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Mycoplasma pneumoniae: gone forever?

Mycoplasma pneumoniae was a common cause of respiratory tract infections before the COVID-19 pandemic, with worldwide incidence of 8.61% from 2017 to 2020, measured by direct test methods.¹ However, non-pharmaceutical interventions (NPIs) against COVID-19 drastically lowered the transmission of *M pneumoniae*. In the short term, the incidence was down to 1.69% between 2020 and 2021. Lower transmission was also observed for other pathogens at the time.¹ However, *M pneumoniae* transmission also showed long-term reductions during periods with relaxed or discontinued NPIs, with an incidence of 0.70% between 2021 and 2022.² During the same period infections with other pathogens resurged, indicating increased community transmission.²

The low incidence of *M pneumoniae* led to initiation of the first global prospective surveillance study of *M pneumoniae* by our international collaborative network.^{1,2} The network was expanded to new countries and sites to track *M pneumoniae* in real time in the third year after implementation of NPIs against COVID-19 (from April 1, 2022, to March 31, 2023).

The prospective global dataset included 42 sites in 23 countries in Europe, Asia, the Americas, and Oceania (appendix pp 6–9). The mean incidence of *M pneumoniae* detected by PCR during the 12-month study period was 0.82% (SD 2.36; appendix pp 10–12). Overall, *M pneumoniae* was detected by PCR in only 214 (0.10%) of 212 207 tests (appendix p 13); positive PCR results were reported in Europe and Asia, but not Oceania or the Americas, except for Cuba, where two positive results were found. Detections by IgM and IgG serology were 306 (7.13%) of 4294, and 574 (13.78%) of 4164,

respectively (appendix 10–12). National surveillances in Belgium and Finland reported only positive test numbers—194 in Belgium found by direct test methods with the use of various techniques, and 348 in Finland found predominantly with the use of serology—but not the total number of people tested (appendix pp 10–12).

These prospective data for *M pneumoniae* show that, to our knowledge, the only absent respiratory pathogen was *M pneumoniae* after long periods with discontinued NPIs worldwide. Of the various speculations about the global unprecedented suppression of *M pneumoniae* infections immediately after the implementation of NPIs,¹ most could be ruled out given the sustained absence of *M pneumoniae* after long periods with discontinued NPIs. A hypothesis concerning a direct biological effect of SARS-CoV-2 on *M pneumoniae* has not been rejected, but supporting data do not exist. Transient herd immunity from *M pneumoniae* epidemics between April, 2019, and March, 2020, in several countries in Europe and Asia¹ is another hypothesis. Previously collected data indicated an interval of 1–3 years between *M pneumoniae* epidemics in Europe and Israel.³ Thus, a resurgent peak in Europe would have been expected by March, 2023. We observed declining detections of *M pneumoniae*-specific IgM and IgG antibodies by serology from 2020 to 2023,^{1,2} consistent with waning herd immunity. Resurgence of *M pneumoniae* has not yet been observed.

If *M pneumoniae* infections resurge, they might affect the world population,^{4,5} which has not been exposed to *M pneumoniae* for the past 3 years, and result in an increase in rare severe disease and extrapulmonary manifestations.² Our continuous surveillance will lead to early detection of a resurgence of *M pneumoniae*, and will allow a prompt response with adequate management of re-emerging infections.

We declare no competing interests.

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See Online for appendix