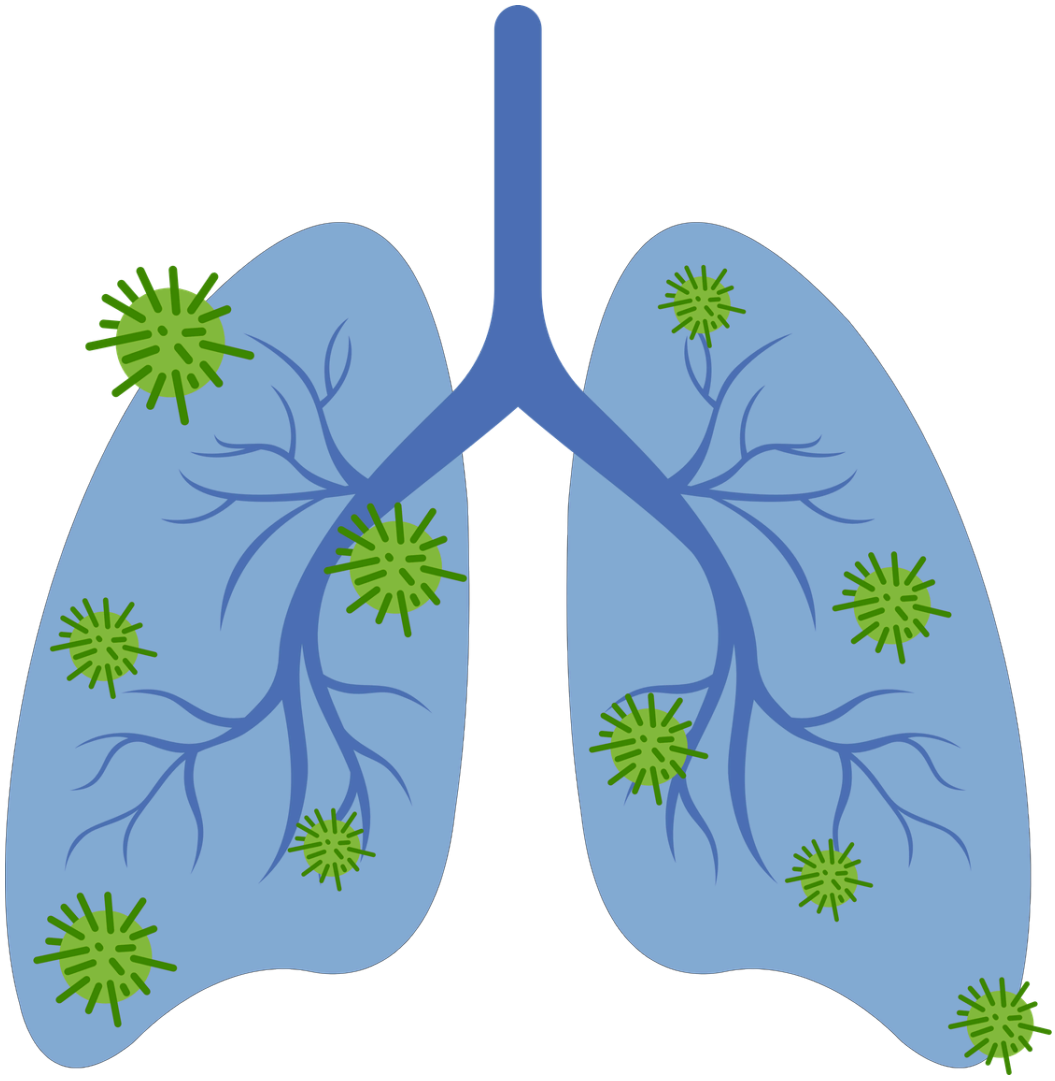
DOWN'S SYNDROME ASSOCIATION

DSMIG UK & IRELAND
The Down Syndrome Medical Interest Group

Respiratory Tract Infections

May 2026



A Down's Syndrome Association publication

Introduction

Adults and children who have Down's syndrome are more likely to develop infections of the respiratory tract than other people. They are also more likely to become more unwell and to need admission to hospital.

In adults with a learning disability (not just Down's syndrome), respiratory tract infections are the biggest avoidable cause of death (1). Over a third of deaths of children with a learning disability are related to infection (2).

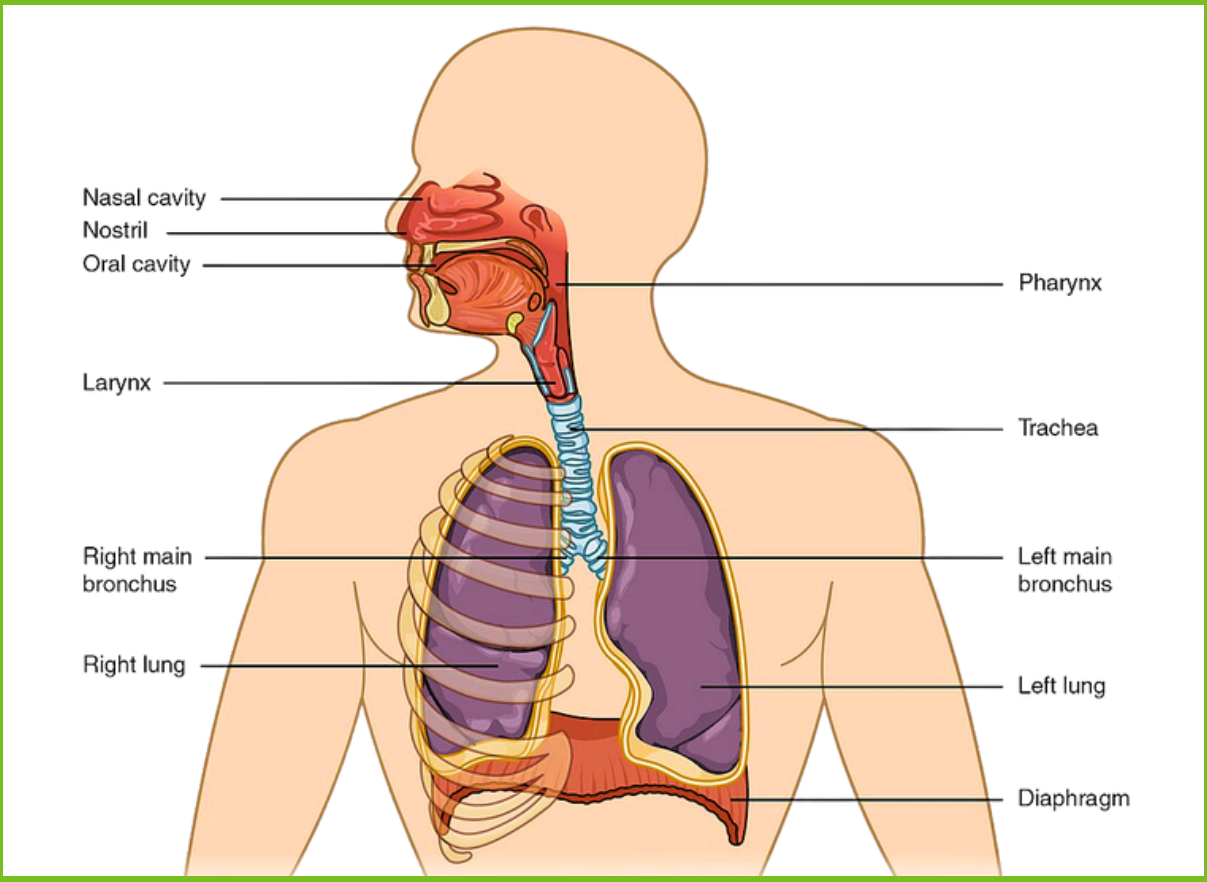
Everyone who has a learning disability is at risk of infection, but there are particular reasons why people who have Down's syndrome are at a higher risk than could be accounted for by their learning disability alone. Respiratory tract infections must always be taken seriously in people who have Down's syndrome, but there are ways we can try to help prevent infections and there is research being done to try to improve how these are treated.





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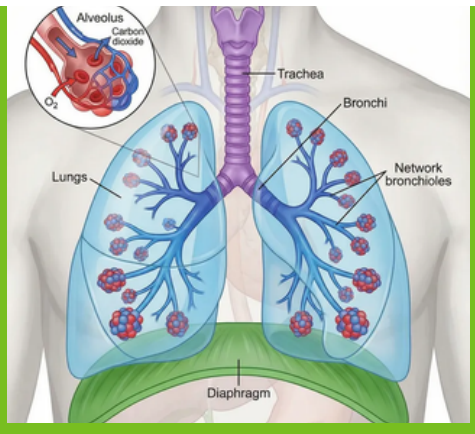
What is the Respiratory Tract?



Source: commons.wikimedia.org/wiki/File:2301_Major_Respiratory_Organs.jpg

The respiratory tract includes all the tubes and passages involved in breathing, from the nose and mouth, down to the lungs. There are two halves – the upper respiratory tract and the lower respiratory tract. The upper respiratory tract includes the nose and nasal cavities (the inner passages of the nose), the mouth and throat (or pharynx, which is split into nasopharynx, the part of the throat behind the nose, and oropharynx, the part of the throat behind the mouth), and the larynx (or voice box).

The lower respiratory tract is the trachea (or windpipe, the tube that goes from the larynx down into the chest), the bronchi (the windpipe splits into two main bronchi, one to each lung), the bronchioles (smaller tubes which split off from the bronchi) and the alveoli (air sacs which sit at the end of the bronchioles, making up most of the lungs, and responsible for the movement of oxygen from the breath into the blood, and the removal of carbon dioxide out of the blood ready to be breathed out).



Source:commons.wikimedia.org/wiki/File:2301_Major_Respiratory_Organs.jpg

Types of Infections

Upper respiratory tract infections include colds, throat infections and most coughs. They can also include ear infections and eye infections, as there are tubes which connect the ears and eyes to the upper respiratory tract, and sinus infections (the sinuses are air-filled spaces around the eyes and nose).

Lower respiratory tract infections are most often described as chest infections, but include bronchitis (infection in the bronchi), bronchiolitis (infection in the bronchioles), and pneumonia (infection in the alveoli).

Respiratory tract infections are most often caused by viruses, including rhinovirus (the common cold), RSV (respiratory syncytial virus), influenza and Covid. These infections cannot be treated by antibiotics as viruses do not respond to these. Most antiviral medications are not very useful against these infections either, so treatment is usually aimed at managing the symptoms of illness such as fever, pain and cough. Some respiratory tract infections are caused by bacteria such as Strep pneumoniae, Strep pyogenes and Haemophilus influenzae, and are treated with antibiotics. A smaller number of respiratory tract infections are caused by fungi (or mould) such as Aspergillus. These can be difficult to treat and can last for a longer time.



The severity of infections can vary greatly. Many infections are 'mild' – they can still make someone feel pretty rotten, but no special treatment is needed. Most healthy children catch between six and 10 respiratory infections each year. These are mostly over the winter months and can each last one to three weeks, often with a persistent cough for a few weeks afterwards, so it can feel as though the child is constantly unwell. The majority of these infections are mild, however.

More serious infections may be caused by certain strains of virus, bacteria or fungus, or the infection may be more severe due to other health problems the person has. Serious infections may need hospital treatment including oxygen and medications. People who have Down's syndrome are more likely to have a serious infection, more likely to need to be admitted to hospital and more likely to need to stay in hospital for longer.

Long-standing infections are also more common in some people who have Down's syndrome, related to difficulties in treating infections, a less-efficient response from the body's defences, and less effective coughing and removal of infected mucus from the lungs.

Why are Respiratory Tract Infections Worse in People who have Down's syndrome?

The immune system is not as efficient in many people who have Down's syndrome, so the body is less able to fight off infection. Respiratory tract infections are particularly common partly because they are easily spread between people by coughing and sneezing. They are also more common in people who have Down's syndrome due to differences in the airways. In people who have Down's syndrome, the tubes and passages that form the respiratory tract are shorter and narrower and often angled slightly differently to the airways of other people. This means they are more likely to get obstructed with mucus, which is less able to drain away. In the airways of other people, there is an efficient system of tiny hair-like structures called cilia which move the mucus along. This is not as efficient in people who have Down's syndrome. The mucus itself is often thicker and stickier in people who have Down's syndrome, too.

Along with all these differences, people who have Down's syndrome are also more likely to have other health problems which make respiratory tract infections more severe, such as heart problems, digestive tract problems including difficulties with swallowing and reflux, diabetes and sleep disordered breathing (such as obstructive sleep apnoea).





Symptoms of Respiratory Tract Infection and What to do About Them

Fever



A fever is usually considered to be a body temperature of 38 degrees celcius or above. Many people who have Down's syndrome have a cooler body temperature than others and so when their temperature goes up, it may still be in the normal range for anyone else. Babies under three months old with a fever, should be seen urgently by a healthcare professional. After this age, a fever is less worrying.

The height of a fever or whether it comes down with medicine doesn't tell us how unwell someone is. Fever is one of the ways the body fights infection, so it does not necessarily need to be treated. If a person with a fever feels or looks unwell, then paracetamol or ibuprofen may be used to treat it (always follow the advice on the packet).

Sore Throat

This is very common. If it is stopping a person from drinking, then it can be treated with simple painkillers such as paracetamol or ibuprofen (always follow the advice on the packet) or with throat medications (including sprays and lozenges) which can be bought at the pharmacy or supermarket.



Runny or Blocked Nose, or Sneezing

Various nasal sprays can be bought at the pharmacy or supermarket for use in adults. Saline nasal sprays or drops can be used at any age, including young babies, and can help to loosen thick snot. Some parents of small babies also find using a nasal decongester or 'sucker' helpful (especially alongside or after using saline nasal spray)



Cough





Coughs can be very troublesome and can affect sleep. The presence of phlegm (sputum or mucus) with the cough doesn't necessarily help to decide if antibiotics may be useful, although the type of phlegm may do so. If a cough is worse at night, it might be helpful to use extra pillows to prop the person up. Babies and small children should sleep on a flat surface and pillows should never be used with babies, but the head of the cot can be raised slightly by putting something under the mattress or the feet of the cot. There are many types of cough medicine which can be bought at the pharmacy or supermarket, but these may not always be helpful. Keeping well hydrated can help, and some people find honey (either on its own or mixed into warm drinks) soothing (children under the age of one year should not be given honey).

Earache or Discharge

Earache can be very distressing. Pain relieving medications such as paracetamol or ibuprofen can be used (always follow the advice on the label), as can holding a warm, dry cloth over the ear. You should never insert anything into the ear canal.

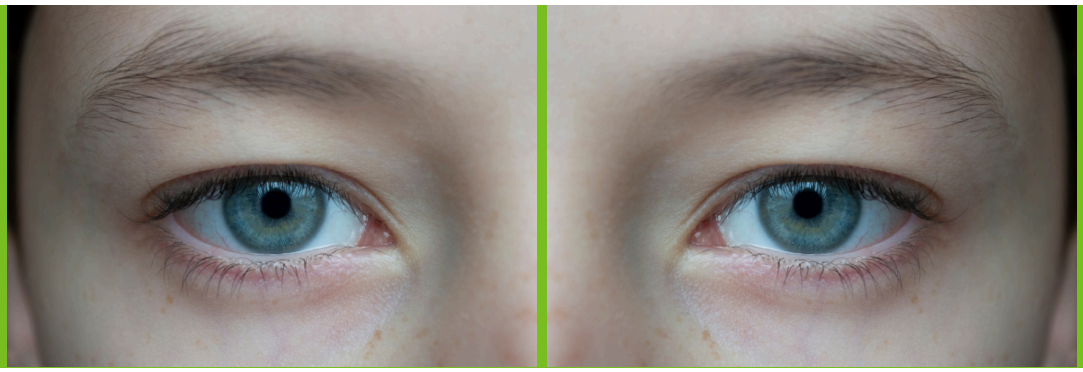
Depending on certain criteria, a health professional may prescribe ear drops or sometimes antibiotics. Sometimes fluid can build up under pressure behind the ear drum, causing severe pain. If the pressure becomes very great, the ear drum can burst and the fluid is released. This is seen as a thick yellow-red liquid coming out of the ear canal. The release of the fluid often settles the pain.



There is no need for antibiotics for earache unless the person appears unwell, the symptoms have lasted longer than three days, there is discharge from the ear, both ears are infected or the person is under two years of age.

Runny or Sticky Eyes

Any discharge from the eyes can be wiped away with a clean, damp cloth, wiping from the inside of the eye to the outside. The same area of cloth should be used only once. If the eye itself is red or sore, or the area around the eye is swollen, red and painful, or the vision is affected, then the person should be seen by a healthcare professional.



Chest Pain or Tightness in the Chest

Anyone with chest pain or tightness in the chest should see a healthcare professional.

Shortness of Breath, Noisy Breathing or Rapid Breathing

Anyone with difficulty breathing should see a healthcare professional. In babies and children, there may be signs of sucking in in-between the ribs, under the ribs or at the front of the neck. There may also be head-bobbing or nasal flaring. These signs are not usually seen in older children or adults, who may only show they are short of breath by breathing faster than usual, or appearing quieter than usual.

Breathing difficulties in respiratory tract infections may be due to narrowing of the airways (with swelling and mucus, or the airways may go into spasm) or fluid in the alveoli, or both.

The treatment depends on what is causing the problem, which a health professional should be able to determine by listening to the chest. If the airways are in spasm then inhalers or nebulisers may be used to relieve this.

If the person has low oxygen levels (saturations, checked with a peg or probe on a finger, toe or earlobe) then oxygen may be given through a mask or a small tube under the nose (nasal cannula). If the person finds it difficult to tolerate this, then the mask can sometimes be held a little way away from the face, with oxygen flowing ('blow-by oxygen').

Muscle Aches, Headaches

These can be treated with paracetamol and/or ibuprofen (always follow the advice on the label).

General or Atypical Symptoms

People who have Down's syndrome may have symptoms that are not usually related to respiratory tract infections and they are more likely to present differently to how respiratory tract infections are described in medical textbooks. For example, a person who has Down's syndrome might have diarrhoea and vomiting as their main symptoms, caused by a respiratory tract infection, instead of, or as well as, the usual cough.

This can make it more challenging for health professionals to decide what the problem is and how unwell the person is. For this reason, along with the fact that people who have Down's syndrome are at higher risk of serious infection, it is important that health professionals think carefully about how best to treat infections in people who have Down's syndrome. It is also important that family and carers seek medical help if they are worried. If you need to, show your health professional this information.



'Soft signs' of Illness

These are different for everyone but are the subtle things that family members or carers may notice when someone is unwell. For example, a person may not want to watch their favourite TV show or eat their favourite food, or may look more pale than usual, or be more quiet than usual. If you think a person who has Down's syndrome is not their usual self, then it is important to see a health professional. If you need to, show them this information.

Treatments for Respiratory Tract Infections

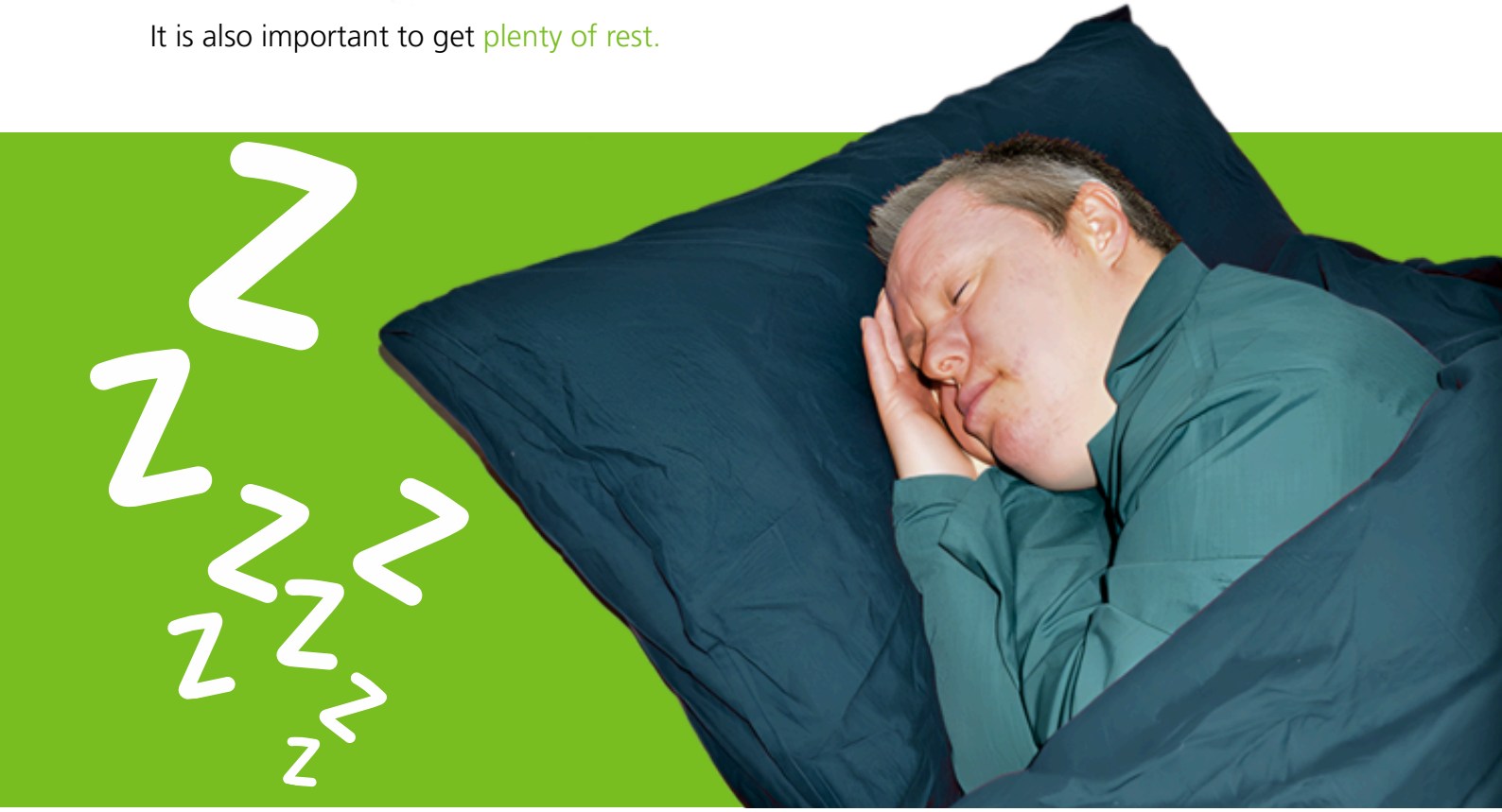


Antibiotics do not work against viruses, so there is no point in giving them unless a bacterial infection is suspected. Certain symptoms and findings on examination will help a health professional decide whether this is the case. If antibiotics are given unnecessarily, they can cause side effects such as diarrhoea, tummy pain, rash and thrush. Overuse of antibiotics also leads to the development of strains of bacteria which are resistant to the usual antibiotics, and so are very difficult to treat.

It is important to make sure the person has plenty to drink and does not become dehydrated. Eating is less important in the short term, but the person should be encouraged to drink. The type of fluid is less important, but if they are not eating anything, then drinking juice, squash (not the sugar-free varieties) or milk rather than just water, can help to keep the blood sugar from dropping.

Pain relieving medications such as paracetamol and ibuprofen can help with painful throats, ears and muscles, and help the person to feel generally better. Always follow the advice on the label. Other medications can be bought at pharmacies or supermarkets, as described in the 'symptoms' section above.

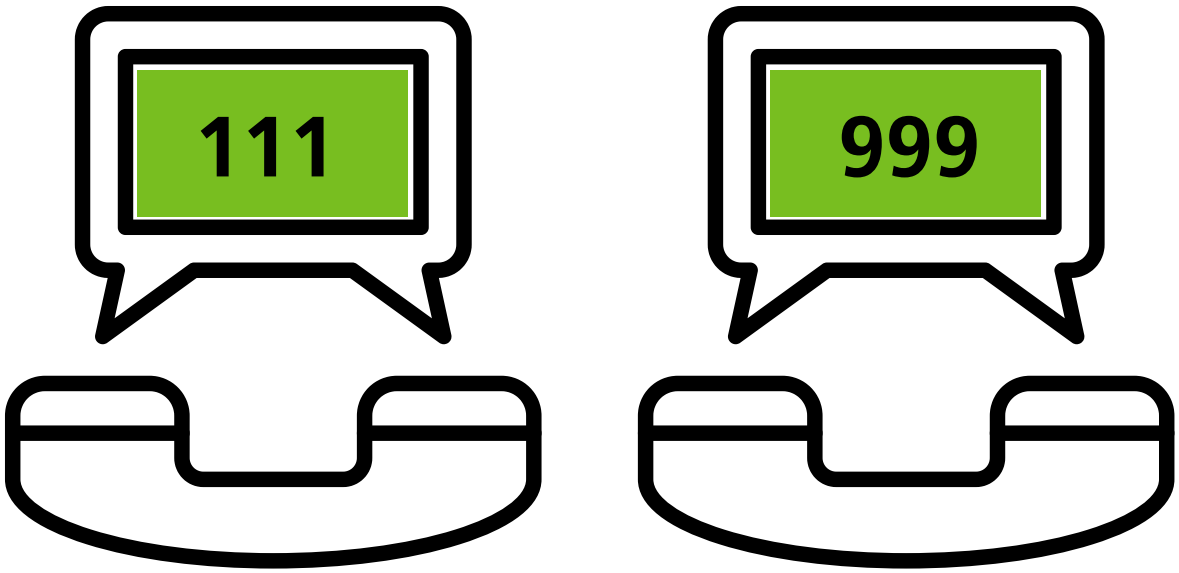
It is also important to get plenty of rest.



When Should I call for Help?

Call 111 or see your GP for the following.

- Simple pain relief and medications from the chemist are not helping with symptoms.
- Ear pain lasts more than 3 days, or there is discharge from the ear.
- A sore throat is preventing the person from drinking.
- A cough lasts more than 3 weeks.
- There has been a high temperature for more than 3 days.
- The person is passing less urine than usual, or has dry lips, mouth or tongue.
- The person is getting worse or you are worried.
- The person is not their usual self.
- Symptoms appear unusual or persistent.



Call 999 or go to the nearest Emergency Department for any of the following.

- Breathing is fast, irregular or noisy.
- The person looks grey, blue or very pale.
- The person is drowsy, difficult to wake up or confused.
- A baby under 3 months of age has a temperature of 38 degrees or more celcius.
- There is chest pain or tightness in the chest.

Preventing Infection

There are several things we can do to reduce the chances of catching a respiratory tract infection, and to make infections less severe.

- Vaccinations – including annual 'flu vaccination, pneumococcal vaccination for those who are eligible, and the RSV vaccination for expectant mothers (to protect the baby once born) and for older adults living in care homes. Some babies may also be eligible for RSV antibody treatment to prevent infection.
- Basic hygiene and infection control – handwashing, covering the nose and mouth when sneezing or coughing, not sharing cutlery or cups, etc.
- Healthy environments – good ventilation, avoidance of mould or damp, avoidance of air pollution (eg. traffic fumes).
- Maintaining good general health – good nutrition and sleep, regular exercise, avoiding smoking, sticking to a healthy weight.
- Avoiding contact with people who are unwell.
- Some people may consider taking vitamin supplements. These can be bought at a pharmacy or supermarket and should never be taken in doses above those recommended on the packaging. Extra or higher doses should only be taken on the advice or prescription of a health professional, usually after blood tests to check levels. Some vitamins can be dangerous if taken in large amounts.
- Good dental hygiene – respiratory tract infections are more likely to occur and be more serious if there is tooth decay, due to the bacteria in the mouth getting into the airways, so it is important to keep teeth clean and have regular dental check-ups.





Some Important Respiratory Tract Infections

Bronchiolitis

This is an infection of the small airways in the lungs, caused by a virus (including RSV, but other viruses can also cause this), usually in children under the age of two years old. The airways become swollen and obstructed by mucus, making it difficult to breathe. The narrowed airways may make a wheezing noise. Symptoms often start with a runny or snotty nose and mild fever, then get worse over three to four days with a cough and signs of difficulty breathing (including sucking in in-between the ribs, under the ribs and in the front of the neck). Feeding becomes difficult and tiring. The illness often lasts seven to 10 days and is followed by a persistent cough for another couple of weeks. As it is caused by a virus, antibiotics do not work. Treatment is aimed at making sure the baby is getting enough oxygen and enough fluids. Medications such as inhalers and steroids do not help. Some babies need to be admitted to hospital so they can be given oxygen. Some babies need support with their breathing from CPAP (continuous positive airway pressure) systems or high-flow, warmed, humidified oxygen, and a smaller number need support from a ventilator and a breathing tube in their throat. Some babies need support with feeding, sometimes with a feeding tube inserted through their nose and into their stomach, and sometimes with an intravenous drip. Most babies do not need any of these treatments, but if you have any concerns it is important to see a health professional, even if only for reassurance.

Smoking by family members (even if it is done outside the house) is known to make bronchiolitis worse.

Viral Wheeze

This is common in children from the age of about 18 months to five years old. A viral infection causes irritation in the airways, which go into spasm. The child becomes short of breath quite quickly, often after a day or two of having a snotty nose or a cough. They may have noisy breathing. The spasm in the airways makes them narrow, which causes a wheeze. In this case, as opposed to bronchiolitis, inhalers or nebulisers may be helpful as they help relieve the spasm in the airways and open them up again. Steroid medications may also be used for the same reason, although these take longer to start working. In severe cases, intravenous medications may also be needed. Having a viral wheeze does not mean a child has asthma, but it does make it more likely they will have asthma when they are older, especially if they also have eczema or hay fever, or if others in the family have asthma.

Some children, especially between the ages of one and two years, may have a mix of bronchiolitis and viral wheeze, with swelling, mucus and airway spasm all causing a wheeze. In these cases, health professionals may decide to try an inhaler to see if it is helpful.

Aspiration Pneumonia

This is more common in older adults and in people of any age with reflux or difficulty with swallowing. Food and liquid from the gullet (oesophagus or food pipe) get into the airways and cause irritation and infection. Some people who have Down's syndrome may also have "silent reflux" where tiny particles of food or acid from the stomach are aspirated (inhaled) into the airways. This may give a long-standing cough, hoarse voice and irritation of the throat, but without any symptoms of heartburn usually associated with reflux.
Aspiration pneumonia is also more common if there is poor dental hygiene. Bacteria from the mouth can get into the airway and cause infection, so keeping teeth clean and healthy is important.

Some children and adults with severe dysphagia (difficulties with swallowing) may need a feeding tube (either through their nose or their abdominal wall into their stomach or the first part of the bowel) to help prevent aspiration. For others it is important to be in a good seated position when eating, with encouragement to chew carefully, not be in a rush to eat and to avoid eating when tired. Fluid thickeners or special diets may be recommended for some people after an assessment by a speech therapist (they are also experts in swallowing). Some medications can cause a dry mouth, which should also be avoided if there is any difficulty with swallowing, so a medication review by a health professional may be helpful.

More Information

Respiratory Tract Infection

Bronchiolitis

Wheeze and Breathing Difficulties

General Wellbeing, Damp and Mould

Pneumonia

Aspiration Pneumonia, Easy Read

References

1. kcl.ac.uk/ioppn/assets/pdfs/leder/2023-final-updated.pdf

2. ncmd.info/wp-content/uploads/2024/07/NCMD-Learning-disability-and-autism-report_FINAL.pdf

De Lausnay M, Ides K, Wojciechowski M et al (2021) Pulmonary complications in children with Down syndrome: A scoping review. Paediatric Respiratory Reviews 40: 65-72

Illouz T, Biragyn A, Iulita MF et al (2021) Immune Dysregulation and the Increased Risk of Complications and Mortality Following Respiratory Tract Infections in Adults with Down Syndrome. Front. Immunol. 12:621440.

Danopoulos S, Deutsch G, Dumortier C et al. (2021) Lung disease manifestations in Down syndrome American Journal of Physiology-Lung Cellular and Molecular Physiology 321:5, L892-L899

Sanner JRF, Jain K, Williams J, Hurley MN. (2023) Antibiotics for chronic pulmonary infection in children with a neurodisability (neurodevelopmental disorder). Cochrane Database of Systematic Reviews Issue 2. Art. No.: CD013813.



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