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TITLE

EFFECT OF INTERNAL PERSONNEL MOVEMENTS IN SWINE PRODUCTION PARAMETERS

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CONTENT

Background and Objectives

Transmission of pathogens via fomite plays an important role in production, but quantitative information on movement patterns inside a swine farm is lacking. The objectives of this study are to utilize beacon-sensing technology to estimate between-room movement within a swine farm; investigate whether there is a difference in the amount of “risky” movements before and after an information session with farm employees; and investigate whether an increase in “risky” movements is associated with production.

Material & Methods

A 4,400-sow farrow-to-wean farm located in a swine dense area in the U.S. was enrolled and an internal biosecurity system (B-eSecure®) was installed. A “risky” movement was defined when an employee moved from a shipping point or nursery to other parts of the farm. The Wilcoxon rank test was used to test the difference in movements pre- and post- information session, and univariable linear regression models were built using number of piglets weaned per litter and pre-weaning mortality as outcomes. Statistical analyses were conducted in STATA-IC14, with statistical significance declared as $P < 0.05$.

Results

Across the 14-week study period, there was an average of approximately 1,841 (SD=352.4) and 263 (SD=50.3) weekly and daily movements, respectively. “Risky” movements accounted for 9.3% (SD=2.5%) of weekly movements. The number of “risky” movements did not differ before and after the information session ($P=0.64$), but a 15.2% reduction was seen. There was a tendency for an increase in “risky” movements in a previous week to increase pre-weaning mortality by 3% ($P=0.052$). An increase in “risky movements” tended to decrease the number of piglets per litter by 0.37 ($P=0.09$).

Discussion & Conclusion

This study provides baseline information for internal movements in a large-scale farm in the U.S. Furthermore, it demonstrates how technology can be used to monitor and target specific within-farm movements and help towards improving biosecurity.