

Actions taken in Germany to tackle antibiotic resistance and their possible influence on antimicrobial usage

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Introduction

The containment of antimicrobial resistance is one of the biggest challenges in today's medicine. Antimicrobials must be used intelligently in human and veterinary medicine. Different actions are described in the German Antimicrobial Resistance Strategies (DART, DART 2020) addressing the fight against antimicrobial resistance.

Actions taken in Germany in veterinary medicine

2000 A. Guidelines

A. Guidelines for the prudent use of veterinary antimicrobial drugs

The Guidelines were developed by the German Federal Veterinary Surgeons Association (BTK) together with the Working Group of Leading Veterinary Officials (ArgeVet; last update: 2015). Key elements are: (1) diagnosis, (2) choice of active substance taking pharmacokinetic and –dynamic facts into consideration, (3) compliance with the labelling and (4) restricted use of active substances having a last resort definition.

EU wide prohibition of growth promoters

2011 B. ASV

2014 C. ATF

B. Antimicrobial Sales Volumes (ASV)

In accordance to the national legislation, pharmaceutical companies have to report the volumes of antimicrobial medicinal products sold to veterinarians in Germany. The data are analysed as described by Hauck et al. (2014).



Based on the national legislation, only farms with certain production types and sizes have to report data about the use of antimicrobials. The following formula is used for the biannual calculation of the individual ATFs (Hemme et al. 2016):

$$ATF = \frac{\sum groups \times \sum treatments \times A}{(\frac{\sum time\ periods\ (animals\ kept\ \times\ days)}{number\ of\ days\ within\ the\ half\ year})}$$

A = treated animals x duration of treatment coursex number of active substances

Farms with an individual ATF above the median of all ATFs of a certain category have to analyse their antimicrobial usage. Farms above the third quartile must develop an action plan under the control of the competent authority (benchmarking system).

D. Second Amendment of TÄHAV (TÄHAV)

amendment the "Veterinary second of (TÄHAV) Regulation" Prescription Pharmacies includes inter alia the following aspects: (1) restricted usage of 3rd and 4th generation Cephalosporins and (labelling); Fluoroquinolones performing susceptibility testing under defined circumstances using 3rd and 4th generation when and Cephalosporins and Fluoroquinolones.

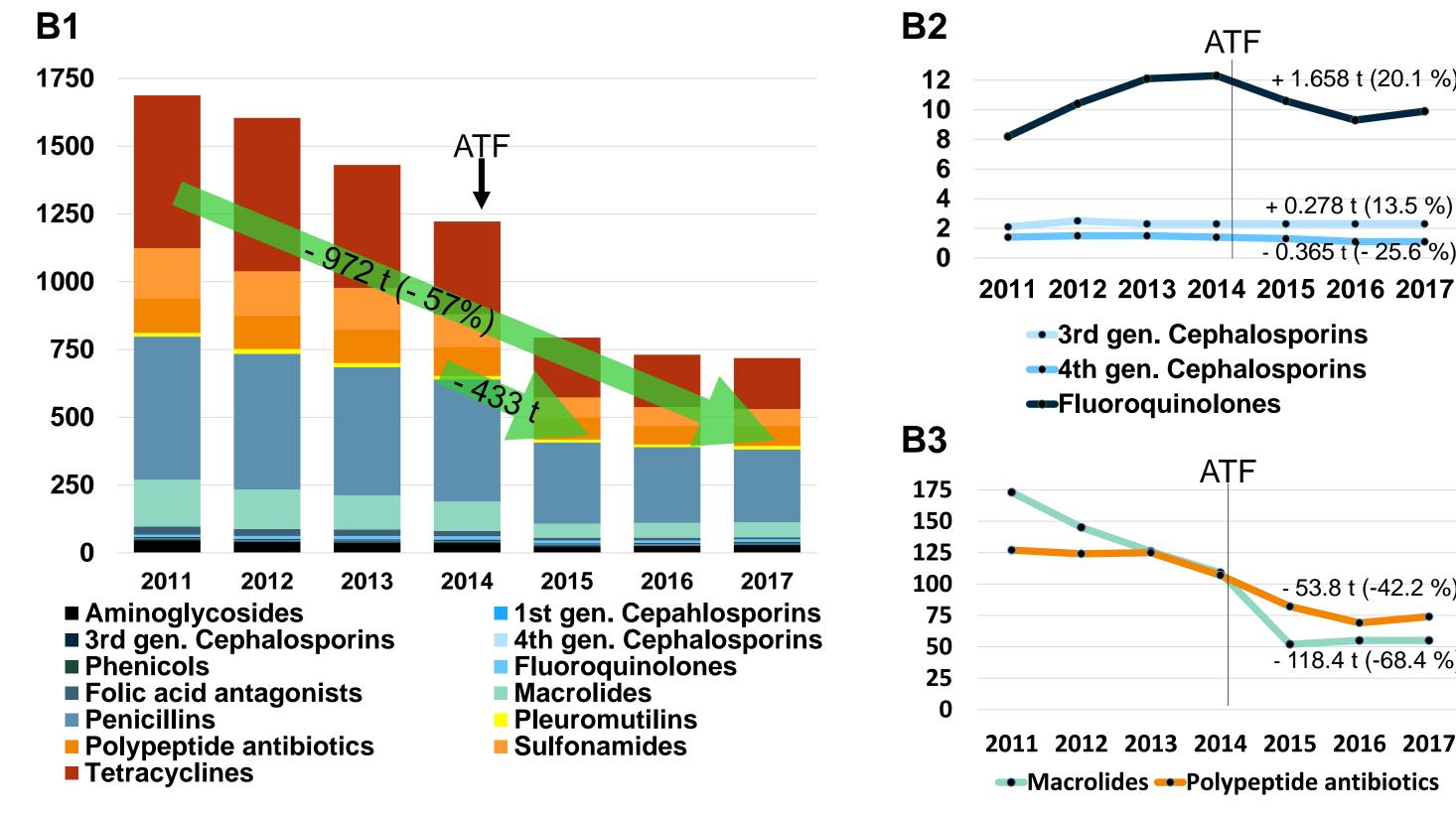


Figure B1 – B3: Antimicrobial sales volumes from 2011 – 2017 Figure B1 summarizes the amount of the different antimicrobial drug classes. Black arrow = start ATF; big green arrow = reduction from 2011 to 2017; small green arrows = reduction between 2014 and 2015. In Figure B2 and B3 the developments of sales volumes of the critically important antimicrobials of highest priority (WHO classification) are shown. The differences of the amounts between 2011 to 2017 are given on the right side. Vertical black line = start ATFs.

+ 1.658 t (20.1 %)

- 53.8 t (-42.2 %)

- 118.4 t (-68.4 %)

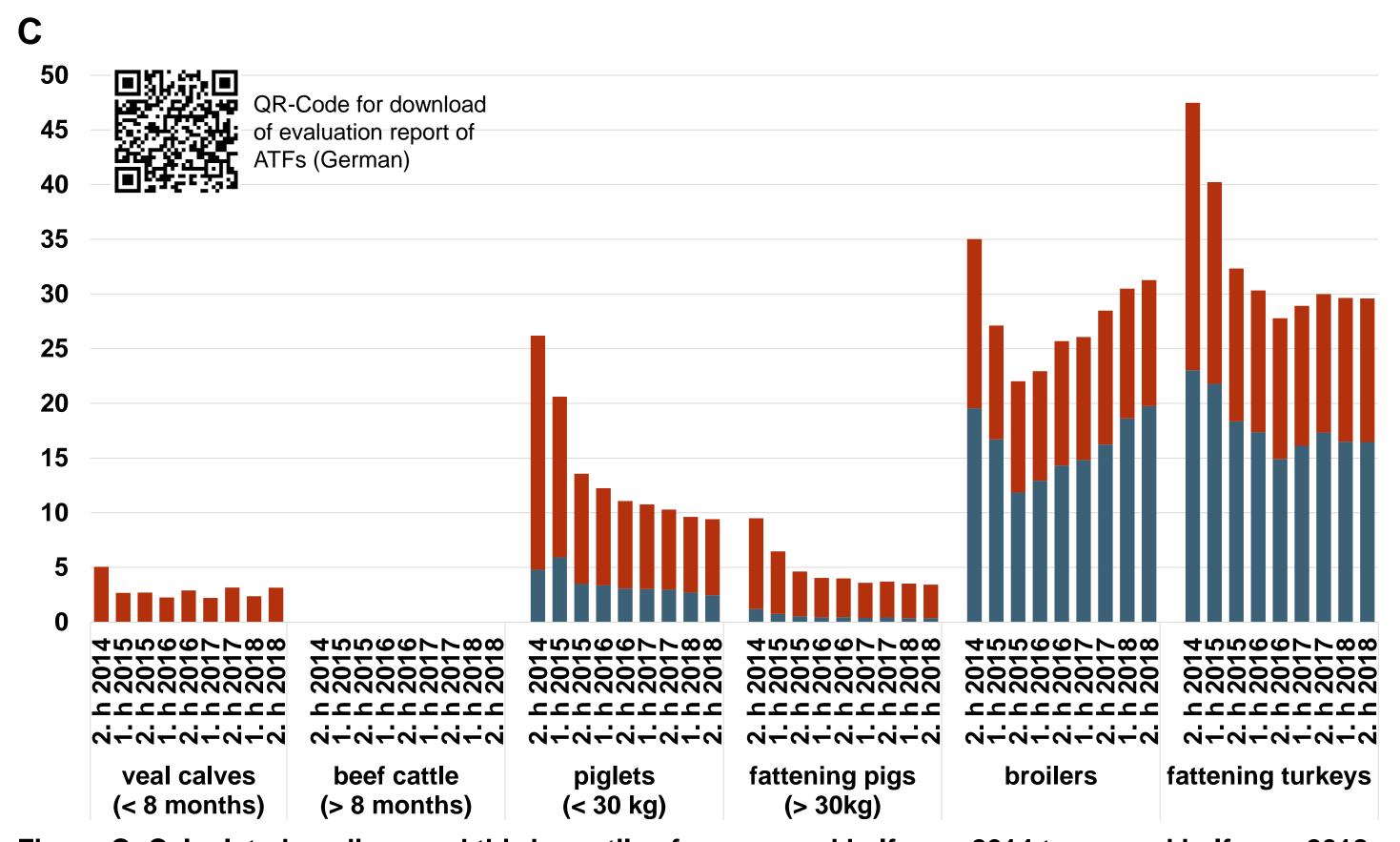


Figure C: Calculated medians and third quartiles from second half-year 2014 to second half-year 2018 The medians are symbolised by the top of the blue part of the bars and the third quartiles are represented by the top of the red part of the bars.

Conclusion

2018 D. TÄHAV

2021 medicinal

EU veterinary

regulation

The establishment of a benchmarking system in 2014 lead to a reduction of total sales volumes in Germany. No consumption data are collected in Germany nowadays, but are part of the new European Veterinary Medicinal Regulation (RG (EU) 2019/6). The goal of intelligent use of antimicrobials is the containment of the spread of antimicrobial resistance. Therefore, for profound evaluation of measures, the linkage between antimicrobial consumption and antimicrobial resistance has to be investigated. An evaluation report of the ATF system was published by the Federal Ministry of Food and Agriculture in 2019.