

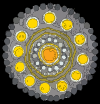
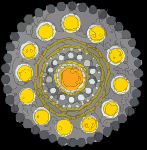
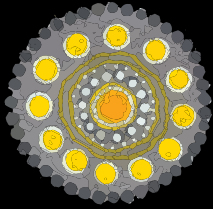
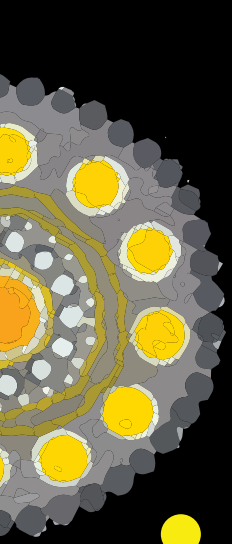
CHANGE THAT CAN'T WAIT

Reducing the human and economic
burden of COPD in Australia



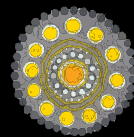
 evohealth

October 2025



Evohealth acknowledges that we work on the traditional lands of many Aboriginal clans, tribes, and nations.

We commit to working in collaboration with Aboriginal and Torres Strait Islander communities and peoples to improve health, emotional and social well-being outcomes in the spirit of partnership.



About Evohealth

The delivery of healthcare is complex.
Our focus is not.

Better health for all.

CHANGE THAT CAN'T WAIT

REDUCING THE HUMAN AND ECONOMIC
BURDEN OF COPD IN AUSTRALIA

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ABOUT **THIS REPORT**

Background

Change that can't wait: Reducing the human and economic burden of COPD in Australia is an evidence-based report describing the difficulties of living with moderate to severe chronic obstructive pulmonary disease (COPD) in Australia, and the hope that optimised care and treatment brings. The report outlines five key recommendations to improve the lives of people with moderate to severe COPD, their carers, and families.

Approach

The report was independently prepared by Evohealth, a specialist health advisory firm, in partnership with an expert Advisory Committee. It was informed by a comprehensive review of published academic and grey literature, interviews with Australian clinicians, researchers and patient advocacy groups, and a cohort-based economic model.

Sanofi Australia provided funding for this report, but did not participate in its development to ensure Evohealth's independence.

FOREWORD

COPD is one of Australia's most common chronic diseases, and yet one of the most overlooked in our national health policy response.

It is a leading cause of preventable hospitalisation, premature death and long-term disability—particularly for older Australians, First Nations peoples, and those living in regional and socioeconomically disadvantaged communities. Its burden extends beyond the individual to carers, families, workplaces and our health system. This report—*Change that can't wait*—outlines a clear, evidence-based path to reduce the human and economic cost of COPD in Australia. Its findings are sobering: COPD cost the nation \$24.98 billion in 2024 alone, and that figure will grow sharply unless we act now. But the message is also one of opportunity. Across every stage of the patient journey—diagnosis, treatment, self-management, and post-acute care—there are immediate, scalable interventions that can deliver better outcomes and reduce system pressure.

As Australia's peak body for lung health, Lung Foundation Australia supports the report's five recommendations. Together, they offer a pragmatic reform agenda aligned to existing national priorities, including the National Strategic Action Plan for Lung Conditions. Expanding access to spirometry in primary care, funding pulmonary rehabilitation through the MBS, improving transition-of-care models, and investing in data and research are measures we can implement now.

Realising these reforms will require coordinated effort and co-investment. The level of investment by Government in COPD research falls very short of the burden of disease and it is time for the Australian Government to prioritise COPD as a research priority of national significance. The conscious and unconscious bias towards smoking related illness is unacceptable and we must do better to address the stigma that holds back community empathy and government investment.

While government has a critical leadership role to play, sustainable progress will also rely on collaboration across primary health networks, hospital services, philanthropic partners, private sector innovators, and the research community. With the right investment, policy reform and partnerships, we can improve lives, reduce hospital demand, and bring COPD care in line with community expectations and clinical best practice. The change we need is clear. And it cannot wait.



Mark Brooke

Chief Executive Officer
Lung Foundation Australia

ACKNOWLEDGEMENTS

Evohealth wishes to acknowledge the ongoing support from the individuals and organisations who contributed to this project, particularly those who shared their stories and experiences with moderate to severe COPD.

We thank the Advisory Committee, whose keen and perceptive input was critical to the development of this report. The committee comprised the following members:



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Patient Representative

The statements in this report do not necessarily represent the individual views of each committee member and were not a result of a formal consensus process.

Funding for the report was received from Sanofi. To ensure independence of the final report, Sanofi attended Advisory Committee meetings as observers only and did not participate in the development of this report.

EXECUTIVE SUMMARY

Hope on the horizon

Chronic obstructive pulmonary disease (COPD) is one of the most common and costly chronic conditions in Australia — yet care for those with the disease remains inconsistent, delayed and underfunded.

It is a leading cause of preventable hospitalisations, early death, and long-term disability. But despite clear guidelines and proven treatments, many Australians face repeated exacerbations, progressive decline, and reduced quality of life.

And it's proving costly. COPD costs Australia an estimated \$24.98 billion each year — equivalent to the annual gross domestic product of a small country. [1] That includes \$1.67 billion in direct healthcare costs, \$4.85 billion in lost productivity, and over 100,000 life

years lost annually to premature death. [1] People with moderate and severe COPD account for around 87 per cent of these costs. [1] Optimising care through current and emerging treatments can stabilise people with moderate to severe COPD, reduce the frequency and severity of exacerbations, and help them stay well, out of hospital, and connected to work, family and community.

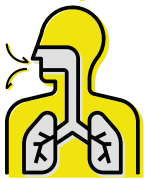
This report focuses on how we can deliver better care for those already living with moderate to severe COPD — where the human burden is greatest, where the impact on our healthcare system is most concentrated, and where the opportunity for improvement is real, measurable, and overdue.



526,000 Australians lived with COPD in 2024, expected to rise to 835,915 by 2050. [1]



COPD is the leading cause of potentially preventable hospitalisations, accounting for **268,000 bed days**. [2]



Pulmonary rehabilitation reduces the risk of re-admission after an exacerbation by up to **56 per cent**. [3]



One-in-two COPD patients experience exacerbations despite receiving triple inhaled therapy. [4]

What is COPD?

COPD is an umbrella term for chronic, progressive lung disease caused by lung tissue destruction (emphysema) and inflammation, leading to narrowing of the large and small airways (bronchitis and bronchiolitis), and often severely disabling symptoms. [5] Early symptoms include breathlessness, chronic

cough and mucus production, and when these appear, further progression may be preventable with appropriate treatment. But, without a diagnosis and the right care, lung inflammation can worsen and become incurable. [5, 6]

Diagnosing the disease

Spirometry is the gold-standard assessment to accurately diagnose COPD. Measuring individual lung capacity and exhalation, it provides assessment of disease severity, assists in differentiating between other lung conditions and minimises the risk of misdiagnosis. Repeated assessments are critical to monitor disease progression, with differing spirometry ranges for people with mild, moderate and severe COPD.

The contrast between mild, moderate and severe COPD is often significant, and complexity can increase where symptoms don't reflect the severity of the disease. Mild symptoms can include some shortness of breath on exertion, or a productive cough in the morning. In contrast, severe symptoms

include breathlessness from minimal exertion such as getting dressed, frequent chest infections and progressive disability. Managing symptoms to avoid COPD progression is critical, as increasing severity is accompanied by more exacerbations and hospitalisations. [5]

Exacerbations, or flare-ups, are a key indicator of declining respiratory function and impose a heavy burden on people living with COPD and the wider healthcare system. Thus, preventing and reducing these is a key focus of COPD care. By optimising care early in the patient journey, there is an opportunity to break the vicious cycle of disease progression and exacerbations. [5]

The COPD toolbox

High-quality and evidence-based guidelines and treatments are available to manage COPD. Safe and efficacious care is guided by the Australian COPD-X Plan and COPD Clinical Care Standard. [5, 7] Alongside existing inhaled therapeutics, a new era of treatment is emerging for people with COPD. For example, biological therapies, often called biologics or monoclonal antibodies, have been shown in

clinical studies to reduce lung inflammation and exacerbations in subgroups of people with specific inflammatory markers. [8] These, alongside evolution of inhaler technologies, new bronchodilators, combination therapies and novel drug delivery systems can support Australia to meet the growing burden of COPD, enabling a better future of care. [9]

The burden within the burden

As COPD progresses from mild to moderate, to severe, the impact and strain on patients and the healthcare system grows. Debilitating symptoms, frequent exacerbations and poor health outcomes place a significant strain on those experiencing them, and across all levels of care. [5]

People living with moderate to severe COPD experience an ever-increasing symptom burden and reduced quality of life. [5] Simple everyday tasks, such as walking around the house, become intolerable. These everyday limitations manifest into social isolation and poor psychosocial health,

permeating through to the wider support network of carers, families and ultimately the healthcare system.

Evohealth modelling estimates moderate to severe COPD accounted for 87 per cent of the staggering \$24.98 billion economic burden of COPD in 2024. [1] Driven by direct expenses, hidden impacts, and the overall burden of disease, this equates to an astounding \$21.78 billion per year. [1] This presents a clear case of the need for Australia to improve outcomes not only for people living with moderate to severe COPD, but for our broader healthcare system and economy.



The **total cost** of moderate-severe COPD is estimated to be **\$91,000** per person per year. [1]



The **estimated financial burden** on households amounts to **\$3.9 billion** per year. [1]



Productivity loss for people with moderate-severe COPD is estimated to be **\$677 million** per year. [1]



Productivity loss for carers supporting a person with moderate-severe COPD is estimated to be **\$1.3 billion** per year. [1]

An opportunity for change

Not only is COPD preventable and treatable, but there are also many opportunities to better manage people with moderate and severe COPD. Optimising treatment can reduce the frequency and severity of exacerbations, lowering the risk of further deterioration, and helping Australians with COPD to stay well, out of hospital, and connected to work, family and their community.

With better care, preventable hospitalisations, disease burden and mortality can be reduced and the direct and indirect costs, and burden of disease costs can be curbed. In 2024, these costs included **\$1.67 billion** shouldered by our healthcare system, **\$4.85 billion** lost in patient and carer productivity, and **106,917 life years** stolen from Australians dying prematurely from COPD. [1, 2, 10]



In 2025, COPD is a disease of hope – and we can help our patients.

– Dr Sanjay Ramakrishnan, Respiratory Physician



Opportunities to alleviate the burden of moderate and severe COPD exist across the care continuum, from diagnosis to end-of-life care, and can uncover millions in savings. Reducing the number of people

with severe COPD by just 10 per cent could save **\$76.17 million** in annual healthcare system costs and prevent **2,650 hospitalisations**. [1, 2]

To unlock a future for patients with COPD, we must first address key challenges in the treatment and management of this preventable but common disease – particularly for Australians with moderate and severe COPD.

Getting it right from the start



It is estimated that **up to 50 per cent** of Australians living with COPD **may not know they have it**. [11]

Diagnosis and monitoring are key enablers of better management and outcomes for people living with COPD. However, opportunities to diagnose

and monitor COPD are missed where spirometry is not used or is unavailable. Although essential to diagnosis, spirometry utilisation is alarmingly low. [12]



An AIHW study found **81.6 per cent** of Australians on medications for COPD **had not completed spirometry testing** in the 12 months prior to or following initiation of COPD treatment. [13]

Several barriers to implementing better spirometry practices exist, including resources, time constraints, staffing and the ability or confidence to administer and interpret the test. [14] Reference norms are also poorly established for Aboriginal and Torres

Strait Islander peoples, who face unique challenges in achieving a diagnosis of COPD.¹ [15, 16] This underutilisation of spirometry must be addressed to provide better care for people with COPD and to reduce the burden of this disease across the nation.

The absent step to access

We also need to better align and implement evidence-based interventions with ongoing COPD management. Pulmonary rehabilitation is a high-quality, safe and evidence-based intervention that reduces the frequency of hospitalisations significantly. However, access and utilisation are

limited, despite strong and widespread support from the lung care community to bring this within reach for Australians with COPD. Biologic treatments, including those in clinical development, are difficult to access, despite their potential role in reducing exacerbations.

The smoker stigma

Not all smokers develop COPD, and not everyone with COPD has smoked.

Poor awareness and understanding of the disease in Australia has cultivated a growing stigma, reducing treatment-seeking behaviour and resulting in poor physical and mental health. Despite several risk factors leading to COPD, people who are ex-smokers often describe feeling undeserving of treatment or not using treatments in public from embarrassment, self-

blame and guilt. [16] These feelings also compound the growing isolation experienced as breathlessness worsens and it becomes harder to work, complete daily activities or engage with community. Poor public awareness of COPD represents a clear opportunity to improve community understanding, with significant benefit to be unlocked.

¹Reference norms refer to a range that is deemed normal for a physiological measurement in a person.

Closing the loop on care

Improving care and management can alleviate a significant burden on carers for people with moderate and severe COPD. The toll of watching a loved one struggle for breath, and the unpredictability of daily symptoms and exacerbations, makes caregiving for COPD uniquely difficult. The health and wellbeing of carers often deteriorates in parallel with increasing disease severity, leading to more frequent anxiety,

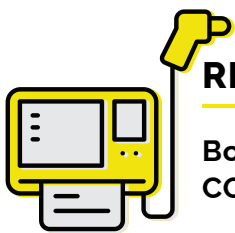
depression and distress, and a growing physical toll. [17] The impact of caregiving is poorly researched, with little evidence for effective interventions. Carers face continuous gaps in information and strategies for supporting their loved one with COPD. Reducing the burden on carers is necessary, vital and possible – if Australia capitalises on the opportunities available.

Change that can't wait

While challenges in COPD care are significant, they are not insurmountable. Across the care continuum, optimising treatment and management can stabilise the condition of people with moderate to severe COPD, reduce the frequency and severity of exacerbations, and help them stay well, and connected to work, family and community. Through the increased use of existing tools and guidelines,

along with the expansion of under-utilised pulmonary rehabilitation programs and research efforts, there is a possibility to scale what works.

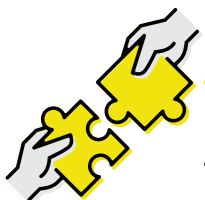
We propose the following five recommendations to pave the path forward and give new hope to all Australians living with COPD:



RECOMMENDATION 1

Boost spirometry utilisation in primary care to enable early and accurate COPD diagnosis and monitoring

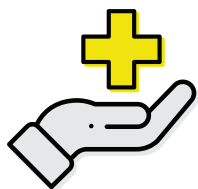
Every Australian deserves timely, accurate diagnosis — and that starts with access to spirometry in primary care. Government funding to ensure that appropriate primary care centres have a spirometry machine is an essential first step. This, combined with inclusion of spirometry into existing programs, such as the National Lung Cancer Screening Program and Practice Incentives Program Quality Improvement (PIP QI) measures will increase utilisation. Expanding spirometry in mobile healthcare services and subsidising staff training can further drive access across Australia and enhance diagnostic confidence among healthcare providers.



RECOMMENDATION 2

Expand partnerships and programs to improve alignment to clinical care standards

Improving clinician awareness and alignment with clinical care standards is key to ensuring consistent, high-quality care across Australia. We can boost awareness and utilisation of key standards by growing quality improvement programs, expanding partnerships between Lung Foundation Australia (LFA) and the Royal Australian College of General Practitioners (RACGP), and creating training opportunities for clinicians. Additional support for existing platforms, such as Good Medicine Better Health, can ensure Aboriginal and Torres Strait Islander people receive the care they deserve via Aboriginal and/or Torres Strait Islander Health Workers and Practitioners.



RECOMMENDATION 3

Expand and fund programs that better manage transitions of care and optimise treatment

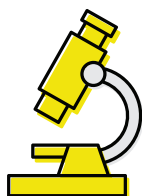
Better management of COPD care — across primary care, hospital, and post-discharge settings — is essential to reduce avoidable hospitalisations and improve outcomes. Optimising treatment at each stage, including through equitable access to evidence-based therapies, action plans, and improving access to pulmonary rehabilitation, helps prevent exacerbations and support self-management. Incentives aligned with clinical indicators can smooth transitions after hospital stays and encourage follow-up care. Expanding programs like LFA's Respiratory Care Nurses can provide critical post-discharge support, improving outcomes and reducing healthcare costs.



RECOMMENDATION 4

Fund pulmonary rehabilitation programs via the MBS

Pulmonary rehabilitation is a proven, cost-effective intervention that reduces hospitalisations and supports people with COPD to self-manage, remain active, and maintain better health. Better access to pulmonary rehabilitation can be achieved through funding a Medicare Benefits Schedule (MBS) item number for an 8-week pulmonary rehabilitation program for spirometry-diagnosed COPD, and through broader implementation of tele-health and digital pulmonary rehabilitation programs. Culturally safe program design and a streamlined referral pathway can ensure more Australians receive timely access to this essential care.



RECOMMENDATION 5

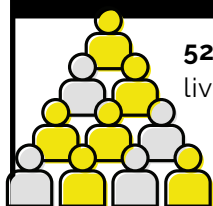
Create partnerships to support research and data collection on COPD care gaps and outcomes

Improving research and data collection within Aboriginal and Torres Strait Islander communities is essential in closing the gaps in care. Forming funded partnerships with NACCHO and/or State and Territory affiliates to gather meaningful data can help develop culturally appropriate care interventions and preventative initiatives. This evidence base can help ensure we have the information and tools needed to achieve better health outcomes in all communities, and work towards Closing the Gap targets.

Acting now to optimise COPD care and embrace emerging treatments will not only improve outcomes for individuals but also reduce the staggering \$1.67 billion cost to our healthcare system each year. Our five recommendations offer a clear path forward to preventing disease progression, reducing exacerbations, and alleviating financial strain. The case for change is undeniable, and this change can't wait.

COPD is preventable and treatable. [17]

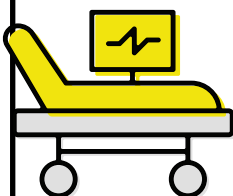
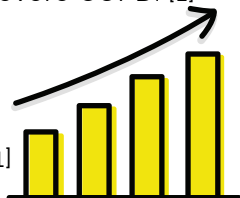
COPD IN AUSTRALIA



526,631 Australians aged 45+ lived with COPD in 2024. [1]

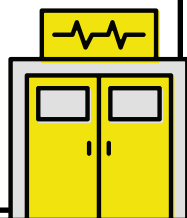
242,117 people (46 per cent) have moderate or severe COPD. [1]

By 2050, COPD prevalence is anticipated to climb to **835,915 people** aged 45+. [1]

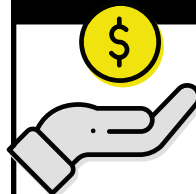


COPD is the highest cause of potentially preventable hospitalisations, with **53,000** each year. [2]

COPD causes **268,000 bed days** each year, compounding ambulance ramping and bed block in strained emergency departments. [2, 18]



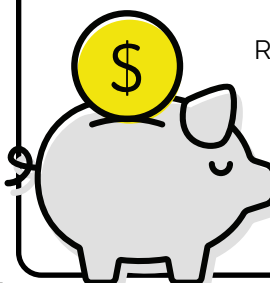
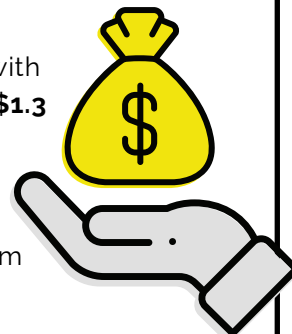
COPD ECONOMIC COSTS



The average hospitalisation cost for someone with severe COPD was **\$25,662** in 2024. [1]

Hospitalisations for people with COPD cost the system over **\$1.3 billion** each year. [1]

\$1.67 billion in annual costs to the healthcare system from COPD. [1]



Reducing the number of people living with severe COPD by 10 per cent would reduce total hospitalisations by 5 per cent, saving the healthcare system **\$76.17 million**. [1]

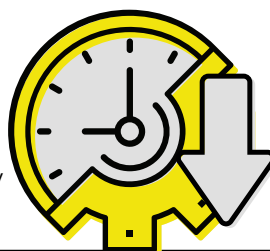
COPD SOCIETAL COSTS



70 million hours of unpaid care provided by informal carers in 2024. [1]

\$3.7 billion in productivity is lost each year by carers supporting someone with COPD. [1]

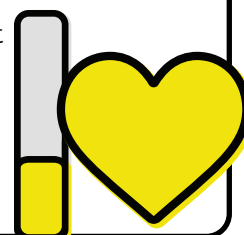
\$1.15 billion per year productivity loss for people with COPD. [1]



\$4.85 billion per year financial burden on households with COPD. [1]

67,582 years of healthy life lost to disability in 2024. [1]

106,917 years total of life lost due to premature death from COPD in 2024. [1]



\$24.98 billion per year total cost of COPD, or



\$8,037 per year for someone with **mild** COPD,



\$12,903 per year for someone with **moderate** COPD,



\$324,423 per year for someone with **severe** COPD. [1]

PREVENTABLE AND TREATABLE - **YET SHOCKINGLY COMMON**

In 2024, 526,000 Australians lived with chronic obstructive pulmonary disease (COPD), a figure expected to rise to over 835,000 by 2050. [1] This common and preventable chronic respiratory disease represents the fifth greatest burden of any disease in Australia today. [2] This also represents countless missed opportunities to improve management and care for those with COPD, from diagnosis throughout the disease continuum.

As the third leading cause of death worldwide and fifth in Australia, the morbidity and mortality burden of COPD looms large. This is set to worsen as ongoing exposure to environmental risk factors, including air pollution and smoke, and an aging population continue to drive the disease's rise. [10, 20, 21]

COPD is now the leading cause of potentially preventable hospitalisations in Australia, with more than 53,000 people aged 45 and above hospitalised each year, for an average of 5.5 days. [2] This represents 268,000 potentially preventable hospital bed days each year and climbing, with Australian admission rates outpacing the OECD average. [2] More than 7,600 Australians will lose their lives to COPD each year, equivalent to four per cent of all deaths annually. [22]

While these figures underscore the heavy burden on both Australians and the healthcare system, they also reveal a critical opportunity — one we can act on to prevent, treat, and optimise COPD care.



526,000 Australians lived with COPD in 2024, rising to 835,915 by 2050. [1]

5th

COPD is the **fifth highest cause of mortality** and disease burden in Australia. [2]



COPD is the leading cause of potentially preventable hospitalisations, accounting for **268,000 bed days**. [2]



COPD causes **four per cent of all deaths** in Australia each year, equivalent to more than **7,600 people**. [22]

What is chronic obstructive pulmonary disease?

Chronic obstructive pulmonary disease (COPD) is an umbrella term for chronic, progressive lung disease caused by lung tissue destruction (emphysema) and inflammation, leading to narrowing of the large and small airways (bronchitis and bronchiolitis), and often severely disabling symptoms. [5] This chronic lung condition is characterised by persistent respiratory symptoms, including breathlessness, cough, mucus production and symptom exacerbations, also known as flare-ups. [6] These are depicted in Figure 1.

COPD is preventable when early inflammatory respiratory symptoms, or “treatable traits”, are identified and addressed appropriately (e.g. pre-COPD stages, with no airflow obstruction). [18] However, without diagnosis and treatment, worsening inflammation and non-reversible airflow limitation sets in, and the disease becomes incurable. [5]

What is emphysema and chronic bronchitis?

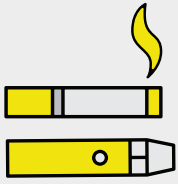
Emphysema causes shortness of breath, chronic cough and reduced exercise tolerance, stemming from lung air space (alveoli) damage by noxious particles or gases. [23] This causes permanent enlargement and destruction, resulting in poor gas exchange, loss of elasticity, hyperinflation, and exhaled airflow limitations. [24]

Chronic bronchitis is characterised by a cough consistently present over three months, with at least two episodes occurring for two years in a row. [25] It occurs when toxic or infectious particles irritate airways, increasing mucous secretion and reducing airflow. As the airways become congested, irritation increases and causes a productive cough to expel irritants. [26]

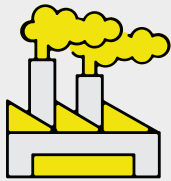


Pathophysiology of COPD

Risk Factors



Smoking
and vaping



Environmental
pollution

Work related
• Mining
• Construction
• Agriculture



Indoor air
quality

• Gas
• Wood heaters



Fire



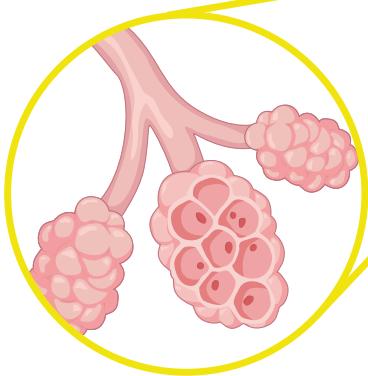
Genetics

• Alpha-1 antitrypsin
deficiency



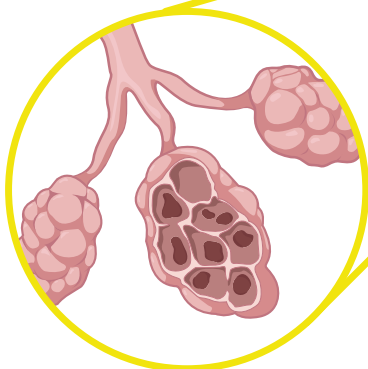
Socioeconomic
disadvantages

Normal alveoli



Alveoli with emphysema

Loss of elasticity, hyperinflation,
collapsed airway and alveoli



Alveoli with bronchitis

Mucus overproduction +
hypersecretion

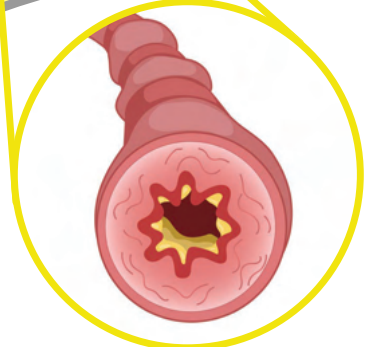
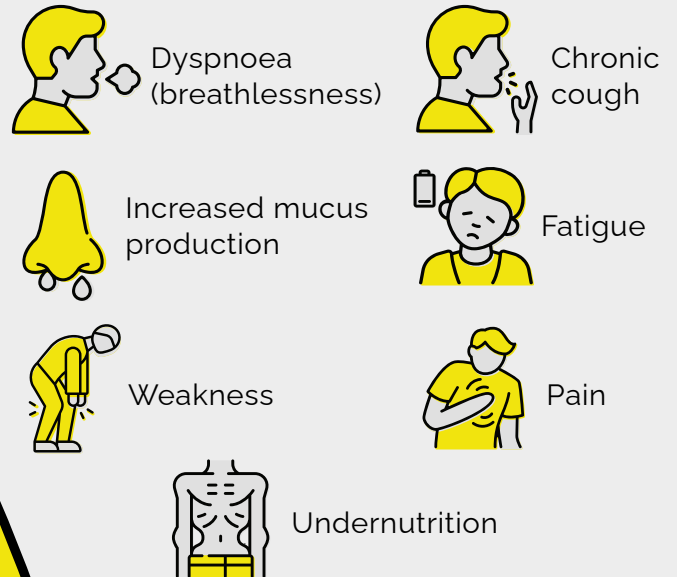


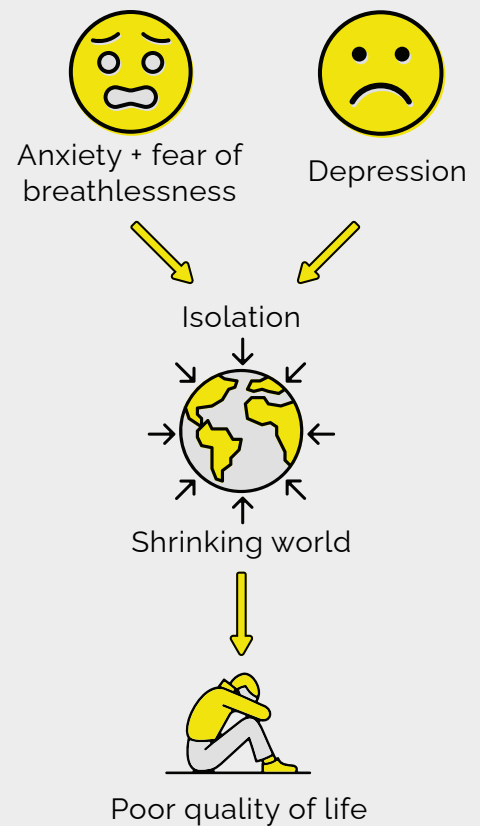
Figure 1 – Pathophysiology and symptoms of COPD

Symptoms of COPD

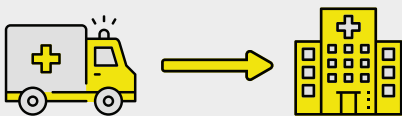
Physical symptoms



Psychosocial symptoms



Exacerbation (flare up)



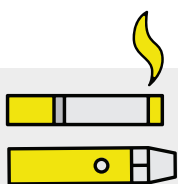
- Severe breathlessness
- Terror + fear
- Anxiety
- Trouble speaking
- Confusion
- Exhaustion

Source: Evohealth (2025)

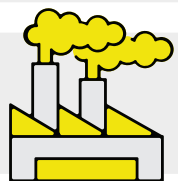
THE RISK OF COPD IS MORE COMPLEX THAN PREVIOUSLY UNDERSTOOD

While COPD was traditionally considered a smokers' disease, we know that not all smokers will develop COPD, and some with COPD will have never smoked in their life. [18] Research has identified the role of complex interactions between genetic, epigenetic and environmental risk factors over our lifetime. [27] These are known as gene-environment interactions, which can change our 'normal' lung development pathways early in life and increase the risk of developing COPD. [18]

Understanding of environmental risk factors has grown substantially over recent years, with several key risk factors summarised in Figure 1. These include:



Tobacco smoking: exposure to second hand smoke which increases the risk of COPD 2.25-fold, or 4.38-fold for those exposed for more than five years. [5]



Environmental irritants: burning fuels (e.g. coal, wood) which can affect indoor air quality, increasing the risk of COPD 2.5-fold. [5]



Occupational exposure: mining, building and agriculture, which may be responsible for 20 to 30 per cent of COPD cases. [5]



Inequity and socioeconomic disadvantage: difficulties accessing healthcare, occupational and environmental exposures, childhood respiratory infections and premature births. [28]

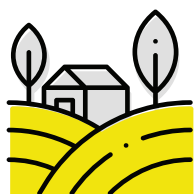
A disease of inequity

COPD affects Aboriginal and Torres Strait Islander people at 2.5 times greater than other Australians, with some prevalence studies reporting an alarming 49 per cent of people among these communities suffering from COPD. [15, 29] Aboriginal and Torres Strait Islander people with COPD are also more likely to be diagnosed with severe or very severe COPD

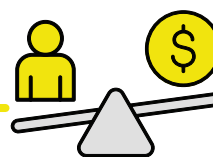
and are hospitalised 4.8 times more frequently than other Australians. [30, 31] Australians living in socioeconomically disadvantaged areas are also disproportionately affected, with three times the prevalence than those in socioeconomically advantaged areas. Similarly, those in rural and remote areas are affected at twice the rate of those

in metropolitan areas, with high prevalence areas shown in Figure 2. It should be noted the prevalence of COPD in Northern Territory and Western Australia is thought to be substantially higher than reported.

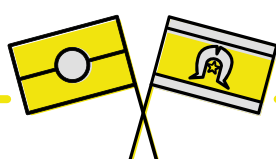
However, data collection issues in these states, particularly in rural and remote areas, impede more accurate reporting.



COPD affects **3.9 per cent** of regional and remote Australians, almost double the rate of metropolitan centres. [2]



COPD prevalence is over three times higher in areas of socioeconomic disadvantage, at **4.7 per cent**. [2]



COPD prevalence in Aboriginal and Torres Strait Islander people is at least **2.5-fold greater** than other Australians. [29]



Aboriginal and Torres Strait Islander people with COPD are hospitalised **4.8 times more frequently** than other Australians. [7]

The heatmap in Figure 2 identifies COPD prevalence by local government area (LGA). It also highlights COPD 'hotspots' - LGAs with the highest case numbers and estimated number of severe cases. This estimate uses the severity distributions identified in

the BOLD Australia study, which found eight per cent of adults aged 40 or over had severe or very severe airflow limitation. Further detail can be found in the Appendix.

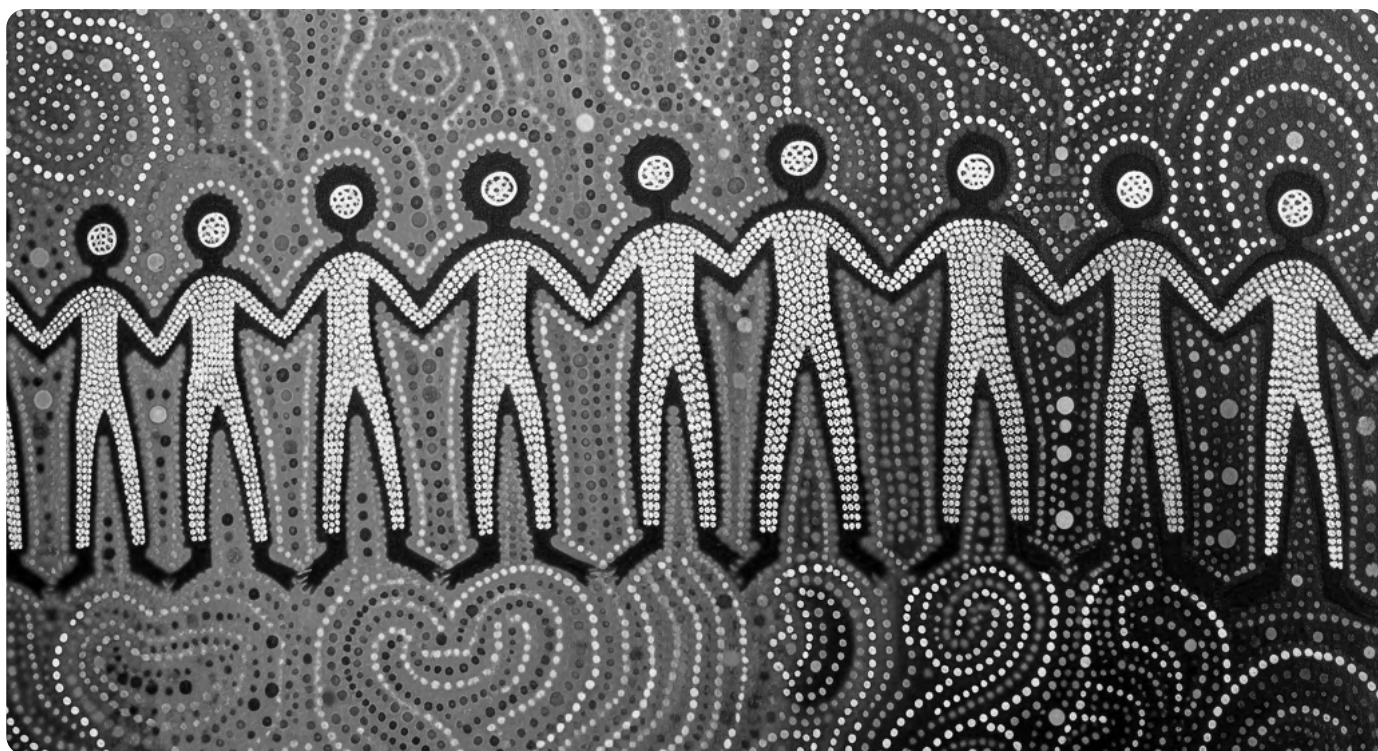
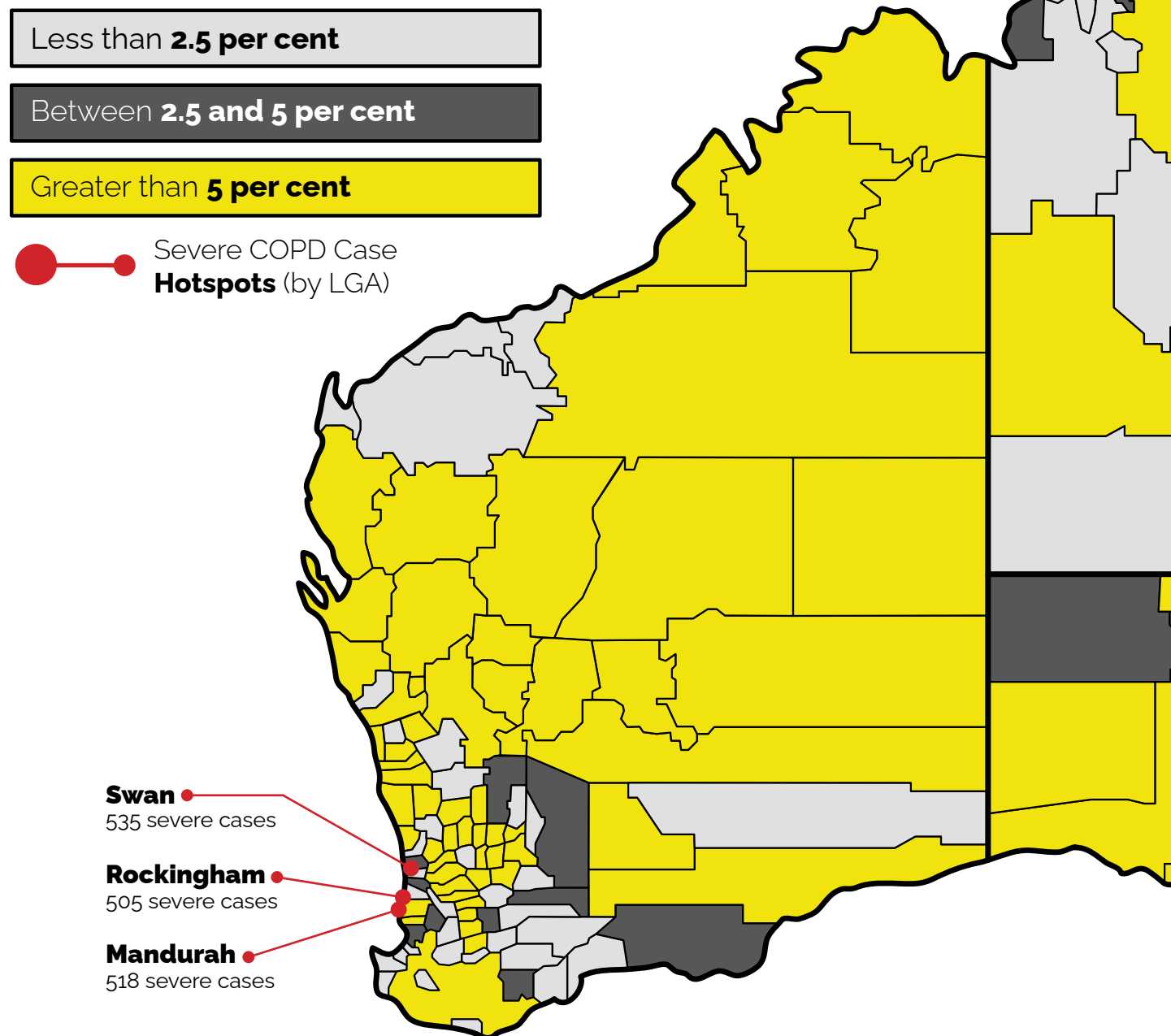


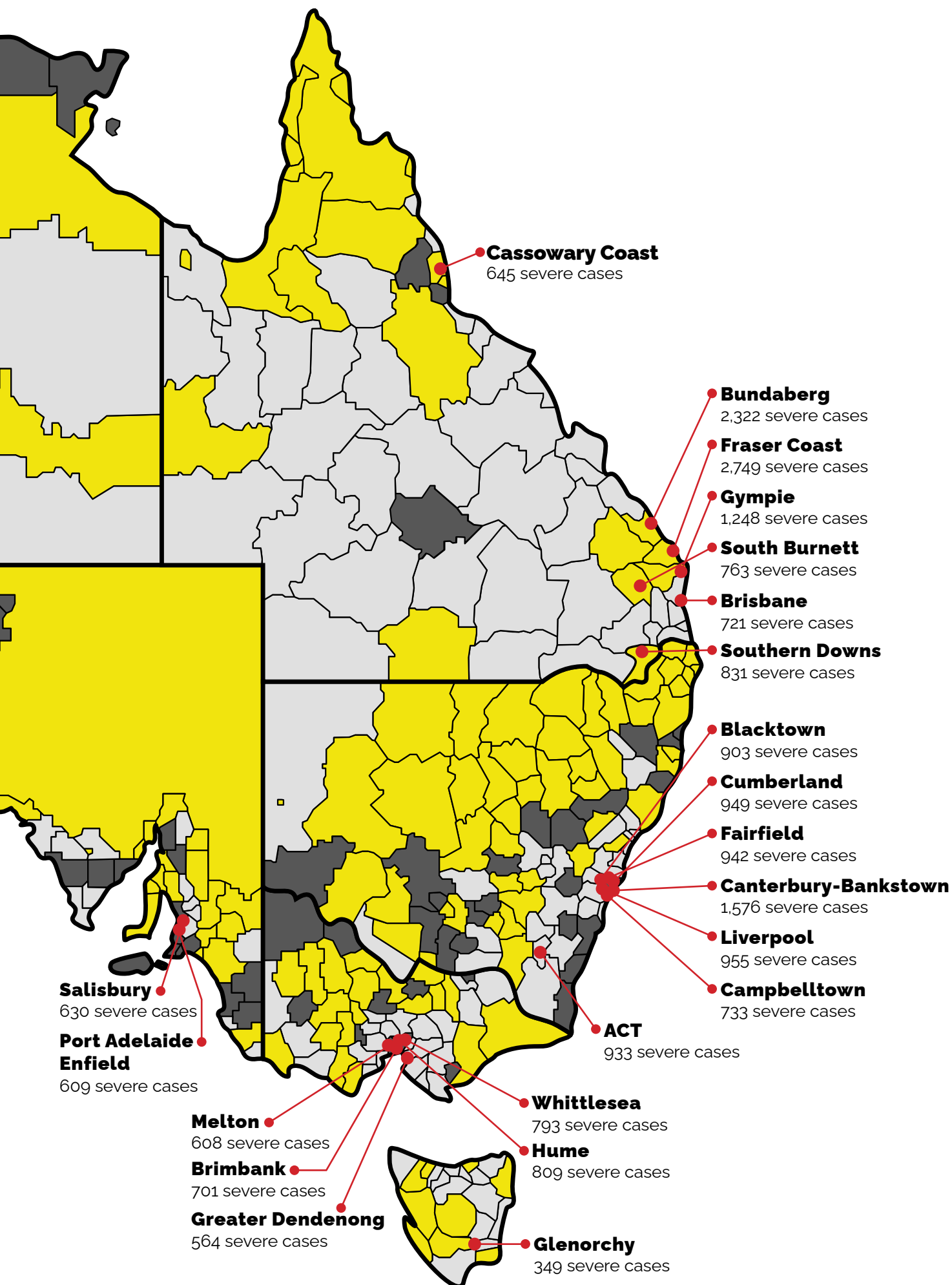
Figure 2 COPD prevalence by local government area

COPD Prevalence by LGA



Disclaimer: this heatmap is constructed using Evohealth COPD disease prevalence modelling, which estimates case numbers using the National Health Survey and the Australian Bureau of Statistics. This data likely underestimates COPD prevalence in the Northern Territory, due to limited sampling for this region in the Health Survey Data. Hotspots have been estimated by applying the distribution of severe cases, identified in the BOLD Australia study, to the prevalence of each LGA. Further detail can be found in the Appendix.

Source: Evohealth modelling [1]



Spirometry is the gold-standard diagnostic for COPD

The gold-standard diagnostic for COPD is spirometry, which assesses lung function and is a critical initial step to an accurate diagnosis. [32] It detects airflow limitation through different measurements, including the ratio of Forced Expiratory Volume in one second (FEV1) to Forced Vital Capacity (FVC). When this ratio is less than 70 per cent after a bronchodilator is used, COPD can be diagnosed.² [33]

Generally, using spirometry differentiates and avoids misdiagnosis of COPD from other airway diseases, such as asthma, as symptoms are often attributed to aging, smoking or other conditions. [33] Repeating spirometry tests is critical to monitor changes in lung function and map the severity of COPD, which can be classified into mild, moderate, and severe. Australia's national clinical guidelines for COPD, COPD-X, define three typical spirometry ranges for people with COPD, summarised in Table 1: [5]

Table 1: Lung function at each COPD severity stage, by FEV1

	Mild	Moderate	Severe
Predicted FEV1 [5]	60 - 80 per cent	40 - 59 per cent	Less than 40 per cent
People living with disease severity in 2024 [1]	284,225 people	200,010 people	42,107 people



²A bronchodilator is a medication that widens the airways in the lungs.

Early clues, big consequences

The difference between mild and severe COPD is staggering. Often chalked up to aging or illness, mild COPD can be as subtle as a slight increase in breathlessness with exercise, or a chronic cough. [5] This stage represents the greatest opportunity for action to prevent further airflow limitation and decline in quality of life, however without a confirmed

diagnosis, it is difficult to optimise treatment.

When mild COPD goes undiagnosed and untreated, progression to moderate and severe COPD occurs as permanent airflow obstruction sets in. Compared to mild, these stages of COPD are far more imposing:

Figure 3 Symptomatic differences in COPD stages

Severity	Moderate
Mild COPD	• More breathlessness than usual after exertion • Cough and mucus production • Symptoms may be irregular, with little to no impact on life or independence
Moderate COPD	• Breathlessness walking on level ground • Increasing fatigue and limitation of daily activities (e.g. carrying groceries) • Frequent cough and mucous production • Recurrent chest infections with longer recovery periods • Exacerbations requiring treatment with steroids and/or antibiotics
Severe COPD	• Breathlessness on minimal exertion (e.g. getting out of bed or putting on shoes) • Little to no ability to maintain daily activities • Weight and muscle mass loss • Frequent and more severe chest infections, recovery from which can take weeks • Increasing frequency and severity of exacerbations, including presentation to emergency department (ED) and hospitalisation

Source: Evohealth, adapted from multiple sources. [5, 34-36]



I haven't been able to shower independently since last May because my carers are too scared I'm going to collapse in the shower.



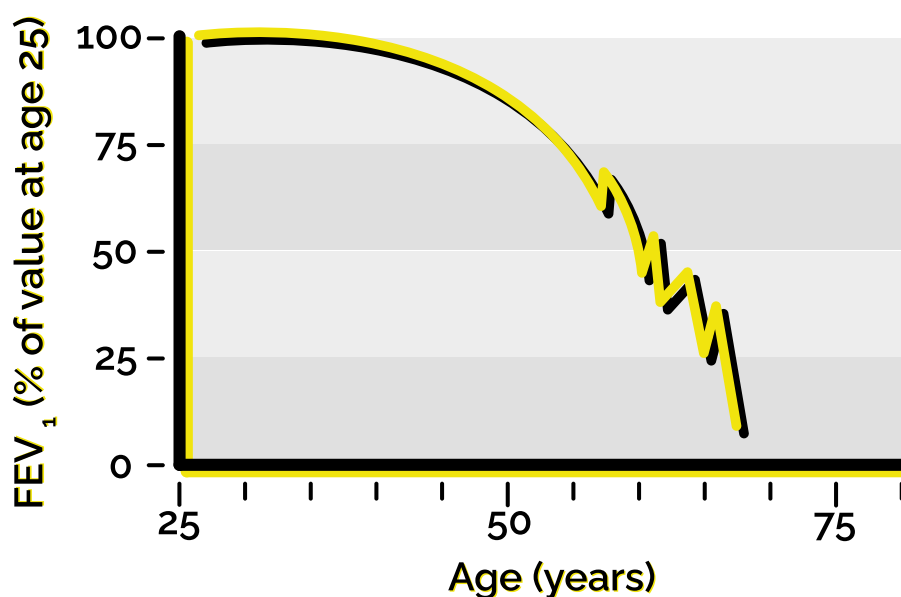
– Kay, Victoria

The vicious cycle of COPD exacerbations

As COPD severity increases, the frequency of exacerbation also increase - key markers of declining respiratory function, symptom burden, comorbidities and mortality. [20] Exacerbations, also known as flare-ups or attacks, are an acute worsening of breathlessness, cough or sputum production. [5] The risk of these attacks can be monitored but not predicted.

While they can occur at any stage of COPD, exacerbations are significantly more common in moderate and severe stages. [5] Each exacerbation causes a loss in lung function which may never be fully recovered, as shown in Figure 4. Most concerning, however, is that exacerbations are associated with a 12-month mortality rate of over 25 per cent, even for first-time occurrences. [37, 38]

Figure 4: Decline in lung function (FEV₁) from exacerbation events



Source: Evohealth, adapted from [39]

Exacerbations become more severe, frightening and difficult to recover from as people progress to moderate and then severe COPD. When flare ups strike, they are terrifying, where a person cannot catch their breath, and struggle to call for help or communicate their needs. [35] Seeking care at a nearby hospital is often required, with many cases resulting in hospital admission.

Targeting exacerbations is key to alleviating the burden of COPD, and several tools are available to stabilise people with moderate to severe COPD, reducing the frequency and severity of exacerbations, and helping them stay well and out of hospital.

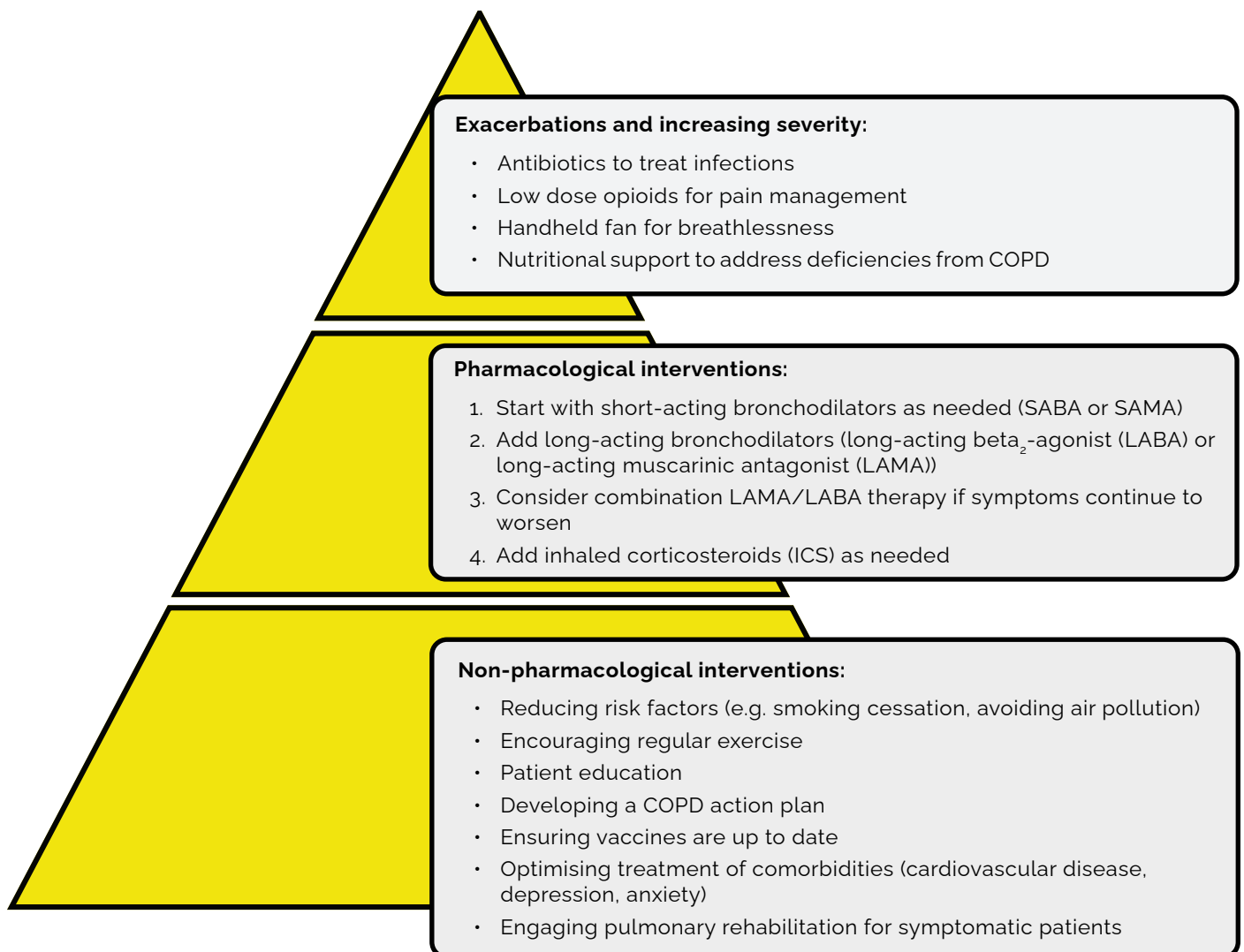
“It got worse very quickly, I had chest infections and a bout of pneumonia, which really floored me. It was an exacerbation, and I'd never experienced anything like it. I caught a taxi to the hospital, and I couldn't even talk to the taxi driver.”

– Catherine, South Australia

TREATMENT AND MANAGEMENT OPTIONS

Although it cannot be cured, a wide range of treatment options are available to treat COPD, making it an ideal candidate for preventative care and improved management. Several therapeutic and non-pharmacological options are available for differing disease severity, as summarised in Figure 5.

Figure 5 Pharmacological and non-pharmacological treatment approach for COPD



Source: Adapted from LFA's Stepwise Management of Stable COPD and COPD-X guidelines [5, 40]

Clinicians have access to evidence-based clinical guidelines for the treatment and management of COPD in Australia. The COPD-X Plan provides the latest consensus guidelines shaping optimal care for COPD. [5] These guidelines are developed and revised frequently by Lung Foundation Australia (LFA), most recently in June 2024, and are endorsed by the Thoracic Society of Australia New Zealand (TSANZ). [5] Other standards include:

- The COPD Clinical Care Standard: published by the Australian Commission on Safety and Quality in Health Care (ACSQHC) in October 2024.

The Standard contains ten quality statements describing safe and appropriate COPD care, accompanied by a set of 26 indicators to support monitoring and quality improvement. [7]

- Stepwise Management of Stable COPD: a clinical tool published by Lung Foundation Australia summarising the stepped care approach to COPD management as severity increases. This resource utilises evidence-based recommendations and is based on the COPD-X Plan. [40]

What's on the horizon?

Recently, a new wave of research and development has risen to meet the growing tide of COPD and its fast-growing burden, particularly in moderate and severe stages. Alongside inhaler technologies, new

bronchodilators, combination therapies and novel drug delivery systems, new advancements include biologic therapies, sometimes called biologics. [9]

What are biologic therapies?

Biologic therapies, specifically monoclonal antibodies (mAbs), work to alleviate inflammation from COPD by reducing the body's immune response, offering a new approach beyond the traditional bronchodilation. [8] Biologics are approved in Australia to treat diseases such as inflammatory bowel disease, rheumatoid arthritis, and as an add-on treatment for people with certain types of asthma. [41-43]



THE BURDEN WITHIN THE BURDEN

The burden of COPD in Australia is staggering. As our leading cause of potentially preventable hospitalisations and fifth leading cause of mortality and burden of disease nationally, this disease strains individuals, families and the broader healthcare system. [2, 10] When optimal treatment isn't received and disease severity increases, the impact of moderate and severe COPD compounds this burden significantly, representing a sizable 'burden within the burden'.

Evohealth modelling estimates that in 2024, moderate and severe COPD together accounted for 87 per cent of total disease costs, equating to an estimated \$21.78 billion per year. [1] This includes:

- Direct costs, such as hospitalisations, outpatient care, medication, and general practitioner (GP) or specialist visits;
- Indirect costs, including lost productivity for patients and carers, as well as premature mortality; and
- Burden of disease costs, which reflect the years of healthy life lost due to disability (YLD) and early death (YLL).

Moderate and severe COPD also account for 75 per cent of all direct costs, 63 per cent of indirect costs, and 94 per cent of total burden of disease costs, underscoring the need to stabilise people with this disease. [1]

With every step up in disease severity, the toll on body, mind, relationships and finances deepens. _____

Australians with moderate and severe COPD experience an ever-increasing symptom burden, and each with their own detriment to life and daily activities. Breathlessness, the cardinal symptom of COPD, becomes pervasive, and disease progression and exacerbations give way to airway damage and infection. [34] The spectrum of symptoms includes:



Physical symptoms

The impact of COPD permeates through the entire body, leading to:

- Frequent exacerbations, causing statistically significant decreases in quality of life at any severity and with effects lasting for weeks after the event. Exacerbations occur more often as the severity of COPD increases, each one a worse experience. [21]
- Severe fatigue and exhaustion. [34]
- Difficulties in exercising or mobilising, resulting in a cycle of disability. [21]



Physical symptoms (continued)

- Weakness, breathlessness, fatigue and physical inactivity, restricting fundamental activities of daily living such as household chores, cooking and hygiene. [34]
- Poor sleep quality, associated with increases in exacerbation risk. [21]
- Chronic pain, with deteriorative impacts to mental health, sleep quality, and willingness or ability to engage in physical activity, has been reported in up to 88 per cent of COPD patients. [21]
- Undernutrition, increasing infection, home dependence and hospital utilisation. [44] There may be undernutrition in up to 90 per cent of people with severe COPD. [44]



Mental health symptoms

Increasing COPD severity continually deteriorates mental health, commonly manifesting in: [21]

- Depression, reported in between 25 to 80 per cent of those with severe COPD. [45] It increases the risk of mortality by 83 per cent and fewer than a third of patients receive appropriate treatment for depression. [45]
- Anxiety, reported in up to 50 per cent of those with severe COPD, however, it may be much higher. [46] Not knowing when an exacerbation will strike causes anxiety and increases breathlessness. [34]



Impacts to psychosocial health

Together, physical and mental health symptoms affect the psychosocial wellbeing of people with moderate or severe COPD, who often:

- Feel their world shrinking, and an accompanying sense of loss. [47]
- Struggle to adapt to their new limitations or having to rely on others for support. [47]
- Experience direct and indirect isolation, the latter from feeling existing relationships don't understand experiences of COPD. [47]

Individuals, households, and carers affected by COPD bear many costs, both direct and indirect. These include treatments, productivity loss from early

retirement, and productivity loss for family members or loved ones stepping into informal caregiving roles and away from the workforce.



The total cost of moderate-severe COPD is estimated to be **\$91,000 per person per year**. [1]



The estimated financial burden on households amounts to **\$3.9 billion per year**. [1]



Productivity loss for people with moderate-severe COPD is estimated to be **\$677 million per year**. [1]



Productivity loss for carers supporting a person with moderate-severe COPD is estimated to be **\$1.3 billion per year**. [1]

The growing burden of exacerbations on the healthcare system and economy

Exacerbations impose a massive burden on patients and the healthcare system alike. For people with COPD, these highly stressful events cause further deterioration to health, and take time away from families, employment and planned activities. [48] For the healthcare system, exacerbations requiring

hospitalisation represent the highest share of the total economic burden of COPD. [49] Public hospital admissions, emergency department visits, and outpatient care together exceed \$1.19 billion per year, with 83 per cent of that cost borne by moderate and severe COPD. [1]

Exacerbations are a turning point in COPD — for many patients, they mark the beginning of irreversible decline. Each episode is distressing, disruptive and imposes serious health risks. With the right care in place, these events can often be prevented. Reducing exacerbations isn't just about easing hospital pressure — it's about preserving lives, function, and time with loved ones.

– Professor Christine McDonald, Respiratory Physician

Over 53,000 COPD hospitalisations occurred between 2021 and 2022, with an average length of stay of 5.5 days and 30-day re-admission occurring in around a third of cases. [2, 37, 49] Winter creates a surge in exacerbations, even in mild COPD cases, creating a severe strain on emergency department

resources and ambulance ramping amid seasonal illnesses. [19] With just 65,100 public hospital beds available in Australia, and unprecedented levels of ambulance ramping, the burden of exacerbations is not one our healthcare system can sustain. [50-52]

This is where the opportunity lies

We can no longer afford to let Australians with moderate to severe COPD fall through the cracks. In embedding high-quality guidelines across the healthcare system and providing subsidised access to safe and efficacious treatments, we can change the course of this disease. We can keep people well, out of hospital, and connected to the people and activities that matter to them.

This is the burden within the burden. But it's also where the case for action is strongest — and the return on investment, most measurable.

³ Ambulance ramping in Australia refers to the situation where paramedics delay transfer of patient care from the ambulance to an emergency department due to the emergency department already being at capacity.

FACING THE KEY CHALLENGES

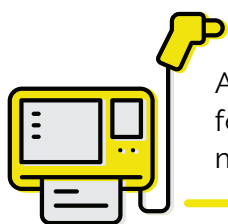
Across the care continuum, we have several opportunities to implement evidence-informed interventions and therapeutics to help stabilise people with moderate to severe COPD and reduce exacerbations. However, to most effectively capitalise on the potential of these interventions, key challenges must be addressed. By tackling these obstacles, we can transform the care pathway and reduce the long-term burden on individuals, families and the healthcare system.

1 Underutilisation of spirometry in primary care means missed diagnoses, fewer treatment opportunities, and a larger burden of disease

National and global clinical guidelines agree spirometry is the gold-standard to accurately diagnose and monitor COPD. Despite this, spirometry utilisation is alarmingly low, especially in primary care. This often results in under-diagnosis or misdiagnosis and missed opportunities to deliver the right treatment.

Spirometry is essential, yet highly underutilised

Although essential for a correct diagnosis of COPD, spirometry utilisation in healthcare settings is alarming low – and dropping.



An AIHW study found **81.6 per cent** of Australians on medications for COPD **had not completed spirometry testing** in the 12 months prior to or following initiation of COPD treatment. [13]

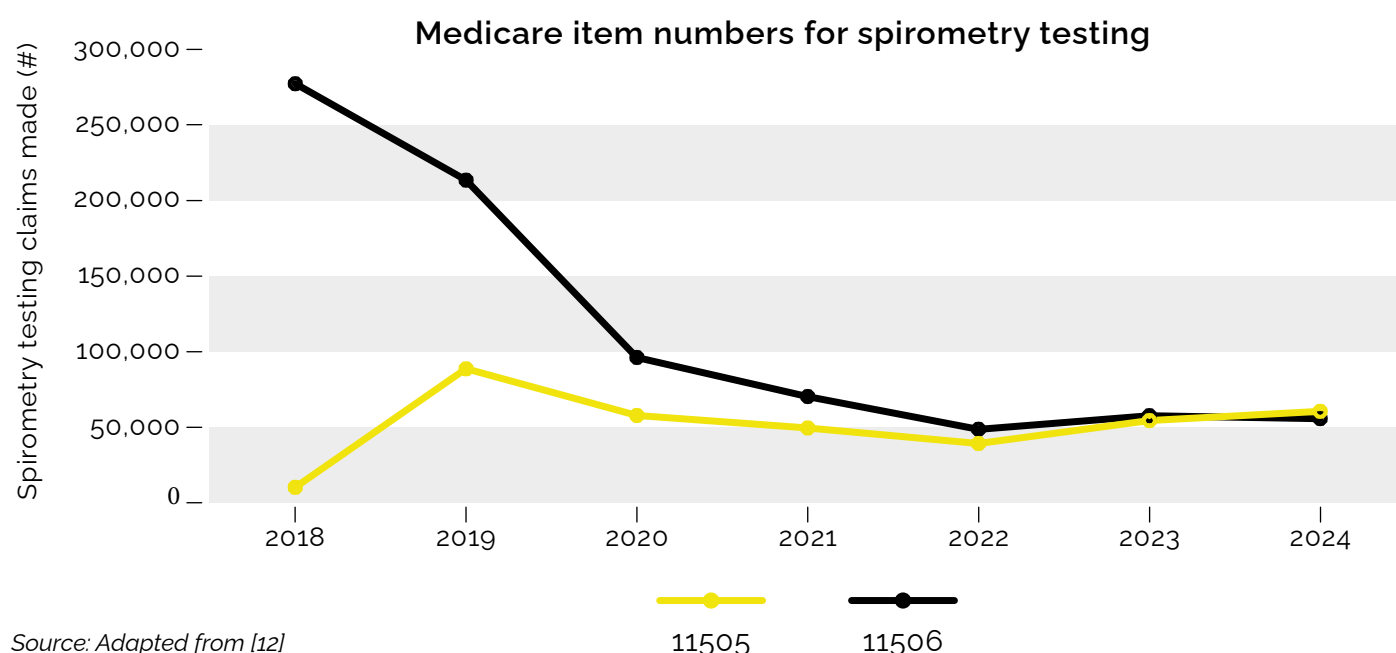
Similarly, over 71 per cent of newly diagnosed patients with high-risk COPD – having had two or more exacerbations or similar events in the last two years – had no recorded lung function tests within 12 months of diagnosis. [53]

Rates of spirometry utilisation have also been impacted by the COVID-19 pandemic. Figure 6 shows Medicare Benefits Schedule (MBS) item numbers for diagnostic spirometry testing peaked in 2019 at 88,905 tests performed nationally, with the code for

monitoring⁴ used 277,921 times the same year. [12] However, after it was recommended lung function testing be suspended when deemed not clinically necessary at the start of the COVID-19 pandemic in March 2020, spirometry rates have fallen dramatically and are yet to recover to their pre-2020 levels. [12, 56] Concerningly, alongside this sharp fall in spirometry utilisation, the use of triple therapy (LAMA, LABA and ICS) has increased by 130 per cent, suggesting some people who have been prescribed triple therapy may not be receiving treatment that is best for them. [57]

⁴Code 11505 can be used only once a year per patient, for diagnosis of asthma, COPD or another cause of airflow limitation. Code 11506 can be used multiple times a year to confirm COPD diagnosis, assess acute exacerbations of asthma, monitor asthma or COPD, or assess for obstructive or restrictive lung disease. [54, 55]

Figure 6 Medicare item numbers claimed for spirometry testing for diagnostic purposes (11505) and monitoring (11506), 2018 to 2024



Underutilisation is not just an issue in primary care. In an acute care setting across five tertiary hospitals, spirometry was performed for less than 23 per cent of people admitted with a COPD exacerbation. [49]



People for whom spirometry wasn't performed were **3.6 times more likely** to be **readmitted within 28 days**. [49]

Similarly, a review of one site found no spirometry results for 44 per cent of people labelled with COPD, and almost 1 in 5 with a COPD label diagnosed incorrectly from spirometry results.⁵ [59]

Underutilisation of spirometry for COPD diagnosis has several implications for Australia. Many Australians with COPD are undiagnosed and therefore unlikely to be receiving optimal care to prevent disease progression.



It is estimated **up to 50 per cent** of people living with COPD may not know they have it. [11]

It also affects our understanding of the true COPD prevalence in the community. For example, while the AIHW estimates 7 per cent of Australians aged 75 and over have COPD, the true prevalence may be closer to 30 per cent – over four times greater. [2, 60]

This gap in understanding limits our opportunities to effectively address this issue through implementation of awareness, case-finding, or prevention campaigns, leading to a higher burden of COPD in Australia.

⁵Insufficient use of spirometry to diagnose COPD can also lead to 'overdiagnosis', where patients are labelled as having COPD despite no clinical evidence of postbronchodilator airflow obstruction. This may result in a person with asthma or another reversible airflow obstruction being diagnosed and treated incorrectly. [58]



There is no excuse for nihilism in managing patients with COPD. Early diagnosis and best practice management reduces symptom burden and prevents exacerbations, enabling patients to do more with better quality of life for longer.



– Dr Christine Jenkins, Respiratory Physician

What's in the way of better spirometry practices?

Barriers to spirometry in healthcare settings include resources, limited reimbursement, time constraints, staffing and the ability or confidence to administer the test and interpret the results. [14] Some Australian GPs believe the test has narrow clinical utility, instead preferring to diagnose using clinical presentation and/or trial of treatment. [13] Some clinicians, including practice nurses, also report a lack of confidence in undertaking and interpreting spirometry testing, with additional studies identifying instances of incorrect interpretation by GPs and practice nurses. [13]

Resource barriers also hinder spirometry accessibility in primary care, including limited time and poor availability of spirometers or staff trained in the testing. The rate of spirometer availability in clinics is

not well understood, however some studies suggest this to be less than 45 per cent. [61, 62] The cost of spirometry has also been flagged as an obstacle across numerous studies, including machines costing upwards of \$3,500, consumables, staff time to complete the test, and MBS rebates insufficient for the cost of the procedure. [13, 63]

These barriers can be particularly prohibitive in regional and rural areas, where alternative referral options, including respiratory labs or other GPs, are far less available. High staffing turnover in rural areas also impacts the availability of trained staff to perform the test, including up to 148 per cent annually for nurses in remote areas of the Northern Territory. [64]

Spirometry gaps for Aboriginal and Torres Strait Islander people create critical blind spots in care

For Aboriginal and Torres Strait Islander people with COPD, the landscape is infinitely more challenging. Spirometry reference norms are not well established for Aboriginal and Torres Strait Islander adults and are influenced by several factors including early life disadvantages and the resulting existing restrictive

airway patterns. [15] In fact, only 10-12 per cent of Aboriginal and Torres Strait Islander adults displayed 'normal' range spirometry values, raising several questions around the appropriateness of clinical guidelines in diagnosis and subsequent treatment. [15]



We have an opportunity to do better for Aboriginal and Torres Strait Islander peoples living with COPD. By improving access to lung health services and developing culturally appropriate diagnostic tools, we can ensure First Nations communities receive the care they deserve — care that is not only clinically sound, but grounded in respect, equity and understanding.



– Dr Subash Heraganahally, Respiratory Physician

While Aboriginal and Torres Strait Islander people face similar barriers in accessing spirometry testing, the inability to access culturally safe care

adds extra difficulty. [16] Experiences of racism in primary care and hospitals reduces willingness to use future healthcare services and opportunities for

preventative care and treatment optimisation. [16] This can be seen in COPD severity in Aboriginal and Torres Strait Islander people, most of whom will be

diagnosed with severe or very severe COPD, and are hospitalised for COPD 4.8 times more frequently than other Australians. [7, 30]

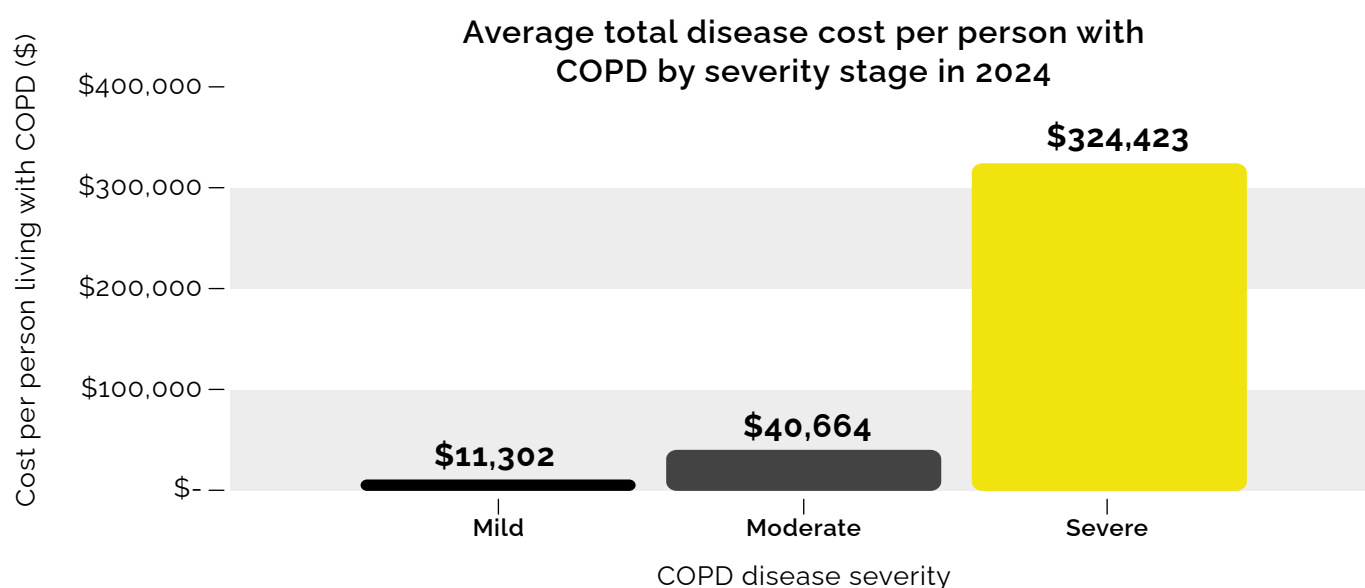
Spirometry is the gold standard for diagnosis, however issues with its implementation and use in healthcare settings across Australia are resulting in under- and misdiagnosis, with downstream implications for best-practice management. **Encouraging spirometry testing across all healthcare settings supports better diagnosis and management practices, including opportunities to optimise care, to reduce the burden of COPD.**

2 The treatment gap is worsening disease severity and burden

Progression to moderate and severe COPD and increased risk of exacerbation can be delayed, and in some cases prevented, with timely access to appropriate treatment and coordinated care. Yet across Australia, people with COPD are not consistently receiving high-quality, safe and evidence-based interventions that could prevent avoidable deterioration and reduce long-term costs for individuals, families, and the healthcare system.

This avoidable deterioration is proving costly. Figure 7 shows that in 2024, the average total disease cost per person with mild COPD was \$11,300, \$40,700 for moderate COPD, and \$324,400 for severe COPD. This represents a 29-fold increase in per-person cost between mild and severe disease, driven by escalating healthcare use, high hospitalisation rates, long-term care needs, productivity loss, and premature death. [1]

Figure 7 Average total disease cost per person with COPD by severity stage in 2024.



Source: Evohealth modelling [1]

In 2025, we have several effective, safe and high-quality interventions available to reduce progression, improve quality of life and alleviate the burden

of COPD. Delaying access to these treatments compounds the significant individual burden and the growing economic liability.

We have the tools. Now we need access.

Limited access to innovative treatments and care creates barriers to reducing disease severity and optimising treatment.

An evidence-based intervention in critical need is pulmonary rehabilitation (PR), a 6-8 week exercise and education program strongly recommended in the COPD-X guidelines. [5] Commonly provided in outpatient, community or home settings, pulmonary

rehabilitation programs are highly effective in improving breathing and function. This intervention has been shown to reduce the risk of hospital re-admission after a COPD exacerbation by up to 56 per cent. [3, 65] Completion of pulmonary rehabilitation is also cost-effective, leading to an average healthcare cost reduction of \$10,620 per person over the following 12 months. [66]



I really enjoyed pulmonary rehabilitation. It helps keep me on track with what I should be doing, and the education is brilliant. I also think it's valuable for younger people with COPD, or those who have just been diagnosed, who attend and can learn from those of us further along.



-Helen, Victoria

Despite this, referral and uptake of pulmonary rehabilitation is low, with less than a third of people with COPD being referred to pulmonary rehabilitation after being hospitalised from an exacerbation, and uptake of just five to 10 per cent of those who would

benefit from the program. [31, 49] Further, pulmonary rehabilitation programs receive no MBS funding in Australia, with two applications to the Medical Services Advisory Committee (MSAC) unsuccessful. [67]



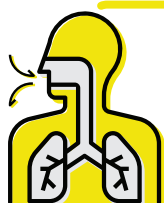
Improved access to effective medications in COPD for Aboriginal and Torres Strait Islander peoples, and everyone that is disproportionately affected by this condition, is vital.



- Alice Nugent, Pharmacist Advisor, Medicines Policy and Programs, NACCHO

In terms of potential new therapies in clinical development, research has demonstrated the efficacy of monoclonal antibodies in COPD treatment, particularly in reducing severity and the risk of acute exacerbations. A 2020 Cochrane evidence synthesis identified monoclonal antibodies reduced the frequency of moderate or severe COPD exacerbations requiring hospitalisation by between 8 and 37 per cent in suitable patients as

add-on maintenance treatment, and delayed the first moderate or severe exacerbation by between 13 and 23 per cent. [68] Another 2024 meta-analysis of randomised controlled trials reported similarly, with a 21 per cent reduction in annual exacerbations. [69] In order to ensure that treatment for people with moderate to severe COPD is optimised, access to all available and innovative approaches to care is needed.



Pulmonary rehabilitation can **reduce the risk of re-admission** after COPD exacerbation by up to **56 per cent.** [3, 65]



In certain patients, treating COPD with biologic therapies has the potential to **reduce the rate of exacerbation-related hospitalisations.** [68]

The steep cost of treatment gaps

Beyond the system-wide effects, the financial burden of COPD on individuals and households is considerable and increases substantially with disease severity. Evohealth modelling estimates people living with severe COPD face over \$100,000 in economic costs annually, including:

- Over \$71,000 in direct costs, such as hospitalisations, medication, and long-term care support, and

- Around \$29,000 in indirect costs, such as informal care, lost income, and premature mortality. [1]

In contrast, people with mild COPD face an average of \$8,000 per year in economic costs. [1] Driven by exacerbations, the steep escalation in individual burden as the disease progresses illustrates why timely intervention is clinically appropriate and economically essential.



I was studying, working, climbing the career ladder. I had to leave work at 55, by that time my lung function was below 50 per cent... Giving up work was traumatic.



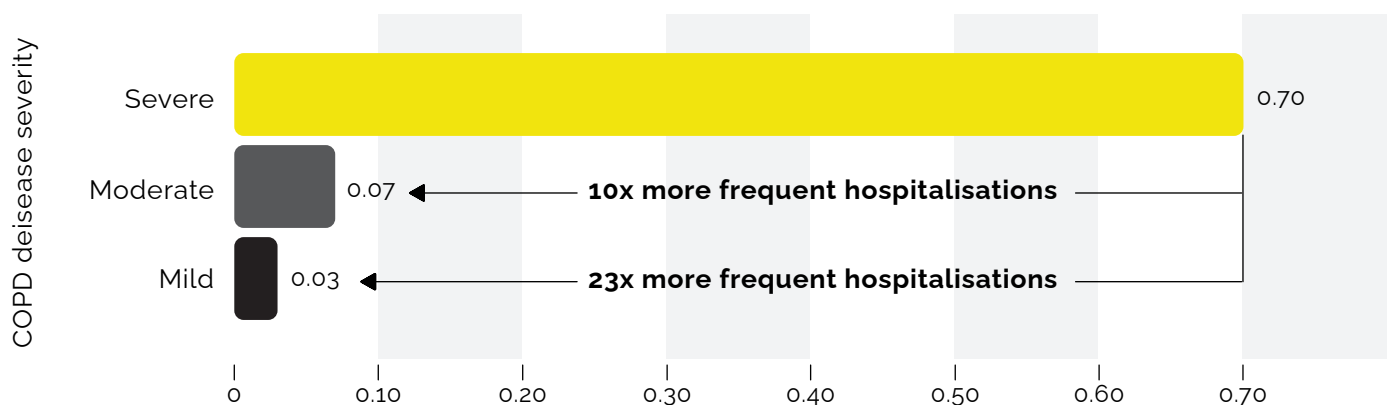
– Catherine, South Australia

The hospital strain caused by suboptimal care

Increasing disease severity and exacerbations results in more hospital admissions. Evohealth modelling estimates that in 2024, the average hospitalisation cost for someone living with severe COPD was \$25,662 per episode, reflecting the combined impact of public inpatient care, emergency department presentations, outpatient services, medical imaging, pathology testing and specialist input. [1]

Figure 8 shows people with severe COPD are hospitalised 0.70 times per year, 23 times more frequently than those with mild COPD, and 10 times more frequently than those with moderate COPD. [1]

Figure 8 Hospitalisations per person living with COPD by disease severity

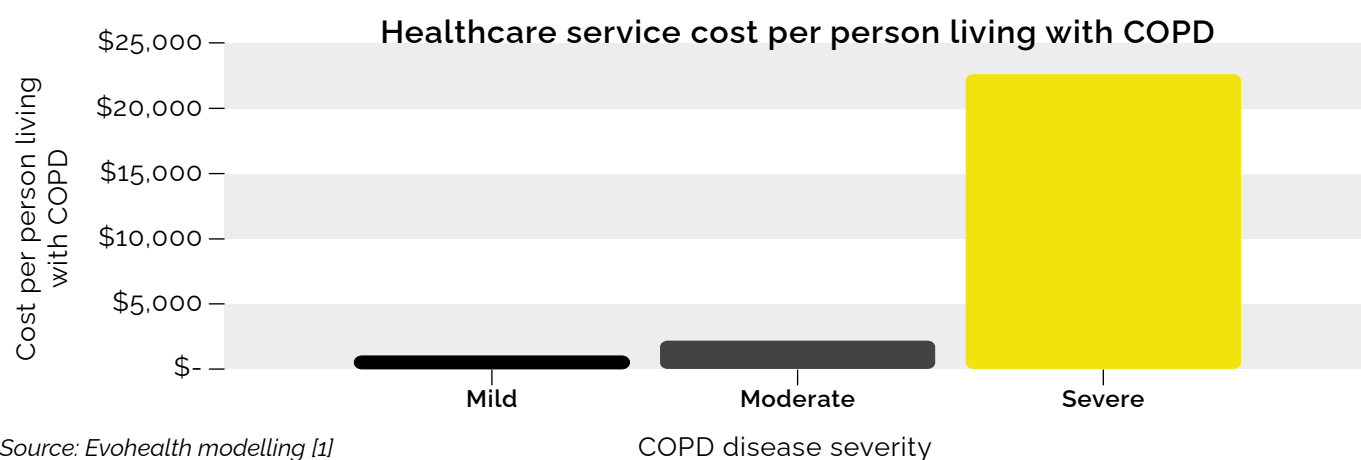


Source: Evohealth modelling [1]

Healthcare service costs incur a similar effect, as shown in Figure 9. For people with severe COPD, costs are estimated at \$22,533 per annum, while

costs for moderate COPD are less than 10 per cent of this total.

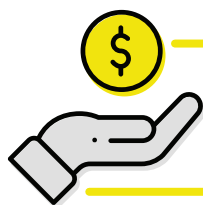
Figure 9 Healthcare service cost per person living with COPD



Source: Evohealth modelling [1]

Yet these costs, and the strain on hospital capacity, are largely preventable. Early intervention through pulmonary rehabilitation, smoking cessation programs, pharmacological management, and coordinated care can substantially avoid costly acute care episodes from exacerbations. [1] Even after the window for prevention has closed, action to reduce exacerbations through optimised treatment is possible, with pulmonary rehabilitation

reducing hospitalisations by up to 56 per cent. [3] The potential savings can't be ignored. Reducing the number of exacerbations and ultimately those with severe COPD by just 10 per cent would reduce overall hospitalisations by 5 per cent and save the healthcare system \$76.17 million annually, providing a compelling case for investment enabling optimal COPD management. [1]



Reducing the number of people living with severe COPD by just **10 per cent** would reduce overall hospitalisations by 5 per cent, saving the healthcare system **\$76.17 million** annually. [1]

Australians with COPD are not consistently accessing the high-quality, safe and evidence-based care needed to slow disease progression. As a result, the long-term costs to individuals, families and the healthcare system are growing each year, with increasing strain on our healthcare system. **The case is clear: enhancing access and optimising treatment is critical to alleviating the significant burden of COPD.**

3 Stigma is reducing engagement with treatment, resulting in deterioration of physical and mental health

People with COPD often feel stigma due to the association with smoking, which can be experienced as negative judgements from others, or internal feelings of shame or embarrassment. [70] The impact of stigma can lead to declines in treatment-seeking

behaviour, resulting in poorer physical and mental health. Australia can unlock significant benefit through improved public awareness and community understanding of COPD, with also enabling the opportunity to identify undiagnosed cases of COPD.

Self-blame, shame and feeling undeserving of treatment

Not all smokers develop COPD, and not everyone with COPD has smoked.

The association between COPD and smoking has led to stigma often experienced by people with COPD, who describe feeling self-blame, guilt and shame because of their past smoking behaviours. Similar challenges are described by Aboriginal and Torres Strait Islander people with COPD, as well as heightened fear due to a strong association between death and COPD or emphysema held in some communities. [16]

Perceived stigma often leads to people with COPD who are ex-smokers feeling undeserving of treatment. This can drive delaying or avoiding seeking healthcare, or not using prescribed treatments in public, such as inhalers, due to embarrassment or shame. [71]



When my specialist suggested a transplant, I asked “why would they give lungs to someone who doesn’t deserve it?”

– Catherine, South Australia



Initially I wouldn’t go out with my oxygen, I didn’t want people to see me with the tank.

– John, New South Wales



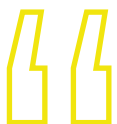
For Aboriginal and Torres Strait Islander people with COPD, racism experienced in healthcare settings also reduces treatment-seeking behaviour, as well as poor accessibility of culturally safe services. [16]

Given the treatments and opportunities available to slow deterioration, reducing stigma toward COPD in the community represents a significant opportunity to reduce the burden of this disease.

How stigma undermines self-management and drives isolation

As COPD and breathlessness worsen, Australians with COPD often struggle with isolation in multiple forms. It includes being unable to socialise due to breathlessness (direct) and feeling isolated from others as they do not understand life with COPD (indirect). Needing to retire early or scale back employment, being unable to complete typical

activities, or disconnecting from community due to inaccessibility or immunity concerns further compounds isolation. COPD-associated stigma also impacts this isolation, as some people self-isolate from family or friends for fear of judgement or shame.



I would hate for people who I used to work with to see me with my oxygen cylinder.

– Catherine, South Australia





Because you're breathless, you don't go out much, but it's so important to keep in contact with social and support groups, and to keep pushing yourself to interact with the community. I've learned so much about my condition and what to do in an emergency.



– Maureen, Queensland

Isolation has been shown to lower mood and impact motivation for self-management activities in COPD, leading to lower treatment adherence, worse breathlessness and poorer quality of life. [72] While there are several opportunities identified throughout

this report to reduce this burden, including pulmonary rehabilitation and optimised treatment to prevent progression, the ability for those with COPD to easily access public spaces, and the awareness of COPD in the public are also key to improving this challenge.



When I went to see my palliative care doctor, there was a 15-minute walk to get inside the hospital. That's really difficult for someone with end-stage COPD. Whereas when I went to a concert earlier this year, the stadium treated me beautifully – they moved me through the place in a wheelchair and gave me the best seats in the house. I had the best time.



– Mike, Australian Capital Territory

What we don't know is hurting us: the awareness and information gap

Despite COPD affecting at least 1 in 13 Australians aged over 40, awareness and understanding of this disease is poor in the wider community. [73] We see this in potentially 50 per cent of Australians with

COPD not knowing they have it, and pervasive myths – include COPD only arising from smoking, without awareness of other risk factors. [11]



It's the first thing everyone asks if you say you've got COPD. They assume I smoked. I've never smoked in my entire life, even though my workmates did.



– Maureen, Queensland



I absolutely see stigma around COPD, it makes me angry. Jen was conscious of it, she's always been social, but she became housebound. She was a smoker, but she also has the genetic trait...it makes a really big difference.



– Veronica, carer for Jen, Victoria

Lacking public awareness of COPD has flow-on effects for the affected community, with a paucity of information reported that describes disease, treatments and care, and practical support or advice. People with COPD described pulmonary rehabilitation and Lung Foundation Australia as the best sources of information, alongside support groups. They also

emphasised the need to be proactive in searching for information about COPD, particularly when their diagnosis or treatments were not well explained by clinicians. Some of the information needs identified include:

- Practical support and care advice, including different postural positions to support

breathing, awareness of activities that may 'squash' the lungs (e.g. bending over to put shoes on), and rectangle breathing techniques.

- Treatment information, including the existence of the stepwise approach, how to use different types of inhalers, side effects of medications, and the importance of maintaining exercise.

- Palliative and end-of-life care, including the benefit of discussing palliative care earlier, and how to access voluntary assisting dying (VAD) legislation.

The current information lag is for now until the end. There's nothing on palliative care, VAD, what to expect. That's a big grey area and no one brings it up, so I'll research it. Even palliative care – I don't relish the thought of needing to be put in aged care for palliative care. But I know I have to prepare a certain way. You just adapt to it.

– Catherine, South Australia

There are clear benefits to improving COPD awareness in our community – both for undiagnosed COPD cases and to support those with diagnosed COPD to remain engaged with healthcare. This is also a priority in the ACSQHC's third quality statement, emphasising the importance of improved

knowledge, skills and confidence to support better health and clinical outcomes for people with COPD. [7] Improving awareness throughout the community can help Australians access the care they need to stay well, out of hospital and connected to family and community.

Poor awareness of COPD in Australia has led to growing experiences of stigma, affecting self-management, treatment adherence and mental health, and contributed to the burden of disease.

Australians with COPD deserve better support and understanding from their community, including access to the information they need to manage their COPD, and improved public awareness of COPD.

4 Without the right treatment, the burden on carers and families grows

Many Australians with COPD rely on informal caregivers – often family or friends – to provide care as their COPD progresses. These carers take on a growing share of physical tasks, mental load, care coordination and day-to-day responsibilities. [6g] The toll of watching a loved one struggle to breathe, paired with the unpredictability of daily symptoms and exacerbations, makes caregiving for COPD uniquely difficult. It's a role often taken on without

formal support or respite, and when disease severity worsens, carers absorb the cost.

Evohealth modelling estimates informal carer productivity loss associated with COPD amounts to \$3.70 billion annually, with the burden growing alongside disease severity. [1] This includes productivity loss rising alongside informal caregiving responsibilities, summarised in Figure 10.

Figure 10 Average carer loss in productivity per annum

Disease severity	Average carer productivity loss, per annum
Mild	\$5,250
Moderate	\$8,400
Severe	\$12,600

Source: Evohealth modelling [1]

Yet these figures reflect just the measurable financial impact – while mental strain, health deterioration, and personal sacrifices often go unseen. Fear of exacerbations and unpredictable symptoms often

sees a rise in chronic anxiety, while hospitalisations for exacerbations increase the risk of depression among carers. [75, 76]



70 million hours of unpaid care provided by informal carers in 2024. [1]

The toll on carers: growing responsibilities, declining health

“After the last exacerbation, when we were doing all the things we were supposed to, but nothing was working. The oxygen wasn't helping, we were both panicking. It was a huge mental effort to take back control.”

– Lenette, caregiver for John, New South Wales

The physical toll also intensifies. As people with COPD become less able to manage daily tasks, carers are required to step in—often with little training or preparation. Responsibilities such as medication management, operating oxygen equipment,

coordinating care, and assisting with mobility and daily living quickly become part of everyday life. [17, 74] Many carers report significant fatigue and disrupted sleep as they listen for signs of distress throughout the night. [17]

“You do more and more little things, take on more roles little by little, but you don't take their independence. We're equal in this partnership.”

– Lenette, caregiver for John, New South Wales

A shrinking world: the unpredictability of caring for COPD

As COPD becomes more disabling, carer's lives often narrow alongside those they support. The unpredictability of symptoms makes it increasingly difficult to plan or maintain a sense of normalcy. Many carers describe a 'shrinking world', where stepping away from their loved one feels risky or unthinkable.

[75] Independence takes a back seat, with hobbies, social connections, and travel or retirement plans put on hold. [77] Eventually, withdrawal from work or social circles can see social isolation and a loss of self. [77, 78]

You have to plan ahead. You can't just hop in the car and go. The extra effort involved and not being in the comfort zone, means we're unlikely to go out.

– Lenette, caregiver for John, New South Wales

Not enough information for or about carers, who are poorly supported

With awareness of COPD already low, caregivers remain an overlooked and under-researched group, often left in the dark when seeking information. Carers for people with COPD frequently report information gaps, feeling frustrated or anxious when they don't have the knowledge or strategies to manage the disease effectively. [77] Providing the best possible support, tailored advice and assistance for those they care for requires better support for carers, and improving access to information is crucial.

Every single person is an individual – with COPD, it's about respecting and appreciating that person and who they are. Every single person wants something different for their life.

– Veronica, cares for Jen, Victoria

Individualised advice is so important, because some of the little things make a huge difference.

– Lenette, caregiver for John, New South Wales

While carers seek information for their loved ones, we too need guidance - for how to better support them. The impacts of COPD on carers remains chronically under-researched, despite this common, chronic disease having significant care needs and a prolonged trajectory. [74] Gaps in literature make it harder to identify and address this burden, including development of effective, evidence-based interventions that can support carers' health, and their ability to support people with COPD. [79] What is more critical, however, is that earlier intervention is possible - we can ease this burden before caregiving becomes overwhelming. Using high-quality diagnostics and clinical guidelines to optimise evidence-based treatments and non-pharmacological care can help reduce disease severity and the frequency of exacerbations. Reducing the impact of COPD on Australians is essential, especially for tenacious carers who have stepped up to support their loved one.

Informal carers are vital in supporting people with COPD, particularly as the disease progresses. Too often, however, they are left to manage this burden without adequate support, recognition, or resources, facing an increasing physical, emotional, and financial toll as COPD severity increases. Carers remain under-researched and poorly supported, with limited access to the information and tools needed to provide effective care.

Optimising care for COPD can reduce the progression of disease and, in turn, the burden placed on carers and families.

A ROADMAP TO **REDUCING THE BURDEN OF COPD**

In 2025, COPD is both preventable and treatable, with many opportunities to optimise treatment to reduce disease severity and exacerbations. Despite this and the available treatments, COPD continues to be one of Australia's most pressing health challenges, placing enormous strain on people with the disease, carers, families and the healthcare system.

We have an opportunity to implement evidence-informed interventions and therapeutics across the care continuum, providing better access to high-quality and safe care to alleviate the burden of COPD. In turn, we can keep Australians healthier for longer, in turn encouraging better economic participation and societal productivity for patients and carers.

Throughout this report, we have identified four critical challenges, and addressing them offers the potential for significant improvements in the lives of people with COPD, carers, and families:

- 1** Underutilisation of spirometry in primary care means missed diagnoses, fewer treatment opportunities, and a larger burden of disease
- 2** The treatment gap is catalysing an increase in disease severity and burden
- 3** Stigma is reducing engagement with treatment, resulting in deterioration of physical and mental health
- 4** Without the right treatment, the burden on carers and families grows

To most effectively capitalise on the potential of evidence-informed interventions, addressing key challenges in the management and treatment of this common chronic disease is critical.

We have a roadmap to follow, with opportunities across the entire care continuum. By addressing the obstacles along this path, we can access opportunities to transform the care pathway and reduce the long-term burden on individuals, families and the healthcare system.



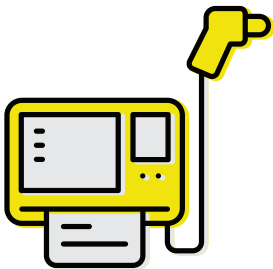
I realise there are things I can't do, but there's many I can. Having a positive attitude is so important – making the effort, you can live well with COPD.



– Mike, Australian Capital Territory

CHANGE THAT CAN'T WAIT: **FIVE WAYS TO REDUCE THE BURDEN OF COPD**

With COPD on the rise and breakthrough therapies on the horizon, the opportunity to transform care has never been greater — or more urgent. To realise the full benefit of these advances, they must be matched by stronger disease management and better use of the proven tools and guidelines already at our disposal. By acting now, we can change the course of COPD, improve outcomes, and reduce its growing toll on Australians and our healthcare system. These five recommendations chart the path forward to deliver the change that can't wait.



RECOMMENDATION 1

Boost spirometry utilisation in primary care to enable early and accurate COPD diagnosis and monitoring

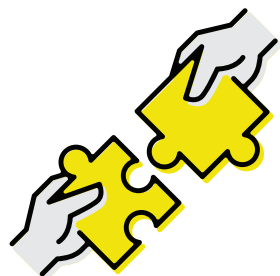
Accurate diagnosis of COPD is crucial to optimising treatment and improving quality of life. Improving access to spirometers in primary care is a critical step to boost the availability of machines where they are most needed, including via government funding for the machine and consumable components.

To boost utilisation of this critical diagnostic, spirometry should be integrated into primary care programs and incentives that drive better care for Australians. Practice Incentives Program Quality Improvement (PIP QI) Measures is an ideal program to promote spirometry use, with ten measures already embedded in primary care. [80] Introducing a PIP QI measure for conducting spirometry on patients deemed at risk of COPD, as per the ACSQHC guidelines, can encourage GPs to conduct the

test. [7] More opportunistic screening can occur by including spirometry in the new National Lung Cancer Screening Program to help identify cases of undiagnosed COPD, which is a risk factor for lung cancer. [81, 82]

Mobile programs offering essential primary care can increase healthcare access in regional and rural parts of Australia, where COPD is disproportionately prevalent. [2] Existing mobile programs, such as NSW Lung Bus and Heart of Australia trucks can be expanded to support reach. In addition to spirometry, access to a mobile screening equipment with x-ray and lung function testing would be highly beneficial in identifying people needing specialist care in remote areas. [83, 84]

Finally, government subsidised staff training programs for GPs and practice nurses can boost confidence, interpretation skills and ability to access incentive measures. It promotes more routine use of spirometry in primary care when evaluating patients who may have COPD.



RECOMMENDATION 2

Expand partnerships and programs to improve alignment to clinical care standards

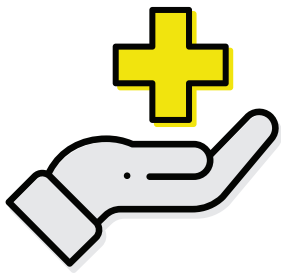
Consistent COPD care starts with reducing variation in diagnosis, treatment and management. Enhancing the awareness and utilisation of key clinical care standards can ensure more equitable and consistent care for all Australians. These three key programs and partnerships offer strong opportunities for impact:

- a. Expanding quality improvement programs and incentives to align with indicators developed by the ACSQHC can improve patient outcomes and awareness of the standards. For instance, implementing a spirometry-confirmed diagnosis prerequisite for all COPD related activities can further strengthen alignment with ACSQHC indicators. It can also support the Australia New Zealand Respiratory Audit Program (ANZRAP), a new binational audit program driving improvement of care for patients with COPD. [85]
- b. Establishing a collaboration between LFA and RACGP drives awareness of the COPD-X and ACSQHC guidelines and resources, including the MedicineInsight GP Snapshot on COPD. [86] The collaboration can boost access to training platforms for clinicians, including Lung Learning Hub, which provides a platform for

clinicians to review their skills against current clinical care standards and plug gaps where necessary to improve care and treatment for the public. [87]

- c. Funding NACCHO to develop a Good Medicine Better Health COPD module, with expert advice from LFA, for Aboriginal and/or Torres Strait Islander Health Workers and Health Practitioners can help the community receive the care they deserve. Ensuring these learning modules are culturally appropriate and practical for the communities they support, this can support Aboriginal and/or Torres Strait Islander Health Workers and Health Practitioners with knowledge to identify people with undiagnosed COPD, and provide them with the right care. [88]

Implementation of monitoring or accountability measures is also important to ensure the success of these programs or partnerships. These measures could be hosted via the ANZRAP or the Lung Cancer Clinical Quality Data Platform, a registry driving quality improvement for lung cancer clinical care. [89]



RECOMMENDATION 3

Expand and fund programs that better manage transitions of care and optimise treatment

Appropriate management across the care continuum is critical. From chronic disease management in primary care through to hospital discharge processes and follow-up, there is room to improve COPD care moving forward to minimise the risk of future deterioration.

Providing optimal treatment at each stage of a patient's COPD journey is the first step to avoiding exacerbations and hospitalisations. Appropriate access to safe and efficacious therapies and pulmonary rehabilitation can slow disease progression, reduce exacerbations and cut hospitalisations. [3, 68] This can include helping patients adhere to optimal treatment with COPD action plans, refined by GPs and pharmacists for better outcomes. Evidence of pharmacist intervention improving patient care has been seen in the Integrating Pharmacists within Aboriginal Community Controlled Health Services to Improve Chronic Disease Management study. [90] Public funding of this program, as recommended by MSAC, can activate this workforce to deliver better COPD care. [90]

Elevating care post-discharge means linking quality improvement program incentives to pulmonary

rehabilitation referrals, post discharge care, including checklists for issues to be addressed for prevention of future hospitalisations, and GP review of COPD action plans. These activities stem from the ACSQHC indicators 3, 5 and 8, acting as a supportive measure for the patient's transition out of hospital. This can also ensure the patient's GP is aware of treatment changes and supports regular action plan reviews, which can promote optimal treatment and self-management. [7]

Following a hospital discharge, people with COPD often need additional support and care. Funding LFA to increase the scope of LFA Respiratory Care Nurses can provide people with COPD with expert support as they transition out of hospital. LFA's Respiratory Care Nurse program shows effective outcomes after just three appointments, with patients 2.36 times more likely to present for ED and hospital admissions before completing the program, a \$2,076 reduction in mean annual treatment costs, and 100 per cent satisfaction rating. [91] Boosting the size of this program with additional telehealth sessions can provide a safety net for patients, providing education and advice to promote self-management and treatment adherence.

Severe COPD doesn't just affect lungs—it impacts lives. The physical, emotional and financial toll on individuals is compounded by the pressure it places on carers, families, and an overstretched healthcare system. For thousands of Australians, it means more hospital visits, reduced quality of life, and growing out-of-pocket costs. Urgent, coordinated action is needed to ease the burden and ensure people with severe COPD receive the standard of care they deserve.

– Mike, Australian Capital Territory



RECOMMENDATION 4

Fund pulmonary rehabilitation programs via the MBS

Pulmonary rehabilitation is one of the most effective interventions for people with moderate to severe COPD, particularly in reducing hospital admissions and length of stay. [65, 67] Completion of PR has also demonstrated cost-effectiveness, leading to an average healthcare cost reduction of \$10,620 per person over the following 12 months. [66] The benefits of these programs are clear. Expanding access, delivery and cultural relevance ensure all Australians get the support they need to remain active and self-manage effectively.

Funding an MBS item number for 8-week PR programs for patients with a spirometry-diagnosed COPD diagnosis is a vital step to tackling PR access. This can remove financial barriers to the program and provide patients with a clear path to care. Lung Foundation Australia can spearhead an MSAC funding submission that demonstrates feasibility in Australian primary care settings. This effort can draw on support from clinicians and respiratory community members to advance integration of pulmonary rehabilitation.

“There’s a groundswell of people saying [pulmonary rehabilitation] is important.”

– **Professor Jennifer Allison, respiratory physiotherapist and PR researcher**

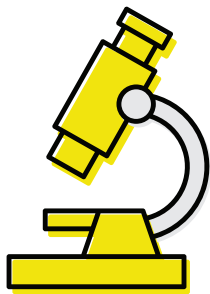
In tandem, PR accessibility can be supported through structured implementation across various platforms. Telehealth and mobile PR (mPR) have been shown to be equally as effective as in-person programs, and implementing these programs can unlock access for regional and remote communities, and people with COPD who are unable to leave home. [92] Funding Aboriginal Community Controlled Health Services to implement culturally safe PR programs can also promote better COPD outcomes for Aboriginal and Torres Strait Islander people, an example of which

is demonstrated by the. “Breathe Easy, Walk Easy- Lungs for Life” (BE WELL) project. [93]

As PR programs are implemented, a partnership between LFA and state and territory health departments can encourage access through development of a streamlined referral mechanism. Creating and embedding this pathway between clinicians and PR programs can help ensure patients are fast-tracked to PR, especially following exacerbations.

“Pulmonary rehabilitation can reduce potentially preventable hospitalisations and improve overall outcomes for people with COPD. There is an urgent need to increase equity of access to pulmonary rehabilitation for people with COPD through increased number of programs, variety of modes of delivery (including telerehabilitation models) and, importantly, increased availability of programs in culturally safe environments of Aboriginal Community Controlled Health Services.”

– **Professor Jennifer Allison, Respiratory Physiotherapist and PR researcher**



RECOMMENDATION 5

Create partnerships to support research and data collection on COPD care gaps and outcomes

Improved research and data collection in Aboriginal and Torres Strait Islander communities will support treatment strategies and better patient outcomes. There is a clear gap in capturing diagnosis and treatment for these populations and funded research partnerships can help to address this.

Supporting NACCHO and/or state and territory affiliates in research, particularly in Northern Territory and Western Australia, will boost prevalence reporting accuracy. Understanding patterns of diagnosis and treatment can help develop key interventions to improve care, identify risk factors for poor lung health and create preventative initiatives

to reduce the burden of COPD. This can drive better COPD management guidance for Aboriginal and Torres Strait Islander peoples, ensuring culturally appropriate care and refined lung function benchmarking for diagnosis and disease tracking.

Whilst research is critical in improving patient outcomes, there is also a need to be cognisant of the research burden on the community. The benefit of these programs needs to be clear to the community. Information collected should also be shared at a regional level to align with the Closing the Gap priority reforms and to minimise any potential duplication of efforts. [94]

COPD is a preventable, treatable condition—yet it remains one of Australia's most costly and devastating health challenges. With clear, evidence-based interventions available across the care continuum, we have the means to reduce the burden of disease and ease the growing strain on people with COPD, their families, carers and our healthcare system. By addressing the challenges outlined in this report, we can empower our community to access the care they need to achieve better health and alleviate the staggering economic costs and healthcare strain associated with this disease.

With the right steps today, we can change the trajectory of COPD and give Australians a better, healthier future.

ABBREVIATIONS

Abbreviation	Description
ABS	Australian Bureau of Statistics
ACSQHC	Australian Commission on Safety and Quality
AIHW	Australian Institute of Health and Welfare
ARIMA	Autoregressive Integrated Moving Average
COI	Cost of Illness
COPD	Chronic Obstructive Pulmonary Disease
CT	Computed tomography
DALYs	Disability-adjusted life years
ED	Emergency department
FVC	Forced vital capacity
FEV₁	Forced expiratory volume over one (1) second
FTE	Full-time equivalent
GP	General practitioner
ICS	Inhaled corticosteroids
LABA	Long-acting beta ₂ -agonist
LAMA	Long-acting muscarinic antagonist
LFA	Lung Foundation Australia
LGA	Local Government Area
mAbs	Monoclonal antibodies
MBS	Medicare Benefits Schedule
mPR	Mobile pulmonary rehabilitation
MRI	Magnetic resonance imaging
MSAC	Medical Services Advisory Committee
NACCHO	National Aboriginal Community Controlled Health Organisation
NHMRC	National Health and Medical Research Council
PBS	Pharmaceutical Benefits Scheme
PIP QI	Practice Incentives Program Quality Incentive
PR	Pulmonary rehabilitation
RACGP	Royal Australian College of General Practitioners
TSANZ	Thoracic Society of Australia New Zealand
VAD	Voluntary Assisted Dying
YLD	Years Lived with Disability
YLL	Years of Life Lost

APPENDIX A – METHODOLOGY FOR THE ECONOMIC ANALYSIS

Cost of Illness approach

A Cost of Illness (COI) approach was utilised to estimate the total economic burden of chronic obstructive pulmonary disease (COPD) in Australia. This approach captures both direct healthcare system expenditures and indirect costs such as productivity losses, informal caregiving, and premature mortality. COPD is a chronic, progressive disease with substantial health and economic consequences. The COI method enables a holistic assessment of the full cost of the disease to individuals, families, the healthcare system, and broader society.

This method was selected over alternative economic approaches because it provides a point-in-time snapshot of the total financial and societal burden associated with COPD. In doing so, it supports informed policy development, prioritisation of investment, and evaluation of interventions that aim to reduce disease progression and associated costs.

- Direct costs included healthcare spending on hospital admissions, pharmaceuticals, general practitioner (GP) services, and other healthcare system use.
- Indirect costs captured broader economic impacts such as lost productivity, informal caregiving, and the cost of premature mortality.
- Societal costs were calculated using Disability-Adjusted Life Years (DALYs), combining Years Lived with Disability (YLD) and Years of Life Lost (YLL), and monetised using GDP per capita.

Prevalence-based modelling

A prevalence-based approach was used to estimate the number of people living with COPD and the associated economic burden in each year of the model. Unlike incidence-based approaches, which follow individuals from disease onset over time, a prevalence-based model captures the full population affected by COPD in a given year. This is particularly appropriate for COPD, which is underdiagnosed in early stages and often persists for years after diagnosis.

By using this approach, the model better reflects the ongoing economic and healthcare system burden of COPD across mild, moderate, and severe disease stages.

Prevalence estimation

Prevalence rates by age and sex were derived from the Australian Bureau of Statistics (ABS) National Health Survey. These rates reflect self-reported diagnosis of COPD, including chronic bronchitis and emphysema. They were applied to population estimates by Local Government Area (LGA) and age group from the ABS, with historical data spanning 2001 to 2023. Forecasts to 2050 were generated by Evohealth using autoregressive integrated moving average (ARIMA) modelling. This approach enabled robust forward projections of COPD prevalence at the LGA level, accounting for demographic trends over time.

Following consultation with the advisory committee, individuals aged 0 to 44 years were excluded from the prevalence analysis. While COPD can occur in younger individuals, it is rare in these age groups and more likely to be misclassified or represent other underlying respiratory conditions. Removing this age cohort ensured that the prevalence estimates better aligned with clinical expectations and improved the accuracy of economic burden estimates by focusing on populations with higher disease probability and more reliable diagnosis.

Given evidence of underdiagnosis in the early stages of COPD, particularly in individuals with mild or moderate disease, the resulting estimates likely represent a conservative baseline. However, they provide a consistent and transparent framework for estimating the national burden of disease using available population-level data.

COPD severity was distributed using evidence from the BOLD Australia study, which is the largest geographically representative, spirometry-confirmed COPD study in Australia. [60] The study classified severity based on the GOLD spirometry grades and found that among adults aged 40 years and over with COPD:

- **54%** had mild airflow limitation (GOLD 1).
- **38%** had moderate airflow limitation (GOLD 2).
- **8%** had severe or very severe airflow limitation (GOLD 3–4).

These proportions were applied to the model to reflect real-world severity distribution across the population. Severity staging was based on post-bronchodilator FEV₁ as a percentage of predicted normal values, in accordance with GOLD criteria.

Spatial analysis and equity mapping

To better understand the geographic and socio-economic distribution of COPD across Australia, spatial analysis was undertaken using data from the Australian Bureau of Statistics (ABS) and the ABS National Health Survey.

Prevalence rates by age, sex, and state from the ABS Health Survey were mapped against Socio-Economic Indexes for Areas (SEIFA) quintiles, enabling estimation of the number of people living with COPD across different socio-economic strata in each state and territory. This allowed estimation of the burden of disease not only by geographic region but also by relative advantage or disadvantage.

These prevalence estimates were then spatially mapped at the Local Government Area (LGA) level using SEIFA quintile data, identifying the most socio-economically advantaged and disadvantaged regions across Australia. This mapping was further enriched by overlaying the proportion of each LGA's population who identify as Aboriginal and/or Torres Strait Islander, based on ABS Census data.

This spatial overlay enabled the identification of regions with:

- The highest estimated prevalence of COPD;
- Higher proportions of Aboriginal and/or Torres Strait Islander peoples;
- Greater levels of socio-economic disadvantage; and
- The Australian Statistical Geography Standard (ASGS) Remoteness Structure of each LGA.

These findings demonstrate that the burden of COPD is not evenly distributed, with higher prevalence often concentrated in more remote and socio-economically disadvantaged communities—many of which have significant Aboriginal and Torres Strait Islander populations. This underlines the importance of addressing structural inequities in healthcare access and chronic disease management.

Adjustment for Northern Territory SEIFA distribution

During this analysis, a data inconsistency was identified in the ABS Health Survey SEIFA data for the Northern Territory, which reported zero individuals in SEIFA Quintile 1 (most disadvantaged). This result was considered inconsistent with broader socio-economic data and regional lived experience. In consultation with the advisory committee, this was attributed to a sampling limitation within the health survey data for the Northern Territory.

To address this, we adjusted the SEIFA distribution for the Northern Territory using Queensland's SEIFA distribution as a proxy, as advised by experts. Queensland was selected due to similarities in demographic and geographic characteristics, particularly in remote and regional SEIFA 1 areas. This adjustment ensured a more accurate and equitable representation of the COPD burden across all jurisdictions.

Economic analysis of COPD

Direct costs

Direct healthcare costs were sourced from the Australian Institute of Health and Welfare (AIHW) dataset Health System Spending on Disease and Injury in Australia. These include:

- Hospital care: Public and private hospital expenditure, including inpatient and emergency department services.
- General practice: GP visits and primary care management.
- Specialist and allied health services: Including respiratory physicians, physiotherapists, and pulmonary rehabilitation.
- Pharmaceuticals: COPD-related drugs funded through the Pharmaceutical Benefits Scheme (PBS).
- Diagnostics: Including pathology and medical imaging services.

All costs were inflated to 2024 Australian dollars using the ABS health-specific Consumer Price Index (CPI).

Indirect costs

Indirect costs represent the broader economic burden of COPD on individuals, families, and the economy. These included:

- Productivity losses: Based on reductions in employment among people living with COPD, applied to age-specific employment rates and valued using the median Australian wage.
- Informal caregiving: Based on time spent providing unpaid care to individuals with COPD, valued using average hourly earnings.
- Premature mortality: Monetised using age-specific mortality rates and average annual income.

Societal costs

The broader societal impact of COPD was assessed using burden of disease metrics from the AIHW:

- Years Lived with Disability (YLD): Calculated using severity-weighted disability weights (mild: 0.019, moderate: 0.225, severe: 0.408) as per the AIHW ABDS supplementary dataset.
- Years of Life Lost (YLL): Derived from AIHW Burden of Disease data on COPD-related premature mortality.

Disability-Adjusted Life Years (DALYs) were calculated by summing YLD and YLL to represent the total health burden of COPD in a given year. DALYs were monetised using GDP per capita.

Data sources

- Prevalence: ABS National Health Survey; applied to LGA-level ABS population data (2001–2023) and Evohealth ARIMA-based projections (2024–2050).
- Mortality and burden of disease: AIHW Burden of Disease Study 2023 and supplementary YLD datasets.
- Healthcare costs: AIHW Health System Spending dataset.
- Pharmaceuticals: Pharmaceutical Benefit Scheme cost and volume data.
- Productivity and employment: ABS Labour Force and earnings data.
- Informal care: Estimated using ABS wage data and published carer burden assumptions.
- SEIFA: Socio-Economic Indexes for Areas (SEIFA) quintile data from the ABS 2021 Census (for spatial mapping) and SEIFA distributions from the ABS National Health Survey (for population-level analysis).
- Aboriginal and Torres Strait Islander populations: ABS 2021 Census data accessed via TableBuilder, by Local Government Area.
- Remoteness classification: Australian Statistical Geography Standard (ASGS) Remoteness Structure 2021, mapped to LGAs.
- CPI: ABS health-specific Consumer Price Index.
- GDP per capita: ABS National Accounts.

Assumptions

- COPD severity was distributed as 54 per cent mild, 38 per cent moderate, and 8 per cent severe.
- Employment reductions and informal caregiving were estimated using available literature and applied by severity.
- DALYs were monetised using GDP per capita.
- LGA-level population forecasts were generated using ARIMA modelling by Evohealth.
- All costs are in 2024 Australian dollars, adjusted using ABS CPI, and future costs were discounted using a flat annual discount rate of 3 per cent.

Limitations

- Underdiagnosis: COPD is frequently underdiagnosed, particularly in mild and moderate stages. This may result in an underestimation of true prevalence and associated costs.
- Self-reported data: Prevalence estimates are based on self-reported diagnoses in the ABS National Health Survey, which may underreport or misclassify COPD cases.
- Static severity distribution: The model applies a fixed severity split across time and geography, which may not reflect real-world variation in disease progression or access to care.
- Informal care assumptions: The value and duration of informal care are based on limited data and broad assumptions. Actual caregiving needs may vary significantly by individual circumstances.
- Mortality attribution: COPD-related mortality may be misclassified in administrative datasets, particularly when respiratory failure is recorded as the primary cause of death.
- Exclusion of future treatments: The model does not account for potential future therapies or interventions that could change the trajectory or cost of COPD management over time.
- Northern Territory SEIFA data: The ABS Health Survey reported zero individuals in SEIFA Quintile 1 for the Northern Territory, which is inconsistent with broader socio-economic data. This limitation, likely due to small sample sizes or data suppression, required an adjustment to the NT SEIFA distribution using Queensland data as a proxy to ensure more accurate representation.

This methodology ensures a robust and transparent framework for understanding the economic and societal impacts of moderate to severe COPD in Australia.

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