Antimicrobial resistance profile in faecal *Escherichia coli* of sows and their offspring in the farrowing unit and their interaction

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Sows and their respective piglets from 3 pig herds were sampled to determine the antimicrobial resistance profile of faecal *Escherichia coli* for 7 different antimicrobials. On each farm, fecal samples were taken from twenty sows before parturition, at birth and at time of weaning of the piglets. From each sow, three piglets were sampled at birth (before any antimicrobial administration), at 14 days of age and at weaning. In each herd, antimicrobial usage data were collected for the sows and piglets during the suckling period and quantified as treatment incidences or the number of days during which an animal was administered one dose of an antimicrobial agent. The percentage of resistant *E. coli* isolates was compared between samples from piglets taken at the various sampling times and between sows and their respective piglets. Antimicrobial resistance to all tested antimicrobials was found in *E. coli* obtained from newborn piglets independent of a direct antimicrobial selection pressure. However, the administration of antimicrobials around birth to their dam can result in an indirect selection pressure for the microbiota of the piglets. After birth, resistance in *E. coli* from piglets increased for ampicillin, ceftiofur, enrofloxacin and trimethoprim/sulfadiazine after the administration of antimicrobials and decreased again swiftly for ceftiofur, enrofloxacin and trimethoprim/sulfadiazine after 14 days of age and before weaning. Resistance in *E. coli* from sows at birth and weaning was seen as a risk factor for resistance in their respective piglets at birth and weaning respectively. This confirms the commensal gut flora of the sows as a reservoir for antimicrobial resistant *E. coli* isolates in their litter.
These data indicate that the level of antibiotic resistance in piglets is not stable in the early stage of life and is dependent on the level of antibiotic used in the piglets and the degree of resistance in the dam.