Antibiotic treatment in humans and companion animals - is a pet like a human?

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AIM AND SCOPE

According to the **AWaRe** classification of antibiotics for human use and the **AMEG** categorisation of antibiotics for animal use, antibiotics are divided into different categories based on their resistance risk and medical importance. The same ingredient may be classified in the lowest risk category for humans and the risk for public health in veterinary medicine is estimated higher.

In compliance with the **One Health** concept it is essential to look at the use of antibiotics as a whole, *i.e.* the use of both human and veterinary antibiotics together.
The aim is comparing the selection of antimicrobial ingredients in treatment of humans by AWaRe classification and in treatment of companion animals by AMEG categorisation.

WHO AWaRe (access, watch, reserve) classification of antibiotics for evaluation and monitoring of use

„ACCESS“
„WATCH“
„RESERVE“

AMEG categorisation of antibiotics for use in animals for prudent and responsible use

Category D – „PRUDENCE“
Category C – „CAUTION“
Category B – „RESTRICT“
Category A – „AVOID“

RESULTS

In 2020–2024,
36 different antimicrobial ingredients were used in human treatment and
28 in companion animal treatment,
7 of them for both: Amoxicillin, Amoxicillin/clavulanic acid, Cefadroxil, Cefalexin, Clindamycin, Doxycycline, Metronidazole.

Both financially and quantitatively, the most sold antibiotic for humans and companion animals was **Amoxicillin/clavulanic acid** accounted for
23% of the total cost of human antibiotics and for
64% of the total cost of antibiotics used in treatment of companion animals.

Antibiotic	Class	AWaRe	AMEG
Amoxicillin	Penicillins	Access	Prudence
Amoxicillin/clavulanic-acid	Beta-lactam/beta-lactamase-inhibitor	Access	Caution
Cefadroxil	First-generation-cephalosporins	Access	Caution
Cefalexin	First-generation-cephalosporins	Access	Caution
Clindamycin	Lincosamides	Access	Caution
Doxycycline	Tetracyclines	Access	Prudence
Metronidazole	Imidazoles	Access	Prudence

Ingredients TOP 5 (tablet treatment)		
	Human antibiotic treatment	Companion animal antibiotic treatment
1	Amoxicillin/clavulanic-acid	Amoxicillin/clavulanic-acid
2	Amoxicillin	Cefalexin
3	Clarithromycin	Metronidazole
4	Ciprofloxacin	Doxycycline
5	Cefuroxime	Cefadroxil

In Estonia, the overall sales of AWaRe category “Access” antibiotics accounted for 78% of total human antibiotics, and the sales of AMEG category “Caution” antibiotics accounted for 90% of all antibiotics used for companion animals, in 2024.
The main reason: the most sold ingredient **Amoxicillin/clavulanic acid** is classified for humans by AWaRe classification as “Access” (green, first-line) and for animals by AMEG classification as “Caution” (yellow, limited use) category.

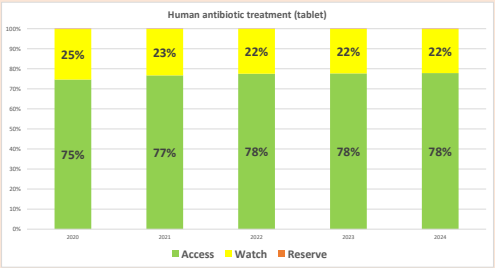

Figure 1. The share of human antibiotics (tablet treatment) by AWaRe, 2020 - 2024.

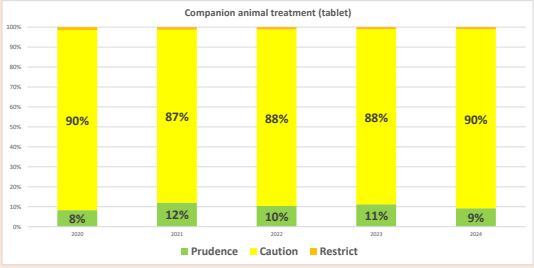

Figure 2. The share of veterinary antibiotics (tablet treatment) by AMEG, 2020 - 2024.

MATERIALS AND METHODS

Estonian statistics on medicines is based on wholesalers’ quarterly reports including the sales of human and veterinary medicines. The sales data are collected by the State Agency of Medicines at package level per each year.
This analysis includes data of human and veterinary antibiotics in pharmaceutical form as tablets. The ingredients are analysed according to the AWaRe classification of antibiotics for human use and the AMEG categorisation of antibiotics for use in animals.

CONCLUSIONS

AWaRe and AMEG classifications are intended as tools for optimizing and monitoring antibiotic use, also for monitoring the impact of stewardship policies implemented to manage antimicrobial resistance.

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