# The European Respiratory Society guideline for management of adult bronchiectasis: clinical summary

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Shareable abstract (@ERSpublications)
**A practical case-based approach to implementing the ERS 2025 bronchiectasis guideline for adults.** https://bit.ly/4saneE5

**Cite this article as:** Chalmers JD, Sibila O, Cortina BH, *et al*. The European Respiratory Society guideline for management of adult bronchiectasis: clinical summary. *Breathe* 2026; 22: 260001 [DOI: 10.1183/20734735.0001-2026].



Received: 5 Jan 2026
Accepted: 17 Feb 2026

## Abstract

This review provides an overview of the 2025 European Respiratory Society guidelines for adult bronchiectasis. We cover the initial assessment of patients with bronchiectasis to identify the underlying cause, pharmacotherapy including long-term oral and inhaled antibiotic treatment, anti-inflammatory treatments and mucoactive drugs, and non-pharmacological treatments including airway clearance and pulmonary rehabilitation. We provide examples of how to implement the guideline algorithms in practice including how to manage patients during an acute exacerbation and the deteriorating patient. An important component of the new guideline is assessing patients' future risk of exacerbation, which takes into account not just prior history of exacerbations, but also severity of baseline symptoms and additional risk factors such as the underlying cause of bronchiectasis and infection with pathogens like *Pseudomonas aeruginosa*. The guideline provides an evidence-based framework for identifying the appropriate treatments for individual patients taking into account the heterogeneity and complexity of bronchiectasis.

## What is the aim of the guideline?

Bronchiectasis is a common inflammatory lung condition defined by the presence of permanent dilation of the bronchi and a characteristic clinical syndrome [1–6]. Bronchiectasis has a high burden on patients and on the healthcare system [7]. It is a highly heterogeneous condition with multiple causes and contributing factors, and presents with a wide range of symptoms and severities [8, 9]. Many patients experience cough and sputum production, and are at high risk of recurrent exacerbations [10, 11].

Bronchiectasis was historically neglected, with limited research and no common standard of care. Although regional and some national guidance has been available in the past, the first guidelines from an international society were issued by the European Respiratory Society (ERS) in 2017 [12]. Most recommendations were conditional and based on a low or very low certainty of evidence. International registries show a high degree of variation in clinical characteristics and patient management between regions of Europe, and across the world [13–16]. This probably reflects the absence of robust randomised controlled trials and clear recommendations from international guidelines.

There has been substantial progress in recent years with an increase in randomised controlled trials and extensive data from large registries that have informed changes in how bronchiectasis is managed [17]. This is reflected in new recommendations and changes in the certainty of evidence and strength of recommendations between 2017 and 2025.

The aim of the new guideline is to improve the management of patients with bronchiectasis globally. The major burden of the disease is related to daily symptoms, often of cough and sputum production but also breathlessness, fatigue and pain, and to exacerbations, in which patients experience acute worsening of symptoms. Exacerbations are strongly linked to future morbidity and mortality. Reducing exacerbations, improving daily symptoms and preventing disease progression are key goals. The aim of this summary is to provide practical advice on how to implement the 2025 guideline recommendations into clinical practice.

## Underlying causes of bronchiectasis and initial assessment

Investigating for underlying causes and associated conditions is critical at first diagnosis and should also be repeated when patients deteriorate or have a significant change in clinical status [18]. This is because some disorders, such as immunodeficiency, allergic bronchopulmonary aspergillosis (ABPA), nontuberculous mycobacterial (NTM) infection and cystic fibrosis among others, have specific disease modifying treatments [19–21]. The 2025 ERS guideline algorithm for investigation is reproduced in figure 1. A balance is sought in the guideline between comprehensive investigation and cost-effectiveness, since some investigations are expensive or have a low pick-up rate, therefore, it makes sense for these to be reserved for those patients most likely to test positive. The basic investigations have a high pick-up rate since up to 10% of patients are reported to have immunodeficiency, ABPA and NTM, and the investigations are not prohibitively expensive. Box 1 illustrates a scenario of how to use clinical history to direct investigation.

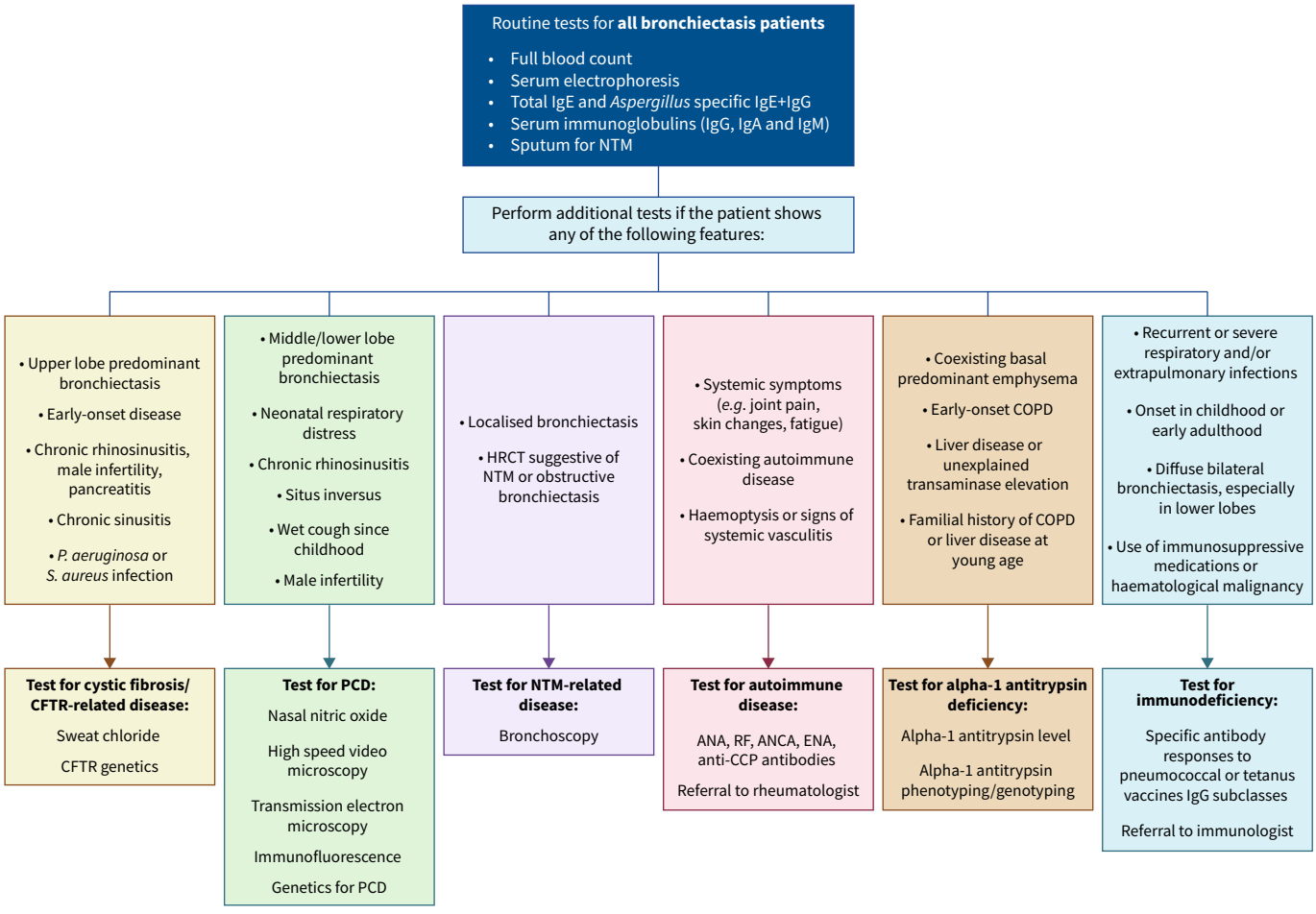


**FIGURE 1** Investigating for underlying causes and associated conditions. Reproduced from [18] with permission. NTM: non-tuberculous mycobacteria; *P. aeruginosa*: *Pseudomonas aeruginosa*; *S. aureus*: *Staphylococcus aureus*; HRCT: high-resolution computed tomography; CFTR: cystic fibrosis transmembrane conductance regulator; PCD: primary ciliary dyskinesia; ANA: antinuclear antibody; RF: rheumatoid factor; ANCA: anti-neutrophil cytoplasmic antibody; ENA: extractable nuclear antigen; CCP: cyclic citrullinated peptide.

**BOX 1 Testing for underlying causes**

*Case study*

A 41-year-old man presents with a productive cough, which he has had since his mid-teens, and is experiencing two exacerbations per year. His sputum is purulent. Forced expiratory volume in 1 s is 59% predicted on baseline post-bronchodilator spirometry. A sputum culture reveals *Pseudomonas aeruginosa*. He has no children and has been diagnosed as infertile. In terms of comorbidities he has severe rhinosinusitis for which he takes nasal steroids and has regular nasal irrigation. A computed tomography scan shows bilateral cylindrical and varicose bronchiectasis affecting the lower lobes and middle lobe/lingula. Normal situs. There is extensive mucus plugging and bronchial wall thickening.

*Management according to the 2025 ERS guidelines for adult bronchiectasis*

Applying the algorithm in figure 1 we would perform the basic investigations, but would also identify that the patient has features in the first two boxes from the left with early onset disease, rhinosinusitis, infertility and *P. aeruginosa* infection. Patients with onset of symptoms in childhood have a genetic condition until proven otherwise. A sweat test and genetic testing for cystic fibrosis revealed a normal sweat chloride and no clinically relevant cystic fibrosis transmembrane conductance regulator mutations. The patient was investigated for possible primary ciliary dyskinesia according to the recently published ERS/American Thoracic Society 2025 guideline [22]. Nasal nitric oxide was low and high-speed video microscopy, electron microscopy and genetic testing confirmed a diagnosis of primary ciliary dyskinesia.

### *Airway clearance*

All existing clinical guidelines and reviews agree that airway clearance is the cornerstone of current therapy for people with bronchiectasis, although it is underutilised [23–25]. The 2025 ERS guidelines reflect this by providing a strong recommendation that all patients with bronchiectasis should be taught

**BOX 2 Applying the treatable traits approach in clinical practice**

*Case study*

A 71-year-old woman presents for a second opinion. She has had a diagnosis of idiopathic bronchiectasis for several years with cylindrical, bibasal bronchiectasis on computed tomography (CT). She also has moderate emphysema. She is an ex-smoker with a 30-pack-year smoking history. The CT shows moderate mucus plugging. Her forced expiratory volume in 1 s is 61% predicted with an obstructive ratio. She has poor appetite and a current body mass index of 18.1 $kg \cdot m^{-2}$. Sputum culture has grown *Haemophilus influenzae* for several years. She has not had any exacerbations in the past year, but has intractable breathlessness impacting on activities of daily living and significant daily cough. She occasionally experiences episodes of rapid breathing which she describes as “panic attacks”. She rarely produces sputum but oftens feels “congested”. She has not been referred to a pulmonary rehabilitation programme and has not been taught to use airway clearance. Her previous healthcare professional suggested it may not be beneficial as she rarely produces sputum. She has chronic rhinosinusitis which also impacts on her quality of life. She has experienced a previous myocardial infarction and two previous transient ischaemic attacks. She describes feelings of anxiety and low mood. She takes 11 daily medications. From a respiratory point of view she receives an inhaled corticosteroid (ICS)/long-acting β-agonist (LABA) combination and an as required short-acting β-agonist, which she uses more than four times daily at the moment. Her blood eosinophil count is 70 cells per µL.

*Management according to the 2025 ERS guidelines for adult bronchiectasis*

This case study illustrates the complexity and multimorbidity that is common in the adult bronchiectasis population. Patients require careful history taking, investigation and multidisciplinary treatment focused on their own clinical problems. In this case, the most pressing clinical problems are breathlessness, chronic cough and poor quality of life. The 2025 ERS guidelines emphasise the use of the “treatable traits” approach to management of complex patients. In this case, potential treatable traits include:

- Airflow obstruction
- Emphysema
- Exercise deconditioning
- Dysfunctional breathing
- Anxiety and depression
- Poor nutrition with low body mass index
- Mucus plugging
- Difficulty with expectoration/congestion
- *H. influenzae* infection
- Cardiovascular disease/possible left ventricular dysfunction
- Chronic rhinosinusitis
- Polypharmacy

Other common treatable traits in the bronchiectasis population, such as osteoporosis, gastro-oesophageal reflux disease and diabetes, may need to be actively sought. She was referred to pulmonary rehabilitation, which is strongly recommended by the ERS 2025 bronchiectasis guidelines and has been shown to reduce breathlessness and improve exercise capacity. Prior to rehabilitation her ICS/LABA was switched to a LABA/long-acting muscarinic receptor antagonist (LAMA) to optimise bronchodilation in the context of airflow obstruction. ICS was withdrawn as she does not have a diagnosis of asthma and has a low eosinophil count. She is likely to have bronchiectasis/COPD overlap and this is consistent with COPD guidelines as well as bronchiectasis guidelines [26]. A referral to a dietician and calorie supplementation was instituted for her poor nutrition. Nasal irrigation with saline was initiated for rhinosinusitis. She was taught airway clearance techniques based on her mucus plugging on CT and persistent cough, and following review by a specialist physiotherapist was able to expectorate with a significant improvement in her burden of symptoms and quality of life. An echocardiogram was performed showing mild left ventricular systolic impairment and appropriate pharmacotherapy instituted. Her symptoms were therefore multifactorial (airflow obstruction, emphysema, heart failure, anxiety, exercise deconditioning) and improved by a treatable traits approach.

airway clearance techniques [18]. The previous guidelines provided a conditional recommendation based on the low quality of evidence and suggested this should be reserved for patients with symptoms of a productive cough. Box 2 illustrates why some patients who are unable to expectorate or struggle to expectorate may still benefit from airway clearance techniques. The guidelines also emphasise that these interventions should be personalised, that no one technique or device is proven to be superior, and that the intervention is best delivered by a specialist physiotherapist. They also highlight the importance of using these techniques during periods of increased symptoms, such as exacerbations.

### *Pharmacological and non-pharmacological treatment*

Figure 2 reproduces the pharmacological and non-pharmacological treatment recommendations from the ERS 2025 bronchiectasis guideline. There are strong recommendations in favour of long-term macrolide and long-term inhaled antibiotics, the latter for people with *Pseudomonas aeruginosa* infection. There is a strong recommendation for pulmonary rehabilitation and conditional recommendations support *P. aeruginosa* eradication, and inhaled antibiotics for pathogens other than *P. aeruginosa*. The approach taken by the ERS 2025 bronchiectasis guideline is to be highly specific about patient populations in which these treatments should be used, in keeping with the central theme of personalising treatment.

A key novel concept introduced in the guidelines is the idea of individualised risk assessment. Previous guidelines recommended prophylactic antibiotic treatment for patients with three or more exacerbations in the previous year [12]. While simple and easy to implement, this reserves effective treatments for patients with more severe/advanced disease and implies that prior exacerbations are the only relevant predictor of future exacerbations, which is not true [10, 16, 27–29]. The 2025 ERS guidelines list a number of clinical predictors of poor outcome alongside prior exacerbations including aetiology (COPD, primary ciliary

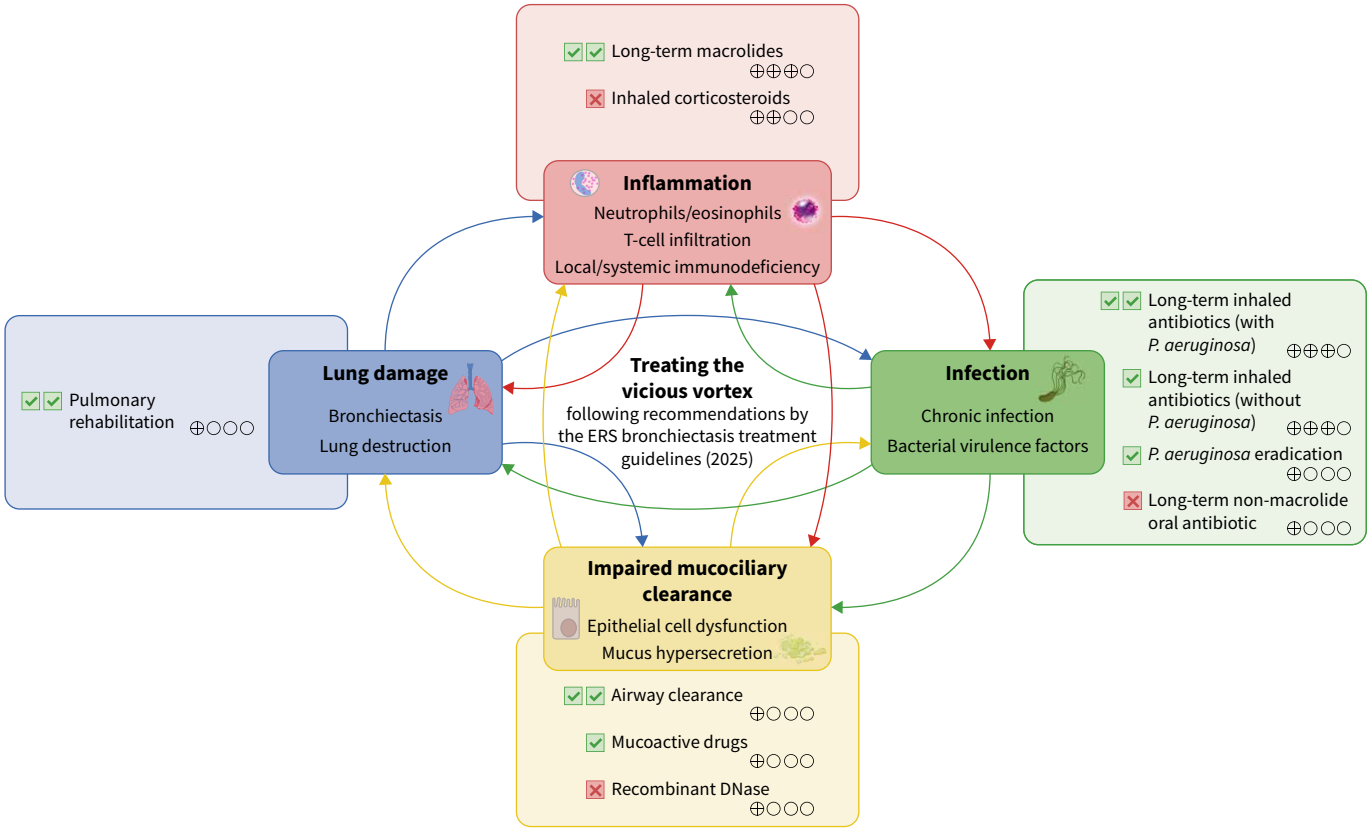


**FIGURE 2** Summary of the therapy recommendations in the 2025 ERS guideline for bronchiectasis in adults. Green indicates treatments that receive a recommendation in favour (two green ticks indicates a strong recommendation for the intervention, one green tick indicates a conditional recommendation for the intervention). Red indicates treatments that receive a recommendation against (a red cross indicates a conditional recommendation against the intervention). The certainty of evidence is indicated by the crossed circles after each topic (1 cross=very low certainty, 2 crosses=low certainty, 3 crosses=moderate certainty, 4 crosses=high certainty). *P. aeruginosa*: *Pseudomonas aeruginosa*. Reproduced from [18] with permission.

dyskinesia (PCD), rheumatoid arthritis), Gram negative infections (particularly *P. aeruginosa*), severe symptoms, sputum purulence, and complications such as NTM and ABPA. This list is not exhaustive and it is anticipated that as bronchiectasis science evolves, other risk factors will be identified [30–32].

In practice this means that a patient with one exacerbation in the past year with *Pseudomonas* infection, PCD and severe daily symptoms will likely have a similar or greater risk than a patient with three exacerbations in the past year who has well controlled symptoms and idiopathic bronchiectasis. While implementing an individualised assessment of risk may seem more complicated than using a single number, this is a familiar concept in medicine – cardiovascular risk assessment includes multiple risk factors (blood pressure, diabetes, smoking, cholesterol, *etc*.) and even relatively simple COPD prescribing incorporates symptoms, exacerbation history and blood eosinophils [26]. Boxes 3 and 4 illustrate this individualised assessment approach.

**BOX 3 A patient with new isolation of *Pseudomonas aeruginosa* and subsequent chronic management**

***Case study***

The 41-year-old patient from box 1, with a confirmed diagnosis of primary ciliary dyskinesia (PCD), two exacerbations in the previous year and *P. aeruginosa* in sputum returns for ongoing management. They have severe daily symptoms with large volume sputum production despite practising regular airway clearance. A review of historical sputum samples shows this is the first time that *P. aeruginosa* has been isolated. Previous sputum cultures include one positive sputum for *Stenotrophomonas maltophilia* and one isolate of *Mycobacterium avium* a year ago, but three other sputum samples for nontuberculous mycobacterial (NTM) were negative.

***Management according to the 2025 ERS guidelines for adult bronchiectasis***

The 2025 ERS guidelines make a conditional recommendation for *P. aeruginosa* eradication in patients with a new isolation, and so this patient was treated with ciprofloxacin 750 mg twice daily for 14 days followed by 3 months of nebulised colistin twice daily. At the end of 3 months sputum samples remained positive for *P. aeruginosa* despite the eradication regimen, but with an excellent symptomatic response to the nebulised colistin and no adverse events. Based on this, he was classified as chronically infected with *P. aeruginosa*. He is considered at high risk of future exacerbations due to two prior exacerbations and severe daily symptoms, and PCD and *P. aeruginosa* infection are additional risk factors. He is therefore an appropriate candidate for either long-term inhaled antibiotic or macrolide treatment. He was maintained on twice daily nebulised colistin. Factors favouring inhaled antibiotics in this case include the excellent tolerance and symptomatic response to the nebulised antibiotics given during eradication, and the prior NTM isolation which would make macrolide treatment less desirable (although the clinical opinion was that the NTM was not clinically relevant, patients with possible active NTM should not receive macrolide monotherapy to avoid inducing resistance). Refractory symptoms despite airway clearance may also be an indication for mucoactive treatments such as hypertonic saline according to the 2025 ERS guidelines, but in this case this was not initiated to avoid excess treatment burden.

**BOX 4 A patient with repeatedly negative sputum cultures and frequent exacerbations**

***Case study***

A 61-year-old woman with a new diagnosis of bronchiectasis affecting the lower lobes and right middle lobe (forced expiratory volume in 1 s of 88% predicted) presents with two exacerbations in the previous year. These required prolonged courses of oral antibiotics due to a poor response to antibiotic treatment. Five sputum cultures have been sent this year, both at the onset of exacerbation and during clinical stability and none have been positive for a pathogen. She has had a review from a specialist physiotherapist to select and teach the most appropriate airway clearance techniques for her, but remains highly symptomatic with thick tenacious sputum.

***Management according to the 2025 ERS guidelines for adult bronchiectasis***

It may be tempting to use the long-term antibiotic algorithm in this case, which would suggest treatment with a long-term macrolide, as the patient does not have *Pseudomonas aeruginosa* infection and is at high risk of future exacerbations. Nevertheless the first step in the algorithm is to identify and treat underlying disorders and to optimise general bronchiectasis management. In this case, *Aspergillus* serology identified a total IgE of >1000 IU·mL$^{-1}$, a raised specific IgE, raised IgG to *Aspergillus* and an eosinophil count of 560 cells per µL. A diagnosis of active allergic bronchopulmonary aspergillosis was made and the patient commenced on appropriate therapy [20]. A long-term macrolide would be the appropriate treatment in this situation if all other aspects of management were optimised and no other causes of recurrent exacerbations were identified.

A common question arising from the guidelines is “how do we define severe symptoms”? The guideline deliberately does not set an arbitrary threshold for this, since risk must be considered in the context of all other information. Nevertheless a useful rule of thumb is that the mean Quality of life bronchiectasis questionnaire score in the EMBARC registry, and at baseline in the recent ASPEN trial was 60 [15, 33]. This equates to a St George’s Respiratory Questionnaire (SGRQ) score of approximately 40 or a Chronic Airways Assessment Test (CAAT) score of approximately 16 across various studies [10]. There are nine questions on the Quality-of-Life Bronchiectasis (QOL-B) Respiratory Symptom Scale. As an example, if a patient reports that they have congestion, cough and sputum production “a moderate amount”, report a yellowish-green sputum colour, and “sometimes” experience shortness of breath, wheezing and chest pain, but never experience shortness of breath on talking or waking through the night coughing, they would have a score of 59.3 (the average symptom burden in large global populations) [10, 15, 33]. Therefore,

more severe symptoms requires patients to experience maximum frequency for congestion/coughing/sputum production, more severe symptoms for the less frequent manifestations like chest pain, wheezing or shortness of breath, and to have brown, green or blood-stained sputum. If using an objective scoring system like QOL-B, a score of 60 or lower can be considered moderate-to-severe symptoms and 40 or lower considered severe symptoms. Using the SGRQ a score of 40 or more is moderate-to severe symptoms, and 60 or more equates to severe symptoms. Using the CAAT this equates to a score of 16 (moderate) and 24 (severe). These are not guideline recommendations, but provide some context to identify patients most at risk.

An important consideration for clinical practice is to understand what a strong and conditional recommendation mean, and what is intended by the guideline. Conventionally from a patient perspective a strong recommendation means that "all or almost all informed people would choose the recommended choice" while a conditional recommendation means that "most informed people would choose the recommended course of action, but a substantial number would not". From a clinician's point of view a strong recommendation indicates that "most patients should receive the recommended course of action" while a conditional recommendation "recognises that different choices will be appropriate for different patients" and emphasises shared decision making [34, 35].

A strong recommendation for airway clearance therefore recognises that given the evidence most patients would choose to be taught these techniques, and clinicians believe most patients should receive airway clearance. A conditional recommendation would require a belief that "a substantial number of patients should not receive airway clearance", which is not the case in the opinion of the panel. Three patients from the EMBARC/European Lung Foundation patient advisory group participated in the panel and played an

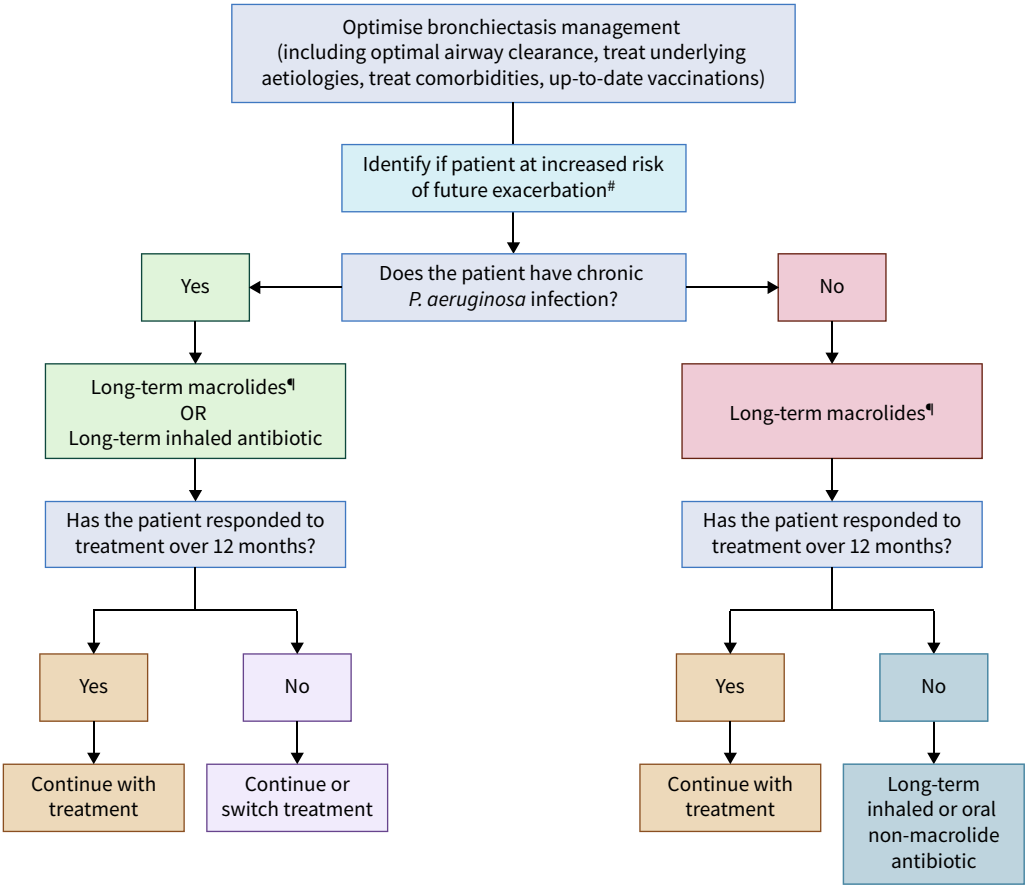


**FIGURE 3** Long-term macrolide and inhaled antibiotic treatment algorithm. #: patients at high risk of future exacerbation if experiencing ⩾2 exacerbations per year, 1 exacerbation per year plus severe symptoms, or ⩾1 severe exacerbation requiring hospitalisation per year; ¶: following exclusion of non-tuberculous mycobacteria. *P. aeruginosa*: *Pseudomonas aeruginosa.* Reproduced from [18] with permission.

important role in endorsing strong recommendations for therapies with a high likelihood of benefiting their fellow patients.

For the pharmacotherapy recommendations it is important to understand that recommendations are made in specific circumstances. A strong recommendation for macrolides or inhaled antibiotics does not imply that all patients should receive these therapies (figure 3). Rather it implies that most or all patients who are considered to be at high risk of exacerbation despite standard care, and who have no contraindications to these therapies, should be treated. A conditional recommendation for these therapies in these circumstances would imply that a significant number of patients would not be treated, even after recognising that they are high risk of exacerbation, have no contraindications to treatment and have optimised other aspects of management. This explains the reasoning for the panel's approach.

### *Managing acute exacerbations*

Perhaps the area of bronchiectasis care with the least evidence is the management of acute exacerbations. The 2025 ERS guidelines recommend a sputum sample is sent at the onset of an exacerbation if possible, and antibiotics administered guided by prior microbiology. Antibiotics are typically prescribed for 14 days, but the guideline suggests shortening this to 7–10 days if patients have antibiotic sensitive organisms or patients respond quickly to treatment. Patients should have a self-management plan and know how to recognise exacerbations and what to do when they have exacerbations.

### *The deteriorating patient*

A new narrative recommendation in the 2025 guideline is the "RAPID" algorithm for the management of the deteriorating patient. Those caring for patients with bronchiectasis should recognise that patients who have an increase in the severity or frequency of exacerbations, a marked deterioration in symptoms, or a rapid loss of lung function should be considered to be deteriorating and should undergo further investigations (box 5). There are a large number of potential causes of deterioration, commonly including acquisition of new infections (particularly *Pseudomonas* and NTM), ABPA and new comorbidities, including those that are not bronchiectasis related.

**BOX 5 Deteriorating symptoms and lung function**

***Case study***

A 66-year-old woman with a 10-year history of bronchiectasis related to rheumatoid arthritis, affecting all lobes, presents with worsening cough. Over the past year her symptoms have greatly worsened. Her lung function has dropped from 69% predicted to 58% predicted in 1 year, having been stable previously. She has not had any courses of antibiotics this year. Her long-term treatment is oral *N*-acetylcysteine, a long-acting β-agonist (LABA)/long-acting muscarinic receptor antagonist (LAMA) inhaler, and regular daily airway clearance techniques. She is markedly more breathless on daily activities and experiencing severe fatigue. She is having difficulty expectorating and has been unable to provide a sputum sample for culture. She has had no recent changes to her rheumatoid arthritis medications (etanercept).

***Management according to the 2025 ERS guidelines for adult bronchiectasis***

This patient has deteriorating symptoms and lung function and so requires investigation and treatment according to the RAPID algorithm.

- R: recognise and refer – the patient should be identified as a deteriorating patient and referred to a bronchiectasis specialist.
- A: assess, the history and physical examination is described above. Adherence to airway clearance and pharmacological treatment is assessed and signs of a new complication are sought.
- P: perform. A review of airway clearance by a specialist respiratory physiotherapist is performed. A new high-resolution computed tomography of the chest is performed and shows extensive inflammatory changes with mucus plugging in all lobes. As a sputum culture is not possible due to difficult expectoration, a bronchoscopy is performed with samples sent for conventional microbiology, acid-fast bacilli and fungi. Serology for allergic bronchopulmonary aspergillosis is repeated.
- I: initiate. Conventional microbiology was negative, but bronchoscopy mycobacterial culture was positive for *Mycobacterium avium* complex. The patient was diagnosed with nontuberculous mycobacterial pulmonary disease as a cause of her deterioration and initiated on therapy with rifampicin, ethambutol and azithromycin with clinical benefit.
- D: deal with complications. The patient was followed-up, side-effects of medications were managed and lung function and symptoms progressively improved.

The deteriorating patient algorithm is one of a number of significant changes in the 2025 ERS guidelines and table 1 summarises some of the key changes impacting on clinical management.

### *Issues not addressed in the 2025 guidelines*

GRADE (Grading of Recommendations Assessment, Development, and Evaluation) based guidelines are never comprehensive and cannot cover every aspect of a complex disease like bronchiectasis, although the guideline through its narrative questions covers substantially more ground than the previous ERS guideline

**TABLE 1** Selected major changes in the guidelines between the 2017 and 2025 European Respiratory Society (ERS) clinical practice guidelines for adult bronchiectasis

| Topic | Changes between 2017 and 2025 |
|---|---|
| **Testing for the underlying cause of bronchiectasis** | Testing for NTM is now recommended in all patients, whereas in 2017 it was for selected patients based on clinical features. Detailed guidance on when to use other investigations is provided in 2025 with an algorithm which was not used in 2017. |
| **Risk assessment and comorbidities** | Individualised risk assessment and recommendations around investigation and management of comorbidities and treatable traits are new and were not included in 2017. |
| **Airway clearance** | Conditional (weak) recommendation in 2017 is a strong recommendation in 2025. The wording of the recommendation reflects that training in ACTs should be offered to all patients not just those with "chronic productive cough or difficulty to expectorate". |
| **Bronchodilators and surgery** | Addressed in 2017 but not addressed in 2025. |
| **Inhaled antibiotics** | Conditional (weak) recommendation in 2017 is strong in 2025 for use in patients with *P. aeruginosa*. The threshold to commence therapy has changed from three or more exacerbations per year to an individualised assessment of future risk incorporating daily symptoms and other risk factors. Inhaled antibiotics were first line for *P. aeruginosa* in 2017 and are instead equal first line with macrolides in 2025. |
| **Long-term macrolides** | Conditional (weak) recommendation as first line in patients without *P. aeruginosa* and second line for *P. aeruginosa* in 2017. In 2025 this has changed to a strong recommendation and first line in both populations. Threshold to commence therapy has changed from three or more exacerbations per year to an individualised assessment of future risk incorporating daily symptoms and other risk factors. New algorithm for use. |
| **Long-term oral non-macrolide antibiotics** | Conditional (weak) recommendation in favour of use as second-line treatment in 2017 changed to a conditional recommendation against use in 2025. Still appropriate for selected patients where other treatments have been tried and are ineffective. |
| **Management of exacerbations** | 2017 guidelines recommended a 14-day course of antibiotics as standard for exacerbation but did not provide detailed guidance on management. The 2025 guidelines offer much broader guidance on investigation and management of exacerbations including duration of antibiotic treatment, and suggest 14 days remains appropriate but provides a number of clinical scenarios where shorter courses may be appropriate. |
| **Investigation and management of the deteriorating patient** | This section of the guideline is completely new since 2017. |

NTM: non-tuberculous mycobacteria; *P. aeruginosa*: *Pseudomonas aeruginosa*; ACT: airway clearance technique.

or other GRADE-based documents. The 2017 guidelines included a weak recommendation to use bronchodilators in patients with significant breathlessness and made a recommendation against surgery with the exception of patients refractory to medical management and with localised disease. These recommendations remain valid and are to some extent covered in the deteriorating patient algorithm which also provides recommendations on topics such as referral for lung transplantation assessment [12].

A new ERS guideline was recently commissioned to cover anti-inflammatory therapies including the new DPP1 (dipeptidyl peptidase 1) inhibitor class of drugs that has recently been licensed in Europe but was not at the time of publication of the 2025 guidelines [33, 36, 37].

## *Conclusion*

Full details of the recommendations of the 2025 ERS guidelines and the evidence underpinning these recommendations is available through the source publication [18]. This clinical guide is designed to assist clinicians in operationalising the guideline.

Conflict of interest: J.D. Chalmers reports grants or contracts from AstraZeneca, Chiesi, Genentech, Gilead Sciences, GlaxoSmithKline, Insmed, Grifols, Trudell, Verona and Boehringer Ingelheim, and consulting fees from AstraZeneca, Biomx, Chiesi, CSL Behring, Expedition, GlaxoSmithKline, Insmed, Grifols, Boehringer Ingelheim, Pfizer, Sanofi/Regeneron and Zambon. O. Sibila and B. Herrero Cortina have no conflicts of interest to disclose. M.B. Long has received consulting fees from Grifols. S.H. Chotirmall declares grants or personal fees from Boehringer Ingelheim, Chiesi, Inovio and Pneumagen. S. Aliberti has received research grants from Insmed, Chiesi, Takeda and Fisher & Paykel, and received consultancy or speaker fees from GSK, Insmed, Zambon, AstraZeneca, CSL Behring GmbH, Menarini and MSD Italy.

Support statement: No funding declared.

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