doing with this letter?”, we can say, “Well, it wasn't the majority.”

**The Chair:** All right, if that's fine with you. We want everybody happy, so we'll do that.

Thanks very much. That settles that.

I've had an expression of interest from members of all parties about a quick study, a quick review, of Canada's food guide. There are some changes proposed. Do I have consensus to go ahead with a quick study on Canada's food guide? I'm proposing December 7 and 12. Is that all right with everybody? Okay. We'll schedule that.

There is a deadline of November 22 for witnesses, so if you have witnesses you want to call, bring them forward.

**Mr. Don Davies:** Mr. Chair, pardon my ignorance about this. Is this over the proposed changes to the food guide? It hasn't been published yet.

**The Chair:** It is about proposed changes. I'm getting questions on it, and I think everybody is, on what we have now and where we're going, because there are substantial changes. Canada's food guide is the number one requested document from the Government of Canada. There will be a lot of interest in the changes, and we should get some idea of the direction in which they're going.

**Mr. Don Davies:** Do you intend to limit it to the two days, or to start with two days and we'll see where we're at?

**The Chair:** We're going to run out of time. The clerk very judiciously points out that if we do it on December 7 and 12, the Christmas party is on December 13 and often people don't want to come to a committee on December 14, or they've gone home.

**Mr. Don Davies:** I'm totally fine with that.

**The Chair:** We can just do two meetings, and if we need more, we can do them when we return.

We need the witness list prioritized, so if you give us your preferences for a short study, we'll try to get them in.

We still don't know for sure what day we're going to have the minister in to do supplementary estimates, so we're just floating here. We're thinking it's going to be December 5, but we're not sure.

It has been pointed out that the Auditor General's report on dental and oral health services for first nations will be released, we think, on November 21. We have an opening on November 28 for a meeting. Do we want to invite the Auditor General to talk about oral and dental health? Does that sound good? We haven't done anything really on aboriginal health and this would be a good start. All right, we'll do that.

● (1720)

**Mr. Dave Van Kesteren:** What date was that, Chair?

**The Chair:** It was November 28. The next meeting, on the 21st, is going to be another meeting on antimicrobial resistance, and then on the 23rd we're going to do the drafting instructions for the report.

Then the next meeting is the 5th. We're hoping to have the minister on the 5th and then we'll do the food guide on the 7th and the 12th.

The 30th is open at the moment. We're just going to leave it that way. Is that okay with everybody?

**Some hon. members:** Agreed.

**The Chair:** The meeting is adjourned.