

**Cochrane** Database of Systematic Reviews

# **Continuous versus intermittent antibiotics for bronchiectasis** (Review)

Donovan T, Felix LM, Chalmers JD, Milan SJ, Mathioudakis AG, Spencer S

Donovan T, Felix LM, Chalmers JD, Milan SJ, Mathioudakis AG, Spencer S. Continuous versus intermittent antibiotics for bronchiectasis. *Cochrane Database of Systematic Reviews* 2018, Issue 6. Art. No.: CD012733. DOI: 10.1002/14651858.CD012733.pub2.

www.cochranelibrary.com

Continuous versus intermittent antibiotics for bronchiectasis (Review) Copyright © 2018 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.



## [Intervention Review]

# **Continuous versus intermittent antibiotics for bronchiectasis**

Tim Donovan<sup>1</sup>, Lambert M Felix<sup>2</sup>, James D Chalmers<sup>3</sup>, Stephen J Milan<sup>4</sup>, Alexander G Mathioudakis<sup>5</sup>, Sally Spencer<sup>6</sup>

<sup>1</sup>Medical and Sport Sciences, University of Cumbria, Lancaster, UK. <sup>2</sup>Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences (NDORMS), University of Oxford, Oxford, UK. <sup>3</sup>University of Dundee, Ninewells Hospital and Medical School, Dundee, UK. <sup>4</sup>Medical School, Lancaster University, Lancaster, UK. <sup>5</sup>Division of Infection, Immunity and Respiratory Medicine, University of Manchester, Manchester, UK. <sup>6</sup>Postgraduate Medical Institute, Edge Hill University, Ormskirk, UK

Contact address: Tim Donovan, Medical and Sport Sciences, University of Cumbria, Lancaster, UK. tim.donovan@cumbria.ac.uk.

**Editorial group:** Cochrane Airways Group. **Publication status and date:** New, published in Issue 6, 2018.

**Citation:** Donovan T, Felix LM, Chalmers JD, Milan SJ, Mathioudakis AG, Spencer S. Continuous versus intermittent antibiotics for bronchiectasis. *Cochrane Database of Systematic Reviews* 2018, Issue 6. Art. No.: CD012733. DOI: 10.1002/14651858.CD012733.pub2.

Copyright © 2018 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

# ABSTRACT

#### Background

Bronchiectasis is a chronic airway disease characterised by a destructive cycle of recurrent airway infection, inflammation and tissue damage. Antibiotics are a main treatment for bronchiectasis. The aim of continuous therapy with prophylactic antibiotics is to suppress bacterial load, but bacteria may become resistant to the antibiotic, leading to a loss of effectiveness. On the other hand, intermittent prophylactic antibiotics, given over a predefined duration and interval, may reduce antibiotic selection pressure and reduce or prevent the development of resistance. This systematic review aimed to evaluate the current evidence for studies comparing continuous versus intermittent administration of antibiotic treatment in bronchiectasis in terms of clinical efficacy, the emergence of resistance and serious adverse events.

## Objectives

To evaluate the effectiveness of continuous versus intermittent antibiotics in the treatment of adults and children with bronchiectasis, using the primary outcomes of exacerbations, antibiotic resistance and serious adverse events.

#### Search methods

On 1 August 2017 and 4 May 2018 we searched the Cochrane Airways Review Group Specialised Register (CAGR), CENTRAL, MEDLINE, Embase, PsycINFO, CINAHL, and AMED. On 25 September 2017 and 4 May 2018 we also searched www.clinicaltrials.gov, the World Health Organization (WHO) trials portal, conference proceedings and the reference lists of existing systematic reviews.

#### **Selection criteria**

We planned to include randomised controlled trials (RCTs) of adults or children with bronchiectasis that compared continuous versus intermittent administration of long-term prophylactic antibiotics of at least three months' duration. We considered eligible studies reported as full-text articles, as abstracts only and unpublished data.

#### Data collection and analysis

Two review authors independently screened the search results and full-text reports.

#### **Main results**

We identified 268 unique records. Of these we retrieved and examined 126 full-text reports, representing 114 studies, but none of these studies met our inclusion criteria.



#### Authors' conclusions

No randomised controlled trials have compared the effectiveness and risks of continuous antibiotic therapy versus intermittent antibiotic therapy for bronchiectasis. High-quality clinical trials are needed to establish which of these interventions is more effective for reducing the frequency and duration of exacerbations, antibiotic resistance and the occurrence of serious adverse events.

# PLAIN LANGUAGE SUMMARY

#### Are antibiotics more effective when given continuously or intermittently to people with bronchiectasis?

#### Background

Bronchiectasis is an incurable lung disease characterised by repeated chest infections. Antibiotics are a main form of treatment and can be taken long term to prevent chest infections from developing. This could be continuously or intermittently for a fixed period of time. However, we do not currently know which approach is the most effective for reducing the frequency and duration of exacerbations, managing antibiotic resistance and minimising side effects.

#### **Study Characteristics**

On 1 August 2017 we searched a wide range of sources to find clinical trials for our review. We found 268 potentially relevant results but on closer examination none of the studies met our review criteria and none could be included.

#### Authors' conclusions

There is no high-quality evidence about whether continuously administered or intermittently administered antibiotics are safer and more helpful for people with bronchiectasis. More research is needed to evaluate which one of these methods is better for reducing chest infections, limiting resistance to antibiotic therapy and reducing serious side effects.