REAL-WORLD EVIDENCE

Respiratory Syncytial Virus Disease Burden and Beyfortus® Effectiveness in Young Children From 2023-2024: CDC Analysis

Funded by the CDC and published in *JAMA Pediatrics*

Beyfortus is the **first long-acting antibody indicated for the prevention of RSV lower respiratory tract disease** in[1]:

- Neonates and infants born during or entering their first RSV season
- Children up to 24 months of age who remain vulnerable to severe RSV disease through their second RSV season

CDC, Centers for Disease Control and Prevention; **RSV**, respiratory syncytial virus.

IMPORTANT SAFETY INFORMATION

Contraindication

Beyfortus is contraindicated in infants and children with a history of serious hypersensitivity reactions, including anaphylaxis, to nirsevimab-alip or to any of the excipients.

Please see additional Important Safety Information throughout this summary and accompanying full Prescribing Information.

Beyfortus® (nirsevimab-alip) | 50 mg 100 mg Injection

Beyfortus® (nirsevimab-alip) Pivotal Trial Data[1-6]

In 2 randomized, placebo-controlled pivotal trials, Beyfortus demonstrated efficacy against MA RSV-LRTI and RSV hospitalization[1-4*†]

In Trial 04, Beyfortus exhibited a reduction in MA RSV-LRTI and RSV hospitalization compared to placebo: healthy term and late preterm infants (≥35 wGA)[1-4]

Trial 04 Primary Cohort[‡§‖]
50 mg IM dose if <5 kg weight, 100 mg IM dose if ≥5 kg weight[1]

Primary endpoint: incidence of MA RSV-LRTI through 150 days post 1 dose[1]

↓74.9% RRR
(95% CI: 50.6, 87.3; *P*<0.001)
Beyfortus: 1.2% (12/994)
Placebo: 5.0% (25/496)

Secondary endpoint: incidence of RSV hospitalization through 150 days post 1 dose[1,2]

↓60.2% RRR
(95% CI: -14.6, 86.2; *P*=0.09)
Beyfortus: 0.6% (6/994)
Placebo: 1.6% (8/496)

Trial 04 Full Study Cohort[§]
50 mg IM dose if <5 kg weight, 100 mg IM dose if ≥5 kg weight[1]

Exploratory post hoc analysis of secondary endpoint:
incidence of RSV hospitalization through 150 days post 1 dose[2-4]

↓76.8% RRR
(95% CI: 49.4, 89.4)
Beyfortus: 0.4% (9/2,009)
Placebo: 2.0% (20/1,003)

CI, confidence interval; **IM**, intramuscular; **MA RSV-LRTI**, medically attended respiratory syncytial virus lower respiratory tract infection; **RRR**, relative risk reduction; **wGA**, weeks gestational age.

Signs of LRTI involvement included rhonchi, rales, crackles, or wheezing and at least one sign of worsening clinical severity, including at least one of the following: increased respiratory rate, hypoxemia, acute hypoxic or ventilatory failure, new onset apnea, nasal flaring, retractions, grunting, or dehydration due to respiratory distress.[1]

*Results of Trials 04 and 03 for infants entering their first RSV season.[1]
†RSV hospitalization was defined as hospitalization for LRTI with a positive RSV test.[1]
‡Primary Cohort: 1,490 healthy term and late preterm infants (≥35 wGA) in Trial 04.[1]
§During Trial 04, the COVID-19 pandemic interrupted trial enrollment. The efficacy analysis is based on the Primary Cohort, which included those participants enrolled prior to the pause due to COVID-19. Trial 04 continued monitoring the Primary Cohort and included an additional 1,522 subjects enrolled after the pause to comprise the full study cohort. The full study cohort included 3,012 infants randomized to receive Beyfortus or placebo in the post hoc analysis.[4]
‖Efficacy for MA RSV-LRTI based on RRR against placebo adjusted for age at randomization.[1]

IMPORTANT SAFETY INFORMATION (cont'd)
Warnings and Precautions

- **Hypersensitivity Reactions Including Anaphylaxis:** Serious hypersensitivity reactions have been reported following Beyfortus administration. These reactions included urticaria, dyspnea, cyanosis, and/or hypotonia. Anaphylaxis has been observed with human immunoglobulin G1 (IgG1) monoclonal antibodies. If signs and symptoms of anaphylaxis or other clinically significant hypersensitivity reactions occur, initiate appropriate treatment.

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In Trial 03, Beyfortus® exhibited a reduction in MA RSV-LRTI and RSV hospitalization compared to placebo: healthy preterm infants (≥29 to <35 wGA)[1,5]

Trial 03*†
50 mg IM dose regardless of weight[1]

Primary endpoint: incidence of MA RSV-LRTI through 150 days post 1 dose[1]

↓70.1% RRR
(95% CI: 52.3, 81.2; *P*<0.001)
Beyfortus: 2.6% (25/969)
Placebo: 9.5% (46/484)

Secondary endpoint: incidence of RSV hospitalization through 150 days post 1 dose[1,5]

↓78.4% RRR
(95% CI: 51.9, 90.3; *P*<0.001)
Beyfortus: 0.8% (8/969)
Placebo: 4.1% (20/484)

Trial 03 Post Hoc Analysis[‡]
Subgroup of infants <5 kg receiving 50 mg IM dose[1]

Exploratory post hoc analysis of primary endpoint:
incidence of MA RSV-LRTI through 150 days post 1 dose[1,6]

↓86.2% RRR
(95% CI: 68.0, 94.0)
Beyfortus: 1.2% (7/570)
Placebo: 9.0% (26/290)

This subgroup included 860 infants weighing <5 kg who were randomized to receive 50 mg IM dose of Beyfortus (coinciding with the approved weight-based dose) or placebo.

The most common adverse reactions reported at an incidence higher than placebo in the Safety Population (Trial 04 and Trial 03) were rash (0.9%) and injection site reactions (0.3%)[1§]

Trial 04 and Trial 03 were pooled to evaluate the safety of Beyfortus (N=2,570) compared to placebo (N=1,284).[1]

- Adverse reactions were reported in 1.2% of infants who received Beyfortus; most (97%) of adverse reactions were mild to moderate in severity

*1,453 preterm infants (≥29 to <35 wGA) in Trial 03.[1]
†Efficacy for MA RSV-LRTI based on RRR against placebo adjusted for age at randomization and hemisphere.[1]
‡860 infants from the full study cohort of 1,453 healthy preterm infants in Trial 03 were analyzed in a post hoc analysis. For infants in their first RSV season, the recommended dose is 50 mg for infants <5 kg or 100 mg for infants ≥5 kg via IM injection.[1,6]
§The Safety Population includes all infants who received the recommended dose of Beyfortus in Trials 04 and 03: Primary and Safety cohorts from Trial 04; infants who weighed <5 kg and who received the recommended dose of Beyfortus (single 50 mg IM dose) in Trial 03.[1]

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CDC Real-World Analysis[7]

Effectiveness of Beyfortus® against medically attended RSV ARI and RSV hospitalization in infants aged <8 months in the US[7]*

	CDC Real-World Analysis Study Design[7] Infants aged <8 months
Study population	**Infants <8 months as of October 1, 2023, or born after October 1, 2023, who had medically attended acute respiratory illness (ARI)** between October 2023 and March 2024, who had verified Beyfortus status and medical records to assess underlying medical conditions, and were within the New Vaccine Surveillance Network (NVSN), which includes 7 sites†
Number of subjects	N=1,616 medically attended ARI (Case patients receiving positive RSV test result n=765, control patients receiving negative RSV test result n=851)‡
Data analysis	Effectiveness was estimated using regression models (adjusted for potential bias) comparing the odds of receipt of Beyfortus among case patients and control patients. Regression models were adjusted for potential bias and controlled for age, month of enrollment, enrollment site, and high-risk medical conditions
Receipt of Beyfortus	Infants were considered Beyfortus recipients if they received Beyfortus ≥7 days before symptom onset§
Key assessment	Overall incidence of medically attended RSV ARI and RSV hospitalization

Baseline characteristics: Overall, 18.4% of infants were <37 wGA and 81% were ≥37 wGA (0.6% were unknown). 3.4% of infants had ≥1 high-risk medical conditions.[7]

*Medically attended RSV was defined as any medically attended RSV-associated ARI and hospitalization was defined as RSV-associated hospitalization for ARI.[7]
†ARI is defined as one or more of the following signs or symptoms present for <14 days before enrollment encounter: apnea, cough, earache, fever, myalgia, nasal congestion, runny nose, sore throat, vomiting after coughing, shortness of breath (rapid or shallow breathing), wheezing, or apparent life-threatening event or brief resolved unexplained event.[7]
‡Ten out of 765 case patients who received Beyfortus were RSV positive compared with 126 out of 851 control patients who were negative for RSV.[7]
§Receipt of Beyfortus was ascertained through parent/guardian interviews, medical record abstraction, outpatient records, and state immunization information systems.[7]

IMPORTANT SAFETY INFORMATION (cont'd)
Warnings and Precautions (cont'd)

- **Use in Individuals with Clinically Significant Bleeding Disorders:** As with other IM injections, Beyfortus should be given with caution to infants and children with thrombocytopenia, any coagulation disorder or to individuals on anticoagulation therapy.

Most common adverse reactions with Beyfortus were rash (0.9%) and injection site reactions (0.3%).

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CDC real-world analysis results[7]

89% estimated effectiveness against medically attended RSV ARI*
(95% CI: 79, 94)
N=1,616

86.5% of infants with medically attended ARI were either hospitalized or enrolled from the emergency department, suggesting a high acuity

93% estimated effectiveness against RSV hospitalization†‡
(95% CI: 82, 97)
n=875

Among RSV isolates, there were no variants in the Beyfortus® binding site on the F protein that would alter susceptibility of RSV to Beyfortus[7]

The findings in this report are subject to limitations[7]:

- NVSN sites may not be nationally representative
- Timing of Beyfortus availability resulted in a relatively short interval from administration to respiratory illness onset
- Beyfortus effectiveness over the course of a full RSV season is expected to be somewhat lower than this estimate because of antibody decay

This study is not included in the Beyfortus Prescribing Information. The CDC will continue to monitor Beyfortus effectiveness.

IQR, interquartile range.

*Based on the median time from receipt of Beyfortus to symptom onset of 44 days (IQR=21-73 days).[7]
†Based on the median time from receipt of Beyfortus to symptom onset of 41 days (IQR=18-68 days).[7]
‡Of 875 hospitalized patients, 531 (61%) were case patients with a positive RSV result and 344 (39%) were control patients with a negative RSV result. Six out of 531 case patients who received Beyfortus were RSV positive compared with 67 out of 344 control patients who were negative for RSV.[7]

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Contact your Sanofi representative to access additional real-world evidence studies, or visit **Beyfortus.com** for more information

Speak to your Sanofi representative about accessing the full article in *JAMA Pediatrics*

INDICATION

Beyfortus is indicated for the prevention of respiratory syncytial virus (RSV) lower respiratory tract disease in:

- Neonates and infants born during or entering their first RSV season.
- Children up to 24 months of age who remain vulnerable to severe RSV disease through their second RSV season.

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Most common adverse reactions with Beyfortus were rash (0.9%) and injection site reactions (0.3%).

Please see accompanying full Prescribing Information.

References: 1. Beyfortus (nirsevimab-alip). Prescribing Information. Sanofi. **2.** Data on file, November 2023. **3.** Muller WJ, Madhi SA, Nuñez BS, et al. Nirsevimab for prevention of RSV in term and late-preterm infants. *N Engl J Med*. 2023;388(16):1533-1534. **4.** Muller WJ, Madhi SA, Nuñez BS, et al. Nirsevimab for prevention of RSV in term and late-preterm infants. *N Engl J Med*. 2023;388(16)(suppl):1533-1534. **5.** Griffin MP, Yuan Y, Takas T, et al. Single-dose nirsevimab for prevention of RSV in preterm infants. *N Engl J Med*. 2020;383(5):415-425. **6.** Data on file, October 2023. **7.** Moline HL, Toepfer AP, Tannis A, et al; New Vaccine Surveillance Network Collaborators. Respiratory syncytial virus disease burden and nirsevimab effectiveness in young children from 2023-2024. *JAMA Pediatr*. 2025;179(2):223. doi: 10.1001/jamapediatrics.2024.5572

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SANOFI
1 Discovery Drive, Swiftwater, PA 18370

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