

## Prevalence and Characterization of chlamydial infections in the Swiss Fattening Pig Population

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### Key words

*Chlamydia suis*, *Chlamydia pecorum*, pig, antibiotic treatment, conjunctivitis, fecal shedding, Switzerland

### Aim of the study

The aim of this study was to collect comprehensive data about the prevalence of *Chlamydiaceae* in Swiss fattening pigs and its influencing factors like antibiotic treatment and management.

### Material and methods

In this study, 636 fattening pigs from 29 farms were investigated. Oral herd treatment with antibiotics was performed in nine farms. From the pigs, conjunctival and fecal swabs were collected at the beginning and at the end of the fattening period. Conjunctival swabs of nine farms were included for testing. Additionally, swabs from three breeding sows from one farm and swabs from dust in the stable from another farm were taken. In total, 2,452 swabs were tested by a *Chlamydiaceae* specific real-time PCR and positive samples were subjected to species differentiation by microarray. Detailed questionnaires were obtained from farmers concerning housing and management conditions.

### Results and significance

The prevalence of *Chlamydiaceae* in fecal swabs of 93 % and 91 % at the beginning and end of the fattening period, respectively, was markedly higher than expected. Also the conjunctival swabs revealed an unexpected high prevalence of 44 % and 30 %, respectively. Chlamydial species differentiation showed that nearly all positive pigs harbored *C. suis* but a mixed infection with *C. pecorum* was also very common, especially in farms with close contact between pigs and ruminants. In a pig farm with direct contact to sheep, the eye swab of a pig was positive for *C. abortus* DNA. Interestingly, clinical signs were not present in most pig herds in this study compared to several previous reports about the impact of chlamydial infections in pigs. Signs of conjunctivitis were not significantly correlated to Chlamydia-positivity in conjunctival swabs. The management and housing conditions had no significant influence on the prevalence. Two of three breeding sows in one farm were also positive for *C. suis* in rectal swabs, which implies a possible initial infection of piglets through their mothers. The dust swabs of another farm revealed *C. suis* and *C. abortus* DNA, indicating indirect modes of transmission. All but one farm showed a considerable decrease of fecal positivity at the end of the fattening period and after treatment with tetracyclines. Further investigations on the tetracycline resistance of *C. suis* in fattening pigs is currently ongoing. All eye swabs (n=9) from farmers were negative for *Chlamydiaceae*. In summary, the data suggest that *C. suis* could be part of the gastrointestinal microbiome of fattening pigs and might play a role of a facultative pathogen.

### Publications, posters and presentations

Hoffmann, K.; Schott, F.; Donati, M.; Di Francesco, A.; Sidler, X.; Borel, N. (2015) Prevalence of *Chlamydiaceae* in Swiss fattening pigs in correlation with antibiotic treatment and herd management. 16<sup>th</sup> German Chlamydia Workshop, Vienna, Austria, 11 - 13 February 2015 (Poster).

Hoffmann, K.; Schott, F. (2013) Projekte zu Kauseilen und Chlamydien. Suisseporcs 6/2013.

### Project 1.13.03

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