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Dientamoeba fragilis in children attending day-care centres in Copenhagen, Denmark: prevalence, risk factors, and observations over time

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Background: *Dientamoeba fragilis* is an intestinal protozoan parasite of debated clinical significance. In Denmark, *D. fragilis* appears to be common in apparently healthy adult individuals. The parasite is also commonly detected in stool samples from children who are tested for gastrointestinal pathogens on request by physicians, with a peak (approximately 70% of samples positive) in seven-year-olds; meanwhile, baseline data on the prevalence of *D. fragilis* in apparently healthy children are lacking. Here, we present cross-sectional and longitudinal observations on *D. fragilis* in healthy children aged 0–6 years attending day care facilities in Copenhagen, Denmark.

Material/methods: The present study used the questionnaire data of the first observational point (cross-sectional study design) and the *D. fragilis* results from the stool samples collected at all observational points of a 1-year multi-day-care-center cohort study, the inclusion period of which was 2009–2012. Written informed consent was obtained from the parents or guardians of the children. DNA was extracted from 200 mg of stool, and real-time PCR was used to detect *D. fragilis*. After preliminary two-by-two-table comparisons, multivariable logistic regression models were built using backward elimination. *P* values < 0.05 were considered statistically significant.

Results: A total of 142 children aged 0.9 to 6.6 (median 2.8) years were included in this study. *Dientamoeba fragilis* was detected in the first stool sample of 97 (68.3%) of the 142 children. Older age and a recent history of traveling abroad appeared as risk factors for testing positive. Moreover,

univariable analyses indicated having siblings as a risk factor. There was no statistical association between a recent history of gastrointestinal symptoms and testing positive for *D. fragilis*. The longitudinal analysis included data on the children who were represented by at least two stool samples. Of the 108 children represented by at least two samples, 32 tested first negative and later positive, and the last sample from all of the 108 children was positive. There was no evidence of clearance of *D. fragilis*.

Conclusions: The results of this study support *D. fragilis* as a common commensal in this population. It appears that a large proportion of children acquire *D. fragilis*. Moreover, when acquired, the parasite appears to be a stable colonizer.