COMMENT LETTERS

New Delhi Metallo-β-Lactamase-Producing Enterobacterales Bacteria

Yancheng Yao, Can Imirzalioglu, Linda Falgenhauer, SurvCARE Hesse Working Group, Trinad Chakraborty

Author affiliation: Justus Liebig University German Center for Infection Research, Giessen, Germany.

DOI: https://doi.org/10.3201/eid2801.212106

To the Editor: Findlay et al. (1) reported a high prevalence (>25%) of New Delhi metallo-β-lactamase (NDM) among carbapenemase-producing *Enterobacterales* (CPE) in Switzerland during 2019–2020. To provide context, we analyzed recent trends for NDM-producers in Germany.

In a whole-genome-sequencing-based surveillance study conducted in 52 hospitals in Hesse, Germany, during 2017–2019, we detected 56 NDM-producing isolates among 346 CPE. The prevalence of NDM CPE increased from 6.3% (5/79) in 2017 to 15.0% (17/113) in 2018 and 22.1% (34/154) in 2019. A total of 56 alleles – 28 NDM-1, 27 NDM-5, and 1 NDM-7 – were detected in 31 *Klebsiella pneumoniae*, 18 *Escherichia coli*, and 3 *Citrobacter freundii* isolates and 1 isolate each of *C. portucalensis, Enterobacter hormaechei, K. grimontii*, and *K. variicola*. Isolates were derived from rectal swab (30), urine (11), respiratory tract (6), and other (9) specimens. More than 82% (23/28) of NDM-1 were associated with *K. pneumoniae* and 59% (16/27) of NDM-5 with *E. coli*; 41% of the NDM-CPE harbored a 16S-rRNA-methylase gene.

Among carbapenemase-producing *K. pneumoniae* isolates, NDM increased from 6.4% (3/47) in 2017 to 24.5% (13/53) in 2018 and 31.9% (15/47) in 2019; ≈50% (15/31) were sequence type 147. Thus, reports for Switzerland (1) and Italy (2) indicate that sequence type 147 NDM-carrying *K. pneumoniae* is a CPE clone rapidly emerging in Europe.

NDM accounted for 20% (2/10) of carbapenemase-producing *E. coli* in 2017, 11.1% (2/18) in 2018, and 24.1% (14/58) in 2019; the increase in NDM-5-producing *E. coli* was primarily associated with IncF-type plasmids (3). A subgroup harboring penicillin binding protein 3 modifications exhibited increased aztreonam/avibactam MICs of 2–8 $\mu g/mL$. Higher MICs (4–16 $\mu g/mL$) were associated with the presence of an additional highly conserved $\mathit{bla}_{\text{CMY-42}}$ encoding IncIy plasmid (4). We reiterate the call by Findlay et al. to implement genome-based surveil-lance studies to identify emerging clonal lineages and commonly occurring plasmids among carbapenemase-producing bacteria.

Acknowledgments

We thank members of the SurvCARE Hesse Working Group who contributed data or sample collection or both: Eugen Domann, Jane Falgenhauer, and Moritz Fritzenwanker (Justus Liebig University, Giessen, Germany); Petra Heinmüller and Gudrun Bettge-Weller (Hessisches Landesprüfungs und Untersuchungsamt im Gesundheitswesen, Dillenburg, Germany); and Anja M. Hauri (Helmholtz Centre for Infection Research, Braunschweig, Germany).

References

- Findlay J, Poirel L, Kessler J, Kronenberg A, Nordmann P. New Delhi metallo-β-lactamase-producing Enterobacterales bacteria, Switzerland, 2019-2020. Emerg Infect Dis. 2021;27:2628-37. https://doi.org/10.3201/ eid2710.211265
- Tavoschi L, Forni S, Porretta A, Righi L, Pieralli F, Menichetti F, et al. Prolonged outbreak of New Delhi metallo-betalactamase-producing carbapenem-resistant *Enterobacterales* (NDM-CRE), Tuscany, Italy, 2018 to 2019. Vol. 25, Eurosurveillance. European Centre for Disease Prevention and Control (ECDC); 2020.
- Chakraborty T, Sadek M, Yao Y, Imirzalioglu C, Stephan R, Poirel L, et al. Cross-border emergence of Escherichia coli producing the carbapenemase NDM-5 in Switzerland and Germany. J Clin Microbiol. 2020; 59:e02238-20.
- Nordmann P, Yao Y, Falgenhauer L, Sadek M, Imirzalioglu C, Chakraborty T. Recent emergence of aztreonam-avibactam resistance in NDM and OXA-48 carbapenemase-producing *Escherichia coli* in Germany. Antimicrob Agents Chemother. 2021;65:e0109021. https://doi.org/10.1128/AAC.01090-21

Address for correspondence: Trinad Chakraborty, Institute of Medical Microbiology, Justus Liebig University Giessen, Schubertstrasse 81, D-35392 Giessen, Germany; email: trinad. chakraborty@mikrobio.med.uni-giessen.de

Correction: Vol. 27, No. 9

The acknowledgments and funding information were inaccurate in Severe Acute Respiratory Syndrome Coronavirus 2 in Farmed Mink (*Neovison vison*), Poland (L. Rabalski et al.). The article has been corrected online (https://wwwnc.cdc.gov/eid/article/27/9/21-0286_article).