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Pet animals as reservoirs of antimicrobial-resistant bacteria

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Pet animal numbers have substantially increased in modern society and attention is increasingly devoted to pet welfare. Because of these changes, antimicrobial agents are frequently used in small animal veterinary practice, often including antimicrobial preparations used in human medicine, with heavy use of broad-spectrum agents such as aminopenicillins plus clavulanic acid, cephalosporins and fluoroquinolones. Several longitudinal studies conducted at veterinary hospitals have indicated that resistance to various antimicrobial agents has emerged amongst pet animal isolates of *Staphylococcus intermedius*, *Escherichia coli* and other bacteria, including species with a potential for zoonotic transmission and resistance phenotypes of clinical interest, such as methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant enterococci and multidrug-resistant *Salmonella* Typhimurium DT104. Based on a review of the current literature, the role of pets in the dissemination of antimicrobial resistance has been given little attention when compared with that of food animals. A marked contrast is evident between the current policies on antimicrobial usage in food and companion animals. Apart from a few countries where limited data on antimicrobial usage and occurrence of resistance in bacteria from pet animals are provided, national surveillance programmes only focus on food animals. However, data on pet animals are clearly needed for guiding antimicrobial use policy in small animal veterinary practice as well as for assessing the risk of transmission of antimicrobial resistance to humans.

Keywords: dogs, cats, antimicrobial resistance

MRSA

Salmonella

Escherichia coli

Staphylococcus intermedius

Clonal spread of methicillin-resistant *Staphylococcus pseudintermedius* in Europe and North America: an international multicentre study

Vincent Perreten[1]*, Kristina Kadlec[2], Stefan Schwarz[2], Ulrika Grönlund Andersson[3], Maria Finn[3], Christina Greko[3], Arshnee Moodley[4], Stephen A. Kania[5], Linda A. Frank[5], David A. Bemis[5], Alessia Franco[6], Manuela Iurescia[6], Antonio Battisti[6], Birgitta Duim[7], Jaap A. Wagenaar[7], Engeline van Duijkeren[7], J. Scott Weese[8], J. Ross Fitzgerald[9], Alexandra Rossano[1] and Luca Guardabassi[4]

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MRSA

Salmonella

Escherichia coli

Staphylococcus intermedius

ORIGINAL ARTICLE

Carriage of Methicillin-Resistant *Staphylococcus pseudintermedius* in Small Animal Veterinarians: Indirect Evidence of Zoonotic Transmission

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