Australian Government
Australian Institute of Health and Welfare

Chronic obstructive pulmonary disease (COPD)

Web report | Last updated: **25 Aug 2020** | Author: **AIHW** |

Citation

AIHW

Australian Institute of Health and Welfare 2020. Chronic obstructive pulmonary disease (COPD). Cat. no. ACM 35. Canberra: AIHW. Viewed 25 August 2020, https://www.aihw.gov.au/reports/chronic-respiratory-conditions/copd

COPD (chronic obstructive pulmonary disease) is a preventable and treatable lung disease characterised by chronic obstruction of lung airflow that interferes with normal breathing and is not fully reversible. People with COPD may experience cough, sputum production, and/or dyspnoea (difficult or labored breathing).

Cat. no: ACM 35

Findings from this report:

- About 1 in 20 Australians aged 45 years and over had COPD in 2017–18, according to self-reported survey data
- The prevalence of COPD was higher in the lowest socioeconomic area compared with that in the highest socioeconomic area
- In 2017–18, admissions to hospital for COPD were highest in winter and early spring
- COPD was the 5th leading cause of death in 2018

Last updated 3/08/2020 v15.0

COPD

What is COPD?

Chronic obstructive pulmonary disease (COPD) is a preventable and treatable lung disease characterised by chronic obstruction of lung airflow that interferes with normal breathing and is not fully reversible. The symptoms of COPD include cough, sputum production, and dyspnoea (difficult or labored breathing). COPD symptoms often don't appear until significant lung damage has occurred, which usually worsens over time (WHO 2020).

It is worth noting that it can be difficult to distinguish COPD from asthma because the symptoms of both conditions can be similar—both have obstruction to the airways, both are chronic inflammatory diseases that involve the small airways (Buist 2003). Although the current definitions of asthma and COPD overlap, there are some important features that distinguish typical COPD from typical asthma. For more information, see Asthma.

Additionally, COPD and bronchiectasis share common symptoms of cough with sputum production and susceptibility to recurrent exacerbations (Hurst et al. 2015). Although these two diseases present several common characteristics, they have different clinical outcomes. Therefore, it is very important to differentiate them at early stages of diagnosis, so appropriate therapeutic measures can be adopted (Athanazio 2012). For more information, see Bronchiectasis.

What causes COPD?

COPD results from a complex interaction between genes and the environment. According to the Global Initiative for Chronic Obstructive Lung Disease (GOLD), there are many causes of COPD, which may include:

- Tobacco smoking: both active smoking and passive exposure to smoking. Although cigarette smoking is the most well studied COPD risk factor, it is not the only risk factor and there is consistent evidence from epidemiologic studies that non-smokers may also develop chronic airflow limitation.
- Genetic factors: a small number of people have a form of emphysema caused by a protein disorder called alpha-1antitrypsin deficiency (AATD). This is where the body finds it difficult to produce one of the proteins (Alpha-1 antitrypsin) which usually protects the lungs. The lack of this protein can make a person more susceptible to lung diseases such as COPD.
- Lung growth and development factors: any factors that affect lung growth during gestation and childhood have the potential for increasing an individual's risk of developing COPD, such as low birthweight, early childhood lung infections, abnormal lung growth and development (with normal decline in lung function over time) (Lange et al. 2015).
- Environmental factors: working or living in areas where there is dust, gas, chemical agents and fumes, smoke or air pollution.
- Other chronic conditions: such as asthma and chronic bronchitis, which are associated with an increased likelihood of developing COPD (GOLD 2018).

Who gets COPD?

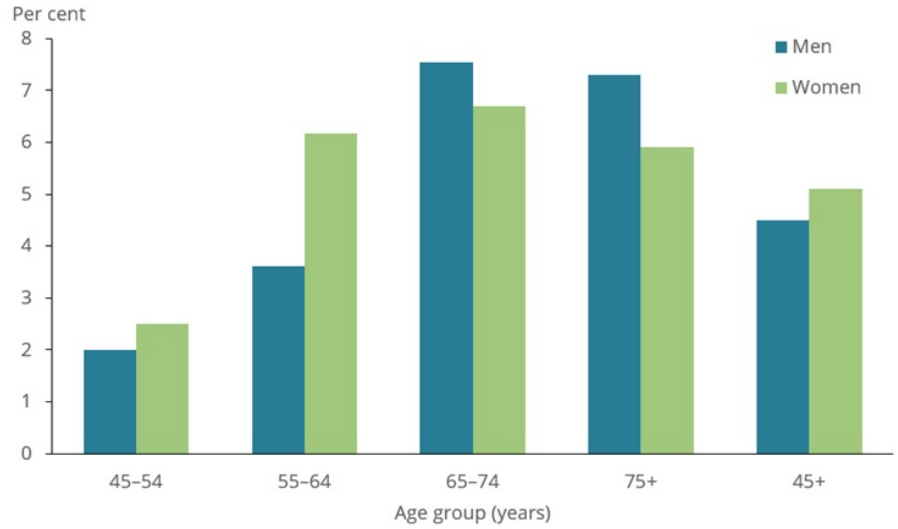
The development of COPD occurs over many years and therefore affects mainly middle aged and older people while asthma affects people of all ages. The prevalence of COPD increases with age, mostly occurring in people aged 45 and over.

In the 2017–18 ABS National Health Survey (NHS), the prevalence of COPD (captured here as self-reported emphysema and/or bronchitis) in Australians aged 45 and over was 4.8%, or an estimated 464,000 people (ABS 2018). Overall, the prevalence did not differ significantly between men and women (4.5% and 5.1% respectively), however for those aged 55–64, COPD was more prevalent in women compared with men (6.2% and 3.6%, respectively) (Figure 1).

However, it should be noted that the prevalence of COPD is difficult to determine from routine health surveys. This is because COPD is formally defined in terms of an abnormality of lung function and clinical testing is required to accurately estimate the prevalence of the disease.

In a large international study called the Burden of Obstructive Lung Disease (BOLD) study, the lung function of nearly 10,000 people were tested (Buist et al. 2007). The BOLD study estimated the prevalence of COPD using spirometry testing in addition to questionnaires about respiratory symptoms, health status, and exposure to COPD risk factors. BOLD estimated the overall prevalence of COPD in 12 countries (including Australia, China, Turkey, Iceland, Germany, USA and Canada) to be 10% for people aged 40 and over. In a later study conducted in Australia using a protocol that closely followed that used in the global BOLD study, the prevalence of COPD was estimated to be 7.5% for people aged 40 years and over and 30% for people aged 75 and over (Toelle et al. 2013).

Figure 1: Prevalence of COPD among people aged 45 and over, by sex and age group, 2017–18



Notes

1. COPD here refers to self-reported current and long-term bronchitis and/or emphysema.
2. COPD occurs mostly in people aged 45 and over. While it is occasionally reported in younger age groups, in those aged 45 and over there is more certainty that the condition is COPD and not another respiratory condition. For this reason only people aged 45 and over are included in this graph.

Source: ABS 2019 (Data table).

COPD is more common among Aboriginal and Torres Strait Islander people

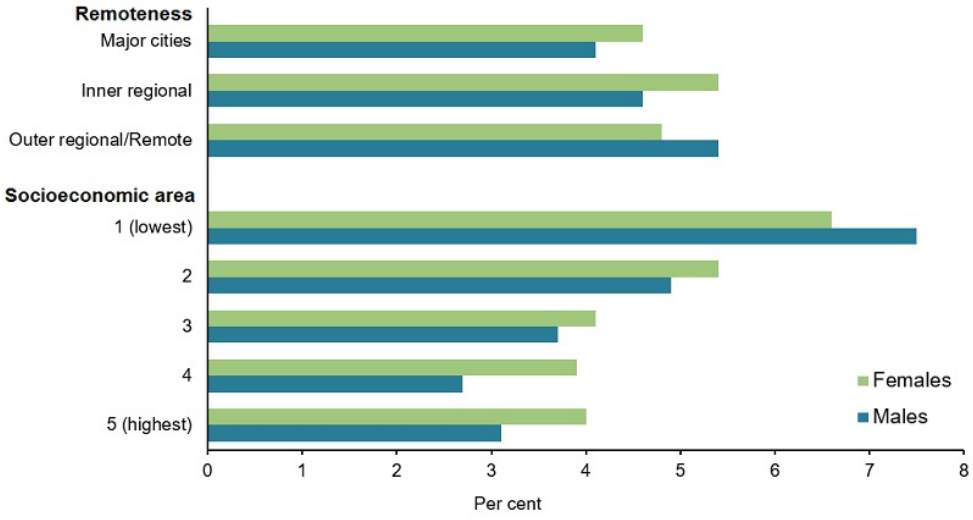
Based on self-reported data, in 2018–19, 10% of Aboriginal and Torres Strait Islander people aged 45 and over had COPD (an estimated 17,800 people), with a higher rate among females (13%) compared with males (6.7%). The prevalence of COPD among Indigenous Australian was 2.3 times as high as non-Indigenous Australians, after adjusting for difference in age structure (ABS 2020a; ABS 2020b).

Inequalities

The prevalence of COPD among Australians did not differ significantly according to remoteness area.

However, the prevalence of COPD was higher in the lowest socioeconomic area compared with those in the highest area (men: 7.5% and 3.1%, respectively; women: 6.6% and 4.0%, respectively) (Figure 2).

Figure 2: Prevalence of COPD among people aged 45 and over, by sex, remoteness and socioeconomic area, 2017–18



Notes

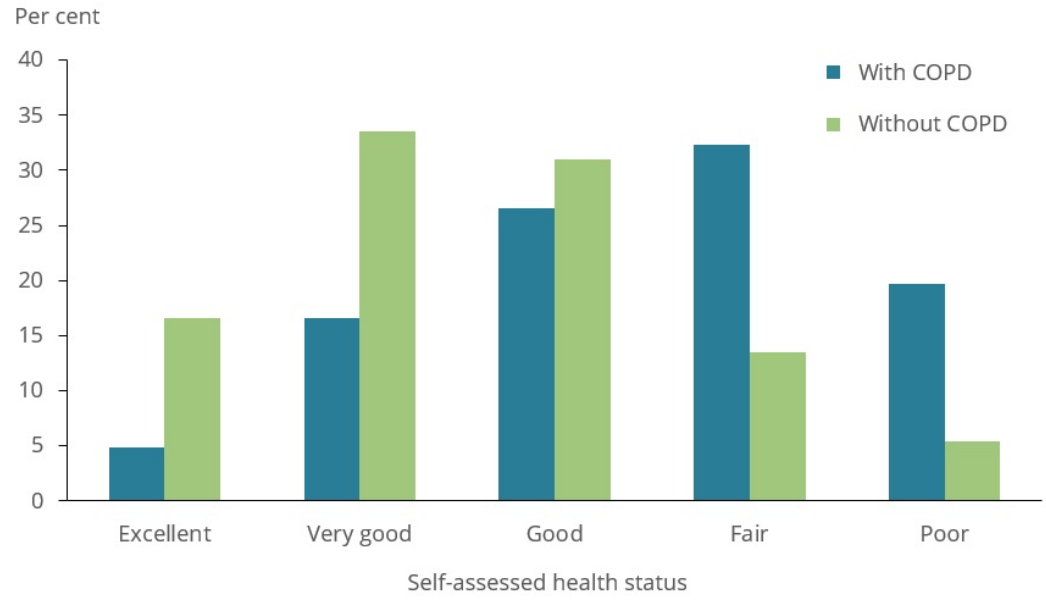
1. Rates have been age-standardised to the 2001 Australian Standard Population as at 30 June 2001. Age groups: 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75+.
2. COPD occurs mostly in people aged 45 and over. While it is occasionally reported in younger age groups, in those aged 45 and over there is more certainty that the condition is COPD and not another respiratory condition. For this reason only people aged 45 and over are included in this graph.
3. Remoteness is classified according to the Australian Statistical Geography Standard (ASGS) 2016 Remoteness Areas structure based on area of residence.
4. Socioeconomic areas are classified according to using the Index of Relative Socio-Economic Disadvantage (IRSD) based on area of residence.

Source: ABS 2019 (Data table).

How does COPD affect quality of life?

COPD can interrupt daily activities, sleep patterns and the ability to exercise. People with COPD rate their health worse than people without the condition. In 2017–18, 1 in 5 (20%) of those aged 45 years and over with COPD rated their health as poor, compared with 5.4% of those aged 45 years and over without it. At the same time, 17% of those with COPD rated their health as very good and 4.9% as excellent compared with 34% and 17% (respectively) of those without COPD (Figure 3).

Figure 3: Self-assessed health of people aged 45 and over, with and without COPD, 2017–18



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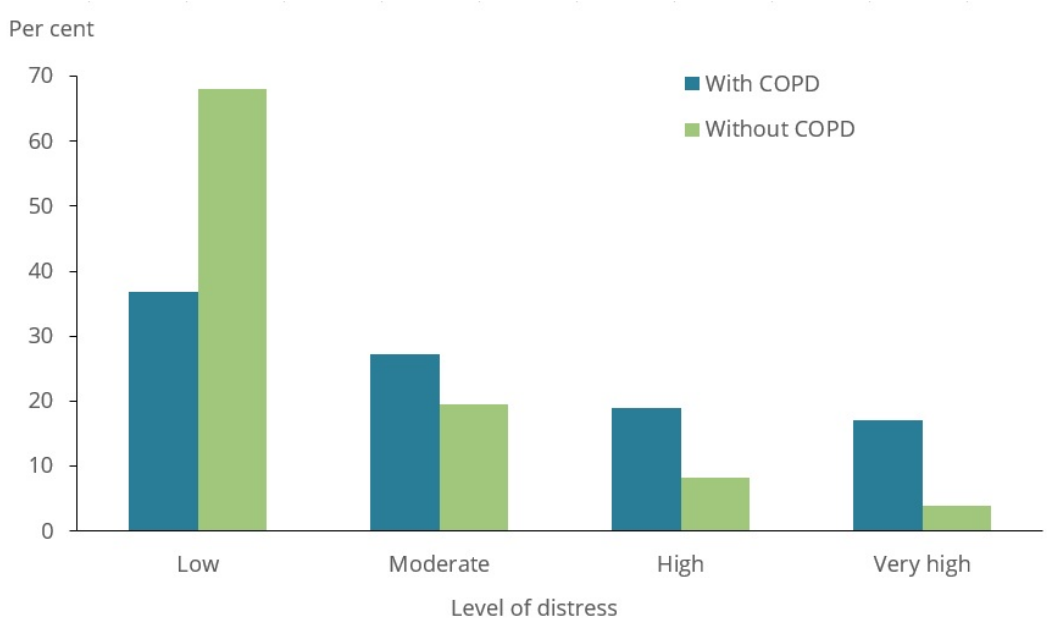
Source: ABS 2019 (Data table).

In 2017–18, people with COPD were more likely to report high (19%) and very high (17%) levels of psychological distress compared to people without COPD (8.3% and 4.0%, respectively) (Figure 4).

Figure 4: Psychological distress experienced by people aged 45 and over, with and without COPD, 2017–18



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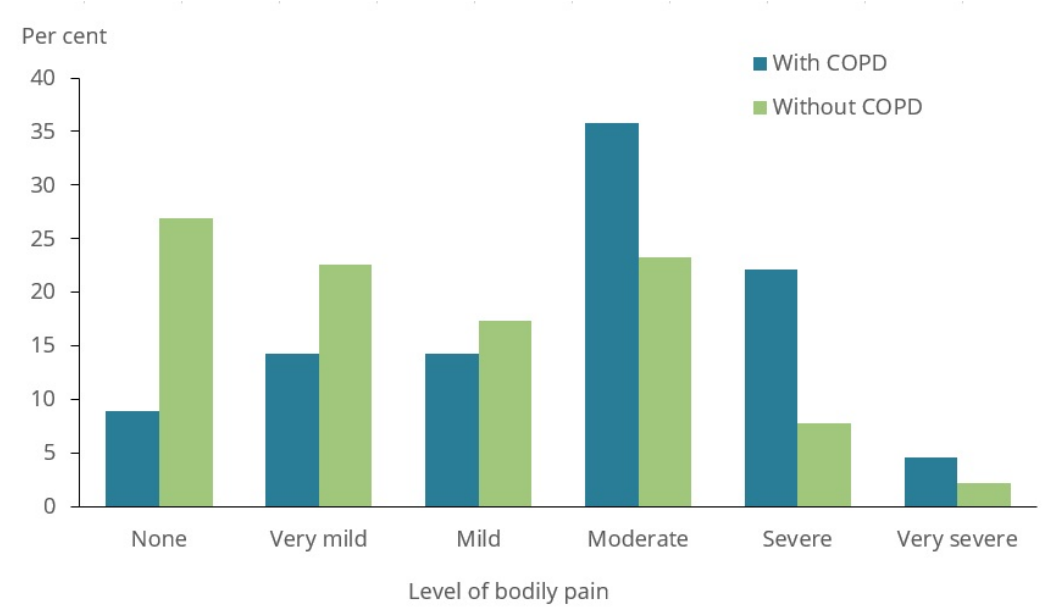
1. Rates have been age-standardised to the 2001 Australian Standard Population as at 30 June 2001. Age groups: 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75+.
2. COPD occurs mostly in people aged 45 and over. While it is occasionally reported in younger age groups, in those aged 45 and over there is more certainty that the condition is COPD and not another respiratory condition. For this reason only people aged 45 and over are included in this graph.
3. Psychological distress is measured using the Kessler Psychological Distress Scale (K10), which involves 10 questions about negative emotional states experienced in the previous 4 weeks. The scores are grouped into Low: K10 score 10–15, Moderate: 16–21, High: 22–29, Very high: 30–50.

Source: ABS 2019 (Data table).

In 2017–18, people with COPD were more likely to report moderate (36%) and severe (22%) bodily pain compared to people without COPD (23% and 7.8%, respectively) (Figure 5).

Figure 5: Pain experienced by people aged 45 and over, with and without COPD, 2017–18



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1. Rates have been age-standardised to the 2001 Australian Standard Population as at 30 June 2001. Age groups: 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75+.
2. COPD occurs mostly in people aged 45 and over. While it is occasionally reported in younger age groups, in those aged 45 and over there is more certainty that the condition is COPD and not another respiratory condition. For this reason only people aged 45 and over are included in this graph.
3. Bodily pain experienced in the 4 weeks prior to interview.

Source: ABS 2019 (Data table).

Comorbidities

People with COPD often have other chronic diseases and long term chronic conditions. For more information, see COPD, associated comorbidities and risk factors.

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Last updated 4/08/2020 v17.0

Treatment & management

The Department of Health's National Strategic Action Plan for Lung Conditions (the Action Plan) provides a detailed, person-centred roadmap for treating and managing COPD, among several other lung conditions (Department of Health 2019). The Action Plan outlines a comprehensive, collaborative and evidence-based approach to reducing the individual and societal burden of lung conditions and improving lung health (Department of Health 2019). The Action Plan can be found on the Lung Foundation Australia website.

Also, the COPD-X Plan: Australian and New Zealand Guidelines for the management of Chronic Obstructive Pulmonary Disease (the COPD-X Guidelines) summarises current evidence around optimal management of people with COPD, and provides a decision support aid for general practitioners, other primary health care clinicians, hospital-based clinicians and specialists working in respiratory health. The evidence published in the COPD-X Guidelines is systematically searched for, identified and reviewed on a regular basis (Lung Foundation Australia 2019).

COPD-X stands for:

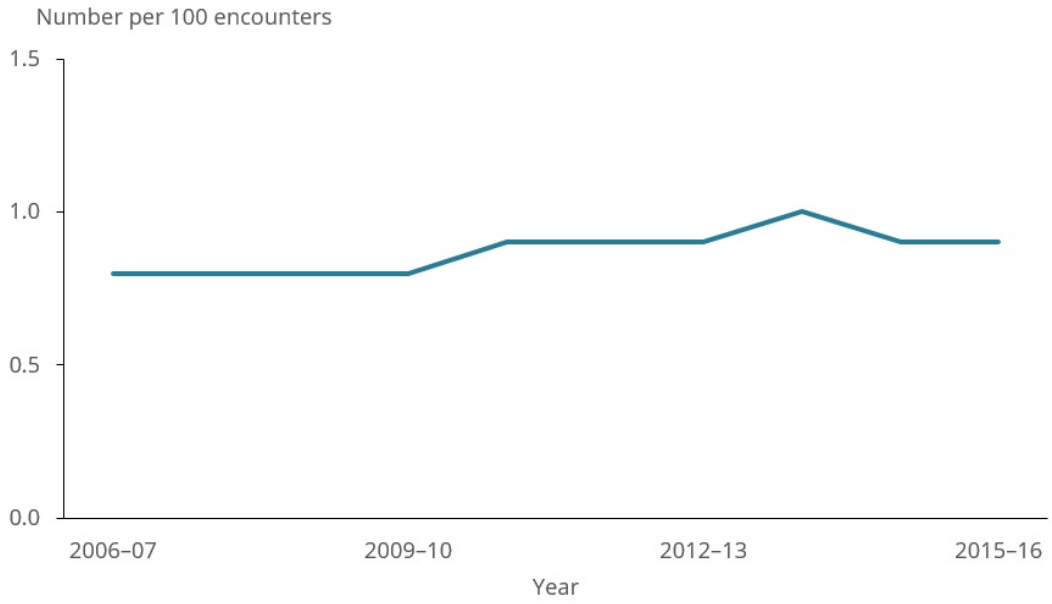
- **C**ase finding and confirm diagnosis
- **O**ptimise function
- **P**revent deterioration
- **D**evelop a plan of care
- Manage e**X**acerbations (Lung Foundation Australia 2019).

The latest COPD-X Guidelines can be found Lung Foundation Australia website.

What role do GPs play in treating and managing COPD?

General practitioners (GPs) are often the first point of contact for people who develop COPD. According to the Bettering the Evaluation and Care of Health (BEACH) survey, in the ten-year period from 2006–07 to 2015–16, the estimated rate of COPD management in general practice was around 0.9 per 100 encounters (Figure 1) (Britt et al. 2016).

Figure 1: General practice encounters for COPD, all ages, 2006–07 to 2015–16



Notes

1. COPD classified according to International Classification of Primary Care, 2nd edition (ICPC-2) codes R79001, R79003 and R95.
2. The Bettering the Evaluation and Care of Health (BEACH) year is from April to March.
3. An encounter relates to a consultation between a patient and a GP.
4. Statistics on general practice activities based on BEACH data are derived from a random sample survey of GPs and their encounters with patients, and should be interpreted with caution.

Source: Britt et al. 2016 (Data table).

What interventions are used to treat and manage COPD?

Currently, the only intervention that has been shown to slow the long term deterioration in lung function associated with COPD is assisting smokers to quit (Mosenifar 2019). Other interventions for COPD that can help maintain quality of life and reduce symptoms are: immunisations, pulmonary rehabilitation, medications, and, for people with very severe disease, long-term oxygen therapy.

Some information is available on use of medications by patients with COPD, however, there is currently a lack of nationally comparable information about access to and utilisation of pulmonary rehabilitation and oxygen therapy. Options for improving data about these interventions are discussed in the report Monitoring pulmonary rehabilitation and long-term oxygen therapy for people with chronic obstructive pulmonary disease (COPD) in Australia – a discussion paper.

Smoking cessation

The most beneficial step in any treatment plan for COPD patients is to stop smoking. Stopping smoking is the only intervention that has been shown to improve the natural progression of COPD. For example, it helps to improve a patient's cough, ease breathlessness and slow down further lung damage (Lung Foundation Australia 2020).

Immunisation

Vaccination reduces the risks associated with influenza and pneumococcal infection, which are leading causes of exacerbations and healthcare visits. Therefore, influenza immunisation and pneumococcal immunisation is recommended for all patients with COPD (Lung Foundation Australia 2019).

Pulmonary rehabilitation

Pulmonary rehabilitation is one of the most effective interventions for COPD, and is recommended for all patients with COPD who are short of breath on exertion, including in the period following an acute exacerbation (Spruit et al. 2013; Alison et al. 2017). According to Spruit and others (2013), pulmonary rehabilitation is a comprehensive intervention, mainly involving exercise training, education, and behaviour change. It is designed based on a thorough patient assessment followed by patient-tailored therapies (Spruit et al. 2013). Strong evidence supports that pulmonary rehabilitation is effective for COPD patients to improve their physical and emotional condition, long-term adherence to health behaviours, quality of life and reduce hospitalisations, thus helping them improve their independence and functioning in the community (Gordon et al. 2019; McCarthy et al. 2015; Puhan et al. 2016).

Pulmonary rehabilitation is commonly delivered by an interdisciplinary team of therapists, and may comprise various associated supportive strategies (Lung Foundation Australia 2008). It mainly includes the following components:

- **Exercise training**—the cornerstone foundation of pulmonary rehabilitation. This aims to build patient confidence, maximise skeletal muscle function, optimise cardiovascular fitness and promote self-sustaining healthy physical activity behaviours.
- **Education**—involves the provision of tailored advice to improve people's understanding of their lung disease, awareness of self-management strategies, how to exercise safely, how to use medicines, how treatment works, and when to ask for help. Education may be provided in various formats such as group discussions or resources. Identifying individual support needs (e.g. assistance to quit smoking) is an essential goal of education.
- **Nutrition counselling**—the provision of individually tailored dietary support to optimise nutritional intake and control weight loss or gain. In people with COPD, both excess weight and low weight are associated with increased morbidity. Obesity increases the work of breathing, while poor nutritional status and insufficient energy intake may lead to impaired muscle function, which can accelerate deconditioning and worsen symptoms such as breathlessness.
- **Psychosocial support**—People with COPD are vulnerable to developing symptoms of anxiety and depression, which can worsen quality of life and disability. Support is often provided by peer participants, support groups, social workers or external organisations. This may involve emotional support, social support, or the development of coping strategies to help people better manage COPD. Mental health specialists may provide additional expert support, if required, for clinically significant symptoms of anxiety or depression (Lung Foundation Australia 2017; Yang et al. 2018).

Pulmonary rehabilitation may be provided in hospital outpatient departments, in community facilities or at home. Hospital-based programs are often considered 'usual care', however community-based programs of equivalent frequency and intensity can be offered to people with COPD as a suitable alternative (Lung Foundation Australia 2017). Home-based pulmonary rehabilitation programs should include regular contact with an exercise specialist to facilitate appropriate participation and progression.

Medications

Medications are used in COPD treatment to prevent and control symptoms, reduce the frequency and severity of exacerbations and improve exercise tolerance. Some drugs used to treat COPD are also used to treat other respiratory conditions such as asthma. For more information, see Respiratory medication use in Australia 2003–2013: treatment of asthma and COPD.

Several medications are available for treatment of COPD in Australia, including long-acting bronchodilators used both separately and in combination with inhaled corticosteroids or other bronchodilators. Bronchodulators are drugs that can relax and dilate the bronchial passage ways and therefore improve the passages of air into the lungs. It is worth mentioning that the majority of the medications used in COPD treatment are delivered via inhalers, so good inhaler technique and adherence to treatment are important for optimal treatment outcome (George & Bender 2019).

Oxygen therapy

Long term oxygen therapy (LTOT)—the provision of supplemental oxygen therapy for 15 hours per day or more—can be prescribed for people with persistently low levels of oxygen in the blood, including from chronic lung disease, most commonly advanced COPD. LTOT reduces mortality in COPD and may also have a beneficial impact on aspects of quality of life (Yang et al. 2018). Although effective, it is a potentially expensive and cumbersome therapy that should only be prescribed for those in whom there is evidence of benefit (Yang et al. 2018). In Australia, LTOT is mostly delivered in the home using an oxygen concentrator, a device that removes nitrogen from room air, thereby increasing the concentration of oxygen. Sometimes oxygen cylinders are provided for short-term or portable use.

Non-invasive ventilation

Non-invasive ventilation (NIV) refers to the administration of ventilatory support using a face mask, nasal mask, or a helmet, rather than an invasive artificial airway (such as a tube). Air, usually with added oxygen, is given to patient through the mask under positive pressure, where the amount is alterated depending on whether the patient is breathing in or out. NIV has now become an integral tool in the management of acute and chronic respiratory failure, in both the home setting and in the critical care unit.

The current evidence shows that NIV is effective in preventing respiratory failure after extubation (removal of a tube previously inserted into a patient's body) (Ferrer et al. 2009), and treating patients with an acute exacerbation of COPD and other disorders characterised by hypoventilation (Ram et al. 2004; Osadnik 2017).

What role do hospitals play in treating COPD?

Patients may require admission to hospital for severe acute exacberations of COPD. Acute exacerbations of COPD (flare-ups) are frequently due to respiratory tract infections. They have also been associated with increases in exposure to air pollution and changes in ambient temperature. Episodes that are life threatening sometimes require temporary assistance with breathing.

Data from the AIHW National Hospital Morbidity Database (NHMD) show that in 2017–18 there were 77,660 hospitalisations of people 45 and over where COPD was the principal diagnosis. The rate of hospitalisation for COPD among those aged 45 and over was 732 per 100,000 population.

The hospitalisation rate for men aged 45 years and over declined 8% in the ten years from 2008–09 to 2017–18, from 864 to 792 per 100,000 population (Figure 2). In contrast, the hospitalisation rate for women increased by 11% from 624 in 2008–09 to 690 per 100,000 population in 2017–18.

Figure 2: Age-standardised hospitalisation rate due to COPD, people aged 45 and over, by sex, 2008-09 to 2017-18

The line chart shows COPD hospitalisation rates among people aged 45 and over from 2008–09 to 2017–18. During the last decade, the hospitalisation rate for men aged 45 years and over declined from 864 per 100,000 population in 2008–09 to 792 per 100,000 population in 2017–18. In contrast, the hospitalisation rate for women increased from 624 per 100,000 population in 2008–09 to 690 per 100,000 population in 2017–18.

Visualisation not available for printing

COPD exacerbations are strongly driven by seasonality

Admissions to hospital for COPD are highest in winter and early spring and are consistent with the trend for acute respiratory infections, such as rhinovirus (common cold), influenza, pneumonia and acute bronchitis (Figure 3).

Figure 3: Hospitalisations due to acute respiratory infection (ARI) and COPD, people aged 45 and over, by month, 2013-2017

The line chart shows hospitalisation rates of ARI and COPD among people aged 45 and over in different seasons from 2013 to 2017. The admissions to hospital for ARI and COPD are highest in both winter and early spring, and lowest in late summer.

Visualisation not available for printing

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Last updated 4/08/2020 v7.0

Impact

Deaths

How many die from COPD?

COPD is a major leading cause of death in Australia. In 2018, 7,113 people were recorded as having died from COPD (3,783 men and 3,330 women) making it the fifth leading cause of death after coronary heart disease, dementia and Alzheimer disease, cerebrovascular disease, and lung cancer.

Table 1: Leading five causes of death, 2018

Rank	Underlying cause of death	Number	Percent
1	Coronary heart disease (I20—I25)	17,533	11.1
2	Dementia and Alzheimer disease (F01, F03, G30)	13,963	8.8
3	Cerebrovascular disease (I60—I69)	9,972	6.6
4	Lung cancer (C33, C34)	8,586	5.4
5	COPD (J40—J44)	7,113	4.5

Notes

1. Leading causes of death are based on underlying causes of death and classified using an AIHW-modified version of Becker et al. 2006. International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10) codes are presented in parentheses.
2. Per cent is the per cent of all causes—the proportion of deaths out of total number of deaths.
3. Year refers to year of registration of death. Deaths registered in 2018 are based on preliminary version. preliminary versions are subject to further revision by the Australian Bureau of Statistics (ABS).

Source: AIHW analysis of the AIHW National Mortality Database.

It is worth noting that COPD is more likely to be reported as an associated cause of death rather than the underlying cause of death. In 2018, there were 11,385 deaths where COPD was listed as an associated cause in addition to the 7,113 deaths where COPD was listed as the underlying cause.

The statistics presented here relate to deaths where COPD was listed as the underlying cause of death. For information on long-term trends, see General Record of Incidence of Mortality (GRIM) books. For more information on how deaths are registered, coded and updated, see Deaths data.

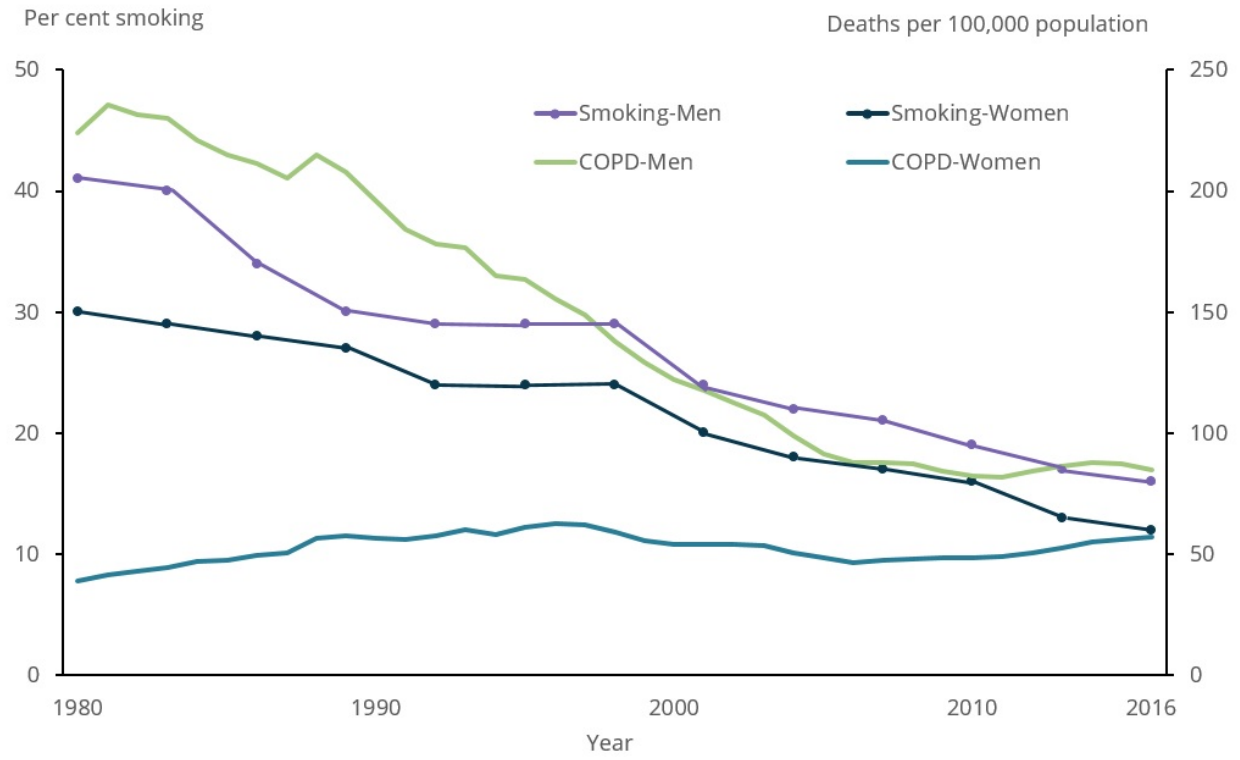
COPD mortality trends over time

In Australia, the COPD mortality rate among men aged 45 and over decreased dramatically by almost two thirds between 1980 and 2006, from 228 to 84 per 100,000 population, and then fluctuated between 2007 and 2013. After that, it dropped slightly from 2014 (91 per 100,000 population) to 2018 (76 per 100,000 population). Over the same period, the mortality rate for women aged 45 and over fluctuated, with the lowest at 39 per 100,000 population in 1980 and highest at 66 per 100,000 population in 1996.

The main risk factor for the development and progression of COPD is smoking, with smokers being 12 to 13 times more likely to die from COPD than non-smokers (U.S. Department of Health and Human Services 2014). The improvements in COPD mortality rates are expected to follow improvements in smoking rates, with a time-lag between smoking and COPD mortality. This is because chronic conditions, such as COPD, have a long latency period, that is, smoking early in life is involved in initiating disease processes prior to disease diagnosis (Lynch & Smith 2005). In Australia, the smoking rate of adults aged 18 and over decreased dramatically from 1980 to 2016 (men: 41% to 16%; women: 30% to 12%) (Scollo & Winstanley 2019).

As shown in Figure 1, smoking rates in Australia have decreased from 1980 onwards among both among men and women, with men having consistently higher smoking rates than women (Scollo & Winstanley 2012). For more information on the history of smoking and COPD, see Mortality from asthma and COPD in Australia, which presents detailed analysis of COPD mortality for the period 1965 to 2010.

Figure 1: Smoking rate (per cent) of people aged 18 and over and age-standardised death rate (per 100,000 population) due to COPD, people aged 45 and over, by sex, 1980–2016



Notes

1. COPD death rates are shown as a 3-year moving average. These rates have been age-standardised to the 2001 Australian Standard Population as at 30 June 2001. Age groups: 45–49, 50–54, 55–59, 60–64, 65–69, 70–74, 75–79, 80–84, 85+.
2. From 1979 to 1996, COPD classified according to ICD-9 codes 490, 491, 492, 496; from 1997 to 2017, COPD classified according to ICD-10 codes J40–J44. COPD occurs mostly in people aged 45 years and over. While it is occasionally reported in younger age groups, in those aged 45 years and over there is more certainty that the condition is COPD and not another respiratory condition. For this reason only people aged 45 years and over are included in this graph.
3. Smoking refers to people those reporting that they smoke 'daily' or 'at least weekly', and smoking any combination of cigarettes, pipes or cigars.
4. Smoking data were calculated by the Cancer Council of Victoria. Smoking rates for 1980–1992 were sourced from surveys conducted by the Anti-Cancer Council of Victoria; smoking rates for 1995–2016 were sourced from the National Drug Strategy Household Survey. Blank cells mean that data was not available.
5. Year refers to year of registration of death. Deaths registered in 2015 and earlier are based on the final version of cause of death data; deaths registered in 2016 are based on revised version; and deaths registered in 2017 and 2018 are based on preliminary version. Revised and preliminary versions are subject to further revision by the Australian Bureau of Statistics (ABS).

Sources: AIHW analysis of AIHW National Mortality Database, Scollo & Winstanley 2019 (Data table).

Higher death rate from COPD in certain population groups

COPD mortality rates are higher for people living in remote areas and for people living in lower socioeconomic areas (AIHW: Poulos et al. 2014). In 2018, the COPD mortality rate for those aged 45 and over living in *Remote and very remote* areas (103 deaths per 100,000 population) was 1.9 times as high as the rate for those living in *Major cities* (54 deaths per 100,000 population). Meanwhile, the COPD mortality rate for this same age group in the lowest socioeconomic areas (102 deaths per 100,000 population) was 2.8 times as high as the rate in the highest areas (36 deaths per 100,000 population).

COPD mortality rates are also higher for Indigenous Australians. In the 5-year period from 2014 to 2018, 835 Aboriginal and Torres Strait Islander people aged 45 and over died from COPD, with a mortality rate of 114 per 100,000 population, based on the five jurisdictions with adequate Indigenous identification (NSW, Qld, WA, SA and NT). After adjusting for differences in age structure, for people aged 45 and over, the mortality rate of COPD among Indigenous Australians (189 per 100,000 population) was 2.7 times as high as the non-Indigenous Australians rate (70 per 100,000 population).

The differences between these population subgroups may be due to differences in smoking rates, access to health services, or other factors. Smoking rates are higher among people living in more remote areas, among people living in areas of lower socioeconomic area, and among Indigenous Australians (AIHW 2018).

For more information about COPD mortality rates among Indigenous Australians, see Coronary heart disease and chronic obstructive pulmonary disease in Indigenous Australians.

Burden of disease

Burden of disease measures the gap between the ideal of living to old age in good health, and the current situation where healthy life is shortened or lost by illness, injury, disability and death (AIHW 2019a). It combines health loss from living with illness and injury (non-fatal burden, or years lived with disability [YLD]) and dying prematurely (fatal burden, or years of life lost [YLL]) to estimate total health loss (total burden, or disability-adjusted life years [DALY]). One DALY is one year of 'healthy life' lost due to illness and/or death.

What is the burden of disease due to COPD?

In Australia, COPD accounted for over half (51%) of the total burden of disease due to respiratory conditions and 3.9% of the total disease burden in 2015 (AIHW 2019a). Between 2003 and 2015, there was a 6.0% decrease in the total disease burden due to COPD.

Overall, COPD was the third leading specific cause of total disease burden. COPD is the leading cause of total burden in women aged 65–74 (22.6 DALYs per 1,000 population), and the second leading cause of total burden in men aged 65–74 (33.2 DALYs per 1,000 population) and 75–84 (54.3 DALYs per 1,000 population). The total disease burden due to COPD was split fairly evenly between non-fatal burden (51%) and fatal burden (49%) in 2015 (AIHW 2019a).

For both men and women, the rate of total burden (DALY) increased with age, peaking at ages 85–94 then decreasing. The rate of fatal burden (YLL) followed a similar pattern. However, the rate of non-fatal burden (YLD) for men was highest among those aged 75–84 (Figure 2).

Figure 2: Burden of disease due to COPD, people aged 45 and over, age-specific rate, by sex and age group, 2015

The bar chart shows the rate of total burden (DALY) due to COPD by sex and age in 2015. For both men and women, the DALY due to COPD increased with age, peaking at ages 85–94 then decreasing.

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Variation across population groups

The disease burden due to COPD varies in different population groups. The COPD DALY rate in *Remote* and *very remote* areas was 1.3 times as high as in *Major cities*. Meanwhile, the COPD DALY rate in the lowest socioeconomic area was 1.8 times as high as in the highest group.

Figure 3: Burden of disease due to COPD, age-standardised rate, by remoteness and socioeconomic area, 2015

The bar chart shows the rate of total burden (DALY) due to COPD by remoteness in 2015. The DALY due to COPD in *Remote and very remote* areas was 1.3 times as high as in *Major cities*.

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Disease expenditure

How much does COPD cost the health system?

In 2015–16, COPD cost the Australian health system an estimated $977 million, representing 24% of disease expenditure on respiratory conditions and 0.8% of total disease expenditure (AIHW 2019b). This expenditure consisted of:

- $536 million for hospitals (55% of total expenditure on COPD)
- $189 million for non-hospital medical services (19%)
- $252 million for pharmaceuticals (26%)

Figure 4: Health expenditure on COPD, by area of expenditure and sex, 2015–16

The bar chart shows the health expenditure on COPD in 2015–16. In general, COPD cost the Australian health system an estimated $977 million. Among them, $536 million for hospitals, $189 million for non-hospital medical services, and $252 million for pharmaceuticals.

Visualisation not available for printing

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Last updated 4/08/2020 v6.0

Notes

Amendments

6 Jan 2020 - Removal of age-standardisation footnote under *Figure 1: Prevalence of COPD among people aged 45 and over, by age and sex, 2017-18.* These data are all crude rates.

Last updated 28/07/2020 v5.0

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Data

Data tables: Chronic obstructive pulmonary disease 2020

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