

Respiratory Syncytial Virus (RSV) – a risk for all children under two years of age



What is RSV?

Respiratory Syncytial Virus (RSV) is a virus that may cause a wide range of diseases ranging from mild upper respiratory illness to life threatening lower respiratory tract infections (LRTIs).¹ Children and adults may be infected repeatedly by RSV.

How prevalent and severe is RSV?

It is estimated that 12.9 million RSV LRTI episodes, 2.2 million RSV associated hospitalisations and 66,300 RSV attributable deaths occurred in infants in the first year of life in 2019. Most deaths occur in low and middle-income countries.² Generally, it is not possible to predict which infants get seriously ill from RSV.

Usually, an RSV infection results in mild, cold-like symptoms.¹ However, it is also a **main cause of hospital admission** in infants and children.⁴



In the first two years of life, children have the greatest risk of contracting an RSV infection, with the highest risk at approximately three months of age.⁵



RSV is the main cause of respiratory infections and hospitalisation for bronchiolitis in infants less than 12 months.³



Almost all children have been infected by the age of two.⁶

What are the symptoms of an RSV infection?⁷⁻⁹

Mild course

Common cold with:

- Cough
- Fever
- Rhinorrhoea
- Wheezing
- Decreased appetite
- Irritability
- Decreased activity



Can usually be managed by a general practitioner or at home

Severe course

Bronchiolitis with:

- Cough
- Fever
- Wheezing
- Crackles
- Subcostal recessions
- Respiratory distress
- Apnoea
- Nasal flaring
- Cyanosis
- Hypoxaemia
- Dehydration

Pneumonia with:

- Cough
- Wheezing
- Fever
- Tachypnoea
- Hypoxaemia
- Chest and/or abdominal pain or vomiting



Hospitalisation is mostly necessary

Potential long-term complications¹⁰

- Recurrent wheezing/ asthma
- Reduced lung function/ increased airway reactivity
- RSV-related respiratory morbidity
- Decreased quality of life

What are the risk factors for a severe RSV infection?¹¹⁻¹³

Genetic and socio-demographic factors

- Age below 12 weeks
- Male sex

Pre-existing conditions

- Preterm birth
- Bronchopulmonary dysplasia
- Congenital heart diseases
- Immunodeficiency
- Cerebral palsy
- Down's syndrome
- Malnutrition

Environmental factors

- Visiting day care
- Household crowding
- Passive smoking
- Pollution
- Older siblings
- Non-breastfeeding



“Severe RSV cases are difficult to predict. RSV is a leading cause for hospitalisation among infants in their first year of life. Although preterm infants and infants with co-morbidity are at a high risk of a severe infection, approximately 80% of infants hospitalised with RSV are otherwise healthy.”

Dr Elena Bozzola,
Secretary of the Italian Paediatric Society, Paediatric Infectiologist at IRCCS Bambino Gesù Children Hospital, Rome, Italy

How is the virus transmitted?

Transmission¹

- Via droplet by sneezing and coughing from an infectious person to a contact person
- The nasal mucosa, the throat and the conjunctiva form the portal for the virus
- The most important mode of transmission is through contaminated hands, objects and surfaces. The virus can survive in form of respiratory exudate for:
 - **20 minutes** on hands
 - **45 minutes** on cotton coats
 - Up to **several hours** on single-use gloves, stethoscopes and synthetic surfaces

Incubation and contagiousness¹

- Incubation period is between two to eight days, on average five days
- Immunised infants and children can be carriers of the virus
- Contagiousness lasts usually three to eight days, but preterm infants, newborns, immunodeficient or immunosuppressed patients may excrete the virus for several weeks
- Adolescents and adults are potential carriers of the virus with and without symptoms

How is RSV diagnosed?



A physical examination with the consideration of the patient's age can indicate a diagnosis.¹ To confirm the clinical diagnosis, a pathogen detection can be performed (e.g. via polymerase chain reaction (PCR) or rapid antigen-based testing), but during the RSV season this is not always done in all countries as it does not affect treatment.^{1,14} Suitable nasopharyngeal secretions for the detection of RSV are from nasopharyngeal washings, aspirates or swabs.¹

How is RSV treated?



Guidelines significantly differ throughout Europe and globally.¹⁵⁻¹⁷ Currently, only **symptomatic treatment options** are available.¹ In serious cases non-invasive or invasive mechanical ventilation, intravenous fluids or administration of humidified oxygen may be required.¹⁸ Milder cases may be managed at home.¹ The use of corticosteroids, beta-adrenergic agents or (hypertonic) saline solution is not routinely recommended.¹⁵⁻¹⁷



Can RSV be prevented by medical prophylaxis?

Currently, only one licensed prophylaxis is available for RSV infection (Palivizumab), which is a monoclonal antibody to be given on a monthly basis during the course of the RSV season. It is approved for use in infants born preterm and less than 6 months of age at the onset of the RSV season, and in children less than 2 years of age with pre-existing conditions such as haemodynamically significant congenital heart disease or bronchopulmonary dysplasia.¹⁹ Recommendations and guidelines differ across countries (for more details see [EFCNI Position Paper on RSV in preterm infants](#)).⁷ So far, there is no recommendation for the medicinal prevention of RSV in healthy, term-born infants.

Which treatments and prophylactic measures are under development?



Several active and passive immunisation options are in late-stage development to protect all children. These include:²⁰⁻²²

- Paediatric vaccines
- Maternal vaccines
- Monoclonal antibodies

How can RSV be prevented in healthcare facilities?

To prevent nosocomial infections, disinfection as well as hand washing with alcohol-based rubs besides handwashing with soap and water are considered as effective in limiting the spread of RSV. Wearing gloves, masks and gowns help contain the infection.¹²

In case of contact with an infectious patient the following measures are recommended:²³



Hand hygiene and disinfection:

- Before and after contact with patients prior to aseptic activities
- After contamination (contact with blood, secretions or excretions)
- After contact with the patient's environment
- After taking off disposable gloves



Barrier measures:

- Wearing of non-sterile disposable gloves if there is a likely occurrence of contact with blood, secretions, excretions or potentially contaminated surfaces
- Wearing of an apron or gown to protect work clothes from direct contact with blood, secretions, excretions or other contaminated materials during interventions or care procedures
- Wearing of a face mask to prevent droplet transfer
- Isolation of infected patients

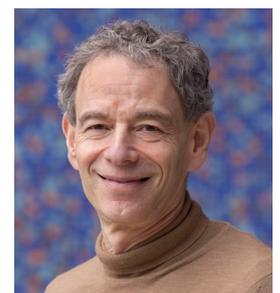


Surface disinfection:

- At least daily disinfection of high-risk surfaces with frequent hand and skin contact
- In case of visible contamination immediate reprocessing

“Raising public awareness is the most important step in our fight against RSV infection.”

Prof. Louis Bont,
Chairman of the
ReSViNET Foundation



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Which information should parents/caregivers receive? Give details about...

- RSV transmission
- Symptoms
- Risk factors
- Criteria for hospitalisation
- Treatment and follow-up
- Prevention methods

How should information be provided?

Written: to provide detailed medical but easily understandable information

Orally: to discuss concerns and be responsive to questions

When should parents/caregivers be informed?

- At discharge after birth
- During first standard examinations of the infant after birth
- Regularly, in particular before and after RSV seasons
- If treatment is required



Parent-friendly examples for written/online information

- EFCNI Parent booklet "RSV – Why parents of all infants should be aware of Respiratory Syncytial Virus"^a
- ReSVINET Patient Network Webinars^b

^awww.efcni.org/wp-content/uploads/2021/11/EFCNI_RSV_Parentbooklet_Web.pdf

^bwww.resvinet.org/webinars.html

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About EFCNI

The European Foundation for the Care of Newborn Infants (EFCNI) is the first pan-European organisation and network to represent the interests of preterm and newborn infants and their families. It brings together parents, healthcare experts from different disciplines, and scientists with the common goal of improving long-term health of preterm and newborn children. EFCNI's vision is to ensure the best start in life for every baby.

The **EFCNI Academy** is an international education programme for healthcare professionals under the umbrella of EFCNI.

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