Centers for Disease Control and Prevention
National Center for Immunization and Respiratory Diseases

Proposed clinical considerations for maternal RSVPreF vaccine and nirsevimab

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Proposed clinical considerations for use of maternal RSV vaccine

Proposed clinical considerations for use of maternal RSV vaccine

- Maternal vaccine recommended for pregnant people during 32 through 36 weeks gestation, with seasonal administration
  - During September through January in most of the continental United States
  - In jurisdictions with seasonality that differs from most of the continental United States (e.g., Alaska, jurisdictions with tropical climates), providers should follow state, local, or territorial guidance on timing of administration
- Maternal RSVpreF vaccine may be simultaneously administered with other indicated vaccinations [1]

[1] https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html.

Work Group considerations for use of both maternal RSV vaccine and nirsevimab

Maternal vaccination and considerations for use of nirsevimab in infants born <34 weeks gestation

- As proposed, maternal RSV vaccine recommendation is for administration beginning at 32 weeks gestation
- From time of maternal vaccination, 14 days or more likely needed for development and transplacental transfer of maternal antibodies to protect the infant,[1] and nirsevimab is recommended for infants born within 14 days of vaccination
- Therefore, the earliest an infant can be born and have maternal vaccine-induced protection is at 34 weeks gestation
- Infants born <34 weeks gestation will be recommended to receive nirsevimab

[1] https://www.cdc.gov/vaccines/pregnancy/vacc-during-after.html.

Maternal vaccination and considerations for use of nirsevimab in infants born outside of the RSV season

- Protection from maternal vaccination may begin to wane after 3 or more months (e.g., influenza and COVID-19 vaccines) [1–3]
  - Work Group members initially concerned that , with a year-round recommendation, infants born prior to the RSV season and born to vaccinated mothers would require nirsevimab to boost protection when entering RSV season
- However, because maternal RSV vaccine administration is recommended during September through January, most infants of vaccinated mothers will be born during RSV season (i.e., born during October–March)
- Mothers of most infants born outside of RSV season (i.e., born during April through September) will not have been vaccinated, and nirsevimab will be recommended for these infants

[1] Kampmann NEJM 2023. [2] Nunes F1000Res 2018. [3] Zerbo Nat Commun 2023.

Work Group considerations for use of both maternal RSV vaccine and nirsevimab

- Two products are available to protect infants from RSV lower respiratory tract infection
- For infants born to vaccinated mothers, the addition of nirsevimab may provide incremental protection, but this is unknown
  - No safety data on use of nirsevimab in infants born to vaccinated mothers, but nirsevimab trials included infants with maternal infection-induced antibodies and risk likely minimal
- For most infants, administering both products is not needed and would not be a reasonable and efficient allocation of resources
- Documentation of maternal vaccination status may not be available to the infant's healthcare provider

Work Group considerations for use of both maternal RSV vaccine and nirsevimab (cont)

- Most Work Group members felt that pregnant people should be aware that both maternal vaccination and nirsevimab are options when deciding whether to be vaccinated
  - However, healthcare providers of pregnant people may not have time or feel equipped to discuss nirsevimab when counselling
- In rare situations flexibility is needed for providers to be able to provide nirsevimab when clinically warranted to infants born to vaccinated mothers
  - Conditions in pregnant people resulting in an inadequate immune response to vaccine or decrease in transplacental antibody transfer[1]
  - Infants who have undergone cardiopulmonary bypass, leading to loss of maternal antibodies[2]
  - Infants with sufficiently increased risk for severe disease to warrant nirsevimab because of the potential increased benefit

[1] Palmerira Clin Dev Immunol 2012. [2] Feltes J Pediatr 2003.

Proposed clinical considerations for use of maternal RSV vaccine and nirsevimab

Proposed clinical considerations for maternal RSV vaccine and nirsevimab

- Either maternal vaccination or use of nirsevimab in the infant is recommended to prevent RSV lower respiratory tract infection, but administration of both products is not needed for most infants
- Healthcare providers of pregnant people should provide information on both products and consider patient preferences when determining whether to vaccinate the pregnant patient or to not vaccinate and rely on administration of nirsevimab to the infant after birth

Relative risks and benefits of maternal vaccination and nirsevimab

Both products are safe and effective in preventing RSV lower respiratory infection in infants

Maternal RSV vaccine	Nirsevimab
Benefits • Provides protection immediately after birth • May be more resistant to virus mutation • Avoids injection of infant **Risks** • Protection reduced if fewer antibodies produced or are transferred from mother to baby (e.g., mother immunocompromised or infant born soon after vaccination) • Potential risk of preterm birth	**Benefits** • Studies of antibody levels suggest that protection might wane more slowly • Can provide antibodies directly if infant receives less antibodies from mother • No risk of adverse pregnancy outcomes **Risks** • Potentially limited availability during 2023-2024 RSV season

Proposed recommendations for use of nirsevimab in setting of an available maternal RSV vaccine

- Nirsevimab is recommended for infants aged <8 months born during or entering their first RSV season if
  - Mother did not receive RSV vaccine or unknown if mother received RSV vaccine
  - Mother vaccinated but infant born <14 days after vaccination
- Nirsevimab is not needed for most infants born ≥14 days after maternal vaccination

Circumstances for which nirsevimab can be considered when mother has received RSV vaccine ≥14 days prior to birth

- Nirsevimab can be considered in rare circumstances when, per the clinical judgment of the healthcare provider, the potential incremental benefit of administration is warranted
  - Infants born to pregnant people who may not mount an adequate immune response to vaccination (e.g., people with immunocompromising conditions) or have conditions associated with reduced transplacental antibody transfer (e.g., people living with HIV infection)[1]
  - Infants who have undergone cardiopulmonary bypass, leading to loss of maternal antibodies[2]
  - Infants with substantial increased risk for severe RSV disease (e.g., hemodynamically significant congenital heart disease, intensive care admission and requiring oxygen at discharge)

[1] Palmerira Clin Dev Immunol 2012. [2] Feltes J Pediatr 2003.

Nirsevimab administration algorithm for children aged <8 months on the day of administration

Meet all 3 following criteria? (yes/no)

1. Either mother did not receive RSV vaccine during pregnancy ≥14 days prior to birth or maternal RSV vaccine status unknown [1]
2. Day of nirsevimab administration during October through March [2]
3. Never previously received dose of nirsevimab[3]

No
Any criteria not met

→ Nirsevimab not needed

Yes
All 3 criteria met

→ Nirsevimab recommended

Nirsevimab administration algorithm for children aged <8 months on the day of administration footnotes

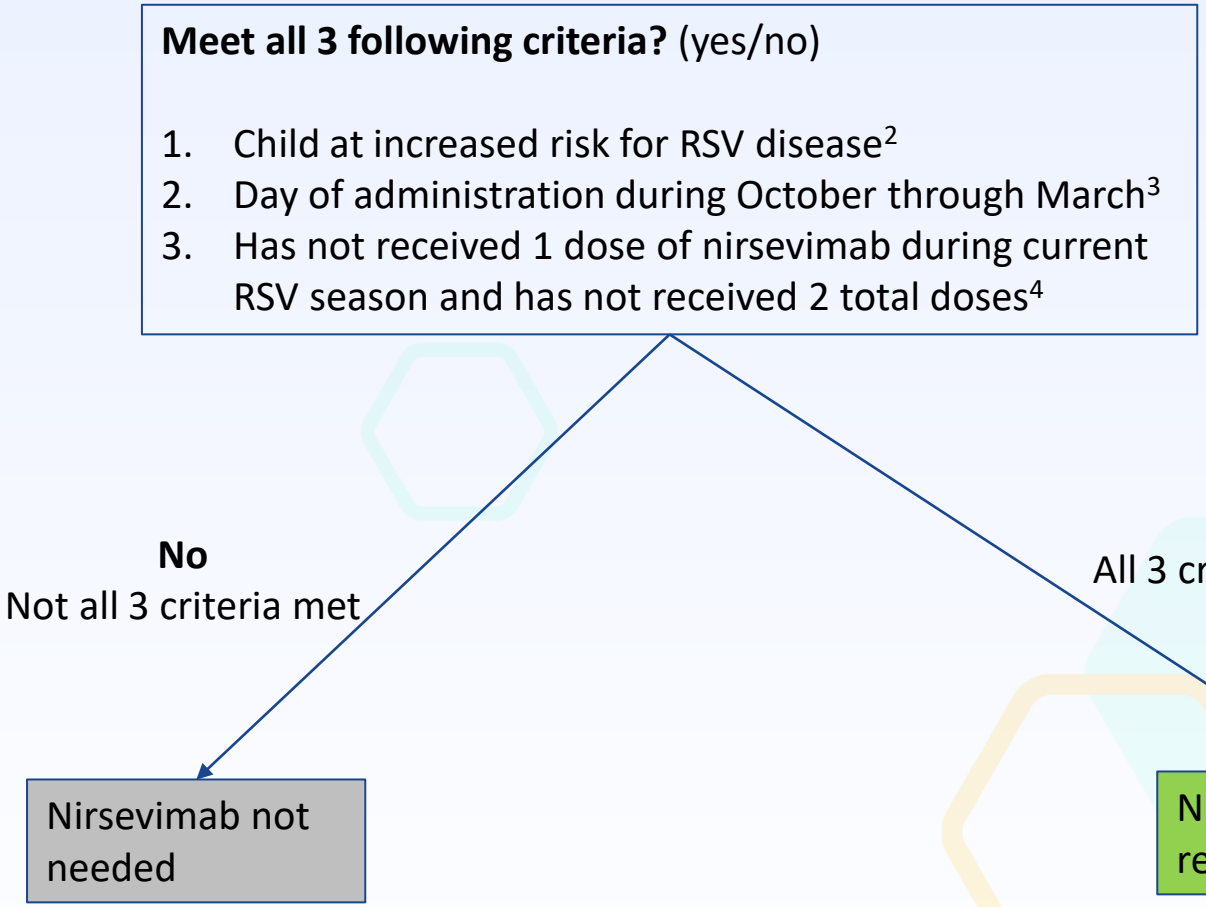
[1]For most infants age <8 months whose mother received RSV vaccine 14 or more days prior to birth, nirsevimab is not needed. Nirsevimab can be considered in rare circumstances when, per the clinical judgment of the healthcare provider, the potential incremental benefit of administration is warranted. These situations include infants born to pregnant people who may not mount an adequate immune response to vaccination (e.g., people with immunocompromising conditions) or have conditions associated with reduced transplacental antibody transfer (e.g., people living with HIV infection), infants who have undergone cardiopulmonary bypass leading to loss of maternal antibodies, and infants with substantial increased risk for severe RSV disease (e.g., hemodynamically significant congenital heart disease, intensive care admission and requiring oxygen at discharge).

[2]While the timing of the onset and duration of RSV season may vary, nirsevimab may be administered October through the end of March in the majority of the continental United States. Providers may adjust timing of administration based on guidance from public health authorities (e.g., CDC, health departments) or regional medical centers. Although optimal timing of administration is just before the start of the RSV season, nirsevimab may also be administered during the RSV season to infants and children who are age-eligible. Infants born shortly before or during RSV season should receive nirsevimab within one week of birth. Nirsevimab administration can occur during the birth hospitalization or in the outpatient setting. Infants with prolonged birth hospitalizations related to prematurity or other causes should receive nirsevimab shortly before or promptly after hospital discharge.

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Nirsevimab administration algorithm for children aged 8 through 19 months on day of administration[1]



Nirsevimab administration algorithm for children aged 8 through 19 months on day of administration footnotes

[1]Children at increased risk for severe disease aged <8 months of age and entering their second RSV season should receive nirsevimab. For example, a child born in March should receive their first RSV dose shortly after birth; they may be entering their second RSV season at 7 months of age in October and should not wait until 8 months of age to receive nirsevimab.

[2]Children aged 8–19 months recommended to receive nirsevimab during their second RSV season by ACIP:

-Children with chronic lung disease of prematurity who required medical support (chronic corticosteroid therapy, diuretic therapy, or supplemental oxygen) any time during the 6-month period before the start of the second RSV season

-Children with severe immunocompromise

-Children with cystic fibrosis who have either 1) manifestations of severe lung disease (previous hospitalization for pulmonary exacerbation in the first year of life or abnormalities on chest imaging that persist when stable) or 2) weight-for-length <10th percentile

-American Indian and Alaska Native children

Nirsevimab administration algorithm for children aged 8 through 19 months on day of administration footnotes

[3]While the timing of the onset and duration of RSV season may vary, nirsevimab may be administered October through the end of March in the majority of the continental United States. Providers may adjust timing of administration based on guidance from public health authorities (e.g., CDC, health departments) or regional medical centers. Although optimal timing of administration is just before the start of the RSV season, nirsevimab may also be administered during the RSV season to infants and children who are age-eligible. Infants born shortly before or during RSV season should receive nirsevimab within one week of birth. Nirsevimab administration can occur during the birth hospitalization or in the outpatient setting. Infants with prolonged birth hospitalizations related to prematurity or other causes should receive nirsevimab shortly before or promptly after hospital discharge.

[4]Children at increased risk for severe disease should not receive more than two doses of nirsevimab (one dose [50mg or 100 mg depending on weight] for the first RSV season and one dose [two 100 mg injections] for the second RSV season). Only one dose of nirsevimab is recommended per season (with exception for children who undergo cardiac surgery with cardiopulmonary bypass). Nirsevimab is recommended for children at increased risk for severe disease (as defined in footnote 4) during their first RSV season, including if aged 8-11 months if the child has not received nirsevimab during that RSV season.