Approaches to tackle antimicrobial resistance in Germany: Data collection and risk assessment

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Actions taken for reduction

German strategy against antimicrobial resistance (DART)

- First launched in 2008
- Updated as DART 2020 in 2015

Common approach of

- Ministry of Health (BMG)
- Ministry of Food and Agriculture (BMEL)
- Ministry of Education and Research (BMBF)

Principle of

- Defining target/ directions
- Accepting responsibilities
- Defining players
- Designing measures
- Revisiting results
Data collection systems on antimicrobial use in livestock animals in Germany

Sales data
- Collected via declaration by the pharmaceutical companies (DIMDI-VO), summarised by BVL
- For ESVAC project

Usage data
- Collected by declaration of antimicrobial usage data by the farmer
- Legally binding for fattening herds / flocks based on revised German drug act
- Used for benchmarking

Research project VetCAb funded by BfR
- Detailed data for research purposes

- Decreasing sales and use figures in all collection systems
- Increased awareness of farmers and vets
- Benchmarking as a tool for realistic and feasible targets
- Planned review of the legal situation in 2019
Development of treatment frequency (BVL 2016)

![Graph showing the development of treatment frequency for different types of livestock and production types over the semesters of 2014-2 to 2015-2. The graph includes piglets < 30kg, fatteners, broilers, turkeys, calves < 8 m, and beef cattle > 8 m. The 3rd quartile and median are indicated for each category and semester.]

- Piglets < 30kg
- Fatteners
- Broilers
- Turkeys
- Calves < 8 m
- Beef cattle > 8 m

Production type / Semester:
- 2014-2
- 2015-1
- 2015-2
Data on antimicrobial usage: the VetCAb Project

Developed and tested in feasibility and pilot study in 2006 – 2013

Sentinel study:
Continuous sample of farms
• Main livestock species
• Different production types
• Different age groups

Enables
• Scientific in depth analyses
• Linking data on use with data on animal health and AMR
Data collection on antimicrobial resistance in the food chain

Continuous intensified monitoring since 2009
- As required by Commission Decision 2013/652/EU
- Including additional bacteria/matrix combinations
- Representative samples from primary production, slaughter and retail
- Intensive cooperation of counties, Länder and Federal Institutions (BfR and BVL)

Specific research projects
- E.g. on ESBL/AmpC-producing *E.coli* (RESET)
- On MRSA (MedVet-Staph)
- Interdisciplinary approach to understand the links and the impact of the food chain on human health

Molecular typing of selected isolates
- Focus on critically important antimicrobials
“New“ challenges: transferable colistin-resistance

![Bar chart](image)

**mcr-1 related colistin resistance in the food chain**
- Has been present in Germany at least since 2010
- Has not been increasing since 2011
- Colistin sales have decreased between 2011 and 2014 (127 t to 107 t)
- So far very few E. coli isolates with *mcr-1* from humans
Thank you for your attention!

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Objectives of your approaches

- Improve understanding of the patterns for antimicrobial usage in livestock populations and contribute to reduction strategies for antimicrobial use in livestock
- Improve understanding of the link between antimicrobial use and antimicrobial resistance development and follow up the impact of antimicrobial use reduction strategies
- Improve understanding and quantify, if possible, the impact of antimicrobial use in livestock on exposure / colonisation / infection of humans with resistant bacteria

Summary

- Antimicrobial resistance is recognised as an important public health topic in Germany
- Public debate and research/monitoring results have led to action on different levels
- Antimicrobial usage in livestock decreases
- No further increase in ESBL can be noticed
- Horizontal gene transfer is currently one major challenge in combating spread of antimicrobial resistance