Outcomes from the OIE's questionnaire on antimicrobial use in animals in 2015

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Introduction

For over a decade, the OIE has engaged in combatting resistance to antimicrobial agents and has endorsed the 'One Health' concept. The topic of antimicrobial resistance (AMR) is crucial because it concerns both human and animal health.

In 2012, the OIE developed a questionnaire with the following objectives:

a) to enhance the OIE's engagement in the initiative to prevent AMR;

b) to conduct a questionnaire survey of the implementation by OIE Member Countries of *Terrestrial Animal Health Code* (*Terrestrial Code*), Chapter 6.8. 'Monitoring of the quantities and usage patterns of antimicrobial agents used in food producing animals' [1] and *Aquatic Animal Health Code* (*Aquatic Code*), Chapter 6.3 'Monitoring of the quantities and usage patterns of antimicrobial agents used in aquatic animals' [2];

c) to improve awareness and provide an overview of antimicrobial use in animals by OIE Member Countries; and

d) to determine what actions are needed and to help the OIE to develop its strategy in this field.

A total of 152 out of 178 (85%) OIE Member Countries completed the questionnaire. The answers received showed that, in 2012, 27% of responding countries had an official system in place for collecting quantitative data on antimicrobial agents used in animals.

Surveillance of AMR in animal pathogens is another important element in assessing the level and the evolution of AMR in animals. Currently, very little information is available worldwide on animal pathogens.

The OIE standards published in the *Terrestrial Code*, Chapter 6.7. 'Harmonisation of national antimicrobial resistance surveillance and monitoring programmes' [1]; the *Aquatic Code*, Chapter 6.4. 'Harmonisation of national antimicrobial resistance surveillance and monitoring programmes for aquatic animals' [2]; and the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*, Chapter 3.1. 'Laboratory methodologies for bacterial antimicrobial susceptibility testing' [3] provide a basis for such surveillance and monitoring. Future work is needed to find the indicator bacteria relevant to the most commonly raised animal species and to refine recommendations for harmonisation of susceptibility testing in veterinary laboratories.

In the framework of the *Global Action Plan on Antimicrobial Resistance*, developed by the

World Health Organization (WHO) with the active contributions of the Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (OIE) in the spirit of 'One Health', the OIE is tasked with the construction and maintenance of a global database on the use of antimicrobial agents in animals. In this endeavour, the OIE is supported by FAO and WHO through their tripartite collaboration.

Towards this goal, the OIE was mandated by its Member Countries, during the 83rd OIE General Session of the World Assembly of Delegates (May 2015) to establish a global database to monitor the use of antimicrobial agents in animals through Resolution No. 26: 'Combatting antimicrobial resistance and promoting the prudent use of antimicrobial agents in animals'.

In the last trimester of 2015, the OIE launched an annual collection of data on the use of antimicrobial agents in animals in OIE Member Countries. The template and the guidance documents used to complete this template were developed by the OIE *Ad hoc* Group on Antimicrobial Resistance, endorsed by the Scientific Commission for Animal Diseases and tested by Member Countries through regional training seminars for OIE National Focal Points for Veterinary Products.

The questionnaire for the first annual collection of data on the use of antimicrobial agents was sent to all OIE Member Countries in October–November 2015.

Materials and methods

The OIE *Ad hoc* Group on Antimicrobial Resistance developed a template for harmonised data collection, as well as guidance for its completion. This template was translated into the three official OIE languages (English, French and Spanish) and was sent to all 180 OIE Member Countries in October 2015. An annex to the Guidance was also developed to give more detailed instructions on the mathematical calculations used to obtain quantities of active ingredients from antimicrobial products sold. All antimicrobial agents destined for use in animals and contained in the OIE List of Antimicrobial Agents of Veterinary Importance [4], in addition to certain antimicrobial agents only used for growth promotion, were reportable.

For this first phase of the project, data were collected in worksheets using predefined conditional formulas and analytical tools available in Microsoft Excel.

The responses, endorsed by OIE Delegates, were compiled and the results were analysed at the OIE Headquarters.

For clarification and validation purposes, questions were addressed to the respondents, mainly OIE Focal Points for Veterinary Products, when needed.

Results

From mid-December 2015 to May 2016, 130 of the 180 OIE Member Countries (72%) submitted the completed template to the OIE Headquarters (Table I).

The response rate within OIE Regions varied between 42% and 81%.

Table I

Number of answers submitted, by OIE Region

OIE Region	Number of submitted questionnaires, by Region	Number of OIE Member Countries	Proportion of submitted questionnaires, by Region
Africa	44	54	81%
Americas	19	29	66%
Asia	26	32	81%
Europe	36	53	68%
Middle East	5	12	42%

Within the 74 low- and middle-income[1] Member Countries of the OIE, 54 (73%) responded to the questionnaire. In future the OIE will work more closely with these countries to support them in establishing accurate collection of data.

Global analysis of baseline information

For the 2015 OIE Questionnaire, the Focal Point for Veterinary Products was most often responsible for responding to the template (85/130). This information supports OIE efforts to conduct regular training of OIE National Focal Points for Veterinary Products and to establish a regional and global network (Fig. 1).

In 2015, a total of 96 out of 130 (74%) OIE Member Countries did not authorise antimicrobial agents for growth promotion in animals in their countries (Fig. 2). This demonstrates an important decrease in the percentage of countries authorising the use of antimicrobials as growth promoters: in 2012, 49% of the countries declared usage of antimicrobial agents as growth promoters.

The OIE also asked its Member Countries which antimicrobial agents were authorised as growth promoters. The most frequently quoted antimicrobial substances for this purpose were tylosin and bacitracin. Colistin was mentioned by 10 countries.

The 2015 OIE questionnaire was prepared to allow all Member Countries to contribute, even if quantitative data on antimicrobial agents used in animals were not yet available. The first part of the template aimed at collecting relevant administrative information and received responses from 130 Member Countries. Detailed information was provided by 89 of the 130 responding Member Countries (68%).
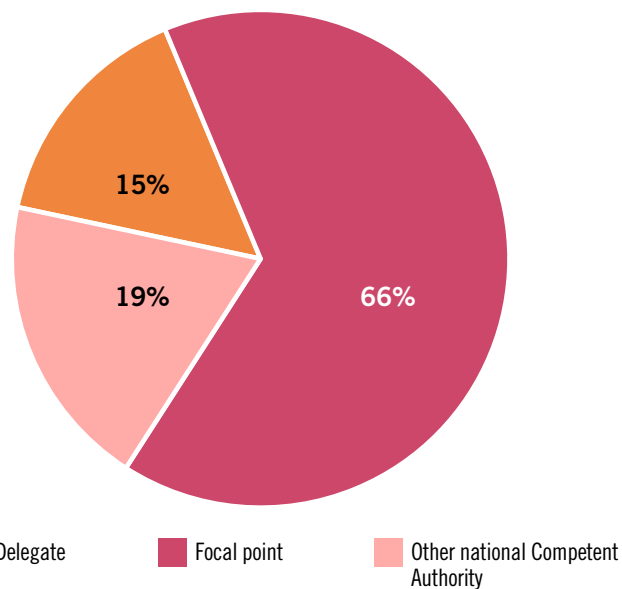

Delegate • Focal point • Other national Competent Authority

Fig. 1

Distribution of the different types of contact point (at the global level)

Antimicrobial growth promoters authorised

Antimicrobial growth promoters not authorised

Fig. 2

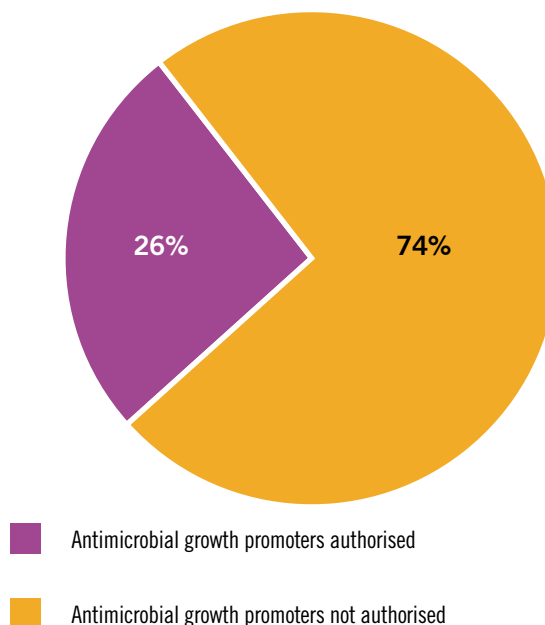**Authorisation of antimicrobial growth promoters in OIE Member Countries in the 2015 questionnaire**

1. According to the World Bank, low-income economies have gross national income per capita = USD 1,045 or less and lower-middle-income economies have gross national income per capita = USD 1,046 to USD 4,125 https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

Discussion

This questionnaire survey shows that a number of countries have started to collect data on the use of antimicrobial agents in animals. It also shows the need to provide additional support to Member Countries to improve their national data collection systems. Detailed interpretation of the data requires further development and the future OIE database should allow Member Countries to provide their information annually through an electronic form. Regarding low- and middle-income countries (LMICs), one of the greatest challenges is to provide accurate quantitative data on the use of antimicrobial agents in animals. Although 55.6% (30/54) of LMICs that responded were able to provide quantitative data on the use of antimicrobial agents in animals, most of these countries cannot indicate the quantities of antimicrobial agents used by animal groups, or the routes of administration, and cannot distinguish therapeutic use from use in growth promotion.

In order to enable accurate comparisons among countries, it is important to take into account the animal population of the country that is susceptible to treatment. Development of a suitable denominator (animal biomass) is underway and this will facilitate the interpretation of data in the future.

Conclusions

The first phase of the annual questionnaire survey on sales of antimicrobial agents in animals was successful and had a rate of high participation from OIE Member Countries.

Seminars for the Focal Points for Veterinary Products in the OIE regions proved to be very useful in strengthening collaboration, increasing understanding and engaging Member Countries in this challenging project.

Based on feedback after the first year of data collection, the OIE *Ad hoc* Group on Antimicrobial Resistance refined the template and guidance in order to clarify the information requested.

It is expected that the collection of data will increase over time, given the seminars for Focal Points for Veterinary Products in the OIE regions and the commitment of Member Countries to contribute to the global effort.

Further goals include the refining of the information collected, continued development of meaningful data, and the development of calculations to define a denominator in order to work on comparable data.

Acknowledgements

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