

Prescribing an Inspiratory Muscle Trainer (IMT) Pressure Threshold Device (Sheffield)

What is IMT?

Inspiratory muscle training is a way of strengthening the muscles that are used to breathe in and is performed whilst seated and therefore can be more appealing to those who fear exercise. To perform the training the person breathes in through a mouthpiece on a handheld device which can be set at different levels to make it more difficult to breathe in. There are two main types of devices; Pressure Threshold devices and Resistance Breathing devices. Only pressure threshold devices are recommended in Sheffield. (For pressure threshold devices a patient has to generate a specific pressure that has been pre-set therefore it is easier to titrate. With a resistance device you could potentially make very little effort and not achieve the optimal training regimen.)

Inspiratory muscle training has been shown to help people with conditions that cause breathlessness such as COPD and heart failure. It increases respiratory muscle strength, respiratory muscle endurance and exercise tolerance¹. After doing the training people have felt less breathless and that they have improved activity levels and better quality of life. Inspiratory muscle training is also recommended in some instances prior to surgery as this may help people recover better.

IMT Pressure Threshold Devices

See [IMT devices table](#) for further information on devices.

Who should initiate IMT?

IMT devices should only be prescribed following recommendation and patient assessment by a physiotherapist specifically trained in the use of the device. They should not be prescribed in response to a direct patient request to a GP as physiotherapist assessment and training is crucial to ensure selection of appropriate patients and maximise benefit from the device. The physiotherapist should specify exactly what is to be prescribed and document the training the patient will receive and details of any review required.

Patients who are housebound can be seen by the Integrated Care Team (ICT) Therapy (refer via SPA). Patients at risk of admission can also be referred via SPA (ICT-Therapy or Active Recovery). Patients who have a consultant should be seen by Respiratory Physiotherapy Outpatients at NGH (refer via Fax (0114 271 4693). This intervention is short term only.

Please note that currently there is no funded respiratory physiotherapy service for patients who do not have a consultant, are not housebound or not at risk of hospital admission. However, physiotherapists are available at the pulmonary rehabilitation sessions and therefore appropriate patients should be encouraged to attend these sessions.

How are IMT devices prescribed?

IMT devices should only be prescribed following recommendation and patient assessment by a physiotherapist specifically trained in the use of the device. Some respiratory physiotherapists are independent prescribers therefore they may prescribe these devices directly to the patients. In other cases, IMT devices will need to be prescribed by the patients GP at the request of a suitable
Prepared by Deborah Leese (Lead Pharmacist Respiratory NHS Sheffield CCG) and
Kate Kontou (Clinical Specialist Physiotherapist Sheffield Teaching Hospitals)

trained physiotherapist. They do not feature in the BNF but can be found in the Drug Tariff within the appliances section.

The frequency and intensity of use of the IMT device will be individually tailored by the physiotherapist.

Cleaning and replacement

Cleaning of the device should be as per the manufacturer's instructions.

Patients should inspect their device for wear and tear and replace as required if this poses a risk. As IMT is an intervention used to improve respiratory function for a set duration i.e. after a breathing retraining programme patients are unlikely to require a replacement. IMT is not a replacement for physical activity, the aim is to get people to the point of being able to be more physically active.

Patient Self Purchase

Some patients may purchase these devices themselves. We do not advocate this, and patients should not use these devices unless they have been assessed and trained by an appropriate health care professional.

Contraindications

- History of spontaneous pneumothorax
- Incomplete recovery from a traumatic pneumothorax
- Pulmonary hypertension or large bullae on chest x-ray
- Recent abdominal surgery
- Abdominal hernia
- Acute asthma
- Asthma patients who have low symptom perception and suffer from frequent, severe exacerbations or with an abnormally low perception of dyspnoea
- Known recently perforated eardrum or other condition of the ear
- Unstable angina
- Bullous emphysema
- Osteoporosis with history of rib fracture
- Ventricular dysrhythmias
- Cerebral/cerebrovascular event or myocardial infarction within the last two months
- Patients with marked elevated left ventricular end-diastolic volume and pressure
- Patients with worsening heart failure signs and symptoms after RMT / IMT
- Costochondritis
- Desaturation during or following IMT (<94%)

Cautions

Anyone under the age of 16 should only use IMT devices with supervision from an adult.

If a patient is suffering from a cold, sinusitis or respiratory tract infection they should not use IMT until symptoms have disappeared.

If patients feel dizzy whilst using IMT they should pause until recovered and take longer gaps between breaths.

Pain on use

Patients should feel resistance when using IMT devices, but it should NOT be painful. Patients should be advised to stop immediately if they experience pain and consult their GP practice.

Some users may experience slight ear discomfort when using IMT devices, especially if they are recovering from a cold. This is caused by inadequate equalisation of pressure between the mouth and the ears. If symptoms persist, patients should consult their doctor.

Annual review

Practice nurses should be informed if a patient has an IMT device so that this can be addressed at the patient's annual review. At the review the patient should be asked if they are still using the device. Whether it is still fit for purpose? (Do they need a new one?) and whether they need any further support for using their device. If further support is required, the patient should be referred via the appropriate route if eligible ([as documented above](#)) or referred back into pulmonary rehabilitation.

STH patient leaflet



<https://publicdocuments.sth.nhs.uk/pil4164.pdf>

1. Larson JL, Kim MJ, Sharp JT, Larson DA: Inspiratory muscle training with a pressure threshold breathing device in patients with chronic obstructive pulmonary disease (abstract). Am Rev Resp Dis 1986;133:A100.

Prepared by Deborah Leese (Lead Pharmacist Respiratory NHS Sheffield CCG) and
Kate Kontou (Clinical Specialist Physiotherapist Sheffield Teaching Hospitals)

Date: September 2022

Review: September 2027

IMT Pressure Threshold Devices			
Device	Cost	PIP code	Additional Information
<p>Powerbreathe Medic</p>  <p><i>Search "Powerbreathe" in clinical system</i></p>	£17.90	232-1040	Large therapeutic range with adjustable load setting range More suitable mouthpiece
<p>Phillips Threshold IMT</p>  <p><i>Search "Threshold" in clinical system</i></p>	£11.50		Adjustable pressure levels

Prices from Drug Tariff Jun 22