

Clinical Resource Guide: Cough Management in Hospice

INTRODUCTION TO COUGH

Cough is a defense mechanism to help clear the airway of debris such as mucus and foreign particles. While generally a protective reflex, cough is a widely experienced hospice symptom that can be distressing and significantly reduce quality of life. Severe, persistent cough can lead to shortness of breath, throat and chest pain, nausea, vomiting, insomnia, and impaired communication. In extreme cases, it may result in syncope, subconjunctival hemorrhage, fatigue fractures of lower ribs, and pelvic hernias. Treatment goals may include reducing cough frequency and severity and improving patient comfort.

Pharmacist Corner Objectives

- 1.) Define classifications of cough
- 2.) Identify common causes and triggers of cough
- 3.) Develop a treatment plan to address productive and non-productive cough while considering both non-pharmacologic and pharmacologic interventions

CLASSIFICATION OF COUGH

Cough can be classified into three main categories:

- Acute: lasts less than 3 weeks
- Subacute: lasts 3-8 weeks
- Chronic: lasts greater than 8 weeks

Cough may be further described as **productive** (“wet” cough that produces sputum or mucus) or **non-productive** (“dry” cough that does not produce mucus). This is an important distinction to consider when determining an appropriate treatment method.

COMMON CAUSES OF COUGH

Table 1.

Common Causes of Cough	
Category	Examples
Allergens	Smoke, dust, pollen, animal dander, cockroaches, feather pillows, mold, mildew
Cardiopulmonary	Heart failure, COPD, interstitial lung disease, asthma, pleural effusion, bronchiectasis, upper airway cough syndrome (postnasal drip)
Infection	Viral or bacterial, bronchiolitis, bronchitis, pneumonia, tuberculosis
Malignancy	Tumor, lung cancer, mesothelioma
Medications	Angiotensin converting enzyme (ACE) inhibitors, antibiotics (aminoglycosides, sulfonamides, amphotericin, erythromycin)
Other	Gastroesophageal reflux (GERD), cold air, exercise, radiation, Tourette syndrome, rheumatic disease

APPROACH TO MANAGING COUGH

After the initial classification and identification of contributing causes, the following steps should be considered when developing a patient-specific treatment plan:

1. Address modifiable causes of cough (e.g., discontinue cough-inducing medications).
2. Consider appropriate nonpharmacologic treatment approaches based on patient needs.
3. Initiate patient-specific pharmacologic therapy if necessary.

NON-PHARMACOLOGICAL MANAGEMENT OF COUGH

- Avoid known triggers or irritants such as smoke, cold air, or dust.
- Use a humidifier to add moisture to the room.
- Drink plenty of fluids if appropriate based on prognosis and treatment goals.
- Take a hot shower to allow the steam to loosen chest mucus.
- Elevate the head of the bed if GERD is a contributing factor.

Table 2. Pharmacological Management of Cough

PRODUCTIVE COUGH			
Medication	Usual Adult Dose	Common Formulations	Notes
Guaifenesin	200-400mg Q4H or 600mg ER BID	Oral solution: 100mg/5ml Tablets: 200mg, 400mg ER Tablets: 600mg, 1200mg	<ul style="list-style-type: none"> • Expectorant • Recommended for severe, wet cough • May increase fluid in the respiratory tract (avoid if cough reflex diminished) • Encourage hydration • Therapeutic benefit not definitively proven in clinical trials
Nebulized hypertonic saline	1 vial via neb Q4H PRN	3%, 7%	<ul style="list-style-type: none"> • Thins bronchial secretions to ease expectoration • Typically used for severe, chronic, wet coughs
Nebulized acetylcysteine	3-5 mL of the 20% solution or 6-10 mL of the 10% solution via nebulizer TID to QID	10% (100mg/ml), 20% (200mg/ml)	<ul style="list-style-type: none"> • Thins bronchial secretions to ease expectoration • Typically used for severe, chronic, wet coughs
NON-PRODUCTIVE COUGH			
Medication	Usual Adult Dose	Common Formulations	Notes
Hydrocodone/homatropine	5ml Q4H PRN	Oral solution: 5mg-1.5mg per 5ml Tablets: 5- 1.5mg	<ul style="list-style-type: none"> • Suppressant • Initiate a stimulant laxative to prevent constipation • Side effects may include sedation, constipation, nausea
Dextromethorphan	IR: 15-30mg Q6H PRN ER suspension: 60mg BID	Oral solution: 20mg/15ml, 7.5mg/5ml, 10mg/5ml, 15mg/5ml Capsule: 15mg ER suspension: 30mg/5ml	<ul style="list-style-type: none"> • Suppressant • Fewer adverse effects than opioid therapy • Found to be as effective as codeine in multiple studies • Inhibits cytochrome P450 system; caution with drug interactions

NON-PRODUCTIVE COUGH (CONTINUED)			
Medication	Usual Adult Dose	Common Formulations	Notes
Guaifenesin/ dextromethorphan	10ml Q4H PRN 1 tablet BID	Oral solution: 10-100mg/5ml ER tablets: 600- 30mg, 1200- 60mg	<ul style="list-style-type: none"> • Expectorant + suppressant • Inhibits cytochrome P450 system; caution with drug interactions
Guaifenesin/codeine	10ml Q4H PRN	Oral solution: 10-500mg/5ml	<ul style="list-style-type: none"> • Expectorant + suppressant • Side effects may include sedation, constipation, nausea
Hydrocodone/ chlorpheniramine	5ml Q6H ER suspension: 5ml BID	Oral solution: 5-4mg/5ml ER suspension: 10-8mg/5ml ER capsules: 5- 4mg, 10-8mg	<ul style="list-style-type: none"> • Suppressant + antihistamine • Side effects may include sedation, constipation, nausea • Initiate a stimulant laxative to prevent constipation • Monitor for dry mouth, constipation, confusion
Benzonatate	100-200mg TID	Capsules: 100mg, 150mg, 200mg	<ul style="list-style-type: none"> • Anesthetic suppressant • Swallow capsule whole • Side effects may include sedation, headache, nausea
Lidocaine	5ml via nebulizer Q4H PRN	Injection solution: 1% (10mg/ml) 2% (20mg/ml) 4% (40mg/ml)	<ul style="list-style-type: none"> • Anesthetic suppressant • Use preservative free formulation to reduce bronchospasm • Avoid food and beverage for 30-60 minutes to reduce aspiration risk
Pectin	1 lozenge PRN	Various	<ul style="list-style-type: none"> • Demulcent • Multiple formulations available
Honey	5-10ml PRN	Various	<ul style="list-style-type: none"> • Demulcent • Multiple formulations available

PHARMACOLOGICAL MANAGEMENT: CLINICAL PEARLS

1. All opioid analgesics have anti-tussive activity.
2. Opioids are the treatment of choice for severe, distressing cough.
3. Demulcents such as honey or sweet syrups are thought to form a protective barrier to sensory receptors in the throat that mitigate the cough reflex.
4. Anesthetics such as benzonatate desensitize respiratory tract stretch receptors.
5. Expectorants such as guaifenesin work to thin secretions associated with a productive cough to ease expectoration.
6. Antihistamines and anticholinergics are often part of combination elixirs and may be useful if copious secretions are present.

SUMMARY

Cough is a commonly experienced symptom at end of life that can be particularly distressing for patients and family members and may result in a reduced quality of life. In the case of productive cough, treatment should be aimed at helping mobilize secretions and ease expectoration. For non-productive cough, treatment should target reducing the severity and frequency of cough, minimizing complications, and maximizing patient comfort.

References:

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