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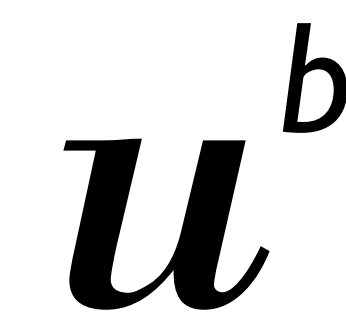
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## Expert opinion on livestock antimicrobial usage indications and patterns in Denmark, Portugal and Switzerland

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### Background and Objectives

- To foster prudent antimicrobial use (AMU) in livestock, a thorough understanding of the patterns and indications for treatment is required
- The objectives were to: (1) investigate temporal AMU patterns throughout the production cycles and the indications for specific antimicrobial substances, within four common livestock sectors; (2) compare results between countries

### Materials and Methods

- Expert opinion deemed as the most appropriate method to collect data with such detail
- Veterinary experts (n=67) from different livestock sectors (broilers, pigs, dairy cattle and veal/fattening calves) and countries (Denmark, Portugal and Switzerland) replied to a questionnaire

### Results

- Large differences were found regarding antimicrobial substances licensed in each country
- Between- and within-country variations exist regarding temporal distributions of treatments and indications for use (Fig. 1)
- These differences hold true for several critically important antimicrobials, which is of particular concern (Fig. 2)
- A web-application was created to show all results in an interactive fashion

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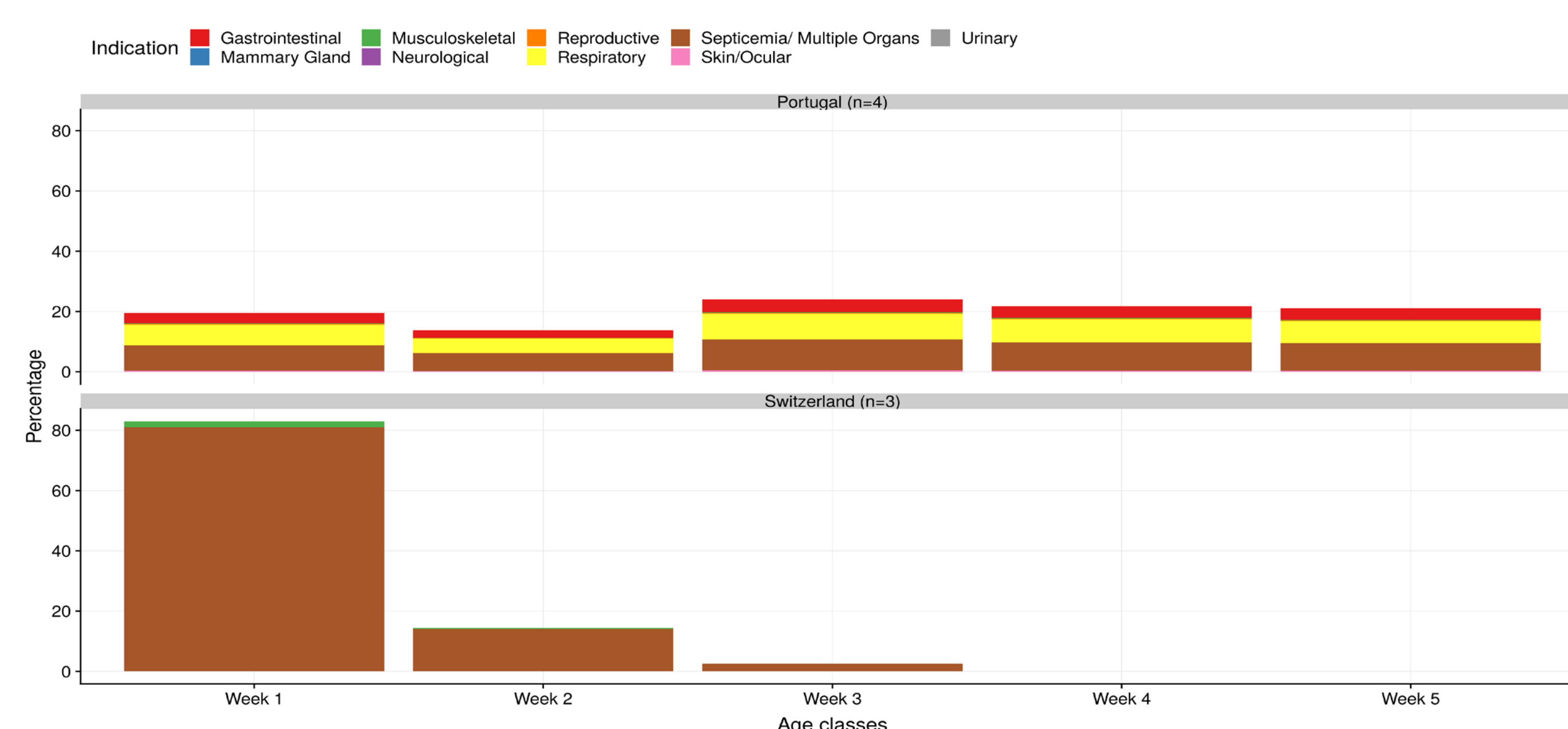


Fig. 1 - Indications for oral treatment with enrofloxacin in broilers. Different colours represent different treatment indications. Bars indicate mean relative proportion of treatments with this antimicrobial in different phases of the production cycle.

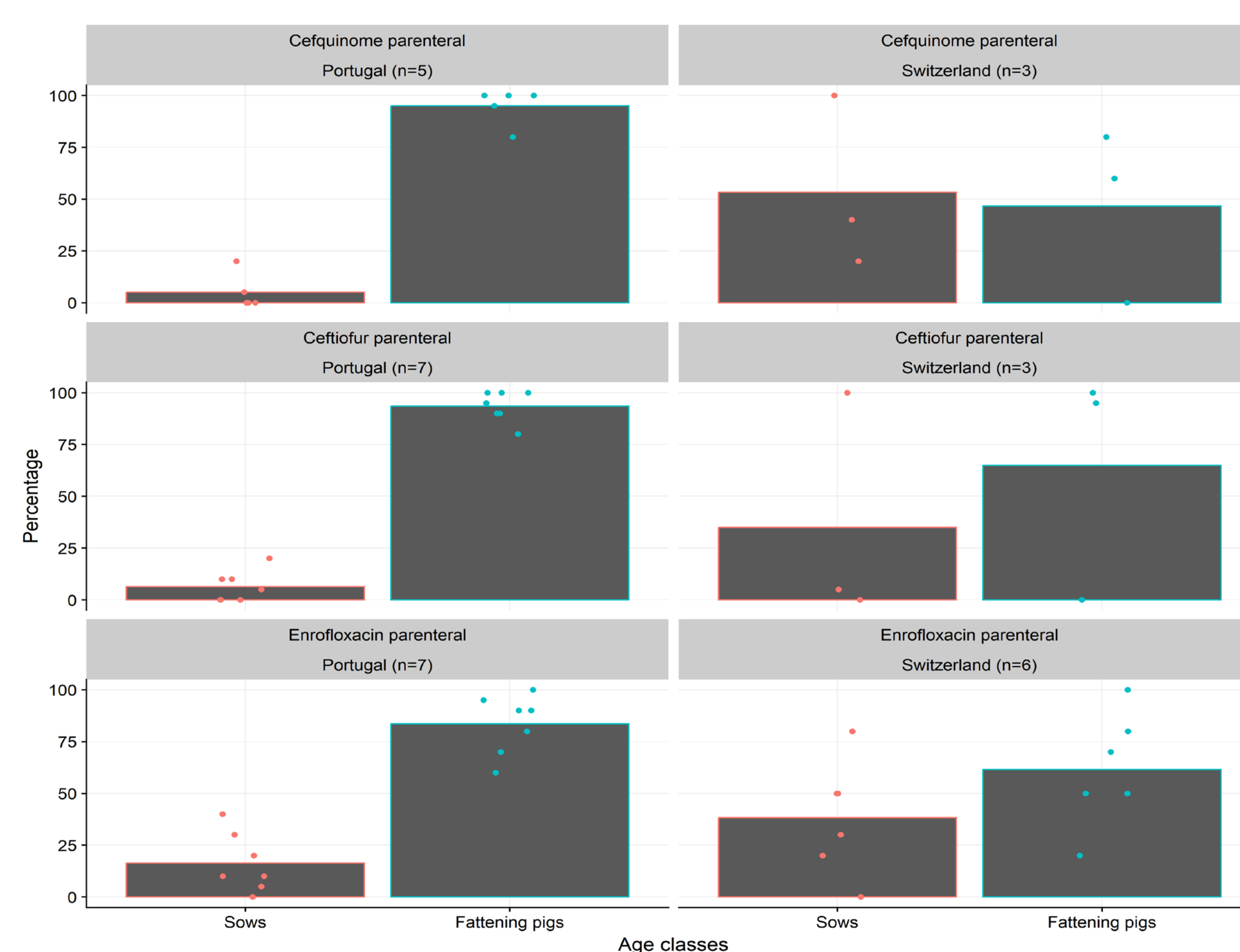


Fig. 2 - Mean proportion of treatments between sows and fattening pigs for several critically important antimicrobials. Points represent individual expert answers

### Key messages

- We recommend to establish and promote treatment guidelines and invest in disease prevention during critical moments of the production cycle to avoid undifferentiated use of antimicrobials
- Discrepancies between countries should be further investigated to better understand the factors underlying the identified patterns and to distinguish prudent from non-prudent use
- These results can inform decision-making with the objective of fostering prudent AMU in the livestock setting

