
NENC AT A GLANCE CONSENSUS GUIDE

MUCOLYTICS IN ADULTS

This is not a clinical guideline but a consensus document collated by the Respiratory Network Medicines Optimisation Group (v1.7) Document Review Date: Oct 2025

What and Why?

Clinical features of long-term respiratory conditions, such as COPD and bronchiectasis, include increased mucous volume and tenacity. Mucolytics primarily breakdown the structure and interaction of mucous molecules resulting in looser, thinner mucous and/or reduced volume, which is easier to expectorate [1,2]. Mucolytic therapy is not first line treatment for excessive and/or tenacious sputum (see page 2) and should not be used to manage acute exacerbations [2]. Mucolytic therapy should be used when clinically indicated and there should be no blanket switching [3,4]. Any treatment changes should be as part of a clinical review with shared decision-making [5].

The North East & North Cumbria (NENC) region has a significantly higher COPD prevalence (2.8%) compared to England (1.9%) [6]. Since 2015, NENC deprivation levels have worsened, contributing to mortality rates for COPD, asthma and pneumonia to be within the worst percentiles (25-75%) compared to the rest of England [7,8]. Mucolytics are recommended as an add-on therapy for COPD, particularly those not taking inhaled corticosteroids may see reasonable improvements in health status [9]. In 2013, bronchiectasis was estimated in 566 women and 486 men per 100,000 with high co-morbid rates for asthma (42%) and COPD (36%), making it one of the three most common chronic respiratory diseases [10,11]. Furthermore, this represents significant economic burden if treated inappropriately and it remains good practice to consider mucolytics as a treatment option after physiotherapy [10,11]. The Long Term Plan (2019) highlights the need for respiratory patients to receive and use the right medications to avoid inappropriate prescribing, polypharmacy, side effects and poor patient outcomes [12, 13, 14].

Nationally, NENC ICB prescribes the most mucolytic items (9.65 per 100,00), compared to the lowest prescribing ICB (2 per 100,00) [15]. Between April '22 and Mar '23, the NENC spend totalled £2.389 million compared to the lowest spend of £48K [15]. April-December 2022, showed both an item (7.8%) and cost (74%) increase with actual prescribing level growth of 235% between 19/20 Q4 and 22/23 Q3 in NENC ICB [16]. Most NENC spend is on carbocisteine (£1.54m) compared to acetylcysteine (£19,561) [16]. Despite a 28% item increase (acetylcysteine) the cost increase was only 1.2% compared to an item growth of 7.7% (carbocisteine) with a 78% cost increase [16].

To improve patient outcomes through disease control and appropriate mucolytic prescribing for each individual patient, with consideration for shared-decision making at each appointment [5].

The Challenge

The Evidence

The Ambition

Sustainability and the Green Agenda

Multimorbidity is increasing and the complexity of modern healthcare often leads to poor prescribing practices. Large amounts of waste and a higher carbon footprint (CF) in primary care contribute to climate change [17, 18, 19]. Furthermore, tackling waste represents opportunity for savings reinvestment and preventing avoidable admissions [17,19].

What is the Link to Health Inequalities?

Climate change has both direct and indirect impacts on health inequalities and those in the most disadvantaged groups (CORE20PLUS5) often have more risk of pollutant exposure and a respiratory diagnosis [20].

1. Understand your local health inequalities
2. Start to address them

[Consider using the NHS Health Inequalities Toolkit](#)
[Health Inequalities from Greener Practice Toolkit](#)

References

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19. DHSC: Good for you, good for us, good for everybody: a plan to reduce overprescribing
20. British Lung Foundation - Lung disease and health inequalities briefing.pdf (blf.org.uk)
21. NICE: COPD Guidelines [NG115]

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1. Considerations Before Drug Treatment

Shared decisions, education for treatment and condition optimisation, which are personalised to the patient, should be considered prior to considering medication [5]:

- Stop smoking advice (All clinicians should complete training on [Very Brief Advice](#) – VBA).
- Educate on the importance of good [oral hydration](#) and advise to increase as appropriate.
- Advice on increasing general physical activity and refer to [Pulmonary Rehabilitation](#) where appropriate.
- Optimise inhaled therapy where applicable and [ensure good inhaler technique](#).
- Refer to a Respiratory Physiotherapist, where available, for Airway Clearance Techniques ([The Active Cycle of Breathing](#)). This [video](#) is also available demonstrating the Active Cycle of Breathing.

Review after 4 weeks, if no symptomatic improvement, consider mucolytic therapy.

2. Drug Choices for New Patients

[Acetylcysteine 600mg effervescent tablets](#)

1. ONE tablet to be taken ONCE a day after a meal. Patients should be advised to take any oral antibiotics two hours before or after Acetylcysteine to avoid interactions.
2. Consider potential drug interactions and contraindications [3]
3. Review after 12 weeks to determine efficacy and patient satisfaction [11, 21].
 - a) **STOP** if no clear benefit with explanation to patient.
 - b) If benefit is seen, place on repeat prescription.
4. Ongoing review as determined by clinical guidelines for specific respiratory condition AND/OR change in clinical condition [11, 21].

[Carbocisteine 375mg oral capsules](#)

1. Start 2.25 g daily in divided doses, then reduce to 1.5 g daily in divided doses, as tolerated by patient at 12 week review.
2. Consider potential drug interactions and contraindications [4].
3. Review after 12 weeks to determine efficacy and patient satisfaction [11, 21].
 - a) **STOP** if no benefit with clear explanation to patient.
 - b) If benefit is seen, place on repeat prescription and ensure patient is taking 1.5g daily in divided doses as maintenance
4. Ongoing review as determined by clinical guidelines for specific respiratory condition AND/OR change in clinical condition [11, 21].

3. Opportunities for Optimising Mucolytic Treatment

There should be no blanket switching. Any medication changes should be as part of a holistic review, with a clinician, ensuring a shared decision-making process is followed giving consideration to the seasonal variation of respiratory conditions [5].

Consider searches on patients on carbocisteine:

- Those on high dose (2.25g) for longer than 12 weeks [21].
- Those on suboptimal dose i.e. anything other than 1.5g daily divided dose [4].
- Those not ordering mucolytics on a regular basis from repeat prescription.

Options following searches and clinical review:

Switch to acetylcysteine to reduce tablet burden.
Optimise carbocisteine prescribing to reduce capsule burden and/or frequency of dosing.
Stop mucolytic therapy if no benefit seen or not tolerated.