

## 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 farmers 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

All farms were positive for *Chlamydiaceae* with 94.3 and 92.0 % prevalence in fecal swabs as well as 45.9 and 32.6 % in conjunctival swabs at the first and second time points, respectively. Antibiotic treatment could not clear the infection on herd level. Potential contact with wild boars was a significant risk factor, while hygiene criteria did not influence chlamydial prevalence. A correlation of chlamydial positivity to diarrhea, but not to conjunctivitis was evident. *Chlamydia suis* was the predominant species. Mixed infections with *C. suis* and *C. pecorum* were common, with a substantial increase in *C. pecorum* positivity at the end of the fattening period, and this finding was associated with ruminant contact. The dust swabs of a farm revealed *C. suis* and *C. abortus* DNA, indicating indirect modes of transmission. All eye swabs (n=9) from farmers were negative for *Chlamydiaceae*. *C. abortus* was detected in one conjunctival swab and in this farm, pigs had direct contact to sheep. In this study, *C. suis* inhabited the intestinal tract of nearly all examined pigs, implying a long-term infection. *C. pecorum* was also common and might be transmitted to pigs by ruminants. Chlamydial infections seem to have a low clinical impact for conjunctivitis, but might play a role in herd-based diarrhea.

### Publications, posters and presentations

Hoffmann, K.; Schott, F.; Donati, M.; Di Francesco, A.; Sidler, X.; Borel, N.: 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 Feb 2015 (poster).

Hoffmann, K.; Schott, F.; Sidler, X.; Donati, M.; Di Francesco, A.; Hässig, M.; Borel, N.: Prevalence of *Chlamydiaceae* in Swiss fattening pigs. 33rd Annual Meeting of the ESVP & the 26th Annual Meeting of the ECVP, Helsinki, Finland, 2015 (poster).

Hoffmann, K.; Schott, F.; Donati, M.; Di Francesco, A.; Hässig, M.; Sidler, X.; Borel, N.: Prevalence of *Chlamydiaceae* in Swiss fattening pigs. 3rd European Meeting on Animal Chlamydioses and Zoonotic Implications, Paris, France, 2015 (presentation).

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

Wanninger, S.; Hoffmann, K.; Donati, M.; Di Francesco, A.; Borel, N.: Tetracycline resistant *Chlamydia suis* in Swiss fattening pigs. 3rd European Meeting on Animal Chlamydioses and Zoonotic Implications, Paris, France, 2015 (presentation).

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