Bilaga till rapport
Kontinuitet i vården / Continuity of care,
rapport 329 (2021)

Bilaga 5 Inkluderade studier om astma/KOL/ Appendix 5 Included studies regarding asthma/chronic obstructive pulmonary disease

Author **Year** **Ref #** **Country**	Cho et al. 2015 [1] Korea.
Study design **Population** **Setting**	Population-based retrospective cohort study using national claims database for 2002–2012. 3 090 patients with newly diagnosed COPD, aged ≥40years, who developed COPD in 2005 and were followed for 7 years (until 2016) and had ≥4 outpatient visits during that time. Mean age 69.0 (SD 10.1) years; 24.1% women. Ambulatory care.
Exposure/ intervention	Continuity of ambulatory care measured using COC index, with potentially available providers referring to healthcare institutions. COC score > 0.75 defined as high.
Outcome **Type of analysis** **Confounders/ covariates in analysis**	All-cause mortality. Cox proportional hazard regression. Age, sex, health insurance status, Charlson comorbidity index, home oxygen therapy, use of intensive care unit medical services, number of hospital admissions, respiratory impairment grade; all measured at 2006 baseline.
Results	Median survival: 2.92 years for low COC, 4.00 years for high COC (p<0.0001). Low versus high COC: HR 1.22 (1.09–1.36).
Risk of bias **Comments**	Moderate. Continuity measure based on medical institution rather than individual physician. COC included as time-dependent covariate in analysis.

COPD = Chronic obstructive pulmonary disease; COC = Continuity of Care; HR = hazard ratio

Author **Year** **Ref #** **Country**	Corsico et al. 2007 [2] Mainly European countries.
Study design **Population** **Setting**	Cross-sectional survey with 12-month recall. 2 cohorts from European Community Respiratory Health Survey I (1990–1994) and Survey II (1998–2002). 971 patients who had ever suffered from asthma confirmed by a doctor in either Survey I or II, had been prescribed asthma treatment and had answered questions on adherence in both Survey I and II. Mean age at first survey 34.0 (SD 7.2) years; 59.0% women. Mean length of follow up 8.1 years. General practice.

Exposure/ intervention	One of several adherence-related variables considered: regular appointments for asthma with a doctor or a nurse (yes/no).
Outcome **Type of analysis** **Confounders/ covariates in analysis**	Adherence to anti-asthmatic treatment during stable condition, based on question "If you have been prescribed medicine for your breathing, do you normally take all the medicine?". Logistic regression. Sex, age, geographic macro-area, duration of asthma, smoking habits in Survey I, full-time education, ICS drug in Survey I, written instructions, PEF meter, spirometry in last 12 months, thinking it is bad to take medicines all the time to help breathing, thinking they should take as much medicine needed to cure problems.
Results	Association between having regular appointments and *increased* adherence: OR 3.32 (1.08–10.17). Association between having regular appointments and *persistent* adherence: OR 1.23 (0.55–2.75).
Risk of bias **Comments**	High. Self-reported data for exposure and outcome variables. Limited information on methodology.

ICS = inhaled corticosteroids; PEF = peak expiratory flow; OR = odds ratio

Author **Year** **Ref #** **Country**	Einarsdottir et al. 2010 [3] Australia (Western).
Study design **Population** **Setting**	Retrospective cohort study using administrative data for 1992–2006. Exposure period 3 years, follow-up period up to 11.5 years. 108 455 patients with chronic respiratory diseases (asthma, COPD, emphysema, chronic bronchitis) aged ≥65 years. Mean age 72.7 (SD 7.0) years, 53.1% women. General practice.
	General practitioner regularity score (0–1), divided into quintiles. Exposure measured during first 3 years of each patient's observation period, followed by 6 months wash-out period prior to follow-up period.
Outcome **Type of analysis** **Confounders/ covariates in analysis**	All-cause mortality. First CRD hospitalization. Cox proportional hazard regression. Total number of GP visits during exposure period, gender, age at start of follow-up, indigenous status, Charlson comorbidity index, area-based socioeconomic status, residential remoteness.
Results	All-cause mortality: Increased regularity had weak protective association against death overall (not significant), according to authors. HR for all cause mortality for least regular continuity quintile compared to higher: 2nd least regular: HR 0.90 (95% CI 0.79 to 1.01) Medium regular: HR 0.84 (95% CI 0.75 to 0.95) 2nd most regular: HR 0.90 (95% CI 0.80 to 1.01) Most regular: HR 0.95 (95% CI 0.83 to 1.08) The association was modified by pharmacotherapy in highest pharmacotherapy level group (medium dose ICS with or without LAB); HR for quintiles compared to least regular group: most

	regular 0.75 (0.62–0.91); 2nd most regular 0.81 (0.69–0.96); medium regular 0.79 (0.67–0.93); 2nd least regular 0.84 (0.71–1.00). First CRD hospitalization: Increased regularity had protective association against first CRD hospitalization, with statistically significant hazard ratios mostly decreasing with increasing regularity. This was not modified by pharmacotherapy level, according to authors. HR for CRD hospitalization for least regular continuity quintile compared to higher: 2nd least regular: HR 0.92 (95% CI 0.83 to 1.00) Medium regular: HR 0.84 (95% CI 0.77 to 0.92) 2nd most regular: HR 0.74 (95% 0.67 to 0.82) Most regular: HR 0.77 (95% CI 0.68 to 0.86)
Risk of bias **Comments**	Moderate. Adjustment for immortal time bias. No reporting of diagnostic subgroups. Interaction term between regularity score and pharmacotherapy level included in the statistical models.

COPD = Chronic obstructive pulmonary disease; *CRD = chronic respiratory disease; GP = general practitioner; HR = hazard ratio; ICS = inhaled corticosteroid; LAB = long-acting bronchodilator*

Author **Year** **Ref #** **Country**	Frandsen et al. 2015 [4] US.
Study design **Population** **Setting**	Retrospective cohort study using claims data from 2004–2008. 506 376 chronically ill and privately insured patients with ≥1 insurance claim with primary care provider, of which 6.5% (n=32 916)* had COPD. Mean age 46.3 years*; 58% women*. Primary care.
Exposure/ intervention	Care fragmentation index based on pattern of care of their primary care provider (family practice, internal medicine, general practice, or pediatrics), measured using Herfindahl-Hirschman concentration index. Fragmentation measure based on *other* patients a physician sees reflecting that PCP's practice style and not that patient's severity of illness. Fragmentation measure divided into quartiles.
Outcome **Type of analysis** **Confounders/ covariates in analysis**	Hospitalisations resulting from ambulatory care-sensitive conditions. Total costs of care using Medicare payment rates. Linear regression. Age, gender, hierarchical condition categories for patient severity.
Results	Regression coefficients for 1 SD change in fragmentation in COPD subgroup: Any ACSC hospitalisations: 25% least fragmented vs. 29% most fragmented. Costs: USD 12 702 least fragmented vs. USD 19 368 most fragmented.
Risk of bias **Comments**	High. Complicated measure of fragmentation. Limited details on methodology for outcomes measurement and analysis. Possible overlap between components of exposure measure and resources included in cost calculations.

**Numbers calculated from publication.*
COPD = Chronic obstructive pulmonary disease; *ACSC = ambulatory care-sensitive condition; PCP = primary care provider*

Author **Year** **Ref #** **Country**	Hong et al. 2010 [5] Korea.
Study design **Population** **Setting**	Population-based retrospective cohort study using national claims database for 2002–2006. First 3 years for measurement of exposure, last year for health outcomes. Patients with first diagnosis of asthma (n=129 550), COPD (n=131 512), diabetes or hypertension, aged 65–84 years, who had ≥4 outpatient visits during 2002–2005. Patients could not have been hospitalized, visited an emergency department or died during first 3 years of follow-up. Mean (SD) age: 72.0 (5.1) years (asthma); 72.1 (5.1) years (COPD). Proportion women: 62.2% (asthma); 54.2% (COPD). Ambulatory care.
Exposure/ intervention	Continuity of Care index. Divided into tertiles.
Outcome **Type of analysis** **Confounders/ covariates in analysis**	Hospitalization. Emergency department visit. Healthcare costs. Multiple logistic regression for hospitalization and ED visits. Multiple linear regression analysis for healthcare costs (log-transformed). Unadjusted mean costs reported by tertile. Gender, 5-year age group, type of insurance, number of ambulatory care visits, main attending medical institution during first 3 years, comorbidities.
Results	Low continuity group showed higher risk of hospitalization and ED visits than the high continuity group. The medium continuity group also had higher risks of hospitalization and ED visits than the high continuity group, but lower risks than the low continuity group. Health care costs increased in both the medium and low continuity groups. <u>Asthma</u>: Association between COC and hospitalization: OR low vs. high COC 2.07 (1.92–2.23), medium vs. high COC 1.56 (1.45–1.68). Association between COC and ED visits: OR low vs. high COC 2.25 (1.87–2.70), medium vs. high COC 1.38 (1.14–1.67). Association between COC and healthcare costs: coefficient low vs. high COC 0.025 (p<0.001), medium vs. high COC 0.022 (p=0.001). Mean costs 1000 Korean won (SD) by COC level: low COC 2409 (2964), medium COC 2418 (3039), high COC 2210 (3013) (p<0.001). <u>COPD</u>: Association between COC and hospitalization: OR low vs. high COC 1.99 (1.86–2.13), medium vs. high COC 1.50 (1.41–1.61). Association between COC and ED visits: OR low vs. high COC 1.77 (1.45–2.17), medium vs. high COC 1.30 (1.06–1.59). Association between COC and healthcare costs: coefficient low vs. high COC 0.123 (p<0.001), medium vs. high COC 0.077 (p<0.001). Mean costs 1000 Korean won (SD) by COC level: low COC 2519 (3199), medium COC 2425 (2948), high COC 2189 (2914) (p<0.001).
Risk of bias	Moderate.

Comments	Continuity measure based on medical institution rather than individual physician. Possible overlap between components of exposure measure and resources included in cost calculations.

COPD = Chronic obstructive pulmonary disease; COC = Continuity of Care; ED = emergency department; OR = odds ratio

Author **Year** **Ref #** **Country**	Hussey et al. 2014 [6] US.
Study design	Retrospective cohort study using a 5 % random sample of claims data 2008–2009. Outcomes measured during 365-day episodes.
Population	Medicare beneficiaries with chronic diseases, aged ≥65 years, of which 76 520 had **COPD**. Patients had to be enrolled for the 2 years of study. Age groups: 43.7% 65–74 years; 39.7% 75–84 years; 16.6% ≥85 years; 54.5% women.
Setting	Outpatient setting.
Exposure/ intervention	Continuity of Care index based on outpatient visits to primary care providers and pulmonologists for COPD.
Outcome	Hospitalizations related to the chronic condition. Emergency department visits. Costs of care per episode.
Type of analysis	Multivariable logistic regression for hospitalization, ED visit and complications. Generalised linear regression for costs (using log-link function).
Confounders/ covariates in analysis	Age, sex, census region, hierarchical condition categories, zip code median income, Medicaid enrolment, number of visits, any visit to a primary care provider during episode.
Results	Every 0.1 unit increase in the COC index was associated with: Hospitalization: OR 0.95 (0.94–0.96). ED visits: OR 0.93 (0.92–0.93). Total episode costs: 6.3% lower costs. Using median cost of USD 1062, this corresponds to a decrease of USD 64 (62–67).
Risk of bias	Moderate.
Comments	Cross-sectional analysis with unclear measurement period for exposure. Possible overlap between components of exposure measure and resources included in cost calculations.

COPD = Chronic obstructive pulmonary disease; COC = Continuity of Care; ED = emergency department; OR = odds ratio; USD = US dollar

Author **Year** **Ref #** **Country**	Kao et al. 2016 [7] Taiwan. Kao et al. 2017 [8] Taiwan.
Study design	Population-based retrospective cohort study using national claims database for 2004–2013. Prior conditions collected 1 year prior to index date; exposure and certain healthcare use collected during 1st year post-index; outcome measured during 2nd year post-index.

Population	Kao et al 2016: 3 356 patients with asthma with ≥2 ambulatory visits or 1 hospital admission during 2005–2011, aged ≥65 years; patients had to have ≥ 4 outpatient visits during exposure period. *Exclusion*: patients with inpatient asthma care prior to or during exposure period. Age groups: 59.2% 65–74 years, 40.8 % ≥75 years; 49.3% women. Kao et al 2017: 3 395 patients with asthma with ≥ 2ambulatory visits or 1 hospital admission during 2005–2011, aged ≥65 years; patients had to have ≥4 outpatient visits during exposure period. Mean age 74.0 (SD 6.2) years; 49.5 % women.
Setting	Ambulatory care.
Exposure/ intervention	Continuity of Care index. Kao 2016: divided into low (<0.5), medium (0.5–0.99) and high (1). Kao 2017: divided into low (<0.47), medium (0.48–0.99) and perfect (1).
Outcome	Kao 2016: Avoidable hospitalizations. Kao 2017: Emergency department visits.
Type of analysis	Cox proportional hazard regression.
Confounders/ covariates in analysis	Both analyses: sex, age, insurance premium, COPD, Charlson comorbidity index, number of asthma-related ambulatory visits. Kao 2016: pulmonary-related diseases, diabetes, number of asthma-related ED visits. Kao 2017: enrollment in asthma pay-for-performance program during exposure period, asthma-related hospitalization, asthma-related ED visits.
Results	Avoidable hospitalizations: HR low vs. high COC 2.68 (1.55–4.63), p<0.001 moderate vs. high COC 1.49 (0.80–2.75), p=0.208. ED visits: HR low vs. high COC 2.11 (1.37–3.25), moderate vs. high COC 1.15 (0.70–1.87).
Risk of bias	Moderate.
Comments	Two articles based on same study reporting two different outcomes, however, without any reference to the other.

COC = Continuity of Care; ED = emergency department; HR = hazard ratio

Author **Year** **Ref #** **Country**	Kao et al. 2019 [9] Taiwan.
Study design	Population-based retrospective cohort study using national claims database for 2004–2013. Patients were followed for 2 years after index date (earliest date with record); exposure collected during 1st year post-index; outcome measured during 2nd year post-index.
Population	1 141 patients with asthma-COPD overlap, aged ≥65 years, during 2005–2011. Patients had to have ≥3 outpatient visits during exposure period. Mean age 74.4 (SD 6.2) years; 38.7% women.
Setting	Ambulatory care.
Exposure/ intervention	Continuity of Care index. Divided into low (0–0.29), medium (0.3–0.99), high (1).
Outcome	ED visits. Hospitalizations for COPD or asthma.
Type of analysis	Cox proportional hazard regression.

Confounders/ covariates in analysis	Age, gender, insurance premiums, history of hypertension and diabetes, any ED visits for COPD or asthma 1 year pre-index, any hospitalization for COPD or asthma 1 year pre-index, Charlson comorbidity index, number of outpatient visits for COPD or asthma during exposure period.
Results	ED visits: HR low vs. high COC 2.80 (1.45–5.38), moderate vs. high COC 2.69 (1.47–4.93). Hospitalizations: HR low vs. high COC 1.80 (1.03–3.13), moderate vs. high COC 1.72 (1.04 –2.83).
Risk of bias **Comments**	Moderate. Based on same database extraction as #1421, #446.

COPD = Chronic obstructive pulmonary disease; *COC = Continuity of Care; ED = emergency department; HR = hazard ratio*

Author **Year** **Ref #** **Country**	Lin et al. (see comment on why Lin et al 2015 [10] is not reported) 2017 [11] Taiwan.
Study design **Population** **Setting**	Retrospective cohort study using national claims database for 2005–2009. 2 199 patients with newly diagnosed COPD during 2006, aged ≥40 years, with ≥3 ambulatory visits during 1st year of follow-up. Patients had to be alive 2 years after date of confirmed diagnosis. Age groups: 34.2 % <65 years, 30.4 % 65–74 years, 29.4 % 75–84 years, 6.0 % ≥85 years; 36.6 % women. Not stated.
Exposure/ intervention	Continuity of Care index over 2 time periods: Short-term COC: based on ambulatory care visits during 1st year. Long-term COC: based on ambulatory care visits during initial 2 years. COC divided into tertiles: low (0–0.49), medium (0.5–0.99), high (1).
Outcome **Type of analysis** **Confounders/ covariates in analysis**	COPD-related avoidable hospitalizations based on AHRQ prevention quality indicator during 2 time periods. For short-term COC: outcome measured in 2nd year after date of confirmed diagnosis. For long-term COC: outcome measured in 3rd year after date of confirmed diagnosis. Logistic regression. Sex, age, low-income status, number of COPD-related ED visits, Charlson comorbidity index.
Results	Short-term COC: OR low vs. high COC 1.59 (0.91–2.76), medium vs. high COC OR 1.89 (1.07–3.33), Long-term COC: OR low vs. high COC 1.98 (1.00–3.94), medium vs. high COC OR 2.03 (1.05–3.94).
Risk of bias **Comments**	Moderate. Article by Lin et al. published in 2015 [10] used same cohort but included patients who died during first two years of observation period (total n=3015); analysis was only for long-term COC.

COPD = Chronic obstructive pulmonary disease; *AHRQ = Agency for Healthcare Research and Quality (US); COC = Continuity of Care; ED = emergency department; OR = odds ratio*

Author **Year** **Ref #** **Country**	Love et al. 2000 [12] US (Kentucky).
Study design	Cross-sectional survey with 12-month recall.

Population **Setting**	Responders to postal survey (age ≥18 years) enrolled in Medicaid fee-for-service program, a total sample of 1726 of which 404 patients had asthma and ≥2 reported health care visits during past 12 months. Mean age 49.3 years (SD 17.0); 72.1 % women. Primary care setting.
Exposure/ intervention	Patient perception of continuity. Four response categories to question "Over the past 12 months, when you went for medical care, how often did you see the same doctor or provider?": 1=rarely or never, 2=sometimes, 3=most of the time, 4=always.
Outcome **Type of analysis** **Confounders/ covariates in analysis**	Patient assessment of health care received during past 12 months: provider communication, patient influence, rated 1=poor to 5=excellent. Multivariate linear regression. Age, sex, education, race, number of visits, general health, health improvement, life satisfaction.
Results	Continuity of care significant (p=0.01) in predicting perception of provider communication, coefficient 0.147. Continuity of care significant (p=0.02) in predicting perception of patient influence, coefficient 0.144.
Risk of bias **Comments**	High. Outcome measures do not directly measure patient satisfaction. Self-reported survey data based on 12-month recall period for exposure variable, covariates, and outcomes.

Author **Year** **Ref #** **Country**	Svereus et al. 2017 [13] Sweden (Stockholm County).
Study design **Population** **Setting**	Retrospective cohort study based on administrative database with 1-year follow-up from first visit during 2012. Baseline characteristics collected 1 year prior to index date. 20 187 patients with COPD diagnosis, aged ≥55 years, with ≥1 outpatient visit in 2012. Patients had to be alive at 1-year post-index. Age groups: 23% 55–64 years; 40% 65–74 years; 28% 75–74 years; 9% ≥85 years. 59 % women. Clinics defined as primary care centers and specific departments in hospital care.
Exposure/ intervention	Continuity of Care index (Bice-Boxerman). Grouped into quintiles.
Outcomes **Type of analysis** **Confounders/ covariates in analysis**	Incidence of any hospitalization. Incidence of any emergency department visit. Total costs for health care and pharmaceuticals. Logistic regression for hospitalizations and emergency department use. Multivariate linear regression for costs. Age, sex, number of visits and comorbidity (measured using number of previously dispensed prescription drugs in main analysis).

	Residential area tested as proxy for socioeconomic position but excluded due to lack of explanatory value.
Results	Significant differences for all COC levels compared to highest COC (all p<0.01). Dose-response relationship. For patients with lowest COC compared to highest COC quintile: OR for any hospitalization: 2.17 (1.95–2.43). OR for any emergency department visit: 2.06 (1.86–2.28). Relative increase in costs: 58 % (52–64 %). Patients with second lowest COC vs. highest COC: OR for any hospitalization: 1.68 (1.50–1.87). OR for any emergency department visit: 1.66 (1.50–1.84). Relative increase in costs: 41 % (35–46 %). Patients with third lowest COC vs. highest COC: OR for any hospitalization: 1.57 (1.41–1.75). OR for any emergency department visit: 1.68 (1.52–1.86). Relative increase in costs: 32 % (27–37 %). Patients with fourth lowest COC vs. highest COC: OR for any hospitalization: 1.40 (1.28–1.56). OR for any emergency department visit: 1.41 (1.28–1.56). Relative increase in costs: 21 % (17–26 %).
Risk of bias	Moderate.
Comments	Definition of continuity on clinic-level does not provide information on number of healthcare professionals involved in patients' care. Concurrent measurement of exposure and outcomes does not allow conclusions about causality. Possible overlap between components of exposure measure and resources included in cost calculations.

COPD = hronic obstructive pulmonary disease; *COC = Continuity of Care; OR = odds ratio*

Author **Year** **Ref #** **Country**	Swanson et al. 2018 [14] Germany, Norway.
Study design	Retrospective cohort study using national administrative data with 1-year follow-up from first diagnosis during 2-year period.
Population	Patients admitted to hospital from 2011 to 2013 for first time with COPD as main discharge diagnosis, controlling for all prior admissions during previous 2 years. Patients who died during readmission period were excluded. N (Germany)=6373; N (Norway)=13 507. Mean (SD) age: 73.3 (11.3) years (Germany); 71.8 (12.0) years (Norway). Proportion women: 43.2% (Germany); 52.5% (Norway).
Setting	Patients identified in secondary care and followed in primary care after discharge.
Exposure/ intervention	Continuity of care using 3 indices for general practitioner visits: Bice-Boxerman index (COCI), Usual Provider Index (UPC), Sequential Continuity Index (SECON). Measured 2 years prior to index stay and 1 year after index stay.
Outcomes	Readmission for COPD after 30 days and 1 year.
Type of analysis	Logistic regression (30 days) and negative binomial regression (1 year).

Confounders/ covariates in analysis	Age, gender, comorbidities (Charlson index condition dummy variables), number of non-COPD hospital days 2 years prior to admission, time to first follow-up after discharge, time since last physician visit before index admission, index length of stay, whether usual provider was the same before and after index stay.
Results	Germany: No significant associations between pre-index measurement of exposure and any outcomes. Results represent associations with each 0.1 increase in the respective index measured 2 years pre-index. OR for 30-day readmission: COCI 0.990 (0.960–1.021) UPC 0.993 (0.955–1.032) SECON 0.987 (0.956–1.018) IRR for 1-year readmission: COCI 1.002 (0.987–1.017) UPC 1.003 (0.985–1.021) SECON 1.003 (0.989–1.018) Norway: Results represent associations with each 0.1 increase in the respective index measured 2 years pre-index. OR for 30-day readmission: COCI 0.987 (0.967–1.008) UPC 0.986 (0.962–1.010) SECON 0.987 (0.970–0.990), p<0.01 IRR for 1-year readmission: COCI 0.967 (0.956–0.978), p<0.001 UPC 0.961 (0.948–0.974), p<0.001 SECON 0.962 (0.952–0.973), p<0.001
Risk of bias **Comments**	Moderate. Results based on concurrent measurement of exposure (1-year post-index) and outcome do not allow conclusions about causality. Therefore, only results based on pre-index measurement of continuity of care are reported in table.

COPD = Chronic obstructive pulmonary disease; *IRR = incidence rate ratio; OR = odds ratio*

Author **Year** **Ref #** **Country**	Wireklint 2020 [15] Sweden.
Study design **Population** **Setting**	Cross-sectional cohort study using patient questionnaires complemented by questionnaires data from head of primary care clinics for information on clinical services and resources. 1 442 adult patients with physician diagnosis of asthma from 54 randomly selected primary care centers from 7 counties in central Sweden in 2012 and 2015. Age groups 28% <40 years; 41% 40–59 years; 32% ≥60 years; 61% women. Primary care.
Exposure/ intervention	Physician continuity (assignment to a patient-specific physician) as one of several associations tested for.

Outcome	Patient-reported knowledge of self-management of worsening asthma (defined as exacerbations or deteriorations). Four response categories to question "Do you think you have sufficient knowledge of how to manage a worsening of your asthma?": 1=Yes, absolutely; 2=Yes, a moderate level; 3=Yes, a little; 4=None.
Type of analysis	Multiple logistic regression.
Confounders/ covariates in analysis	Sex, age, education level, smoking status, presence of comorbidity in previous year, self-rated severity of disease, written action plan, visit to an asthma/COPD nurse in the previous 12 months, level of maintenance treatment, access to an asthma/COPD clinic at the primary health care center.
Results	Physician continuity, high educational level, written action plan, and treatment steps II (ICS only) and III (ICS + LABA or LTRA) were significantly associated with moderate to complete knowledge of self-management of worsening asthma. OR for physician continuity (adjusted): 2.19 (1.62–2.96), p<0.001.
Risk of bias	Moderate.
Comments	Self-reported data. Inclusion of smoking as confounder.

LABA = long-acting beta agonists; LTRA = leukotriene receptor antagonists; OR = odds ratio

Author **Year** **Ref #** **Country**	Uijen et al. 2012 [16] The Netherlands.
Study design	Multi-centre, single-blinded parallel-group RCT.
Population	180 patients aged ≥35 years with COPD, of which 148 (82%) completed the 2-year follow-up (2004–2006). Mean age 64.5 years; 37% women.
Setting	Primary care.
Exposure/ intervention	Overall RCT: 3 modes of care administration in primary care (usual care; self-management as adjunct to usual care; regular monitoring as adjunct to usual care). Embedded analyses: Continuity of care, measured as personal continuity from same care provider using Usual Provider of Continuity (UPC) index, and team continuity from same primary care team using 6 items (rated from 1=never to 5=always). Both measures based on self-reported visits and team continuity. UPC calculated at 1 year and 2 years (where available).
Outcome	Health Related Quality of Life (HRQoL) measured with self-administered Chronic Respiratory Questionnaire (CRQ). Measured at baseline, 6 months, 12 months, 18 months, and 24 months.
Type of analysis	Pearson's correlation coefficient of continuity of care and change in CRQ between baseline and mean of 18- and 24-month measurements.
Confounders/ covariates in analysis	None for HRQoL outcome.
Results	No clinically relevant difference in CRQ score (>0.5) was seen for different UPC scores. Pearson's correlation coefficient of difference in CRQ and personal continuity: 0.117. Pearson's correlation coefficient of difference in CRQ and team continuity: -0.041.
Risk of bias	Moderate.

Comments	Small sample. Continuity of care based on self-reported data with 12-month recall period. HRQoL self-reported.

COPD = Chronic obstructive pulmonary disease; HRQoL = health-related quality of life; RCT = randomised controlled trial

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