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Clostridium difficile 027 Emerging Outbreak in Marseille, France

To the Editor—Toxigenic *Clostridium difficile* cause pseudomembranous colitis that may be fatal.[1] Typically, symptomatic *C. difficile* infections are hospital associated and preferentially involve elderly patients (greater than 65 years of age) recently treated with antibiotics.[1,2] The clinical manifestations range from moderate diarrhea to serious manifestations. In 2003, an especially virulent clone, the ribotype 027, was described in North America and was associated with an increased risk of death.[2] Different outbreaks have been described in the past few years in northern Europe,[3] particularly in Scotland, Germany, Austria, the Netherlands, Belgium, and northern France.[3-6] In France, a large outbreak was described in the Nord-Pas de Calais region during 2006–2007 with a mortality rate close to 30%; since then, small clusters have been reported in Picardie, Rhône-Alpes, Lorraine, and Ille et Vilaine[6] but not in the south of France. Cases reported from southern Europe, such as from Italy or Spain, remain sporadic to date.[5,7,8]

Marseille is a large city with approximately 850,000 inhabitants, and 112,000 patients are hospitalized in public hospitals in Marseille each year. We developed the point-of-care laboratory, which allows the use of both molecular and immunodetection tests to facilitate decision-making regarding the management of infectious diseases and patient care.[9] The Xpert *C. difficile* Epi polymerase chain reaction (PCR) assay was used from April 2012 in the 2 point-of-care laboratories located in the Timone hospital and the North hospital.[9] The Xpert *C. difficile* Epi PCR assay is a multiplex real-time PCR that detects the toxin B gene (*tcdB*), the binary toxin gene (*cdt*), and the *tcdC* gene deletion at nt117, identifying the 027 ribotype.[10]

From March 18, 2012, to July 5, 2013, we tested 2,205 stool samples for *C. difficile* toxin gene and detected 92 positive samples (4.2%) at the point-of-care laboratory. Of these, 10 were positive for *C. difficile* 027; these were, to the best of our knowledge, the first cases due to this strain in Marseille. The index case was community acquired and was diagnosed in March 2013; this was followed by a rapid increase in the number of cases within a few weeks. Among these cases, 4 patients had been hospitalized for at least 48 hours, and 5 other patients had been hospitalized in the 3 preceding months. Among the 10 patients, 6 were or had been hospitalized in the same long-term care facility (Fig. 1). Finally, 2 patients were within the same family, and the delay between the onset of symptoms (3 weeks) might suggest that the first patient transmitted the infection to her father (Fig. 1). Patients were isolated after the diagnosis, and to date, no secondary cases have been described in our hospital.

The patients were mainly female (70%) and older (mean

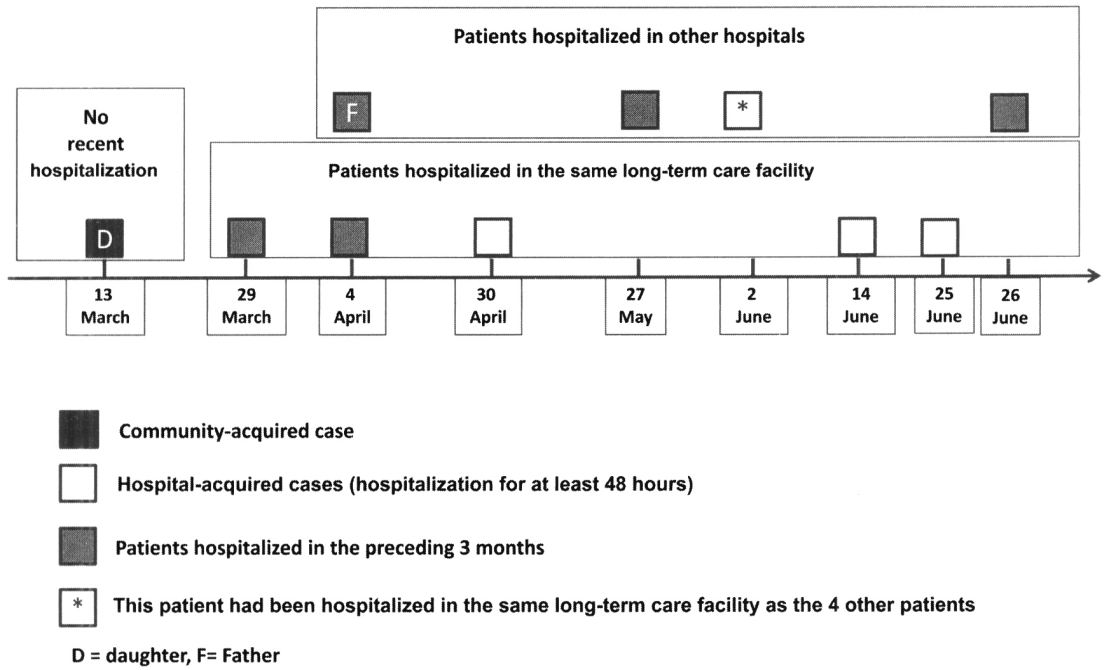

FIGURE 1. Schematic representation of the origin of the 10 cases (March 2013 through July 5, 2013).

age, 82 years) compared with patients infected due to other *C. difficile* strains (male sex, 48.8%; mean age, 60 years). Four patients developed colitis diagnosed by computed tomography. Infections associated with *C. difficile* 027 were very severe; taking intrahospital mortality into account, 3 (30%) of 10 patients died, including 2 patients who died due to septic shock. In comparison, 6 of 82 patients with cases caused by other strains died ($P = .05$, by Fisher exact test).

Consequently, we strengthened both screening and infection control measures. All patients with diarrhea, whatever the age and the context (community-acquired or healthcare-acquired infection) are tested using Xpert *C. difficile* Epi PCR assay thanks to the point-of-care laboratory. Stringent infection control measures are applied as a prophylactic precaution until the PCR results are obtained. PCR results are obtained within 3 hours, 24 hours per day. Finally, all of the patients who receive a diagnosis of infection due to *C. difficile* 027 are transferred to an infectious diseases unit where healthcare workers are accustomed to applying and complying to stringent infection control measures.

In conclusion, these cases of infection due to *C. difficile* 027 in Marseille highlight the recent extension of this clone into southern Europe, where only small clusters of such cases have been reported to date. The improved capacity of rapid detection of the hypervirulent and highly transmissible clone 027 by PCR may allow us to detect cases and control outbreaks.

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