

Respiratory Care and Management at Home Following Spinal Cord Injury

How can I help reduce healthcare associated infections?

Infection control is important to the well-being of our patients and for that reason we have infection control procedures in place. Keeping your hands clean is an effective way of preventing the spread of infections. We ask that you, and anyone visiting you, use the hand sanitiser available at the entrance to every ward before coming in to or after leaving the ward. In some situations hands may need to be washed at the sink using soap and water rather than using the hand sanitiser. Staff will let you know if this is the case.

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A guide for patients and carers

If you require a translation or an alternative format of this leaflet please call 01296 315828

Respiratory Muscles

Following damage to the spinal cord, the following muscles of respiration (breathing) may be affected if you have a spinal cord injury above T10:

- Diaphragm* It is supplied by C3, 4 and 5.
It is the main muscle responsible for inspiration (breathing in).
- Intercostals* They are supplied by T1 - T11.
These are small muscles that are attached to the ribs and help stabilise the rib cage and assist in inspiration (breathing in) and expiration (breathing out).
- Abdominals* They are supplied by T6 – T12.
They assist in expiration (breathing out).
They work most during forced expiration such as coughing, sneezing, blowing your nose, shouting and choking.
- Accessory* They are supplied by C1 – C8 and a cranial nerve.
These are muscles in the neck. They normally only work to assist breathing during exercise or stress. In high tetraplegics they may become the main inspiratory muscles.

- A simple application of postural drainage is to keep changing position, eg to increase the frequency of turns so that you turn every 2 to 3 hours when you are in bed.
- The best position to lie in depends on the area of the lung affected: the affected area should be uppermost to assist drainage. You could lie on your front, back or on either side. It should be tried for 5 minutes, increasing the time gradually up to 20 minutes. During postural drainage, deep breathing and coughing should be attempted at intervals.
- If your bed has a tilt mechanism, tipping your head down can be very effective. If your bed does not have a tilt mechanism, postural drainage can be achieved using pillows, or by putting blocks under the foot of a light single bed.

Cautions:

Your carer should always stay near you to provide an assisted cough if required, as there is a possibility you could choke on the secretions as they drain.

Head down postural drainage should not be used if:

- The secretions are blood stained*
- You have high blood pressure*
- You have a heart condition*
- You are too short of breath to tolerate it*

- For percussion, the area of chest to be treated is covered with a thin towel for comfort. Your carer then pats your chest using a cupped hand. Clapping should be done at a smooth, even rhythm, for 1 to 2 minutes at a time, with intervals for deep breathing and coughing.
- For shaking or vibrations, your carer may put both hands over the affected area or one hand over the affected area and the other underneath you to provide counter pressure. Your carer then shakes your chest as you breathe out.

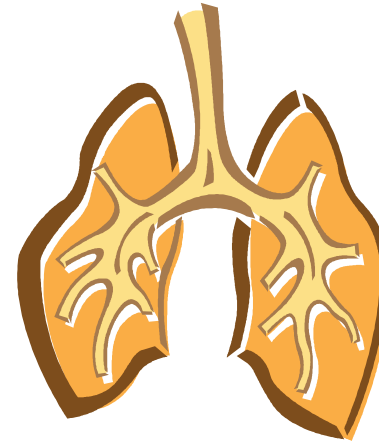
Cautions: *Percussion/shaking should not be used if:*

*Secretions are blood stained
You are very short of breath
You have chest pain
You have broken ribs*

Postural Drainage

This is an easy way of helping you clear excess secretions from your lungs. Secretions accumulate at the lower parts of your lungs because you are upright most of the day. By changing your position, gravity can assist in draining the secretions higher into your chest, so they can be coughed up more easily. This is why you may cough a lot when you first lie down at night.

Weakness or paralysis of these muscles leaves you unable to take a really deep breath, or to cough effectively. Your breathing muscles may get tired more quickly during exercise or when you have a chest infection.



Chest or Lung Secretions

The lining of the lungs is moist with thin clear secretions. Usually people cough without thinking to clear these secretions, which prevents them from collecting. The inability to cough properly will make you more prone to chest problems such as infection. You will be more at risk of chest congestion if you smoke, or when you have a cold or catarrh. If secretions collect in the lungs, they provide a medium for bacteria to grow, possibly resulting in a chest infection.

PREVENTION/TREATMENT OF CHEST PROBLEMS

The following information should be used as a reminder only. You and your carer should have been taught how to care for your chest during your stay in hospital. Discuss having a flu vaccine with your GP every autumn. Contact your GP if your symptoms are severe and persistent or your breathing becomes difficult.

Prevention of Chest Congestion

You can help prevent the collection of secretions in the following ways:

- ***Deep Breathing Exercises***

When deep breathing, you expand more of your lungs than when breathing normally. This extra expansion helps prevent the airways from being blocked with secretions/-mucus or from collapse. To help clear secretions take 4 to 6 deep breaths at a time. Try to hold each breath for 2 or 3 seconds. For maximum benefit do the exercises in a variety of positions such as sitting or alternate lying on your right and left side.

- ***Assisted Coughing***

If you have paralysis of the stomach muscles you will not be able to cough effectively. You and your carer should be taught how to perform an assisted cough. For more information see the separate leaflet on 'Assisted Coughing'.

- ***Blowing Your Nose***

Your ability to blow out forcefully through your nose will also be affected. If this is the case, a 'push' like that used for an assisted cough may be used to clear nasal secretions.

- ***Drinking Fluids***

If you have a heavy cold, avoid smoky atmospheres, and make sure you have plenty to drink as this prevents the secretions becoming too thick.

Treatment of Chest Congestion

If you have a chest infection you may need antibiotics, so please see your GP. The following techniques will help clear chest secretions if they collect in your lungs. These can be provided by your family/carer but on occasions a physiotherapist may be needed to assess and assist you. The frequency and duration of treatment depends on the severity of the infection. 'Little and often' is a good guide. You may tire easily, so hourly or two hourly chest clearances may be needed initially. As your chest improves, treatments can be reduced accordingly.

Percussion (clapping), Shaking and Vibrations

These techniques can be used to help loosen secretions and facilitate their removal.