

**Online Supplement**  
**Variations in COPD Health Care Access and Outcomes: A Rapid Review**

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## Appendix 1

### Search Summary:

Databases Used: Medline and Embase

Limits: English, published in the last 10 years, North America, Europe, Scandinavian countries, Australia and NZ, journal articles and reviews only

Search Strategies:

Embase

- 1 "variation\* in care".ti. (110)
- 2 exp healthcare disparity/ (20160)
- 3 exp health disparity/ (28190)
- 4 exp healthcare access/ (87914)
- 5 "health inequit\*".ti. (697)
- 6 or/1-5 (129534)
- 7 exp treatment outcome/ (2028517)
- 8 exp outcome assessment/ (725612)
- 9 exp health status/ (282830)
- 10 exp "length of stay"/ (240113)
- 11 exp hospitalization/ (467067)
- 12 exp disease exacerbation/ (159996)
- 13 exp disease severity/ (2065865)
- 14 exp hospital discharge/ (161246)
- 15 exp disease management/ (3440383)
- 16 exp convalescence/ (54983)
- 17 exp "quality of life"/ (590631)
- 18 exp morbidity/ (406580)
- 19 exp mortality/ (1265176)
- 20 or/7-19 (6503223)
- 21 exp chronic obstructive lung disease/ (158677)
- 22 COPD.ti. (40989)

- 23 or/21-22 (164738)
- 24 6 and 20 and 23 (872)
- 25 limit 24 to (english language and exclude medline journals and (article or "review") and last 10 years) (68)
- 26 exp Canada/ or (Canad\* or "British Columbia" or "Colombie Britannique" or Alberta\* or Saskatchewan or Manitoba\* or Ontario or Quebec or "Nouveau Brunswick" or "New Brunswick" or "Nova Scotia" or "Nouvelle Ecosse" or "Prince Edward Island" or Newfoundland or Labrador or Nunavut or NWT or "Northwest Territories" or Yukon or Nunavik or Inuvialuit).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] (355965)
- 27 exp mexico/ or exp united states/ or chile/ or Costa Rica/ or Colombia/ or austria/ or belgium/ or exp baltic states/ or estonia/ or latvia/ or lithuania/ or czech republic/ or hungary/ or poland/ or slovakia/ or slovenia/ or exp france/ or exp germany/ or united kingdom/ or exp england/ or northern ireland/ or exp scotland/ or wales/ or greece/ or exp ireland/ or exp italy/ or luxembourg/ or netherlands/ or portugal/ or exp "scandinavian and nordic countries"/ or exp denmark/ or finland/ or iceland/ or norway/ or sweden/ or spain/ or switzerland/ or exp australia/ or exp new zealand/ or (Australia or Austria or Belgium or Canada or Chile or Colombia or "Costa Rica" or "Czech Republic" or Denmark or Estonia or Finland or France or Germany or Greece or Hungary or Iceland or Israel or Italy or Japan or Latvia or Lithuania or Luxembourg or Mexico or Netherlands or New Zealand or Norway or Poland or Portugal or "Slovak Republic" or Slovenia or Spain or Sweden or Switzerland or Turkey or "United Kingdom" or England or Ireland or Scotland or Wales or "United States").mp. (5509040)
- 28 or/26-27 (5591041)
- 29 25 and 28 (21)

#### Medline

- 1 "variation\* in care".ti. (80)
- 2 exp Healthcare Disparities/ (21315)
- 3 exp Health Status Disparities/ (19083)
- 4 exp Health Services Accessibility/ (122876)
- 5 exp Health Inequities/ (19269)
- 6 exp "Health Services Needs and Demand"/ (62191)
- 7 exp "Patient Acceptance of Healthcare"/ (169562)
- 8 exp "Facilities and Services Utilization"/ (1235)
- 9 or/1-8 (363102)
- 10 exp Treatment Outcome/ (1204481)
- 11 "health outcome\*".ti. (7581)
- 12 exp Outcome Assessment, Healthcare/ (1295992)
- 13 exp "Length of Stay"/ (100101)

- 14 exp Hospitalization/ (281565)
- 15 exp Patient Discharge/ (37107)
- 16 exp Disease Progression/ (203431)
- 17 exp Disease Management/ (82480)
- 18 exp Convalescence/ (3926)
- 19 exp "Quality of Life"/ (247300)
- 20 exp Morbidity/ (631792)
- 21 exp Mortality/ (419229)
- 22 or/10-21 (2765915)
- 23 exp Pulmonary Disease, Chronic Obstructive/ (64135)
- 24 COPD.ti. (21551)
- 25 or/23-24 (68325)
- 26 9 and 22 and 25 (803)
- 27 limit 26 to (english language and (evaluation study or government publication or journal article or meta analysis or multicenter study or observational study or "review" or "systematic review") and last 10 years) (511)
- 28 exp Canada/ or (Canad\* or "British Columbia" or "Colombie Britannique" or Alberta\* or Saskatchewan or Manitoba\* or Ontario or Quebec or "Nouveau Brunswick" or "New Brunswick" or "Nova Scotia" or "Nouvelle Ecosse" or "Prince Edward Island" or Newfoundland or Labrador or Nunavut or NWT or "Northwest Territories" or Yukon or Nunavik or Inuvialuit).mp. (263928)
- 29 exp mexico/ or exp united states/ or chile/ or Costa Rica/ or Colombia/ or austria/ or belgium/ or exp baltic states/ or estonia/ or latvia/ or lithuania/ or czech republic/ or hungary/ or poland/ or slovakia/ or slovenia/ or exp france/ or exp germany/ or united kingdom/ or exp england/ or northern ireland/ or exp scotland/ or wales/ or greece/ or exp ireland/ or exp italy/ or luxembourg/ or netherlands/ or portugal/ or exp "scandinavian and nordic countries"/ or exp denmark/ or finland/ or iceland/ or norway/ or sweden/ or spain/ or switzerland/ or exp australia/ or exp new zealand/ or (Australia or Austria or Belgium or Canada or Chile or Colombia or "Costa Rica" or "Czech Republic" or Denmark or Estonia or Finland or France or Germany or Greece or Hungary or Iceland or Israel or Italy or Japan or Latvia or Lithuania or Luxembourg or Mexico or Netherlands or New Zealand or Norway or Poland or Portugal or "Slovak Republic" or Slovenia or Spain or Sweden or Switzerland or Turkey or "United Kingdom" or England or Ireland or Scotland or Wales or "United States").mp. (3872985)
- 30 or/28-29 (3961575)
- 31 27 and 30 (233)
- 32 remove duplicates from 31 (232)

## Appendix 2

Inclusion Criteria	Exclusion Criteria
Published in the last 10 years	Published >10 years ago
Geographic location is North America, Europe, Scandinavian countries, Australia, or New Zealand.	Geographic location other than North America, Europe, Scandinavian countries, Australia, or New Zealand.
English	Language other than English
Systematic review or observational studies	Conference proceedings, editorials, guidelines, or policies
Population: Adult Patients with COPD	Non-adult population Other conditions/respiratory diseases besides COPD
<p>Study Objective:</p> <ul style="list-style-type: none"> <li>• To evaluate and/or define healthcare access and/or related health outcomes for individuals with COPD</li> <li>• To assess potential variation or disparities in healthcare access (access to pulmonary rehab, access to pulmonary function testing, access and adherence to COPD medications, access to palliative/continuing care, access to GP, access to pulmonologist/specialist)</li> <li>• To assess potential variation/disparities in healthcare outcomes (inpatient hospitalization rate and length of stay, ED visits, readmissions, mortality rates)</li> </ul>	Primary study objective evaluates the effectiveness of an intervention and/or quality improvement initiative/programme
<p>Differential patterns/variation in healthcare access/outcomes are assessed by demographic factors, including:</p> <ul style="list-style-type: none"> <li>• Geography</li> <li>• Ethnicity</li> <li>• Age</li> <li>• Sex/Gender</li> <li>• SES</li> <li>• Educational level</li> </ul>	

### Appendix 3. Newcastle Ottawa Scale Risk of Bias Assessment of Cohort Studies

Author (Year)	Selection				Comparability	Outcome			Risk of Bias Score (/9)
	Representative-ness of exposed cohort	Selection of non-exposed cohort	Ascertainment of Exposure	Outcome of Interest not Present at Start of Study	Comparability of Cohorts	Assessment of Outcome	Sufficient Follow-up Length	Adequacy of Follow-up	
<i>Published Cohort Studies</i>									
Appleton (2021)	(a) ★	(a) ★	(a) ★	(a) ★	(a), (b) ★★	(b) ★	(a) ★	(a) ★	9
Bhopal (2015)	(b) ★	(a) ★	(a) ★	(b)	(a), (b) ★★	(b) ★	(a) ★	(d)	7
Collins (2018)	(c)	(b)	(a) ★	(b)	(a), (b) ★★	(b) ★	(a) ★	(d)	5
DiMartino (2017)	(a) ★	(a) ★	(a) ★	(a) ★	(a), (b) ★★	(b) ★	(a) ★	(a) ★	9
Dummer (2020)	(b) ★	(a) ★	(a) ★	(b)	(a), (b) ★★	(b) ★	(a) ★	(c)	7
Hayton (2013)	(c)	(a) ★	(a) ★	(a) ★	(a), (b) ★★	(b) ★	(a) ★	(b) ★	8
Hogg (2012)	(c)	(a) ★	(d)	(a) ★	(a), (b) ★★	(d)	(a) ★	(d)	5
Hu (2017a)	(b) ★	(a) ★	(a) ★	(a) ★	(a), (b) ★★	(b) ★	(a) ★	(d)	8
Hu (2017b)	(b) ★	(a) ★	(a) ★	(a) ★	(a), (b) ★★	(b) ★	(a) ★	(d)	8
Make (2012)	(a) ★	(a) ★	(a) ★	(a) ★	(a) ★	(b) ★	(a) ★	(d)	7
Melzer (2016)	(b) ★	(a) ★	(a) ★	(a) ★	(a), (b) ★★	(b) ★	(a) ★	(d)	8
Pretto (2012)	(b) ★	(a) ★	(a) ★	(b)	(a) ★	(b) ★	(b)	(d)	5
Sansgiry (2019)	(b) ★	(a) ★	(a) ★	(a) ★	(a), (b) ★★	(b) ★	(a) ★	(a) ★	9

Author (Year)	Selection				Comparability	Outcome			Risk of Bias Score (/9)
	Representative-ness of exposed cohort	Selection of non-exposed cohort	Ascertainment of Exposure	Outcome of Interest not Present at Start of Study	Comparability of Cohorts	Assessment of Outcome	Sufficient Follow-up Length	Adequacy of Follow-up	
Spitzer (2020)	(b) ✱	(a) ✱	(a) ✱	(a) ✱	(a), (b) ✱✱	(b) ✱	(a) ✱	(d)	8
Spitzer (2019)	(b) ✱	(a) ✱	(a) ✱	(a) ✱	(a), (b) ✱✱	(b) ✱	(a) ✱	(d)	8
Tottenborg (2016)	(a) ✱	(a) ✱	(a) ✱	(a) ✱	(a), (b) ✱✱	(b) ✱	(a) ✱	(d)	8
Vanasse (2020)	(a) ✱	(a) ✱	(a) ✱	(a) ✱	(a), (b) ✱✱	(b) ✱	(a) ✱	(a) ✱	9
Vercammen-Grandjean (2018)	(a) ✱	(a) ✱	(a) ✱	(a) ✱	(a), (b) ✱✱	(b) ✱	(a) ✱	(d)	8
Walker (2016)	(b) ✱	(a) ✱	(a) ✱	(b)	(a), (b) ✱✱	(b) ✱	(a) ✱	(d)	7
Wong (2016)	(b) ✱	(a) ✱	(a) ✱	(b)	(a) ✱	(b) ✱	(a) ✱	(a) ✱	7
Wu (2022)	(c)	(a) ✱	(a) ✱	(b)	(a), (b) ✱✱	(b) ✱	(a) ✱	(a) ✱	7
<b>Grey Literature Cohort Studies</b>									
Australian Commission on Safety and Quality in Healthcare (2021)	(a) ✱	(a) ✱	(a) ✱	(b)	(a), (b) ✱✱	(b) ✱	(a) ✱	(d)	7
Northern Norway Regional Health Authority (2022)	(b) ✱	(a) ✱	(a) ✱	(b)	(a), (b) ✱✱	(b) ✱	(a) ✱	(d)	7
Public Health England (2019)	(b) ✱	(a) ✱	(d)	(b)	(a) ✱	(d)	(a) ✱	(d)	4

Author (Year)	Selection				Comparability	Outcome			Risk of Bias Score (/9)
	Representative-ness of exposed cohort	Selection of non-exposed cohort	Ascertainment of Exposure	Outcome of Interest not Present at Start of Study	Comparability of Cohorts	Assessment of Outcome	Sufficient Follow-up Length	Adequacy of Follow-up	
Canadian Institute for Health Information (2017)	(a) ✱	(a) ✱	(a) ✱	(b)	(a) ✱	(b) ✱	(a) ✱	(d)	6
Centers for Disease Control and Prevention (2019)	(b) ✱	(a) ✱	(d)	(b)	(a) ✱	(d)	(a) ✱	(d)	4

### Interpretation of Risk of Bias Score

Very Good Studies: 8-9 points

Good Studies: 6-7 points

Satisfactory Studies: 4-5 points

Unsatisfactory Studies: 0 to 3 points



#### Appendix 4. Newcastle Ottawa Scale Risk of Bias Assessment of Cross-Sectional Studies

Author (Year)	Selection				Comparability	Outcome		Risk of Bias Score (/10)
	Representativeness of the sample	Sample Size	Non-respondents	Ascertainment of Exposure	Confounding Factors Controlled	Assessment of Outcome	Statistical test	
Alexopoulos (2015)	(a) ✱	(c)	(c)	(b) ✱	(a) ✱ ✱	(b) ✱ ✱	(a) ✱	7
deMiguelDiez (2015)	(a) ✱	(c)	(a) ✱	(c)	(a) ✱ ✱	(c) ✱	(a) ✱	6
Henoch (2016)	(b) ✱	(c)	(c)	(a) ✱ ✱	(a) ✱ ✱	(b) ✱ ✱	(a) ✱	8
Hetlevik (2016)	(a) ✱	(c)	(c)	(a) ✱ ✱	(a) ✱ ✱	(c) ✱	(a) ✱	7
Kim (2016)	(b) ✱	(c)	(a) ✱	(b) ✱	(a) ✱ ✱	(b) ✱ ✱	(a) ✱	8
Mowls (2015)	(a) ✱	(c)	(c)	(c)	(a) ✱ ✱	(c) ✱	(a) ✱	5
Papaioannou (2014)	(b) ✱	(c)	(a) ✱	(a) ✱ ✱	(a) ✱ ✱	(b) ✱ ✱	(a) ✱	9
Trigueros (2019)	(b) ✱	(a) ✱	(c)	(b) ✱	(a) ✱ ✱	(b) ✱ ✱	(a) ✱	8
Unni (2021)	(b) ✱	(c)	(c)	(b) ✱	(a) ✱ ✱	(c) ✱	(a) ✱	6

#### Interpretation of Risk of Bias Scores

Very Good Studies: 9-10 points

Good Studies: 7-8 points

Satisfactory Studies: 5-6 points

Unsatisfactory Studies: 0 to 4 points