Campylobacteriosis in humans in the EU/EEA: health aspects and estimated burden

European Centre for Disease Prevention and Control (ECDC) monitors the trend of human campylobacteriosis. Between 2009 and 2013 more than 219 000 annual cases of human campylobacteriosis have been notified in European Union and European Economic Area Member States (EU/EEA MS), resulting in a yearly average notification rate of 65.9 per 100 000 population. Notification rates vary significantly across MS. Reasons are related to differences in healthcare services and surveillance systems.

However, notified cases are an under-estimation of actual occurrence of the disease in the population. This is a widely recognised problem in the surveillance of gastrointestinal diseases. Estimation of incidence of campylobacteriosis is important for e.g. computing DALYs in order to measure and compare burden of infectious diseases, evaluating intervention and prevention strategies and describing the sensitivity of national surveillance systems.

In order to appraise more realistically the impact of campylobacteriosis in EU/EEA MS we compiled data from three different sources: an ECDC-funded sero-epidemiological study, reported cases in The European Surveillance System (TESSy) database, and data stemming from literature reviews. ECDC commissioned sero-epidemiological study aimed at estimating the exposure to *Campylobacter spp*. in selected EU/EEA MS by measuring antibody responses in human serum samples and back-calculating the estimated time of infection. Results from this serological study were anchored to published community studies in order to derive the actual incidence of campylobacteriosis disease.

In the EU/EEA MS, the annual rate of exposure to *Campylobacter spp.* is estimated to be around 0.83 per person-year, translating in more than 420 million yearly infections. The vast majority of exposed cases do not develop the clinical disease and remain asymptomatic. Based on community studies, the related incidence of campylobacteriosis disease is 475 per 100 000 (CI 95%: 423-524 per 100 000) or 2.4 million cases per year amongst European citizens. Underestimation of the disease, therefore, is considered to be 11 times the notification rate. Moreover, in a recent burden of disease study (BCoDE 2015), ECDC estimated that about 600 deaths are related to campylobacteriosis every year, largely among elderly people. Results from BCoDE 2015 also found that campylobacteriosis is the food and water-borne disease producing the highest number of DALYs.

The same ECDC burden of diseases study considered that 1% of campylobacteriosis cases require hospitalisation and 23% visit their general practitioner, although this is very much dependant on the healthcare system. Therefore, we can estimate that 24 000 European citizens are hospitalized and 0.5 million visit their GP following campylobacteriosis disease every year. In a 2011 Scientific Opinion published by the European Food Safety Authority (EFSA), experts consider that 50 to 80% of human campylobacteriosis cases are attributed to the chicken reservoir as a whole.

For the purpose of monitoring campylobacteriosis we recommend to continue efforts in investing into wide sero-epidemiological studies aimed at assessing actual occurrence of infections. These should be combined with community studies in order to assess the socio-economic impact of disease burden.