

# Nirsevimab and Hospitalization for RSV Bronchiolitis

Zein Assad, Camille Aupiais, Anna Giolito, Zaba Valtuille, Robert Cohen, Corinne Levy, François Angoulvant, Léa Lenglar, Camille Jung, Camille Brehin, and Naïm Ouldali.

General Pediatrics, infectious diseases and internal medicine, Robert Debré University Hospital, Paris; French Pediatric Infectious Disease Group (GPIP); Department of General Pediatrics, Centre Hospitalier Intercommunal de Créteil,, France.

**Introduction** Respiratory syncytial virus (RSV) is the leading cause of bronchiolitis, with 3 million hospitalizations each year worldwide.<sup>1</sup> Nirsevimab is an extended half-life monoclonal antibody against RSV.<sup>2,3</sup> As nirsevimab was implemented in Sep 2023,<sup>4</sup> its post-licensure real-world effectiveness against **RSV bronchiolitis** needs to be assessed.

**Table. Characteristics of included matched patients.**

| Characteristic                                  | Case Patients<br>N = 690 | Control Patients<br>N = 345 |
|---|--------------------------|-----------------------------|
| <b>Demographic and clinical characteristics</b> |                          |                             |
| Age at admission, median (IQR), months          | 3.1 (1.8-5.3)            | 3.4 (1.6-5.6)               |
| Age group                                       |                          |                             |
| < 3 months                                      | 332/690 (48.1)           | 150/345 (43.5)              |
| ≥ 3 months                                      | 358/690 (51.9)           | 195/690 (56.5)              |
| Sex   |                          |                             |
| Male  | 357/687 (52.0)           | 196/343 (57.1)              |
| Female  | 330/687 (48.0)           | 147/343 (42.9)              |
| Birth term, median (IQR), weeks                 | 39 (38-40)               | 39 (38-40)                  |
| Preterm birth*                                  | 38/665 (5.7)             | 21/306 (6.9)                |
| Previous history of bronchiolitis               | 67/685 (9.8)             | 14/341 (4.1)                |
| Hospitalized bronchiolitis                      | 25/686 (3.6)             | 3/342 (0.88)                |
| Previous RSV infection                          | 11/678 (1.6)             | 7/336 (2.1)                 |
| Risk factors for severe bronchiolitis           | 37/660 (5.6)             | 20/315 (6.3)                |
| Length of hospitalization, median (IQR), days   | 4 (3-6)                  | 0 (0-1)                     |
| <b>Case patients</b>                            |                          |                             |
| Oxygen use                                      | 97/689 (14.1)            |                             |
| Ventilatory support                             | 189/683 (27.7)           | -                           |
| Noninvasive ventilation*                        | 135/688 (19.6)           | -                           |
| Invasive ventilation                            | 5/686 (0.73)             | -                           |
| PICU admission                                  | 193/688 (28.1)           | -                           |
| <b>Control patients</b>                         |                          |                             |
| Urinary tract infection                         | -                        | 36/339 (10.6)               |
| Acute gastroenteritis                           | -                        | 120/339 (35.4)              |
| Weight loss or feeding difficulties             | -                        | 28/339 (8.3)                |
| Infantile colic                                 | -                        | 15/339 (4.4)                |
| Neonatal jaundice                               | -                        | 14/339 (4.1)                |
| Infant crying                                   | -                        | 53/339 (15.6)               |
| Head traumatism                                 | -                        | 62/339 (18.3)               |
| Acute surgery                                   | -                        | 11/339 (3.2)                |

## Methods

Objective: analyze nirsevimab effectiveness against hospitalized RSV bronchiolitis.

Design: **Prospective, multicenter, matched case-control study.**

Study period: October 15 to December 10, 2023.

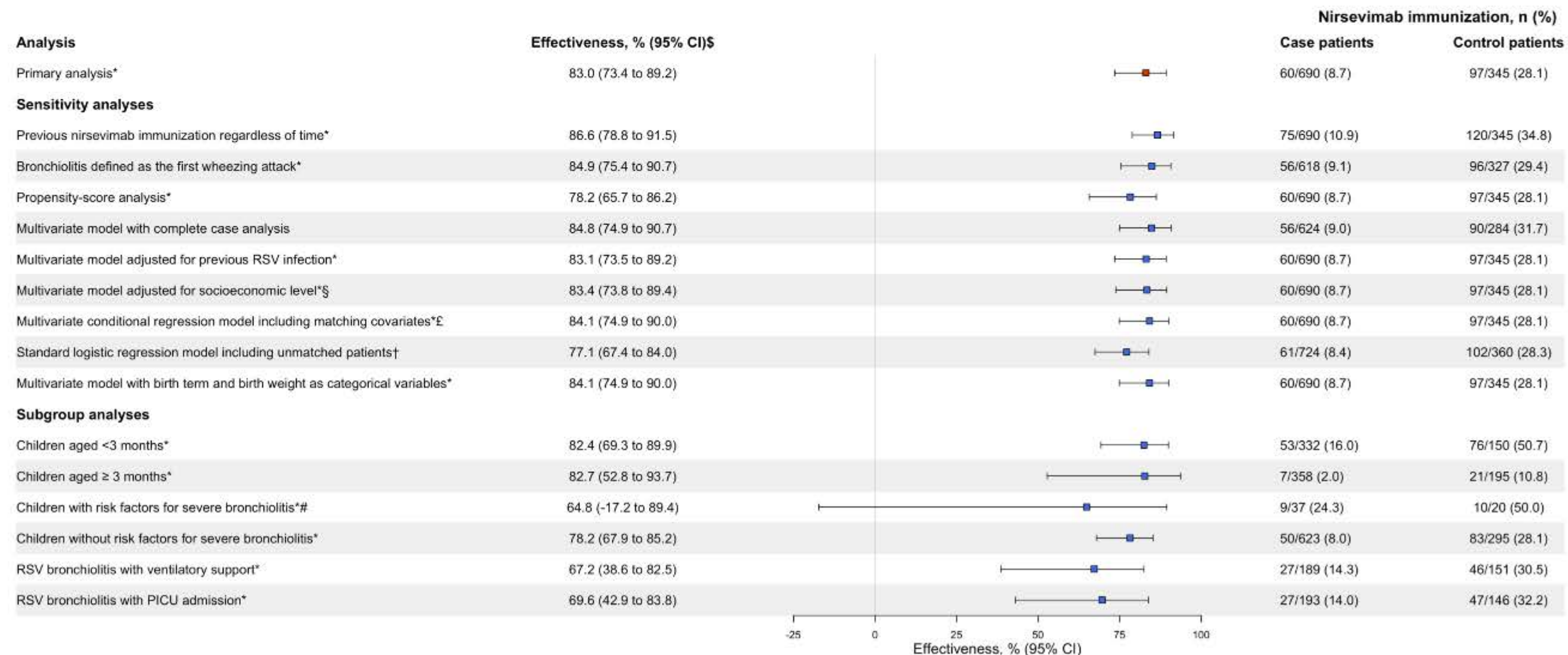
Cases: Children aged < 12 years hospitalized for RSV-associated bronchiolitis.

Controls: children visiting the same hospitals for diseases unrelated to RSV.

Matching: 2:1 ratio for age, date of hospital visit, and center.

Effectiveness: calculated with a **multivariate conditional logistic regression model.**

**Figure. Effectiveness of nirsevimab against hospitalization for RSV bronchiolitis.**



1. Shi T, et al. Lancet 2017.
2. Griffin MP, et. N Engl J Med 2020.
3. Hammitt LL, et al. N Engl J Med 2022.
4. Jones JM, et al. MMWR Morb Mortal Wkly Rep 2023.

assad.zein@gmail.com  
Robert Debré University Hospital,  
48 Boulevard Sérurier, 75019 Paris, France

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