

Longitudinal study on usage of intramammary antimicrobials in Swiss dairy herds.

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**Purpose:** Mastitis is economically the most important health problem in dairy cattle. While Switzerland has an excellent dairy milk quality, it is among the countries with the highest usage of intramammary antimicrobials (IMA) according to data published by the European Surveillance of Veterinary Antimicrobial Consumption (ESVAC). However, ESVAC data refers to national antimicrobial sales data, which hinders making inferences on antimicrobial consumption at herd level. The objective of this study was to analyze patterns of IMA usage in relation to milk quality and production data in Swiss dairy herds. **Methods:** In this longitudinal study, IMA usage in a cohort of Swiss dairy herds (mean 177 herds per year) was analyzed for the period 2010-2013. The average herd size was 24 dairy cows. Mean number of dairy cows per year included in the study was 4177, which represents ~0.59% of the Swiss dairy cattle population. The convenience sample of herds reported electronically all medical treatments, production data and economic data.

**Results:** On average, IMA usage was recorded in ~90% of all herds, with 78% of herds applying dry cow treatment (DC) and 86% applying antimicrobials during lactation (LC). Annual proportion of dairy cows receiving DC varied between 30 and 37%. LC was recorded in 17-20% of all cows, with 66-71% of treated animals being treated once, 19-23% twice and the remaining cows over 2 times per year. Penicillins (particularly cloxacillin and penicillin G) represented 80-82% (DC) and 81-84% (LC) of IMA usage. Usage of aminoglycosides was 16-20% (DC) and 11-14% (LC) respectively.

**Conclusion and relevance:** This study identified differences in IMA usage between Swiss dairy herds, indicating that room for improvement exists. Future analysis includes linking IMA usage with somatic cell count and production data in order to identify potential associations that might prove valuable in understanding what drives IMA usage in Swiss dairy herds.