Modelling spread of MRSA within a pig herd

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Material and methods

• A mechanistic individual-based simulation model was built in R

• Herd model: A medium-sized Danish farrow-to-finish herd

• Infection model: SIS model with two different ‘infectious stages’: Intermittent or persistent MRSA shedder

• Due to uncertainty, all scenarios were modelled with three different sets of transmission rates (‘low’, ‘medium’, ‘high’), estimated based on Broens et al. (2012)

Key observations

• Development over time after introduction (Fig. 1): Spread of MRSA was mainly following the movement of pigs between stable units

• Following introduction of lower numbers of intermittent shedders, MRSA would frequently fade out (Fig. 1.a + Fig. 2.a)

• After spread of MRSA has reached an equilibrium, the prevalence of MRSA shedders would be highest in the farrowing unit (Fig. 2), independent of how MRSA was introduced

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