



Journal of the British Thoracic Society

**Impact Factor:** 8.272

**Editors-in-Chief**

N Hart (UK)  
G Jenkins (UK)  
AR Smyth (UK)

**Deputy Editors**

N Kaminski (USA)  
M Rosenfeld (USA)

**Associate Editors**

D Baldwin (UK)	J-L Pepin (France)
R Chambers (UK)	M Polkey (UK)
T Coleman (UK)	J Quint (UK)
GJ Criner (USA)	N Rahman (UK)
J Davies (UK)	K Robinson (USA)
A Floto (UK)	S Shaheen (UK)
M Griffiths (UK)	R Stevens (USA)
L Heaney (UK)	A Vonk Noordegraaf (The Netherlands)
N Hopkinson (UK)	C Wainwright (Australia)
S Janes (UK)	T Wilkinson (UK)
B Kampman (UK)	P Wolters (USA)
B Mhokelesi (USA)	
P O'Byrne (Canada)	

**Statistical Editors**

A Douiri (UK)  
C Flach (UK)  
C Jackson (UK)  
S Stanojevic (USA)  
R Szczesniak (USA)  
B Wagner (USA)  
Y Wang (UK)

**Journal Club Editor**

P Murphy (UK)

**President, British Thoracic Society**

Professor E Chilvers

**Editorial Office**

Thorax, BMA House, Tavistock Square,  
London WC1H 9JR, UK  
T: +44 (0)20 7383 6373  
E: [thorax@bmj.com](mailto:thorax@bmj.com)

Twitter: @ThoraxBMJ

ISSN: 0040-6376 (print)

ISSN: 1468-3296 (online)

**Disclaimer:** Thorax is owned and published by the British Thoracic Society and BMJ Publishing Group Ltd, a wholly owned subsidiary of the British Medical Association. The owners grant editorial freedom to the Editor of Thorax.

Thorax follows guidelines on editorial independence produced by the World Association of Medical Editors and the code on good publication practice of the Committee on Publication Ethics.

Thorax is intended for medical professionals and is provided without warranty, express or implied. Statements in the Journal are the responsibility of their authors and advertisers and not authors' institutions, the BMJ Publishing Group Ltd, the British Thoracic Society or the BMA unless otherwise specified or determined by law. Acceptance of advertising does not imply endorsement.

To the fullest extent permitted by law, the BMJ Publishing Group Ltd shall not be liable for any loss, injury or damage resulting from the use of Thorax or any information in it whether based on contract, tort or otherwise. Readers are advised to verify any information they choose to rely on.

**Copyright:** © 2017 BMJ Publishing Group Ltd and the British Thoracic Society. All rights reserved; no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of Thorax.

Thorax is published by BMJ Publishing Group Ltd, typeset by Exeter Premedia Services Private Ltd, Chennai, India and printed in the UK on acid-free paper.

Thorax (ISSN No: 0040-6376) is published monthly by BMJ Publishing Group and distributed in the USA by Air Business Ltd. Periodicals postage paid at Jamaica NY 11431. POSTMASTER: send address changes to Thorax, Air Business Ltd, c/o Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA.

ii1 Summary of recommendations and good practice points

**Section 1: Introduction**

ii6 Background  
ii6 Target audience for the guideline  
ii6 Groups covered within the guideline  
ii6 Groups not covered  
ii6 Scope of the guideline

**Section 2: Methodology**

ii6 Clinical questions and literature search  
ii6 Appraisal of literature  
ii6 Considered judgement and grading of evidence  
ii7 Drafting the guideline  
ii7 Declarations of interest  
ii7 Guideline Development Group Members  
ii7 Stakeholder organisations

**Section 3: Epidemiology of NTM-pulmonary disease**

ii8 Background  
ii8 Epidemiology  
ii8 Risk factors for NTM-pulmonary disease

**Section 4: What is the evidence for transmission of NTM between individuals?**

ii9 Evidence summary  
ii9 Recommendation

**Section 5: How should the lung disease attributable to NTM infection be defined?**

ii10 Evidence summary  
ii10 Recommendation  
ii10 Good practice point

**Section 6: What samples should be used to detect pulmonary NTM infection?**

ii10 Evidence summary  
ii11 Recommendations  
ii11 Good practice points

**Section 7: What microbiological tests should be used to detect NTM in respiratory samples?**

ii11 Evidence summary  
ii12 Recommendations  
ii12 Good practice point

**Section 8: What microbiological tests should be used to speciate and type NTM from respiratory samples?**

ii12 Evidence summary  
ii13 Recommendations

**Section 9: Does *in vitro* DST predict response to antibiotic treatment in people with NTM-pulmonary infection?**

ii13 Evidence summary  
ii13 Recommendations  
ii14 Good practice points

**Section 10: What investigations should be performed in individuals suspected of having NTM-pulmonary disease?**

ii14 Evidence summary  
ii14 Respiratory tract cultures  
ii15 Recommendations  
ii15 Good practice points  
ii15 Radiology  
ii15 Recommendation  
ii15 Computed tomography  
ii16 Recommendation  
ii16 Other investigations  
ii16 Recommendations

**Section 11: What factors influence when NTM treatment should be started?**

ii16 Evidence summary  
ii16 Microbiology  
ii17 Clinical characteristics  
ii17 Serology  
ii17 Summary

**MORE CONTENTS ►**



This article has been chosen by the Editors to be of special interest or importance and is freely available online.



This article has been made freely available online under the BMJ Journals Open Access scheme. See <http://authors.bmj.com/open-access/>



This journal is a member of and subscribes to the principles of the Committee on Publication Ethics

<http://publicationethics.org/>



When you have finished with this magazine please recycle it.

- ii17 Recommendations
- ii17 Good practice point

---

### Section 12: What antibiotic regimen should be used to treat NTM-PD?

---

#### Section 12a: What antibiotic regimen should be used to treat MAC-pulmonary disease?

- ii17 Evidence summary
- ii19 Recommendations
- ii19 Good practice points

---

#### Section 12b: What antibiotic regimen should be used to treat *M. kansasii*-pulmonary disease?

- ii19 Evidence summary
- ii20 Recommendations
- ii20 Good practice points

---

#### Section 12c: What antibiotic regimen should be used to treat *M. malmoense*-pulmonary disease?

- ii20 Evidence summary
- ii20 Recommendations
- ii20 Good practice points

---

#### Section 12d: What antibiotic regimen should be used to treat *M. xenopi*-pulmonary disease?

- ii21 Evidence summary
- ii21 Recommendations
- ii21 Good practice points

---

#### Section 12e: What antibiotic regimen should be used to treat *M. abscessus*-pulmonary disease?

- ii22 Evidence summary
- ii23 Recommendations
- ii23 Good practice point

---

### Section 13: Is there a role for adjuvant therapies in the management of NTM-pulmonary disease?

- ii23 Evidence summary
- ii24 Recommendations

---

### Section 14: What investigations should be performed during treatment or following treatment for NTM-pulmonary disease?

- ii24 Evidence summary
- ii24 Microbiological outcomes

- ii25 Recommendations
- ii25 Good practice point
- ii25 Radiological outcomes
- ii25 Recommendation
- ii25 Good practice point
- ii25 Clinical outcomes
- ii25 Recommendation
- ii25 Good practice point
- ii25 Therapeutic drug monitoring
- ii26 Recommendations
- ii26 Good practice point
- ii26 Monitoring for drug toxicity
- ii26 Recommendations
- ii26 Good practice points

---

### Section 15: Are there differences in outcome between individuals with NTM-pulmonary disease treated in specialist versus non-specialist care settings?

- ii27 Evidence summary
- ii27 Recommendation

---

### Section 16: What is the role of surgery in the treatment of NTM-pulmonary disease?

- ii27 Evidence summary
- ii28 Recommendations
- ii28 Good practice points

---

### Section 17: Does NTM infection affect an individual's suitability for lung transplantation?

- ii28 Evidence summary
- ii29 Recommendations
- ii29 Good practice points

---

### Section 18: NTM drug monograph

- ii30 Amikacin—intravenous
- ii32 Amikacin—nebulised
- ii34 Azithromycin
- ii35 Bedaquiline
- ii37 Cefoxitin
- ii38 Ciprofloxacin
- ii40 Clarithromycin
- ii41 Clofazimine
- ii42 Cotrimoxazole (trimethoprim/sulfamethoxazole)
- ii43 Doxycycline
- ii44 Ethambutol
- ii45 Imipenem
- ii46 Isoniazid
- ii47 Linezolid
- ii49 Minocycline
- ii50 Moxifloxacin
- ii52 Rifabutin

- ii53 Rifampicin
- ii55 Streptomycin
- ii57 Tigecycline

---

## Section 19: Research recommendations

- ii58 NTM epidemiology
- ii58 NTM microbiology
- ii58 NTM treatment

---

## References

### Online appendices

The below documents are available at:

<https://www.brit-thoracic.org.uk/standards-of-care/guidelines/bts-guidelines-for-non-tuberculous-mycobacteria/>

1. Clinical questions and literature search strategy
2. Evidence tables
3. Patient information