



Managing excessive respiratory secretions in the last days of life

Excessive respiratory secretions result when the person becomes too weak to clear their airways in the last days of life. The associated breathing sounds can be particularly concerning for family/whānau, but they can be reassured that it is not a sign of distress or discomfort. The effectiveness of pharmacological treatments is limited and they do not remove secretions already present, so prioritise reassurance of the family and non-pharmacological interventions.

KEY PRACTICE POINTS:

- In patients with excessive respiratory secretions, non-pharmacological interventions include minor positional changes, e.g. upright position with the patient's head to the side, and regular mouth care, e.g. swabbing secretions that accumulate in the mouth
- Prioritise education and reassurance for the family/whānau; explain the causes of abnormal breathing noises and reassure them that the patient is not in distress or experiencing discomfort
- Pharmacological treatment is usually only considered if the patient is unconscious (or semi-conscious) and the excessive secretions are impacting their care or causing distress for the family/whānau. Adverse effects of treatment are common, e.g. worsening dry mouth, therefore it should be stopped if not effective.
- The first-line pharmacological treatment is subcutaneous hyoscine butylbromide:
 - Glycopyrronium bromide is another treatment option
- If the patient's symptoms do not respond to appropriate treatment, contact the local hospice or palliative care team for advice

This article is part of a series on managing symptoms in the last days of life. It is recommended to read this article in conjunction with the other articles in the series, particularly: **"Navigating the last days of life: a general practice perspective"**.

Excessive respiratory secretions in the last days of life

In the last days of life, excessive respiratory secretions accumulate in the airways when the person no longer has the awareness or energy to clear the fluid.¹ Inspired (and expired) air passes over the secretions that settle in oropharynx, laryngopharynx and bronchi causing vibrations and a crackling noise, sometimes referred to colloquially as the “death rattle”.¹ These sounds can be significantly distressing for the person’s family/whānau as they can be misinterpreted as signs of “drowning” or suffocating.²

Excessive respiratory secretions can be classified as either Type I, caused by salivary secretions or Type II, caused by the build-up of fluid in the lungs.³ Type II fluid retention is often the result of pulmonary disease, e.g. COPD, asthma, bronchitis, bronchiectasis, cystic fibrosis and lung cancer.³ Other contributory factors to excessive respiratory secretions include heart failure, cardiac dysfunction, discontinuation of corticosteroid treatment (for raised intracranial pressure), neuromuscular disorders, e.g. myasthenia gravis, head and neck cancers and brain tumours.³

Management of patients with excessive respiratory secretions

Family/whānau can help with the patient’s positional changes and mouth care, e.g. providing small amounts of fluid or ice chips, applying lip emollients.⁴ Elevating the patient’s upper body in bed and positioning their head to the side may reduce breathing noises.⁴ In most cases, suction is unlikely to be beneficial, and it can increase secretions and damage the oropharynx/laryngopharynx.^{4,5} Swabbing secretions that accumulate in the mouth with a small sponge may provide some relief.³ It may be helpful to suggest background music to mask the breathing sounds if this eases distress for the family/whānau.⁴

Reassure family/whānau that the noises made in response to respiratory secretions are not signs that their loved one is in distress, but a normal part of the dying process.^{2,6} Concepts to explain to the family/whānau include:

- Their loved one no longer has enough energy to swallow or cough up the fluid in their throat (or is not aware they need to due to declining level of consciousness)

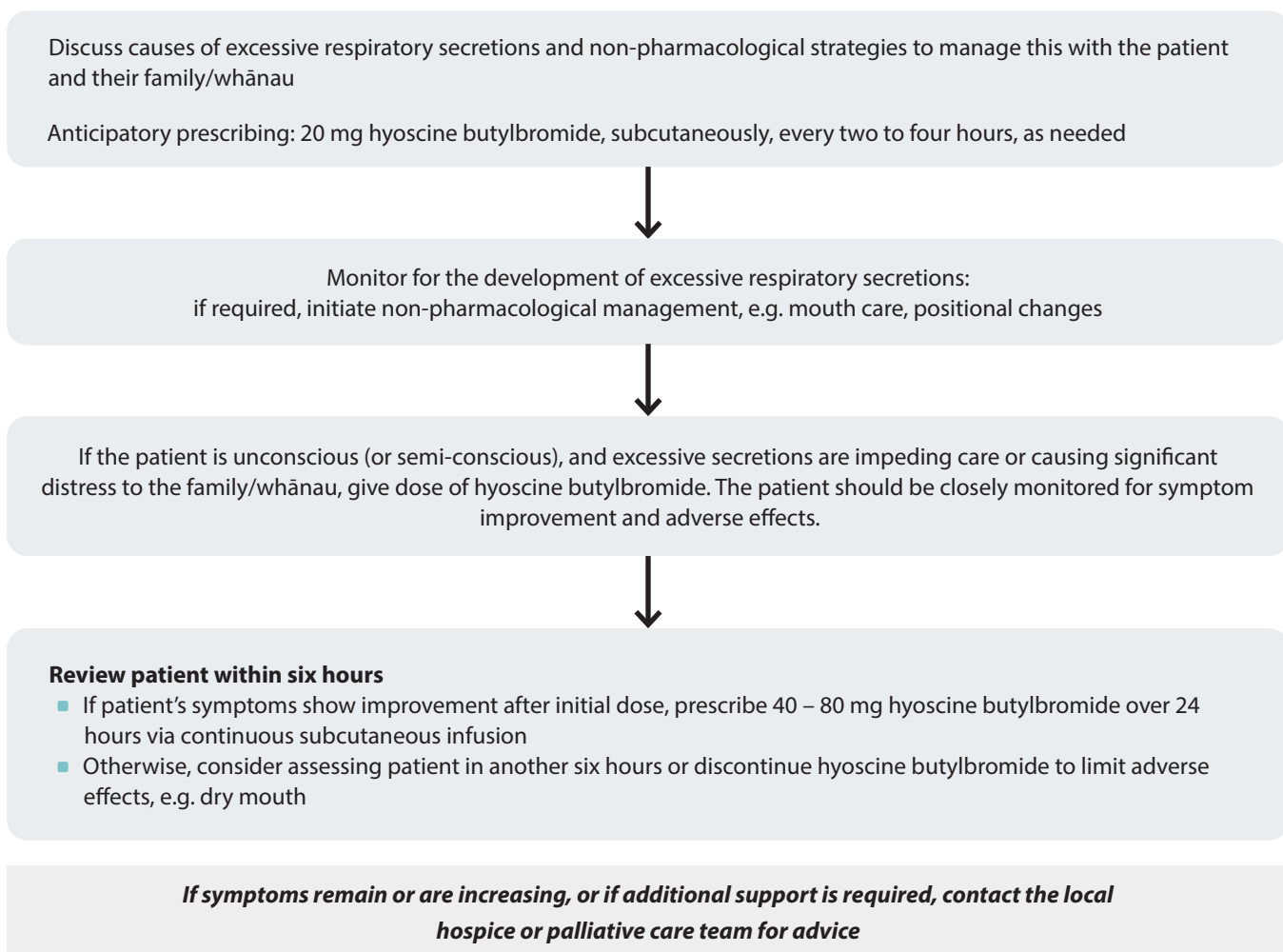


Figure 1. Anticipatory prescribing for patients with excessive respiratory secretions. Adapted from *South Island Palliative Care Workstream, 2020*.⁴

- The noise itself is the sound of air travelling over the pooled fluid (this can be likened to sucking the last of a drink out of a glass with a straw – even small amounts of fluid can make a loud noise)
- Their loved one is not drowning or suffocating
- It often indicates a transition into deep unconsciousness and that death is getting closer
- Medicines will not remove the secretions that are already there; repositioning the person will likely provide more benefit

Support the use of traditional techniques and methods for symptom relief that the patient or their family/whānau want to try if they are unlikely to cause harm, e.g. Rongoā Māori, Ayurvedic or Chinese herbal medicines.

Initiating pharmacological treatment for excessive respiratory secretions

There is limited evidence supporting pharmacological interventions for excess respiratory secretions;² they do not remove secretions already present,⁷ and only reduce the amount of new secretions forming. Therefore, the benefits of pharmacological options need to be weighed against the adverse effects, and in most cases will often only be appropriate if the patient is unconscious (or semi-conscious).

Hyoscine butylbromide (Buscopan; unapproved indication) is the first-line treatment for patients with excessive respiratory secretions in the last days of life.⁵ It reduces secretions due to its anticholinergic action on smooth muscle,⁵ however, this mechanism can also cause adverse effects, e.g. dry mouth, constipation and urinary retention.⁸ Therefore, patients should be regularly evaluated while receiving treatment, and have mouth care prioritised, even if unconscious.

Give 20 mg, subcutaneously, every two to four hours, as needed (maximum 120 mg daily).⁵ Ideally, patients should be reviewed within six hours,⁴ although it may take up to 12 hours to see a therapeutic effect.² Hyoscine butylbromide should be stopped if the patient shows no improvement after 12 hours.² Patients who do show benefit can be switched to a continuous subcutaneous infusion of 40 – 80 mg, hyoscine butylbromide over a 24-hour period.⁴

N.B. Hyoscine *hydrobromide* (Scopoderm TTS) patches are usually avoided in this setting due to a high risk of severe adverse effects, e.g. delirium.⁹

Glycopyrronium bromide is another anticholinergic medicine used to decrease salivary and respiratory secretions.⁹ It is an alternative treatment for excessive respiratory secretions in patients in the last days of life (unapproved indication) if hyoscine butylbromide is not available or appropriate.⁸ Glycopyrronium bromide can be given as 200 micrograms,

subcutaneously, every four hours, as needed.⁹ A continuous subcutaneous infusion of 0.6 – 1.2 mg over a 24-hour period may also be considered in patients who show improvement in symptoms.⁹

Practice Point: Adverse effects of anticholinergic medicines need to be considered in the context of the patient's clinical condition and the goals of treatment; some cautions and contraindications for these medicines may not apply to patients in the last days of life, e.g. bowel obstruction (or paralytic ileus), risk of glaucoma, hypertension, tachycardia. Discussion with the local hospice or palliative care team may help with decision making. N.B. Do not prescribe hyoscine butylbromide and metoclopramide together as they have opposing clinical effects.⁸

Regularly review the patient's ongoing care plan and ensure that interventions are current and still appropriate for the clinical condition of the patient.² In some situations, limiting or stopping hydration may be considered to reduce the impact of pulmonary oedema or respiratory secretions.

Acknowledgement: Thank you to the following experts for review of this article:

- **Dr Kate Grundy**, Palliative Medicine Physician, Clinical Director of Palliative Care, Christchurch Hospital Palliative Care Service and Clinical Lecturer, Christchurch School of Medicine
- **Vicki Telford**, Clinical Nurse Specialist, Nurse Maude Hospice Palliative Care Service, Christchurch
- **Dr Helen Atkinson**, General Practitioner and Medical Officer, Harbour Hospice
- **Dr Robert Odlin**, General Practitioner, Orewa Medical Centre
- **Fraser Watson**, Extended Care Paramedic Clinical Lead, Hato Hone St John



Article supported by Te Aho o Te Kahu – Cancer Control Agency

N.B. Expert reviewers do not write the articles and are not responsible for the final content. bpac^{nz} retains editorial oversight of all content

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www.bpac.org.nz/2023/last-days-of-life/respiratory.aspx

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