Antimicrobial susceptibility monitoring of respiratory tract pathogens isolated from diseased cattle and pigs across Europe

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Introduction
Antimicrobial resistance is of concern for the antimicrobial therapy of both humans and animals. Monitoring of antimicrobial susceptibility trends over time is important to ensure long-term antimicrobial effectiveness. However, for various antibiotics comparatively little is known about MIC distributions among the pathogens of food animals. Recent reviews1,2 and research findings in cattle and pigs3,4 highlight the importance of validated, harmonized and continuous monitoring of antimicrobial susceptibility of veterinary pathogens. The present surveillance study is part of the VetPath programme which is co-ordinated by the European Animal Health Study Centre (CEESA). The VetPath programme collects bacteria from diseased cattle, pigs and poultry across Europe, employing a protocol with harmonized methods of sampling and bacterial isolation. A central laboratory conducts MIC determinations using a panel of licensed antimicrobials commonly used in veterinary medicine. Antimicrobial susceptibility of several major veterinary pathogens recovered from cattle and pigs with respiratory tract infections across 11 EU countries predominantly between 2002 and 2006 is presented here.

Results and discussion
In total 1388 isolates were recovered from pre-treatment cattle and pigs suffering from an acute respiratory tract infection. For antibi- otics having CLSI breakpoints, percentage resistance is shown. MIC50 and MIC90 values for all antibiotics are presented in Table 2.

In cattle, 334 P. multocida and 230 M. haemolytica were isolat- ed, the majority of these were susceptible to antibiotics for which CLSI resistant breakpoints are available (Table 1). The percent- age of intermediate category isolates was usually below 1%, and for 0.5% ≤ MIC < 4 mg/L (cows) and 0.12 mg/L ≤ MIC < 4 mg/L (pigs).

The activity of all antibiotics (based on MIC90) is summarized in Table 2: below some results for the antibiotics without CLSI break- points are described. For amoxicillin, 8.8% M. haemolytica isolate showed an MIC of ≤ 0.12 mg/L while the highest MIC observed for ceftiofur was 4 mg/L (n=1) and 0.03 mg/L for cefquinome (n=9). For P. multocida, the highest MICs were 8 mg/L (n=4), 4 mg/L (n=4), 2 mg/L (n=4) and 0.5 mg/L (n=1). The majority of isolates included for susceptibility testing are detailed in Tables 1 and 2. MIC50 and MIC90 values were determined, and resistance was calculated for each drug, organism and species. Resistance rates among the major respiratory tract pathogens M. haemolytica and P. multocida were found to be lower than those observed for other veterinary pathogens.

References