

# Guidelines for postoperative Incentive Spirometry

Pulmonary complications have a significant impact on morbidity and mortality after major abdominal and pelvic surgery. Causes are multifactorial and include the following:

- Effects of anaesthesia
- Abdominal distension
- Restricted breathing due to pain and diaphragmatic dysfunction
- Obesity
- History of smoking
- Prolonged supine position
- Postoperative narcotic analgesia

The most common postoperative respiratory complication, atelectasis, manifests with low grade fever (first 48 hours after the procedure), malaise and diminished breath sounds in the lower lobes. If appropriate measures are not taken, it may lead to pneumonia. Breathing exercises aimed at maximising inspiratory effort are the most beneficial to prevent respiratory complications.

Pulmonary complications can have serious consequences including prolonged hospital stay, higher healthcare costs and negative health outcomes.

Incentive spirometry is a prophylactic breathing therapy used to reduce this risk.

Although there is limited evidence, the following best practice should be used to teach and guide patients correctly.

## The following outlines best practice:

1. If possible, sit up straight or lean forward. It may be helpful for the patient to sit on the edge of a chair or bed to promote optimal lung expansion while using the spirometer.
2. Instruct the patient to exhale, letting all the breath out. Ask the patient to close their lips around the mouthpiece of the spirometer.
3. Instruct the patient to inhale slowly, breathing in until unable to do so any more (slow breathing prevents or minimises pain from sudden pressure changes in the chest).
4. Ask the patient to hold the breath for 2-3 seconds then exhale slowly. This is considered a key step while using an incentive spirometer as holding breath and slowing exhalation helps to maintain maximal inspiration and reduces the risk of progressive collapse of individual alveoli. Nurses need to stress the importance of this step to patients and ensure they follow it correctly; if not, patients may assume breathing in through the spirometer is enough to prevent complications.
5. Take out the mouthpiece and breathe out slowly. Relax and breathe normally for a few seconds.
6. Repeat steps 1 through 5 for a total of 10 times every hour. If the patient starts to feel lightheaded or dizzy, they should slow down their breathing and give themselves more time between the deep breaths.
7. After they have completed the 10 deep breathing exercises, it is very important that they take a deep breath and cough to clear the mucus from their lungs.

## Important points for patients:

If you have had surgery on your chest or stomach, support your incision by holding a pillow or folded blanket firmly against your incision. This will provide support and decrease the pain you may feel when you cough.

Pain control is important when you do breathing exercises with the incentive spirometer. If you are in pain, tell your nurse. It is harder to take a deep breath if you are having pain.

Keep the incentive spirometer within reach so you will remember to use it as directed.

## Key point:

The incentive spirometer should be used every hour and 10 breaths should be taken at each use.