Modelled Impact of Nirsevimab for RSV Prophylaxis in the Public Healthcare System of Chile

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What is the impact of Respiratory Syncytial Virus (RSV) in Chile?

- Respiratory Syncytial Virus (RSV) is a leading cause of severe respiratory infections and hospitalization in infants, with a significant impact on public health in Chile [1].
- Approximately 50% of children are infected by RSV in their first year, and nearly all have encountered the virus by age two [2]. In Chile, of nearly 3,000 samples analyzed at sentinel centers, 30% were from children aged one to four years, with RSV detected in 46.7% of cases, the highest of any single pathogen [3].
- Nirsevimab is a long-acting monoclonal antibody targeting RSV's protein F, providing at least 5-month protection against RSV-related LRTI [4]. It is licensed globally, including in LATAM countries such as Chile, Paraguay, Uruguay, Brazil and Argentina.

Objective

- This study aims to evaluate the RSV-related health outcomes and costs of nirsevimab compared to Standard of Care (SoC) in Chile, which includes Palivizumab prophylaxis for high-risk preterm infants and clinical management for other infants.

Methods

- Modeling: A static decision-analytic model was adapted to the Chilean healthcare context, incorporating local epidemiological and cost data (Figure 1). The model included infants under one year, stratified into three subpopulations: palivizumab-eligible, preterm, and term infants. The analysis compared universal nirsevimab immunization to the BSC. A one-year time horizon was considered.
- The analysis included (i) palivizumab-eligible infants, (ii) pre-term infants (between <32 and 37 weeks of gestational ages – wGA), and (iii) late pre-term and term infants (≥ 37 wGA), using efficacy data from the Ph2b, MELODY, and HARMONIE studies. The incidence of RSV-related health events was estimated and stratified by infants' age at the time of infection, using local epidemiological data and literature.
- RSV-related costs (hospitalization, ICU, mechanical ventilation, ER visits, and primary care visits) were obtained from the DRG database, stratified by severity (ICD-10 codes), and expressed in USD (exchange rate: 926.08 CLP/USD). Costs for term infants averaged across severities, while higher severity levels applied to preterm and palivizumab-eligible groups.

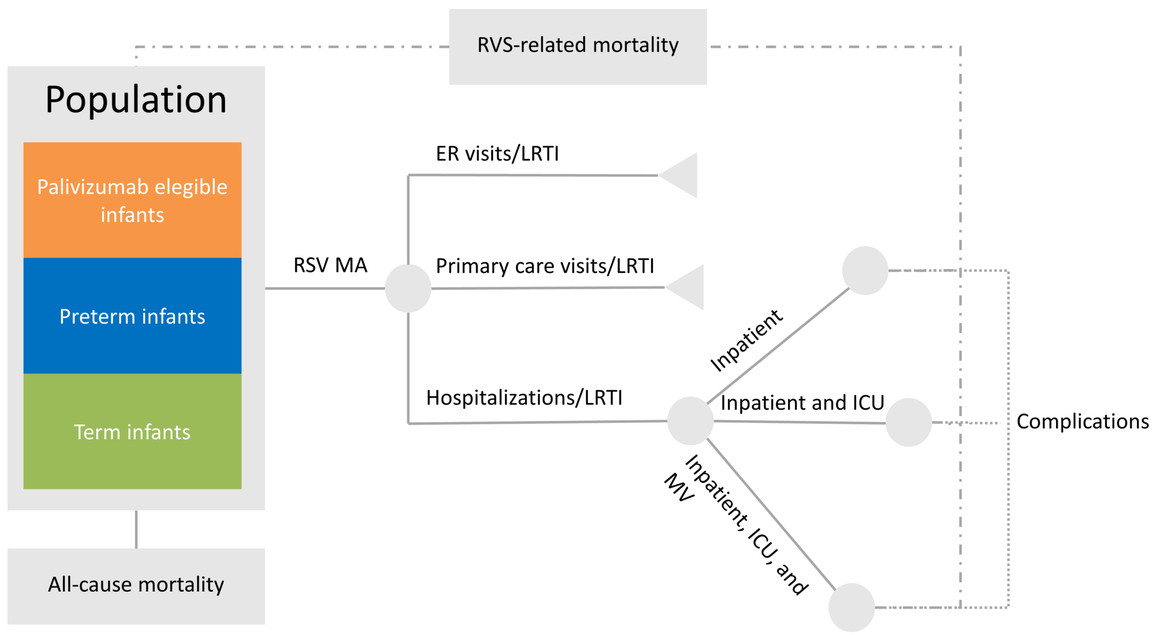

Figure 1. Decision model

RESULTS

Costs and consequences by subgroup

Table 1. Incremental costs per event avoided (USD)

	Overall population	Palivizumab-eligible	Preterm	Term
Incremental cost per hospitalization avoided	**-$447**	-$1.408.591	-$3.171	$954
Incremental cost per ICU avoided	**-$4.633**	-$16.538.157	-$34.199	$9.828
Incremental cost per mechanical ventilation avoided	**-$10.417**	-$35.836.436	-$76.310	$22.122
Incremental cost per emergency visits avoided	**-$174**	-$1.687.403	-$1.827	$356
Incremental cost per primary care visits avoided	**-$52**	-$607.663	-$541	$105

Key Messages

- The burden of RSV-related health events includes 6,695 hospitalizations, 728 ICU admissions, 324 cases requiring mechanical ventilation, 21,572 emergency visits, and 54,594 primary care visits, resulting in total costs of USD$50.5 million.
- Nirsevimab implementation reduces health events compared to SoC, preventing 4,699 hospitalizations, 527 ICU admissions, 234 cases requiring mechanical ventilation, 14,002 emergency visits, and 33,274 primary care visits.
- These reductions in health events led to total cost savings of USD$33.8 million.

Consequences and costs of overall population

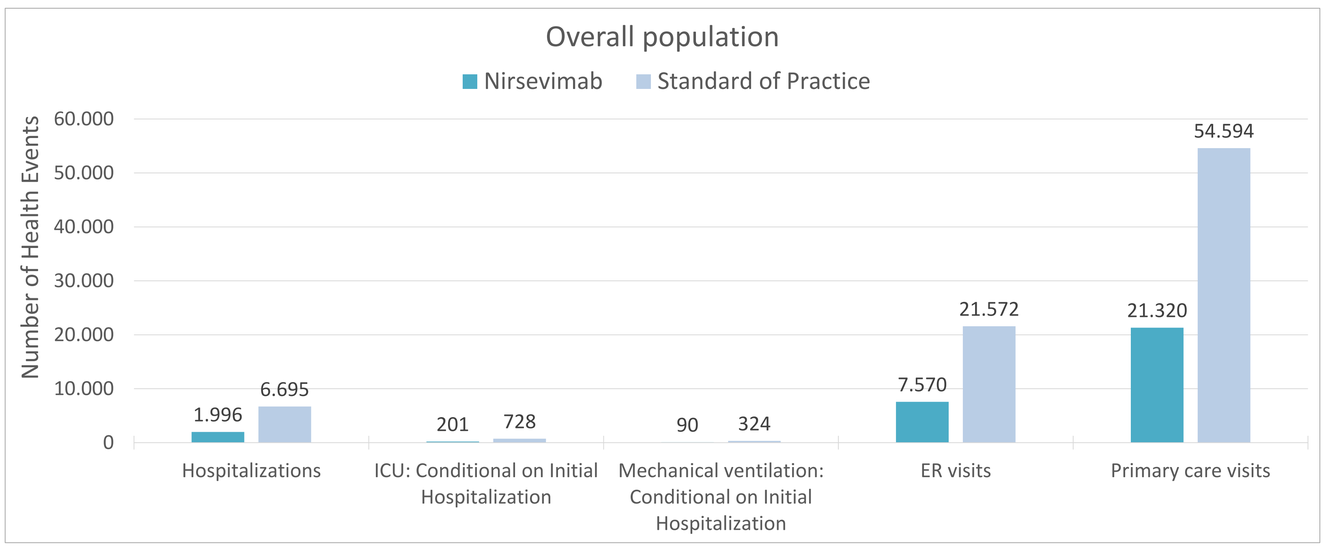

Figure 2. Number of health events

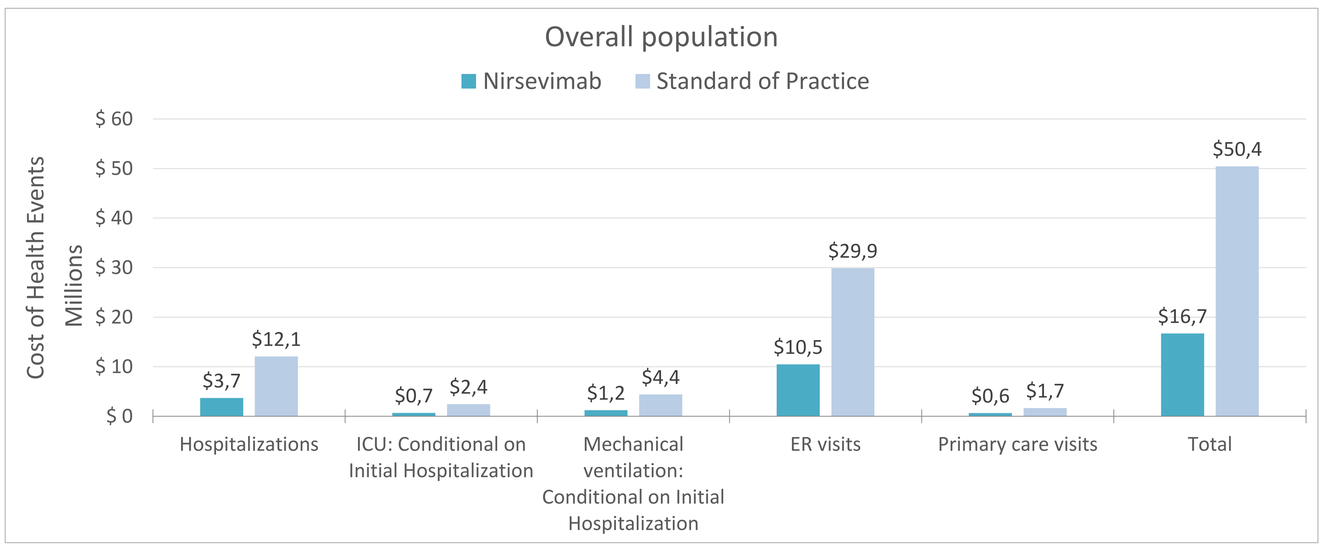

Figure 3. Costs of health events

Conclusions

- Universal immunization with nirsevimab significantly reduces the clinical burden of RSV. The substantial health benefits and potential cost savings support the inclusion of nirsevimab in the national immunization program, promising significant public health improvements.

References
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