

Claudia Schmutz; Awardee 2018

Infectious diseases cause a considerable burden to population health worldwide. Surveillance systems have been implemented to assess changes in disease frequency, to identify outbreaks, and to detect newly emerging diseases with the aim of detecting epidemics early, controlling and preventing disease. These - mostly passive - surveillance systems measure the 'incidence of notified cases' rather than the frequency of disease at population level and, therefore, substantially underestimate the true disease prevalence. This „loss“ of cases along the so-called burden of illness pyramid - from infection to actual notification in the surveillance system - depends on the pathogen and the local health (care) system.

For foodborne diseases in Switzerland, information is mostly restricted to data obtained through the National Notification System for Infectious Diseases (NNSID). It is unclear how well notification rates reflect population-level disease incidence given the various factors contributing to underestimation.

This PhD work aims at contributing to a better understanding of the burden of illness pyramid for foodborne infections in Switzerland and, thus, contributes to improving Swiss infectious disease surveillance and control. Reflecting on foodborne pathogens like *Campylobacter*, *Salmonella*, hepatitis A and acute gastroenteritis at large this work seeks to investigate the frequency of incident cases at different levels of the burden of illness pyramid and, thus, to understand the extent of underestimation. Trends and factors leading to case registration in the NNSID are explored. A better understanding of disease epidemiology will lead to improvements in early disease detection and control.

Claudia Schmutz is a trained infection biologist and epidemiologist and holds a PhD degree in epidemiology. Her research activities focus on disease surveillance and infectious disease epidemiology.