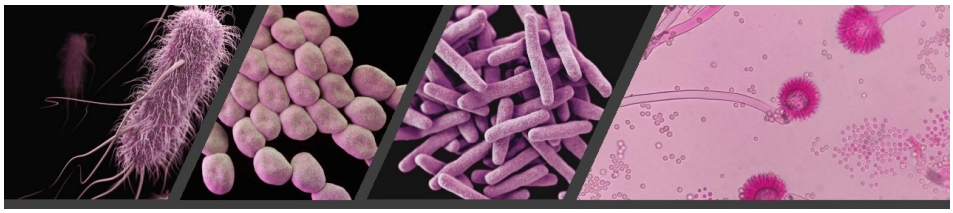

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Detection of Antimicrobial Resistance and ESBL-Producing E. coli from Mammals at UK Petting Zoos

Friday 12 September 2025 12:15 (15 minutes)

The role of petting zoos in bi-directional zoonotic disease transmission is well documented, however their potential role as reservoirs of antimicrobial resistance (AMR) is un-explored within the United Kingdom (UK). This study investigated AMR in *Escherichia coli* and coagulase-positive staphylococci (CoPS) isolated from mammals at eight UK centres. Faecal and skin samples were collected from 166 animals to recover *E. coli* and CoPS. Samples underwent enrichment culture, followed by plating on non-AMR-selective media (tryptone bile-x agar, mannitol salt agar) and selective media (ESBL ChromID, mannitol salt agar with 6 mg/L oxacillin). Susceptibility to eight antimicrobial classes was assessed using Kirby-Bauer disc diffusion. Antimicrobial usage data from the last 12 months were obtained from 7/8 centres. A total of 145/166 faecal samples yielded *E. coli*, with an overall AMR prevalence of 42.4%, and 8.5% classified as multidrug-resistant. ESBL-producing *E. coli* were detected in five animals. CoPS were recovered from 54 skin swabs: *Staphylococcus aureus* (n=70), *Staphylococcus intermedius* group (SIG) (n=13), *S. hyicus* (n=1), with an AMR prevalence of 25.3% and a single MDR-SIG. No MRSA/MRSP were identified. Antimicrobial usage was positively correlated with AMR for *E. coli* (r=0.81, P=0.03) and CoPS (r=0.87, P=0.05). This study demonstrates for the first time the presence of AMR within bacteria isolated from UK petting zoo animals.

Keywords

Antimicrobial Resistance
Escherichia coli
Staphylococcus aureus
Staphylococcus pseudintermedius
Coagulase-positive staphylococci
Multidrug resistance
Extended-spectrum beta lactamase
Petting Zoo
MRSA
MRSP

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Professional Status of the submitter, who is also the speaker

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