# RSV prevention: public health lessons from the southern hemisphere

The NIRSE-CL study by Juan Pablo Torres and colleagues,[1] published in *The Lancet Infectious Diseases*, is a landmark analysis of the first nationwide implementation of nirsevimab in the southern hemisphere. In Chile's 2024 respiratory syncytial virus (RSV) season, 145 087 infants (coverage of 94%) were immunised with nirsevimab through a universal immunisation campaign. This effort was associated with substantial effectiveness of nirsevimab against hospitalisation for RSV-related lower respiratory tract infection (LRTI; 76·41% [95% CI 72·57–79·72]), severe RSV requiring ICU admission (84·94% [79·47–88·95]), all-cause LRTI hospitalisations (66·50% [61·97–70·50]), and all-cause hospitalisations (47·90% [44·35–51·21]). These findings add to the existing nirsevimab effectiveness estimates from real-world studies and can be included in updated systematic reviews and meta-analyses on the topic.

Authors of the NIRSE-CL study had access to centralised, individual-level registries, which enabled a robust, longitudinal, population-based assessment of nirsevimab effectiveness—an approach previously adopted by the NIRSE-GAL study in Galicia, Spain.[1,2] These two studies represent the first real-world evaluation of nirsevimab effectiveness using prospective cohort designs embedded in population-level surveillance systems. Prospective cohort designs can offer a higher level of evidence than other observational study designs, hence NIRSE-CL and NIRSE-GAL could help design of future population-based cohort studies on RSV prophylaxis effectiveness.

In NIRSE-CL, nirsevimab effectiveness was higher among the catch-up cohort of infants younger than 6 months at the time of nirsevimab rollout than in the cohort of infants born during the 2024 RSV season. This difference is probably attributable to the immunological maturity of older infants and a reduced diagnostic ambiguity in these infants compared with neonates, who are more frequently admitted to hospital for non-specific respiratory symptoms, regardless of the viral causes.

What distinguishes NIRSE-CL is not only the findings on substantial nirsevimab effectiveness, which are in line with pooled estimates from observational studies,[3] but also the extraordinary rollout performance and implementation fidelity. The high nirsevimab uptake, timely delivery (median time to immunisation of 1 day from birth in the seasonal cohort), and integration of nirsevimab into the national immunisation infrastructure translated into public health impact. Compared with previous RSV seasons, the campaign averted a mean of 4632·80 (SD 1478·39) RSV-related LRTI hospitalisations—an estimated mean relative reduction in cases of 77·46% (SD 5·04) and a number needed to immunise of 35·37 (9·86). Importantly, no RSV-related infant deaths were reported in the immunised cohort.

The concordance between two independent, population-based, longitudinal real-world studies (NIRSE-GAL and NIRSE-CL), underscores the public health value of universal nirsevimab strategies. Beyond showing considerable effectiveness, these studies highlight impressive real-world uptake—more than 94% in Chile and similarly high rates in Galicia—which is crucial for translating clinical potential into tangible health outcomes. High immunisation coverage amplifies the effect of even moderately effective interventions, ensuring individual protection and broader relief for health-care systems. Chile's high rate of parental consent at birth and the low number of adverse events reported to the National Registry of Vaccine Adverse Events also suggest favourable acceptability and safety—crucial variables for other countries considering implementation.

Several crucial knowledge gaps persist. The duration of nirsevimab protection beyond one season remains unknown, necessitating longer-term follow-up, particularly in countries with RSV circulation throughout the entire year, such as those in tropical and equatorial regions, in which optimal timing of immunisation is less clear. The absence of universal RSV diagnostics in Chile also highlights the need for standardised outcome definitions. However, the use of validated ICD-10 codes and sensitivity analyses in NIRSE-CL provides a replicable methodological framework. Moreover, the broader impact of nirsevimab on RSV morbidity remains underexplored. Preventing RSV hospitalisations could mitigate not only acute

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morbidity but also long-term complications, such as recurrent wheezing and asthma. To assess these potential downstream benefits and justify sustained public investment, health economic modelling and prospective extended cohort studies should be prioritised.

Molecular surveillance is crucial. The Chilean study was not designed to assess viral evolution, but emerging findings suggest that although mutations conferring resistance to nirsevimab are rare, the evolutionary pressure of widespread monoclonal antibody use cannot be ignored.[4,5] Strengthening initiatives, such as INFORM-RSV, and ensuring global data sharing on RSV genotypes will be key to anticipating and managing resistance.[6]

RSV has become a preventable disease by immunisation; however, health inequities persist and global readiness for RSV immunisation remains profoundly inadequate. Despite accounting for most of the disease burden, low-income and middle-income countries (LMICs) continue to face systemic barriers—including regulatory capacity, financing, and delivery infrastructure—to implementing monoclonal antibody and maternal vaccine strategies against RSV.[7] Although WHO prequalified the first maternal RSV vaccine in March, 2025, marking a pivotal step towards broader global access to the vaccine, nirsevimab has yet to receive WHO prequalification, limiting its deployment in LMICs.[8] Moreover, the WHO 2024 global market study on RSV immunisation highlights the fragility of the supply chain and procurement architecture in countries with the highest burden, emphasising the urgent need for equitable financing and delivery pathways. Without coordinated international effort, safe and effective tools for RSV prevention will remain inequitably distributed and their full potential will be unrealised.

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