In Vietnam, around 80% of pork is produced by smallholder farmers who often use antibiotics for disease prevention and growth promotion due to their low cost and lack of knowledge or concern over antimicrobial use.

To reduce antimicrobial use in livestock, there is need to identify how farmers could benefit from reduction to motivate behaviour change.

**Objective:** To test an intervention at farm level to reduce antimicrobial use and antimicrobial resistance by replacing antimicrobials in feed with nano silver, an antimicrobial agent commonly used in surface treatments and packaging.

**Methods**

- **60 piglets of 35 days** randomly allocated to 6 farms.
- **TREATMENT GROUP:** Antibiotic-free feed supplemented with nano silver, 0.3% per kg of feed.
- **CONTROL GROUP:** Feed supplemented with Amoxicillin, 300 ppm/kg of feed.
- **4 months**

**Weight measurement:** at start (T0), after 1 month (T1), 2 months (T2) and 4 months (T4) to estimate the **Average Daily Gain (ADG)**

**AMR of E. coli:** monthly faeces and floor pool samples T0, T1, T2, T3, T4

**Antibiotic residue:** in pork at sale of T4

**Results**

**Antimicrobial resistance and antibiotic residues**

- **Prevalence of E. coli in both faecal and floor samples was 100%**
- **High resistance rates to most commonly used antibiotics**
- **No significant difference in antimicrobial resistance profile of E. coli between the control and intervention groups**
- **No antibiotic residue was found in pork from the intervention group.**
  - One (out of six) pork sample of the control group was detected to have amoxicillin at 26.3 µg/kg (vs. 50 µg/kg as maximum residue limits for amoxicillin in pork) for a withholding period of seven days.

**Conclusion**

- The use of nano silver as an alternative to antibiotics added to feed showed no difference in average daily gain or antimicrobial resistance profile of E. coli in small-scale pig production.
- The result of this trial suggests a possible alternative to antibiotic use in pig production to reduce antimicrobial use and antimicrobial resistance.
- Evidence of efficacy, cost–benefit analysis, acceptability to farmers, development of resistance, risk assessment for transfer to pork and an environmental impact assessment of nano silver are needed before scaling up its use.

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