

**Abbreviated Final Report:** Characterization of *bona fide* Community Acquired *Clostridium difficile* Infections in a large metropolitan center

**Background** The most common cause of infectious diarrhea amongst hospitalized patients in North America is caused by *Clostridium difficile* infection (CDI). Clinically, nosocomial CDI has been well studied with several risk factors known for acquisition. However, far less is known about community-acquired CDI (CA-CDI). In some studies, 20-45% of all CDI cases have been attributed to community onset. To better elucidate the impact of CA-CDI, the aim of this study was to identify CA-CDI cases in the metropolitan city of Calgary.

**Findings** Between May and July 2014, 78 patients were contacted for a telephone questionnaire to assess epidemiology and patterns of CDI. 49 (62.8%) agreed to be interviewed. The majority of these patients were female (71.8%) and between 50-59 years of age (21.8%). There was no difference noted between gender or age distribution in the CA-CDI group compared to the others. The most common comorbidities in the CA-CDI patients were Crohn's disease (10%) and Irritable Bowel Syndrome (23%).

*C. difficile* isolates from *bona fide* CA-CDI cases verified by detailed telephone questionnaire were further characterized in the laboratory for antimicrobial susceptibility and PFGE analysis. All isolates were susceptible to metronidazole and all except 1 isolate were susceptible to vancomycin. PFGE analysis according to Tenover criteria revealed that NAP1 (19.4%) and NAP4 (19.4%) were the most abundant. Interestingly, 22.6% did not identify with any NAP type using Tenover criteria. The study also confirmed that the NAP 1 hyper-virulent strain can be contracted in the community outside of the hospital system. The group is now looking at the genomic and microbiome composition of CA-CDI, to see if it mimics that acquired in hospitals.