

# Lung cancer

## What is lung cancer?

Lung cancer occurs when abnormal cells in the tissues of one or both of the lungs grow in an uncontrolled way (Cancer Australia 2015). The lungs are part of the body's respiratory system and the main organ responsible for breathing.

## Who dies prematurely from lung cancer?

In 2012, there were 4,450 premature deaths due to lung cancer in Australia; 59% were among males.

Premature deaths due to lung cancer became more common with increasing age. Almost 1 in 3 (29%) of these premature deaths were among those in the oldest age group—793 males and 503 females aged 70–74 (Figure 1). There were 18 deaths due to lung cancer among people aged under 40.

### Quick facts

Lung cancer was the **2nd** leading cause of premature death in Australia in 2010–2012.

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**3 in 5** premature deaths due to lung cancer in 2012 were among males (59%).



The premature death rate due to lung cancer decreased by **42%** over the 3 decades from 1982 to 2012.



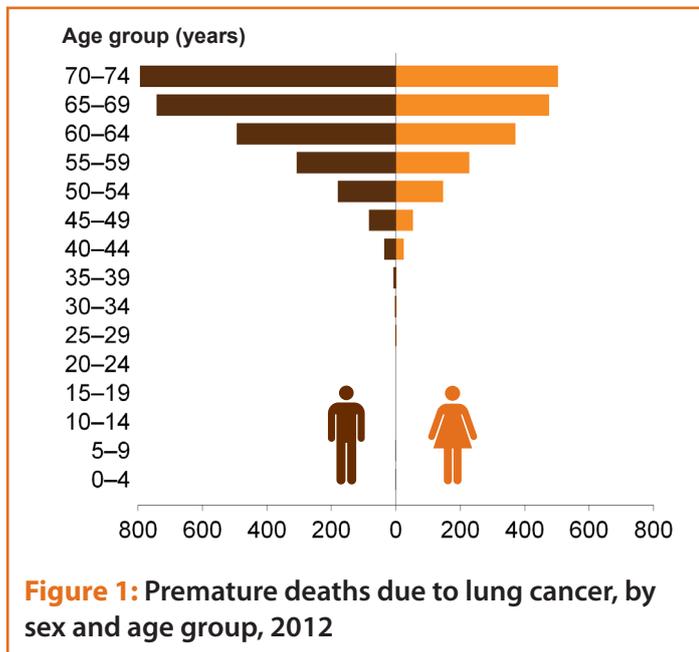
**Premature mortality** refers to deaths that occur at a younger age than a selected cut-off. For this analysis, deaths among people under the age of 75 are considered premature.

Smoking is the single largest preventable cause of death and disease, including lung cancer (National Health and Medical Research Council 2004). The relative risk of being diagnosed with lung cancer declines with increasing time since quitting, eventually approaching that of non-smokers (Hammond 1966; Doll et al. 1994; McLaughlin et al. 1995). Tobacco control measures are therefore critical in reducing premature deaths from lung cancer.

Societal attitudes, legislation and public health measures influence tobacco use. Strategies that help people to quit smoking include the provision of information to the public by health professionals; social marketing campaigns; 'smokefree' regulations; taxation of tobacco; advertising restrictions; and individual/group counselling.

The *National Tobacco Strategy 2012–18* aims to reduce tobacco-related harm in Australia. Priorities under the strategy include reducing tobacco affordability, protecting public health policy from tobacco industry interference and strengthening mass media campaigns (Intergovernmental Committee on Drugs 2012).

Targeting smoking rates among Aboriginal and Torres Strait Islander people is also a priority of the strategy (Intergovernmental Committee on Drugs 2012). While socioeconomic factors explained a larger proportion of the health 'gap' in life expectancy between the Aboriginal and Torres Strait Islander population and the non-Indigenous population, smoking status was one of the biomedical risk factors with the greatest impact (AIHW 2015a). In 2012–13,



## What population-level approaches target premature deaths due to lung cancer?

Among the first to associate lung cancer with smoking and to suggest it could be a cause of the disease were Doll and Hill (1950). After reviewing published epidemiological, clinical and laboratory evidence, the Royal College of Physicians (1962) concluded that 'cigarette smoking is an important cause of lung cancer'.



the gap between the smoking rate in the Aboriginal and Torres Strait Islander population and the non-Indigenous population was 25 percentage points (ABS 2013).

Perhaps the best known public health influence has been tobacco control legislation including bans on smoking in public places, advertising restrictions, warning labels on packaging and point-of-sale controls (Magnusson & Colagiuri 2008).

Banning smoking in public places protects against second-hand smoke exposure—also known to cause cancer. Education about the detrimental impact of passive smoking is likely to have affected the proportion of children exposed to tobacco smoke inside the home, which decreased by 88% between 1995 and 2013 (from 31% to 3.7%) (AIHW 2015b).

The most recent legislative change was the introduction of plain packaging and mandatory graphic warnings of the health effects on packaging of tobacco products in 2012 (AIHW 2014).

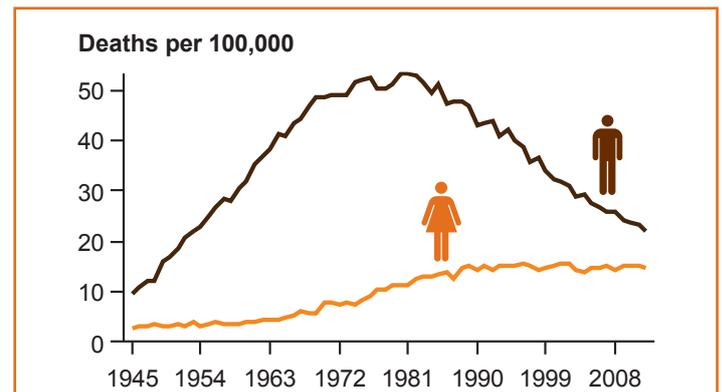
Taxation also acts as a disincentive for people to start or continue unhealthy habits like smoking. In 2012, taxes constituted around 60% of the price of a typical packet of cigarettes in Australia (Scollo & Winstanley 2015). As part of wider tobacco control laws, tax increases have been linked to a decrease in tobacco use (WHO 2014).

Public health measures such as nicotine replacement—including nicotine gum, transdermal patches, nasal spray, inhalers and lozenges—are effective in reducing tobacco use (NHMRC 2004).

## How have premature death rates due to lung cancer changed over time?

The age-standardised rate of premature deaths due to lung cancer among males peaked in 1980 at 53 deaths per 100,000 population, following a steady increase from the 1940s (Figure 2). In 2012, the age-standardised premature death rate was 22 deaths per 100,000 males and 15 deaths per 100,000 females.

Between 1980 and 2012, the age-standardised rate of premature deaths due to lung cancer decreased in males by 59% but increased in females by 31%. This difference may be partly due to the time lag between exposure to carcinogens and death. Twenty years earlier smoking rates had increased among females but decreased among males (Gray & Hill 1975).



**Figure 2: Age-standardised rate of premature deaths due to lung cancer, by sex, 1945–2012**

## What has influenced trends in premature deaths due to lung cancer?

Lung cancer mortality trends in Australia are greatly affected by smoking trends. A range of interventions have influenced smoking rates in Australia and thereby premature death due to lung cancer. For example, tobacco consumption began falling in the 1960s as awareness of the health risks of smoking became better known.

In 1973, health warnings on cigarette packets were introduced in Australia. Tobacco smoking advertising on radio and television was banned in 1976 and, in 1985, anti-smoking commercials began to air on television. Nicotine replacement therapy became available in 1993.

Smoking was banned in all pubs and clubs across Australia by 2010—the same year excise and customs duty increased by 25% (ABC News 2014).

Mandatory graphic warnings on packaging of tobacco products about the health effects of smoking were introduced in 2004, followed by mandatory plain packaging of tobacco products in 2012. Recently, smoking rates among adults have decreased from 15.9% in 2010 to 13.3% in 2013 (AIHW 2014).

## Where can I find out more?

**Premature mortality in Australia (including references):**  
<<http://www.aihw.gov.au/deaths/premature-mortality/>>.

**AIHW GRIM books:**  
<<http://www.aihw.gov.au/deaths/grim-books/>>.

**AIHW web pages and publications:**  
<<http://www.aihw.gov.au/cancer/lung/>>.

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