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Bronchiectasis

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Bronchiectasis is a lung disease that occurs when the walls of the breathing tubes or airways widen due to chronic inflammation and/or infection. This condition is characterised by a persistent cough with excess amounts of mucus and, often, airflow obstruction together with episodes of worsening symptoms.

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Findings from this report:

- In 2018, there were 596 deaths where bronchiectasis was recorded as an associated cause
- In 2018, there were 387 deaths where bronchiectasis was the underlying cause
- In 2018, almost all deaths (96%) where bronchiectasis was an underlying cause occurred in people aged 60 and over
- In 2017–18, the hospitalisation rate for females with bronchiectasis as principal diagnosis was 1.7 times that for males

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Bronchiectasis

What is bronchiectasis?

Bronchiectasis is a lung disease that occurs when the walls of the breathing tubes or airways widen due to chronic inflammation and/or infection. Normally, tiny glands in the lining of the airways make a small amount of mucus. Mucus keeps the airways moist and traps any dust and dirt in the inhaled air. Because bronchiectasis creates an abnormal widening of the airways, extra mucus tends to form and pool in parts of the widened airways. Widened airways with extra mucus are prone to recurrent respiratory tract infection (WHO 2020).

The signs and symptoms of bronchiectasis can take months or even years to develop. The most common signs and symptoms of bronchiectasis include long-term cough, increased mucus production, shortness of breath, feeling tired, weight loss, wheezing or whistling sounds with breathing, chest pain, and coughing up blood (Lung Foundation Australia 2020). The symptoms, severity and disease course of bronchiectasis may vary. Bronchiectasis may also cause long term disability, accelerated lung function loss and premature death in adults (Loebinger et al. 2009).

The clinical symptoms of bronchiectasis and asthma may overlap significantly as symptoms of cough, sputum and dyspnoea can occur in either asthma or bronchiectasis (Kang et al. 2014). In addition, bronchiectasis and chronic obstructive pulmonary disease (COPD) also share common symptoms of cough with sputum production and susceptibility to recurrent exacerbations (Hurst et al. 2015). Although these three diseases present several common characteristics, they have different clinical outcomes. Therefore, it is important to differentiate them at early stages of diagnosis, so appropriate therapeutic measures can be adopted (Athanazio 2012). For more information, see Asthma and Chronic obstructive pulmonary disease (COPD).

What causes bronchiectasis?

The cause of bronchiectasis is often not clear. Some conditions known to cause bronchiectasis that affect or damage airways are:

- Immunodeficiency which predisposes the person to lung infections. This can be primary (inherited cause) or secondary (related to chemotherapy) (King 2009).
- Untreated low grade infection of the airways (Pragman et al. 2016).
- Lung infections that cause the damage to the walls of the airways, such as tuberculosis (TB), whooping cough, measles, pneumonia, or fungal infections, particularly in childhood. Bronchiectasis may then develop.
- Conditions that damage the airways and raise the risk of lung infections. For example, cystic fibrosis (CF), which is a hereditary disease that can cause thick, sticky mucus to build up in the lungs. Allergic bronchopulmonary aspergillosis (ABPA), which causes airway swelling, is another condition that can affect the lung and cause bronchiectasis.
- Conditions that cause an airway blockage, such as a growth or a noncancerous tumour, regurgitated stomach acid, or inhaled objects that become stuck and block an airway (WHO 2020).

Who gets bronchiectasis?

Bronchiectasis can affect anyone at any age, and in any socioeconomic group, but the disease occurs much more commonly in rural and remote Indigenous communities and in less affluent communities (Chang et al. 2003; Karadag et al. 2005; Singleton et al. 2000; Twiss et al. 2005). This may be due to limited access to quality health services, non-adherence to medications and inadequate medical follow-up (Goeminne & Dupont 2010). In addition, studies based in the United Kingdom and the United States have found females and the elderly are more frequently affected (Seitz et al. 2012; Quint et al. 2016).

Although increasingly recognised, there is little information available on the prevalence or incidence of bronchiectasis in Australia. The only available Australian data on bronchiectasis is in children aged under 15 years. A study of Central Australian Aboriginal children found the prevalence of non-cystic fibrosis bronchiectasis among Aboriginal children aged under or equal to 15 years was at least 1,470 per 100,000 population (Chang et al. 2003).

The Australian Bronchiectasis Registry (commenced in 2015) will facilitate more accurate estimates of bronchiectasis in Australia in the future. It is a non-commercial research project that has been initiated by a group of Australian Respiratory Specialist doctors together with The Lung Foundation Australia. The main aims of this registry are to identify and collect health information from patients with non-Cystic Fibrosis (non-CF) Bronchiectasis for doctors to research the causes and to improve treatments. For more information visit The Lung Foundation of Australia.

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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.

How is bronchiectasis managed?

Although there is currently no cure for bronchiectasis, early treatment is important to help improve quality of life, manage symptoms, and maintain normal lung function.

Managing bronchiectasis effectively can require a broad range of healthcare providers from primary healthcare, hospital care through to palliative care for those with advanced disease. As such, it is ideally managed in the community with primary healthcare providers acting as coordinators of care (McGuire 2012). However, despite the important role it plays, there are currently limited detailed data on primary health care consultations in Australia.

Clinical practice guidelines in Australia and New Zealand recommend early diagnosis and coordination of multidisciplinary care needs. A chest high-resolution computed tomography scan (C-HRCT) is required to confirm the diagnosis and to assess severity and extent of the disease; with specific criteria and protocol required for children (Chang et al. 2010).The condition is complex to manage because of the variety of underlying causes and so clinical decisions around the management of the condition are made based on individual presentations. Treatment may include physiotherapy, use of medicines (particularly to control infections), regular influenza vaccinations, and where appropriate, surgery (Chang et al. 2010).

Hospital statistics for bronchiectasis

Some people with bronchiectasis require treatment in hospital, particularly for the management of severe disease exacerbations.

The National Hospital Morbidity Database (NHMD) collects information about care provided to admitted patients in Australian Hospitals. The principal diagnosis is the diagnosis established after study to be chiefly responsible for occasioning the patient's episode of admitted patient care. An additional diagnosis is a condition or a complaint that either coexists with the principal diagnosis or arises during the episode of care. An additional diagnosis is reported if the condition affects patient management. An admitted patient is a patient who undergoes a hospital's formal admission process to receive treatment and/or care (AIHW 2019).

The AIHW National Hospital Morbidity Database 2017–18 showed:

- Bronchiectasis was the principal diagnosis for 7,719 hospitalisations and an additional diagnosis for a further 10,803 hospitalisations, accounting for a small proportion (0.2%) of all hospitalisations in this period.
- The hospitalisation rate for females with a principal diagnosis of bronchiectasis (33 per 100,000 population) was 1.7 times that for males (19 per 100,000 population).
- The average length of stay in hospital when bronchiectasis was recorded as a principal diagnosis was 6.3 days compared to 2.7 days for all hospitalisations.

During the period 2007–08 to 2016–17, the hospitalisation rate for bronchiectasis as a principal diagnosis increased steadily (from 20 to 28 per 100,000 population respectively); this rate increased for both females (26 to 36 per 100,000 population) and males (13 to 19 per 100,000 population). However, during the period 2016–17 to 2017–18, the hospitalisation rate for bronchiectasis as a principal diagnosis decreased slightly (from 28 to 27 per 100,000 population); this rate decreased for females (36 to 33 per 100,000 population), and remained the same for males (19 per 100,000 population) (Figure 1).

Figure 1: Age-standardised rate of hospitalisations where bronchiectasis was the principal diagnosis, by sex, 2008-09 to 2017-18

The line chart shows the age-standardised hospitalisation rate for bronchiectasis as a principal diagnosis from 2008–09 to 2017–18. From 2007–08 to 2016–17, the hospitalisation rate for bronchiectasis as a principal diagnosis increased steadily (from 20 to 28 per 100,000 population respectively); this rate increased for both females (26 to 36 per 100,000 population) and males (13 to 19 per 100,000 population). However, from 2016–17 to 2017–18, the hospitalisation rate for bronchiectasis as a principal diagnosis decreased slightly (from 28 to 27 per 100,000 population); this rate decreased for females (36 to 33 per 100,000 population), and remained the same for males (19 per 100,000 population).

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Bronchiectasis as an additional diagnosis

In 2017–18, for the 10,803 hospitalisations where bronchiectasis was an additional diagnosis, chronic obstructive pulmonary disease (COPD) (17%), pneumonia (14%) and cystic fibrosis (12%) were the three most common principal diagnoses. In the younger age groups (0–4 to 45–49), bronchiectasis as an additional diagnosis was more often related to cystic fibrosis, while in older age groups (55 and over), it was more often

associated with COPD and pneumonia (Figure 2).

Figure 2: Number of hospitalisations where bronchiectasis was an additional diagnosis, by age group, 2017–18

The line chart shows the number of hospitalisations where bronchiectasis was an additional diagnosis along with principal diagnoses of COPD, pneumonia and cystic fibrosis in 2017–18. In the younger age groups (0–4 to 45–49), bronchiectasis as an additional diagnosis was more often related to cystic fibrosis, while in older age groups (55 and over), it was more often associated with COPD and pneumonia.

Visualisation not available for printing

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Deaths

Bronchiectasis-related deaths

In 2018, there were 983 deaths where bronchiectasis was recorded as either the underlying (387) or an associated (596) cause of death. For more information on how deaths are registered, coded and updated, see Deaths data.

During the period 2009 to 2018, where bronchiectasis was identified as the underlying cause of death, the death rate fluctuated slightly between 1.1 and 1.4 deaths per 100,000 population (Figure 1). The male death rate fluctuated over the same period, from 0.7 to 1.1 deaths per 100,000 population. The female death rate fluctuated over the period 2008 to 2013 and then remained stable at 1.6 deaths per 100,000 population from 2014 to 2017, before slightly dropping to 1.4 deaths per 100,000 in 2018.

Deaths due to bronchiectasis as an underlying cause are more common in people aged 60 and over. In 2018, 96% of bronchiectasis deaths were among those aged 60 or over. The death rate due to bronchiectasis as an underlying cause also fluctuated for people aged 60 years and over during 2009 and 2018, from 6.0 to 7.6 deaths per 100,000 population, peaking at 7.6 deaths per 100,000 population in 2015 (Figure 1).

Figure 1: Age-standardised death rate where bronchiectasis was the underlying cause, by sex, 2009–2018

The line chart shows that the death rate where bronchiectasis was the underlying cause of death fluctuated slightly between 1.1 and 1.4 deaths per 100,000 population over the period 2009–2018. The male death rate fluctuated over the same period, from 0.7 to 1.1 deaths per 100,000 population. The female death rate fluctuated over the period 2008 to 2013 and then remained stable at 1.6 deaths per 100,000 population from 2014 to 2017, before slightly dropping to 1.4 deaths per 100,000 in 2018.

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Data

Data tables: Bronchiectasis 2020

Download Data tables: Bronchiectasis 2020. Format: XLS 149Kb XLS 149Kb

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Related material

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- Chronic disease

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