or another unknown lyssavirus. These findings are similar to findings reported from other parts of Asia (*3*–*5*).

Information on lyssavirus circulation in bat populations in Vietnam should be made available to public health authorities, clinicians, and the general public to increase awareness of the risk for rabies transmission from bats; improve recognition, documentation, and reporting of bat exposure to rabies surveillance systems; and increase consideration of the need for post exposure prophylaxis after receiving a bat bite. Our data suggest that several lyssaviruses are circulating among bats in northern Vietnam, and a substantial proportion have neutralizing antibodies to RABV. Further investigations are required, particularly of sick and dying bats, to determine the implications of these findings for human health.

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Co-Production of NDM-1 and OXA-232 by *Klebsiella pneumoniae*

To the Editor: New Delhi metallo-β-lactamase 1 (NDM-1) and OXA-48-group β-lactamase have been increasingly reported as carbapenemases responsible for carbapenem resistance in *Enterobacteriaceae* worldwide (*1*). However, in the United States, *Klebsiella pneumoniae* carbapenemase (KPC)–type β-lactamase is the most common carbapenemase among *Enterobacteriaceae*, especially *K. pneumoniae*. Isolates producing NDM-1 were first reported in the United States in 2010 (*2*), followed by several case reports and most recently a hospital outbreak in Colorado (*3*–*6*). As for OXA-48-group β-lactamase, 2 cases of infection with OXA-48–producing *K. pneumoniae* were recently reported from Virginia (*7*). We report *K. pneumoniae* co-producing NDM-1 and OXA-232, a variant of OXA-48, and *Escherichia coli* producing NDM-1 that were isolated from the same patient.

A 69-year-old woman was hospitalized in India for subarachnoid hemorrhage in January 2013. Her hospitalization was complicated by unsuccessful coil embolization and subsequent hydrocephalus. A ventriculoperitoneal shunt was inserted, and she was transferred to an acute care hospital in Pittsburgh, Pennsylvania, USA, for further management in February 2013. She underwent reinsertion of the shunt and was discharged to a long-term care facility (LTCF 1). She was readmitted to the same hospital because of fever in March 2013.

A urine culture collected at the time of readmission grew carbapenem-resistant *K. pneumoniae* and extended-spectrum β-lactamase–producing *E. coli*. Although production of KPC-type β-lactamase was initially suspected in *K. pneumoniae*, the unusually

high level of resistance to amikacin (MIC >32 μg/mL) and gentamicin (MIC >8 μg/mL) increased concern for presence of an NDM-1 producer, which is frequently highly resistant to aminoglycosides because of production of 16S rRNA methyltransferase (*8*). A modified Hodge test showed a positive result for carbapenemase production, and a metallo-β-lactamase Etest (bioMérieux, Marcy l'Etoile, France) showed a positive result for metallo-β-lactamase production.

PCR and sequencing identified NDM-1 and OXA-232, a 5-aa variant of OXA-48 recently reported in *K. pneumoniae* isolates from India (*9*). Presence of the gene for 16S rRNA methyltransferase (*armA*) was also confirmed by PCR and sequencing and accounted for the high-level aminoglycoside resistance. The isolate belonged to sequence type (ST) 14, as determined by multilocus sequence typing, and has been reported to be common among NDM-1–producing *K. pneumoniae* in Europe (*10*).

The patient was discharged to LTCF 1 but was readmitted because of recurrent fever. A urine culture collected at this admission grew carbapenem-resistant *K. pneumoniae* and carbapenem-resistant *E. coli*. This *E. coli* isolate belonged to ST95 and was positive for the NDM-1 gene but negative for the OXA-48 group and *armA* genes. The original extended-spectrum β-lactamase–producing *E. coli* isolate belonged to ST3865, which is distinct from ST95. Therefore, it is likely that the patient was already colonized by NDM-1–producing *E. coli* ST95 at the time of the first admission, but this colonization was not detected in a clinical culture at that time. All *K. pneumoniae* and *E. coli* isolates remained susceptible to fosfomycin and colistin.

The patient did not receive any antimicrobial drug therapy specific for these isolates because she was deemed to be only colonized with them in the urine. Enhanced contact precautions were also implemented at the time of PCR confirmation of the NDM-1 gene. These precautions included all components of contact precautions (handwashing, gowns, gloves, disinfected/dedicated equipment), and dedicated personnel monitored compliance with these measures around the clock.

The patient was eventually discharged to another long-term care facility (LTCF 2) in April 2013. A point surveillance testing for NDM-1–producing *Enterobacteriaceae* by using rectal swab specimens was conducted for all inpatients at the acute-care hospital and for all residents of the unit at LTCF 2. Testing did not identify any other patients colonized with NDM-1–producing *Enterobacteriaceae*.

In transformation and conjugation experiments, transformants carrying the OXA-232 gene were obtained from *K. pneumoniae*, but those carrying the NDM-1 gene could not be obtained by either method, suggesting that the 2 genes were not located on the same plasmid. For *E. coli*, transformants and transconjugants carrying the NDM-1 gene were obtained, which indicated that this gene was located on a self-conjugative plasmid.

Detection of NDM-1– or OXA-48-group–producing *Enterobacteriaceae*, in particular *K. pneumoniae*, poses a diagnostic challenge in regions to which KPC-producing *K. pneumoniae* is endemic. In our case, recognition of resistance to multiple aminoglycosides by an automated instrument, which was confirmed to be high level by the disk diffusion method (i.e., no inhibition zone), prompted early detection and implementation of appropriate infection prevention measures. Production of 16S rRNA methyltransferase by KPC-producing *K. pneumoniae* is extremely rare, and no cases have been identified in the United States. Therefore, we propose that high-level resistance to amikacin and gentamicin can serve as a clue for suspecting potential NDM-1–producing isolates in clinical diagnostic laboratories.

Conversely, *Enterobacteriaceae* producing OXA-48-group carbapenemase, including variants such as OXA-232, do not have characteristic susceptibility patterns and may easily not be recognized in areas with a high background prevalence of KPC-producing organisms. Therefore, organisms producing OXA-48 or their variants might have already spread in the United States.

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Ground Beef Recall Associated with Non-O157 Shiga Toxin–producing *Escherichia coli*, United States

To the Editor: Shiga toxin–producing *Escherichia coli* (STEC) cause severe illness in humans, especially young and elderly persons. In previous decades, prevention and control measures focused on STEC O157:H7; however, in recent years, non-O157 STEC–related outbreaks and illnesses have been detected more frequently. In the United States, 6 serogroups (O26, O45, O103, O111, O121, and O145) account for ≈75% of the reported non-O157 STEC illnesses (*1*).

On August 4, 2010, the Maine Center for Disease Control and Prevention (Maine CDC) investigated 2 isolates of nonmotile STEC O26 that were indistinguishable by pulsed-field gel electrophoresis (PFGE). Both case-patients had diarrhea and abdominal cramps, shopped at grocery stores in the same town, and reported consumption of ground beef. Case-patient 1 purchased ground beef at Store A; a shopper card used for the purchase was shared with investigators. Case-patient 2 consumed ground beef purchased from 2 stores (Stores B and C); neither shopper cards nor receipts were available.

On August 5, a Maine Department of Agriculture, Food and Rural Resources (Maine DoA) inspector visited Stores A and B. On June 25, case-patient 1 had purchased 90% lean ground beef at Store A; the beef was produced by a parent company with multiple establishments. Inspectors cross-referenced this purchase with meat grinding logs from Store B, which revealed that the parent company that supplied ground beef to Store A also supplied beef to Store B. Maine DoA notified the United States Department of Agriculture, Food Safety and Inspection Service (USDA-FSIS), of a common manufacturer.

On August 9, the New York State (NYS) Department of Health contacted Maine CDC regarding a third case-patient with an STEC O26 isolate that was indistinguishable by PFGE from the other 2 isolates. Case-patient 3 had handled 90% lean ground beef purchased from the grocery store chain used by case-patient 1 (Store A). Shopper card information indicated that the beef was purchased on June 17. Ground beef was the only common exposure among the 3 case-patients.

During August 18–26, Maine DoA, NYS Department of Agriculture and Markets, and USDA-FSIS conducted a traceback of ground beef (Figure). Traceback revealed that for >10 years, Store A had been purchasing 90% lean ground beef from Establishment X (1 of many establishments within the parent company). Further investigation revealed that implicated ground beef from Store A locations in Maine and New York had come from the same lot at Establishment X. USDA-FSIS conducted ground beef traceback at Stores B and C; source materials were received from multiple establishments, but Establishment X was the only common supplier (Figure). On August 28, Establishment X recalled ≈8,500 pounds of ground beef that had been produced on June 11.

On September 2, the NYS Department of Health Public Health Laboratory tested leftover hamburger patties purchased by case-patient 3. The samples were confirmed as STEC O26 with a PFGE pattern indistinguishable from the strains isolated from case-patients.

On November 17, USDA-FSIS completed an assessment at Establishment X and determined that the company's food safety system was adequate to control pathogens of concern. Follow-up testing of beef trim samples at Establishment X were negative for STEC O26 and O157:H7.