ARTICLE

RSV: an update on prevention and management

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SUMMARY

Respiratory syncytial virus (RSV) is a common cause of respiratory tract infections in infants and young children, and adults over 60 years of age.

Infants born prematurely, adults aged over 75 years, individuals with medical conditions such as chronic cardiac or respiratory disease, or obesity, and Aboriginal and Torres Strait Islander people are at increased risk of severe RSV disease.

As the management of RSV disease is mainly supportive, routine testing for RSV in people with a respiratory illness is not recommended. In high-risk populations and individuals presenting with severe illness, respiratory virus testing should prioritise influenza and COVID-19, as there are specific antiviral drugs for these diseases.

Recent approval of RSV vaccines and a new long-acting RSV monoclonal antibody has created opportunities to minimise adverse outcomes associated with RSV infection.

Protection against severe RSV disease in infants can be achieved through vaccination of their mother between weeks 28 and 36 of pregnancy, or by administering an RSV monoclonal antibody after delivery. There is currently no RSV vaccine approved for neonates or infants. For older adults, at the time of writing there are 2 approved RSV vaccines available.

Introduction

Respiratory syncytial virus (RSV) is a common cause of respiratory tract infections. Children under the age of 2 years, and adults over 60 years, particularly those over 75 years, are at risk of severe RSV disease. Individuals with underlying chronic medical conditions and those who are immunocompromised are also at risk of severe disease. Recent approval of 2 RSV vaccines and a new RSV monoclonal antibody have brought renewed attention to this respiratory virus.

Epidemiology

Nearly 3 out of every 100 children experience a hospital-attended RSV infection in their first 5 years of life,[1] with most encountering their first infection by the age of 2 years.[2,3] The highest incidence of RSV hospitalisation occurs in infants aged 1 to 3 months.[4]

In adults, severe RSV infection is increasingly recognised, particularly among older individuals and those with underlying health conditions.[5] RSV in adults has a burden of morbidity and mortality comparable to that of influenza,[5,6] with outbreaks in long-term care facilities and hospitals contributing to substantial mortality among vulnerable populations.[7] There is a high rate of RSV detections in adults over 60 years of age attending hospital-level care; those over 75 years are at the highest risk with a detection rate of almost 2 cases per 1000 individuals per year.[8]

In the community, the rate of RSV infection is unknown as testing is not routinely performed.[5] Most available data come from hospital-based testing. Community-based initiatives, such as the Australian Sentinel Practices Research Network,[9] a national network of general practices that provides real-time surveillance of infectious diseases, play a crucial role in addressing this gap by providing insights into RSV's impact outside hospital settings.

At-risk populations

Infants born prematurely, as well as those with significant congenital heart disease, neuromuscular disorders, or neurological conditions, are at increased risk of severe RSV infection.[10]

In older adults, the risk of severe RSV disease increases progressively with age, associated with reduced physical capacity, accumulation of comorbidities, and age-related immunosenescence.

Comorbidities, such as chronic respiratory conditions and obesity, are associated with severe disease in adults.[11] Aboriginal and Torres Strait Islander people are also at higher risk.[5,12] Severely immunocompromised individuals, such as those who have undergone haematopoietic stem-cell

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transplantation, face an even greater risk, with RSV infection often causing severe pneumonia and high mortality rates in this group (Box 1).[13]

Seasonality

RSV exhibits strong seasonality in temperate regions of Australia, where most cases occur between April and September, with a mid-winter peak.[14,15] Seasonality is more variable in tropical areas, often aligning with 'wet' seasons.[8] Within a season, co-circulation of different subtypes is often observed.[14]

Transmission

The community transmission networks of RSV remain incompletely understood. Young children who attend schools and early learning centres are considered primary drivers of RSV transmission, similar to influenza;[16] contact with children is a significant risk factor for RSV infecting older adults. While airborne transmission of RSV is possible,[17] the primary modes of spread are droplet transmission and direct or indirect contact.[18] Activities such as speaking loudly, sneezing and shouting can generate infectious particles.[19,20] Frequent face-touching and contact with contaminated surfaces, such as toys, also play important roles in transmission.

Promoting hand hygiene and encouraging respiratory etiquette can reduce RSV transmission. Using face masks can provide further protection.[21]

The symptoms of RSV typically develop 4 to 6 days after exposure, although asymptomatic infection can occur. The timing of symptom onset is influenced by the intensity of exposure[22] and host characteristics.[23] Individuals become infectious before symptoms appear, usually within 2 days of exposure; consequently, asymptomatic individuals also contribute to transmission. The duration of infectivity and shedding may be prolonged and associated with age, severity of infection and immune status.[23] First-time infections, severe cases and those in immunocompromised individuals may be associated with prolonged infectivity, lasting up to 21 days or longer.[24] In contrast, re-infections in immunocompetent children and adults generally result in shorter periods of infectivity, often less than 5 days.[23]

Clinical presentation

The clinical presentation of RSV infection is indistinguishable from other respiratory viruses, ranging from asymptomatic cases or mild coryza to severe lower respiratory tract infections.[25] In children under 1 year of age, RSV is a leading cause of bronchiolitis, a lower respiratory tract infection characterised by airway inflammation and air-trapping.[26] Pneumonitis and pneumonia can occur in both children and adults.[5] Secondary bacterial infections are an uncommon complication of RSV, but have been reported.[6,27] Symptoms such as cough can persist for 2 to 6 weeks following the resolution of the acute RSV infection. RSV can also aggravate underlying conditions, including asthma and congestive heart failure, and precipitate an acute cardiac event.[28]

Box 1 Conditions associated with increased risk of severe RSV disease [NB1][11]

- History of prematurity in young children, especially born at less than 32 weeks gestational age
- Chronic cardiac disease
  - significant congenital heart disease
  - congestive heart failure
  - coronary artery disease
- Chronic respiratory conditions
  - bronchiectasis
  - cystic fibrosis
  - chronic obstructive pulmonary disease
  - severe asthma
- Chronic metabolic disorders
  - diabetes (type 1 and 2)
- Chronic kidney disease
  - renal impairment – eGFR less than 30 mL/min (stage 4 or 5)
- Chronic liver disease including cirrhosis
- Chronic neurological conditions
  - seizure disorders
  - neuromuscular disorders
- Immunocompromising conditions [NB1]
  - asplenia or splenic dysfunction
  - solid organ transplant
  - CAR T-cell therapy
- Obesity with BMI greater or equal to 30 kg/m^2

NB1: The examples listed under each category in the box are not exhaustive; vaccination providers may include people with conditions similar to those listed based on clinical judgement.[11]

Diagnostic testing

Although RSV is a notifiable disease in Australia,[29] testing for RSV is not routinely recommended because there is no RSV-specific antiviral treatment available. In high-risk populations, and individuals with severe illness, respiratory virus testing should prioritise influenza and SARS-CoV-2 (COVID-19), as there are specific antiviral drugs for these infections.

When respiratory virus testing is indicated, polymerase chain reaction (PCR) testing of nasopharyngeal samples is typically the preferred method due to its high

sensitivity and specificity.[30] Although RSV is commonly included in respiratory PCR panels, these should not be requested if an influenza and SARS-CoV-2 PCR with a faster turnaround time is available, as timely results are critical for initiating antiviral therapy. Clinicians should confer with their pathology provider regarding the specific testing options available in their jurisdiction.

Importantly, due to the sensitivity of PCR tests, RSV may be detected even after clinical recovery. Detection at this time is not necessarily a marker of infectivity and, in individuals with new or persistent symptoms, may not be the cause of the current illness.

Other RSV testing options, such as antigen tests performed on nasopharyngeal samples, are becoming widely available but are significantly less sensitive than PCR testing, particularly in immunocompetent adults.[31] Blood serology is not recommended for diagnosing acute infection as it requires paired samples and presents challenges in interpreting results.[32]

Management

Management of RSV is primarily supportive, focusing on hydration, oxygen supplementation for hypoxia, and ventilatory support in severe cases, especially for infants and older adults with comorbidities.[33] Routine use of bronchodilators, corticosteroids or antibiotics is not recommended, unless required for coexisting conditions such as asthma exacerbation or bacterial coinfection.[34]

Prevention

Decades of research have culminated in the development of effective RSV immunisations, with the first wave of these new options now available in Australia (Box 2).[11] Current RSV immunisations primarily target the RSV fusion (F) protein, a critical viral component that mediates fusion of the virus with host cells.[35]

Vaccines

There are 2 RSV vaccines available in Australia at the time of writing:

- Abrysvo (Pfizer), approved for administration during pregnancy (to passively immunise newborns) and for older adults (aged 60 years and over)
- Arexvy (GlaxoSmithKline), approved for older adults (aged 60 years and over).

A third vaccine, mRESVIA (Moderna), which is an mRNA-based RSV vaccine, has been approved in Europe and North America for older adults, but is not yet registered in Australia.

There is currently no RSV vaccine approved for neonates or infants. Early attempts to immunise infants using formalin-inactivated RSV vaccines in the 1960s were unsuccessful, with vaccine recipients developing enhanced respiratory disease and severe pulmonary inflammation.[36,37] A recent phase 1 clinical trial evaluating the mRESVIA vaccine in infants aged 5 to 7 months was paused after several recipients developed severe RSV infections.[38] Though it remains unclear whether these events reflect chance or vaccine-associated enhanced disease, this represents a setback for RSV vaccine development in early infancy.

Maternal vaccination

Maternal vaccination against RSV boosts pre-existing immunity, providing transplacental passive RSV antibody protection to newborns that can persist from birth through to 6 months of age.[11,39]

The Abrysvo vaccine is the only RSV vaccine approved for use during pregnancy. It is administered as a single dose between 28 and 36 weeks of gestation. Since February 2025 it can be accessed by pregnant women

Box 2 Recommendations for RSV vaccination in Australia in 2025 [NB1][11]

RSV vaccines

Recommended for:

- pregnant women (between 28 and 36 weeks of gestation) to protect their newborn infant (Abrysvo only)
- all people aged 75 years and over
- people aged 60 years and over who have medical risk factors for severe RSV disease (see Box 1)
- Aboriginal and Torres Strait Islander people aged 60 years and older.

May be considered for:

- non-Indigenous adults aged 60 to 74 years who do not have a medical risk factor for severe RSV disease. The benefits may be less than for those aged 75 years and over, due to a comparatively lower risk of severe RSV disease.

RSV monoclonal antibodies

Recommended for:

- young infants whose mothers did not receive RSV vaccine in pregnancy, or who were vaccinated less than 2 weeks before delivery
- young infants who are at increased risk of severe RSV disease, regardless of their mother's vaccination status
- children who have medical risk factors for severe RSV disease in their second RSV season.

NB1: At the time of writing, RSV vaccines are only funded under the National Immunisation Program for pregnant women. RSV monoclonal antibodies are funded by state and territory programs for eligible infants and children. Current details can be found in the Australian Immunisation Handbook.

at no cost under the National Immunisation Program. Abrysvo can be safely co-administered with pertussis (whooping cough), influenza and COVID-19 vaccines.[11] A single dose is recommended in the first pregnancy; there is currently no advice on revaccination in subsequent pregnancies.

In the MATISSE study, the Abrysvo vaccine reduced the rate of severe RSV disease in infants by 82% at 3 months of age and 70% at 6 months. It reduced the rate of any medically attended lower respiratory tract infection by 57% at 3 months and 51% by 6 months of age.[35] Common side effects in pregnant women include injection site pain, fatigue, muscle pain and headache.

In addition to the passive transfer of antibodies, maternal vaccination may provide a 'cocooning effect', offering indirect protection to infants by reducing risk and severity of maternal RSV infection, thereby decreasing the likelihood and intensity of household exposure and transmission. However, supportive data for this potential benefit is not yet available.

Vaccination of older adults and people with medical conditions

RSV vaccines for older adults aim to reduce hospitalisations and complications associated with RSV infection. Both the Arexvy and Abrysvo vaccines have demonstrated an efficacy of over 80% in preventing RSV-related lower respiratory tract infections, and nearly 95% in preventing severe disease during the first RSV season following vaccination.[40] While efficacy of vaccines wanes over time, protection has been shown to persist for at least 3 seasons.[41]

RSV vaccination is recommended for all adults aged 75 years and older.[11] Additionally, vaccination is recommended for Aboriginal and Torres Strait Islander adults aged 60 years and older, and other individuals aged over 60 years with medical conditions associated with an increased risk of severe RSV disease (Boxes 1 and 2).[11] Adults aged 60 to 74 years without medical risk factors may also consider vaccination.[11] At the time of writing, RSV vaccines for non-pregnant adults are not funded under the National Immunisation Program.

Arexvy and Abrysvo are considered equally effective.[11] Although RSV vaccines can be administered year-round, vaccination prior to the RSV season is likely to provide the greatest utility. These vaccines may be co-administered with other vaccines, such as COVID-19 and influenza; however, co-administration can result in a reduction in immune response of uncertain clinical significance.[11] Additionally, co-administration may increase local reactions (from 40 to 53%) and systemic side effects (from 34 to 45%).[11] Despite these considerations, the benefits of timely vaccination may outweigh the risks associated with co-administration. A small number of cases of Guillain–Barré syndrome have been reported following RSV vaccination in older adults; however, a definitive causal link has not been established, and ongoing safety surveillance continues.[41]

Vaccination of other groups to reduce transmission

It is not known whether vaccinating people who frequently interact with vulnerable populations (e.g. aged-care workers) will reduce RSV-related morbidity and mortality across different demographics. Until more evidence is available this approach is not recommended.

Monoclonal antibodies

Monoclonal antibodies targeting the RSV F protein are an important passive immunisation strategy for protecting high-risk infants. They serve as an alternative to maternal immunisation, and are especially useful for infants born before 32 weeks gestation who may not fully benefit from transplacental antibody transfer.

Palivizumab

Palivizumab (Synagis) was approved in Australia in 2009. It provides moderate efficacy,[42,43] but requires monthly intramuscular injections throughout the RSV season. High cost and logistical challenges have limited its widespread use.[11,44]

Nirsevimab

Nirsevimab (Beyfortus) is a new longer-acting monoclonal antibody for infants. It was registered in Australia in 2024 and, at the time of writing, can be accessed for eligible infants at no cost via state-funded programs.[11] It provides significant advantages over palivizumab, because a single intramuscular injection provides 5 months of protection.[45,46] Early trial data suggest high efficacy and a favourable safety profile;[47] nirsevimab reduced medically attended RSV-associated lower respiratory tract infection by 70% (3 months after the dose). Hospitalisation was 78% lower in the nirsevimab group compared with the placebo group.[45]

The timing of administration should ensure that protection is maximised over the peak months of a child's first RSV season.[11] Nirsevimab can be administered shortly after birth for infants born just before or during the RSV season if their mother either did not receive an RSV vaccine during pregnancy or received the vaccine less than 2 weeks before delivery.[11] An additional dose is recommended before the second RSV season in children with conditions associated with increased risk of severe RSV disease.[11]

Conclusion

RSV infection is a significant global health challenge. Infants, older adults, and individuals with comorbidities are most at risk of severe illness. Advances in vaccines and monoclonal antibodies offer promising avenues to reduce RSV-related morbidity and mortality. Ongoing research and surveillance are crucial to optimise prevention strategies and understand the broader impact of these interventions on viral transmission and public health outcomes. <

Conflicts of interest: none declared

REFERENCES

1. Foley DA, Minney-Smith CA, Lee WH, Oakes DB, Hazelton B, Ford TJ, et al. Respiratory Syncytial Virus Reinfections in Children in Western Australia. Viruses 2023;15. https://doi.org/10.3390/v15122417
2. Ebihara T, Endo R, Kikuta H, Ishiguro N, Ishiko H, Kobayashi K. Comparison of the seroprevalence of human metapneumovirus and human respiratory syncytial virus. J Med Virol 2004;72:304-6. https://doi.org/10.1002/jmv.10572
3. Glezen WP, Taber LH, Frank AL, Kasel JA. Risk of primary infection and reinfection with respiratory syncytial virus. Am J Dis Child 1986;140:543-6. https://doi.org/10.1001/archpedi.1986.02140200053026
4. Self A, Van Buskirk J, Clark J, Cochrane JE, Knibbs L, Cass-Verco J, et al. Respiratory syncytial virus disease morbidity in Australian infants aged 0 to 6 months: a systematic review with narrative synthesis. BMC Public Health 2023;23:2560. https://doi.org/10.1186/s12889-023-17474-x
5. Saravanos GL, Sheel M, Homaira N, Dey A, Brown E, Wang H, et al. Respiratory syncytial virus-associated hospitalisations in Australia, 2006-2015. Med J Aust 2019;210:447-53. https://doi.org/10.5694/mja2.50159
6. Ackerson B, Tseng HF, Sy LS, Solano Z, Slezak J, Luo Y, et al. Severe Morbidity and Mortality Associated With Respiratory Syncytial Virus Versus Influenza Infection in Hospitalized Older Adults. Clin Infect Dis 2019;69:197-203. https://doi.org/10.1093/cid/ciy991
7. Branche AR, Falsey AR, Finelli L, Walsh EE. Residency in Long-Term Care Facilities: An Important Risk Factor for Respiratory Syncytial Virus Hospitalization. J Infect Dis 2024;230:e1007-e11. https://doi.org/10.1093/infdis/jiae424
8. Foley DA, Minney-Smith CA, Tjea A, Nicol MP, Levy A, Moore HC, et al. The Changing Detection Rate of Respiratory Syncytial Virus in Adults in Western Australia between 2017 and 2023. Viruses 2024;16. https://doi.org/10.3390/v16050656
9. Australian Sentinel Practices Research Network. Number 14: 2024 31st June to 14th July. 2024. https://www.aspren.adelaide.edu.au/ [cited 2025 Mar 21]
10. Vartiainen P, Jukarainen S, Rhedin SA, Prinz A, Hartonen T, Vabalas A, et al. Risk factors for severe respiratory syncytial virus infection during the first year of life: development and validation of a clinical prediction model. Lancet Digit Health 2023;5:e821-e30. https://doi.org/10.1016/S2589-7500(23)00175-9
11. Australian Immunisation Handbook. Respiratory syncytial virus. Department of Health and Aged Care; 2025. https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/respiratory-syncytial-virus-rsv [cited 2025 Mar 21]
12. Farquharson KA, Anthony D, Menzies R, Homaira N. Burden of respiratory syncytial virus disease across the lifespan in Australia and New Zealand: a scoping review. Public Health 2024;226:8-16. https://doi.org/10.1016/j.puhe.2023.10.031
13. Weigt SS, Gregson AL, Deng JC, Lynch JP, 3rd, Belperio JA. Respiratory viral infections in hematopoietic stem cell and solid organ transplant recipients. Semin Respir Crit Care Med 2011;32:471-93. https://doi.org/10.1055/s-0031-1283286
14. Minney-Smith CA, Foley DA, Sikazwe CT, Levy A, Smith DW. The seasonality of respiratory syncytial virus in Western Australia prior to implementation of SARS-CoV-2 non-pharmaceutical interventions. Influenza Other Respir Viruses 2023;17:e13117. https://doi.org/10.1111/irv.13117
15. Griffiths C, Drews SJ, Marchant DJ. Respiratory Syncytial Virus: Infection, Detection, and New Options for Prevention and Treatment. Clin Microbiol Rev 2017;30:277-319. https://doi.org/10.1128/CMR.00010-16
16. Kenah E, Chao DL, Matrajt L, Halloran ME, Longini IM, Jr. The global transmission and control of influenza. PLoS One 2011;6:e19515. https://doi.org/10.1371/journal.pone.0019515
17. Kulkarni H, Smith CM, Lee Ddo H, Hirst RA, Easton AJ, O'Callaghan C. Evidence of Respiratory Syncytial Virus Spread by Aerosol. Time to Revisit Infection Control Strategies? Am J Respir Crit Care Med 2016;194:308-16. https://doi.org/10.1164/rccm.201509-1833OC
18. Hall CB, Douglas RG, Jr. Modes of transmission of respiratory syncytial virus. J Pediatr 1981;99:100-3. https://doi.org/10.1016/s0022-3476(81)80969-9
19. Archer J, McCarthy LP, Symons HE, Watson NA, Orton CM, Browne WJ, et al. Comparing aerosol number and mass exhalation rates from children and adults during breathing, speaking and singing. Interface Focus 2022;12:20210078. https://doi.org/10.1098/rsfs.2021.0078
20. Asadi S, Wexler AS, Cappa CD, Barreda S, Bouvier NM, Ristenpart WD. Aerosol emission and superemission during human speech increase with voice loudness. Sci Rep 2019;9:2348. https://doi.org/10.1038/s41598-019-38808-z
21. Moschovis PP, Lombay J, Rooney J, Schenkel SR, Singh D, Rezaei SJ, et al. The effect of activity and face masks on exhaled particles in children. Pediatr Investig 2023;7:75-85. https://doi.org/10.1002/ped4.12376
22. Hall CB, Douglas RG, Jr., Schnabel KC, Geiman JM. Infectivity of respiratory syncytial virus by various routes of inoculation. Infect Immun 1981;33:779-83. https://doi.org/10.1128/iai.33.3.779-783.1981
23. Hall CB, Walsh EE, Long CE, Schnabel KC. Immunity to and frequency of reinfection with respiratory syncytial virus. J Infect Dis 1991;163:693-8. https://doi.org/10.1093/infdis/163.4.693
24. Hall CB, Douglas RG, Jr., Geiman JM. Respiratory syncytial virus infections in infants: quantitation and duration of shedding. J Pediatr 1976;89:11-5. https://doi.org/10.1016/s0022-3476(76)80918-3
25. Wildenbeest JG, Lowe DM, Standing JF, Butler CC. Respiratory syncytial virus infections in adults: a narrative review. Lancet Respir Med 2024;12:822-36. https://doi.org/10.1016/S2213-2600(24)00255-8
26. Li Y, Wang X, Blau DM, Caballero MT, Feikin DR, Gill CJ, et al. Global, regional, and national disease burden estimates of acute lower respiratory infections due to respiratory syncytial virus in children younger than 5 years in 2019: a systematic analysis. Lancet 2022;399:2047-64. https://doi.org/10.1016/S0140-6736(22)00478-0
27. Hall CB, Powell KR, Schnabel KC, Gala CL, Pincus PH. Risk of secondary bacterial infection in infants hospitalized with respiratory syncytial viral infection. J Pediatr 1988;113:266-71. https://www.ncbi.nlm.nih.gov/pubmed/3397789
28. Woodruff RC, Melgar M, Pham H, Sperling LS, Loustalot F, Kirley PD, et al. Acute Cardiac Events in Hospitalized Older Adults With Respiratory Syncytial Virus Infection. JAMA Intern Med 2024;184:602-11. https://doi.org/10.1001/jamainternmed.2024.0212
29. Department of Health and Aged Care. Respiratory syncytial virus (RSV) infection. 2024. https://www.health.gov.au/diseases/respiratory-syncytial-virus-rsv-infection [cited 2025 Mar 21]
30. Bernstein DI, Mejias A, Rath B, Woods CW, Deeter JP. Summarizing Study Characteristics and Diagnostic Performance of Commercially Available Tests for Respiratory Syncytial Virus: A Scoping Literature Review in the COVID-19 Era. J Appl Lab Med 2023;8:353-71. https://doi.org/10.1093/jalm/jfac058

31. Franck KT, Schneider UV, Ma CMG, Knudsen D, Lisby G. Evaluation of immuview RSV antigen test (SSI siagnostica) and BinaxNOW RSV card (alere) for rapid detection of respiratory syncytial virus in retrospectively and prospectively collected respiratory samples. J Med Virol 2020;92:2992-8. https://doi.org/10.1002/jmv.26369
32. Ramirez J, Carrico R, Wilde A, Junkins A, Furmanek S, Chandler T, et al. Diagnosis of Respiratory Syncytial Virus in Adults Substantially Increases When Adding Sputum, Saliva, and Serology Testing to Nasopharyngeal Swab RT-PCR. Infect Dis Ther 2023;12:1593-603. https://doi.org/10.1007/s40121-023-00805-1
33. Chatterjee A, Mavunda K, Krilov LR. Current State of Respiratory Syncytial Virus Disease and Management. Infect Dis Ther 2021;10:5-16. https://doi.org/10.1007/s40121-020-00387-2
34. Walsh E, Lee N, Sander I, Stolper R, Zakar J, Wyffels V, et al. RSV-associated hospitalization in adults in the USA: A retrospective chart review investigating burden, management strategies, and outcomes. Health Sci Rep 2022;5:e556. https://doi.org/10.1002/hsr2.556
35. Kampmann B, Madhi SA, Munjal I, Simoes EAF, Pahud BA, Llapur C, et al. Bivalent Prefusion F Vaccine in Pregnancy to Prevent RSV Illness in Infants. N Engl J Med 2023;388:1451-64. https://doi.org/10.1056/NEJMoa2216480
36. Murphy BR, Walsh EE. Formalin-inactivated respiratory syncytial virus vaccine induces antibodies to the fusion glycoprotein that are deficient in fusion-inhibiting activity. J Clin Microbiol 1988;26:1595-7. https://doi.org/10.1128/jcm.26.8.1595-1597.1988
37. Acosta PL, Caballero MT, Polack FP. Brief History and Characterization of Enhanced Respiratory Syncytial Virus Disease. Clin Vaccine Immunol 2015;23:189-95. https://doi.org/10.1128/CVI.00609-15
38. Tregoning JS, Sanders NN. The past, present, and future of RNA vaccines. Mol Ther 2025. https://doi.org/10.1016/j.ymthe.2025.02.016
39. Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG). Pre-Pregnancy and Pregnancy Related Vaccinations (C-Obs 44). Clinical Guideline (Signposting). 2023. https://ranzcog.edu.au/resources/statements-and-guidelines-directory/ [cited 2025 Mar 21]
40. Papi A, Ison MG, Langley JM, Lee DG, Leroux-Roels I, Martinon-Torres F, et al. Respiratory Syncytial Virus Prefusion F Protein Vaccine in Older Adults. N Engl J Med 2023;388:595-608. https://doi.org/10.1056/NEJMoa2209604
41. Anastassopoulou C, Medic S, Ferous S, Boufidou F, Tsakris A. Development, Current Status, and Remaining Challenges for Respiratory Syncytial Virus Vaccines. Vaccines (Basel) 2025;13. https://doi.org/10.3390/vaccines13020097
42. Anderson EJ, Carosone-Link P, Yogev R, Yi J, Simoes EAF. Effectiveness of Palivizumab in High-risk Infants and Children: A Propensity Score Weighted Regression Analysis. Pediatr Infect Dis J 2017;36:699-704. https://doi.org/10.1097/INF.0000000000001533
43. Yeo KT, Yung CF, Khoo PC, Saffari SE, Sng JSP, How MS, et al. Effectiveness of Palivizumab Against Respiratory Syncytial Virus Hospitalization Among Preterm Infants in a Setting With Year-Round Circulation. J Infect Dis 2021;224:279-87. https://doi.org/10.1093/infdis/jiaa749
44. Garegnani L, Styrmisdottir L, Roson Rodriguez P, Escobar Liquitay CM, Esteban I, Franco JV. Palivizumab for preventing severe respiratory syncytial virus (RSV) infection in children. Cochrane Database Syst Rev 2021;11:CD013757. https://doi.org/10.1002/14651858.CD013757.pub2
45. Griffin MP, Yuan Y, Takas T, Domachowske JB, Madhi SA, Manzoni P, et al. Single-Dose Nirsevimab for Prevention of RSV in Preterm Infants. N Engl J Med 2020;383:415-25. https://doi.org/10.1056/NEJMoa1913556
46. Muller WJ, Madhi SA, Seoane Nunez B, Baca Cots M, Bosheva M, Dagan R, et al. Nirsevimab for Prevention of RSV in Term and Late-Preterm Infants. N Engl J Med 2023;388:1533-4. https://doi.org/10.1056/NEJMc2214773
47. Drysdale SB, Cathie K, Flamein F, Knuf M, Collins AM, Hill HC, et al. Nirsevimab for Prevention of Hospitalizations Due to RSV in Infants. N Engl J Med 2023;389:2425-35. https://doi.org/10.1056/NEJMoa2309189