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Veterinary Medicines Division

Questions and answers for the guidance on collection and provision of national data on antimicrobial use by animal species/categories (EMA/489035/2016-Rev.1)

Introduction

This document explains the rationale behind certain compromises and decisions made during the drafting of guidance for collection and provision of national data on antimicrobial use by animal species/categories. It is intended to provide additional background information which would fall outside the scope of the guidance itself. Therefore it is recommended to read this Question and Answer document in conjunction with the guidance document.

During the drafting of the guidance various options have been considered for the collection of data on use of antimicrobial agents and the animal population at risk of being treated with those antimicrobials. Because the guidance needs to be applicable for all European Union/European Economic Area Member States (EU/EEA MS), there is a need for a pragmatic approach for the collection of data on antimicrobial use and animal population at risk to be provided to the European Medicines Agency (EMA). This Question and Answer document intends to explain some of the decisions made to allow for the pragmatic approach.

It is acknowledged that this approach may have limitations and that, for additional national purposes, a locally adapted approach could be applied which could be combined with collection of data for EMA purposes.

What is the difference between the guidance and a protocol?

The guidance is not intended to be a protocol; a protocol would follow as a separate document at a later stage if EMA would send out a call for data. This protocol would focus solely on the required data and the steps to follow for providing those data to EMA, whereas the guidance has a more advisory and informative objective. The guidance intends to set standards for data provided to EMA, not requirements, as collection of antimicrobial use data by species is currently not mandatory at EU/EEA level. Therefore, the main chapters of the guidance document provide experts or authorities wishing to set up a data collection system with information on the minimum required data that would need to be

provided to EMA if future data collection became a requirement. The guidance document also provides in the various annexes further information on how to collect those data at national level.

Data to be eventually reported to EMA – use data

Why can different national data collection systems be used?

The structure and organization of the animal production sectors in the various EU/EEA MSs is quite diverse. Existing or planned systems to collect use data by animal species/category vary greatly between countries, which can lead to systematic differences between countries even though they basically collect the same data. Furthermore, collection of data from a representative sample should in principle be as accurate as data providing full coverage, but may have a lower precision.

It is acknowledged that permanent systems (preferably continuously collecting data in an automated manner) should be encouraged, prioritised and favoured. However, it is also recognized that it is likely to be complex and highly resource demanding to set up such a system (in terms of time and human resources, and initial investments, which are expected to decrease over time). A representative survey (through a well-designed random selection of farms) is considered to be a useful option to obtain insight into antimicrobial use at the species level, while at the same time acquiring enough expertise and knowledge to consider future implementation of a continuous data collection system. Both data collection approaches considered would provide the data required for EMA purposes, but with a different level of precision.

Why can different data sources be used to collect data?

Various types of data collection systems are currently in use or under study in EU/EEA MSs. Depending on the prescription and marketing rules/regulation, practices, and structure of the animal production sector, different actors can be involved at the different stages of the treatment of animals (from prescription to administration of the product). The diversity of data sources (e.g. prescriptions, health records, delivery notes) and actors is acknowledged.

Because collection of data on antimicrobial use by species is encouraged and should be achievable in as many EU/EEA MSs as possible, instead of harmonising the data collection method, it is considered a requisite to ensure that the provided data are harmonised and standardised – to the extent possible. This is similar to the collection of sales data for the European Surveillance of Veterinary Antimicrobial Consumption (ESVAC) activity – where the data source may differ between countries (data can be provided by wholesalers, marketing authorisation holders, feed mills, etc.), but the data provided to EMA should be harmonised and standardised.

It is the responsibility of the national competent authority to identify the most suitable source of data or combination of sources. Therefore, various data sources were considered as eligible provided that they allow a complete and convenient data collection and data transmission according to specification in the guidance (enabling calculation of a corresponding amount of veterinary medicinal product (VMP) used).

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Why are data for cattle to be collected by production category (veal, dairy and beef) instead of by cattle overall?

Within cattle three production sectors can be clearly distinguished (veal (i.e. bovine animals slaughtered below 1 year of age), dairy and beef); such distinctions cannot be made for the other species covered by the guidance document. Patterns of antimicrobial use are fundamentally different in these three cattle production categories/sectors. Therefore, data should preferably be collected by production categories: veal, dairy and beef. As antimicrobial resistance monitoring by the European Food Safety Authority is limited to bovine animals slaughtered below the age of 12 months, collecting data for these animals separately is considered to be important.

Why should data be provided aggregated at Veterinary Medicinal Product (VMP) or VMP presentation level?

The data would have to be provided by the EU/EEA MSs aggregated at VMP (when data are provided as the weight or volume used per VMP) or VMP presentation (when data are provided as the number of packages used per VMP presentation) level (per animal species/category). The reason for not requesting data to be provided as the amount of active substance used in a species or category is that, for harmonisation and standardisation reasons, during the web-based delivery of the data EMA would automatically calculate the amount of active substance and number of DDDvet and DCDvet used. Moreover, EMA could then provide a template with which the data could be provided, which could be similar to that used for collecting the sales data. This template would include all VMP presentations marketed in a country and thus help ensure that complete data would be collected.

Why should data be aggregated at animal species/category level?

For EMA purposes, data would have to be collected at a level as close as possible to the end user, i.e. at the farm level. However, the term 'farm data' is avoided in the guidance, as (part of) the required data could also be obtained through veterinary practices and/or pharmacies. Furthermore, data would be collected at farm level but provided to EMA in an aggregated format as an estimate of use for a species at the national level.

For national purposes, it is recommended to collect and interpret data at production category (e.g. weaners, fatteners, sows), or even per production type (e.g. extensive/intensive). Detailed knowledge of use of antimicrobials is valuable for analysis of the data in a way that can be used for developing policies on antimicrobial use and on limiting antimicrobial resistance. As an example, pig production is organized into production categories defined by live weight or age, roughly divided into sows, sucking piglets, weaned piglets, gilts and finisher pigs, and antimicrobial use differs between these production categories, e.g. in administration route and antimicrobial class. However, production systems and organisation of animal production industries differ greatly between countries, leading to a lack of harmonisation in the definition of the different production categories.

As the primary objective of data collection for EMA purposes would be to allow provision of harmonised data and evaluation of trends over time, collection of aggregated data by animal species (in the case of pigs, broilers and turkeys) or production sectors/categories (in the case of cattle) is considered sufficiently accurate at the national level.

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Data to be eventually reported to EMA – animal population data

What is the denominator?

The animal population at risk of being treated with antimicrobial agents has to be quantified and subsequently converted into a denominator which can then be utilized to adjust the quantity of antimicrobials used across countries or years.

In general, population size can be addressed through the number of animals present, the number of animals produced/slaughtered or a combination of both, such as for pigs (living sows and slaughter pigs produced) and cattle (living dairy cows and e.g. veal calves produced). To date, several approaches to calculate a denominator based on the animal population at risk exist in countries monitoring use, which include, for example, numbers of animals, estimated biomass or number of days of animal presence (animal-days, to take into account production length).

For EMA purposes, a harmonised and standardised quantification of the annual animal population at risk, i.e. the denominator, needed to be established that would be applicable for all countries participating in the data collection. The following constraints needed to be considered when establishing this denominator:

- preference is for the application of validated and published/publicly available statistics – or reliable data which can be collected at the farm level;

- the denominator needs to be suitable for combining different animal categories within a species (i.e. living and produced/slaughtered).

Considering the corresponding animal biomass as a proxy for the animal population size appeared suitable in light of the constraints described above. Indeed, weight (in kilogram) of different animal categories can be combined to reflect the complex structure of animal production such as pig production (with both slaughtered and living animals).

It was considered if the calculation as applied for the ESVAC sales Population Correction Unit (PCU) could be adopted by taking the appropriate species elements from the composition of the PCU. The ESVAC sales PCU is a composite variable, which means that the PCU covers multiple species and reflects the food-producing animal demographics in a country. Therefore, the PCU as calculated for the reporting of overall sales data in a country is not suitable to report data for one specified animal species.

For example, for pigs the number of living sows and pigs slaughtered in the country would be used (collected from Eurostat), corrected for import and export of pigs for fattening and slaughter in the country (collected from TRACES). The species-specific elements of the ESVAC sales PCU could be applied if the data collection would cover the whole animal production in a country. It was also considered if additional categories needed to be included, such as import and export of turkeys for slaughter (not currently included in the ESVAC sales PCU).

Considering that the denominator established for the purpose of the guidance reflects the same standardised weights as utilized for the sales PCU (i.e. standardised average weight at treatment), it was decided to use the term 'species PCU' to denote the denominator.

Why are animal movements between farms not taken into account for the denominator?

As with the sales PCU, the denominator used by the ESVAC activity to report antimicrobial sales data, the suggested species PCU at national level for the census model (full or nearly full coverage of the animal production in a sector) takes into account import and export of animals for fattening or slaughter from or to another EU/EEA MS. This is to ensure that both the animals included in the denominator and the antimicrobial use data related to this denominator, are assigned to the same country. For example, pigs raised in country X, thus receiving most or all treatments with antimicrobials in country X, but slaughtered in country Y, are not included in the denominator of country Y but in the denominator of country X. If this adjustment was not made, it would lead to a bigger denominator and thus to an underestimation of antimicrobial use in country Y.

However, when establishing the denominator for the animal population included in a survey sample, the inclusion of movements of animals intended for fattening is more complex because it would require detailed knowledge on the movements of the animals, i.e. whether animals move from a sample farm and/or onto a sample farm during the rearing period. Considering existing experience (see report of the ESVAC Pig Trial) and available data on national production structures, data on animal movements between farms are complex to obtain at farm level in many countries, and impact analyses on the pig denominator showed that the impact was low.

Why are categories other than live dairy cows excluded from the denominator for dairy farms?

The denominator for antimicrobial use in dairy production would be calculated from the number of live dairy cows present. It is not unusual for dairy farms to also raise beef cattle. However, the majority of antimicrobial agents are generally administered to dairy cows on such farms, and dairy cows generally constitute the majority of the animal population at risk of treatment. For these reasons, and because collection of data on the number of beef cattle at farm level is complex, it was decided to exclude beef cattle from the denominator for dairy production.

Reporting of use by species by EMA

What do the indicators mean?

Indicators are used to report use data and are usually given in the form of numerator (use) relative to a denominator (animal population). EMA would eventually report antimicrobial use by species in terms of mg active substance, number of animal Defined Daily Doses (DDDvet) and number of animal Defined Course Doses (DCDvet), and the denominator as kg animal biomass.

Numbers of DDDvet and DCDvet would be calculated from the amounts of active substance (derived from the number of packages[1]), making use of DDDvet and DCDvet values established by EMA for pigs, cattle and poultry[2]. When combination products are used, the amount of active substance and numbers of DDDvet and DCDvet would be calculated for each active substance in the product.

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[1] See guidance for further details and exceptions.
[2] Defined daily doses for animals (DDDvet) and defined course doses for animals (DCDvet)
http://www.ema.europa.eu/docs/en_GB/document_library/Other/2016/04/WC500205410.pdf

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As the DDDvet is the assumed average dose per kg animal per species per day and the DCDvet is the assumed average dose per kg animal per species per treatment course, the number of DDDvet expresses the number of defined daily doses used per kg of animal by a given animal species within a country in a year and the number of DCDvet expresses the number of defined courses doses (full treatments with a certain treatment dose and duration) used per kg of animal by a given animal species within a country in a year.

DDDvet and DCDvet are technical units of antimicrobial use measurement and can differ from applied dosages/treatment durations in the species and countries. The denominator is a technical unit of measurement which estimates animal biomass at risk, and is used to adjust the amount of antimicrobials for the size of the animal population. It is a proxy for the animal population that can be treated with antimicrobials. Indicators are not intended to exactly reflect the practices in a given country, species and year. As a result, inter-country or inter-species comparison should be made with caution or avoided when it is recognised that it could lead to misinterpretation of the results or misuse of the data.

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