

Disease burden of congenital toxoplasmosis in Denmark quantified

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Congenital toxoplasmosis – an infection passed on from mother to fetus – has a high disease burden per case. However, only a relatively small number of cases occur each year in Denmark. This is the main finding of a study from the National Food Institute, Technical University of Denmark, in cooperation with Statens Serum Institut – the national institute of public health – which has estimated the disease burden in Denmark for the first time. The study can contribute to prioritizing initiatives aimed at reducing the health consequences of toxoplasmosis.

Toxoplasmosis is a zoonotic disease, which humans can acquire e.g. by consuming raw or undercooked meat, contaminated [food](#) or water, or by being exposed to contaminated soil. Congenital toxoplasmosis (CT) is where a mother passes on the infection to her fetus. The infection can have mild to very severe health consequences. According to the World Health Organization, WHO, the disease causes a substantial disease burden globally.

Disease burden is reported in DALYs, which stands for disability adjusted life years – a measure of how many years of life a population loses when people have to live with a reduced quality of life and/or die earlier than expected due to disease.

In a study using 15 years of data from two [public health surveillance](#) programmes, researchers at the National Food Institute and Statens Serum Institut have estimated the current disease burden in Denmark caused by CT. Until now this figure has been unknown.

High disease burden per case

The researchers estimate that in 2014 a total of 14 children were born with CT, of which at least six will develop symptoms before the age of 12. According to the researchers' estimates the disease also caused one miscarriage, resulting in a total disease burden of 123 DALYs. The researchers estimate that in the absence of a public [health](#) surveillance programme there are at least five unreported cases for each recorded CT case.

Although the figure is estimated for a particular year, the researchers believe it to be representative of other years.

"At the population level the disease burden caused by [congenital toxoplasmosis](#) may not seem very high compared to some of the most common zoonotic disease in Denmark. However, for the small number of children who have to live with this disease for life, the disease burden is very high," senior researcher Sara Monteiro Pires from the National Food Institute says.

Generating more knowledge

Very few countries have national disease burden estimates for both congenital and acquired toxoplasmosis. The National Food Institute is partnering with other institutions to also estimate the disease burden of acquired toxoplasmosis and to identify the sources of infection for both types of the [disease](#).

"Very little is known about which sources are actually causing toxoplasmosis in the population, and the relative importance of each source. To identify and implement effective interventions aimed at reducing the burden of toxoplasmosis, risk managers need to know the

contribution of the most important sources and transmission routes of infection," Sara Monteiro Pires emphasizes.

To address this research gap, the National Food Institute has partnered with Swedish, Norwegian and Finnish research institutions in an initiative to identify and estimate the most important sources of human toxoplasmosis in the Nordic countries.

More information: Janna Nissen et al. The disease burden of congenital toxoplasmosis in Denmark, 2014, *PLOS ONE* (2017). [DOI: 10.1371/journal.pone.0178282](https://doi.org/10.1371/journal.pone.0178282)

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