



EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR HEALTH AND FOOD SAFETY

Health and food audits and analysis

DG(SANTE) 2017-6293

FINAL REPORT OF A ONE HEALTH COUNTRY VISIT TO BELGIUM WITH ECDC
FROM 16 NOVEMBER 2017 TO 24 NOVEMBER 2017
IN ORDER TO
DISCUSS POLICIES RELATING TO ANTIMICROBIAL RESISTANCE

In response to information provided by the competent authority, any factual error noted in the draft report has been corrected; any clarification appears in the form of a footnote.

Executive Summary

The European Centre for Disease Prevention and Control (ECDC) and the European Commission's Directorate-General for Health and Food Safety jointly carried out this country visit to Belgium from 16-24 November 2017. The visit was carried out at the request of the Belgian authorities to assist them in the further development and implementation of their national policies and strategies for tackling antimicrobial resistance (AMR) based on a One Health perspective. This DG Health and Food Safety report concentrates on veterinary aspects of the visit, while there is a separate ECDC report focussing on human health aspects.

Overall, the report concludes that Belgium does not yet have a truly One Health national action plan on AMR, with the many initiatives on AMR in the human and veterinary fields being generally separate, and very little attention currently being given to the environmental aspects of AMR. In this sense, greater cooperation and coordination between the different sectors could be beneficial, for example a combined analysis and reporting of AMR surveillance and antibiotic use data.

Specifically in relation to the veterinary field, various communication and awareness-raising activities have already taken place on issues such as biosecurity, as well as the reduced and prudent use of antibiotics, but issues related to companion animals have often not been included in these initiatives. Ambitious veterinary antibiotic use reduction targets have been recently agreed with stakeholders, but not all of the expected tools and necessary support elements are in place to achieve these, such as benchmarking of prescribing and use of antibiotics, identification of critical success or failure factors and further dissemination of good practices.

The report outlines various considerations which could be helpful in further elaborating and implementing Belgium's national strategies and policies on AMR.

Table of Contents

1	INTRODUCTION.....	1
2	OBJECTIVES AND SCOPE OF THE COUNTRY VISIT.....	1
3	BACKGROUND TO THE COUNTRY VISIT.....	2
4	OBSERVATIONS.....	2
	4.1 Multi-sectoral collaboration and coordination, including One Health approach.....	2
	4.2 Current status of Belgium's national action plan on AMR.....	4
	4.3 Monitoring of AMR in animals and food, including relevant laboratory capacity.....	6
	4.4 Environmental monitoring.....	8
	4.5 Monitoring the use of antimicrobials in animals (including critically important antimicrobials)	9
	4.6 Activities to promote the reduced and/or prudent use of antimicrobials in animals	11
	4.7 Communication and awareness activities on AMR and the prudent use of antimicrobials in animals	17
5	OVERALL CONCLUSION.....	19
6	CONSIDERATIONS FOR POSSIBLE FUTURE ACTIONS.....	20
7	CLOSING MEETING.....	22

ABBREVIATIONS AND DEFINITIONS USED IN THIS REPORT

Abbreviation	Explanation
AMCRA	Centre of Expertise on Antimicrobial Consumption and Resistance in Animals
AMR	Antimicrobial resistance
ARSIA	<i>Association régionale de santé et d'identification animale</i>
BAPCOC	Belgian Antibiotic Policy Coordination Commission
BelVet-SAC	Belgian Veterinary Surveillance of Antibiotic Consumption
BIGAME	<i>Base Informatique de Gestion des Antibiotiques et des Médicaments en Elevage</i>
BVK	<i>Beroepsvereniging voor de Belgische kalfsvleessector</i>
CIA	Critically important antimicrobial
CVO	Chief Veterinary Officer
DGZ	<i>Dierengezondheidszorg Vlaanderen</i>
DM	Dry matter
ECDC	European Centre for Disease Prevention and Control
EFSA	European Food Safety Authority
ESBL	Extended-spectrum beta-lactamase
ESVAC	European Surveillance of Veterinary Antimicrobial Consumption
EU	European Union
FASFC	Federal Agency for the Safety of the Food Chain
FPS	Federal Public Service Health, Food Chain Safety and Environment
ICM	Intersectoral coordinating mechanism
JIACRA	Joint Interagency Antimicrobial Consumption and Resistance Analysis
LA-MRSA	Livestock-associated methicillin-resistant <i>Staphylococcus aureus</i>
MRSA	Methicillin-resistant <i>S. aureus</i>
NRL	National reference laboratory
PCU	Population correction unit
UPV	<i>Union Professionnelle Vétérinaire</i>
VMM	Flanders Environment Agency – <i>Vlaamse Milieumaatschappij</i>
WHO	World Health Organization

1 INTRODUCTION

The European Centre for Disease Prevention and Control (ECDC) and the European Commission's DG Health and Food Safety were invited by the Belgian authorities to carry out a joint country visit to assist them in the further development and implementation of their national policies and strategies to combat antimicrobial resistance (AMR), based on a One Health perspective. The visit took place from the 16 to 24 November 2017. The visit was carried out by two teams but with some joint meetings and visits where possible, with one team focussing on human health issues while the other covered veterinary (and environmental) aspects, with separate reports produced by ECDC and DG Health and Food Safety covering each of these areas respectively. The team covering veterinary aspects, which comprised two officials from DG Health and Food Safety and three national experts from European Union (EU) Member States, was accompanied throughout the visit by representatives of the competent authority. An opening meeting between the DG Health and Food Safety team and the veterinary and environmental competent authorities was held on 16 November and a joint opening meeting together with the ECDC team, human health and veterinary competent authorities was held on 20 November 2017. At these meetings the objectives and scope of, and itineraries for, the country visit were confirmed.

2 OBJECTIVES AND SCOPE OF THE COUNTRY VISIT

The objectives of this country visit from a veterinary perspective were

- (i) to discuss relevant issues and share experiences concerning AMR with the relevant competent authorities and national stakeholders, including the practical implementation of measures aimed at tackling the issues concerning AMR related to the use of veterinary medicines, and
- (ii) exchange information on examples of good practice implemented by other Member States in addressing this issue which could be helpful to the Belgian authorities in further developing and implementing their national AMR strategies and policies.

In pursuit of these objectives, the following meetings and visits took place:

Visits / Meetings		No	Comments
Competent authority	Central	3	Two opening meetings and one closing meeting with the relevant veterinary and human health competent authorities and representatives of the ICM.
Monitoring and surveillance		3	Meeting with representatives of AMCRA, the Flemish Environment Agency, National Reference Laboratory for AMR and the regional laboratories of ARSIA and DGZ.
Farms		3	Visits to a dairy farm, veal calf farm and a pig farm.
Industry stakeholders		2	Meeting with various stakeholders from the veterinary, animal production, animal feed and pharmaceutical sectors
Veterinary practitioners		3	Meetings with two large animal veterinary practitioners and with two veterinarians of a small animal veterinary clinic

3 BACKGROUND TO THE COUNTRY VISIT

This country visit is relevant to a number of initiatives included in the European Commission's first action plan¹ against the rising threats from AMR, and is specifically linked to actions under section A of the associated road map on the appropriate use of antimicrobials. In the European Commission's One Health Action Plan against AMR published on 29 June 2017², the term 'One Health' is used to describe a principle which recognises that human and animal health are interconnected, that diseases are transmitted from humans to animals and *vice versa* and must therefore be tackled in both. The One Health approach also encompasses the environment, as it provides another link between humans and animals and likewise, a potential source of new resistant microorganisms.

Under heading 2 of this Action Plan, 'Making the EU a best practice region', it is stated that the Commission will support the implementation of national One Health action plans against AMR through joint Commission and ECDC visits to Member States upon request. The visit to Belgium is the third such joint Commission-ECDC country visit to be performed during 2017. The World Health Organization (WHO) Assembly has urged all its country members, including EU Member States, to develop and have in place by 2017 national action plans on AMR that are aligned with the objectives of the WHO global action plan on AMR, adopted at the 68th World Health Assembly in May 2015³. In June 2017, Belgium received a WHO joint external evaluation (JEE) of International Health Regulations core capacities, including aspects relevant to AMR⁴.

4 OBSERVATIONS

4.1 MULTI-SECTORAL COLLABORATION AND COORDINATION, INCLUDING ONE HEALTH APPROACH

1. An Intersectoral coordinating mechanism (ICM), in the form of the Belgian Antibiotic Policy Coordination Commission (BAPCOC)⁵, was established by means of a Royal Decree of 26 April 1999 which specified the objectives, members and governance of BAPCOC.
2. BAPCOC's objectives were to be a scientific platform for consultation and exchange of information, promote a reduction of antibiotic prescribing in the human and animal sectors and a reduction of antibiotic selective pressure to reduce AMR. Its One Health activities as described in the Royal Decree concerned collection of data on antibiotic use and resistance in humans and animals, publication of reports, creating awareness, issuing guidelines and recommendations for the human and animal sectors and recommendations for future research on the emergence and transmission of AMR

¹ http://ec.europa.eu/health/amr/sites/amr/files/communication_amr_2011_748_en.pdf

² https://ec.europa.eu/health/amr/sites/amr/files/amr_action_plan_2017_en.pdf

³ <http://www.who.int/antimicrobial-resistance/national-action-plans/en/>

⁴ <http://apps.who.int/iris/bitstream/10665/258557/1/WHO-WHE-CPI-SUM-2017.37-eng.pdf>

⁵ <http://consultativebodies.health.belgium.be/en/advisory-and-consultative-bodies/commissions/BAPCOC>

between ecosystems. Its members come from the human health and animal health sectors, academia, national agencies and experts in medical microbiology, drug use, infection prevention etc.

3. BAPCOC has five permanent thematic working groups on awareness campaigns, ambulatory medicine, hospital medicine, hospital infection prevention and control and veterinary medicine. Veterinarians are represented in the dedicated veterinary medicine working group, although based on experiences and good practices from other Member States the visit team considered that in a One Health perspective it could be useful to have veterinarians included in some of the other working groups also, for example on awareness campaigns and infection prevention and control. The afore-mentioned Royal Decree does not describe any funding or source of funding. BAPCOC's budget is primarily sourced from public health funds and so practical difficulties are experienced in allocating these funds to veterinary or One Health activities.
4. BAPCOC's policy paper for the period 2014-2019⁶ includes objectives such as promoting the One Health approach through integrated programmes and datasets on antimicrobial utilisation and resistance, setting targets for outpatient and inpatient antibiotic use, introducing quality measures and audits, promoting education, training, better integration and coordination, engaging with non-profit stakeholders (public agencies and organisations) and developing methods to monitor the effects of antimicrobial stewardship strategies, policy and guidance interventions across the healthcare economy etc.
5. Although BAPCOC was established in 1999, the integration of AMR surveillance and antibiotic use data from the human and veterinary domains remains outstanding and uncompleted. The visit team was informed of relatively few actions on the veterinary side which were completed by BAPCOC from 1999 to 2011: a prevalence survey of methicillin-resistant *Staphylococcus aureus* (MRSA) in pigs and pig farmers in Belgium compared to other human populations conducted in 2007, a national multi-drug resistant organism plan developed in 2013 with some veterinary involvement in response to the increase of carbapenemase-producing enterobacteriaceae, a meeting of the human and veterinary sectors organised after the detection of colistin resistance gene *mcr-1* in salmonella and *Escherichia coli* isolates from food-producing animals in 2015, and the BelVet-SAC project⁷ (Belgian Veterinary Surveillance of Antibiotic Consumption) completed in 2010 to collect antimicrobial use data in animals to submit to the European Surveillance of Veterinary Antimicrobial Consumption (ESVAC).
6. The visit team was informed by Belgium's Chief Veterinary Officer (CVO) that, concerning veterinary aspects of AMR, 2011 is considered as the first key year when a collective awareness of the importance of the subject was agreed between the authorities, the production sectors and stakeholders. A non-profit organisation,

⁶ http://consultativebodies.health.belgium.be/sites/default/files/documents/policy_paper_bapcoc_executive_summary_2014-2019_english.pdf

⁷ <http://www.belvetsac.ugent.be/>

Antimicrobial Consumption and Resistance in Animals (AMCRA)⁸, was established in 2012 with the aim of promoting the sustainable and reduced use of antibiotics and reduced AMR.

7. AMCRA's role is primarily to gather information, analyse, advise and communicate on the subject with the authorities, production sectors (veterinarians, farming, feed and pharmaceutical industries) and faculties of veterinary medicine being involved in its actions and financing.

4.2 CURRENT STATUS OF BELGIUM'S NATIONAL ACTION PLAN ON AMR

8. For human health aspects, BAPCOC developed a policy paper for the period 2014 to 2019⁹. Indicators were also specified in this BAPCOC policy paper for the veterinary medicine area, namely total antibiotic consumption, use of main critical antibiotics and use of medicated premixes containing antibiotics. The veterinary-related indicators and targets mentioned in this BAPCOC policy paper originated from AMCRA's strategic plan. Supporting data were specified as veterinary antibiotic use (BelVET-SAC and Sanitel-Med data) and for any relevant actions reference was made to AMCRA's 2020 Strategy Plan. It was stated in this policy paper that the BAPCOC veterinary medicine working group aims to cooperate in a constructive way with AMCRA and all public bodies involved under the Veterinary Antibiotic Policy Strategy Working Group, but that the BAPCOC working group also wishes to deliver its own opinions and take its own initiatives. The president of AMCRA has been a permanent member of BAPCOC's Bureau and BAPCOC is a member of AMCRA's Steering Committee.
9. The Veterinary Antibiotic Strategy Working Group consisted of representatives of the different federal competent authorities (Federal Agency of Medicines and Health Products, FASFC, FPS, BAPCOC) and other parties such as universities and laboratories, with the main goal being to define an action plan and possible necessary modifications in Belgian legislation to aid the prudent use of antibiotics in veterinary medicine, in parallel with auto/self-regulation by the sectors themselves. There were several meetings organised between August 2012 and June 2014 and, although an overall action plan was not developed, the Royal Decree of 21 July 2016 concerning critically important antimicrobials (CIAs) and the tax on sales of veterinary antibiotics represented some of the outputs of this Working Group. The Working Group has been in a dormant state since but is now being reactivated in light of possible actions that will be needed in the period beyond 2020 when AMCRA's current strategy and vision document (and the Convention on the use of antibiotics, see point 14) concludes.
10. The visit team was informed of a first meeting between the CVO and the Federal Public Health Service in the spring of 2017, in relation to the development of a national action plan on AMR, promoting better contacts and collaboration between the human health and veterinary authorities and possible establishment of a national One Health network.

⁸ <http://www.amcra.be/en>

⁹ <http://consultativebodies.health.belgium.be/en/documents/policy-paper-bapcoc-2014-2019>

11. Concerning veterinary aspects, upon the request of the sector, the first step consisted of promoting actions through self- or auto-regulation, based on guidelines elaborated by AMCRA in consultation and collaboration with the different sectors. AMCRA developed in 2014 a plan for the period to 2020 ¹⁰ involving three visions:
 - 50 % lower antibiotic use in animals by 2020 compared to 2011, with a 20 % reduction being achieved between 2011 and 2016.
 - 75 % lower use of the most critical antibiotics (third and fourth generation cephalosporins and fluoroquinolones) by 2020 compared to 2011, with a 56 % reduction already being achieved from 2011 to 2016, principally due to a 53 % reduction from 2015 to 2016.
 - 50 % lower use of medicated feed containing antibiotics by 2017 compared to 2011, with a 38% reduction being achieved from 2011 to 2016, principally due to a 29 % reduction from 2015 to 2016.
12. These three visions were to be supported by seven specific actions:
 - A global data collection system on antibiotic use by 2016.
 - A herd health plan for each farm.
 - Benchmarking of farmers and veterinarians as regards use and prescribing of antibiotics.
 - No antibiotics used for prophylaxis and promotion of alternatives.
 - Repeated awareness-raising.
 - Transparency and monitoring of antibiotic suppliers and users.
 - Surveillance of resistance to antibiotics.
13. Based on successful experiences in achieving reduced and more prudent use of antibiotics in other Member States, the visit team considered that a more tailored approach with different reduction targets for different production sectors could also have been very appropriate and effective ¹¹.
14. For veterinary aspects, a Convention between the authorities and stakeholders ¹² signed in June 2016 is considered as the currently applicable veterinary national action plan in Belgium, outlining relevant strategic and operational goals (see section 4.6). Following the establishment of AMCRA, initial results were quite promising with a 15.9% reduction in antibiotic use in animals achieved between 2011 and 2015. However, in 2016 the authorities decided that more rapid actions and reductions were needed and based on the principle of co-regulation and in order to support AMCRA in achieving its goals, in June 2016 a Convention was developed and signed exclusively on veterinary aspects between the Ministers of Health and Agriculture, national authorities and 16

¹⁰ http://www.amcra.be/sites/default/files/bestanden/AMCRA%202020%20finaal_EN_0.pdf

¹¹ In their response to the draft report, the competent authority noted that data on the use of antibiotics were not available on a sector level at that time. General reduction targets were set with the intention to subsequently break these down into reduction targets for different production sectors. In the meantime, the preparations for the development of an official central database were ongoing.

¹² <http://amcra.be/fr/convention-antibiotiques>

private organisations representing feed manufacturers, the pharmaceutical industry, veterinary organisations, laboratories, farmer and production sector organisations. Currently the main focus of the authorities and AMCRA is to increase the speed and efficiency of actions being taken in order to achieve the antibiotic use reduction targets set for 2020.

15. The visit team was not informed of any particular action plan or strategy to address the environmental aspects of AMR. The visit team did not consider that the afore-mentioned documents represent a truly holistic or comprehensive One Health national action plan on AMR and that some adaptations to the current organisational and working arrangements of the various bodies involved could facilitate a more effective and coordinated approach to actions on this issue in the future.

4.3 MONITORING OF AMR IN ANIMALS AND FOOD, INCLUDING RELEVANT LABORATORY CAPACITY

16. ECDC and the European Food Safety Authority (EFSA) have published a summary report on AMR in bacteria from humans, animals and food, including data from Belgium (European Union summary report on antimicrobial resistance in zoonotic and indicator bacteria from humans, animals and food in 2015 ¹³). ECDC, EFSA and the European Medicines Agency have also issued a joint report on the integrated analysis of the consumption of antimicrobial agents and occurrence of antimicrobial resistance in bacteria from humans and food producing animals (Joint Interagency Antimicrobial Consumption and Resistance Analysis (JIACRA) report), including data from Belgium ¹⁴. These reports largely draw conclusions for the EU as a whole based on the complete range of data available.
17. Member States carry out AMR monitoring in food and food-producing animals under Commission Implementing Decision 2013/652/EU of 12 November 2013 on the monitoring and reporting of antimicrobial resistance in zoonotic and commensal bacteria. Belgium has already been performing surveillance of AMR in live animals (veal calves, fattening pigs, broilers and young cattle) since 2011. National surveillance of AMR on carcasses and meat is performed through a mixture of compulsory and voluntary programmes. Monitoring of AMR from live animals and post mortems (clinical cases) are performed by regional laboratories of the *Association régionale de santé et d'identification animale* (ARSIA) ¹⁵ and the *Dierengezondheidszorg* (DGZ) ¹⁶, principally for cattle, pigs and broilers, including sampling performed by practising veterinarians on clinical cases.
18. The visit team received information on surveillance of AMR in zoonotic and commensal bacteria in food. A national reference laboratory (NRL) on AMR in Foodborne

¹³ <https://www.efsa.europa.eu/en/efsajournal/pub/4694>

¹⁴ <https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/antimicrobial-resistance-JIACRA-report.pdf>

¹⁵ <http://www.arsia.be/>

¹⁶ <https://www.dgz.be/>

Pathogens has been designated. Currently AMR surveillance at this NRL involves animal, food and feed samples, for the salmonella and campylobacter pathogens and *E. coli* and *E. coli* ESBL indicator organisms on a mixture of official monitoring and food business operator own-check samples.

19. The NRL has a contract with FASFC for salmonella, Shiga toxin-producing *E. coli*, coagulase-positive staphylococci, campylobacter, listeria, foodborne outbreaks, viruses in food, bivalve mollusc shellfish and AMR. The NRL stated that for a comprehensive analysis of all the data generated an extra scientist position would be required, with more statistical support needed for the analysis of the AMR trends observed over time, the support of an epidemiologist to analyse the data and assist in writing an annual report on the different matrices analysed (animals, food and feed). Extra resources would also be needed to analyse the AMR data in a truly One Health and holistic manner, combined with an analysis of antimicrobial usage data, also from the human health sector ¹⁷.
20. The NRL is examining trends in resistance data seen in samples from various animal species or food commodities from year-to-year for particular bacteria. From 2015 to 2016 some decreases in resistance levels were noted but many of these were not statistically significant. The complete data for 2017 are awaited to examine what has been the impact on resistance levels of a general decrease in use of antibiotics in animals as well as the dramatic fall in use of CIAs following the implementation of the aforementioned Royal Decree.
21. Monitoring of livestock-associated MRSA (LA-MRSA) has been performed since 2012, covering pigs, cattle and poultry in alternating years. Reporting of AMR (minimum inhibitory concentrations) is performed for 19 molecules. For commensal MRSA in pigs between 2013 and 2016 a decrease in resistance trends has been seen, notably for fusidic acid and aminoglycosides, with a moderate increase in the resistance trends for tetracycline and trimethoprim.
22. The chloramphenicol-florfenicol resistance gene *cfi* was detected in 2 linezolid-resistant LA-MRSA isolates in Belgium in 2016, the first time that these were detected in the EU. Linezolid resistance is a matter of high concern given that it is used to treat MRSA infections in humans.

¹⁷ In their response to the draft report, the competent authority noted that funds are available for statistical support and epidemiologists but these are dispersed over different institutions and organisations. As of 1 April 2018, the merging of the IPH and CODA-CERVA are expected to assist in sourcing resources for One Health aspects.

23. The NRL for AMR informed the visit team that there is no systematic AMR surveillance in companion animals (pets and horses) and that AMR monitoring is quite dispersed on the human health side with different institutes responsible for surveillance of different organisms such as salmonella, campylobacter and *E. coli*, with no holistic approach and contacts between the human and veterinary sides taking place at the level of informal contacts between individual colleagues rather than any formal or organised coordination ¹⁸.
24. The visit team received presentations from DGZ and ARSIA which assist farmers and veterinarians in the Flemish and Walloon regions in providing technical and scientific guidance, including performing antimicrobial susceptibility tests. ARSIA performed 2 600 antibiograms between January and June 2017, mainly on bovine samples, while DGZ performed 1 894 during the same period for all species, in particular for pigs, cattle and poultry.
25. There has been a significant increase in the number of antibiograms requested since August 2016, following the Royal Decree of 21 July 2016 on the appropriate conditions of use of veterinary medicines by veterinarians and farmers, including CIAs. ARSIA and DGZ stated that fewer than 5% of the antibiograms performed show that a CIA is the only effective antibiotic. The results of these antibiograms are compiled separately by ARSIA and DGZ and are not aggregated into a single reporting or summary framework, as is done in some other Member States, for example in order to act as an information tool for practising veterinarians to inform them of the AMR situation and provide guidance on antibiotics still found to be effective in treating certain conditions.

4.4 ENVIRONMENTAL MONITORING

26. Under Commission Implementing Decision (EU) 2015/495 ¹⁹, Belgium is carrying out monitoring for macrolides (azithromycin, clarithromycin and erythromycin) in water. Results of such monitoring conducted in 2016 have been submitted by Member States, including Belgium, to the Commission's DG Environment.
27. The visit team received a presentation from the Flanders Environment Agency (*Vlaamse Milieumaatschappij* - VMM) ²⁰ which has as its mission to contribute to the realisation of environmental policy objectives, by reporting on the state of the environment, preventing, limiting and reversing harmful impacts on water systems and pollution of the atmosphere and the realisation of integrated water policy objectives.
28. VMM has conducted a project to monitor human medicines in surface water and waste water. For antibiotics this concerns clarithromycin, clindamycin, dimetridazole,

¹⁸ In their response to the draft report, the competent authority noted that since 1 April 2018 monitoring of all human-related microbiology tests (including AMR) are coordinated by the Institute of Public Health (WIV-ISP). Surveillance of healthcare-associated infections and AMR are also coordinated by the WIV-ISP.

¹⁹ Commission Implementing Decision (EU) 2015/495 of 20 March 2015 establishing a watch list of substances for Union-wide monitoring in the field of water policy pursuant to Directive 2008/105/EC of the European Parliament and of the Council. OJ L78, 24.3.2015, p. 40.

²⁰ <https://en.vmm.be/>

sulphamethoxazole and trimethoprim. All five of these are monitored in surface water and all except clarithromycin are monitored in waste water. In 2014 monitoring took place in waste water treatment plants and hospitals, in 2015 industry discharges and surface water and in 2016 again in surface water. The results were published in an online report ²¹.

29. In 2016, 16 waste water treatment plants were monitored as regards influent and effluent and residues of the 4 antibiotics tested for (clindamycin, sulphamethoxazole, dimetridazole and trimethoprim) were found.
30. For the pharmaceutical sector, 17 facilities were monitored, with occasional high maximum concentrations detected (for example 13 mg/l of trimethoprim), which were linked to production and were treated via waste water treatment plants.
31. Monitoring of drinking water is performed by water companies and although some medicines are detected at tap level, no antibiotic residues have been found.
32. Another project carried out in the Flemish region has comprised monitoring of antibiotic residues in manure, with 100 manure samples being taken in spring 2017, 9 from veal calf farms and 91 from pig farms. Samples were analysed for 67 different substances with median concentrations detected of 714 µg/kg DM (dry matter) for doxycycline, 163 µg/kg DM for tylosin, 137 µg/kg DM for oxytetracycline, etc. ²².

4.5 MONITORING THE USE OF ANTIMICROBIALS IN ANIMALS (INCLUDING CRITICALLY IMPORTANT ANTIMICROBIALS)

33. National veterinary antibiotic sales data from 2007 onwards are available via the BelVet-SAC project, developed by the Federal Agency of Medicines and Health Products and Ghent University in cooperation with BAPCOC. These data have formed the basis of data submitted to ESVAC for Belgium.
34. The 7th ESVAC report published in October 2017 ²³ and containing sales data for 2015 showed a 5.2 % reduction in veterinary antibiotic sales in Belgium during 2015, with a mg/PCU (population correction unit) figure of 150.1 within a range of 2.9 to 434.2 mg/PCU for the other countries contributing data to ESVAC.
35. A national data collection system Sanitel-Med to record electronically all antibiotics delivered, prescribed or administered by veterinarians at farm level has been online since 1 May 2016. A Royal Decree of January 2017 requires the compulsory recording of antibiotics prescribed, supplied and used on veal calf, pig, laying hen and broiler chicken farms. For other cattle farms, registration of antibiotic use in Sanitel-Med is currently optional. The authorities stated that the identification of farmers and

²¹ <https://www.vmm.be/publicaties/medicijnen-in-de-waterketen-resultaten-verkennend-onderzoek-in-de-periode-2014-2016>

²² <https://www.vmm.be/publicaties/emissies-naar-oppervlaktewater-van-medicijnen-uit-veterinair-gebruik-perceel-1> <https://www.vmm.be/publicaties/emissies-naar-oppervlaktewater-van-medicijnen-uit-veterinair-gebruik-perceel-2>

²³ http://www.ema.europa.eu/docs/en_GB/document_library/Press_release/2017/10/WC500236752.pdf

veterinarians required to use the system, but not currently doing so, may be used as a selection tool by the veterinary authority FASFC, and specifically one of its Directorates-General, DG Control, to plan future inspections.

36. The Belgian Feed Association²⁴ informed the visit team that a total of 21 274 kg of antibiotics were used in medicated feed to-date in 2017, 41 % lower than in 2016 and 63 % lower than in 2011. Doxycycline, sulphadiazine/trimethoprim and amoxicillin represented 89 % of the active substances used, with 458 kg of colistin used in 2017 (a decline of 81 % compared to 2011).
37. The visit team received presentations from various production sector quality assurance schemes which have systems in place for the recording of antibiotic use by their farmer members. In many cases different schemes are used by farmers in the Flemish and Walloon regions.
38. Belpork²⁵, a non-profit organisation representing all participants in the pig production chain (approximately 3 400 farms, 70 % of Belgian pig farms), developed and financed AB Register²⁶ in 2014: a monitoring programme for antibiotic use in the pig sector. The Flemish farmers' unions *Algemeen Boerensyndicaat*²⁷ and *Boerenbond*²⁸ also contributed to its development.
39. All members of the Certus²⁹ quality scheme for fresh pork (approximately 2 400 farmers) are obliged to record their use of antibiotics via this AB Register tool since 2016. An analysis of the antibiotic use on each farm is performed by AMCRA twice per year, giving individual feedback about the quantitative and qualitative use of antibiotics on each farm. This allows for a comparison (benchmarking) with other farms with pigs of the same age group (categorised as suckling pigs, weaners, finishers and sows) and creating a tool for herd health management. High antibiotic using farms are required to produce an action plan on how they could reduce their use. For pig farms participating in the AB Register system, available data showed from 2014 to 2017 a 50 % reduction in the 50th percentile use of antibiotics in suckling pigs (attributed principally to stricter quality assurance scheme conditions applicable since 1 January 2016), a respective 14 % reduction for weaner pigs, a 10 % reduction for finisher pigs and a 13% reduction for sows and boars.

²⁴ <http://www.bemefa.be/Default.aspx?lang=en>

²⁵ <https://www.certus-info.be/>

²⁶ <https://www.abregister.be/>

²⁷ <http://www.absvzw.be/>

²⁸ <https://www.boerenbond.be/>

²⁹ <https://www.certus-info.be/Why-Certus.php>

40. The Certus quality scheme provides that antibiotics can only be delivered to a farm by a single contracted veterinarian or veterinary practice, but that another veterinarian can be called if the contracted veterinarian is sick or on holidays etc. ³⁰.
41. *Base Informatique de Gestion des Antibiotiques et des Médicaments en Elevage* (BIGAME) is a comparable system to AB Register used in the Walloon region for cattle farms, developed in cooperation with the farmers' union (*Fédération Wallonne de l'Agriculture*) and *Union Professionnelle Vétérinaire* (UPV), the main French-speaking professional veterinary association of Belgium ³¹.
42. In cooperation with the Belplume ³² quality label of the poultry sector (comprising approximately 900 farms), the AB Register tool has been extended to all categories of poultry farms from 15 May 2017. The AB Register scheme is also being extended to dairy cows in cooperation with the *Integrale Kwaliteitszorg Melk* ³³ quality label for dairy cows in Flanders.
43. An agreement has been reached that for participants already registered in AB Register and BIGAME, these data can be transferred to Sanitel-Med to comply with the compulsory monitoring requirements.
44. In the veal calf sector, recording of antibiotic use on farms is generally centralised in the Belgian Controlled Veal (*Beroepsvereniging voor de Belgische kalfsvleessector* (BVK)) -antibiotics database, following implementing advice from AMCRA, with the data being forwarded to the Sanitel-Med database and random checks being performed to confirm the accuracy of documented use and supply of antibiotics versus the data recorded in the database. Based on 2017 data, 2018 will be the first year of benchmarking of antibiotic use by type of calf and after the slaughter of each production lot.

4.6 ACTIVITIES TO PROMOTE THE REDUCED AND/OR PRUDENT USE OF ANTIMICROBIALS IN ANIMALS

45. AMCRA has developed a vade mecum ³⁴ for companion and food-producing animals including recommendations on therapeutic indications for veterinarians per animal species and per disease (colour coding of different antibiotics based on the public health prioritisation given to these by WHO and the World Organisation for Animal Health). Pharma.be has funded the development of an AMCRA e-formulary (€35 000 budget paid for by Pharma.be's 15 animal health member companies) which provides free electronic access to veterinarians. An e-compendium of all product leaflets is available in html format in an adaptive version, also via their website.

³⁰ In their response to the draft report, the competent authority noted that it is a general provision foreseen in the Royal Decree of 10 April 2000 that antibiotics can only be delivered to a farm by a single contracted veterinarian or veterinary practice. Another, also contracted, veterinarian can be called if the first contracted veterinarian is absent. One of the planned future actions is deleting the substitute veterinarian to enhance the one-to-one relationship between the contracted veterinarian and the farmer.

³¹ <http://www.fwa.be/>

³² <https://www.belplume.be/>

³³ http://www.ikm.be/home_en.phtml

³⁴ <http://www.e-vademecum.be/>

46. Pharmaceutical companies are unable to sell antibiotics directly to veterinarians, with a wholesaler or distributor always being placed in between. Volume price incentives are not allowed (a greater discount for bigger purchases) but non-volume related discounts can be given to all customers on a blanket basis.
47. Since 2014 a sales tax on veterinary antibiotics has been paid every 6 months by marketing authorisation holders based on sales on the Belgian market. The fee is €1.75 per kg of antibiotic active substance sold, and this is multiplied by 1.5 in the case of CIAs (in this case defined as fluoroquinolones, all cephalosporins and macrolides). In 2016, this levy generated a total of €456 900, acting to generate funds to finance AMR activities and relevant data collection rather than as a pure financial disincentive to the use of antibiotics.
48. The Convention signed in June 2016 aimed to unite stakeholders around the objective of common quantifiable goals of decreased antibiotic use in animals and defining the roles, actions and commitments of everyone involved. Aims included strengthened infection prevention and control measures, antibiotics not being used for prophylaxis, promotion of alternatives, hygiene, biosecurity, promotion of use of vaccination and strengthened collaboration between farmers and veterinarians
49. Some of the stakeholders met by the visit team who had signed up to specific actions under the Convention did not make any differentiation between reduced and prudent use of antibiotics (quantitative and qualitative aspects) and limited attention seems to have been given to date to the potential animal health and welfare and farm profitability and productivity aspects of aiming for such large reductions in antibiotic use over a relatively short period. The visit team considered that for the achievement of such specific antibiotic use reduction targets over a relatively short time, it could have been beneficial for stakeholders (especially for farmers and veterinarians) if specific tools such as benchmarking were already in place when or shortly after these reduction targets were agreed, to enable veterinarians and farmers to compare their prescribing and use patterns to their peers and for the authorities and other stakeholders to identify those critical success or failure factors leading to low or high antibiotic use in animals
50. Although the authorities organise twice-yearly meetings with the stakeholders to review progress in achieving the specified Convention's objectives, some of the agreed objectives under the Convention appeared to the visit team to be quite vague, general and aspirational. In some cases particular actions had already been completed before the Convention was signed or stakeholders had little sense of how some of the stated and agreed actions could be achieved in practice.
51. In relation to the above matter, Pharma.be³⁵, the general association of the pharmaceutical industry in Belgium (a founding, active and financing member of AMCRA with its membership including 15 animal health companies representing 90% of the Belgian market), had committed to organise an 'ambassadors' day' where pharmaceutical company employees would receive information on the functioning of

³⁵ <http://www.pharma.be>

AMCRA and the importance of the prudent use of antibiotics. This ambassadors' day took place in February 2016.

52. Belpork committed to offer a benchmark and personalised analysis of antibiotic use to farms participating in the AB Register system, which was already in place before the Convention was signed. Belplume committed to promote a one-to-one relationship between poultry farms and their veterinary practices but, from discussions of the visit team with Belplume, it was not evident how this was planned to be achieved. Codiplan³⁶ (another production quality scheme) committed to incite its pig farmer members to use antibiotics in an optimal way and to adapt in the short term its programme specifications to take account of recommendations and advice concerning the optimal use of antibiotics. The visit team was informed that this had not yet taken place but that the programme specifications should be revised during 2018. For the beef sector, the production quality scheme Belbeef³⁷ has as an objective for 2018 a systematic registration by its members of the use of antibiotics in a dedicated database, to be achieved via attending veterinarians, but no details were available on how this might be achieved in practice.
53. By 2017 the authorities decided to move from self- or auto-regulation to co-regulation, as insufficient progress had been achieved in their opinion in reaching the overall antibiotic use reduction targets, with specific legislation being introduced to control the use of antibiotics in animals³⁸. A Royal Decree concerning the use of CIAs in animals was introduced, with a prohibition without exception on their preventive use and their metaphylactic and curative use only being allowed under certain conditions, namely the following:
- A clinical examination takes place on-the-spot by the treating veterinarian.
 - A bacterial cause of the infection is confirmed.
 - Appropriate samples are taken or a post-mortem requested.
 - The bacterial strain involved is confirmed based on the samples taken.
 - A standardised laboratory antimicrobial sensitivity test is performed, including seven non-critical antibiotics of at least five different classes as well as the CIAs.
 - A CIA can be used if the test result indicates that it is the only effective antibiotic³⁹.
54. On the veal calf farm visited, the attending veterinarian stated that since the implementation of this Royal Decree on CIAs he was experiencing considerable difficulties in treating or curing chronic respiratory disease in calves, especially

³⁶ <http://www.vegaplan.be/nl/over-ons/codiplan>

³⁷ <http://www.belbeef.be/nl>

³⁸ In their response to the draft report, the competent authority noted that it was already decided in 2016 that the authorities would give AMCRA all the necessary support to achieve its goals and to move from self- and auto-regulation to co-regulation.

³⁹ In their response to the draft report, the competent authority noted that in the Royal Decree of 21 July 2016 it is also foreseen that in exceptional cases, motivated by high urgency, a veterinarian may, under his own responsibility and after clinical examination, administer a CIA if they have reason to expect that this CIA is the only therapy capable of saving the life of the animal or preventing irreversible damage. Samples must be taken at the time of initiating therapy, sensitivity testing must be performed and the treatment must be re-assessed based on the available results of the sensitivity testing.

involving *Mycoplasma bovis*. He stated that group treatments of all calves could only be justified if at least 20% of the calves were ill and estimated that in 2017 he had euthanised up to 6 times more veal calves due to unresolved chronic respiratory disease compared to previous years. The visit team was not presented with any particular data to support this assertion of an increased necessity to euthanise calves. This veterinarian reported that over the previous 5-6 years mortality rates in calves had generally fallen due to improved genetics, control of diseases such as infectious bovine rhinotracheitis and bovine viral diarrhoea, improved housing conditions and avoiding that calves are supplied and transported via markets.

55. A representative of the production sector BVK (which encompasses 95% of Belgian veal production) stated that they believed increased mortalities had recently been seen on Belgian veal calf farms. The authorities provided an overview of calf mortality data in Belgium from 2011 onwards and reported a clear linear decreasing trend since 2011, largely attributed to a successful bovine viral diarrhoea eradication programme and that they had no reason currently to suspect any animal health or welfare problem due to a more reduced or restricted use of CIAs in veal calves. In this respect, the visit team considered that it could be useful to review, going forward, production data and feedback from slaughterhouse on lesions detected following slaughter to study on a batch-by-batch basis in sectors such as veal calves and pigs what have been the possible animal morbidity and mortality consequences of recent reductions in the use of antibiotics in general and CIAs in particular.
56. The visit team referred to experiences of some other Member States who have introduced national rules on the use of CIAs and where veterinarians in particular sectors such as veal calves had seen increased mortalities due to chronic respiratory disease when CIAs were not used. This issue had been addressed through a flexibility in applying the national rules or legislation, for example by initiating treatment with a CIA if considered necessary based on the animal's clinical condition, in advance of the laboratory and antimicrobial susceptibility test results being available and re-assessing the treatment strategy upon receipt of those results, with a perceived improved animal welfare and therapeutic success outcome being achieved in this way ⁴⁰.
57. The veal calves arriving on the farm were sourced from very many individual supplier dairy farms. Efforts were made on the farm to improve ventilation, ensure that the barn was clean and dry when the calves arrived and that in winter the barn was heated to 16°C for the arrival of the calves. The aim was to fill the barn with arriving calves within a 1 week period using the all-in all-out principle. It was stated that if problems were experienced with a certain batch of calves the company would take care not to buy calves from that supplier in the future. The visit team considered that in some other Member States more specific actions were taken by the industry to promote measures on the farms of origin of the calves to prevent infections or promote vaccinations etc., in

⁴⁰ In their response to the draft report, the competent authority noted that such a provision is already foreseen in the Royal Decree of 21 July 2016 (see footnote 39).

order to promote a better health situation and reduced antibiotic use on the destination veal calf farm.

58. The dairy farm visited sells approximately three or four calves each month to an intermediary who supplies calves to veal calf establishments. Apart from expecting calves to be healthy, it was stated that the intermediary asks the farmer for no specific additional information or animal health considerations.
59. On this dairy farm, cows having a somatic cell count of under 200 000 at the end of lactation did not receive antibiotic dry cow therapy but were rather treated with teat sealers. The farmer and veterinarian estimated that 70% of the cows on the farm no longer receive antibiotic dry cow therapy. Dry cow tubes containing cefquinome (a fourth generation cephalosporin and CIA) were preferred due to the short withdrawal time of this product. The Royal Decree on CIAs does not require antibiograms to justify the use of such CIAs in dry cow therapy.
60. Milk from cows treated with antibiotics during lactation was given to heifer calves on the dairy farm to avoid the environmental and cost consequences of simply throwing such milk away. In January 2017 EFSA produced a specific scientific opinion on this subject ⁴¹ which stated that milk from cows receiving antimicrobial treatment during lactation contains substantial residues during the treatment and withdrawal period and that consumption of such milk will lead to increased faecal shedding of antimicrobial-resistant bacteria by calves ⁴².
61. Colistin was used occasionally on the dairy farm visited to treat calf diarrhoea but its use in individual calves was not specifically recorded. The visit team was informed that, under Belgium's national rules, the treatment of such young calves under 1 month of age with veterinary medicines is not required to be recorded if the calf is still on its farm of origin at the time of treatment. Supply of the antibiotic to the farmer is documented, but not the dates of treatment or the identification of any calves treated. The veterinarian and farmer were not aware of any particular issues concerning the use of colistin, although the veterinary authorities accompanying the visit team stated that it might be classified as a CIA in the future.
62. The farmer and veterinarian stated that over the last 3 years there had been a significant reduction of antibiotic use on the farm, with a greater emphasis on prevention of mastitis and culling of cows with repeated bouts of mastitis. Efforts have also been made to treat lameness cases without first resorting to antibiotic use (previously a first-generation cephalosporin with a zero withdrawal time for milk was commonly used). This veterinarian worked in a practice comprising three large animal and three small animal veterinarians and considered that there was currently no particular pressure on small animal veterinarians in Belgium to reduce or modulate their use of antibiotics.

⁴¹ <https://www.efsa.europa.eu/en/efsajournal/pub/4665>

⁴² In their response to the draft report, the competent authority noted that not giving milk from cows treated with antibiotics to heifer calves is one of the recommendations of the autoregulation guide to prudent use of antibiotics on dairy farms published by AMCRA in 2012.

63. The small animal veterinary clinic visited had developed a protocol listing first and second choice antibiotics to be used for a range of conditions. For routine surgeries such as castration and neutering of dogs, the veterinarians in this clinic administered a long-acting amoxicillin injection at the time of surgery and again 2 days later. The visit team considered that in some other Member States such repeated administration of long-acting antibiotics for such routine surgeries would not be considered generally necessary or appropriate. The veterinarians in this clinic stated that there is a lot of competition between veterinary practices in Belgium and many pet owners are also very price-conscious when it comes to the cost of veterinary treatments, which can make it difficult to invest in improving the infrastructure and surgical facilities of individual clinics.
64. They used long-acting injections of a third generation cephalosporin (cefovecin, a CIA) routinely in cats which were difficult to handle. This practice occasionally used human authorised antibiotics, such as a combination of amoxicillin and clavulanate potassium and also cefazolin intravenously for orthopaedic surgeries. The authorities informed the visit team that data are available centrally concerning sales of such human authorised medicines (including antibiotics) to veterinarians.
65. These veterinarians were members of Belgium's small animal veterinary association but considered that, in their opinion, there had been little discussion in this forum to date concerning the AMR topic.
66. The pig farm visited routinely used medicated feed containing amoxicillin in weaner pigs to combat streptococcus infection and also feed containing a zinc oxide premix to combat diarrhoea in weaner pigs. The farmer stated that when he had tried to discontinue use of the medicated feed the infections recurred. The prescriptions for medicated feed were issued routinely by a single veterinarian who the farmer said specialised in this domain and that this veterinarian had never actually visited the farm. Another veterinarian in a different practice provided a clinical service to the farm.
67. The attending veterinary practitioner visits the pig farm every 3 to 4 weeks and draws up a report concerning animal health issues identified, although the reports examined by the visit team contained sparse details and often consisted mainly of ticking a box to confirm that the use of medicines on the farm was in accordance with relevant legal requirements or had been properly recorded.
68. Ghent University has developed an online application Biocheck ⁴³ which allows farmers to complete an online questionnaire, receive a biosecurity score, and for this score to be compared between different farms and over time taking different biosecurity risks into account. The Biocheck tool is currently available for pig and broiler farms and by June 2018 should also be developed for dairy and beef cattle, veal calves, poultry breeding flocks and laying hen farms. A farm biosecurity score is generated for both internal and external biosecurity and for relevant sub-categories. The visit team was informed of a study ⁴⁴ where, using the Biocheck tool and 3 farm visits per herd to 61 pig farms,

⁴³ <http://www.biocheck.ugent.be>

⁴⁴ <https://www.ncbi.nlm.nih.gov/pubmed/27362766>

antimicrobial use in the pigs from birth to slaughter was reduced by 52 % and by 32 % in breeding animals combined with significantly improved technical results such as the number of weaned piglets per sow per year, daily weight gain and mortality in the finisher period.

69. The visit team saw no evidence of a specific herd health or treatment plan on the veal calf, dairy or pig farms visited, but the authorities and stakeholders met confirmed that such herd health plans are planned for the future once benchmarking data concerning antibiotic use on individual farms become available.
70. The Belgian Feed Association presented information to the visit team on their initiatives to develop alternatives to the use of antibiotics in animals, such as zinc oxide as a medicated premix in pigs, use of probiotics, prebiotics, enzymes and organic acids etc. Charters were signed during 2013 between this Association, FASFC and FPS to reduce carry-over and cross-contamination when producing medicated feed and to reduce zinc oxide emissions into the environment and monitoring total zinc concentrations in complete feed for finishing pigs. AMCRA has been requested to deliver an opinion by 1 December 2017 on the impact upon the pig industry of ceasing to use zinc oxide in pig feed. Another Charter was signed in 2016 committing the feed industry to the target of a 50% reduction in medicated feed production by 2017, based on 2011 data. Mandatory electronic prescriptions for medicated feed have been introduced since 1 January 2016 which the veterinary authorities believe have facilitated improved controls on the use of medicated feed.

4.7 COMMUNICATION AND AWARENESS ACTIVITIES ON AMR AND THE PRUDENT USE OF ANTIMICROBIALS IN ANIMALS

71. On the occasion of the European Antibiotic Awareness Day, BAPCOC regularly organises a symposium ⁴⁵. In 2015 this was on the subject of a One Health Strategy. In 2016 it addressed best practices to reduce AMR, with parallel human and veterinary sessions being organised. AMCRA activities have been included as a topic in the BeCare e-zine for human medicine in two editions during 2017.
72. On 14 November 2017 an Integral Management Café meeting was organised for the FPS on the topic of "towards a One Health-One World approach for AMR in Belgium", involving speakers from AMCRA, BAPCOC, the Organisation for Economic Co-operation and Development, the CVO for Belgium etc. The aim of this event was to reach a common understanding about the nature of the AMR challenge, the efforts needed to succeed, how to translate objectives into actions and the implications for FPS's internal functioning and its relationships with partner institutions.
73. From October to December 2016 FPS, in cooperation with AMCRA, organised roadshows for veterinarians and farmers to sensitise them on the need to combat AMR, explain the measures already taken (in particular new legislation concerning veterinary

⁴⁵ <http://consultativebodies.health.belgium.be/en/advisory-and-consultative-bodies/commissions/BAPCOC>

medicines) and guide towards the implementation of future actions, including on prudent use⁴⁶. The sessions organised, 9 for veterinarians and 12 for farmers, were attended by 930 veterinarians and 1 180 farmers. Veterinarians received a specific continuing professional development credit from the national Order of Veterinarians for attending. FASFC also took the opportunity of these roadshows to distribute brochures concerning new national legislation on veterinary medicines.

74. AMCRA informed the visit team of various other communication tools it has used to raise awareness on the AMR topic (for instance, television advertisements and a YouTube channel⁴⁷).
75. AGROFRONT, comprising three farmers' unions in Belgium (*Algemeen Boerensyndicaat*, *Boerenbond* and *Fédération Wallonne de l'Agriculture*), has cooperated with other stakeholders and the authorities in providing information and coaching to farmers on monitoring their use of antibiotics and encouraging the responsible use of antibiotics.
76. ARSIA informed the visit team of the '*Altibiotique*'⁴⁸ training programme for farmers to use antibiotics less, better, as well as alternatives to the use of antibiotics. Training sessions and study visits to farms have been organised since January 2017, with 412 farmers having participated up to 13 November 2017 on the topics of AMR, animal health management and disease prevention.
77. The visit team met with the UPV which informed of various actions taken to engage stakeholders on the topics of AMR and prudent use, including a meeting with FASFC and AMCRA at the Liege University veterinary faculty in April 2017 on how rural veterinary practitioners could implement new rules on AMR. Various articles on alternatives to antibiotics (*Altibiotique*) have also been published in the agricultural and veterinary press.
78. The two small animal clinic veterinarians interviewed were not aware of any particular leaflets, posters or radio advertisements in Belgium on the subjects of AMR or prudent use of antibiotics. They considered that insufficient attention is currently given to the topic of infection prevention and control in the undergraduate veterinary curriculum in Belgium, and that they hear more about these topics when attending conferences abroad. The visit team considered that, based on experiences from other Member States, infection prevention and control plays a very important role in combatting AMR and collaboration and sharing expertise and experience between the human health and veterinary sectors on this particular topic can also be beneficial.
79. DGZ informed the visit team of a biosecurity award aiming at increasing the awareness of biosecurity, where experts visited veal, beef cattle and dairy farms to assess

⁴⁶ In their response to the draft report, the competent authority noted that these roadshows were financed by the FASFC and organised by the FASFC and AMCRA with speakers from the FASFC, AMCRA and the FPS.

⁴⁷ <https://www.youtube.com/playlist?list=UUuSqc9RpZ1QUPCHa4O0wLeQ>

⁴⁸ http://www.arsia.be/?page_id=7425

investments made and management changes introduced to improve biosecurity. Online videos of the nominated farms are available, farmers can vote for their preferred candidate and the winner receives a prize of €3 000, with the initiative receiving exposure on regional television channels, newspapers and magazines.

80. As has been successfully used in some other Member States, the visit team considered that some further attention could be given to additional support, supervision and even controls which could be applied in the future to motivate high antibiotic using farmers and high prescribing veterinarians to modulate their behaviour. In some other Member States food retailers and processors have been very influential in effecting change and incentivising farmers on the reduced and more prudent use of antibiotics, but the visit team was not informed of any particular initiatives currently taking place in Belgium on these aspects.
81. In June 2010, Pharma.be (the association of the pharmaceutical industry in Belgium, including 15 animal health companies representing 90 % of the Belgian market) organised for the first time a roundtable meeting of all stakeholders and authorities to discuss the AMR topic. In December 2017, a further symposium will be organised for veterinarians on the subject of preventive veterinary medicine as a tool for the veterinarian for the future. It has also developed an e-learning tool on the responsible use of antibiotics for company employees which was launched internally in February 2016 and has reached 98 % of relevant company employees with 90 % receiving their certificate of completion of the course (it is necessary to score 100 % in an associated examination to receive the certificate). A logo has been developed to be placed on all information brochures and advertisements for antibiotics with the slogan 'together for responsible use'.
82. In 2014, stable-proof posters with responsible use guidance were developed by Pharma.be and AMCRA, with 10 000 posters being distributed directly to farmers via agricultural fairs and veterinarians. Specific posters were developed for the pig, cattle, veal calf and poultry sectors. A press campaign to create awareness among farmers on responsible antibiotic use, that prevention is better than cure and to collaborate with your veterinarian was organised across 26 publications in Belgium's agricultural press based on an additional €50 000 investment by Pharma.be's member companies.
83. At the most recent 'ambassadors' day' meeting organised by Pharma.be, (a commitment included in the Convention signed in June 2016), 167 people attended and a presentation was given on the prudent use of antibiotics by AMCRA, along with other presentations concerning the advertising of veterinary medicines and launch of the Pharma.be e-learning platform.

5 OVERALL CONCLUSION

<p>The report concludes that Belgium does not yet have a truly One Health national action plan on AMR, with the many initiatives on AMR in the human and veterinary fields being</p>
--

generally separate, and very little attention currently being given to the environmental aspects of AMR. In this sense, greater cooperation and coordination between the different sectors could be beneficial, for example a combined analysis and reporting of AMR surveillance and antibiotic use data.

Specifically in relation to the veterinary field, various communication and awareness-raising activities have already taken place on issues such as biosecurity, as well as the reduced and prudent use of antibiotics, but issues related to companion animals have often not been included in these initiatives. Ambitious veterinary antibiotic use reduction targets have been recently agreed with stakeholders, but not all of the expected tools and necessary support elements are in place to achieve these, such as benchmarking of prescribing and use of antibiotics, identification of critical success or failure factors and further dissemination of good practices.

6 CONSIDERATIONS FOR POSSIBLE FUTURE ACTIONS

The visit team identified the following points which may be useful to be taken into consideration by the relevant competent authorities in further developing and implementing national policies and strategies on AMR:

- There should be scope for greater and more effective collaboration and cooperation between the human health, veterinary, and also environmental sectors in order to address the implementation of national AMR policies in a more holistic One Health perspective. The preparation of a single One Health national action plan against AMR may be useful in this regard.
- Within the existing intersectoral coordination mechanism, it should be beneficial to have shared discussions between the veterinary and human health sectors on issues such as awareness campaigns and infection prevention and control, with veterinarians not currently represented in these specific intersectoral coordination mechanism working groups ⁴⁹.
- It would be beneficial to have a more integrated analysis and reporting of AMR surveillance and antimicrobial sales and usage trends, between and within both the veterinary and human health sectors, which has already been identified as an outstanding objective by the intersectoral coordination mechanism.

⁴⁹ In their comments on the draft report, the competent authority noted that a restructuring of the intersectoral coordination mechanism (BAPCOC) is ongoing.

- Whilst the setting of ambitious antibiotic use reduction targets in animals can be a valuable way of effecting change and modifying behaviour concerning the prescribing and use of such antibiotics, vigilance is required to ensure that these do not jeopardise animal health, welfare or the production viability and profitability of farms, especially when steep reductions are seen (e.g. a 53 % decrease in CIA use within 1 year) ⁵⁰.
- Given that different animal production sectors normally have a greater or lesser capacity to more easily reduce antibiotic use without jeopardising animal health, welfare and production parameters, consideration should be given to more tailored sector-specific antibiotic use reduction targets which have proven to be an appropriate and effective strategy for reduced and more prudent antibiotic use in some other Member States ⁵¹.
- On the specific issue of use of CIAs in animals, there is potential to share experiences and treatment approaches between veterinarians in Belgium and other Member States facing similar challenges to reduce the use of CIAs in particular animal production sectors, whilst safeguarding animal health and welfare.
- For establishing or modifying further antibiotic use reduction targets in the future, it would be helpful if the necessary supporting tools were already available to farmers, veterinarians and other stakeholders when the targets are established, in order to assist their efforts to ensure the reduced and more prudent use of antibiotics and comply with these targets. These tools could encompass the benchmarking of antibiotic prescribing and use, identification of relevant critical success and failure factors contributing to low or high antibiotic use, and the identification and dissemination of good practices ⁵². Greater emphasis could also be given to seeking alternatives to antibiotics, disease prevention, husbandry, possible nutritional supplements and using slaughterhouse feedback data on lesions detected at slaughter as a feedback and monitoring tool for individual farms in some specific sectors (e.g. pigs and veal calves).
- Official reduction targets and stakeholder initiatives currently focus to a large extent on the quantitative aspects of reduced antibiotic use in animals. Nevertheless, the qualitative aspects concerning prudent antibiotic use should also receive due attention. Likewise, attention should be given to the impact of certain trends, such as a reduction in medicated feed use, a rapid and steep reduction in CIA use and the future phasing out of the use of zinc oxide as a premix in feed for weaning pigs. In particular, some of the stakeholders met did not perceive any difference between the reduced and prudent use of antibiotics and some further discussions of this issue with stakeholders

⁵⁰ In their comments on the draft report, the competent authority noted that surveillance of animal welfare due to the reduction of antibiotic use is on the list of actions to be taken in the near future.

⁵¹ In their comments on the draft report, the competent authority noted that intentions for more tailored sector-specific reduction targets are already included in the Convention of 2016 and that, as soon as data are available on the use of antibiotics at sector level, sector-specific reduction targets will be proposed.

⁵² In their comments on the draft report, the competent authority noted that good practices have been identified and disseminated by AMCRA in 2012-2013 (auto-regulation guides for the different sectors) and that these are periodically updated.

should be beneficial, especially as efforts continue to implement the many actions agreed with stakeholders in the Convention of June 2016.

- In order to motivate high antibiotic using farmers and high prescribing veterinarians to modulate their behaviour, consideration should be given to the provision of additional support, or the organisation of supervision and controls at those levels, which are tools that have been successfully used in some other Member States. There should be some potential to incorporate aspects relevant to AMR and prudent use into official controls performed for other purposes on farms, veterinary practices, and feed mills producing medicated feed.
- Attention should be given to the possibility of further harnessing the influence of food retailers and processors to drive further changes and possibly incentivise farmers towards the reduced and more prudent use of antibiotics.
- Some additional attention should be given to the topics of AMR surveillance and prudent antibiotic use in companion animals (pets and horses).
- There appears to be considerable scope to involve Belgian university veterinary medicine faculties and veterinary nurse training establishments to a greater extent in AMR and prudent use activities and to give greater attention to the topic of infection prevention and control in the undergraduate veterinary curriculum (as well as collaborating with relevant human health counterparts on this topic).

7 CLOSING MEETING

A joint closing meeting was held on 24 November 2017 along with the ECDC country visit team and the representatives of the competent authorities. At this meeting, main findings and preliminary conclusions concerning the veterinary and environmental aspects of the visit were presented by the DG Health and Food Safety country visit team.

ANNEX 1 – LEGAL REFERENCES

Legal Reference	Official Journal	Title
Dir. 90/167/EEC	OJ L 92, 7.4.1990, p. 42-48	Council Directive 90/167/EEC of 26 March 1990 laying down the conditions governing the preparation, placing on the market and use of medicated feedingstuffs in the Community
Dir. 96/23/EC	OJ L 125, 23.5.1996, p. 10-32	Council Directive 96/23/EC of 29 April 1996 on measures to monitor certain substances and residues thereof in live animals and animal products and repealing Directives 85/358/EEC and 86/469/EEC and Decisions 89/187/EEC and 91/664/EEC
Dir. 2008/105/EC	OJ L 348, 24.12.2008, p. 84-97	Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council
Dir. 2001/82/EC	OJ L 311, 28.11.2001, p. 1-66	Directive 2001/82/EC of the European Parliament and of the Council of 6 November 2001 on the Community code relating to veterinary medicinal products
Dec. 2013/652/EU	OJ L 303, 14.11.2013, p. 26-39	2013/652/EU: Commission Implementing Decision of 12 November 2013 on the monitoring and reporting of antimicrobial resistance in zoonotic and commensal bacteria
Dec. 2015/495/EU	OJ L 78, 24.3.2015, p. 40-42	Commission Implementing Decision (EU) 2015/495 of 20 March 2015 establishing a watch list of substances for Union-wide monitoring in the field of water policy pursuant to Directive 2008/105/EC of the European Parliament and of the Council