

Lung volume recruitment (LVR) bag

Information for children, families and carers

We have given you this factsheet because your child has been given a lung volume recruitment (LVR) bag to help aid and support their breathing as part of their medical treatment. It explains what an LVR bag is, when to use it and what the potential benefits and risks are. We hope it will help to answer some of the questions you may have. If you have any further questions or concerns, please contact us using the details at the end of this factsheet.

What is a lung volume recruitment (LVR) bag?

A lung volume recruitment (LVR) bag is a simple piece of equipment that can help increase the amount of air the lungs take in. An LVR bag is made up of:

- a flexible plastic bag
- a one-way valve
- a filter
- a face mask or a mouthpiece

Why does my child need to use an LVR bag?

An LVR bag can help your child if they have difficulty clearing phlegm from their lungs. For example, if they have a weak cough due to one of the conditions below:

- muscle weakness due to a neuromuscular condition
- a spinal cord injury

How should my child use the LVR bag?

To correctly use the LVR bag, please follow the steps below:

1. Your child will need to get into an upright sitting position with their head supported. Sitting upright is the best position, but your child can also lie down with their head propped up on a pillow.
2. Decide and agree on a non-verbal signal for when your child wants to stop, such as waving their hand or blinking quickly. The reason for this is that your child will find it difficult to talk when they have the face mask on.

3. Check the pressure release valve is working on the bag. To do this, block the face mask or mouthpiece with a clean, gloved hand (this will stop air escaping) and then listen carefully for the sound of air escaping from the pressure release valve. This means it is working.
4. Apply the face mask to your child's face, over their nose and mouth. Make sure there is a good seal and no air is escaping. Your child should then take a breath in while you gently squeeze the bag. This will allow them to take a big, deep breath. Timing is crucial for this step and you may need to practise. Each breath will be 'in' only, as the LVR bag has a one-way valve that will prevent your child from breathing out.
5. You can deliver up to three breaths like this. You should then remove the face mask so your child can have a big cough. If necessary, your child's cough can be manually assisted (we will explain how to do this if necessary). If you hear the pressure release valve being triggered at the end of the second breath, do not complete the third breath.
6. Steps 4 to 5 can be repeated up to four times in one treatment session.
7. Remove the face mask and wash it in warm, soapy water. Then rinse it under clean, running water before leaving it to air dry. This step should be done after each use.

When should my child use the LVR bag?

If your child is well

Your child should take _____ breaths using the LVR bag. Repeat this _____ times per treatment session.

Your child should use the LVR bag _____ times a day.

If your child is unwell (due to a chest infection, for example)

Your child should use the LVR bag as often as they need to throughout the day to clear the phlegm.

Your child **should not** use the LVR bag if:

- the phlegm they produce is stained with blood (contact your GP or NHS 111 for advice immediately if their phlegm is heavily stained with blood)
- they have just eaten (they should wait one hour after eating)
- they are feeling sick or have recently been sick
- they are feeling drowsy
- they are unable to communicate
- they are experiencing chest pain, chest tightness or are wheezy
- they have had surgery to their face, chest or tummy (if this is the case, please contact us for advice before your child uses the LVR bag)

If you are not sure whether your child should use the LVR bag, please contact us for advice first.

Are there any risks?

An LVR bag is a safe treatment if used correctly. However, there are some potential risks if the LVR bag is not used correctly.

Dizziness

If your child begins to feel dizzy, stop using the LVR bag immediately. The dizziness is likely to have been caused by hyperventilation (over breathing) and should improve soon after you stop using the LVR bag.

Overinflation of the lungs

If you do not use the LVR bag correctly, for example, if you use too much force, there is a risk that your child's lungs may become overinflated (when the lungs are larger than normal because of trapped air). Overinflation can cause discomfort, internal bleeding or, in severe cases, a pneumothorax (a collapsed lung). However, if you use the LVR bag as we have shown you, there is a very low risk of this happening.

Chest pain, chest tightness or shortness of breath

Stop using the LVR bag immediately if your child experiences:

- chest pain
- chest tightness
- shortness of breath

If your child experiences any of the symptoms above or pain after using the LVR bag, stop using it and contact us immediately for advice (Monday to Friday, 8am to 5pm).

If your child does not show signs of improvement within five minutes, contact your GP or call NHS **111** for advice.

In an emergency, call **999** or visit your nearest emergency department.

Contact us

If you have any questions or concerns about your child's LVR bag, please contact us.

Children's respiratory physiotherapy team

Telephone: **023 8120 4560** (Monday to Friday, 8am to 5pm)

Email: paedsrespphysio@uhs.nhs.uk

Useful links

www.educationbybreas.com/how-when-and-why-to-use-a-lung-volume-recruitment-bag

If you are a patient at one of our hospitals and need this document translated, or in another format such as easy read, large print, Braille or audio, please telephone **0800 484 0135** or email patientsupporthub@uhs.nhs.uk

For help preparing for your visit, arranging an interpreter or accessing the hospital, please visit www.uhs.nhs.uk/additionalsupport