

Key statistics related to the burden and costs of COPD and COPD with type 2 inflammation in countries in north-west continental Europe

Table S1. Belgium

Statistic	Year	Study	COPD population	Definition	Results	Reference
Prevalence of comorbidities	2011-2016	Belgium cohort of European Community Respiratory Health Survey (ECRHS3)	206	Comorbidities (%): Hypertension Obesity Diabetes mellitus Renal impairment Mild (eGFR<60-89) Moderate to severe (eGFR<60) Atopy	45.9% 11.2% 7.3% 63.6% 3.9% 18.6%	¹
Mortality rates for COPD	2020-2021	Statbel causes of death register		Age standardised death rate per 100,000 Premature mortality (death before age 75 per 100,000) Men women	46.21 15.7 11.9	^{2,3}
Exacerbations	-	-	-	-	-	-
Hospitalizations for COPD	2006	Observational, prospective, bottom-up case study	433 COPD patients identified by primary and secondary care physicians	Average number of hospitalizations per patient in 1 year Average duration of hospital stay per patient in 1 year Average number of outpatients visits per patient in 1 year	0.24 2.83 days 3.9	⁴
Costs of COPD	2006	Observational, prospective, bottom-up case study	433	Total annual cost per patient (mean, EUR*)	1,738	⁴
	2018	National burden of disease study	513,805	Total annual cost per patient (mean, EUR*) Total COPD population costs (EUR)	1,955 >1.4 billion	⁵

*EURO amount calculated from local currency.

Table S2. Denmark

Statistic	Year	Study	COPD population	Definition	Results	Reference
Prevalence of comorbidities	2001-2003	Copenhagen City Heart Study	5299	Comorbidities (%): Ischaemic heart disease GOLD 1 GOLD 2 GOLD 3+4 Cerebral vascular disease GOLD 1 GOLD 2 GOLD 3+4 Peripheral arterial disease GOLD 1 GOLD 2 GOLD 3+4 Diabetes GOLD 1 GOLD 2 GOLD 3+4 Cancer GOLD 1 GOLD 2 GOLD 3+4	 10.5% 14.6% 16.3% 18.0% 25.4% 27.3% 20.8% 24.3% 24.5% 4.3% 6.2% 5.1% 10.8% 21.1% 14.3%	⁶
Mortality rates for COPD	1998-2010	National register-based study	131,811	12-year survival mean (95% CI)	0.364 (0.364, 0.368)	⁷
Exacerbations	2008–2017	Hospital-based nationwide, cohort study	GOLD definition ^a : B0: 4,545 B1: 3,908	Proportion of patient with COPD trajectory ^b : B0 non-severe B0 severe B1 non-severe B1 severe Odd ratio for severe trajectory B1 v B0 (95% CI):	 34.1% 61.9% 24.9% 71.2%	⁸

				1 moderate exacerbation ≥2 moderate exacerbations ≥1 severe exacerbation Death	1.58 (1.33-1.87) 2.60 (2.19-3.08) 2.08 (1.76-2.45) 1.85 (1.57-2.17)	
	2010–2016	Population-based and register-based cohort study	1,501 patients with a major CV event ^c 36–6 months prior to first full COPD assessment	Outcomes within 6 months (%): No COPD exacerbation and no CV event: COPD exacerbation and CV event: COPD exacerbation but no CV event: CV event but no COPD exacerbation:	39.8% 13.7% 37.0% 4.7%	⁹
Hospitalizations for COPD	2006-2012	Nationwide, register-based cohort study	179,759 patients hospitalised for COPD exacerbations	First time hospitalisation for exacerbation: non-pneumonia (n) 30-day mortality % pneumonia (n) 30-day mortality rate Adjusted HR (95% CI) ≥7th time hospitalization for exacerbation: Non-pneumonia (n) 30-day mortality rate Pneumonia (n) 30-day mortality rate Adjusted HR (95% CI) Median length of stay: Non-pneumonia Pneumonia	63.9% (33,552) 8.3% 36.1% (18,968) 12.1% 1.21 (1.17-1.24) 74.4% (31,254) 8.9% 25.6% (10,770) 11.3% 1.10 (1.07-1.13) 4 days (IQR 2–8) 7 days (IQR 4–11)	¹⁰
	2013-2014	Nationwide, register-based cohort study	3,088 A&E admissions with COPD	Readmitted within 30 days (%) Median time to readmission, days (IQR) Readmitted with unchanged diagnosis (%)	29 9 (3–17) 42.4	¹¹
	2023	Danish Register for Chronic Obstructive Pulmonary Disease - COPD (DrKOL)		Percentage of patients readmitted within 30-days of a hospitalisation for COPD 1-year mortality in patients admitted for COPD for the first time	16.2% 31%	¹²

Costs of COPD	1998–2010 (adjusted to 2010 costs)	National register-based study	597,235	Total annual indirect and direct costs per COPD patient (mean, EUR*)	10,941	⁷
	1998–2010	National register-based study	377,154	Total annual indirect and direct per persons for the spouse of a patient with COPD (mean, EUR*)	4,592	⁷
	2008-2016	Nationwide, population-based cohort study utilising Danish health registries	49,826	Total annual direct costs including costs for elderly care per COPD patient (mean, EUR*)	28,969	¹³
	2015-2016	Register-based nation- wide cohort study	Specialist care COPD: 46,084 Primary care only COPD: 68,471	Total annual healthcare costs per patient (mean, EUR*) All COPD patients Specialist care COPD Primary care only COPD	 7,436 11,605 5,117	¹⁴

^a GOLD category definitions: B0, no exacerbation; B1, one moderate exacerbation in the previous 12 months.

^b Non-severe disease trajectory was defined as ≤1 moderate exacerbation; severe disease trajectory was defined >1 moderate exacerbations, ≥1 severe exacerbations or death during 3 years of follow-up.

^c Major CV event was defined as hospitalisation with primary diagnosis of stroke, myocardial infarction, or heart failure.

*EURO amount calculated from local currency.

Table S3. Finland

Statistic	Year	Study	COPD population	Definition	Results	Reference
Prevalence of comorbidities	-	-	-	-	-	-
Mortality rates for COPD	2000–2001, follow-up until 2018	National population health survey	151	All-cause natural mortality in COPD patients: HR versus general pop (95% CI) CV mortality in COPD population : HR versus general pop (95% CI) Respiratory mortality: HR versus general pop (95% CI)	1.54 (1.23-1.93) 1.53 (1.08-2.16) 2.32 (1.00-5.36)	¹⁵
Exacerbations	-	-	-	-	-	-
Hospitalizations for COPD	1996–2018; data from 2018	National register-based study	Patients with severe COPD aged ≥60 years	Total annual number of emergency department visits	6,000	¹⁶
Costs of COPD	1996–2018; data from 2018	National register-based study	Patients with severe COPD aged ≥60 years	Total annual costs per patient (mean, EUR) Potential years of life lost	2,700 6,400	¹⁶
Costs of COPD and COPD with type 2 with type 2 inflammation	2004–2015	Non-interventional, retrospective registry study utilising data from a specialty care hospital register	COPD: 7,982 Severe COPD: 720 COPD with blood eosinophil count ≥300 cells/μL: 902 Severe COPD with blood eosinophil count ≥300 cells/μL: 71	Total costs for healthcare resource utilisation (HCRU) Total annual cost per COPD patient (mean, EUR) Total annual cost per patient with severe COPD (mean, EUR) Total annual cost per patient with COPD and type 2 inflammation (mean, EUR) Total annual cost per patient severe COPD with type 2 inflammation (mean, EUR)	3,877 3,303 6,297 5,215	¹⁷

Table S4. The Netherlands

Statistic	Year	Study	COPD population	Definition	Results	Reference
Prevalence of comorbidities	2010-2019 with up to 3 year follow-up	Retrospective study using Integrated Primary Care Information	5365	Comorbidities (%): Anxiety Cerebrovascular disease Depressive disorder Diabetes mellitus Heart failure Hypertensive disorder Ischaemic heart disease Obesity Lower respiratory tract infections in previous year	18.0% 7.4% 16.3% 15.4% 5.4% 35.4% 16.2% 5.5% 22.4%	¹⁸
Mortality rates for COPD	2022	National cause of death records		Relative mortality per 1000 people: Men Women	37.9 35.2 40.5	¹⁹
Exacerbations	2014–2018	Retrospective cohort study	8,020	Events during 36 months' follow-up, n (%): ≥1 exacerbation Non-fatal CV event Death Risk of composite outcome within 7 days after exacerbation, ^a HR (95% CI): Moderate exacerbation Severe exacerbation	2,234 (28%) 631 (8%) 461 (5%) 2.5 (1.3-4.8) 48.6 (36.9-64.0)	²⁰
Hospitalizations for COPD	2007-2009	National Institute of Public Health and the Environment (RIVM)		Total number of day admissions in 2009 Number of clinical admissions in 2009 (cause not specified) Average length of hospital stay in 2009	1,671 21,342 9.8 days	²¹
	2020	National Basic Hospital Care Register	COPD patients	Total number of inpatient hospitalizations Admissions per 10,000 people Total number of day admissions Total number of observations (unplanned nursing event for >4 consecutive hours)	21 335 12.0 930 485	²²

				Average hospital stay	7.0 days	
Costs of COPD	2007-2009	National Institute of Public Health and the Environment (RIVM)	305,788	Total cost of hospital admissions for COPD in 2007	€77.5 million	21
				Total healthcare costs for COPD patients in 2007	€414.7 million	
				Total annual healthcare costs per COPD patient	€1,356	
	2019-2021	NL primary care registrations		Total healthcare costs for COPD patients in 2019	€752.9 million	23
				Percentage of total spent on hospital care	33%	
				Percentage of total spent on primary care	24%	
	Published 2024	Longcijfers.nl		Percentage of total spent on medicines & aids	28%	24
				Total healthcare costs for COPD	~€1 billion	
				Costs are made up of:		
				Hospital care	€223.1 million	
				Medicines and medical devices	€193.7 million	
				Primary Care	€120.9 million	
				Management Organizations	€35.5 million	
				Public care and prevention	€3.8 million	
				Elderly care	€424.2 million	
				Remainder ^b	€17.9 million	

^a Composite outcome was defined as non-fatal severe event or all-cause death

^b Ambulance care and transport, care for the disabled and other care providers

Table S5. Norway

Statistic	Year	Study	COPD population	Definition	Results	Reference
Prevalence of comorbidities	1995-1997 and 2006-2008, follow-up until 2020	HUNT longitudinal population based survey	2076	Comorbidities (%): Osteoporosis Anxiety Depression Hypertension Chronic kidney disease Diabetes Myocardial infarction Hyperlipidaemia Obesity Underweight	14.7% 16.2% 15.9% 23.9% 7.5% 1.8% 10.3% 48.5% 18.7% 9.7%	²⁵
Mortality rates for COPD	2022	National cause of death registry	People aged 30-69	Age-standardized mortality rate for COPD per 100 000 population	11	²⁶
Exacerbations	-	-	-	-	-	-
Hospitalizations for COPD	2001-2017	Analysis from the Tromsø Study, Norwegian Patient Registry (NPR) and Norwegian Prescription Database (NorPD)		Hospitalizations per patients per 1000 inhabitants aged 40–84 years (2017): Men Women	3.0 3.6	²⁷
	2005-2006	EconCOPD prospective study	Hospital recruited patients: 205 Primary care recruited patients: 81	Total number of hospitalizations (all causes): Hospital recruited patients Primary recruited care patients Total number of hospitalizations (respiratory illness): Hospital recruited patients Primary care recruited patients Total number of emergency room visits: Hospital recruited patients Primary care recruited patients	1113 151 472 1 176 26	²⁸

Costs of COPD	2005	BOLD multicentre international study	658	Direct costs (mean, Euros): Total annual costs per COPD patient	€284	²⁹
				Total annual costs per COPD patient in each category: Stage II Stage III+	€348 €1,518	
	2005-2006	EconCOPD prospective study	Hospital patients: 205 Primary care patients: 81	Unadjusted annual costs per COPD patient (mean, Euros): Hospital patients Primary care patients	9503 3829	²⁸

Table S6. Sweden

Statistic	Year	Study	COPD population	Definition	Results	Reference
Prevalence of comorbidities	2002–2004, follow-up until 2016	Population-based prospective cohort study	GOLD 1: 326 GOLD 2: 245 GOLD 3+4: 28	Comorbidities (%): Heart disease GOLD 1 GOLD 2 GOLD 3+4 Cardiovascular disease GOLD 1 GOLD 2 GOLD 3+4 Cancer GOLD 1 GOLD 2 GOLD 3+4 Depression and anxiety GOLD 1 GOLD 2 GOLD 3+4	13.5 23.7 32.1 20.6 29.8 39.3 8.6 11.5 14.3 12.0 19.6 14.3	³⁰
Mortality rates for COPD	2023	Cause of Death Register		Total number of deaths from COPD in 2023 Total number where death was specified as acute exacerbation	2,953 384	³¹
Exacerbations	2022	National Airways Register	37,000 patients in register 336 patients hospitalised for COPD	Patients with ≥2 exacerbations or ≥1 hospitalisation in the last 12 months (%): Primary care Outpatient specialist care Patients hospitalised with COPD in 2022 (%): Severe/life-threatening exacerbation ≥2 exacerbations in the last 12 months Known cardiac disease	3% 32% 42% 47% 57%	³²
Hospitalizations for COPD	2002–2004, follow-up until 2016	Population-based prospective cohort study	GOLD 1: 326 GOLD 2: 245 GOLD 3+4: 28	Mean annual hospitalisations, days All COPD patients	1.32	³⁰

	2022	National Airways Register	37,000 patients in register 336 patients hospitalised for COPD	Average length of hospital stay in 2022	5.9 days	³²
Costs of COPD	2010	Prospective telephone interviews within the OLIN study	244	Direct and indirect costs Total annual cost per patient (mean, Eur) Moderate: 85 Severe: 29 Very severe: 14	3,245 5,686 17,355	³³
	2013	Real-world, retrospective, observational cohort study (ARCTIC)	7,251	Direct health care costs Total annual cost per patient (mean, Eur)	13,179	³⁴
	2002–2004, follow-up until 2016	Population-based prospective cohort study	GOLD 1: 326 GOLD 2: 245 GOLD 3+4: 28	Total annual healthcare costs per person in 2016 (mean, USD): GOLD 1 GOLD 2 GOLD 3+4	2139 USD 1,781 USD 2,396 USD 4,061 USD	³⁰

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