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ePoster Viewing
Pharmacoepidemiology, improved prescribing and antibiotic stewardship

Antimicrobial agents dispensed to companion animals and terrestrial food producing animals in Norway from 2006 to 2014

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Background:
Resistance to antibacterial agents is an increasing problem, and resistant bacteria from animals may colonize or infect humans. WHO recommends monitoring therapeutic use of antibacterial agents and occurrence of antibacterial resistance in both humans and animals. The aim of the study was to describe dispensing of antibacterial agents to companion and terrestrial food producing animals in Norway during 2006-14.

Material/methods:
Dispensing data were obtained from the Norwegian prescription database (NorPD). The dataset included all drugs dispensed from Norwegian pharmacies sorted by groups of species. Companion animals included dogs, cats, rodents, rabbits, horses and guinea pigs, while cattle, pigs, sheep, goats and poultry were grouped as terrestrial food producing animals.

We categorized the prescriptions of antimicrobial agents according to the Anatomical Therapeutic Chemical (ATC) classification system and the ATCvet classification system. The following ATC/ATCvet-groups were included: systemic antibacterials (J01/QJ01), intestinal anti-infectives (QA07A), intramammary antibacterials (QJ51), dermatological antibacterials (D06A/QD06A), anti-infectives for use in eyes (S01A/QS01A) and anti-infectives for use in ears (S02A/QS02C).

To describe prescribing patterns, we performed a retrospective analysis using 2014 as reference year. We used descriptive measures to identify the three most frequently dispensed antibacterial agents for companion animals and terrestrial food producing animals, and used component analysis to investigate dispensing patterns at a national level.

Results:

From 6,287,440 prescriptions to animals, antimicrobial agents accounted for 33%. The proportion of antibacterial agents dispensed decreased from 41% in 2006 to 28% in 2014, while the number of dispensed prescriptions increased from 222,856 in 2006 to 233,101 in 2014. Table 1 presents the three most frequently dispensed antimicrobials agents to companion animals and to terrestrial food producing animals in the study period. The number of prescription items dispensed decreased for only one of the six drugs, namely combination of prednisolone, framycetin and nystatin.

Table 1. Prescribing rates from 2006-2014 of the three most dispensed drugs to companion and terrestrial food producing animals.

Companion animals	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Combination amoxicillin and clavulanic acid	46843	53633	59191	63812	67832	70733	71385	70533	67336
Amoxicillin	31421	36458	37329	38296	37096	39731	38698	39802	42628
Combination prednisolone, framycetin, nystatin	17670	17319	17514	16651	17669	15628	14881	15263	14954
Terrestrial food producing animals									
Dihydrostreptomycin	1754	1647	1662	1540	1743	1753	1854	2217	2084
Procaine benzylpenicillin	512	572	623	645	677	659	967	1589	1596
Dihydrostreptomycin and benzylpenicillin	78	310	512	628	639	667	812	1184	1404

Conclusions:

Norwegian pharmacies dispense more prescriptions to companion animals as compared to terrestrial food producing animals. Our study shows an increase in dispensing of penicillins to companion animals during the study period, most likely due to a reduction in dispensing of sulfonamides.