

RESEARCH NOTE

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The burden of gastroenteritis in Switzerland (BUGS) study: a research proposal for a 1-year, prospective cohort study

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Abstract

Objectives: Acute gastroenteritis (AG) is a usually self-limiting, but common disease worldwide. In Europe, incidence estimates range from 0.3–1.5 AG episodes/person-year. For Switzerland, available information on AG is restricted to notifiable foodborne diseases and findings from research studies starting at primary care level. The aims of this 1-year, population-based prospective cohort study are to assess the incidence, burden of disease, aetiology and socio-economic impact of AG in the Swiss general population. Additionally, the prevalence of bacterial gastrointestinal pathogens and bacteria harbouring antimicrobial resistances in the asymptomatic population shall be assessed.

Results: Weekly follow-up of the cohort consisting of 3000 participants will provide incidence estimates of AG. Furthermore, information collected will be used to assess risk factors for experiencing an episode of AG, to explore determinants for help seeking, and to characterise the socio-economic impact of AG including absence from work and inability to perform daily activities. Aetiology of AG is determined by investigating stool samples from symptomatic participants. Finally, stool samples from participants collected during an asymptomatic period will be used to assess the prevalence of enterohaemorrhagic *E. coli*, *Campylobacter* spp., *Salmonella* spp. and *Shigella* spp. as well as of resistance to different antibiotics (extended-spectrum beta-lactamase-, fluoroquinolone- and carbapenemase-resistance).

Keywords: Research proposal, Cohort study, Acute gastroenteritis, Burden of disease, Incidence, Aetiology, Antibiotic resistance, Switzerland

Introduction

Acute gastroenteritis (AG), manifesting with signs and symptoms of diarrhoea, vomiting, abdominal pain or cramps, fever, dehydration, nausea and/or loss of appetite, is usually self-limiting, but leads to a considerable burden of disease, health system use and socio-economic impact. Studies in several European countries estimated the incidence of AG at 0.3–1.5 episodes per person and year [1–14]. Furthermore, it was found that a considerable 11% of patients with infectious enteritis develop post-infectious irritable bowel syndrome [15, 16]. Incidence of AG for Switzerland is assumed to be comparable, but data is limited to notifiable pathogens reported

to the Federal Office of Public Health (FOPH) based on the Epidemics Act. Several studies from other European countries have shown that (i) only 6.4–37.8% of all AG episodes lead to consultation of a physician [1–9, 11, 12, 14], and (ii) 0.2–1.8% of episodes are reported to national surveillance systems [1, 11, 14]. These proportions are highly variable between countries and pathogens due to different help seeking behaviour, case management and surveillance systems [17]. From a study in the Swiss Sentinel Surveillance Network, Sentinella, we estimated that around 175,000 individuals consulted a physician due to AG in Switzerland in 2014 [18]. Around 12% of cases were asked to submit a stool specimen and hence, could potentially—if positive—be reported to the National Notification System for Infectious Diseases (NNSID) if their sample tested positive for a notifiable pathogen and was reported by the diagnostic laboratory. However,

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