

Antimicrobial resistance in food-producing animals of public health concern. An overview of the current situation and options for control

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Abstract

Since the detection of Livestock Associated MRSA (LA-MRSA) in pigs and other food-producing animals, the levels of concern about the consequences of antimicrobial resistant organisms in animals and foods thereof for public health have substantially increased. As a result, the topic of antimicrobial resistance in animal bacteria currently has a prominent position on the agenda of policy makers of national authorities and the EU. Moreover, EFSA has installed expert working groups to advise the European Commission on the risk associated with these organisms.

More recently the frequent detection of Extended Spectrum Beta-Lactamase (ESBL)-producing organisms in food-producing animals and their genetic association with isolates from human infection concerns has been described (Leverstein et al, CMI 2011). In The Netherlands in 19 % of the human clinical ESBL-producing *E. coli* the genes and plasmids were genetically indistinguishable from ESBLs and plasmids from poultry sources. Almost all Dutch broiler chickens produced shed ESBL-*E. coli* in their faeces; 100% of the conventional poultry meat is contaminated and 84% of the organic poultry meat (Cohen Stuart et al, 2011). This strongly suggests that poultry products are the source for humans. Although currently poultry seems to be the most important animal species in which these ESBL-producers occur so frequently, they have also been reported in pigs, including transfer to pig owners (Moodly et al, AAC, 2009; Cavaco et al, AAC, 2008; Jorgensen et al., JAC 2007). Moreover, Both in poultry and in pigs usage of cephalosporins is described to be a strong selecting agent (Dutil et al, EID 2010). Antibiotic usage is considered to be the most important determinant for the emergence and spread of these resistant organisms. Because of their multi-drug resistant nature, selection is not only the result of specific classes of antibiotics (eg. cephalosporins), but exposure to other frequently used antibiotic classes will have a positive selective effect as well. Therefore, control should not merely be aimed at usage of specific drug classes, but also at usage in general. Currently however, with the exception of a few countries, control of antibiotic usage including identification of high users or frequent prescribers is lacking.

During the presentation the current situation in food-producing animals will be presented including essential options for control.