Issue date October 2010

**Understanding NICE guidance**

**Information for people who use NHS services**

National Institute for Health and Clinical Excellence

# Stabilising a flail chest wall with metal reinforcements

*NICE 'HealthTech guidance' advises the NHS on when and how new procedures can be used in clinical practice.*

This leaflet is about when and how metal reinforcements can be used in the NHS to treat people with a flail chest wall. It explains guidance (advice) from NICE (the National Institute for Health and Clinical Excellence).

This HealthTech guidance makes recommendations on the safety of a procedure and how well it works. An interventional procedure is a test, treatment or surgery that involves a cut or puncture of the skin, or an endoscope to look inside the body, or energy sources such as X-rays, heat or ultrasound. The guidance does not cover whether or not the NHS should fund a procedure. Decisions about funding are taken by local NHS bodies (primary care trusts and hospital trusts) after considering how well the procedure works and whether it represents value for money for the NHS.

NICE has produced this guidance because the procedure is quite new. This means that there is not a lot of information yet about how well it works, how safe it is and which patients will benefit most from it.

This leaflet is written to help people who have been offered this procedure to decide whether to agree (consent) to it or not. It does not describe flail chest or the procedure in detail – a member of your healthcare team should also give you full information and advice about these. The leaflet includes some questions you may want to ask your doctor to help you reach a decision. Some sources of further information and support are on page 6.

## What has NICE said?

There are only a few studies on insertion of metal reinforcements to stabilise a flail chest wall. However, in each study the procedure has been shown to work well. In addition, there are no major safety concerns with this procedure for patients who have had trauma with reduced lung function.

Therefore, NICE has decided that this procedure can be offered routinely as a treatment option for people with flail chest provided that doctors are sure that:

- the patient understands what is involved and agrees to the treatment, and
- the results of the procedure are monitored.

A healthcare team who are experienced in the management of flail chest should decide which patients should have this procedure. The team should include critical care specialists, chest physicians and thoracic surgeons with specific training in the procedure.

## Metal reinforcements for flail chest

*This procedure may not be the only possible treatment for flail chest. Your healthcare team should talk to you about whether it is suitable for you and about any other treatment options available.*

The medical name for this procedure is 'insertion of metal rib reinforcements to stabilise a flail chest wall'.

The procedure is not described in detail here – please talk to your specialist for a full description.

This procedure is for people with flail chest, a condition usually caused by trauma in which several rib fractures allow a section of the chest wall to move independently and interfere with normal breathing. A machine

to help with breathing (ventilator) may be needed until the broken ribs have healed.

The procedure aims to reduce time spent on a ventilator and to avoid complications like pneumonia and persistent pain. The procedure is carried out with the patient under general anaesthetic. Cuts are made to expose the loose ribs needing treatment. The affected ribs are repaired with metal reinforcements attached with screws or wires.

## What does this mean for me?

NICE has said that this procedure is safe enough and works well enough for use in the NHS. If your doctor thinks metal reinforcements are a suitable treatment option for you, he or she should still make sure you understand the benefits and risks before asking you to agree to it.

### You may want to ask the questions below

- What does the procedure involve?
- What are the benefits I might get?
- How good are my chances of getting those benefits? Could having the procedure make me feel worse?
- Are there alternative procedures?
- What are the risks of the procedure?
- Are the risks minor or serious? How likely are they to happen?
- What care will I need after the operation?
- What happens if something goes wrong?
- What may happen if I don't have the procedure?

## Summary of possible benefits and risks

*You might decide to have this procedure, to have a different procedure, or not to have a procedure at all.*

Some of the benefits and risks seen in the studies considered by NICE are briefly described below. NICE looked at 7 studies on this procedure.

### How well does the procedure work?

In a study of 37 patients, 4 of 18 treated by the procedure developed pneumonia within 3 weeks compared with 17 of 19 treated by mechanical ventilation. Average length of stay in critical care was 16.5 days in the treatment group and 26.8 days in the ventilation group. Average lung capacity at 12 months (as measured by the volume of air inhaled in 1 second) was 96% of normal in the treatment group and 80% in the ventilation group. Eleven patients treated by the procedure returned to full-time employment within 6 months, compared with only 1 of the patients treated by ventilation.

A study of 66 patients treated by the procedure reported that 26 of the 50 patients available at 6-month follow-up had normal lung function.

As well as looking at these studies, NICE also asked expert advisers for their views. These advisers are clinical specialists in this field of medicine. The advisers said that looking at how well the procedure works should include survival, time spent on a ventilator, long-term stabilisation of chest wall, reduced pain and patient satisfaction.

### Risks and possible problems

In a study of 42 patients treated by the procedure, no deaths were reported in the 32 patients without lung damage. Three of the 10 patients with lung damage died: 2 from severe bleeding and 1 from sepsis with multiple organ failure.

In 2 studies of 66 and 23 patients, persistent pain was reported in 6 of 57 patients and 5 of 21 patients available at 6-month and 3-month

follow-up respectively. Removal of the metal rib reinforcements and screws at 6 months helped ease the pain in 5 patients.

As well as looking at these studies, NICE also asked expert advisers for their views. These advisers are clinical specialists in this field of medicine. The advisers said that possible problems include movement or fracture of the reinforcements, lung injury caused by the implants, loosening or separation of screws, infection and metal allergy.

## More information about chest wall injury

NHS Choices (www.nhs.uk) may be a good place to find out more. Your local patient advice and liaison service (usually known as PALS) may also be able to give you further information and support. For details of all NICE guidance on chest wall injury, visit our website at www.nice.org.uk

## About NICE

NICE produces guidance (advice) for the NHS about preventing, diagnosing and treating different medical conditions. The guidance is written by independent experts including healthcare professionals and people representing patients and carers. They consider how well an interventional procedure works and how safe it is, and ask the opinions of expert advisers. This guidance applies to the whole of the NHS in England, Wales, Scotland and Northern Ireland. Staff working in the NHS are expected to follow this guidance.

*To find out more about NICE, its work and how it reaches decisions, see www.nice.org.uk/aboutguidance*

*This leaflet is about 'insertion of metal rib reinforcements to stabilise a flail chest wall'. This leaflet and the full guidance aimed at healthcare professionals are available at www.nice.org.uk/guidance/HTG234*

*You can order printed copies of this leaflet from NICE publications (phone 0845 003 7783 or email publications@nice.org.uk and quote reference N2325). The NICE website has a screen reader service called Browsealoud, which allows you to listen to our guidance. Click on the Browsealoud logo on the NICE website to use this service.*

*We encourage voluntary organisations, NHS organisations and clinicians to use text from this booklet in their own information about this procedure.*

**National Institute for Health and Clinical Excellence**
MidCity Place, 71 High Holborn, London, WC1V 6NA; www.nice.org.uk

ISBN 978-1-4731-8238-7
N2325 1P Oct 10