Resistance to antimicrobial agents used for animal therapy in pathogenic, zoonotic and indicator bacteria isolated from different food animals in Denmark: A baseline study for the Danish Integrated Antimicrobial Resistance Monitoring Programme (DANMAP) - DTU Orbit (13/09/2018)

This study describes the establishment and first results of a continuous surveillance system of antimicrobial resistance among bacteria isolated from pigs, cattle and broilers in Denmark. The three categories of bacteria tested were: 1) indicator bacteria (Escherichia coli, Enterococcus faecalis, Enterococcus faecium), 2) zoonotic bacteria (Campylobacter coli/jejuni, Salmonella enterica, Yelsinia enterocolitica), and 3) animal pathogens (E. coli, Staphylococcus aureus, coagulase-negative staphylococci (CNS), Staphylococcus hyicus, Actinobacillus pleuropneumoniae). A total of 3304 bacterial isolates collected from October 1995 through December 1996 were tested for susceptibility to all major classes of antimicrobial agents used for therapy in Denmark. Bacterial species intrinsically resistant to an antimicrobial were not tested towards that antimicrobial. Acquired resistance to all antimicrobials was found. The occurrence of resistance varied by animal origin and bacterial species. In general, resistance was observed more frequently among isolates from pigs than from cattle and broilers. The association between the occurrence of resistance and the consumption of the antimicrobial is discussed, as is the occurrence of resistance in other countries. The results of this study show the present level of resistance to antimicrobial agents among a number of bacterial species isolated from food animals in Denmark. Thus, the baseline for comparison with future prospective studies has been established, enabling the determination of trends over time.

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Authors: Aarestrup, F. M. (Intern), Bager, F. (Intern), Jensen, N. E. (Ekstern), Madsen, M. (Ekstern), Meyling, A. (Ekstern), Wegener, H. C. (Intern)
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