

# British Thoracic Society guideline for non-CF bronchiectasis

## i1 Summary of recommendations

### i6 Section 1: Introduction

- Reason for BTS Bronchiectasis Guideline
- Guideline Group members
- How has the Guideline been designed?
- Definition
- Methods
- How common is bronchiectasis in adults and children in the 21st century?
- What are the pathology and underlying causes?
- What is the outlook for these patients?

### i8 Section 2: Background and causes

#### Causes and associations

- What underlying causes and associations should be looked for when investigating a patient with bronchiectasis?
- Congenital defects of large airways
- Foreign bodies and aspiration
- What is the current relevance of previous severe lower respiratory tract infections to patients with bronchiectasis?
- Mycobacterium tuberculosis and opportunist mycobacteria
- Immune deficiency and bronchiectasis
- What is the relationship of other airway diseases to bronchiectasis?
- What is the relationship of bronchiectasis to cystic fibrosis (CF)?
- Which connective tissue disorders are associated with bronchiectasis?
- Inflammatory bowel diseases
- Disorders of ciliary function
- Is  $\alpha_1$ -antitrypsin deficiency a cause of bronchiectasis?
- Yellow nail syndrome
- The upper respiratory tract in bronchiectasis patients

### i13 Section 3: Clinical assessment and investigations

#### Who to investigate for bronchiectasis

- Which children should be investigated for bronchiectasis?
- Which adults should be investigated for bronchiectasis?

## Clinical presentation of bronchiectasis

What are the symptoms and signs of bronchiectasis in children?

What symptoms and signs should be assessed in an adult with bronchiectasis?

## Investigations directed at underlying cause

- Why should the underlying cause of bronchiectasis be established?
- What blood tests should be performed?
- What immunological tests should be done on all patients?
- What are the second-line immunological investigations and when should they be performed?
- When should patients have gastrointestinal investigations?
- When should patients have investigations to exclude CF?
- When should patients have tests of ciliary function? What are the best tests to identify ciliary defects?
- What are the indications for bronchoscopy?

## Radiological investigations

- What are the important modalities for imaging bronchiectasis?
- What is the role of chest x-ray
- What is the role of HRCT?
- What is an optimum HRCT protocol for defining bronchiectasis?
- What are the HRCT features of bronchiectasis?
- Can HRCT identify features of specific causes?
- How are HRCT changes related to lung function?
- How often should radiological investigations be repeated?
- Radiology in children
- What scoring systems should be used for research?

## Sputum microbiology

- Which organisms are isolated from the lower respiratory tract in bronchiectasis?
- How and when should standard microbiology be performed? At what interval should it be repeated?
- When should specimens be sent for mycobacterial culture?

**Lung function tests**

- Which lung function tests should be performed in children?
- Which lung function tests should be performed in adults?
- Is there a role for exercise testing in bronchiectasis?
- Can lung function tests be used to assess response to antibiotic treatment?

**i26 Section 4: Management: principles and general approach**

- General approach and treatment of the specific underlying cause
- Education
- Disease monitoring
- Role of primary care
- Role of nurses
- Multidisciplinary teamworking

**Physiotherapy: airway clearance techniques and exercise**

- Which patients should be taught airway clearance techniques?
- Which airway clearance technique(s) should be taught?
- Active cycle of breathing techniques
- Manual techniques
- Positive expiratory pressure (PEP)
- Oscillating PEP
- Autogenic Drainage
- Test of Incremental Respiratory Endurance/ Resistive inspiratory manoeuvres
- High-frequency Chest Wall Oscillation
- Are adjuncts to airway clearance techniques useful?
- How often should patients carry out airway clearance techniques? How long should an airway clearance session last?
- How soon should the patient be reviewed after the initial assessment?
- What is the role of exercise?

**Airway pharmacotherapy**

- Are mucolytics and hyperosmolar agents of benefit in the long term to patients with bronchiectasis?
- Are bronchodilators of use in bronchiectasis?
- Are inhaled corticosteroids a useful treatment for bronchiectasis?

Are oral steroids indicated in the treatment of bronchiectasis?

Leukotriene receptor antagonists and other anti-inflammatory agents

**i33 Section 5: Management: antibiotic therapy****Defining and managing exacerbations**

Definition of an exacerbation requiring antibiotic therapy

Managing patients with exacerbations

**Use of antibiotics**

Which antibiotic regimen is recommended for exacerbations?

When are combination (dual) antibiotic regimes required?

Do long-term oral antibiotics influence long-term outcome?

Do long-term nebulised antibiotics influence long-term outcome?

Are rotational antibiotics recommended?

Should an attempt be made to eradicate organisms from the lower respiratory tract?

When should opportunist mycobacteria be treated?

**Antibiotic resistance**

What is the impact of long-term antibiotics on antibiotic resistance?

Is there clinical relevance of in vitro antibiotic resistance patterns?

**i39 Section 6: Surgery, complications of bronchiectasis and management of advanced disease**

- Surgery for bronchiectasis
- Massive haemoptysis
- Non-invasive ventilation (NIV)
- Lung transplantation
- Oxygen therapy

**i40 Reference list****i48 Appendix 1 Nebulised and intravenous antibiotics: a practical guide to administration****Nebulised antibiotics**

How do you assess a patient for nebulised antibiotics?

How do you ensure effective delivery of nebulised antibiotic therapy?

What nebuliser equipment should be used for nebulising antibiotics?

- How do you reconstitute antibiotics for nebulisation?
- How should the nebuliser equipment be cleaned and maintained?
- Do nebulised antibiotics pose a health risk to staff or relatives?
- What advice should be given to patients about nebulised antibiotics?

### Intravenous antibiotics

- When should home intravenous therapy be considered?
- Where should the first dose of intravenous antibiotics be administered?
- How should drugs be administered?
- How should aminoglycosides be used in adults?
- What can be done if venous access is poor?

## i51 Appendix 2 Tables

- Table AI(A): Common organisms associated with acute exacerbation of bronchiectasis and suggested antimicrobial agents—adults
- Table AI(B): Common organisms associated with acute exacerbation of bronchiectasis and suggested antimicrobial agents—children
- Table AII(A): Long term oral antibiotic treatments—adults

- Table AII(B): Long-term oral antibiotic treatments for children and adults chronically colonised with *Pseudomonas aeruginosa*
- Table AIII: Causes of bronchiectasis
- Table AIV: Studies of lower respiratory tract microbiology in patients with bronchiectasis
- Table AV: Antibiotic studies for exacerbations treated in hospital: adults
- Table AVI(A): Oral antibiotic studies used in stable bronchiectasis—adults
- Table AVI(B): Oral antibiotic studies used in stable bronchiectasis—children
- Table AVII(A): Studies of nebulised antibiotics in patients with stable bronchiectasis—adults
- Table AVII(B): Studies of nebulised antibiotics in patients with stable bronchiectasis—children
- Table AVIII: Nebulised antibiotics

## i58 Appendix 3 Audit criteria and research questions

- Audit criteria
- Research questions

## i58 Appendix 4 Contributors

- Web appendix
- Contacts