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Paper Poster Session I

Emerging or reemerging bacteria

Prevalence of *Anaplasma phagocytophilum* in *Ixodes ricinus* ticks from northern Norway

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Objectives: *Anaplasma phagocytophilum* is an obligate intracellular rickettsial bacterium and regarded as an emerging tick-borne pathogen. The bacterium is transmitted by *Ixodes* ticks, and it is a well-known pathogen in veterinary medicine. However, the importance of *A. phagocytophilum* as a human pathogen in Europe is still uncertain. The first European case of human granulocytic anaplasmosis (HGA) was reported from Slovenia in 1997, shortly followed by cases from Norway, Sweden and the Netherlands. HGA cases have been reported from southern Norway, and there is serological evidence both in humans and in livestock of *Anaplasma* endemicity. Serological findings in cattle have indicated the presence of *A. phagocytophilum* in Nordland county in northern Norway, and the bacterium has also been detected in blood samples from cattle, as well as in ticks, collected in Brønnøysund (latitude 65° 28' N). We aimed to extend previous studies at the ticks' northern distribution limit and to investigate the prevalence of *A. phagocytophilum* in *Ixodes ricinus* ticks in the region adjacent to the Arctic Circle in Norway (66° 33' N).

Methods: During 2009-2011, a total of 765 *Ixodes ricinus* ticks was collected from dogs and cats visiting veterinary clinics in the three northernmost Norwegian counties of Nordland, Troms and Finnmark ($n=669$), as well as in the county of Telemark in southern Norway ($n=96$). The prevalence of *A. phagocytophilum* in the ticks was analysed by TaqMan real-time PCR. Statistical comparisons were done by using the chi-square test.

Results: The overall prevalence of *A. phagocytophilum* in the collected ticks was 2.9 % (22/765). Four-hundred-and-sixtythree ticks were collected from dogs and 302 from cats, and there was no significant difference in *A. phagocytophilum* prevalence between ticks from dogs and ticks from cats ($p=0.46$). Of the ticks collected in the three northernmost counties in Norway, 3.0 % (20/669) were positive for *A. phagocytophilum* (Nordland 2.8 % (18/647), Troms 9.0 % (2/22), Finnmark 0 % (0/0)). Of the ticks collected in Telemark county, 2.1 % (2/96) were positive for *A. phagocytophilum*. There was no significant difference in prevalence of *A. phagocytophilum* in ticks collected in northern Norway compared to ticks collected in Telemark county ($p=0.63$).

Conclusion: This is the first report on *A. phagocytophilum* occurrence in ticks collected north of the Arctic Circle in Norway, and the prevalence in northern Norway is comparable to that found in ticks from Telemark county in southern Norway. The findings imply that both humans and pets may contract anaplasmosis also in northern parts of Norway, and that physicians as well as veterinaries in the region need to be aware of the disease.