provinces and a total of 200 camels. Umnogovi Province has the largest, and Dundgovi Province the fifth largest, camel population in the country (≈113,000 and ≈28,000 animals, respectively). Further studies on the epidemiology of MERS-CoV infection in dromedaries and Bactrian camels from central Asia, China, and Mongolia are warranted.

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Oligella ureolytica
Bacteremia in Elderly Woman, United States

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To the Editor: Oligella ureolytica is an aerobic gram-negative coccobacillus found as a commensal organism in human urinary tracts (1). Previously referred to as CDC Group IVe, this bacterium is not commonly encountered as a source of infection and is difficult to isolate by using conventional laboratory procedures (2). The few cases of pathogenic infection with O. ureolytica described in the literature have occurred in patients ranging in age from newborn to 89 years and from the varied locations of India, Turkey, Canada, and the United States (3–7). We report a case of O. ureolytica bacteremia in a patient in whom sepsis was diagnosed and review the current literature on this emerging pathogen.

A 66-year-old woman sought treatment in our emergency department for a fever of 100.7°F, femur fracture, and a right buttock stage III decubitus ulcer. She reported having fallen 4 days earlier, after which she was unable to walk and spent 4 days laying in her own urine and feces. Blood tests revealed an elevated leukocyte count of 24.4 × 10^9 cells/L (76% neutrophils, 2% bands), and urinalysis showed trace leukocyte esterase, +3 bacteria, and 5–10 leukocytes. Chest radiograph and head computed tomography images were unremarkable. Her electrocardiogram showed nonspecific ST wave changes. Samples from the patient’s blood, urine, and wounds were collected while the patient was in the emergency department and were sent for culture.

Wound cultures showed growth of Proteus mirabilis and Enterococcus spp. The urine culture grew >100,000 CFU Escherichia coli. The first set of blood cultures grew O. ureolytica in aerobic and anaerobic bottles, but another set drawn 30 min later showed no growth. The blood cultures were processed by using the Bact/Alert 3D (bioMérieux, Marcy l’Etoile, France) and Gram stained. Identification was from the Vitek 2 compact system (bioMérieux) and from the varied locations of India, Turkey, Canada, and the United States (3–7). We report a case of O. ureolytica bacteremia in a patient in whom sepsis was diagnosed and review the current literature on this emerging pathogen.


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test results were negative. The nonspecific electrocardiogram changes prompted us to request a transesophageal echocardiogram, but the patient refused. For 10 days, the patient was given vancomycin (1 g/d), aztreonam (2 g/8 h), and metronidazole (500 mg/8 h). Cultures of blood that had been collected 5 and 8 days after the original culture were sterile. After 16 days, leukocytosis and fever had resolved, and the patient was discharged to a skilled nursing facility. Although we found no reports in the literature of endocarditis caused by \( \text{O. ureolytica} \), the patient’s refusal of a transesophageal echocardiogram and the presence of the uncommon bacterium led us to empirically continue aztreonam for endocarditis after her discharge.

The literature reports 5 cases of pathogenic \( \text{O. ureolytica} \) infection (Table). This bacterium has also been isolated from the respiratory tract of patients with cystic fibrosis (9). A 2-year study conducted in 1983 at a high-volume hospital in the United States demonstrated \( \text{O. ureolytica} \) growth in the urine of 72 patients (8). Of these patients, 71 had long-term urinary drainage systems and 14 had symptomatic urinary tract infections. Many of these patients were permanently disabled from spinal cord injuries (8). This study was the only one we found focused on \( \text{O. ureolytica} \) infection in the clinical setting. We found no cases in which a patient’s death was attributed to \( \text{O. ureolytica} \) infection, and all reported cases resolved with antimicrobial drug treatment (3–8). The low virulence of this organism may contribute to the paucity of recognized cases.

Of the reported cases, all occurred as opportunistic infections in patients with a source of immunosuppression such as malignancy, HIV, or newborn status. The patient we reported in this article showed no evidence of malignancy and had no major source of immunosuppression besides malnutrition, tobacco use, and advanced age. The patient’s wound had been contaminated by urine and feces, which was postulated to be the cause of bacteremia in the 1993 case.

Limitations in commonly available laboratory procedures make the identification of this bacterium difficult. The incubation period is long (4 days), and not all laboratories incubate cultures for that long, as occurred in the 2013 urinary tract infection case (1,3,5). Also, the identification of less commonly encountered bacteria is not always pursued to the genus and species level (2). Furthermore, it is believed that \( \text{Oligella} \) spp. can be misidentified as phenotypically similar organisms, such as \( \text{Bordetella bronchiseptica} \) and \( \text{Achromobacter} \) spp. (4,10).

We believe that many cases of \( \text{O. ureolytica} \) infection have gone unrecognized or were incorrectly identified. Some cases may also have been dismissed as contamination because of laboratorians’ and clinicians’ lack of familiarity with this bacterium. Our review suggests that advancing laboratory techniques will lead to more recognized cases and that further studies are necessary to understand this bacterium’s clinical significance.

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### References


By December 31, 2014, the Ebola epidemic in West Africa had resulted in treatment of 10 Ebola case-patients in the United States; a maximum of 4 patients received treatment at any one time (7). Four of these 10 persons became clinically ill in the United States (2 infected outside the United States and 2 infected in the United States), and 6 were clinically ill persons medically evacuated from West Africa (online Technical Appendix 1, Table 6, http://wwwnc.cdc.gov/EID/article/21/7/15-0286-Techapp2.xlsx) that can be used to estimate the number of Ebola patients expected to be treated simultaneously in the United States at any point in time. Users of BED can update estimates for changing conditions and improved quality of input data, such as incidence of disease. The BED tool extends the work of prior studies by dividing persons arriving from Liberia, Sierra Leone, and Guinea into the following 3 categories: 1) travelers who are not health care workers (HCWs), 2) HCWs, and 3) medical evacuees. This categorization helps public health officials assess the potential risk for Ebola virus infection in individual travelers and the subsequent need for post-arrival monitoring (4).

We used the BED tool to calculate the estimated number of Ebola cases at any one time in the United States by multiplying the rate of new infections in the United States by length of stay (LOS) in hospital (Table). The rate of new infections is the sum of the rate of infected persons coming into the United States and the number of arrivals per month (Table). Calculating the incidence among arriving HCWs required estimating the number of HCWs treating Ebola patients in West Africa (online Technical Appendix 1, Tables 2–4). For medical evacuations of persons already ill from Ebola, we calculated low and high estimates using unpublished data of such evacuations through the end of December 2014. Although only 1 Ebola case has caused additional cases in the United States (7), we included the possibility that each Ebola case-patient who traveled into the United States would cause either 0 secondary cases (low estimate) or 2 secondary cases (high estimate) (Table). Such transmission might occur before a clinically ill traveler is hospitalized or between a patient and HCWs treating the patient (7). To account for the possibility that infected travelers may arrive in clusters, we assumed that persons requiring treatment would be distributed according to a Poisson probability distribution. Using this distribution enables us to calculate, using the BED tool, 95% CIs for any one time in the United States. Gomes et al. previously estimated the potential size of outbreaks in the United States and other countries for 2 different dates in September 2014 (2). Another study considered the overall risk for exportation of Ebola from West Africa but did not estimate the number of potential cases in the United States at any one time (3).

We provide for practicing public health officials a spreadsheet-based tool, Beds for Ebola Disease (BED) (online Technical Appendix 2, http://wwwnc.cdc.gov/EID/article/21/7/15-0286-Techapp2.xlsx) that can be used to estimate the number of Ebola patients expected to be treated simultaneously in the United States at any point in time. Users of BED can update estimates for changing conditions and improved quality of input data, such as incidence of disease. The BED tool extends the work of prior studies by dividing persons arriving from Liberia, Sierra Leone, and Guinea into the following 3 categories: 1) travelers who are not health care workers (HCWs), 2) HCWs, and 3) medical evacuees. This categorization helps public health officials assess the potential risk for Ebola virus infection in individual travelers and the subsequent need for post-arrival monitoring (4).

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