



THE COLLEGE OF  
VETERINARIANS  
OF ONTARIO

**Use of Antibiotics**  
**In Food-Producing Animals:**  
**Facilitated Discussions with Ontario Veterinarians Involved with**  
**Food-Producing Animal Practice**

February – April 2015

A Component of the  
College of Veterinarians of Ontario  
Growing Forward 2 Project:  
Ontario Veterinary Stewardship of Antimicrobial Use  
In Food-Producing Animals



This project is funded in part through Growing Forward 2 (GF2), a federal-provincial-territorial initiative. The Agricultural Adaptation Council assists in the delivery of GF2 in Ontario.

The views expressed in the report or materials are the views of the survey participants and do not necessarily reflect those of the governments of Canada and Ontario.

## Table of Contents

Executive Summary .....	3
Background Information .....	4
Results .....	5
Perception of Current Use of Antibiotics by Veterinarians .....	5
Desired Outcomes .....	7
Current Situation: Strengths .....	8
Current Situation: Challenges .....	9
Consequences of Maintaining Current Approaches .....	10
Key Areas of Focus .....	10
Recommendations .....	12
Conclusion .....	19

## Executive Summary

The College of Veterinarians of Ontario Growing Forward 2 (CVO GF2) project was developed to explore the current practices and views of Ontario veterinarians on the issue of antibiotic use in food-producing animals. Through a process involving a background review, a survey, facilitated discussions, and consultation with stakeholder groups the project will produce recommendations regarding the veterinary stewardship of antibiotic use in Ontario. This Facilitated Discussions report is one component of the overall study and concerns discussion sessions with Ontario veterinarians involved in food-producing animal practice that were conducted in February – April 2015.

Four Facilitated Discussions (“Discussions”) were held: one each for veterinarians involved in swine, poultry, sheep/goat and bovine practice. Through an interactive process involving individual and small group feedback, participants provided feedback on the use of antibiotics in food-producing animal practice in Ontario. Over 100 veterinarians participated in the Discussions.

The veterinarians’ perspectives about the current status of the use of antibiotics by veterinarians in food-producing animals were quite similar across the various species. When ranking their perception of this current use from 1 (very poor) to 30 (ideal), the average ranking amongst all veterinarians was 17.9 with swine practitioners reporting the highest overall rank and bovine practitioners the lowest.

When asked to identify their desired outcomes for the use of antibiotics in food-producing animals in Ontario, veterinarians cited a broad range of outcomes including maintenance of efficacy of antibiotics with reduced antibiotic use, reduced resistant organisms and fewer residue violations. Veterinarians stressed the importance of animal welfare and the need for improved husbandry practices and alternative non-antibiotic approaches to the maintenance of health. It was felt there is a need for increased veterinary oversight of antibiotic use, including that antibiotics are only available through a veterinary prescription.

The current strengths regarding antibiotic use in food-producing animals in Ontario were noted to include some Quality Assurance (QA) programs that encompass some excellent elements. As well, protocols and Standard Operating Procedures (SOPs) are being developed and adopted with an increased emphasis on food safety. Anticipated changes in legislation to remove growth promotion claims on labels and changes in federal legislation were viewed as current strengths. Veterinarians felt that there was continuing documented efficacy, and a demonstrated lack of resistance to commonly used antibiotics with, generally, a low rate of Class I antibiotic use. Veterinarians also felt that there is increasing producer engagement and an increasing recognition of the

value of the VCPR. Additionally, Canadian Global Food Animal Residue Avoidance Databank (CgFARAD) and the Canadian Integrated Program for Antimicrobial Resistance Surveillance (CIPARS) were seen as strengths.

Current challenges identified include the own use importation (OUI) loophole, importation and compounding of Active Pharmaceutical Ingredients (APIs), as well as widespread product availability over-the-counter (OTC) through lay outlets without a prescription. There is also a lack of approved products, particularly for sheep/goats that leads to extra-label drug use, and a lack of robust QA programs in some species. Veterinarians also felt it is a challenge to achieve a balance between decreased antibiotic use and animal welfare and felt there is a general lack of affordable and effective alternatives to antibiotics. As well, some advertising campaigns create negative media attention and negative public perception to gain a market advantage.

Participants reflected on the possible consequences of maintaining current approaches for the use of antibiotics in food-producing animals in Ontario. These consequences were identified as an increased occurrence of resistant organisms with a loss of effective antibiotics, increased animal welfare issues, negative impacts on public confidence and negative impacts on consumption of animal products, both domestically and internationally. As well, it was felt that there would be a negative impact on the reputation of veterinarians with a loss of public trust in the profession.

The veterinarians prioritized key areas of focus. Highlights of the areas of focus are listed from their highest to lowest priority and vary somewhat between species with “research” ranked as the most important for swine practitioners, “education and training” ranked as the most important for poultry and bovine practitioners and “protocols” ranked as the most important for the sheep/goat veterinarians.

Participants suggested actions that will help to improve the use of antibiotics in food-producing animals in Ontario. These actions are designed to build on the strengths, reduce or eliminate the challenges and avoid the consequences of inaction while keeping the desired outcomes in mind. General categories of action identified include Research, Education & Liaison, QA and Legislation & Regulation.

### **Background Information**

A series of four Facilitated Discussions were held between February and April 2015. The first Discussion involved 19 veterinarians involved in swine practice, the second Discussion included 24 veterinarians involved in poultry practice, the third Discussion involved 31 veterinarians involved in sheep and/or goat practice

and the fourth and final Discussion included 33 veterinarians involved in bovine practice.

All veterinarians who had indicated through the registration and renewal process at the CVO that they were involved with the above noted species were invited to attend the sessions. Those who registered to attend a meeting were provided with a copy of the Survey Report and the Survey Instrument for review prior to the meeting.

Each Discussion was three hours in length. Following an introduction by the Registrar and CEO of the CVO, the Project Managers reviewed the project and the highlights of the Survey. A Facilitator then led the group through a highly interactive session. Participants worked as individuals and members of small groups and all feedback was captured via self-recording.

Given the high priority that veterinarians assigned to legislative changes and other changes beyond their control in the Survey, and given that the goal of this study was to delve particularly in to those actions over which veterinarians have direct control, veterinarians were asked to focus most of their attention on priorities that they could impact directly.

Participants were advised that the purpose of the session was to solicit valuable feedback on the use of antibiotics from veterinarians who are key stakeholders working with specific species of Ontario food-producing animals. In particular, the discussions were designed to elicit recommendations to ensure use of antibiotics that is prudent, sustainable and minimizes the potential for negative impacts on animal and human health.

## **Results**

This section contains a summary of the results of the Discussions of all species groups.

### **Perception of Current Use of Antibiotics by Veterinarians**

On ballots numbered from 1 to 30, participants indicated the number that most accurately describes the current status of the use of antibiotics by veterinarians in Ontario. A score of 30 indicated that the current situation is “ideal” i.e. a well-coordinated, effective and appropriate approach by veterinarians that provides strong value to animals, producers, veterinarians, processors, retailers and consumers. A score of 1 indicated that the current situation is “very poor” i.e. an uncoordinated, ineffective and inappropriate approach by veterinarians that provides limited value to animals, producers, veterinarians, processors, retailers and consumers. The results for the species groups are shown in Figure 1.

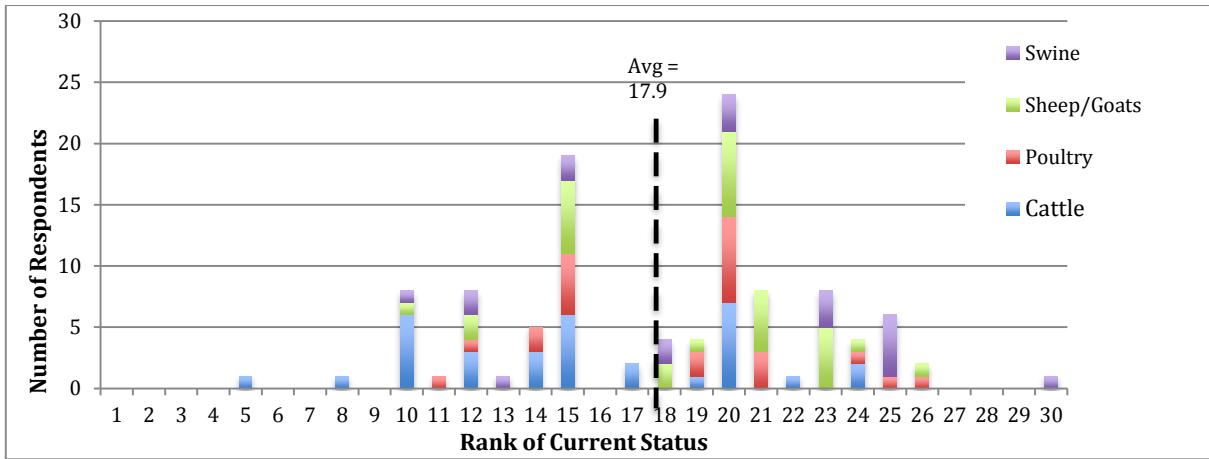


Figure 1: Veterinarians' Perception of Current Status of Antibiotic Use by Veterinarians in Food-Producing Animals in Ontario

## **Desired Outcomes**

When asked what the “future would look like” if appropriate changes were made and were successful, veterinarians reported a variety of desired outcomes.

Veterinarians would like to see a documented reduction in the total amount of antibiotics used. Documentation would require establishing a baseline and measuring the change over time. In particular, they would like to see a decrease in the use of Category I and II drugs. Maintained efficacy of antibiotics with documented reductions in the incidence of antibiotic resistance through positive trends in the CIPARS data, as well as an increase in sustainable alternatives were cited as components of a desired future.

Meaningful changes would require a coordinated effort with one identified group leading the work in the area of antibiotic use and resistance. A shared responsibility for safe food is a desired outcome, which includes auditing of on-farm records and increased traceability of residue violations.

Veterinarians would like to see increased veterinary oversight of antibiotic use, antibiotics would be available only through a veterinarian by prescription and a VCPR would always be maintained. Veterinarians would present a unified front, would appreciate the privilege they enjoy by being able to prescribe antibiotics and all prescribing decisions would be based on science. It was felt that CVO verification is an important step. Desired outcomes would include continued access by veterinarians to antibiotics and the continued ability to prescribe antibiotics in an extra-label fashion.

Desired outcomes include improved public perception of food product quality and safety together with improved trust as to how antibiotics are used in livestock and by veterinary professionals. It was felt that increased transparency would be required to build this consumer trust. Veterinarians would also like to see positive and accurate media reports so that uninformed public opinion is controlled. Education of producers and consumers was seen as an important component of a desirable future and the benefits of increased dialogue about antibiotic use and protocols were noted.

Important components of a desirable future would include veterinarians and producers working together to make decisions on the farm, increased herd health calls with decreased treatment calls, lower feed medication rates and a shift from growth promotant and metaphylactic use to improved husbandry practices. Veterinarians would also like to see no increased regulation cost for producers or veterinarians and no negative impacts on profits and production. A desirable future would also include no negative impact on animal health or welfare as changes to antibiotic use are instituted.

Veterinarians felt that the future should include the elimination of OTC sales of antibiotics, elimination of the OUI loophole and elimination of imported drugs for on-farm use. Development and implementation of measurement protocols is also advisable.

### **Current Situation: Strengths**

Currently, veterinarians felt that there is, in general, antibiotic efficacy with an absence of resistance in most situations. There are very low residue violations including decreased bulk milk tank residues or withdrawal violations, and it was noted that there is increased participation by producers in monitoring residue and resistance with in-clinic and on-farm petrifilm used to decrease antibiotic treatment. The use of Category I drugs has been eliminated in some sectors and reduced in others. It was felt that there is ongoing pressure on cost reduction, which is driving prudent use of antibiotics with an increased emphasis on safe, value priced food. It was also noted that there has been improvement in vaccination protocols utilized in food-producing animals.

Overall, the profession feels the use of antibiotics and development of resistance is considered of great importance, which has led to more judicious use of antibiotics. There is good collegiality and communication amongst veterinarians, particularly through the species-interest groups, which has led to information sharing and a shared accountability. Veterinarian-generated protocols are in demand and producers are following them appropriately. It was also noted that there is improved knowledge on the part of producers of the VCPR. It was noticed that there is an increased emphasis on cow comfort, which has decreased the need for antibiotics in that species.

Veterinarians have noticed a greater awareness of the issues by stakeholders resulting in more informed decision-making. There are more discussions between stakeholders and some conversations are occurring between industry and government. There is an increased consumer demand for antibiotic free products, with revenue incentives for producers for a more “natural” product. Veterinarians also noted that Canadian products have a reputation for high quality.

Veterinarians feel that there is an increased awareness of the changes needed and there exists some momentum now with impending changes in federal regulations such as the removal of growth promotion claims for antibiotics.

CgFARAD and CIPARS were noted as current strengths. There is increased use of data, and an enhanced understanding of an appropriate VCPR and consequently more use of veterinary consultation services. There exist some



interspecies industry examples that are effective and could be shared between species groups.

Veterinarians shared that QA including the Canadian Quality Assurance (CQA) program and Canadian Quality Milk (CQM) program are strengths that currently exist. Protocols and procedures are being followed well and there is an increased use of SOPs as farm sizes increase and industry food safety programs are being adopted.

### **Current Situation: Challenges**

Currently there is a lack of affordable, suitable, tested and proven alternatives to antibiotics. As well, there are no new and effective antibiotics being developed. While a reduction in antibiotic use is possible, it would be very time and resource intensive. Further, veterinarians felt that there is a lack of objective scientific information linking antibiotic use in agriculture to resistance in humans. Veterinarians also identified the lack of research into risks and therapeutics as challenges.

Other current challenges that were identified included low commodity prices that limit veterinary involvement, out of country imports that circumvent veterinary supervision, the extra label use of antibiotics and heavy reliance on Category I antibiotics in the dairy sector. It was felt that the relationship between producers and veterinarians could be improved as there is currently a lack of trust of veterinarians on the part of producers and there is a perception that veterinarians do not know enough to treat some species such as small ruminants. When making a therapy choice, veterinarians do not often take the potential for development of antibiotic resistance into consideration. Further, a current challenge exists around the blame circles between producers, feed mills and veterinarians.

Veterinarians also felt that currently the media and other parties are uninformed, there is a lot of negative press, which becomes a tool for animal activists and there is a public perception that products contain antibiotics.

Veterinarians identified a risk to animal health and welfare associated with making changes to antibiotic use and they feared that there might be compromised animal well-being due to a limited understanding of the implications associated with a decrease in antibiotic use.

The availability of antibiotics without a prescription, OTC antibiotics, OUI, the lack of available labeled drugs in many circumstances and the discontinuation of the mandatory livestock medicines education program for producers has led to uncontrolled and uneducated antibiotic use on farms. There is considerable antibiotic use on farms with no veterinary involvement. While farmers expect to

receive antibiotics from the veterinarian, there is a lack of a good understanding of the requirements for a VCPR and the value of a veterinarian. Recordkeeping can be very poor on the farm, which can make it very difficult for veterinarians.

It was noted that there is resistance to further regulation by both producers and other stakeholders. Veterinarians identified the need for upgrading of the Medicated Ingredient Brochures (MIB) and strengthening of the role of Canadian Global Food Animal Residue Databank (CgFARAD). Veterinarians felt that currently there is inappropriate resource allocation, there is insufficient follow-up on compliance and residue violations are not reported back to the veterinarian.

### **Consequences of Maintaining Current Approaches**

Maintenance of the current approaches with no changes in the use of antibiotics on farms will result in an increase in antibiotic resistance with a decrease in antibiotic effectiveness and serious public health implications associated with a post antibiotic era. As well, there could be loss of effective antibiotics due to removal from the markets and treatment options that will increase the cost of production. There was a concern that veterinarians made lose access to antibiotics and risk losing the privilege of prescribing drugs in an extra label fashion.

Veterinarians also identified that maintenance of the status quo will eventually erode the image and credibility of veterinarians due to a lack of public trust. Veterinarians expressed concern that if they do not take steps to become part of the solution, they will lose the opportunity to provide input and decisions will be made by uninformed politicians or other stakeholders. There was also concern expressed that veterinarians might be regulated by a body other than the CVO and regulations will be imposed upon them.

Maintenance of the status quo will increase animal welfare issues. As well, it will result in increased negative consumer perception of raising animals for food due to negative media coverage. If the industry fails to act, it would open it up to additional public scrutiny and a lack of public confidence. There could be a negative impact on consumption of Canadian raised food both nationally and internationally.

### **Key Areas of Focus**

There are several areas of focus that could help ensure the appropriate use of antibiotics in Ontario food-producing animals. Participants confirmed and then prioritized these areas of focus using the following method:

Each participant was given 100 points. They were asked to allocate their points to a number of areas of focus to show their relative importance. They based their

allocation on where action would have the most positive impact on the use of antibiotics in food-producing animals in Ontario. Each participant allocated a score between 0 and 40 for each area of focus. Results are shown in Table 1. Participants were reminded to give particular emphasis to those areas where veterinarians could have a direct impact.

Area of Focus	Species Group				Average	Overall
	Swine	Poultry	Sheep/ Goats	Bovine		
Education and Training	2	1	2	1	1.5	1 <sup>st</sup>
Protocols (Sales, Handling, Usage, etc.)	4	3	1	2	2.5	2 <sup>nd</sup> Tie
Research	1	2	4	3	2.5	2 <sup>nd</sup> Tie
Stakeholder Relations	3	5	6	5	4.8	4 <sup>th</sup> Tie
Rules and Regulations	6	6	3	4	4.8	4 <sup>th</sup> Tie
Lobbying and Legislation	5	4	5	6	5.0	6 <sup>th</sup>
Financial Implications	7	7	7	7	7.0	7 <sup>th</sup>

Raw scores were converted to percentages of the total of the veterinarians in each group and the results are shown in Figure 2.

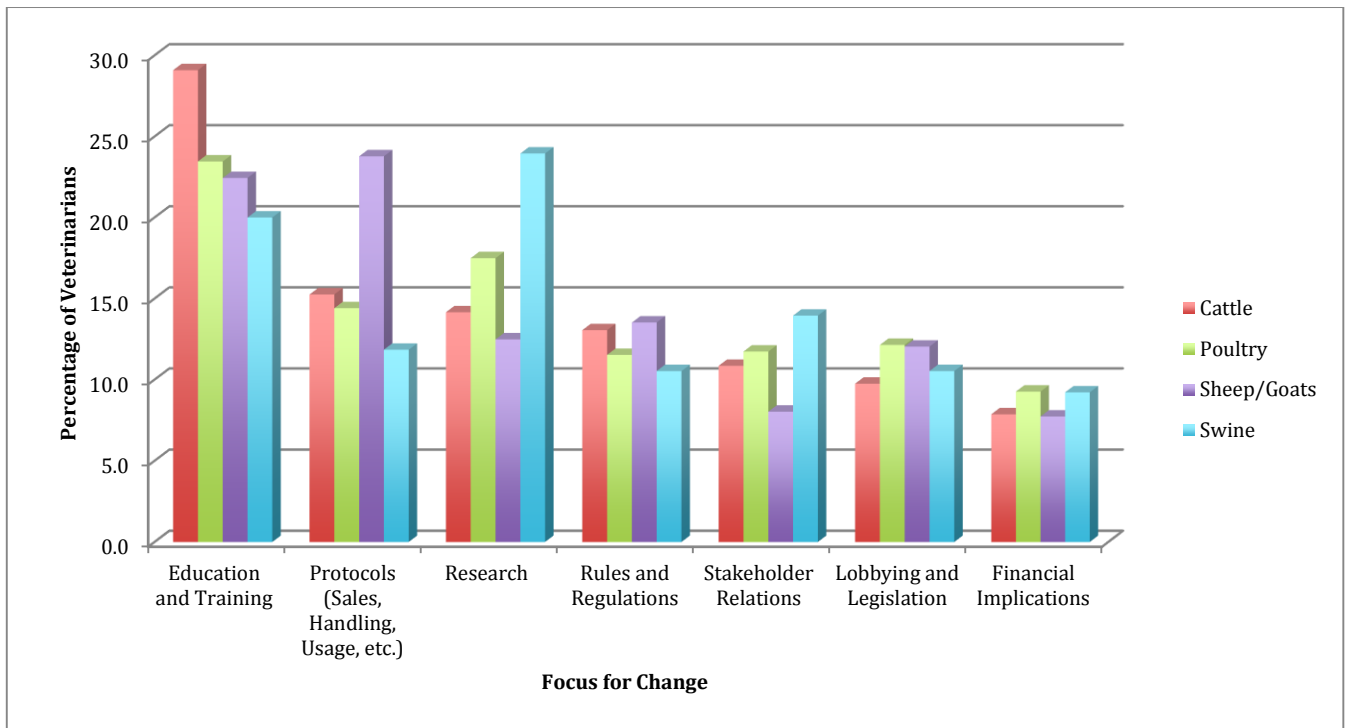


Figure 2: Distribution of Emphasis on Focus for Change by Species

## Recommendations

Participants were encouraged to identify the actions that they would recommend to help ensure the appropriate use of antibiotics in food-producing animals in Ontario. These were designed to build on the strengths, reduce or eliminate the challenges, seize the opportunities and keep the desired outcomes in mind. Table 2 shows a summary of the major points raised, grouped by similar theme. Percent reflects the percentage of the total number of veterinarians that noted the action. Since individual veterinarians identified multiple actions, the total percentages exceed 100.

<b>Table 2: Recommended actions by species groups</b>					
<b>Recommended Actions</b>	<b>Species Groups</b>				<b>Total n=108 %</b>
	<b>Bovine n=34 %*</b>	<b>Poultry n= 24 %</b>	<b>Sheep/ Goats n=31 %</b>	<b>Swine n=19 %</b>	
<p><b>Research reduced usage of antibiotics</b></p> <ul style="list-style-type: none"> <li>• impact of absence of growth promotants</li> <li>• impact of raised without antibiotics (welfare, financial)</li> <li>• develop alternatives to antibiotics</li> <li>• understand drivers of usage</li> <li>• establish management techniques to support reduced usage</li> </ul>	<b>12</b>	<b>42</b>	<b>10</b>	<b>42</b>	<b>23</b>
<p><b>QA programs for producers</b></p> <ul style="list-style-type: none"> <li>• annual review of antibiotic use</li> <li>• audited by independent third party</li> <li>• required for antibiotic use</li> <li>• require drug logs</li> <li>• include incentives and penalties</li> </ul>	<b>15</b>	<b>17</b>	<b>39</b>	<b>21</b>	<b>23</b>
<p><b>Additional regulatory changes</b></p> <ul style="list-style-type: none"> <li>• province wide pricing of antibiotics</li> <li>• national standards for antibiotic sales</li> <li>• formal regular meetings with regulators and veterinarians</li> <li>• veterinarians respond to draft legislation</li> <li>• improved surveillance on prescriptions and antibiotic use</li> <li>• Category I drugs administered by veterinarian only</li> <li>• update medical ingredients brochure (MIB)</li> <li>• approve fast chilling of poultry</li> <li>• standardize import requirements</li> </ul>	<b>9</b>	<b>58</b>	<b>16</b>	<b>11</b>	<b>22</b>
<p><b>Liaise with key stakeholders</b></p> <ul style="list-style-type: none"> <li>• share information</li> <li>• industry working groups</li> <li>• unified strategy</li> <li>• develop consistent terminology</li> <li>• formal, regular meetings</li> </ul>	<b>12</b>	<b>17</b>	<b>10</b>	<b>42</b>	<b>18</b>

<b>Education of producers</b> <ul style="list-style-type: none"> <li>• mandatory component of QA</li> <li>• ongoing</li> <li>• Livestocks Medicines Courses</li> <li>• led by veterinarians</li> </ul>	<b>21</b>	<b>13</b>	<b>19</b>	<b>16</b>	<b>18</b>
<b>Liaise with the public</b> <ul style="list-style-type: none"> <li>• education</li> <li>• understand views of public</li> <li>• input on advertising integrity</li> </ul>	<b>18</b>	<b>13</b>	<b>3</b>	<b>32</b>	<b>15</b>
<b>Education of veterinarians</b> <ul style="list-style-type: none"> <li>• mandatory CE is a component of QA</li> <li>• ongoing</li> <li>• increased emphasis in undergraduate curriculum</li> </ul>	<b>9</b>	<b>17</b>	<b>19</b>	<b>5</b>	<b>13</b>
<b>Develop protocols and SOPs</b> <ul style="list-style-type: none"> <li>• over-riding principles</li> <li>• specific uses</li> <li>• written by veterinarians</li> <li>• include decision trees, flow charts</li> </ul>	<b>18</b>	<b>8</b>	<b>16</b>	<b>5</b>	<b>13</b>
<b>QA for veterinarians</b> <ul style="list-style-type: none"> <li>• annual monitoring of dispensing of antibiotics</li> <li>• standard of practice for prescribing and dispensing of antibiotics, decision cascades</li> <li>• updated prudent use guidelines are enforced</li> <li>• enforce VCPR</li> <li>• separate prescribing from drug sale profits</li> <li>• decreased reliance on antibiotic sales for veterinary income</li> </ul>	<b>26</b>	<b>8</b>	<b>6</b>	<b>0</b>	<b>12</b>
<b>Veterinarians support coordinated research</b> <ul style="list-style-type: none"> <li>• expanded labeling (esp. sheep and goats)</li> <li>• specific disease control</li> <li>• share data worldwide, learn from other programs</li> <li>• develop new antibiotics</li> </ul>	<b>0</b>	<b>21</b>	<b>19</b>	<b>11</b>	<b>12</b>
<b>OTC antibiotic sales</b> <ul style="list-style-type: none"> <li>• eliminate or modify</li> </ul>	<b>9</b>	<b>13</b>	<b>13</b>	<b>5</b>	<b>10</b>
<b>Importation of antibiotics</b> <ul style="list-style-type: none"> <li>• eliminate by end user</li> <li>• strengthen oversight, Canadian Border Services Agency enforcement</li> </ul>	<b>9</b>	<b>8</b>	<b>13</b>	<b>11</b>	<b>10</b>

<b>Surveillance of antibiotic use and resistance</b> <ul style="list-style-type: none"> <li>• expand CIPARS, laboratory data</li> <li>• systematic review of existing data</li> </ul>	<b>12</b>	<b>17</b>	<b>3</b>	<b>5</b>	<b>9</b>
<b>Research on resistance</b> <ul style="list-style-type: none"> <li>• identify the highest risk activities that create resistance on farms</li> <li>• research link between use on farm use and resistance</li> </ul>	<b>6</b>	<b>4</b>	<b>6</b>	<b>16</b>	<b>7</b>
<b>Antibiotics available only through a veterinary prescription</b>	<b>6</b>	<b>4</b>	<b>10</b>	<b>11</b>	<b>7</b>
<b>Residues</b> <ul style="list-style-type: none"> <li>• traced back to producer</li> <li>• reported to veterinarians</li> <li>• support for CgFARAD</li> <li>• traceability required for QA</li> </ul>	<b>6</b>	<b>8</b>	<b>6</b>	<b>5</b>	<b>6</b>
<b>APIs</b> <ul style="list-style-type: none"> <li>• ban use by un-licensed individuals</li> </ul>	<b>3</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>3</b>

\* total exceeds 100% since veterinarians contributed more than once

The above responses are summarized in Figure 3.

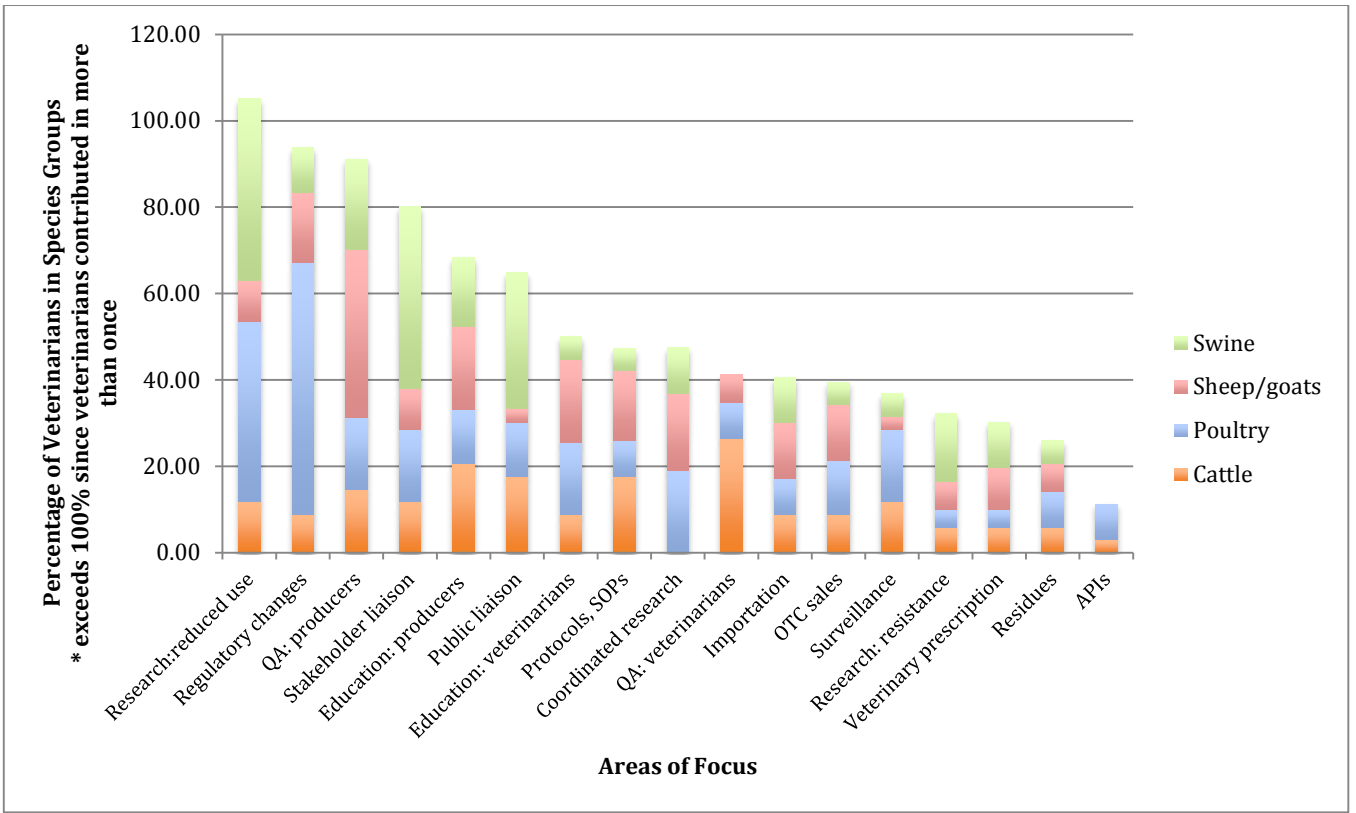


Figure 3: Suggested Actions to Improve Antibiotic Use in Food-Producing Animals in Ontario



Similar or linked areas of focus, or “sub-groups”, identified above were grouped into four “overall themes” as shown in the Table 3.

<b>Table 3: Grouping of Areas of Focus in to “Themes”</b>				
<b>Overall Themes</b>	<b>1. Education and Liaison</b>	<b>2. Research</b>	<b>3. Legislation and Regulation</b>	<b>4. Quality Assurance</b>
Areas of Focus	Stakeholder liaison	Research: reduced use	Importation	QA: Producers
	Public Liaison	Coordinated research	OTC sales	Protocols, SOPs
	Education: Producers	Research: resistance	APIs	QA: Veterinarians
	Education: Veterinarians	Surveillance	Veterinary prescription only	
		Residues	Other Regulatory changes	

Overall themes (grouped by species) are shown in Figure 4 below.

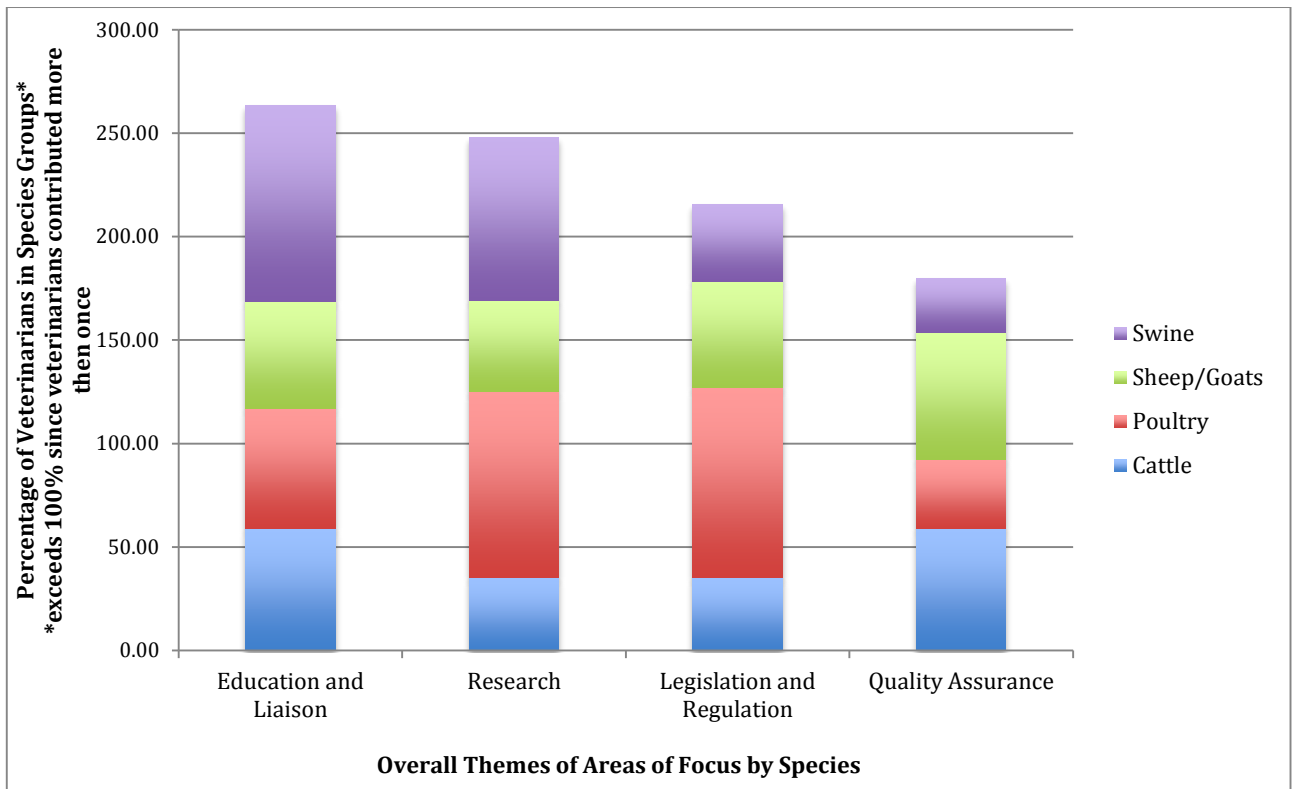


Figure 4: Suggested Actions to Improve Antibiotic Use in Food-Producing Animals in Ontario: Overall Themes by Species

## **Conclusion**

While acknowledging some significant strengths related to the current status of antibiotic use in food-producing animals in Ontario, veterinarians also identified many challenges. Maintenance of the status quo will lead to many negative outcomes. Action is required to implement changes on many levels and veterinarians feel they should be involved in making many of these changes. Consequently, numerous recommendations were made to improve the on-farm use of antibiotics including changes to Legislation & Regulation, Research, Education & Liaison and Quality Assurance. Although broad and far-reaching, veterinarians can have a direct impact on many of these recommendations. Veterinarians demonstrated their willingness to serve in a central role as stewards of antibiotic use in food-producing animals in Ontario.