

C. Casanova¹, A. Schweiger², N. Von Steiger¹, S. Droz¹, J. Marschall²¹Clinical Microbiology, Institute for Infectious Diseases, Bern, Switzerland ; ²Department of Infectious Diseases, Bern University Hospital, Bern, Switzerland**Background:**

Campylobacter concisus is a fastidious *Campylobacter* species whose pathogenic role in periodontal and intestinal disease is controversial. In late 2013, we noticed a substantial increase in the number of stool cultures positive for *C. concisus* at Bern University Hospital, Switzerland. We suspected an outbreak and initiated an epidemiological investigation.

Methods:

Case definition: Patients with *C. concisus* isolated from stool samples.

Setting: Bern University Hospital is a 950-bed tertiary care hospital. Approximately 2,000 stool samples are processed annually in our microbiology laboratory.

Analysis: We collected incidence data for *C. concisus* over the past ten years, reviewed diagnostic procedures, and conducted an epidemiological analysis of all patients meeting the case definition, focussing on acquisition mode (community vs. nosocomial).

Results:

In the decade prior to the increase an annual average of 1.4 isolates of *C. concisus* were detected in routine stool cultures (figure). From June to November 2013 we isolated *C. concisus* from stool specimens of 16 different patients. The incidence increased from an average of 0.03 % (1/2012-5/2013) to 1.57% (June-November2013) ($p<0.001$).

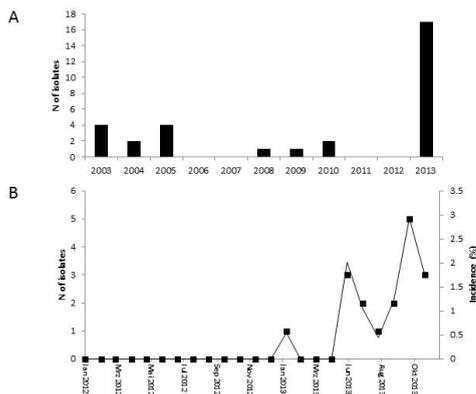
9/16 patients were outpatients. In 4/7 inpatients *C. concisus* was detected >48h after admission. Only one patient was hospitalised on the same ward as the putative index-patient prior to *C. concisus* detection; this patient had negative stool cultures before. 8/16 patients had colonoscopy at our hospital (3 before detection of *C. concisus* (1, 4, and 122 days), 2 on the same ward (5/13 and 10/13), in 1 *C. concisus* was cultured from biopsy material).

Putative risk factors for colonisation/infection were found in 9/16 patients (immunosuppression = 3, IBD = 2, neutropenia =3, renal insufficiency=1).

After reviewing the cases, we identified a change in microaerobic culture conditions as the most likely explanation for the suspected outbreak. Instead of microaerobic gas generator packs (CampyGen, Oxoid, UK; generating 85% N₂, 5% O₂ and 10% CO₂), an automated system for the evacuation and gas replacement of anaerobic jars was introduced (TRILAB, Jenny Science, Switzerland). The resulting atmosphere contained approximately 71% N₂, 5% O₂, 8% CO₂ and 16% H₂. Some *Campylobacter* species, such as *C. concisus*, require increased hydrogen concentrations for optimal growth. When reprocessing frozen isolates (not the original stool samples) from the suspected outbreak-period with the previous methodology, no or only weak growth was encountered.

Conclusions:

We report a pseudo-outbreak of *C. concisus* due to a change in laboratory procedures. No epidemiological links were found. The introduction of a new microaerobic culture system containing a high hydrogen concentration compared to conventional microaerobic conditions presumably led to a better recovery of *C. concisus* from fecal samples. The clinical significance of *C. concisus* remains unclear but may be easier to determine if diagnostic procedures improve.

Prevalence of *Campylobacter concisus* in stool cultures at Bern University HospitalA: Annual number of *C. concisus*-isolates from January 2002 to November 2013B: Absolute number (squares) and incidence (solid line) of *C. concisus* isolates January 2012-November 2013.