

ERS statement on airway clearance techniques in adults with bronchiectasis

Supplementary material 2 – Selection criteria and search strategies used for questions

Question 1 - What is the physiological rationale for the use for ACTs in adults with bronchiectasis?

Selection criteria

PopulationDiseaseClinical statusStudy designActive treatmentComparisonOutcomesComments								
Inclusion	Adults (≥18 y)	Bronchiectasis	Stable	Systematic Review	Not applicable	Not applicable	Airway surface layer	* Panel agreed to
	Male or female	Overlaps (e.g, COPD, Asthma)	Exacerbation	RCT (equivalence)			Dehydrated	include other muco-
	Animal models	Primary ciliary dyskinesia	Hospital Admission	Crossover			ATP	obstructive respiratory
	In vitro	Kartagener syndrome		Non-inferiority trial			Mucus / cough transport	disease and healthy
	Mathematical models	Healthy people*		Superiority trial			Mucus / cough clearance	people in the second
		Cystic fibrosis*		Quasi-experimental			CFTR	round.
		COPD*		Cohort			Biophysical properties	
		Asthma*		Case-control			Ciliary movement /beat	
				Cross-sectional			Mucin	
				Qualitative			Solid content	
				Narrative review			Sputum / expectoration	
							Pressure	
							Ventilation	
							Oscillation	
							Vibration	
						Two-phases gas-liquid		
						Flow		
						Mechanical stress		
PopulationDiseaseClinical statusStudy designActive treatmentComparisonOutcomesComments								
Exclusion	Children (<18y)	Non-muco obstructive respiratory diseases	Intensive Care	N/A	N/A	N/A	N/A	

Question 2 - What is the physiological rationale of each one of the ACTs and what are the advantages and limitations of each technique?

Selection criteria

	Population	Disease	Clinical status	Study design	Active treatment	Comparison	Outcomes	Comments
Inclusion	Adults (≥18 y) Male or female Animal models In vitro Mathematical models	Bronchiectasis Overlaps (e.g, COPD, Asthma) Primary ciliary dyskinesia Kartagener syndrome Healthy people* Cystic fibrosis* COPD* Asthma*	Stable Exacerbation Hospital Admission	Systematic Review RCT (equivalence) Crossover Non-inferiority trial Superiority trial Quasi-experimental Cohort Case-control Cross-sectional Qualitative Narrative review	ACTs [‡]	Not applicable	Pressure Airflow / Flow Oscillation / Frequency Vibration / Frequency Gas-liquid Ventilation ATP Airway diameter Interdependence Body posture Breath hold Advantage Disadvantage Limitation Adverse events Time consuming ACTs [‡]	* Panel agreed to include other muco-obstructive respiratory disease and healthy people in the second round. [‡] Name of the ACTs evaluated in bronchiectasis and obtained from Question 4 (effectiveness)
	Population	Disease	Clinical status	Study design	Active treatment	Comparison	Outcomes	Comments
Exclusion	Children (<18y)	Not applicable	Intensive Care	Not applicable	PR IMT Exercise NIV Muco-active drugs Invasive methods	Not applicable	Not applicable	

RCT, randomised controlled trial; ACTs, airway clearance techniques; ATP, adenosine triphosphate; PR, pulmonary rehabilitation; IMT, inspiratory muscle training; NIV, non-invasive ventilation; N/A, not applicable

Question 3 - Which are the ACTs that are used in the management of adults with bronchiectasis and are there any patterns according to geographical location?

Selection criteria

	Population	Disease	Clinical status	Study design	Active treatment	Comparison	Outcomes	Comments
Inclusion	Adults (≥18 y) Male or female Animal models In vitro	Bronchiectasis Overlaps (e.g. COPD, Asthma) Primary ciliary dyskinesia Kartagener syndrome	Stable Exacerbation Hospital Admission	RCT (equivalence) Crossover Non-inferiority trial Superiority trial Quasi-experimental Systematic Review Cross-sectional Cohort Case-control Qualitative Surveys, registers	ACTs	N/A	Region/Country	Studies recruiting more than one disease at the same time (e.g COPD and bronchiectasis) will be only included if specific data from bronchiectasis could be extracted (full text)
	Population	Disease	Clinical status	Study design	Active treatment	Comparison	Outcomes	Comments
Exclusion	Children (<18y)	CF COPD Asthma ILD Other respiratory diseases	Intensive Care	N/A	PR IMT Exercise NIV Muco-active drugs Invasive methods	N/A	N/A	

COPD, chronic obstructive pulmonary disease; CF, cystic fibrosis; ILD, interstitial lung disease; RCT, randomised controlled trial; ACTs, airway clearance techniques; PR, pulmonary rehabilitation; IMT, inspiratory muscle training; NIV, non-invasive ventilation; N/A, not applicable

Search strategy

Ovid MEDLINE(R) ALL <1946 to November 18, 2021>

1	exp Bronchiectasis/	9670	
2	(bronchiectasis or bronchiectases or kartageners syndrome).mp.	13918	
3	1 or 2	14661	
4	exp Physical Therapy Modalities/	166262	
5	(physiotherap* or physical therap*).mp.	78124	
6	4 or 5	199815	
7	(airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).mp	6585	
8	(bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).mp.	4484	
9	(10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).mp.	279774	
10	(IPPB or intermittent positive pressure breathing).mp.	1132	
11	(IPV or intrapulmonary percussive ventilation).mp.	7488	
12	(HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*).mp.	22276	
13	(autogenic drainage or AD).mp.	163112	
14	(ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).mp.	80	
15	(ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration).mp.	50544	
16	(thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).mp.	78270	
17	6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16	789940	
18	3 and 17	1619	
19	limit 18 to yr="2020 - 2022"	195	

Embase <1974 to November 2021>

1	exp bronchiectasis/	23111	
2	(bronchiectasis or bronchiectases or kartageners syndrome).mp.	25314	
3	1 or 2	25891	
4	exp physiotherapy/	95360	
5	(physiotherap* or physical therap*).mp.	137890	
6	4 or 5	138990	
7	(airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).mp.	14070	
8	(bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).mp.	9247	
9	(10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).mp.	370847	
10	(IPPB or intermittent positive pressure breathing).mp.	555	
11	(IPV or intrapulmonary percussive ventilation).mp.	8326	
12	(HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*).mp.	30064	
13	(autogenic drainage or AD).mp.	668900	
14	(ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).mp.	113	
15	(ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration).mp.	59060	
16	(thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).mp.	176105	
17	6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16	1438374	
18	3 and 17	5365	
19	Limit 18 to Embase	3586	

AMED (Allied and Complementary Medicine) <1985 to November 2021>

1	bronchiectasis/	37	
2	(bronchiectasis or bronchiectases or kartageners syndrome).mp.	52	
3	1 or 2	52	
4	exp physical therapy modalities/	30639	
5	(physiotherap* or physical therap*).mp. [mp=abstract, heading words, title]	24343	
6	4 or 5	44896	
7	(airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).mp.	121	
8	(bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).mp.	446	
9	(10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).mp.	2840	
10	(IPPB or intermittent positive pressure breathing).mp.		
11	(IPV or intrapulmonary percussive ventilation).mp.	16	
12	(HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*).mp.	173	
13	(autogenic drainage or AD).mp.	930	
14	(ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).mp.	6	
15	(ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration).mp.	1146	
16	(thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).mp.	957	
17	6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16	48924	
18	3 and 17	28	

CINAHL 1981 - 2021

S18	S3 AND S17	502
S17	S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16	378,799
S16	thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation	46,820
S15	ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration	7,463
S14	ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*	47
S13	autogenic drainage or AD	60,779
S12	HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*	3,868
S11	IPV or intrapulmonary percussive ventilation	10,477
S10	IPPB or intermittent positive pressure breathing	218
S9	10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP	67,809
S8	bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*	3,476
S7	airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance	1,744
S6	S4 OR S5	193,173
S5	physiotherap* or physical therap*	85,201
S4	(MH "Physical Therapy+")	153,140
S3	S1 OR S2	2,344

S2	bronchiectasis or bronchiectases or kartageners syndrome	2,344
S1	(MH "Bronchiectasis")	1,295

Cochrane CENTRAL 1947 -2021

#1	MeSH descriptor: [Bronchiectasis] explode all trees	359
#2	bronchiectasis or bronchiectases or kartageners syndrome	1387
#3	#1 or #2	1394
#4	MeSH descriptor: [Physical Therapy Modalities] explode all trees	28018
#5	physiotherap* or physical therap*	84111
#6	#4 or #5	99235
#7	airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance	3401
#8	bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*	6189
#9	10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP	34271
#10	IPPB or intermittent positive pressure breathing	553
#11	IPV or intrapulmonary percussive ventilation	1498
#12	HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*	3255
#13	autogenic drainage or AD	32275
#14	ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*	617
#15	ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration	9541

#16	thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation	59979
#17	#6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16	219950
#18	#3 and #17	877

PEDro

bronchiectasis and physiotherapy* (24)

bronchiectasis and physical therap* (10)

bronchiectasis and oscillat* (18)

bronchiectasis and sputum* (42)

bronchiectasis and mucociliary clearance (4)

Bronchiectasis and High Frequency Chest Wall Oscillation (4)

Bronchiectasis and postural drainage (10)

Question 4 - What is the clinical evidence for the effectiveness of ACTs, in terms of function and disability (e.g. sputum expectoration), activity (e.g. physical activity) and participation (e.g. self-care), in adults with bronchiectasis?

Selection criteria

	Population	Disease	Clinical status	Study design	Active treatment	Comparison	Outcomes	Comments
Inclusion	Adults (≥18 y) Male or female	Bronchiectasis Overlaps (e.g. COPD, Asthma) Primary ciliary dyskinesia Kartagener syndrome	Stable Exacerbation Hospital Admission	RCT (equivalence) Crossover Non-inferiority trial Superiority trial	ACTs alone Combined ACTs	Placebo Sham intervention ACT alone Combined ACTs Usual care Other (PR, mucoactive) No treatment	Function and disability Activity Participation	i) Studies recruiting more than one disease at the same time (e.g. COPD and bronchiectasis) will be only included if specific data from bronchiectasis could be extracted (full text) ii) Abstracts were excluded
	Population	Disease	Clinical status	Study design	Active treatment	Comparison	Outcomes	Comments
Exclusion	Children (<18y) Animal models In vitro	CF COPD Asthma ILD Other respiratory diseases	Intensive Care	Cross-sectional Cohort Case-control Qualitative Quasi-experimental Systematic review	PR IMT Exercise NIV Muco-active drugs Invasive methods	N/A	N/A	

COPD, chronic obstructive pulmonary disease; CF, cystic fibrosis; ILD, interstitial lung disease, RCT, randomised controlled trial; PR, pulmonary rehabilitation; IMT, inspiratory muscle training; NIV, non-invasive ventilation; N/A, not applicable

Search strategy

Ovid MEDLINE(R) ALL <1946 to November 19, 2021>

- 1 exp Bronchiectasis/ 9670
- 2 (bronchiectasis or bronchiectases or kartagener* syndrome*).mp. 14716
- 3 1 or 2 14716
- 4 exp Physical Therapy Modalities/ 166287
- 5 (physiotherap* or physical therap*).mp 78134
- 6 4 or 5 199847
- 7 airway* clearance*.mp. 1027
- 8 (sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).mp. 5782
- 9 (bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).mp. 4486
- 10 (oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).mp. 279899
- 11 (intermittent positive pressure breath* or IPPB).mp. 1132
- 12 (IPV or intrapulmonary percussive ventilation).mp. 7491
- 13 (HFCWO or High Frequency Chest Wall Oscillation).mp. 96
- 14 (ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration or autogenic drainage or AD or ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).mp. 213637
- 15 (thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).mp. 78287
- 16 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 769147
- 17 3 and 16 1584
- 18 exp Hospitals/ or exp Patient Readmission/ or exp Prognosis/ or exacerbation*.mp. 2119018
- 19 (hospit* or readmission or emergency attendance or disease prognos*).mp. 38670

20 (day* adj3 recovery).mp. 7865
 21 18 or 19 or 20 2137956
 22 exp Patient Reported Outcome Measures/ 10190
 23 (BSI or FACED or E-FACED or patient-reported outcome* or PRO or Patient Reported Experience* or PREM or patient?reported experience measure*).mp.
 313676
 24 22 or 23 313731
 25 exp "Quality of Life"/ 227009
 26 (quality of life or QoL or HRQoL or health?related quality of life).mp. 393279
 27 25 or 26 393279
 28 exp Cough/ or cough*.mp. or pulmonary function*.mp. or lung function*.mp. 131864
 29 exp Peak Expiratory Flow Rate/ or spirometry.mp. or forced expiratory volume.mp. or FEV1.mp. or forced vital capacity.mp. or FVC.mp. or forced expiratory flow
 FEF25-75.mp. or peak expiratory flow.mp. or lung volume*.mp. or air?trapping.mp. or residual volume.mp. or RV functional residual capacity FRC.mp. or lung
 hyperinflation.mp. or total lung capacity.mp. or TLC.mp. 109699
 30 exp Plethysmography/ 21798
 31 (plethysmography or airway resistance or airway reactance or airway impedance).mp. 38466
 32 30 or 31 42409
 33 exp Magnetic Resonance Imaging/ 494505
 34 exp Pulmonary Gas Exchange/ 20660
 35 exp Ventilation/ 6090
 36 (diffusion or DLCO or gas exchange or HRCT or high?resolution computed tomography or saturation or lung clearance index or multiple breath washout or ventilation
 inhomogeneity or ventilation or magnetic resonance imag* or MRI).mp. 1103454
 37 33 or 34 or 35 or 36 1120608
 38 exp Sputum/ 22354

39 (sputum or sputum weight or sputum volume or sputum quantity* or sputum color or sputum purulence or sputum property* or sputum cytology or expectoration
or mucociliary transport or mucus* or mucociliary clearance or ease of expectoration).mp. 77905

40 38 or 39 77905

41 exp Mucociliary Clearance/ or radioaerosol clearance.mp. or scintigraphy.mp. or cough clearance.mp. or cough transport.mp. or biophysical property*.mp.
50304

42 exp Viscosity/ or exp Elasticity/ or exp Mucins/ or exp Mucus/ or surface property*.mp. or tenacity.mp. or cohesivity.mp. or adhesivity.mp. or viscoelasticity.mp. or
rheology*.mp. or rigidity transportability.mp. or ciliary movement.mp. or mucus hydration.mp. or solid content.mp. or solid percentage.mp. or mucin.mp.
282208

43 exp Bacterial Load/ or exp Osmotic Pressure/ or osmotic pressure.mp. or interfacial tension.mp. or bacterial load.mp. or bacterial density.mp. or bacterial
eradication.mp. or pathogens.mp. or microbiology.mp. or inflammation*.mp. 2151731

44 exp Leukocyte Elastase/ or exp Peroxidase/ or exp Interleukins/ or exp Cell Count/ or marker*.mp. or neutrophil elastase.mp. or myeloperoxidase.mp. or
interleukin*.mp. or cell count*.mp. 1473139

45 exp Respiratory Sounds/ or respiratory sound*.mp. or breath sound*.mp. or crackle*.mp. or wheeze*.mp. 18690

46 exp Exercise/ or exp Sleep/ or exp Anxiety/ or exp Depression/ or exp Dyspnea/ or exp Fatigue/ or exercise capacity.mp. or physical activity.mp. or sleep.mp. or
anxiety.mp. or depression.mp. or symptom.mp. or dyspnea.mp. or breathlessness.mp. or fatigue.mp. or exacerbate*.mp. 1488792

47 (patient* feedback or patient* preference* or patient* experience* or patient view* or patient perspective* or patient accept* or scale* or visual analogical scale*
or tolerability or feasibility or adherence or self-management or self-efficacy or side effect* or adverse effect* or adverse event* or extra medication or antibiotic
use* or burden of treatment).mp. 3683907

48 exp Patient Satisfaction/ or exp Patient Preference/ or exp Medication Adherence/ or exp Guideline Adherence/ or exp "Treatment Adherence and Compliance"/ or
exp Self-Management/ or exp Self Efficacy/ or exp Anti-Bacterial Agents/ 1081177

49 exp Community Participation/ or participation.mp. or life role*.mp. or social role*.mp. or role function*.mp. or community engagement.mp. or integration.mp. or
days of absence.mp. 412965

50 21 or 24 or 27 or 28 or 29 or 32 or 37 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 10999990

51 17 and 50 1470

Embase <1974 to 2021 November 17>

- 1 exp bronchiectasis/ 23111
- 2 (bronchiectasis or bronchiectases or kartageners syndrome).mp. 25314
- 3 1 or 2 25891
- 4 exp physiotherapy/ 95360
- 5 (physiotherap* or physical therap*).mp. 137890
- 6 4 or 5 138990
- 7 (airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).mp. 14070
- 8 (bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).mp. 9247
- 9 (10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).mp. 370847
- 10 (IPPB or intermittent positive pressure breathing).mp. 555
- 11 (IPV or intrapulmonary percussive ventilation).mp. 8326
- 12 (HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*).mp. 30064
- 13 (autogenic drainage or AD).mp. 668900
- 14 (ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).mp. 113
- 15 (ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration).mp. 59060
- 16 (thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).mp. 176105
- 17 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 1462641
- 18 3 and 17 5471
- 19 exp hospital/ or exp hospital readmission/ or exp prognosis/ or exacerbation*.mp. 2309111
- 20 (hospit* or readmission or emergency attendance or disease prognos*).mp. 2968142

21 (day* adj3 recovery).mp. 12528

22 19 or 20 or 21 4097877

23 exp patient-reported outcome/ 39804

24 (BSI or FACED or E-FACED or patient-reported outcome* or PRO or Patient Reported Experience* or PREM or patient?reported experience measure*).mp.
494148

25 23 or 24 494852

26 exp "quality of life"/ 577730

27 (quality of life or QoL or HRQoL or health?related quality of life).mp. 710962

28 26 or 27 710962

29 exp coughing/ or cough*.mp. or pulmonary function*.mp. or lung function*.mp. 326350

30 exp peak expiratory flow/ or spirometry.mp. or forced expiratory volume.mp. or FEV1.mp. or forced vital capacity.mp. or FVC.mp. or forced expiratory flow FEF25-
75.mp. or peak expiratory flow.mp. or lung volume*.mp. or air?trapping.mp. or residual volume.mp. or RV functional residual capacity FRC.mp. or lung
hyperinflation.mp. or total lung capacity.mp. or TLC.mp. 201127

31 exp plethysmography/ 27475

32 (plethysmography or airway resistance or airway reactance or airway impedance).mp. 46361

33 31 or 32 46361

34 exp nuclear magnetic resonance imaging/ 1109244

35 exp lung gas exchange/ 13413

36 (diffusion or DLCO or gas exchange or HRCT or high?resolution computed tomography or saturation or lung clearance index or multiple breath washout or ventilation
inhomogeneity or ventilation or magnetic resonance imag* or MRI).mp. 1833235

37 34 or 35 or 36 1885023

38 exp sputum/ 26181

- 39 (sputum or sputum weight or sputum volume or sputum quantity* or sputum color or sputum purulence or sputum property* or sputum cytology or expectoration or mucociliary transport or mucus* or mucociliary clearance or ease of expectoration).mp. 121017
- 40 38 or 39 121017
- 41 exp mucociliary clearance/ or radioaerosol clearance.mp. or scintigraphy.mp. or cough clearance.mp. or cough transport.mp. or biophysical property*.mp. 88499
- 42 exp viscosity/ or exp elasticity/ or exp mucins/ or exp mucus/ or surface property*.mp. or tenacity.mp. or cohesivity.mp. or adhesivity.mp. or viscoelasticity.mp. or rheology*.mp. or rigidity transportability.mp. or ciliary movement.mp. or mucus hydration.mp. or solid content.mp. or solid percentage.mp. or mucin.mp. 425259
- 43 exp bacterial load/ or exp osmotic pressure/ or osmotic pressure.mp. or interfacial tension.mp. or bacterial load.mp. or bacterial density.mp. or bacterial eradication.mp. or pathogens.mp. or microbiology.mp. or inflammation*.mp. 2342191
- 44 exp leukocyte elastase/ or exp peroxidase/ or exp interleukins/ or exp cell count/ or marker*.mp. or neutrophil elastase.mp. or myeloperoxidase.mp. or interleukin*.mp. or cell count*.mp. 2752802
- 45 exp respiratory sounds/ or respiratory sound*.mp. or breath sound*.mp. or crackle*.mp. or wheeze*.mp. 72377
- 46 exp exercise/ or exp sleep/ or exp anxiety/ or exp depression/ or exp dyspnea/ or exp fatigue/ or exercise capacity.mp. or physical activity.mp. or sleep.mp. or anxiety.mp. or depression.mp. or symptom.mp. or dyspnea.mp. or breathlessness.mp. or fatigue.mp. or exacerbation*.mp. 2919077
- 47 (patient* feedback or patient* preference* or patient* experience* or patient view* or patient perspective* or patient accept* or scale* or visual analogical scale* or tolerability or feasibility or adherence or self-management or self-efficacy or side effect* or adverse effect* or adverse event* or extra medication or antibiotic use* or burden of treatment).mp. 3865819
- 48 exp patient satisfaction/ or exp patient preference/ or exp medication compliance/ or exp protocol compliance/ or patient compliance/ or self-care/ or exp antiinfective agent/ 4314376
- 49 exp community participation/ or participation.mp. or life role*.mp. or social role*.mp. or role function*.mp. or community engagement.mp. or integration.mp. or days of absence.mp. 502392
- 50 22 or 25 or 28 or 29 or 30 or 33 or 37 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 16322829
- 51 18 and 50 5260
- 52 limit 51 to Embase 3522

AMED (Allied and Complementary Medicine) <1985 to November 2021>

- 1 bronchiectasis/ 37
- 2 (bronchiectasis or bronchiectases or kartageners syndrome).mp. [mp=abstract, heading words, title] 52
- 3 1 or 2 52
- 4 exp physical therapy modalities/ 30639
- 5 (physiotherap* or physical therap*).mp. [mp=abstract, heading words, title] 24343
- 6 4 or 5 44896
- 7 (airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).mp. [mp=abstract, heading words, title] 121
- 8 (bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).mp. [mp=abstract, heading words, title] 446
- 9 (10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).mp. [mp=abstract, heading words, title] 2840
- 10 (IPPB or intermittent positive pressure breathing).mp. [mp=abstract, heading words, title] 13
- 11 (IPV or intrapulmonary percussive ventilation).mp. [mp=abstract, heading words, title] 16
- 12 (HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*).mp. [mp=abstract, heading words, title] 173
- 13 (autogenic drainage or AD).mp. [mp=abstract, heading words, title] 930
- 14 (ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).mp. [mp=abstract, heading words, title] 6
- 15 (ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration).mp. [mp=abstract, heading words, title] 1146
- 16 (thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).mp. [mp=abstract, heading words, title] 957
- 17 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 48924
- 18 3 and 17 28
- 19 exp Hospitals/ or exp Hospitalization/ or exp Prognosis/ or exacerbation*.mp. [mp=abstract, heading words, title] 26356

20 (hospit* or readmission or emergency attendance or disease prognos*).mp. [mp=abstract, heading words, title] 15489

21 (day* adj3 recovery).mp. [mp=abstract, heading words, title] 104

22 19 or 20 or 21 36382

23 (BSI or FACED or E-FACED or patient-reported outcome* or PRO or Patient Reported Experience* or PREM or patient?reported experience measure*).mp. [mp=abstract, heading words, title] 2654

24 "quality of life"/ 10535

25 (quality of life or QoL or HRQoL or health?related quality of life).mp. [mp=abstract, heading words, title] 14890

26 24 or 25 14890

27 Cough/ or cough*.mp. or pulmonary function*.mp. or lung function*.mp. 1759

28 Peak Expiratory Flow Rate/ or spirometry.mp. or (forced adj2 expiratory adj2 volume).mp. or FEV1.mp. or (forced adj2 vital adj2 capacity).mp. or FVC.mp. or (forced adj2 expiratory adj2 flow).mp. or FEF25-75.mp. or (peak adj2 expiratory adj2 flow).mp. or (lung adj2 volume*).mp. or air?trapping.mp. or (residual adj2 volume).mp. or (RV adj2 functional adj2 residual adj2 capacity adj2 FRC).mp. or (lung adj2 hyperinflation).mp. or (total adj2 lung adj2 capacity).mp. or TLC.mp. [mp=abstract, heading words, title] 1563

29 plethysmography/ 26

30 (plethysmography or airway resistance or airway reactance or airway impedance).mp. [mp=abstract, heading words, title] 246

31 29 or 30 246

32 magnetic resonance imaging/ 1818

33 pulmonary gas exchange/ 60

34 (diffusion or DLCO or gas exchange or HRCT or high?resolution computed tomography or saturation or lung clearance index or multiple breath washout or ventilation inhomogeneity or ventilation or magnetic resonance imag* or MRI).mp. [mp=abstract, heading words, title] 5707

35 32 or 33 or 34 5707

36 sputum/ 46

37 (sputum or sputum weight or sputum volume or sputum quantity* or sputum colo?r or sputum purulence or sputum propert* or sputum cytology or expectoration or mucociliary transport or mucus* or mucociliary clearance or ease of expectoration).mp. [mp=abstract, heading words, title] 421

38 36 or 37 421

39 Mucociliary Clearance/ or radioaerosol clearance.mp. or scintigraphy.mp. or cough clearance.mp. or cough transport.mp. or biophysical propert*.mp. [mp=abstract, heading words, title] 133

40 Elasticity/ or Viscosity/ or Mucus/ 295

41 (surface propert* or tenacity or cohesivity or adhesivity or viscoelasticity or rheology* or rigidity transportability or ciliary movement or mucus hydration or solid content or solid percentage or mucin).mp. 158

42 (osmotic pressure or interfacial tension or bacterial load or bacterial density or bacterial eradication or pathogens or microbiology or inflammat*).mp. [mp=abstract, heading words, title] 9800

43 (marker* or neutrophil elastase or myeloperoxidase or interleukin* or cell count*).mp. [mp=abstract, heading words, title] 5030

44 respiratory sounds/ or respiratory sound*.mp. or breath sound*.mp. or crackle*.mp. or wheeze*.mp. 92

45 exp Exercise/ or exp Sleep/ or Anxiety/ or Depression/ or Dyspnea/ or exp Fatigue/ or exercise capacity.mp. or physical activity.mp. or sleep.mp. or anxiety.mp. or depression.mp. or symptom.mp. or dyspnea.mp. or breathlessness.mp. or fatigue.mp. or exacerbat*.mp. 36736

46 (patient* feedback or patient* preference* or patient* experience* or patient view* or patient perspective* or patient accept* or scale* or visual analogical scale* or tolerability or feasibility or adherence or self-management or self-efficacy or side effect* or adverse effect* or adverse event* or extra medication or antibiotic us* or burden of treatment).mp. [mp=abstract, heading words, title] 39617

47 patient participation/ or exp "patient acceptance of health care"/ or self care/ or self efficacy/ 9393

48 (participation or life role* or social role* or role function* or community engagement or integration or days of absence).mp. 9967

49 22 or 23 or 26 or 27 or 28 or 31 or 35 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 122778

50 18 and 49 22

CINAHL 1981 - 2021

S36	S18 AND S35	473
S35	S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S34	2,668,310
S34	Participation or life role* or social role* or role function* or community engagement or integration or days of absence	194,643
S33	patient* feedback or patient* preference* or patient* experience* or patient view* or patient perspective* or patient accept* or scale* or visual analogical scale* or tolerability or feasibility or adherence or self-management or self-efficacy or side effect* or adverse effect* or adverse event* or extra medication or antibiotic us* or burden of treatment	1,429,152
S32	exercise capacity or physical activity or sleep or anxiety or depression or symptom or dyspnea or breathlessness or fatigue or exacerbat*.	795,076
S31	respiratory sound* or breath sound* or crackle* or wheeze*	4,390
S30	marker* or neutrophil elastase or myeloperoxidase or interleukin* or cell count*	217,039
S29	osmotic pressure or interfacial tension or bacterial load or bacterial density or bacterial eradication or pathogens or microbiology or inflammat*.	257,699
S28	surface propert* or tenacity or cohesivity or adhesivity or viscoelasticity or rheology* or rigidity transportability or ciliary movement or mucus hydration or solid content or solid percentage or mucin	8,646
S27	mucociliary clearance or radioaerosol clearance or scintigraphy or cough clearance or cough transport or biophysical propert*	7,452
S26	sputum or sputum weight or sputum volume or sputum quantity* or sputum colo?r or sputum purulence or sputum propert* or sputum cytology or expectoration or mucociliary transport or mucus* or mucociliary clearance or ease of expectoration	9,711

S25	diffusion or DLCO or gas exchange or HRCT or high?resolution computed tomography or saturation or lung clearance index or multiple breath washout or ventilation inhomogeneity or ventilation or magnetic resonance imag* or MRI	262,176
S24	plethysmography or airway resistance or airway reactance or airway impedance	5,176
S23	spirometry or forced expiratory volume or FEV1 or forced vital capacity or FVC or forced expiratory flow FEF or peak expiratory flow or lung volume* or air trapping or residual volume or lung hyperinflation or total lung capacity or TLC	26,445
S22	cough* or pulmonary function* or lung function*	37,780
S21	quality of life or QoL or HRQoL or health?related quality of life	226,292
S20	BSI or FACED or E-FACED or patient-reported outcome* or PRO or Patient Reported Experience* or PREM or patient?reported experience measure*	74,079
S19	hospit * or readmission or emergency attendance or disease prognos* or (day N3 recovery)	37,883
S18	S3 AND S17	502
S17	S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16	378,799
S16	thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation	46,820
S15	ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration	7,463
S14	ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*	47
S13	autogenic drainage or AD	60,779
S12	HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*	3,868

S11	IPV or intrapulmonary percussive ventilation	10,477
S10	IPPB or intermittent positive pressure breathing	218
S9	10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP	67,809
S8	bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*	3,476
S7	airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance	1,744
S6	S4 OR S5	193,173
S5	physiotherap* or physical therap*	85,201
S4	(MH "Physical Therapy+")	153,140
S3	S1 OR S2	2,344
S2	bronchiectasis or bronchiectases or kartageners syndrome	2,344
S1	(MH "Bronchiectasis")	1,295

Cochrane CENTRAL 1947 – 2021

- #1 MeSH descriptor: [Bronchiectasis] explode all trees 368
- #2 bronchiectasis or bronchiectases or kartageners syndrome 1429
- #3 #1 or #2 1436
- #4 MeSH descriptor: [Physical Therapy Modalities] explode all trees 29256
- #5 physiotherap* or physical therap* 86802
- #6 #4 or #5 102651
- #7 airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance 3478
- #8 bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise* 6500
- #9 10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP 35031
- #10 IPPB or intermittent positive pressure breathing 567
- #11 IPV or intrapulmonary percussive ventilation 1520
- #12 HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall* 3337
- #13 autogenic drainage or AD 32983
- #14 ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory* 627
- #15 ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration 9799
- #16 thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation 61550
- #17 #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 226191
- #18 #3 and #17 905
- #19 hospit* or readmission or emergency attendance or disease prognos* or (day* adj3 recovery) 394341

#20	BSI or FACED or E-FACED or patient-reported outcome* or PRO or Patient Reported Experience* or PREM or patient?reported experience measure*	58688
#21	quality of life or QoL or HRQoL or health?related quality of life	145550
#22	cough* or pulmonary function* or lung function*	50754
#23	spirometry or forced expiratory volume or FEV1 or forced vital capacity or FVC or forced expiratory flow FEF or peak expiratory flow or lung volume* or air?trapping or residual volume or RV functional residual capacity FRC or lung hyperinflation or total lung capacity or TLC	94278
#24	plethysmography or airway resistance or airway reactance or airway impedance	6253
#25	diffusion or DLCO or gas exchange or HRCT or high?resolution computed tomography or saturation or lung clearance index or multiple breath washout or ventilation inhomogeneity or ventilation or magnetic resonance imag* or MRI	89825
#26	sputum or sputum weight or sputum volume or sputum quantity* or sputum colo?r or sputum purulence or sputum prope?r? or sputum cytology or expectoration or mucociliary transport or mucus* or mucociliary clearance or ease of expectoration	9478
#27	mucociliary clearance or radioaerosol clearance or scintigraphy or cough clearance or cough transport or biophysical prope?r?	3795
#28	viscosity or elasticity or mucin* or mucus or surface prope?r? or tenacity or cohesivity or adhesivity or viscoelasticity or rheology* or rigidity transportability or ciliary movement or mucus hydration or solid content or solid percentage	28397
#29	osmotic pressure or interfacial tension or bacterial load or bacterial density or bacterial eradication or pathogens or microbiology or inflammat*	119691
#30	leukocyte elastase or exp peroxidase or exp interleukin* or cell count or marker* or neutrophil elastase or myeloperoxidase	77067
#31	respiratory sound* or breath sound* or crackle* or wheeze*	2692
#32	exercise capacity or physical activity or sleep or anxiety or depression or symptom or dyspnea or breathlessness or fatigue or exacerbat*	301024
#33	patient* feedback or patient* preference* or patient* experience* or patient view* or patient perspective* or patient accept* or scale* or visual analogical scale* or tolerability or feasibility or adherence or self-management or self-efficacy or side effect* or adverse effect* or adverse event* or extra medication or antibiotic us* or burden of treatment or anti?bacterial agent*	713515
#34	patient satisfaction or medication adherence or guideline* adherence or treatment adherence or treatment compliance	94269
#35	community participation or life role* or social role* or role function* or community engagement or integration or days of absence	59108
#36	#19 and #20 and #21 and #22 and #23 and #24 and #25 and #26 and #27 and #28 and #29 and #30 and #31 and #32 and #33 and #34 and #35	
#37	Limit to Cochrane CENTRAL	0

PEDro

bronchiectasis and physiotherapy* (24)

bronchiectasis and physical therap* (10)

bronchiectasis and oscillat* (18)

bronchiectasis and sputum* (42)

bronchiectasis and mucociliary clearance (4)

Bronchiectasis and High Frequency Chest Wall Oscillation (4)

Bronchiectasis and postural drainage (10)

Question 5 – (a) What are the experiences and perceived impact of ACTs on adults with bronchiectasis? ; (b) What are the perceived barriers to and enablers of ACTs in adults with bronchiectasis?

Selection criteria

	Population	Disease	Clinical status	Study design	Active treatment	Comparison	Outcomes	Comments
Inclusion	Adults (≥18 y) Male or female	Bronchiectasis Overlaps (e.g, COPD, Asthma) Primary ciliary dyskinesia Kartagener syndrome	Stable Exacerbation Hospital Admission	RCT (equivalence) Crossover Non-inferiority trial Superiority trial Systematic Review Cross-sectional Cohort Case-control Qualitative Quasi-experimental	ACTs	Not applicable	Barriers Enablers Social impact Preference Feedback Adherence Opinion Experience Satisfaction PROs /PREMs Patient-centered care Qualitative Adherence Perspective Attitude Help Support Difficult Hinder Belief	Studies recruiting more than one disease at the same time (e.g COPD and bronchiectasis) will be only included if specific data from bronchiectasis could be extracted (full-text)
	Population	Disease	Clinical status	Study design	Active treatment	Comparison	Outcomes	Comments
Exclusion	Children (<18y) Animal models In vitro	CF COPD Asthma ILD Other respiratory diseases	Intensive Care	N/A	PR IMT Exercise NIV Muco-active drugs Invasive methods	N/A	N/A	

COPD, chronic obstructive pulmonary disease; CF, cystic fibrosis; ILD, interstitial lung disease; RCTs, randomised controlled trial; ACTs, airway clearance techniques; PR, pulmonary rehabilitation; IMT, inspiratory muscle training; NIV, non-invasive ventilation; PROs, patient reported outcomes; PREMs, patient reported experience measures; N/A, not applicable

Search strategy (a)

Ovid MEDLINE(R) ALL <1946 to November 19, 2021>

- 1 exp Bronchiectasis/ 9670
- 2 (bronchiectasis or bronchiectases or kartagener* syndrome*).mp. 14716
- 3 1 or 2 14716
- 4 exp Physical Therapy Modalities/ 166287
- 5 (physiotherap* or physical therap*).mp. 78134
- 6 4 or 5 199847
- 7 airway* clearance*.mp. 1027
- 8 (sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).mp. 5782
- 9 (bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).mp. 4486
- 10 (oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).mp. 279899
- 11 (intermittent positive pressure breath* or IPPB).mp. 1132
- 12 (IPV or intrapulmonary percussive ventilation).mp. 7491
- 13 (HFCWO or High Frequency Chest Wall Oscillation).mp. 96
- 14 (ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration or autogenic drainage or AD or ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).mp. 213637
- 15 (thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).mp. 78287
- 16 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 769147
- 17 3 and 16 1584
- 18 exp Hospitals/ or exp Patient Readmission/ or exp Prognosis/ or exacerbation*.mp. 2119018

19 (hospit * or readmission or emergency attendance or disease prognos*).mp. 38670

20 (day* adj3 recovery).mp. 7865

21 18 or 19 or 20 2137956

22 exp Patient Reported Outcome Measures/ 10190

23 (BSI or FACED or E-FACED or patient-reported outcome* or PRO or Patient Reported Experience* or PREM or patient?reported experience measure*).mp.
313676

24 22 or 23 313731

25 exp "Quality of Life"/ 227009

26 (quality of life or QoL or HRQoL or health?related quality of life).mp. 393279

27 25 or 26 393279

28 exp Cough/ or cough* or pulmonary function* or lung function* 131864

29 exp Peak Expiratory Flow Rate/ or spirometry or forced expiratory volume or FEV1 or forced vital capacity or FVC or forced expiratory flow FEF25-75 or peak
expiratory flow or lung volume* or air?trapping or residual volume or RV functional residual capacity FRC or lung hyperinflation or total lung capacity or TLC.mp.
109699

30 exp Plethysmography/ 21798

31 (plethysmography or airway resistance or airway reactance or airway impedance).mp. 38466

32 30 or 31 42409

33 exp Magnetic Resonance Imaging/ 494505

34 exp Pulmonary Gas Exchange/ 20660

35 exp Ventilation/ 6090

36 (diffusion or DLCO or gas exchange or HRCT or high?resolution computed tomography or saturation or lung clearance index or multiple breath washout or ventilation
inhomogeneity or ventilation or magnetic resonance imag* or MRI).mp. 1103454

37 33 or 34 or 35 or 36 1120608

38 exp Sputum/ 22354

39 (sputum or sputum weight or sputum volume or sputum quantity* or sputum color or sputum purulence or sputum property* or sputum cytology or expectoration
or mucociliary transport or mucus* or mucociliary clearance or ease of expectoration).mp. 77905

40 38 or 39 77905

41 exp Mucociliary Clearance/ or radioaerosol clearance.mp. or scintigraphy.mp. or cough clearance.mp. or cough transport.mp. or biophysical property*.mp.
50304

42 exp Viscosity/ or exp Elasticity/ or exp Mucins/ or exp Mucus/ or surface property*.mp. or tenacity.mp. or cohesivity.mp. or adhesivity.mp. or viscoelasticity.mp. or
rheology*.mp. or rigidity transportability.mp. or ciliary movement.mp. or mucus hydration.mp. or solid content.mp. or solid percentage.mp. or mucin.mp.
282208

43 exp Bacterial Load/ or exp Osmotic Pressure/ or osmotic pressure.mp. or interfacial tension.mp. or bacterial load.mp. or bacterial density.mp. or bacterial
eradication.mp. or pathogens.mp. or microbiology.mp. or inflammation*.mp. 2151731

44 exp Leukocyte Elastase/ or exp Peroxidase/ or exp Interleukins/ or exp Cell Count/ or marker*.mp. or neutrophil elastase.mp. or myeloperoxidase.mp. or
interleukin*.mp. or cell count*.mp. 1473139

45 exp Respiratory Sounds/ or respiratory sound*.mp. or breath sound*.mp. or crackle*.mp. or wheeze*.mp. 18690

46 exp Exercise/ or exp Sleep/ or exp Anxiety/ or exp Depression/ or exp Dyspnea/ or exp Fatigue/ or exercise capacity.mp. or physical activity.mp. or sleep.mp. or
anxiety.mp. or depression.mp. or symptom.mp. or dyspnea.mp. or breathlessness.mp. or fatigue.mp. or exacerbation*.mp. 1488792

47 (patient* feedback or patient* preference* or patient* experience* or patient view* or patient perspective* or patient accept* or scale* or visual analogical scale*
or tolerability or feasibility or adherence or self-management or self-efficacy or side effect* or adverse effect* or adverse event* or extra medication or antibiotic
use* or burden of treatment).mp. 3683907

48 exp Patient Satisfaction/ or exp Patient Preference/ or exp Medication Adherence/ or exp Guideline Adherence/ or exp "Treatment Adherence and Compliance"/ or
exp Self-Management/ or exp Self Efficacy/ or exp Anti-Bacterial Agents/ 1081177

49 exp Community Participation/ or participation.mp. or life role*.mp. or social role*.mp. or role function*.mp. or community engagement.mp. or integration.mp. or
days of absence.mp. 412965

50 21 or 24 or 27 or 28 or 29 or 32 or 37 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 10999990

51 17 and 50 1470

52	(methodology or qualitative or quantitative or measure* or study or studies or review*).mp.	16760006
53	qualitative research/	69671
54	exp Research Design/	471736
55	52 or 53 or 54	16851487
56	51 and 55	1196

Embase <1974 to November 2021>

1	exp bronchiectasis/	23558
2	(bronchiectasis or bronchiectases or kartageners syndrome).mp.	25789
3	1 or 2	26373
4	exp physiotherapy/	97558
5	(physiotherap* or physical therap*).mp.	141191
6	4 or 5	142318
7	(airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).mp.	14312
8	(bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).mp.	9466
9	(10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).mp.	379529
10	(IPPB or intermittent positive pressure breathing).mp.	555
11	(IPV or intrapulmonary percussive ventilation).mp.	8788
12	(HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*).mp.	30540
13	(autogenic drainage or AD).mp.	675962
14	(ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).mp.	114

15 (ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration).mp. 60328

16 (thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).mp. 179334

17 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 1462641

18 3 and 17 5471

19 exp hospital/ or exp hospital readmission/ or exp prognosis/ or exacerbation*.mp. 2309111

20 (hospit* or readmission or emergency attendance or disease prognos*).mp. 2968142

21 (day* adj3 recovery).mp. 12528

22 19 or 20 or 21 4097877

23 exp patient-reported outcome/ 39804

24 (BSI or FACED or E-FACED or patient-reported outcome* or PRO or Patient Reported Experience* or PREM or patient?reported experience measure*).mp. 494148

25 23 or 24 494852

26 exp "quality of life"/ 577730

27 (quality of life or QoL or HRQoL or health?related quality of life).mp. 710962

28 26 or 27 710962

29 exp coughing/ or cough*.mp. or pulmonary function*.mp. or lung function*.mp. 326350

30 exp peak expiratory flow/ or spirometry.mp. or forced expiratory volume.mp. or FEV1.mp. or forced vital capacity.mp. or FVC.mp. or forced expiratory flow FEF25-75.mp. or peak expiratory flow.mp. or lung volume*.mp. or air?trapping.mp. or residual volume.mp. or RV functional residual capacity FRC.mp. or lung hyperinflation.mp. or total lung capacity.mp. or TLC.mp. 201127

31 exp plethysmography/ 27475

32 (plethysmography or airway resistance or airway reactance or airway impedance).mp. 46361

33 31 or 32 46361

34 exp nuclear magnetic resonance imaging/ 1109244

35 exp lung gas exchange/ 13413

36 (diffusion or DLCO or gas exchange or HRCT or high?resolution computed tomography or saturation or lung clearance index or multiple breath washout or ventilation inhomogeneity or ventilation or magnetic resonance imag* or MRI).mp. 1833235

37 34 or 35 or 36 1885023

38 exp sputum/ 26181

39 (sputum or sputum weight or sputum volume or sputum quantity* or sputum colo?r or sputum purulence or sputum propriet* or sputum cytology or expectoration or mucociliary transport or mucus* or mucociliary clearance or ease of expectoration).mp. 121017

40 38 or 39 121017

41 exp mucociliary clearance/ or radioaerosol clearance.mp. or scintigraphy.mp. or cough clearance.mp. or cough transport.mp. or biophysical propriet*.mp. 88499

42 exp viscosity/ or exp elasticity/ or exp mucins/ or exp mucus/ or surface propriet*.mp. or tenacity.mp. or cohesivity.mp. or adhesivity.mp. or viscoelasticity.mp. or rheology*.mp. or rigidity transportability.mp. or ciliary movement.mp. or mucus hydration.mp. or solid content.mp. or solid percentage.mp. or mucin.mp. 425259

43 exp bacterial load/ or exp osmotic pressure/ or osmotic pressure.mp. or interfacial tension.mp. or bacterial load.mp. or bacterial density.mp. or bacterial eradication.mp. or pathogens.mp. or microbiology.mp. or inflamm*at*.mp. 2342191

44 exp leukocyte elastase/ or exp peroxidase/ or exp interleukins/ or exp cell count/ or marker*.mp. or neutrophil elastase.mp. or myeloperoxidase.mp. or interleukin*.mp. or cell count*.mp. 2752802

45 exp respiratory sounds/ or respiratory sound*.mp. or breath sound*.mp. or crackle*.mp. or wheeze*.mp. 72377

46 exp exercise/ or exp sleep/ or exp anxiety/ or exp depression/ or exp dyspnea/ or exp fatigue/ or exercise capacity.mp. or physical activity.mp. or sleep.mp. or anxiety.mp. or depression.mp. or symptom.mp. or dyspnea.mp. or breathlessness.mp. or fatigue.mp. or exacerbat*.mp. 2919077

47 (patient* feedback or patient* preference* or patient* experience* or patient view* or patient perspective* or patient accept* or scale* or visual analogical scale* or tolerability or feasibility or adherence or self-management or self-efficacy or side effect* or adverse effect* or adverse event* or extra medication or antibiotic us* or burden of treatment).mp. 3865819

48	exp patient satisfaction/ or exp patient preference/ or exp medication compliance/ or exp protocol compliance/ or patient compliance/ or self-care/ or exp antiinfective agent/	4314376	
49	exp community participation/ or participation.mp. or life role*.mp. or social role*.mp. or role function*.mp. or community engagement.mp. or integration.mp. or days of absence.mp.	502392	
50	22 or 25 or 28 or 29 or 30 or 33 or 37 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49	16322829	
51	18 and 50	5366	
52	limit 51 to yr="1883 - 2021"	5260	
53	(methodology or qualitative or quantitative or measure* or study or studies or review*).mp.	24290083	
54	exp qualitative research/	95231	
55	exp methodology/	6666989	
56	53 or 54 or 55	24888340	
57	52 and 56	4130	
58	Limit to Embase	2680	

AMED (Allied and Complementary Medicine) <1985 to November 2021>

1	bronchiectasis/	37	
2	(bronchiectasis or bronchiectases or kartageners syndrome).mp. [mp=abstract, heading words, title]	52	
3	1 or 2	52	
4	exp physical therapy modalities/	30639	
5	(physiotherap* or physical therap*).mp. [mp=abstract, heading words, title]	24343	
6	4 or 5	44896	

- 7 (airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).mp. [mp=abstract, heading words, title] 121
- 8 (bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).mp. [mp=abstract, heading words, title] 446
- 9 (10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).mp. [mp=abstract, heading words, title] 2840
- 10 (IPPB or intermittent positive pressure breathing).mp. [mp=abstract, heading words, title] 13
- 11 (IPV or intrapulmonary percussive ventilation).mp. [mp=abstract, heading words, title] 16
- 12 (HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*).mp. [mp=abstract, heading words, title] 173
- 13 (autogenic drainage or AD).mp. [mp=abstract, heading words, title] 930
- 14 (ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).mp. [mp=abstract, heading words, title] 6
- 15 (ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration).mp. [mp=abstract, heading words, title] 1146
- 16 (thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).mp. [mp=abstract, heading words, title] 957
- 17 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 48924
- 18 3 and 17 28
- 19 exp Hospitals/ or exp Hospitalization/ or exp Prognosis/ or exacerbation*.mp. [mp=abstract, heading words, title] 26356
- 20 (hospit* or readmission or emergency attendance or disease prognos*).mp. [mp=abstract, heading words, title] 15489
- 21 (day* adj3 recovery).mp. [mp=abstract, heading words, title] 104
- 22 19 or 20 or 21 36382
- 23 (BSI or FACED or E-FACED or patient-reported outcome* or PRO or Patient Reported Experience* or PREM or patient?reported experience measure*).mp. [mp=abstract, heading words, title] 2654
- 24 "quality of life"/ 10535
- 25 (quality of life or QoL or HRQoL or health?related quality of life).mp. [mp=abstract, heading words, title] 14890

26 24 or 25 14890

27 Cough/ or cough*.mp. or pulmonary function*.mp. or lung function*.mp. 1759

28 Peak Expiratory Flow Rate/ or spirometry.mp. or (forced adj2 expiratory adj2 volume).mp. or FEV1.mp. or (forced adj2 vital adj2 capacity).mp. or FVC.mp. or (forced adj2 expiratory adj2 flow).mp. or FEF25-75.mp. or (peak adj2 expiratory adj2 flow).mp. or (lung adj2 volume*).mp. or air?trapping.mp. or (residual adj2 volume).mp. or (RV adj2 functional adj2 residual adj2 capacity adj2 FRC).mp. or (lung adj2 hyperinflation).mp. or (total adj2 lung adj2 capacity).mp. or TLC.mp. [mp=abstract, heading words, title] 1563

29 plethysmography/ 26

30 (plethysmography or airway resistance or airway reactance or airway impedance).mp. [mp=abstract, heading words, title] 246

31 29 or 30 246

32 magnetic resonance imaging/ 1818

33 pulmonary gas exchange/ 60

34 (diffusion or DLCO or gas exchange or HRCT or high?resolution computed tomography or saturation or lung clearance index or multiple breath washout or ventilation inhomogeneity or ventilation or magnetic resonance imag* or MRI).mp. [mp=abstract, heading words, title] 5707

35 32 or 33 or 34 5707

36 sputum/ 46

37 (sputum or sputum weight or sputum volume or sputum quantity* or sputum colo?r or sputum purulence or sputum propert* or sputum cytology or expectoration or mucociliary transport or mucus* or mucociliary clearance or ease of expectoration).mp. [mp=abstract, heading words, title] 421

38 36 or 37 421

39 Mucociliary Clearance/ or radioaerosol clearance.mp. or scintigraphy.mp. or cough clearance.mp. or cough transport.mp. or biophysical propert*.mp. [mp=abstract, heading words, title] 133

40 Elasticity/ or Viscosity/ or Mucus/ 295

41 (surface propert* or tenacity or cohesivity or adhesivity or viscoelasticity or rheology* or rigidity transportability or ciliary movement or mucus hydration or solid content or solid percentage or mucin).mp. 158

42 (osmotic pressure or interfacial tension or bacterial load or bacterial density or bacterial eradication or pathogens or microbiology or inflammat*).mp. [mp=abstract, heading words, title] 9800

43 (marker* or neutrophil elastase or myeloperoxidase or interleukin* or cell count*).mp. [mp=abstract, heading words, title] 5030

44 respiratory sounds/ or respiratory sound*.mp. or breath sound*.mp. or crackle*.mp. or wheeze*.mp. 92

45 exp Exercise/ or exp Sleep/ or Anxiety/ or Depression/ or Dyspnea/ or exp Fatigue/ or exercise capacity.mp. or physical activity.mp. or sleep.mp. or anxiety.mp. or depression.mp. or symptom.mp. or dyspnea.mp. or breathlessness.mp. or fatigue.mp. or exacerbat*.mp. 36736

46 (patient* feedback or patient* preference* or patient* experience* or patient view* or patient perspective* or patient accept* or scale* or visual analogical scale* or tolerability or feasibility or adherence or self-management or self-efficacy or side effect* or adverse effect* or adverse event* or extra medication or antibiotic us* or burden of treatment).mp. [mp=abstract, heading words, title] 39617

47 patient participation/ or exp "patient acceptance of health care"/ or self care/ or self efficacy/ 9393

48 (participation or life role* or social role* or role function* or community engagement or integration or days of absence).mp. 9967

49 22 or 23 or 26 or 27 or 28 or 31 or 35 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 122778

50 18 and 49 22

51 (methodology or qualitative or quantitative or measure* or study or studies or review*).mp. [mp=abstract, heading words, title] 153414

52 research design/ 2290

53 51 or 52 154425

54 50 and 53 13

CINAHL

S39	S36 AND S38	66
S38	methodology or qualitative or quantitative or measure* or study or studies or review*	3,419,562
S36	S18 AND S35	473
S35	S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S34	2,668,310
S34	Participation or life role* or social role* or role function* or community engagement or integration or days of absence	194,643
S33	patient* feedback or patient* preference* or patient* experience* or patient view* or patient perspective* or patient accept* or scale* or visual analogical scale* or tolerability or feasibility or adherence or self-management or self-efficacy or side effect* or adverse effect* or adverse event* or extra medication or antibiotic us* or burden of treatment	1,429,152
S32	exercise capacity or physical activity or sleep or anxiety or depression or symptom or dyspnea or breathlessness or fatigue or exacerbat*.	795,076
S31	respiratory sound* or breath sound* or crackle* or wheeze*	4,390
S30	marker* or neutrophil elastase or myeloperoxidase or interleukin* or cell count*	217,039
S29	osmotic pressure or interfacial tension or bacterial load or bacterial density or bacterial eradication or pathogens or microbiology or inflammat*.	257,699
S28	surface propert* or tenacity or cohesivity or adhesivity or viscoelasticity or rheology* or rigidity transportability or ciliary movement or mucus hydration or solid content or solid percentage or mucin	8,646
S27	mucociliary clearance or radioaerosol clearance or scintigraphy or cough clearance or cough transport or biophysical propert*	7,452

S26	sputum or sputum weight or sputum volume or sputum quantity* or sputum color or sputum purulence or sputum property* or sputum cytology or expectoration or mucociliary transport or mucus* or mucociliary clearance or ease of expectoration	9,711
S25	diffusion or DLCO or gas exchange or HRCT or high-resolution computed tomography or saturation or lung clearance index or multiple breath washout or ventilation inhomogeneity or ventilation or magnetic resonance imaging* or MRI	262,176
S24	plethysmography or airway resistance or airway reactance or airway impedance	5,176
S23	spirometry or forced expiratory volume or FEV1 or forced vital capacity or FVC or forced expiratory flow FEF or peak expiratory flow or lung volume* or air trapping or residual volume or lung hyperinflation or total lung capacity or TLC	26,445
S22	cough* or pulmonary function* or lung function*	37,780
S21	quality of life or QoL or HRQoL or health-related quality of life	226,292
S20	BSI or FACED or E-FACED or patient-reported outcome* or PRO or Patient Reported Experience* or PREM or patient-reported experience measure*	74,079
S19	hospital * or readmission or emergency attendance or disease prognosis* or (day N3 recovery)	37,883
S18	S3 AND S17	502
S17	S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16	378,799
S16	thoracic expansion or FET or forced expiration* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non-invasive ventilation	46,820
S15	ACBT or active cycle* or postural drainage or gravity-assisted drainage or percussion or clapping or vibration	7,463
S14	ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*	47

S13	autogenic drainage or AD	60,779
S12	HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*	3,868
S11	IPV or intrapulmonary percussive ventilation	10,477
S10	IPPB or intermittent positive pressure breathing	218
S9	10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP	67,809
S8	bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*	3,476
S7	airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance	1,744
S6	S4 OR S5	193,173
S5	physiotherap* or physical therap*	85,201
S4	(MH "Physical Therapy+")	153,140
S3	S1 OR S2	2,344
S2	bronchiectasis or bronchiectases or kartageners syndrome	2,344
S1	(MH "Bronchiectasis")	1,295

Cochrane CENTRAL

There were no records retrieved in Cochrane CENTRAL

PEDro

There were no records retrieved in PEDro

Search strategy (b)

Database: Ovid MEDLINE® ALL <1946 to November 2021>

- 1 exp Respiratory Tract Infections/ or exp Respiratory Tract Diseases/ 1557604
- 2 limit 1 to ("young adult (19 to 24 years)" or "adult (19 to 44 years)" or "young adult and adult (19-24 and 19-44)" or "middle age (45 to 64 years)" or "middle aged (45 plus years)" or "all aged (65 and over)" or "aged (80 and over)") 654517
- 3 exp Physical Therapy Modalities/ 166262
- 4 (hysiotherapy* or physical therap*).mp. 78124
- 5 4 or 5 199815
- 6 (airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).mp 6585
- 7 (bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).mp. 4484
- 8 (10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).mp. 279774
- 9 (IPPB or intermittent positive pressure breathing).mp. 1132
- 10 (IPV or intrapulmonary percussive ventilation).mp. 7488
- 11 (HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*).mp. 22276
- 12 (autogenic drainage or AD).mp. 163112
- 13 (ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).mp. 80
- 14 (ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration).mp. 50544
- 15 (thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).mp. 78270
- 16 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 789940
- 17 exp Feedback/ 31702
- 18 exp Culture/ 172636

19	exp Attitude to Health/ or exp Attitude/	634144	
20	exp Perception/ or exp Social Perception/	463601	
21	exp Patient Reported Outcome Measures/	10872	
22	exp Patient-Centered Care/	22837	
23	(PREM or patient?reported experience* or patient?reported outcome* or patient?centred or patient?centered).ti,ab.		305
24	(barrier* or enabler* or belief* or social impact* or burden impact* or perspective* or feedback or qualitative or adherence or core themes* or attitude* or perception* or opinion* or experience* or hysiother* or help or support or hinder or difficult or satisfaction or preference or acceptance or voice or benefit).ti,ab.		
	5170748		
25	17 or 18 or 19 or 20 or 21 or 22 or 23 or 24	5844237	
26	16 and 25	205027	
27	2 and 26	7725	
28	27 not (covid or coronavirus or knee or liver or kidney or diabetes or pregnan* or child or children or p?ediatric).mp.		1092

Embase <1974 to November 2021>

1	respiratory tract infection/ or respiratory tract disease/	124256
2	limit 1 to (adult <18 to 64 years> or aged <65+ years>)	39614
3	exp physiotherapy/	95401

4 (hysiotherapy* or physical therap*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 137949

5 3 or 4 139050

6 (airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).ti,ab. 8847

7 (bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).ti,ab. 2037

8 (10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).ti,ab. 327980

9 (IPPB or intermittent positive pressure breathing).ti,ab. 515

10 (IPV or intrapulmonary percussive ventilation).ti,ab. 8126

11 (HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*).ti,ab. 29258

12 (autogenic drainage or AD).ti,ab. 225160

13 (ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).ti,ab. 110

14 (ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration).ti,ab. 38203

15 (thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).ti,ab. 68835

16 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 831523

17 exp feedback system/ 125559

18 exp cultural anthropology/ 54184

19 attitude to health/ or attitude/ 188253

20 perception/ 135619

21 exp patient-reported outcome/ 36700

22 patient care/ 323082

23 (PREM or patient?reported experience* or patient?reported outcome* or patient?centred or patient?centered).ti,ab. 2315

24 (barrier* or enabler* or belief* or social impact* or burden impact* or perspective* or feedback or qualitative or adherence or core themes* or attitude* or perception* or opinion* or experience* or hysiother* or help or support or hinder or difficult or satisfaction or preference or acceptance or voice or benefit).ti,ab. 6751743

25 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 7119942

26 16 and 25 238048

27 2 and 26 534

28 27 not (covid or coronavirus or knee or liver or kidney or diabetes or pregnan* or child or children or p?ediatric).mp. 351

29 Limit to Embase 233

AMED (Allied and Complementary Medicine) <1985 to November 2021>

1 exp respiratory tract infections/ or exp respiratory tract disease/ 9187

2 (respiratory tract* adj2 (disease* or infection*)).mp. [mp=abstract, heading words, title] 943

3 1 or 2 9257

4 exp physical therapy modalities/ 30639

5 (hysiotherapy* or physical therap*).mp. [mp=abstract, heading words, title] 24343

6 4 or 5 44896

7 (airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance).mp. [mp=abstract, heading words, title] 121

8 (bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*).mp. [mp=abstract, heading words, title] 446

9 (10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP).mp. [mp=abstract, heading words, title] 2840

10 (IPPB or intermittent positive pressure breathing).mp. [mp=abstract, heading words, title] 13

11 (IPV or intrapulmonary percussive ventilation).mp. [mp=abstract, heading words, title] 16

12 (HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*).mp. [mp=abstract, heading words, title] 173

13 (autogenic drainage or AD).mp. [mp=abstract, heading words, title] 930

14 (ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*).mp. [mp=abstract, heading words, title] 6

15 (ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration).mp. [mp=abstract, heading words, title] 1146

16 (thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation).mp. [mp=abstract, heading words, title] 957

17 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 48924

18 feedback/ 506

19 exp culture/ 3921

20 attitude to health/ or attitude/ 4638

21 exp perception/ 4624

22 patient centered care/ 551

23 (PREM or patient?reported experience* or patient?reported outcome* or patient?centred or patient?centered).mp. 3

24 (barrier* or enabler* or belief* or social impact* or burden impact* or perspective* or feedback or qualitative or adherence or core themes* or attitude* or perception* or opinion* or experience* or hysiother* or help or support or hinder or difficult or satisfaction or preference or acceptance or voice or benefit).ti,ab. 77504

25 18 or 19 or 20 or 21 or 22 or 23 or 24 83869

26 17 and 25 12076

27 3 and 26 439

28 27 not (covid or coronavirus or knee or liver or kidney or diabetes or pregnan* or child or children or p?ediatric).mp. 380

CINAHL

S27	S25 not S26	8,418
S26	covid or coronavirus or knee or liver or kidney or diabetes or pregnan* or child or children or p?ediatric	1,533,434
S25	S1 AND S24	10,888
S24	S15 AND S23	125,028
S23	S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22	2,106,499
S22	barrier* or enabler* or belief* or social impact* or burden impact* or perspective* or feedback or qualitative or adherence or core themes* or attitude* or perception* or opinion* or experience* or hysiother* or help or support or hinder or difficult or satisfaction or preference or acceptance or voice or benefit	2,092,838
S21	PREM or patient?reported experience* or patient?reported outcome* or patient?centred or patient?centered)	3,119
S20	(MH "Patient-Reported Outcomes")	3,956
S19	(MH "Perception")	30,838
S18	(MH "Attitude to Health")	47,346
S17	(MH "Culture")	30,664
S16	(MH "Feedback")	16,999
S15	S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14	382,225
S14	thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation	47,201
S13	ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration	7,473

S12	ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*	48
S11	autogenic drainage or AD	62,286
S10	HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*	3,923
S9	IPV or intrapulmonary percussive ventilation	10,567
S8	IPPB or intermittent positive pressure breathing	221
S7	10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP	68,300
S6	bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*	3,512
S5	airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance	1,756
S4	S2 OR S3	194,094
S3	hysiotherapy* or physical therap*	86,119
S2	(MH "Physical Therapy+")	153,538
S1	(MH "Respiratory Tract Diseases+") OR (MH "Respiratory Tract Infections+")	321,335

Cochrane CENTRAL 1947 – 2021

**This iteration of the strategy is truncated due to the large numbers of results retrieved for the full search.*

#1	MeSH descriptor: [Respiratory Tract Infections] explode all trees	17796
#2	MeSH descriptor: [Respiratory Tract Diseases] explode all trees	67532

#3	#1 or #2	67532	
#4	MeSH descriptor: [Physical Therapy Modalities] explode all trees	29256	
#5	(physiotherap* or physical therap*)	86806	
#6	#4 or #5	102655	
#7	(airway* clearance or sputum clearance or mucus clearance or lung clearance or tracheobronchial clearance or mucociliary clearance)		3478
#8	(bronchopulmonary hygiene or pulmonary hygiene or lung hygiene or breathing exercise*)	6500	
#9	(10 oscilat* or PEP or positive expiratory pressure or Flutter or Acapella or Cornet or Quake or Aerobika or Threshold or TheraPEP)		35034
#10	(IPPB or intermittent positive pressure breathing)	567	
#11	(IPV or intrapulmonary percussive ventilation)	1520	
#12	(HFCWO or High Frequency Chest Wall Oscillation or chest wall* or thoracic wall*)	3337	
#13	(autogenic drainage or AD)	32984	
#14	(ELTGOL or Expiration Lente Totale Glotte Ouverte or slow expiration* or glottis opened or slow expiratory*)	627	
#15	(ACBT or active cycle* or postural drainage or gravity?assisted drainage or percussion or clapping or vibration)	9799	
#16	(thoracic expansion or FET or forced expirat* or huff* or inspiratory muscle training or respiratory therapy or mechanical stress or shaker or shaking or non?invasive ventilation)	61552	
#17	#6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16	226196	
#18	(PREM or "patient-reported experience*" or "patient reported outcome*" or "patient-centred" or "patient centered")		12491
#19	#17 and #18	3420	
#20	#3 and #19	262	
#21	(covid or coronavirus or knee or liver or kidney or diabetes or pregnan* or child or children or p?ediatric)	471603	
#22	#20 not #21	151	
#23	Cochrane CENTRAL 1947-2021	128	

PEDro

Respiratory tract infection* (34)

Respiratory tract disease* (10)

Question 5 - In adults with bronchiectasis, how should studies for ACTs be conducted to reduce the risk of bias, facilitate comparison of findings, as well as conducting future meta-analyses?

Selection criteria

	Population	Disease	Clinical status	Study design	Active treatment	Comparison	Outcomes	Comments
Inclusion	Adults (≥18 y) Male or female	Bronchiectasis Overlaps (COPD, Asthma) Primary ciliary dyskinesia Kartagener syndrome	Stable Exacerbation Hospital Admission	RCT (equivalence) Crossover Non-inferiority trial Superiority trial	ACTs Combined ACTs	Placebo Sham intervention ACT alone Combined ACTs Usual care Other (PR, mucoactive) No treatment	Random sequence Allocation concealment Blinding of participants Blinding of assessors Blinding of researchers in charge of intervention Incomplete data Selective reporting	i) Studies recruiting more than one disease at the same time (e.g COPD and bronchiectasis) will be only included if specific data from bronchiectasis could be extracted ii) Abstracts are included
	Population	Disease	Clinical status	Study design	Active treatment	Comparison	Outcomes	Comments
Exclusion	Children (<18y) Animal models In vitro	CF COPD Asthma ILD Other respiratory disease	Intensive Care	Quasi-experimental Cross-sectional Cohort Case-control Qualitative Systematic Review Narrative review	PR IMT Exercise NIV Muco-active drugs Invasive methods	N/A	N/A	

COPD, chronic obstructive pulmonary disease; CF, cystic fibrosis; ILD, interstitial lung disease; RCT, randomised controlled trial; ACTs, airway clearance techniques; PROs, patient reported outcomes; PR, pulmonary rehabilitation; IMT, inspiratory muscle training; NIV, non-invasive ventilation N/A, not applicable

Search strategy

The same search strategy was used as in question 4.