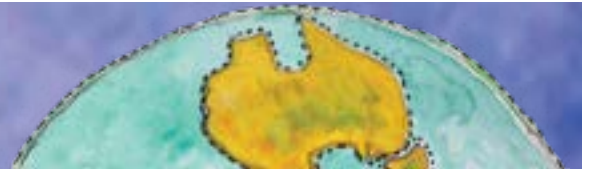


## 3.3 Multiple causes of death in Australia



Death statistics are usually analysed and reported using the underlying cause of death only (see Chapter 3 'Leading causes of death in Australia'). In most cases, however, more than 1 cause is recorded on the death certificate.

Examining multiple causes of death may offer better insights into all the disease processes occurring at the end of life, which can in turn be useful for developing better prevention and treatment policies and practices, refining disease surveillance activities, guiding research investment and enhancing burden of disease estimates (see Chapter 4 'Burden of disease').

### Box 3.1

#### What are multiple causes of death?

The *underlying cause of death* is the disease or injury that initiated the train of events leading directly to death, or the circumstances of the accident or violence that produced the fatal injury. Deaths are referred to here as 'due to' the *underlying cause of death*.

*Associated causes of death* are all causes listed on the death certificate, other than the *underlying cause of death*. They include the immediate cause, any intervening causes, and conditions which contributed to the death but were not related to the disease or condition causing the death.

*Multiple causes of death* are defined here as all causes listed on the death certificate. This includes the *underlying cause of death* and all *associated causes of death* (ABS 2013).

The work presented here focuses on *natural* causes of death. These are deaths that were **not** due to external causes such as accidents, injury and poisoning, or due to ill-defined causes.

- Of the 146,932 deaths in Australia in 2011, 94% (137,809 deaths) were due to natural causes.
- In 2011, 81% of natural deaths had more than 1 cause and, on average, 3.2 diseases or conditions were recorded on the death certificate.

## Chronic diseases as causes of death

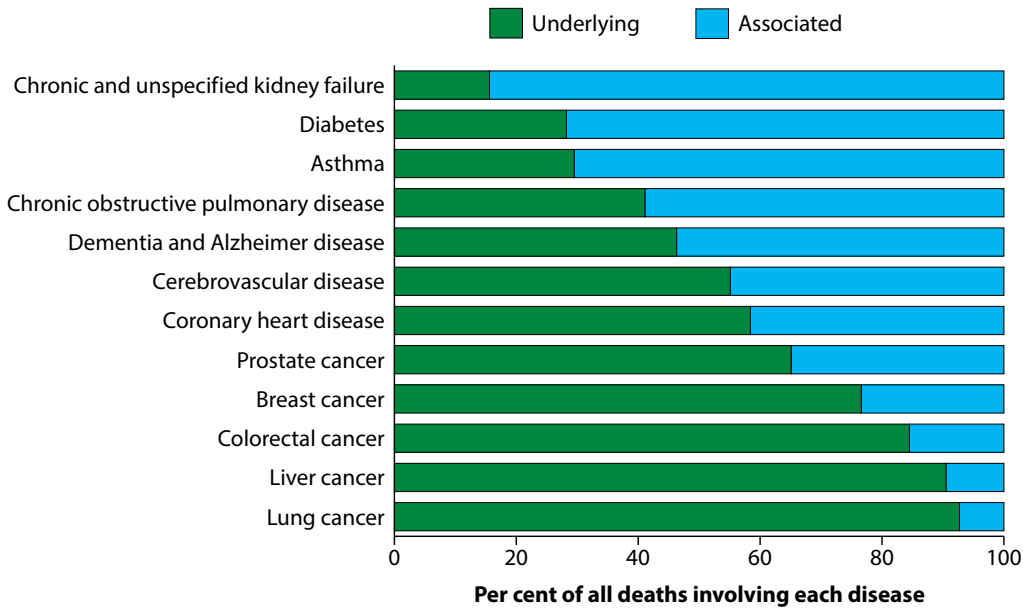
Analysis of multiple causes of death is particularly useful in relation to chronic diseases, which were commonly recorded in combinations of 2 or more. In 2011:

- Coronary heart disease was an *associated cause of death* for 51% of deaths due to diabetes, 28% of deaths due to chronic and unspecified kidney failure and 19% of deaths due to chronic obstructive pulmonary disease (COPD).
- Hypertensive disease was an *associated cause of death* for 35% of deaths due to diabetes, 28% of deaths due to cerebrovascular diseases (which include stroke) and 21% of deaths due to coronary heart disease.
- Kidney failure was an *associated cause of death* for 26% of deaths due to diabetes.
- Influenza and pneumonia was also a common *associated cause of death*—more specifically, for 31% of deaths due to asthma, 30% of deaths due to COPD and 29% of deaths due to dementia and Alzheimer disease.

## Underlying versus associated causes of death

- Chronic diseases that are more likely to be reported as the *underlying cause of death* rather than as an *associated cause of death* include prostate, breast, colorectal (bowel), liver and lung cancers (Figure 3.3).
- Chronic diseases that are more likely to be reported as *associated causes of death* include chronic and unspecified kidney failure, diabetes, asthma, COPD, and dementia and Alzheimer disease.
- When deaths are reported by the *underlying cause of death* only, the involvement of certain diseases in overall mortality may be underestimated. This is particularly evident for chronic and unspecified kidney failure, diabetes, asthma, COPD, and dementia and Alzheimer disease.

**Figure 3.3**



*Notes*

1. Deaths registered in 2011 are based on the preliminary version of cause of death data and are subject to further revision by the ABS.
2. Underlying refers to deaths with the disease recorded as the underlying cause of death, regardless of whether the disease was also recorded as an associated cause of death. Associated refers to deaths with the disease recorded only as an associated cause of death.

Source: AIHW National Mortality Database.

**Selected chronic diseases as underlying and associated causes of death, 2011 (per cent)**

**What is missing from the picture?**

Socioeconomic factors such as highest level of education achieved and main occupation are known to be associated with mortality and particular causes of death. This information is not collected in Australian deaths data.

**Where do I go for more information?**

More information on multiple causes of death in Australia is available on the AIHW website [www.aihw.gov.au/deaths/](http://www.aihw.gov.au/deaths/). The report *Multiple causes of death in Australia: an analysis of all natural and selected chronic disease causes of death 1997–2007* is also available for free download.

**References**

ABS (Australian Bureau of Statistics) 2013. Causes of death, Australia, 2011. ABS cat. no. 3303.0. Canberra: ABS.