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Chronic Obstructive Pulmonary Disease (COPD)

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Purpose of briefing

This briefing provides a summary of data on chronic obstructive pulmonary disease (COPD) in West Sussex, drawing on data from the Office of Health Improvement and Disparities' online public health data tool Fingertips, Primary Care Mortality Database and latest release of the Global Burden of Disease. The aim of this briefing is to support public health colleagues and the public to learn more about chronic obstructive pulmonary disease and its burden across the county.

Background

What is COPD?

COPD is a common term for a group of conditions which affect the lungs and cause breathing difficulties (NHS, 2023a). These conditions include emphysema, where the air sacs in the lung become damaged, and chronic bronchitis, where the airways become inflamed and narrowed.

COPD occurs when the lungs and airways become damaged and inflamed by something a person breathes in. It is usually associated with long-term exposure to harmful substances such as cigarette smoke, dust, fumes or chemicals at work (Asthma and Lung UK, 2025).

Common symptoms of COPD include shortness of breath, a persistent chesty cough, an increase in phlegm production, frequent chest infections and persistent wheezing (National Institute of Health and Care Excellence, 2025).

How is COPD detected and diagnosed?

If a person is experiencing symptoms of COPD, they are advised to see a GP. The GP will ask questions about their symptoms, exposure to risk factors and medical history, including any related conditions such as heart problems, depression or osteoporosis (Asthma and Lung UK, 2025).

Following the assessment, if the GP suspects the person has COPD, they will request a spirometry test to be undertaken. This is a breathing test which measures the size of the lungs (in litres) and how quickly air flows in and out of them. It is used to differentiate between people with normal lung function and those with obstructive or restrictive lung diseases, such as COPD (NHS, 2025).

To confirm the diagnosis of COPD, a post-bronchodilator spirometry needs to be undertaken. This is where a person uses a bronchodilator inhaler or nebuliser to open their airways typically 15-20 minutes before the spirometry test (National Institute for Health and Care Excellence, 2018). The person will then be asked to take a deep breath in, so their lungs are filled with air, and then breathe out as hard and fast as they can into the spirometer device, to empty their lungs fully (NHS, 2025). The test provides information on the amount of air the person can blow out in one second, known as the forced expiratory volume in 1 second (FEV₁), and the amount of air that comes out when a person takes a deep breath in and then blows out as hard as they can, known as the forced vital capacity or FVC (National Institute for Health and Care Excellence, 2018).

These two measurements are used to determine the FEV₁ to FVC ratio which gives the percentage of air the person can breath out in one second. According to the Global Initiative for Chronic Obstructive Lung Disease (GOLD; 2026) and National Institute for Health and Care Excellence (NICE; 2018) guidelines, if a person has a post-bronchodilator FEV₁ to FVC ratio of less than 0.70, this meets the diagnostic criteria of COPD and indicates there is an airflow obstruction.

Following a diagnosis, the GOLD guidelines categorise the severity of the airflow obstruction into four stages, based on the FEV₁ measurement compared to appropriate reference values such as age, sex, height, and ethnicity (Asthma and Lung UK, 2026). These levels range from mild (FEV₁ of 80% or higher of the

predicted value) to very severe (FEV1 of less than 30% of the predicted value). For further information on the GOLD guidelines, [refer to the latest 2026 report](#).

How is COPD treated?

There is no treatment to 'cure' COPD or reverse the damage to the lungs. However, there are various treatments and medications which can improve a person's symptoms and reduce the risk of flare-ups or exacerbations (Asthma and Lung UK, 2025). This includes lifestyle changes, such as stopping smoking, alongside inhalers and tablets which can help to make breathing easier (NHS, 2023a).

The remainder of this briefing will focus on the prevalence of COPD, alongside rates of emergency hospital admissions and mortality. This overview is based on data from the Quality Outcomes Framework, Hospital Episode Statistics (as featured on the Office for Health Improvement and Disparities' Fingertips tool) and Primary Care Mortality Database.

In addition, this briefing will provide an overview of the latest Global Burden of Disease and Risk Factors (GBD) study published in 2023 and summarise findings relating to COPD for the South East. A series of accompanying plots and tables are provided in Appendix A.

Prevalence

The Quality Outcomes Framework (QOF) is a voluntary annual reward and incentive programme for all GP practices in England which aims to improve the quality-of-care patients receive (West Sussex JSNA, n.d.). QOF consists of five domains and GP practices are rewarded by their performance against a series of indicators within each domain, such as those relating to the diagnosis and management of COPD (NICE, 2025). For further information on the domains and indicators included in QOF, [refer to this NHS England QOF webpage](#).

The QOF provides data on the percentage of patients with COPD, as recorded on practice disease register. In 2024 to 25, 17,479 registered patients had a diagnosis of COPD in West Sussex which equates to 1.8% of patients registered within West Sussex GP practices. This percentage is significantly lower than England (1.9%), based on 99.8% confidence intervals.

The percentage of patients with a diagnosis of COPD has increased from 1.6% in 2012/13. However, there has been no significant change in the percentage recently, with the prevalence remaining at 1.8% since 2017/18.

Hospital admissions

COPD is estimated to cost the NHS around £2 billion annually and is the second leading cause of hospital admissions, with flare-ups accounting for 45% of total COPD spend (NHS England, 2026).

Hospital Episode Statistics (HES) is a database which contains details of all admissions, outpatient appointments and accident and emergency attendances for NHS hospitals in England (Shoaib, et al., 2021). HES data can provide information on the number and age standardised rates of hospital admissions from COPD per 100,000 population (OHID, 2026).

Age standardised rates account for differences in both population size and age-structure which allow us to compare across areas, such as whether there are significant differences in hospital admissions from COPD in West Sussex compared to England. These directly standardised rates were calculated using the 2013 European Standard Population (ESP) which allows us to compare across different areas and time periods more accurately (European Union, 2013). For further information on the ESP, [refer to this guidance produced by Fingertips](#).

Emergency hospital admissions amongst 35 and over

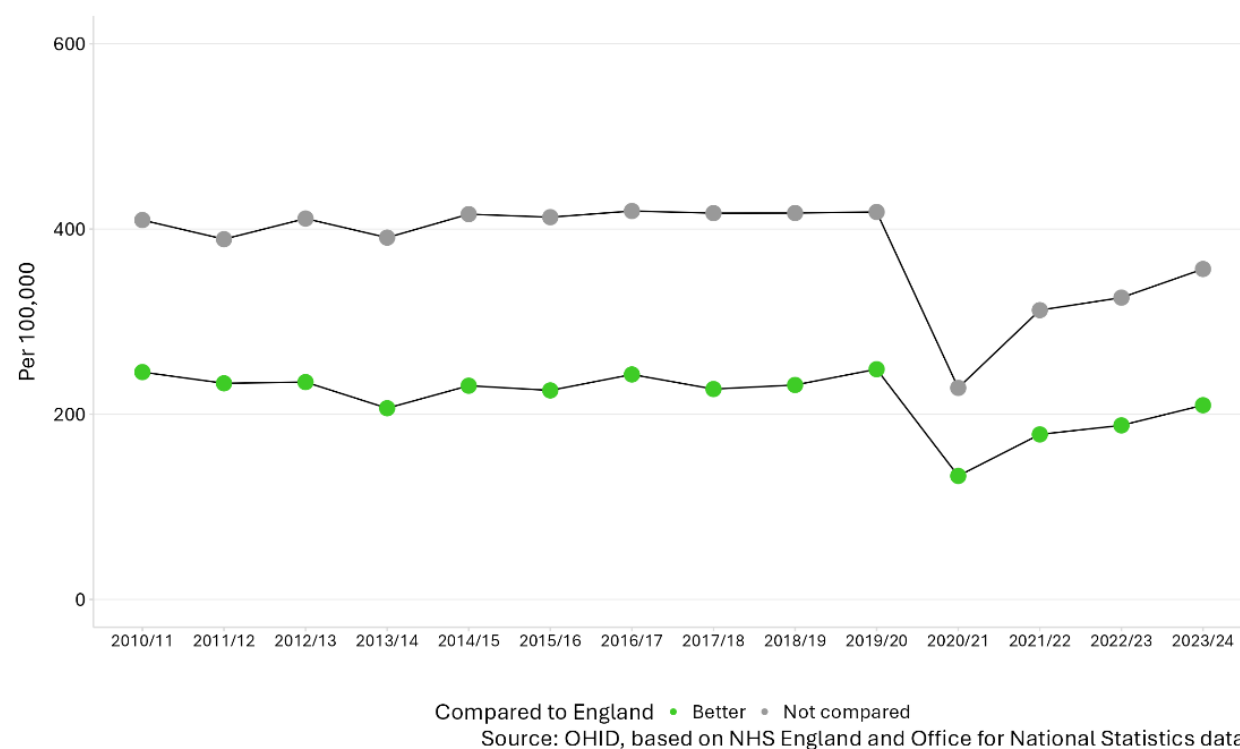
The risk of developing COPD increases with age and a diagnosis amongst people under the age of 35 is very rare. This is why an age threshold of 35 is used as a 'cut-off' for certain indicators (Rothnie et al., 2026).

For 2023/24, there were 1,349 emergency hospital admissions due to COPD amongst adults aged 35 and over across West Sussex. This equates to a directly standardised rate of 210 admissions per 100,000 population (of adults aged 35 and over) which was significantly lower than the England average (357 per 100,000 population).

Since 2010/11, the rate of emergency hospital admissions from COPD amongst adults aged 35 and over has remained significantly lower than England (see Figure 1).

The rate in West Sussex reduced considerably during the COVID-19 pandemic, falling to a low of 803 admissions (rate of 133 per 100,000 ESP) in 2020/21. Since then, the rate has increased each subsequent year but remains below pre-pandemic levels. This is aligned with the pattern for England, as shown in Figure 1.

Figure 1 Directly age-standardised rate of emergency hospital admissions for COPD (aged 35 and over) per 100,000 ESP; West Sussex compared to England (2010/11-2023/24).



Mortality rate

COPD is a leading cause of death in England and accounts for 5% of all deaths each year (Office for Health Improvement and Disparities [OHID], 2026).

OHID publish mortality profiles on Fingertips which provides information, such as the age-standardised mortality rates on certain causes of death, for local authorities. This allows us to compare mortality rates for COPD across West Sussex with other local authorities and identify trends overtime.

How are deaths from COPD reported on and measured?

When a person dies, a medical certificate of cause of death (MCCD) form is completed which allows the death to be registered. All conditions mentioned on an individuals' MCCD are assigned an internationally recognised code based on the World Health Organisation's International Classification of Diseases, 10th Revision (ICD-10) by the ONS.

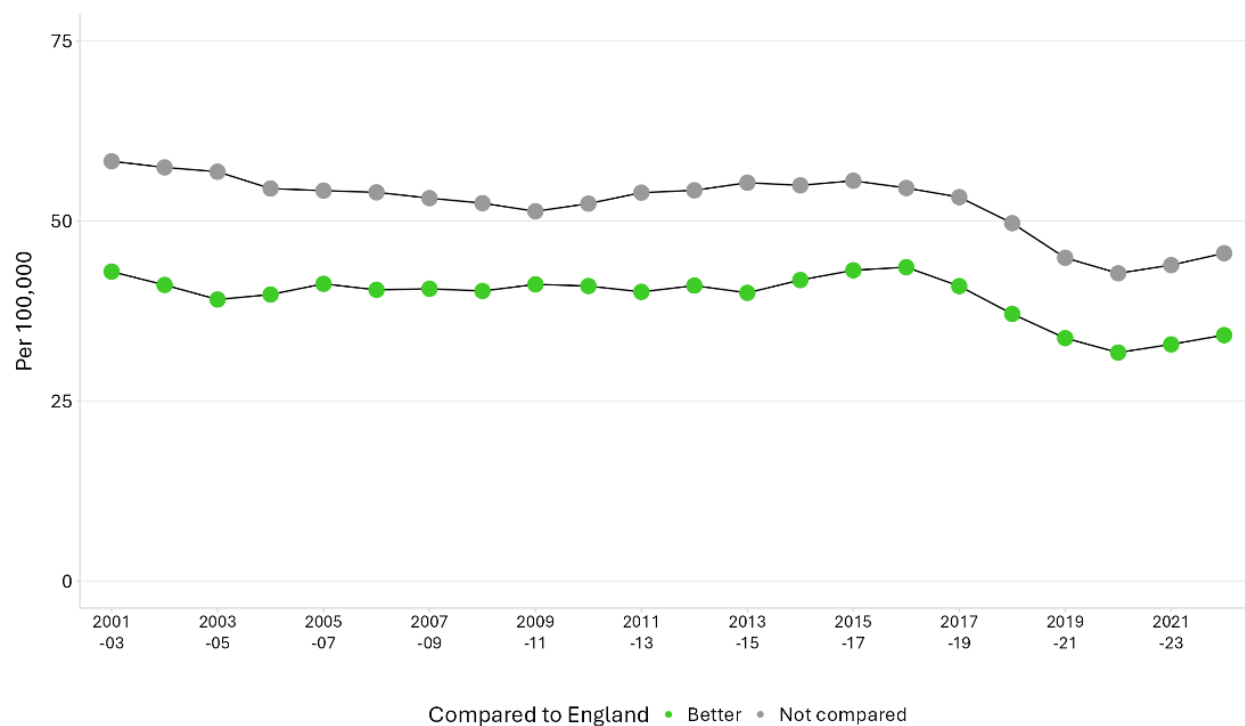
This allows the underlying cause of death (which 'started' the chain of events leading to the death) to be determined.

Deaths from chronic lower respiratory disease, such as bronchitis, emphysema and other COPD, are classified by an underlying cause of death recorded as ICD-10 codes J40-44. For further information on the ICD-10 codes, [refer to the ICD-10 online application](#).

The mortality rates presented in this briefing are based on date of death registered, rather than date of occurrence of death. For further information on the use of date of deaths registered, [refer to this Office for National Statistics webpage](#).

In the three-year period from 2022-24, there were 1,158 registered deaths from COPD (all ages) of West Sussex residents, equating to an age-standardised rate of 34.2 deaths per 100,000 population. This rate was significantly lower than the England average (45.5 per 100,000). Since 2001-03, the mortality rate for COPD has remained significantly lower than England, as shown in Figure 2.

Figure 2 Directly age-standardised mortality rate from COPD, per 100,000 ESP. West Sussex compared to England, 2001-03 to 2022-24.



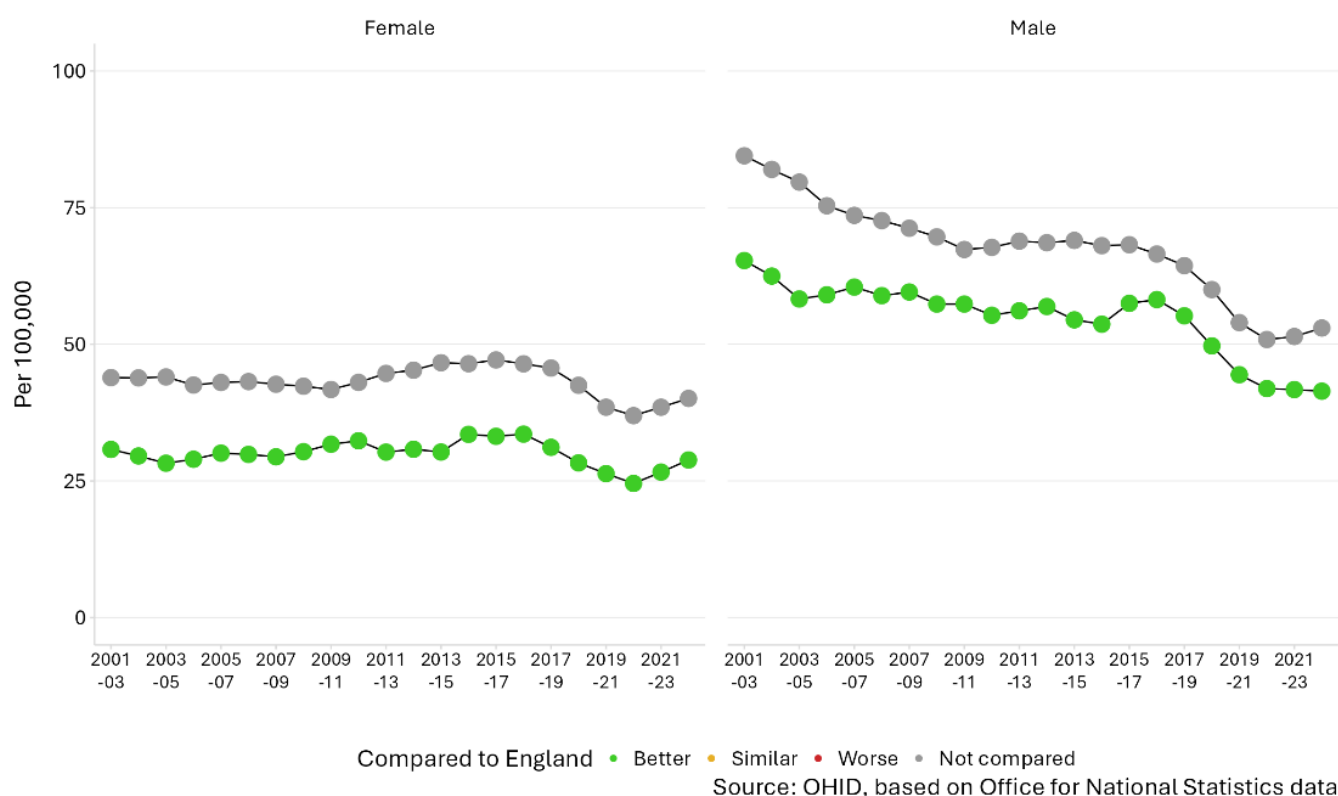
Sex

Traditionally, COPD was considered to be a disease which affected predominantly older men. However, in more recent times, its prevalence and mortality rates have steadily increased among women (Czarnota et al., 2025)

Overtime, the age-standardised mortality rate for COPD in West Sussex has remained significantly higher for males than females. This is aligned with the national picture, as shown in Figure 3.

However, the rate for females in West Sussex has increased from 24.5 to 28.8 per 100,000 between 2020-22 and 2022-24. The rate for males in West Sussex has decreased from 44.4 to 41.4 per 100,000 between 2019-21 and 2022-24.

Figure 3 Directly age-standardised mortality rate from COPD by sex, per 100,000 ESP. West Sussex compared to England, 2001-03 to 2022-24.



Preventable mortality rate

All respiratory diseases

Alongside all-age and premature mortality, OHID's mortality profile provides data on preventable mortality which includes deaths from causes that could potentially be prevented by public health interventions in the broadest sense.

The mortality profile provides an overview of the preventable mortality rate for persons aged under 75 both overall and broken down by different causes such as respiratory diseases. This includes influenza, pneumonia and chronic lower respiratory diseases, such as COPD. Many deaths from COPD are considered preventable given the role that smoking plays in its development (OHID, 2026).

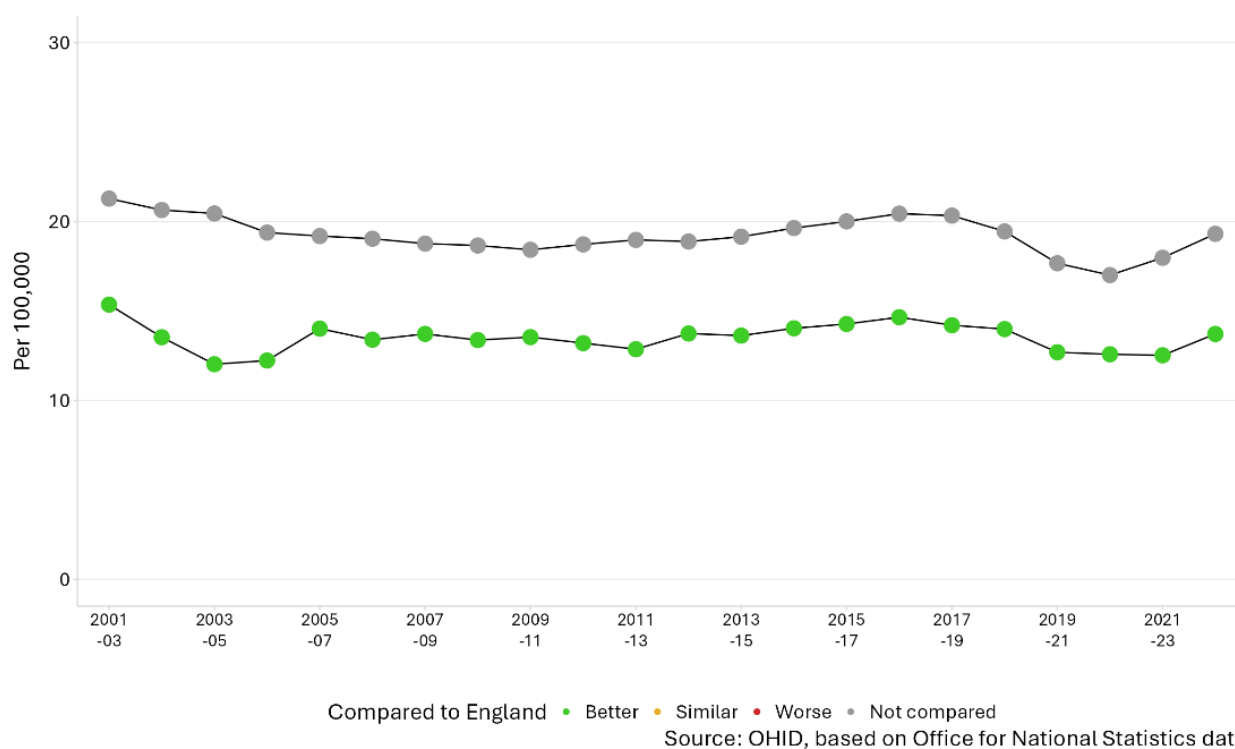
How are deaths that were considered preventable from respiratory disease measured?

Deaths that are considered preventable from respiratory disease are classified by an underlying cause of death recorded as ICD-10 codes J09 to J11, J13 to J14, J40 to J44, J60 to J64, J66 to J70, J82 and J92 amongst people aged under 75.

In the three-year period from 2022-24, there were 359 registered deaths that were considered preventable from respiratory disease amongst people aged under 75 in West Sussex. This equated to an age-standardised preventable mortality rate of 13.7 per 100,000. This rate is significantly lower than the national average (19.3 per 100,000).

Since 2001-03, the preventable mortality rate from respiratory diseases has remained significantly lower than England (see Figure 4).

Figure 4 Directly age-standardised mortality rate from respiratory diseases considered preventable, per 100,000 ESP, in those aged under 75 years. West Sussex compared to England (2001-3 to 2022-24)



Premature mortality rate

Whilst OHID's mortality profile provides a broad summary of data which allows us to compare across areas, the Primary Care Mortality Database (PCMD) provides a more detailed extract of death registration data which in turn, allows us to conduct a more detailed analysis of deaths from COPD in West Sussex.

The PCMD is an anonymised database maintained by NHS digital and updated monthly using death records from the Office of National Statistics (ONS) (NHS Digital, 2023). However, mortality data is only provided for deaths relating to West Sussex, which includes death of residents, those registered with a West Sussex GP practice or which occurred in the county. As the PCMD provides a more detailed extract, this allows us to examine mortality rates not included in OHID's mortality profile, such as premature mortality from COPD.

Age-standardised rates were calculated using the 2013 European Standard Population (ESP).

Premature mortality is defined as someone who died from any cause before their 75th birthday (ONS, 2025). In the three-year period from 2022-24, the directly standardised mortality rate from COPD for people aged under 75 in West Sussex was 13 per 100,000 ESP. Rates were higher for males (15.2 per 100,000 ESP) compared to females (11.1 per 100,000 ESP).

Alongside summarising data on the prevalence of COPD, rates of emergency hospital admissions and mortality, the Global Burden of Disease and Risk Factors Study (GBD) can be used to estimate trends on the burden of COPD.

Burden of disease

The GBD provides a comprehensive assessment of the causes of disability and mortality worldwide. Co-ordinated by the Institute for Health Metrics and Evaluation (IHME), an independent population health research organisation, the study uses modelled data to help healthcare workers and analysts understand the burden of various diseases and injuries, across different sexes, age groups, and locations (IHME, 2025).

The latest GBD 2023 study, published in October 2025, provides updated estimates of incidence, prevalence, total fatal and non-fatal health burden (measured as disability adjusted life years or DALYs) and mortality for 375 diseases and injuries in 204 countries and territories from 1990 to 2023. For a small number of countries, subnational estimates are also provided, depending on collaborations with in-country partners and data availability. This includes the United Kingdom with subnational estimates provided for England and the nine English regions (Estep, 2025).

To calculate estimates for the GBD 2023, IHME and its collaborators used over 310,000 sources of health data including surveys, censuses, vital statistics which collects data on the “vital” events, such as live births and deaths of every member of a population, and other health-related data sources (GBD 2023 Disease and Injury and Risk Factor Collaborators, 2025, Supplementary Appendix 1).

To ensure comparability of measurement overtime and across populations, each new iteration of the GBD provides updated estimates for the entire time series back to 1990, incorporating newly available data and changes in methodology, where appropriate. This means that estimates provided by the GBD 2023 replace all previously published estimates (IHME, 2024).

The GBD 2023 categorises the 375 diseases and injuries into a four-level hierarchy, which is referred to as the GBD cause hierarchy. Level 1 refers to three broad categories (communicable, maternal, neonatal, and nutritional diseases; non-communicable diseases; and injuries) and level 4 focuses on the most detailed diseases.

The study also provides estimates of the burden of disease attributable to specific behavioural, environmental, occupational, and metabolic risk factors, based on the comparative risk assessment framework. For each risk factor, the framework assesses the attributable burden, defined as the reduction in the current or future burden of disease if the past exposure to a risk factor had been at the theoretical minimum-risk exposure level (Li, et al., 2025).

This framework also considers how the burden of disease may change with variations in multiple risk factors simultaneously. This is important because many factors can act through other, intermediate, factors, or in combination with other risks (Murray et al, 2003). Consequently, this framework is based on a causal web of hierarchically organised, modifiable risk factors or causes that contribute to health outcomes (GBD 2023 Disease and Injury and Risk Factor Collaborators, 2025).

Consistent with previous iterations, the GBD 2023 categorised risk factors into a four-level hierarchy, known as the GBD risk hierarchy. The hierarchy ranges from level 1, where risk factors are grouped into three broad categories (metabolic, behavioural, and environmental/occupational), and level 4, which includes risks of the most granular level. An overarching category for all modifiable risk factors is also presented.

The GBD 2023 included 88 total risk factors, across the four hierarchical levels, and 159 health outcomes.

The GBD 2023 study estimates the incidence, prevalence, total burden and mortality for COPD by age, sex, year, and geography from 1990 to 2023. Cases of COPD are defined in accordance with the Global Initiative for Chronic Obstructive Lung Disease guidelines (GOLD). For further information on these guidelines, refer to the [How is COPD detected and diagnosed?](#) section. The GBD 2023 study also uses the following ICD-10 codes associated with COPD: J41, J42, J43, J44, and J47 and corresponding ICD-9 codes: 491-492, and 496. J40, 490 and J47.

To calculate estimates for COPD, the IHME and its collaborators used the following data sources:

- Prevalence, incidence and remission data from literature provided by collaborators or found via opportunistic review. All data must include spirometry-based measures.
- Hospital claims data for non-fatal estimation
- Vital registrations for cause of death
- Proportion data of GOLD class severities from literature
- Data from the Burden of Obstructive Lung Disease (BOLD) study which aims to assess the prevalence of chronic airflow obstruction, a key characteristic of COPD, and its risk factors in adults (≥ 40 years) from general populations across the world (Amaral, et al., 2023).

A summary of the prevalence, total health burden and mortality of COPD, based on modelled estimates for the South East in 2023, will be presented. The estimated prevalence, DALYs and deaths are presented for all-ages, which refers to everyone in the population from 0 to 95+ years.

Counts and percentages are presented alongside age-standardised rates per 100,000 population which account for differences in both population size and age-structure. Counts have been rounded to the nearest whole number and age-standardised rates to one decimal place. Since the 2017 iteration of the GBD, the IHME transitioned to using its own world standard population to calculate age-standardised rates. This means age-standardised rates cannot be compared against rates calculated using other standard populations such as the European Standard Population (ESP2013). For further information on the methodology used to create the GBD world standard population, refer to [Appendix A](#). Accompanying tables are provided in [Appendix B](#).

How are modelled estimates calculated?

For the GBD 2023, every estimate reported by the study is calculated 250 times for each metric, location, age-group, sex and year. The estimated value is based on the mean of these 250 draws and presented alongside 95% uncertainty intervals which reflect the certainty of the estimate. These uncertainty intervals represent the 2.5th and 97.5th percentile value of the 250 draws after ordering them from smallest to largest. The larger the intervals, the larger the uncertainty. It is important to present both the values and uncertainty intervals when summarising results.

For further information on the GBD study, refer to [this IHME webpage](#).

Prevalence

In 2023, there were an estimated 628,202 (95% UI: 559,649-687,342) prevalent cases of COPD in the South East across all ages. This number is estimated to have increased by 58.2% from 396,970 (95% UI: 361,811-435,982) cases in 1990. In more recent years, prevalent cases of COPD have increased by 15.3% between 2013 and 2023 and 5.5% between 2018 and 2023.

In 2023, COPD accounted for 6.9% (95% UI: 6.2%-7.6%) of all prevalent cases across all causes in the South East.

When controlling for the age structure of the population, the estimated age-standardised prevalence rate was 3,266.7 (95% UI: 2,946.6- 3,579.7) per 100,000 for the South East. This is similar to England (3,283.8 [95% UI: 2,944.1- 3,591.2] per 100,000). When comparing by sex, the age-standardised rate was slightly higher amongst males (3,409.7 [95% UI: 3,067.1-3,735.2] per 100,000) compared to females (3,146.3 [95% UI: 2,796.4- 3,486.6] per 100,000). However, this difference was not statistically significant. This pattern was aligned with estimates for England.

What is the burden of COPD?

Disability adjusted life years (DALYs) are used to quantify the estimated burden of disease, indicating how much a disease affects the life of the population, with one DALY representing the loss of one year of 'healthy' life (Hagell & Cheung, 2019; World Health Organization, n.d.). DALYs are calculated by combining both years of life lost to premature mortality (YLL) and years lived with a disability (YLD) into a single measure which can be used to understand the total burden (both fatal and non-fatal) of diseases such as COPD over time (IHME, 2025).

In 2023, COPD was estimated to account for 102,649 (95% UI: 91,992-113,033) DALYs in the South East across all ages. This represented 3.5% (95% UI: 3-3.9%) of the total disease burden in the South East for 2023.

Among level 3 causes within the GBD hierarchy, COPD was the sixth leading contributor to the number of DALYS in the South East for 2023. This was behind ischemic heart disease, low back pain, depressive disorders, anxiety disorders and falls. For further information, refer to Appendix B.

The number of COPD-related DALYs has decreased by 27.7% from 80,400 (95% UI: 75,647- 85,442) DALYs in 1990. In more recent years, the number of DALYs increased slightly by 2% between 2013 and 2023 and decreased by 1.6% between 2018 and 2023.

The estimated number of DALYs in 2023 equated to an age standardised rate of 497 (95% UI: 446-548) per 100,000 population. This rate was lower than England (563 [95% UI: 522-606] per 100,000) but this difference was not statistically significant.

When comparing by sex, there was a similar number of COPD-related DALYS observed amongst males (51,576; 95% UI: 46,130-59,040) compared to females (51,073; 95% UI: 43,364-58,055). Age standardised rates were higher for males (551.7 [95% UI: 489.1-626.7] per 100,000) compared to females (454.5 [95% UI: 391.8-510.9] per 100,000). However, the difference was not significant. This pattern is aligned with estimates for England.

Estimation of risk factors

The GBD2023 estimated the burden of COPD attributable to modifiable risk factors. This data can help to identify key modifiable risk factors and support local authorities in the South East to develop targeted public health measures and strategies, considering these factors, to reduce the burden of COPD (Li et al., 2025).



Burden of proof methodology

The GBD 2023 risk hierarchy aggregates risk factors to three level 2 factors: metabolic, behavioural or environmental/occupational risk factors. However, for COPD, data on the number and percentage of total DALYs and deaths attributable to modifiable metabolic risk factors is not available, unlike behavioural or environmental/occupational risk factors.

This is because the study uses a 'burden of proof' methodology, introduced in the GBD 2021 iteration, which only includes different pairs of risk factors and health outcomes (known as 'risk-outcome' pairs) supported by convincing or probable evidence from epidemiological studies.

In relation to COPD, an example of a risk-outcome pair could be tobacco (risk factor) and COPD (outcome).

In 2023, 50,140 (95% UI: 40,789- 59,839) DALYs were attributable to modifiable risk factors, accounting for 48.9% (95% UI: 41.1-57.5%) of the total COPD-related burden in the South East. Across the two level 1 risk factors, behavioural risk factors contributed to 38.7% (95% UI: 30.2-48.6%) and environmental/occupational factors contributed to 16.7% (95% UI: 12.9-20.8%) of the total COPD-related burden.

Among the level 2 risk factors, tobacco was the leading modifiable risk factor for total COPD-related burden in the South East (38.7%; 95% UI: 30.2-48.6%), followed by non-optimal temperature (8.5%; 95% UI: 7-10.4%), air pollution (5.8%; 95% UI: 3.6-8.5%) and occupational risks (3.4%; 95% UI: 1.4-6%).

Mortality

The GBD 2023 also provides estimates on deaths attributable to COPD. In 2023, COPD was estimated to account for 4,873 (95% UI: 4,166-5,538) deaths in the South East. This number is estimated to have increased by 31.4% from 3,708 (95% UI: 3,423- 3,941) in 1990. However, despite this long-term increase, the number of deaths has decreased in more recent years, falling by 5.6% between 2013 and 2023 and 4.5% between 2018 and 2023.

This estimated number of deaths equated to an age-standardised rate of 20 deaths (95% UI: 18-23) per 100,000 population. This rate was lower than the England average of 24 per 100,000 (95% UI: 22-26) but the difference was not statistically significant. When comparing by sex, age standardised mortality rates were significantly higher amongst males in the South East (24.4 [95% UI: 21-28.2] per 100,000) than females (17.6 [95% UI: 14.2-20.7] per 100,000). This pattern was aligned with estimates for England.

In 2023, 2,342 (95% UI: 1,886-2,833) deaths were attributable to modifiable risk factors, accounting for 48.1% (95% UI: 40.7-56.3%) of deaths from COPD in the South East. Across the two level 1 risk factor categories, behavioural risk factors contributed to 35% (95% UI: 26.6-44.9%) and environmental/occupational factors contributed to 20.3% (95% UI: 16.5-24.7%) of the COPD-related burden.

Among the level 2 risk factors, tobacco was the leading modifiable risk factor for deaths from COPD in the South East (35%; 95% UI: 26.6-44.9%), followed by non-optimal temperature (12.1%; 95% UI: 10.3-14.7%), air pollution (6.3%; 95% UI: 3.9-9.3%) and occupational risks (3.2%; 1.4-5.7%).

Conclusion

This briefing provided an overview of the COPD and covered areas such as causes, diagnosis and treatment. Alongside an introduction to the group of conditions, this briefing summarised available data on the prevalence of COPD, alongside rates of emergency hospital admissions and mortality.

By focusing specifically on COPD, this can help local authorities and integrated care boards, who are responsible for planning health services for their population, to promote population lifestyle programmes such as stop-smoking services, and work collaboratively with partners across the health and social care system to improve detection, treatment and management.

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Appendix A

Supplementary files

For further information on supplementary files which accompany this briefing, refer to this document.

