OUTBREAK OF CITROBACTER FREUNDII CARRYING VIM-1 IN AN ITALIAN HOSPITAL, IDENTIFIED DURING THE CARBAPENEMASES SCREENING ACTIONS, JUNE 2012


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OBJECTIVE
The identification of patients colonized or infected with carbapenemase-producing Enterobacteriaceae (CPE), in order to control and prevent the global spread of multidrug-resistant (MDR) pathogens.

METHODS
From June 1 to June 15, 2012, eight Citrobacter freundii strains with reduced susceptibility to carbapenems were isolated from rectal swabs of hospitalized patients during active screening following the detection of a Klebsiella pneumoniae carbapenemase (KPC)-positive patient on the ward. All isolates were analyzed phenotypically and molecularly by PCR and sequencing. Genotype clustering was performed by multilocus sequence typing (MLST) analysis.

RESULTS
The isolates showed high rates of multidrug resistance profile. A phenotypic assay for carbapenemase production suggested the presence of metallo-β-lactamase (MBL). The blaVIM-1 gene was detected in all imipenem-resistant C. freundii isolates. MLST showed that the C. freundii isolates shared the same sequence type (ST). Phylogenetic analysis revealed a strict relationship with an ST5C. freundii isolate from a diarrhea patient in China.

CONCLUSIONS
Our findings showed that the active surveillance program for CPE was useful, not only for the detection of KPC-producers, but also to identify and control the spread of other MDR pathogens that could expand the spectrum of circulating MDR pathogens.