

CADTH RAPID RESPONSE REPORT: REFERENCE LIST

# Acetylcysteine for Neuromuscular Disorder Patients Requiring Mucus Secretion Clearance: Clinical Effectiveness and Guidelines

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## Research Questions

1. What is the clinical effectiveness of acetylcysteine instillation for patients with neuromuscular disorders requiring mucus secretion clearance?
2. What are the evidence-based guidelines for acetylcysteine instillation for patients with neuromuscular disorders requiring mucus secretion clearance?

## Key Findings

One evidence-based guideline was identified regarding acetylcysteine instillation for patients with neuromuscular disorders requiring mucus secretion clearance.

## Methods

A limited literature search was conducted by an information specialist on key resources including Medline, Embase, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused Internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were acetylcysteine, mucus secretion and neuromuscular disorders. No search filters were applied to limit retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2014 and December 11, 2019. Internet links were provided, where available.

## Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

**Table 1: Selection Criteria**

<b>Population</b>	Q1,2: Adult patients with one of the following neuromuscular disorders who have an impaired cough and require mucus secretion clearance: Amyotrophic Lateral Sclerosis, Multiple Sclerosis, Muscular Dystrophy, quadriplegia
<b>Intervention</b>	Q1,2: Nebulized acetylcysteine instillation (also known as N-acetylcysteine, mucomyst)
<b>Comparator</b>	Q1: Saline (normal or hypertonic); no treatment; oral acetylcysteine (can be administered through percutaneous endoscopic gastrostomy [PEG] tube) Q2: Not applicable

<b>Outcomes</b>	Q1: Clinical effectiveness (e.g., mucus/secretion clearance, mucus production, airway clearance, dyspnea index, health-related quality of life) and safety (e.g., requirement for antibiotics, mortality, admission to hospital) Q2: Evidence-based guidelines for the appropriate use of Nebulized acetylcysteine
<b>Study Designs</b>	Health technology assessments, systematic reviews, meta-analyses, randomized control trials, non-randomized studies and evidence-based guidelines.

## Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

One evidence-based guideline<sup>1</sup> was identified regarding acetylcysteine instillation for patients with neuromuscular disorders requiring mucus secretion clearance. No relevant health technology assessments, systematic reviews, meta-analyses, randomized controlled trials or non-randomized studies were identified.

Additional references of potential interest are provided in the appendix.

### Health Technology Assessments

No literature identified.

### Systematic Reviews and Meta-analyses

No literature identified.

### Randomized Controlled Trials

No literature identified.

### Non-Randomized Studies

No literature identified.

### Guidelines and Recommendations

1. Strickland SL, Rubin BK, Haas CF, Volsko TA, Drescher GS, O'Malley CA. AARC Clinical Practice Guideline: Effectiveness of Pharmacologic Airway Clearance Therapies in Hospitalized Patients. *Respir Care*. 2015 Jul;60(7):1071-1077. [PubMed: PM26113566](#)

## Appendix — Further Information

### Previous CADTH Reports

2. N-Acetylcysteine Instillation During Bronchoscopy for Patients Requiring Non-Cystic Fibrosis-Related Mucus Secretion Clearance: A Review of Clinical Effectiveness and Guidelines. (CADTH Rapid response report: summary with critical appraisal). CADTH. 2019: <https://www.cadth.ca/n-acetylcysteine-instillation-during-bronchoscopy-patients-requiring-non-cystic-fibrosis-related>
3. Acetylcysteine for Patients Requiring Mucous Secretion Clearance: A Review of Clinical Effectiveness and Safety. (CADTH Rapid response report: summary with critical appraisal). CADTH. 2019: <https://www.cadth.ca/acetylcysteine-patients-requiring-mucous-secretion-clearance-review-clinical-effectiveness-and>
4. Acetylcysteine for Patients Requiring Secretion Clearance: A Review of Guidelines. (CADTH Rapid response report: summary with critical appraisal). CADTH. 2019: <https://www.cadth.ca/acetylcysteine-patients-requiring-secretion-clearance-review-guidelines>

### Randomized Controlled Trials

#### *Neuromuscular Disease Patients Not Specified*

5. Masoompour SM, Anushiravani A, Tafaraj Norouz A. Evaluation of the Effect of Nebulized N-Acetylcysteine on Respiratory Secretions in Mechanically Ventilated Patients: Randomized Clinical Trial. *Iran Med J Sci*. 2015 Jul;40(4):309-315. [PubMed: PM26170516](#)