Selection of studies that addressed PICO-1

In children/adolescents suspected of bronchiectasis:
(a) Should multidetector chest computed tomography (MDCT) scans with high-resolution CT (HRCT) be used instead of conventional HRCT alone for diagnosing bronchiectasis?
(b) What CT criteria for broncho-arterial dilatation (BAR) should be used?

1404 records identified by searchers
- 1300 from original search (included 7 records identified by other sources) (4 March 2019)
- 104 from updated search (8 April 2020)

44 full text retrieved for further evaluation of eligibility

1360 studies excluded (including duplications)
- 25 studies excluded. Reasons:
  - Wrong population (n=2)
  - No relevant outcomes (n=21)
  - Full text unavailable (n=1)
  - Article not in English (n=1)

19 primary studies met inclusion criteria
(17 studies in children and 2 adult studies)

Studies in children (for narrative)
Observational studies (n=17) with some contributing to more than one component
- Change in management (n=9)
- Exacerbation rate (n=1)
- Hospitalisations (n=2)
- Quality of life (n=1)
- Lung function (n=11)
- Studies for sub-question b (n=12)

Studies in adults
Observational studies (n=2) included in quantitative data

Note: All the included studies were from the original search with no additional studies identified from the updated search
Selection of studies that addressed PICO-2

In children/adolescents with bronchiectasis, should asthma-type treatments (inhaled corticosteroids [ICS], short-acting beta₂ agonists [SABA], long-acting beta₂ agonists [LABA]), compared to no asthma-type treatment, be used routinely? Subgroup analyses for (a) short versus long-term and (b) stable versus exacerbation states.

437 abstracts identified by searchers
  • 413 from original search (13 March 2019)
  • 24 from updated search (6 April 2020)

363 studies excluded (including duplications)

74 full text retrieved for further evaluation of eligibility

64 studies excluded. Reasons:
  • Wrong study design (n=19)
  • Background article (n=13)
  • Data in updated Cochrane review (n=10)
  • Unable to obtain full text (n=8)
  • Duplicate (n=5)
  • Clinical trial register (n=5)
  • Wrong outcome (n=3)
  • Article retracted (n=1)

10 studies met inclusion criteria
  (5 primary studies and 1 systematic review that had 7 studies)

3 studies in the systematic review excluded due to wrong outcome

9 primary studies met inclusion criteria
  (5 primary studies and 4 stemming from from the systematic review)

3 studies in adults contributed to data for important adverse events

Studies in children
  • Observational study (n=1)

Studies in adults
  • RCT (n=5) included in quantitative data

Note: All the included studies were from the original search with no additional studies identified from the updated search
**Selection of studies that addressed PICO –3**

In children/adolescents with bronchiectasis, should mucoactive agents (compared to no mucoactive agents) be used routinely? Subgroup analyses for (a) short versus long-term, (b) stable versus exacerbation states, and (c) type of mucoactive agent.

- 203 abstracts identified by searchers
  - 186 from original search (13 March 2019)
  - 17 from updated search (6 April 2020)

- 90 full text retrieved for further evaluation of eligibility

- 113 studies excluded (including duplications)
  - 79 studies excluded. Reasons:
    - Single dose/short term studies (<48-hours) (n=7)
    - Abstracts or letter only with no other published RCT data (n=20)
    - Case reports, background article or reviews (n=24)
    - No mention of mucolytic (n=3)
    - Paper published before 1982 (n=2)
    - Article not in English (n=6)
    - Clinical trial register (n=7)
    - Cochrane review with no new data (n=1)
    - RCT in adults in updated search but did not meet inclusion criteria (n=2)
    - Guidelines with no additional data (n=7)

- 11 studies met inclusion criteria
  - 8 primary studies identified from 3 systematic reviews

- No studies in children

- Studies in adults
  - RCT (n=8) included in quantitative analyses
  - Systematic reviews that informed the analyses (n=3)

**Note:** All the included studies were from the original search with no additional studies identified from the updated search
Selection of studies that addressed PICO-4
In children/adolescents with bronchiectasis, should regular airway clearance techniques (ACT) (compared to no ACT) be undertaken?
Subgroup analyses for (a) short versus long-term and (b) stable versus exacerbation states.

491 abstracts identified by searchers
• 436 from original (4 March 2019)
• 55 from updated search (8 April 2020)

35 full text retrieved for further evaluation of eligibility

456 studies excluded (including duplications)

25 studies excluded. Reasons:
• Wrong population (n=14)
• Data in the systematic review present in more recent systematic reviews (n=8)
• No appropriate control group (n=1)
• RCT in adults (single session) (n=2)

10 studies included in narrative/qualitative synthesis

3 studies in children provided indirect evidence and contributed to narrative synthesis only

Studies in children (n=1)
• RCT n=1
• Observational n=0

Adult-based studies (n=6)
• Data from Guidelines n=3
• Data from other systematic reviews n=2
• Additional RCT from search

Note: All the included studies were from the original search with no additional studies identified from the updated search
Selection of studies that addressed PICO-5
In children/adolescents with bronchiectasis, should systemic courses of antibiotics (compared to no antibiotics) be used to treat an acute respiratory exacerbation (type and duration)?

1364 abstracts identified by searchers
• 1268 from original search (13 March 2019)
• 96 from updated search (8 April 2020)

1339 studies excluded (including duplications)

25 full text retrieved for further evaluation of eligibility

24 studies excluded. Reasons:
• Long-term antibiotics (n=19)
• Background article (n=2)
• Wrong study design (n=3)

1 RCT in children included in quantitative synthesis

Note: The original search identified the protocol which identified the single RCT in children. The updated search identified the same RCT
Selection of studies that addressed PICO-6

In children/adolescents with bronchiectasis, should eradication treatment be used (irrespective of symptoms) when there is a new isolate of a potentially pathogenic microorganism (compared to no eradication treatment)?

1056 abstracts identified by searchers
- 984 from original search (13 March 2019)
- 72 from updated search (9 April 2020)

1011 studies excluded (including duplications)
- 43 studies excluded. Reasons:
  - Study with adult participants (n=18)
  - Participants not recruited due to NEW isolate (n=17)
  - Mixed population (n=1)
  - Non-English publication (=1)
  - Wrong study design (n=3)
  - Systematic review did not contain any new articles (n=3)

45 full text retrieved for further evaluation of eligibility

1 systematic review in adults from 2017 addressed the same PICO question and one primary study

Systematic review search updated (20 August 2019) and all 584 studies identified excluded on basis of title and abstract

2 primary studies in adults from systematic review plus one primary study from updated search

Studies in children
- None identified

Studies in adults
- Observational studies (n=3)

Note: Two of the included studies were from the original search and one additional study identified from the updated search
Selection of studies that addressed PICO-7

In children/adolescents with bronchiectasis and recurrent exacerbations, should long-term (≥2-months) antibiotics (compared to no antibiotics) be used to reduce exacerbations?

1364 abstracts identified from searchers
• 1268 from original search (13 March 2019)
• 96 from updated search (8 April 2020)

1336 studies excluded (including duplications)

28 full text retrieved for further evaluation of eligibility

23 studies excluded. Reasons:
• Short term antibiotics (n=1)
• Background/review article (n=2)
• Wrong study design (n=3)
• Adults only studies (n=8)
• Guidelines or reviews with no additional data (n=9)

RCTs in children included in quantitative synthesis (n=3)
Systematic reviews in children and adults (n=2)

Note: All the included studies were from the original search with no additional studies identified from the updated search
Selection of studies that addressed NQ-1

In children/adolescents with suspected or confirmed bronchiectasis, what standard tests that impact on clinical outcomes should be undertaken when managing this group of patients?

990 abstracts identified by searchers
- 914 from original search (13 March 2019)
- 76 from updated search (9 April 2020)

+ 11 abstracts identified from other sources

928 studies excluded (including duplications)

73 full text retrieved for further evaluation of eligibility

52 studies excluded. Reasons:
- Population not relevant (n=11)
- Outcome not relevant or not reported (n=18)
- Age group not relevant (n=17)
- No original data (n=5)
- Unable to obtain full-text (n=1)

21 observational studies met inclusion criteria

Note: 20 of the included studies were from the original search and one additional study identified from the updated search
**Selection of studies that addressed NQ2**

In children/adolescents is bronchiectasis (a) reversible and/or (b) preventable?

- **459 abstracts identified by searchers**
  - 421 from original search (13 March 2019)
  - 38 from updated search (9 April 2020)

  + **16 abstracts identified from other sources**

  - **436 studies excluded (including duplications)**

  - **39 full text retrieved for further evaluation of eligibility**

  - **25 studies excluded. Reasons:**
    - Population not relevant (n=2)
    - Age not relevant (n=9)
    - Outcome not relevant (n=6)
    - No original data (n=4)
    - Non-English (n=2)
    - Publication before 1982 (n=2)

  - **14 studies met inclusion criteria**

  - **(a) Reversibility (n=6)**
    - Retrospective studies (n=4)
    - Case report (n=2)

  - **(b) Prevention (n=8)**
    - Prospective study (n=1)
    - Retrospective chart review (n=6)
    - Single blind RCT (n=1)

**Note:** 13 of the included studies were identified from the original search and one additional studies identified from the updated search.
Selection of studies that addressed NQ3

In children/adolescents with bronchiectasis, should attention be paid to other paediatric systematic care issues (nutrition, aerobic and non-aerobic exercise, psychological support, equipment care, vaccinations, etc)?

515 abstracts identified by searchers
• 409 from original search (13 March 2019)
• 106 from updated search (15 April 2020)

27 full text retrieved for further evaluation of eligibility

488 studies excluded (including duplications)

13 studies excluded. Reasons:
• Wrong outcome or no data (n=3)
• Background article (n=5)
• Wrong study design (n=5)

14 studies included in qualitative synthesis

Studies in children (n=14)
• RCT n=0
• Observational n=14

Note: 14 of the included studies were identified from the original search and none identified from the updated search
Selection of studies that addressed NQ4
When monitoring children/adolescents with bronchiectasis:
  a. How often should airway microbiology testing be conducted in outpatients?
  b. How frequently should patients be seen in outpatient clinics?
  c. How should cross-infection be minimised?

534 records identified by searchers
- 484 from original search (4 March 2019)
- 50 from updated search (16 April 2020)

13 studies identified from personal files

531 studies excluded (including duplications)

16 full text retrieved for further evaluation of eligibility.

16 studies included in qualitative synthesis.

Studies in children (n=6)
- RCT n=0
- Observational n=6

Studies in adults (n=8)
- RCT n=0
- Scoping review n=1 (6 observational studies, including 1 Abstract)
- Observational n=7

Studies involving both children and adults (n=2)
- RCT n=0
- Observational n=2

Note: 16 of the included studies were identified from the original search. Additional papers identified from the updated search were identified from personal files.
Selection of studies that addressed NQ5
When monitoring children/adolescents with bronchiectasis:
d. Are there any routine tests that should be undertaken to detect complications when attending outpatient clinics?
e. When should repeat chest CT-scans be undertaken?
f. In gradually deteriorating (i.e. non-acute) patients, what investigations should be undertaken?

1122 abstracts identified by searchers
• 1034 from original search (13 March 2019)
• 88 from updated search (16 April 2020)

24 full text retrieved for further evaluation of eligibility

8 studies excluded. Reasons:
• Wrong outcome (n=5)
• Wrong population i.e. adults (n=3)

1098 studies excluded (including duplications)

16 studies included in qualitative synthesis

Studies in children (n=16)
• RCT n=0
• Observational n=16

Note: 16 of the included studies were identified from the original search and none identified from the updated search
Selection of studies that addressed NQ6
In children/adolescents with bronchiectasis, what criteria should be used to define an exacerbation?

382 abstracts identified by searchers
• 355 from original search (13 March 2019)
• 27 from updated search (16 April 2020)

319 studies excluded (including duplications)

63 full text retrieved for further evaluation of eligibility

53 studies excluded. Reasons:
• Wrong population adults only (n=19)
• Exacerbation not defined (n=34)

Studies identified from references or other sources (n=4)

14 studies included in qualitative synthesis

Studies involving children (n=13)
• Published RCTs (n=5)
• Protocol only (n=1)
• PCD consensus documents children and adults (n=2)
• Observational (n=5 of which 2 specifically related to exacerbation criteria)
• Systematic review (n=0)

Study in adults (n=1)
• Systematic review/consensus (n=1)

Note: 14 of the included studies were identified from the original search and none identified from the updated search
Selection of studies that addressed NQ7
In children/adolescents with bronchiectasis, what factors should be taken into account when considering surgical removal of the diseased lung?

482 records identified by searchers
- 464 from original search (4 March 2019)
- 18 from updated search (17 April 2020)

63 full text retrieved for further evaluation of eligibility + n=one study found in systematic review. Total: 64 papers

419 studies excluded (including duplications)
- Wrong population adults only (n=5)
- Wrong outcome or condition (n=5)
- Old review (>10-years) with no data (n=2)
- Old data (n=5)
- Duplicate of patient data (n=1)

18 studies excluded. Reasons:
- Studies only on children (n=20)
  - RCT (n=0)
  - Observational (n=20)
  - Systematic review (n=0)
- Studies involving both children and adults (n=26)
  - RCT (n=0)
  - Observational (n=24)
  - Systematic review (n=1)
  - Adult bronchiectasis guideline (n=1)

Note: 46 of the included studies were identified from the original search. No additional papers were identified from the updated search