Health Professional Manual

Session: Airway Clearance

➤ Cleaning Mechanism of the lungs
➤ Airway Clearance Techniques

Adapted from the “Living Well with COPD” program (2nd edition), Montreal Chest Institute, Canada for Pulmonary Rehabilitation Programmes in Northern Ireland – 2011.
AIRWAY CLEARANCE
SESSION SUMMARY

Education Plan and Methods
Session Length: 15 minutes

• Working Phase
  2. Airway Clearance.
     2.1 Airway Clearance: benefits. Interactive lecturing.
     2.2 Airway Clearance Techniques and Devices. Demonstration and practice.
  3. Summary of the session and assessment of participants’ understanding and self-efficacy. Group discussion.

• Closing of the session

Human Resources

1. One health professional (recommended facilitator: physiotherapist)

Living Well with COPD™ for Pulmonary Rehabilitation Resources

1. Patient Information Booklet (Pages 31 to 33)
2. Key messages: Airway Clearance
3. Educational Posters:
   • Normal Lung
   • Airway Clearance: Techniques and Devices
   • Airway Clearance: Active Cycle of Breathing Technique

Additional Resources

1. Board / Flipchart
2. Airway Clearance devices
   • Prior to the session, ask participants to bring their own airway clearance devices
   • Bring example devices for demonstration purposes

Environment

1. Use a quiet and comfortable room for 10 to 15 people. Ensure proper ventilation.
2. Place the chairs in semi-circle around the facilitator.

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AIRWAY CLEARANCE
GROUP INTERVENTIONS FOR EACH PHASE OF THE SESSION

Introduction

- Presentation of the Facilitator.
- Outline the goals of this session.
- Review the key messages from the last session and link them to this session.

Working Phase – Educational Interventions

Note to the facilitator: This education session is designed to provide patients with an overview of the benefits of airway clearance and to introduce them to one airway clearance technique, the Active Cycle of Breathing Technique.

There are a number of other airway clearance techniques and devices available. No one technique/device has been demonstrated to be superior to others and so the choice of technique and/or device should be individualised.

Patients who are suitable should be referred to a physiotherapist for individualised sessions to establish their most appropriate technique and/or device. This session should be used to identify such patients.

1. Cleaning Mechanism of the lungs

1.1 PRESENTATION OF THE CLEANING MECHANISM OF THE LUNGS

Present this section in an Interactive Way

Use the poster “Normal Lung” to support your teaching.

1.1.1 Present to the participants an overview of the self-cleaning mechanism of the respiratory system.
AIRWAY CLEARANCE
GROUP INTERVENTIONS FOR EACH PHASE OF THE SESSION

Suggested script for the facilitator:

Our airways have a very good self-cleaning system:

1. Every time you breathe, air is drawn into your lungs – along with dust and pollutants.
2. Many of these particles are trapped inside your nose, and other smaller particles stick on tiny layers of mucous in your airways.
3. Mucous secretions move up to your trachea by tiny hairs called cilia, and then move further up top your throat.
4. Once in your throat, mucous is then swallowed or removed by coughing.
5. This process prevents particles from reaching the lower airways and doing damage to your bronchi and alveoli.

When you have COPD, your airways can be blocked with thick, sticky mucous or sputum. Not only does this make it harder for you to breathe, it also provides a breeding ground for infections. Clearing your chest, therefore, is important, because it helps to remove sputum from your lungs.
2. Airway Clearance

2.1 AIRWAY CLEARANCE: BENEFITS

Present this section in an Interactive Way

2.1.1 Evaluate the existing knowledge of participants with respect to airway clearance.

Suggested questions:
- Did you know that some breathing techniques could help to clear your lungs?
- How can learning to cough properly help you breathe better and save your energy?

2.1.2 Explain the benefits of airway clearance.

Suggested script for the Facilitator:

A regular, hacking cough, will not clear your chest well. There is a proper way of clearing your chest, just as there is a proper way of breathing.

Goal:
- To remove sputum from your lungs while using less effort.

Benefits
1. May help to prevent infections caused by increased sputum in your lungs.
2. May reduce shortness of breath caused by sputum blocking your airways.

Points to remember
- Avoid coughing in small fits.
- It is important to save energy.
- Every person with COPD produces different amounts of sputum. Some people may need to use these breathing techniques more often than others to clear their airways, for example, every day. Other people may not have much sputum to clear and may only need to use these techniques when they have a chest infection.

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2.2 AIRWAY CLEARANCE TECHNIQUES AND DEVICES

Use the poster of “Airway Clearance: Techniques and Devices” to support your teaching.

2.2.1 Evaluate the techniques that patients are using to clear their chests.

Suggested question:
• Do you use any techniques to clear sputum from your chest? If yes, what do you do and how often?

Suggested script for the Facilitator:
There are a number of airway clearance techniques and devices available to help you clear sputum from your chest. A physiotherapist can help you identify which airway clearance technique works best for you. If you would like to have a one-to-one session with a physiotherapist please speak to a member of the pulmonary rehabilitation team.

Note to the facilitator: Please consider referring the following patients to a physiotherapist for one-to-one assessment and instruction:
1. Patients who have a chronic productive cough and/or evidence of mucus plugging on High Resolution Computed Tomography (HRCT).
2. Patients with a non-productive cough who may need to use an airway clearance technique during exacerbations, or who may need to minimise an irritating non-productive cough.

Use the poster of the “Active Cycle of Breathing Technique” to support your teaching.

2.2.2 Present to the participants the steps of the Active Cycle of Breathing Technique.

Suggested script for the Facilitator:
The Active Cycle of Breathing Technique is a useful technique that you can use to clear sputum from your airways. It can be done in any position, for example sitting or lying on your side – you need to try the different positions to find what best works for you. Contact your physiotherapist if you wish to have a one-to-one session to help you find out what best works for you. The Active Cycle of Breathing Technique makes it easier to clear your chest by getting air behind the sputum and moving it closer to the throat.
AIRWAY CLEARANCE
GROUP INTERVENTIONS FOR EACH PHASE OF THE SESSION

Steps:

1. Get into a comfortable position.

2. Place a hand on your stomach and take several relaxed normal-sized breaths keeping your shoulders and neck relaxed. You should feel your hand gently rise and fall with every breath.

3. Next breathe in slowly and deeply through your nose feeling your lower chest expand, then breathe out. Do this 3-4 times.

4. Repeat steps 2 and 3.

5. Proceed to the Huffing technique below.

2.2.3 “Huffing” technique

Present to the participants the goals, benefits and steps of the “Huffing” technique.

Suggested script for the Facilitator:

Goals:

• To remove sputum from the lungs while using less effort.
• To save energy.
• To prevent infections caused by an increase of sputum in your lungs.

Benefits:

1. Conserves your energy by helping to remove sputum with an efficient technique
2. May help to prevent infections caused by an increase of sputum in your lungs.

Steps:

1. Seat yourself in a comfortable position.

2. Lean your head slightly forward.

3. Place both feet firmly on the ground.

4. Breathe in through your nose.

5. Breathe out in a short, non-forceful burst while keeping your mouth open, as if you were trying to make mist on a window.

6. Repeat once or twice.

7. Return to relaxed breathing again.

Repeat the cycle until you feel you have no sputum left to cough up.

Points to remember

• Huffing can be used as part of the Active Cycle of Breathing Technique. Huffing can also be used to check if there is any sputum in your airways that needs to be cleared.

Have participants practice the Active Cycle of Breathing Technique including the “huffing” technique in front of you according to the steps. Provide them with constructive feedback and reinforcement on the performance of the
techniques learned.

2.2.4 Present to the participants some useful suggestions to help airway clearance.

Suggested script for the Facilitator:

Here are some more suggestions to help you remove sputum from your airways:

1. Sputum can build up in your airways overnight. You should try to do these breathing techniques each morning.

2. If you feel wheezy when doing these breathing techniques, do them at least 10 minutes after using your short-acting bronchodilator.

3. Repeat these breathing techniques as needed throughout the day, e.g. before going out.

4. Avoid bursts of coughing. This wastes energy and causes shortness of breath.

5. If you have a greater amount of sputum production, repeat the Active Cycle of Breathing Technique until you feel there is no sputum left to cough up.

6. If there is little or no sputum, do not keep trying to cough. You will not get any benefit.
3. Summary of the session and assessment of participants’ understanding and self-efficacy

Evaluate participants’ self-efficacy to clear their airways by using airway clearance techniques and devices.

Use this opportunity to cover the key messages from the session.

Use Attachment 1 (Key messages: Airway Clearance) to support your teaching.

Suggested questions:

- How well do you understand the importance of clearing sputum from your chest regularly?
- How confident are you that you can clear sputum from your chest?

Suggested script for the Facilitator:

- When you have COPD, your airways can be blocked with thick, sticky sputum. This sputum makes it harder to breathe and provides a breeding ground for infections. Therefore it is important to clear your chest to help remove sputum from your lungs.

- Some people may need to clear sputum from their chest more often than others, for example, every day. Other people may not have much sputum to clear and may only need to clear their chest when they have a chest infection.

- There are a number of airway clearance techniques and devices available to help you clear sputum from your chest. A physiotherapist can help you identify which airway clearance technique works best for you. If you would like to have a one-to-one session with a physiotherapist please speak to a member of the pulmonary rehabilitation team.

- Please speak to a member of the pulmonary rehabilitation team if you:
  - Have a lot of sputum to clear every day
  - Have frequent coughing
  - Have frequent exacerbations
If participants feel confident clearing their chest, ask them to continue applying the techniques taught in this session.

If some participants do not feel confident clearing their chest, make sure to refer these participants to their physiotherapist to see them in an individual basis to investigate the reasons and reinforce the use of the techniques taught in this session.

Closing the session

- Answer the questions of the participants.
- **Learning contract:** Ask the participants to review and practice at home the airway clearance techniques taught in the present session and to speak to their physiotherapist if they need guidance and/or want to speak about other airway clearance techniques that are available.
- Evaluate the satisfaction of the participants with regards to the present session.

Note to the facilitator: Inform participants that the key messages from this session are summarised on their key messages sheet and additional information can be found in their information booklets (pages 31 to 33).
Airway Clearance

Key Messages

• When you have COPD, your airways can be blocked with thick, sticky sputum. This sputum makes it harder to breathe and provides a breeding ground for infections. Therefore it is important to clear your chest to help remove sputum from your lungs.

• Some people may need to clear sputum from their chest more often than others, for example, every day. Other people may not have much sputum to clear and may only need to clear their chest when they have a chest infection.

• There are a number of airway clearance techniques and devices available to help you clear sputum from your chest. A physiotherapist can help you identify which airway clearance technique works best for you. If you would like to have a one-to-one session with a physiotherapist please speak to a member of the pulmonary rehabilitation team.

• Please speak to a member of the pulmonary rehabilitation team if you:
  - Have a lot of sputum to clear every day
  - Have frequent coughing bouts
  - Have frequent exacerbations
ACKNOWLEDGEMENTS

Living Well with COPD was developed in coordination with health professional educators on COPD and patients with COPD.

Adaptation from the “Living Well with COPD” program (2nd edition), Montreal Chest Institute, Canada for Pulmonary Rehabilitation Programmes in Northern Ireland – December 2011

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The Living Well with COPD programme for pulmonary rehabilitation has been endorsed by:
The Association of Chartered Physiotherapists in Respiratory Care
The Northern Ireland Regional Respiratory Forum

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