for 2014. This prevalence is increasing compared to that described in France in 2012 (14%). We found 35 A→G substitutions at position 2058 or 2059, two A2062T mutations and one A2059C mutation (Table (1,9). Notably, in patients 15 and 33, who were infected with strains with macrolide resistance–associated mutations, *M. genitalium* infection was unsuccessfully treated with azithromycin, with treatment failures after azithromycin (1 g) and extended azithromycin (1.5 g for 5 d), but moxifloxacin treatment was effective. Patient 15 had been treated 1 year earlier with azithromycin (1 g) for nongonococcal urethritis.

Among the 168 patients whose isolates were examined for the 23S rRNA, gyrA, and *parC* genes, strains from 2 patients (patients 3 and 6) had both macrolide- and fluoroquinolone-associated mutations (1.2%; 95% CI 0.33%–4.24%). Both patients received azithromycin (1 g), and patient 6 received additional azithromycin (1.5 g) after failure of azithromycin (1 g). Patient 6 experienced azithromycin failure again after the extended regimen. *M. genitalium* multidrug resistance is described in France at a prevalence of 1.2%, lower than prevalence described in Australia (7.5%) (7) and Japan (30.8%) (10).

In conclusion, *M. genitalium* fluoroquinolone resistance is emerging in France, with a prevalence of 6% in 2013–2014. Further, macrolide resistance also increased during this period, to a rate of 17.2%. Patients infected with *M. genitalium* strains containing both macrolide and fluoroquinolone resistance mutations associated with therapeutic failure raise concerns about untreatable *M. genitalium* infections.

Acknowledgments

We thank Manon Zerbib and Manon Passard for technical assistance.

References


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Possible Transmission of *mcr-1*–Harboring *Escherichia coli* between Companion Animals and Human

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DOI: http://dx.doi.org/10.3201/eid2209.160464

To the Editor: Plasmid-mediated, colistin-resistance mechanism gene *mcr-1* was first identified in *Escherichia coli* isolates from food, food animals, and human patients in November 2015 (1). Reports on detection of *mcr-1* in *Enterobacteriaceae* from humans and food animals
soon followed from ≈12 countries (2–5). Here we report

detection of mcr-1 in colistin-resistant *E. coli* isolated
from companion animals and the possible transmission of
mcr-1–harboring *E. coli* between companion animals and a
person.

Three mcr-1–harboring *E. coli* clinical isolates were
identified from specimens of 3 patients admitted to a
urology ward of a hospital in Guangzhou, China. *E. coli*
isolate EC07 was identified in the urine of a 50-year-old
male patient with glomerulonephritis in October 2015.
Isolate EC08 was cultured from the urine of a 48-year-
old male patient with prostatitis in December 2015. Iso-
late EC09 was identified in the blood of an 80-year-old
male patient with bladder cancer 3 weeks after EC08
was identified.

Review of medical records identified the patient carrying
*E. coli* isolate EC07 as a worker at a pet shop. In light of
this finding, we collected a total of 53 fecal samples from
39 dogs and 14 cats in the pet shop where the man worked.
We isolated and identified colonies consistent with *E. coli*
from fecal samples on MacConkey agar plates (Thermo
Fisher, Beijing, China) and API 20E system (bioMérieux,
Durham, NC, USA). We prepared crude DNA samples of
isolates for PCR testing by boiling cells in water. Among
them, 6 were positive for mcr-1 by PCR and sequencing (4
from dogs and 2 from cats). All 6 isolates were resistant to
colistin, polymyxin B, cephalosporin, gentamicin, and cip-
rofloxacin by using the agar dilution method, in accordance
with the European Committee on Antimicrobial Suscepti-
ibility Testing (http://www.eucast.org) for colistin and poly-
myxin B and Clinical and Laboratory Standards Institute
guidelines (http://www.clsi.org) for the other antimicrobial
drugs. We identified various resistance genes accounting
for the multidrug resistance in these 9 mcr-1–positive iso-
lates (6,7) (Table). We noted that *E. coli* isolate EC09 was
also resistant to carbapenems and positive for *bla*<sub>imp-4</sub>. We
observed co-production of mcr-1 and IMP-type metallo-β-
lactamase in *E. coli*.

We subjected all isolates to multilocus sequence
typing, in accordance with the protocol described at
http://mlst.warwick.ac.uk/mlst/dbs/Ecoli, and pulsed-
field gel electrophoresis as described previously (8–10).
We identified 5 mcr-1–positive isolates from 4 dogs
(PET02–04 and PET06) and isolate EC07 as sequence

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<th>PET01</th>
<th>PET02</th>
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*AMX/CLV, amoxicillin clavulanic acid; PFGE, pulsed-field gel electrophoresis; ST, sequence type.
†By multilocus sequence typing.
type (ST) 354. Isolates PET01 and PET05, identified from cats, belonged to ST93 and a new ST strain, respectively. Isolates EC08 and EC09, from the patients who shared the same hospital room with the pet shop worker, were ST156 (Table). Results of pulsed-field gel electrophoresis were consistent with multicoulus sequence typing results and showed that isolates consisted of 5 types (types I to V; online Technical Appendix, http://wwwnc.cdc.gov/EID/article/22/9/16-0464-Techapp1.pdf). Isolate EC07 was clonally related to 4 E. coli strains from dogs, according criteria described by Tenover et al. (10), suggesting possible transmission of mcr-1–harboring E. coli between dogs and the patient. Colistin resistance was successfully transferred to E. coli C600 through conjugation in all isolates, suggesting that mcr-1 was located on transferable plasmids.

These findings suggest that mcr-1–producing E. coli can colonize companion animals and be transferred between companion animals and humans. The findings also suggest that, in addition to food animals and humans, companion animals can serve as a reservoir of colistin-resistant E. coli, adding another layer of complexity to the rapidly evolving epidemiology of plasmid-mediated colistin resistance in the community.

Acknowledgments
We sincerely thank the patients and the owners of companion animals for giving written consent for publication.

This work was supported by research grants from the National Natural Science Foundation of China (no. 81471988), the 111 Project (nos. B13037 and B12003), the Guangdong Natural Science Foundation (no. S201310015810), and the Program of Science and Technology New Star of Guangzhou (no. 2014J2200038).

References

Acetobacter indonesiensis
Bacteremia in Child with Metachromatic Leukodystrophy

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DOI: http://dx.doi.org/10.3201/eid2209.160566

To the Editor: Acetobacter indonesiensis, first described in 2000 (1), belongs to the group of acetic acid bacteria (AAB), which includes the genera Acetobacter, Gluconobacter, Asaia, Granulibacter, and others in the family Acetobacteriaceae. AAB are of great industrial interest for use in vinegar fermentation processes because they oxidize alcohols or sugars incompletely, which leads