



Surveillance and monitoring systems for antimicrobial usage in livestock animals in six European countries

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Antimicrobial use (AMU) has been shown as the major trigger for the selection and spread of antimicrobial resistance (AMR). Surveillance and monitoring systems for AMU and AMR in animals are essential to control and assess the AMR trends. A consensus has been reached to collect AMU sales data from animals on EU-level using the weight of active ingredient. However, in several countries further data are collected. Those datasets that do not report their data at European level may use other units and data sources making comparisons challenging.

METHODS

Relevant data sources such as peer-reviewed articles, databases, national and European grey reports among others were thoroughly reviewed in order to identify public information from six countries about surveillance and monitoring systems and their databases in animals. The searching terms "antimicrobial use", "Spain", "Germany", "UK", "United Kingdom", "Netherlands", "France", "Norway", "Europe", "animal", "surveillance", "system" and "monitoring" were used to identify all data sources.

RESULTS

- A wide variety of AMU and AMR monitoring and surveillance systems and also reports were identified at country and regional levels containing a wealth of information. AMU data are displayed in diverse standard units such as Defined Daily Dose (DDD)/animal/year, weight of active ingredient, mg of active ingredient/ animal kg and therapy frequency among others.
- Member States report sales data to the European Surveillance of Veterinary Antimicrobial Consumption (ESVAC) adopting the unit 'weight of active ingredient'. However, these data do not allow for an attribution of use to specific animal populations. Other identified databases cover specific animal populations but frequently provide different units posing challenges for cross country and cross population comparisons.
- Some overlap between systems have been encountered. The development of these systems may be due to the existence of specific interests that are not fully covered by earlier systems leading to a substantial diversity in objectives and procedures and/or the lack of free access to the available information.

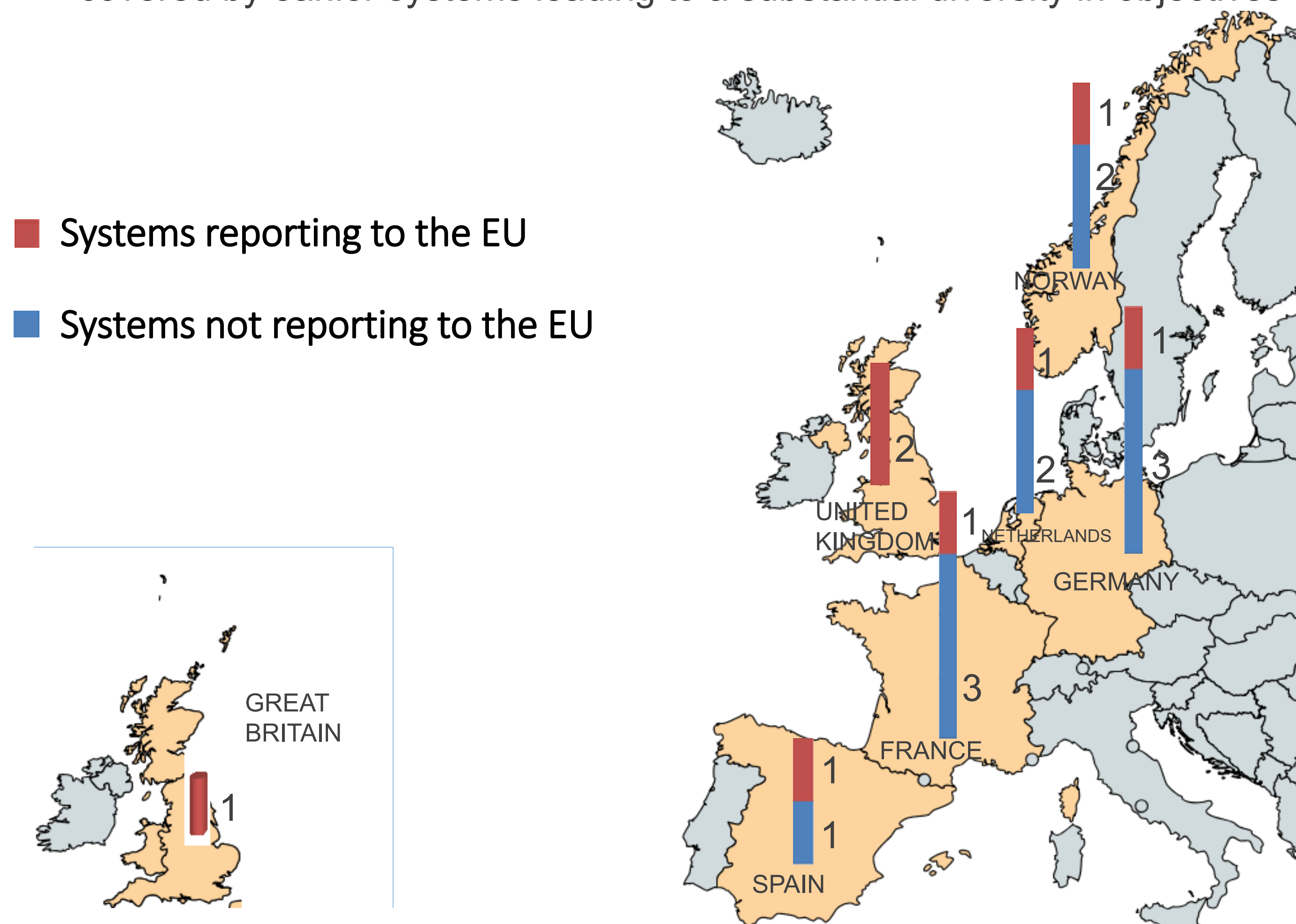
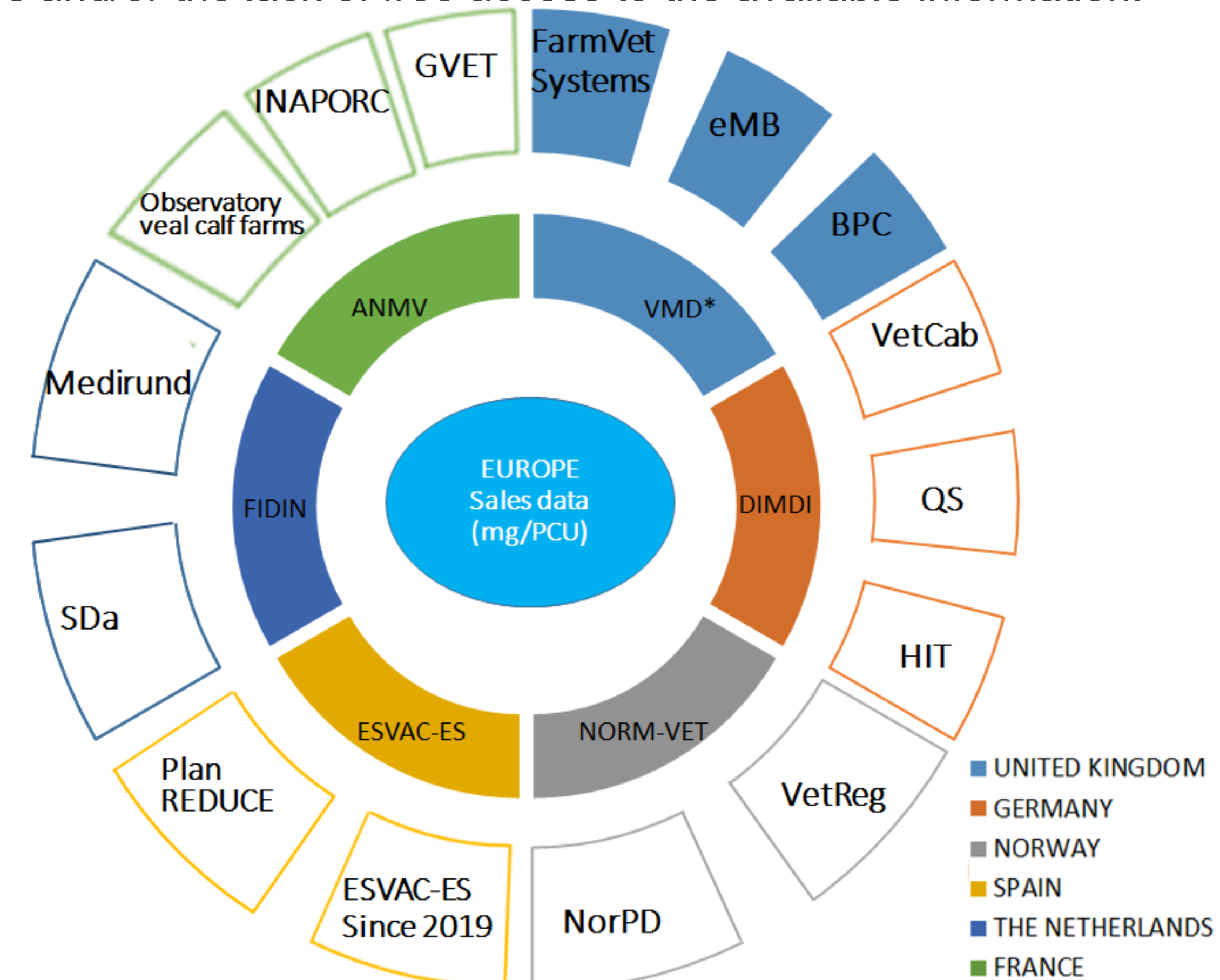


Fig 1. Number of database systems identified per country/region reported and not reported to the ESVAC.



*VMD collects livestock data from industry based databases (eMB, BPC and FarmVet Systems). eMB and BPC provide data in UK whereas FarmVet Systems in Great Britain. Fig 2. Databases reporting sales data to the ESVAC and others.

Country	Database Name	Data type	Units
France	GVET	Prescription	NAT, NAT days, UDD, UCD, DDD, DCD, DDDvet and DCDvet
France	INAPORC	Prescription	DDD and DCD based on national SPC; DDDvet, DCDvet from EMA
France	Observatory of antibiotics in veal calf farms	Prescription	NAT per calf and batch, NAT days per calf, The total QAI per calf and ALEA
Spain	ESVAC-ES (since 2019)	Prescription	mg/PCU
Spain	Plan REDUCE	Prescription	mg/PCU
Germany	HIT	Prescription	Therapy frequency
Germany	QS	Prescription	Therapy frequency
Germany	VetCab	Prescription	Therapy frequency
Norway	NorPD	Prescription	DDD
Norway	VetReg	Prescription	Weight of active ingredient
The Netherlands	SDa	Prescription	Weight of active ingredient, DDDvet and DDDaNat
The Netherlands	Medirund	Prescription	DDD/animal/year

Tab 1. Systems not reporting to ESVAC.

CONCLUSION AND PERSPECTIVES

- AMU systems and reports need harmonization through uniform and robust standards.
- There is overlap between systems.
- Annual AMU reports should be published in English with a maximum of one year on mandatory basis in EU countries.
- The use of prescription data will allow for a more detailed analysis of treatment and AMR data, compared to the European analyses currently carried out in the JIACRA reports by EFSA, EMA und ECDC.

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