

Resurgence of *Mycoplasma pneumoniae* by macrolide-resistant epidemic clones in China

In *The Lancet Microbe*, Patrick M Meyer Sauteur and colleagues¹ reported about a delayed re-emergence of *Mycoplasma pneumoniae* after the COVID-19 pandemic restrictions. According to initial study findings, China is currently facing a concurrent outbreak of paediatric respiratory diseases, particularly the macrolide-resistant *M pneumoniae* (MRMP) outbreak.² On the basis of more than 30 000 PCR tests and bronchoscopy findings (appendix p 3) in a paediatric hospital in east China from 2017 to 2023, we found a pronounced re-emergence of *M pneumoniae*, with up to 50% positive cases noted since July, 2023 (appendix p 2), compared with a lower incidence of positive cases ranging from 10% to 20% during the COVID-19 period (2020–22).

We obtained 448 metagenomic datasets (appendix pp 4–11) that were derived from findings of bronchoalveolar lavage fluid samples or swabs of infected children and identified *M pneumoniae* in 179 samples when mapping to a reference genome (GCA_900660465.1). A phylogenetic tree was subsequently constructed and showed the presence of two primary epidemic clones in China: EC1 in P1-1 and EC2 in P1-2 (appendix pp 2, 12–20). EC1 has been isolated throughout east Asia since 2010, and is probably responsible for the elevated MRMP frequencies observed there (appendix p 2). In contrast, EC2 has recently emerged from non-resistant strains, with the first isolates identified in 2019 in Taiwan³ and in 2020 in Beijing.

We found that EC2 showed 100% macrolide resistance because of the A2063G mutation in 23S rRNA (appendix pp 2, 21). All three P1-2 strains isolated in Beijing in 2020 were derived from EC2, suggesting that EC2 could be responsible for the

previously reported increase in MRMP frequencies in P1-2 strains detected in the country after 2018.⁴ Moreover, our analyses showed frequent, cryptic cross-regional *M pneumoniae* transmissions in both EC1 and EC2, and the Taiwan strains in 2019 showed that the EC2 MRMP strain had been spreading throughout China before 2020. PCR-based surveillance data also suggested an unusual increase in infections due to the P1-2 MRMP strain in north China from 2021 to 2022.⁵ Our findings suggest that without the restrictions enacted during the COVID-19 pandemic, the MRMP clones could have caused outbreaks across the country as early as 2020; thus, our findings provide evidence to guide future epidemic prevention and treatment in east Asia.

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1 Meyer Sauteur 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* 2024; 5: e100–01.

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- 4 Wang X, Li M, Luo M, et al. *Mycoplasma pneumoniae* triggers pneumonia epidemic in autumn and winter in Beijing: a multicentre, population-based epidemiological study between 2015 and 2020. *Emerg Microbes Infect* 2022; 11: 1508–17.
- 5 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.



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See Online for appendix