



**University of
Zurich**^{UZH}

**Zurich Open Repository and
Archive**

University of Zurich
University Library
Strickhofstrasse 39
CH-8057 Zurich
www.zora.uzh.ch

Year: 2024

Pneumonia outbreaks due to re-emergence of *Mycoplasma pneumoniae*

Meyer Sauter, Patrick M ; Beeton, Michael L ; European Society of Clinical Microbiology and Infectious Disease

DOI: [https://doi.org/10.1016/S2666-5247\(23\)00406-8](https://doi.org/10.1016/S2666-5247(23)00406-8)

Posted at the Zurich Open Repository and Archive, University of Zurich

ZORA URL: <https://doi.org/10.5167/uzh-259021>

Journal Article

Published Version



The following work is licensed under a Creative Commons: Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) License.

Originally published at:

Meyer Sauter, Patrick M; Beeton, Michael L; European Society of Clinical Microbiology and Infectious Disease (2024). Pneumonia outbreaks due to re-emergence of *Mycoplasma pneumoniae*. *The Lancet Microbe*, 5(6):e514.

DOI: [https://doi.org/10.1016/S2666-5247\(23\)00406-8](https://doi.org/10.1016/S2666-5247(23)00406-8)

Pneumonia outbreaks due to re-emergence of *Mycoplasma pneumoniae*

On Nov 22, 2023, WHO released a statement regarding reported clusters of pneumonia in children in northern China.¹ Concurrently, the results of our global prospective surveillance study of *Mycoplasma pneumoniae* (ESGMAC MAPS study) were published, revealing the re-emergence of *M pneumoniae* in Europe and Asia; however, our study did not include data from China.² These observations indicated that the increase in the incidence of pneumonia in China could be due to the increased circulation of known pathogens such as *M pneumoniae*, which causes childhood pneumonia worldwide.

The following day, Chinese authorities indeed attributed this increase in incidence to the upsurge in the circulation of *M pneumoniae* and respiratory viruses, such as the influenza virus and respiratory syncytial virus, in the first winter season after abolishing COVID-19 restrictions.³ *M pneumoniae* and respiratory syncytial virus are known to affect children more than adults. Based on this information, WHO recommended measures to reduce the risk of respiratory illness, which included vaccination against influenza, COVID-19, and other respiratory pathogens, as appropriate.³ Currently no vaccination exists against *M pneumoniae*, complicating prevention.

M pneumoniae infections have been largely absent globally since the introduction of COVID-19 restrictions in March, 2020, re-emerging in many countries in the northern hemisphere during the autumn of 2023.² Thus, the high case numbers are not restricted to China and the re-emergence might consist of pre-existing bacterial strain lineages shared between geographically diverse regions.

Macrolides are the first-line treatment for paediatric patients, as alternative antibiotics including tetracyclines and fluoroquinolones might have potential toxicities in young children. The way

these pneumonia epidemics will emerge between China and the rest of the world might depend on the ability to treat cases of pneumonia due to the presence of macrolide-resistant *M pneumoniae* (MRMP), as over 80% of *M pneumoniae* detections in China have been consistently reported as MRMP.⁴⁻⁶

Treatment failure due to MRMP is associated with serious clinical consequences in children, leading to more severe radiological findings of pulmonary disease and an increase in extrapulmonary manifestations including mucocutaneous and neurological disease.⁴⁻⁶ Because of the high proportion of MRMP in Asia, Japan changed its prescribing policies in 2017 from macrolides to fluoroquinolones, such as tosufloxacin.⁷

The severity of the epidemic in China, and in other countries, and the associated serious extrapulmonary complications remain uncertain considering the high rate of MRMP infections, and the answer will be evident as time progresses. Owing to these concerns, several institutes from China have now joined our global prospective surveillance network, enabling the monitoring of the magnitude and severity of re-emerging infections.

We declare no competing interests. Monthly updates of the ESGMAC MAPS study are published on the ESGMAC website (<https://www.escmid.org/research-projects/study-groups/study-groups-g-n/mycoplasma-and-chlamydia/esgmac-maps-study>).

Copyright © 2023 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

*Patrick M Meyer Sauter, Michael L Beeton, on behalf of the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) Study Group for Mycoplasma and Chlamydia Infections (ESGMAC), and the ESGMAC Mycoplasma pneumoniae Surveillance (MAPS) study group†

patrick.meyersauter@kispi.uzh.ch

†For the members of the ESGMAC MAPS study group, see appendix

Division of Infectious Diseases and Hospital Epidemiology, University Children's Hospital Zurich, Zurich CH-8032, Switzerland (PMMS); Microbiology and Infection Research Group, Department of Biomedical Sciences, Cardiff Metropolitan University, Cardiff, UK (MLB)

- 1 WHO. WHO statement on reported clusters of respiratory illness in children in northern China. Nov 22, 2023. <https://www.who.int/news/item/22-11-2023-who-statement-on-reported-clusters-of-respiratory-illness-in-children-in-northern-china> (accessed Nov 22, 2023).
- 2 Meyer Sauter PM, Beeton ML, on behalf of the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) Study Group for Mycoplasma and Chlamydia Infections (ESGMAC), and the ESGMAC Mycoplasma pneumoniae Surveillance (MAPS) study group. Mycoplasma pneumoniae: delayed re-emergence after COVID-19 pandemic restrictions. *Lancet Microbe* 2023; published online Nov 23. [https://doi.org/10.1016/S2666-5247\(23\)00406-8](https://doi.org/10.1016/S2666-5247(23)00406-8).
- 3 WHO. Upsurge of respiratory illnesses among children-Northern China. Nov 23, 2023. <https://www.who.int/emergencies/disease-outbreak-news/item/2023-DON494> (accessed Nov 23, 2023).
- 4 Zhou Y, Zhang Y, Sheng Y, Zhang L, Shen Z, Chen Z. More complications occur in macrolide-resistant than in macrolide-sensitive *Mycoplasma pneumoniae* pneumonia. *Antimicrob Agents Chemother* 2014; **58**: 1034-38.
- 5 Wang Y, Xu B, Wu X, et al. Increased macrolide resistance rate of M3562 *Mycoplasma pneumoniae* correlated with macrolide usage and genotype shifting. *Front Cell Infect Microbiol* 2021; **11**: 675466.
- 6 Jiang TT, Sun L, Wang TY, et al. The clinical significance of macrolide resistance in pediatric *Mycoplasma pneumoniae* infection during COVID-19 pandemic. *Front Cell Infect Microbiol* 2023; **13**: 1181402.
- 7 Kenri T, Yamazaki T, Ohya H, et al. Genotyping of *Mycoplasma pneumoniae* strains isolated in Japan during 2019 and 2020: spread of p1 gene type 2c and 2j variant strains. *Front Microbiol* 2023; **14**: 1202357.



Lancet Microbe 2024

Published Online
[https://doi.org/10.1016/S2666-5247\(23\)00406-8](https://doi.org/10.1016/S2666-5247(23)00406-8)