

ciprofloxacin susceptibilities were epidemiologic markers in this study and in previous studies (1,8). The presence of a strong β -lactamase with resistance to ampicillin was also a marker in this study; epidemic *C. jejuni* and *C. coli* isolates were β -lactamase negative with susceptibility to ampicillin in previous outbreaks in MSM (1,8). Higher proportions of *C. coli* isolates are erythromycin- and multidrug-resistant than are *C. jejuni* isolates (4,6). When indicated, the proper antimicrobial treatment of enteric erythromycin- and ciprofloxacin-resistant *Campylobacter* spp. is not known because no clinical studies have been done for infections with such isolates, but tetracycline or amoxicillin/clavulanic acid can be used if isolates are susceptible in vitro (1,8; this study).

MSM should be counseled about preventing STIs, including enteric infections. Barriers should be used during genital, oral, and anal sex, and genital and hand washing before and after sex should be done (9,10). Our study increases evidence of clusters of *Campylobacter* STIs in MSM (1,8).

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References

- Gaudreau C, Helferty M, Sylvestre JL, Allard R, Pilon PA, Poisson M, et al. *Campylobacter coli* outbreak in men who have sex with men, Quebec, Canada, 2010–2011. *Emerg Infect Dis*. 2013;19:764–7. <http://dx.doi.org/10.3201/eid1905.121344>
- Clinical and Laboratory Standards Institute. Methods for antimicrobial dilution and disk susceptibility testing for infrequently-isolated or fastidious bacteria: approved guidelines (M45). 3rd ed. Wayne (PA): The Institute; 2015.
- Clinical and Laboratory Standards Institute. Performance standards for antimicrobial susceptibility testing; 24th informational supplement (M100S). 26th ed. Wayne (PA): The Institute; 2016.
- Centers for Disease Control and Prevention. National Antimicrobial Resistance Monitoring System. Enteric bacteria 2013 [cited 2016 Feb 29]. Human isolates final report. <http://www.cdc.gov/narms/reports/>
- Crim SM, Griffin PM, Tauxe R, Marder EP, Gilliss D, Cronquist AB, et al.; Centers for Disease Control and Prevention. Preliminary incidence and trends of infection with pathogens transmitted commonly through food—Foodborne Diseases Active Surveillance Network, 10 U.S. sites, 2006–2014. *MMWR Morb Mortal Wkly Rep*. 2015;64:495–9.
- Gaudreau C, Boucher F, Gilbert H, Bekal S. Antimicrobial susceptibility of *Campylobacter jejuni* and *Campylobacter coli* in Montreal, Quebec, Canada, 2002–2013. *J Clin Microbiol*. 2014;52:2644–6. <http://dx.doi.org/10.1128/JCM.00362-14>
- Zeigler M, Claar C, Rice D, Davis J, Frazier T, Turner A, et al. Outbreak of campylobacteriosis associated with a long distance obstacle adventure race—Nevada, October 2013. *MMWR Morb Mortal Wkly Rep*. 2014;63:375–8.
- Gaudreau C, Rodrigues-Coutlée S, Pilon PA, Coutlée F, Bekal S. Long-lasting outbreak of erythromycin- and ciprofloxacin-resistant *Campylobacter jejuni* subsp. *jejuni* from 2003 to 2013 in men who have sex with men, Quebec, Canada. *Clin Infect Dis*. 2015;61:1549–52. <http://dx.doi.org/10.1093/cid/civ570>
- Centers for Disease Control and Prevention. Ciprofloxacin- and azithromycin-nonsusceptible shigellosis in the United States. *CDC Health Alert Network*. June 4, 2015 [cited 2016 Jan 20]. <http://emergency.cdc.gov/han/han00379.asp>
- Gaudreau C, Barkati S, Leduc JM, Pilon PA, Favreau J, Bekal S. *Shigella* spp. with reduced azithromycin susceptibility, Quebec, Canada, 2012–2013. *Emerg Infect Dis*. 2014;20:854–6. <http://dx.doi.org/10.3201/eid2005.130966>

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Biological Warfare in the 17th Century

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To the Editor: In an article that reviews evidence of a plot to use plague to break the siege of Candia during the Venetian–Ottoman War of the 17th century, Dr. Thalassinou and her colleagues (1) identify an incident previously unknown to historians of biological warfare. However, the authors' effort to broaden the context for biological weaponry is undermined by a reference to an often repeated allegation for which no credible evidence exists: namely, that during a siege occurring in the Swedish–Russian War of 1710, the Russians catapulted bodies of plague victims into the Swedish-held city of Reval.

Danish historian Karl-Erik Frandsen conducted a careful study of the plague outbreak affecting the Baltic area during 1709–1713 and found no evidence to support this allegation (2). Plague was first detected in Reval on August 10, 1710, while the army from Russia was still approaching the city. Reval was not besieged, and the Russians merely camped outside the city while attempting to isolate it. The army dumped corpses into a stream that flowed into Reval, but evidence does not show that the dead were plague victims, nor does evidence exist that clarifies whether the intent was contamination of the water supply or disposal of bodies. Original accounts provide no evidence to suggest that Russians hurled bodies into the city, much less plague-infected bodies. Frandsen estimates that about three quarters of the 20,000 persons in Reval died during the outbreak (2).

Intentional introduction of disease has been rare (3). Consequently, the incident identified by Thalassinou and her colleagues arouses readers' interest and inspires speculation.

References

1. Thalassinou E, Tsiamis C, Poulakou-Rebelakou E, Hatzakis A. Biological warfare plan in the 17th century—the siege of Candia, 1648–1669. *Emerg Infect Dis*. 2015;21:2148–53. <http://dx.doi.org/10.3201/eid2112.130822>
2. Frandsen K-E. The last plague in the Baltic region 1709–1713. Copenhagen: Museum Tusulanum Press, University of Copenhagen; 2010.
3. Carus WS. The history of biological weapons use: what we know and what we don't. *Health Secur*. 2015;13:219–55. <http://dx.doi.org/10.1089/hs.2014.0092>

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***Bifidobacterium longum* Subspecies *infantis* Bacteremia in 3 Extremely Preterm Infants Receiving Probiotics**

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To the Editor: Metaanalysis of randomized trials that tested different probiotics showed a reduction of ≈50% in necrotizing enterocolitis and all-cause deaths in preterm infants (1). Use of probiotics is increasing worldwide (2,3), and cases of probiotic sepsis were not reported among >5,000 infants in an updated review (1).

In Norway, a consensus-based protocol recommending prophylactic probiotic supplementation for preterm infants at highest risk for necrotizing enterocolitis (gestational age <28 weeks, birthweight <1,000 g) was introduced in 2014. After considering the safety profile, we investigated use in preterm infants of a widely used combination of oral

probiotics (Infloran; Laboratorio Farmacéutico Specialità Igienico Terapeutiche, Mede, Italy) that contained 10⁹ *Lactobacillus acidophilus* (ATCC 4356) and 10⁹ *Bifidobacterium longum* subspecies *infantis* (ATCC 15697).

B. longum is a microaerotolerant, anaerobic bacterium susceptible to many antimicrobial drugs (Table). This bacterium is a rare cause of neonatal infections; until 2015, only 2 *Bifidobacterium* bacteremia cases in premature newborns had been reported (4,5).

A total of 290 extremely preterm infants received oral probiotics during April 2014–August 2015 in Norway. Three patients were given a diagnosis of *B. longum* bacteremia: 2 patients in a neonatal unit in which 17 patients were given oral probiotics and 1 patient in a neonatal unit in which 31 patients were given oral probiotics (Table).

All 3 infants had respiratory distress syndrome and received mechanical ventilation after birth. Enteral feeding with human milk was begun on day 1. Oral probiotics (½ capsule, 1×/d) were given during the first week of life and increased to 1 capsule/day after 4–7 days.

We identified *B. longum* in blood cultures by using matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (Bruker Daltonics, Billerica, MA, USA). Whole-genome sequencing (MiSeq, Illumina, San Diego, CA, USA) and comparative analysis of nucleotide-level variation by using variant call format in SAMtools (<http://samtools.sourceforge.net>) showed that all 3 blood culture isolates and a *B. longum* strain cultured from an oral probiotic capsule were identical.

Patient 1 had sepsis and severe hypotension 8 days after birth. A blood culture was prepared, and the patient was given antimicrobial drugs and vasoactive support. Abdominal distention, gastric residuals, and feed intolerance developed the next day, but the patient was cardiorespiratory stable. On day 12, abdominal radiographs showed pneumoperitoneum. Surgery showed multiple ileal perforations and bowel necrosis. Histologic analysis showed classical features of necrotizing enterocolitis. The patient received an ileostoma and improved after treatment with antimicrobial drugs. Blood culture was positive for gram-positive rods, which were identified as *B. longum*. Subsequent clinical course was uneventful.

Patient 2 had apnea, bradycardia, and temperature instability 12 days after birth. A blood culture was prepared, and the patient was given antimicrobial drugs. Blood culture was positive for gram-positive rods, which were identified as *B. longum*. Use of oral probiotics was discontinued. The patient recovered rapidly, and subsequent clinical course was uneventful.

Patient 3 had sepsis and necrotizing enterocolitis 9 days after birth. Ultrasound showed free abdominal fluid. A blood culture was prepared, and the patient was given antimicrobial drugs. Surgery showed 2 separate bowel perforations, and