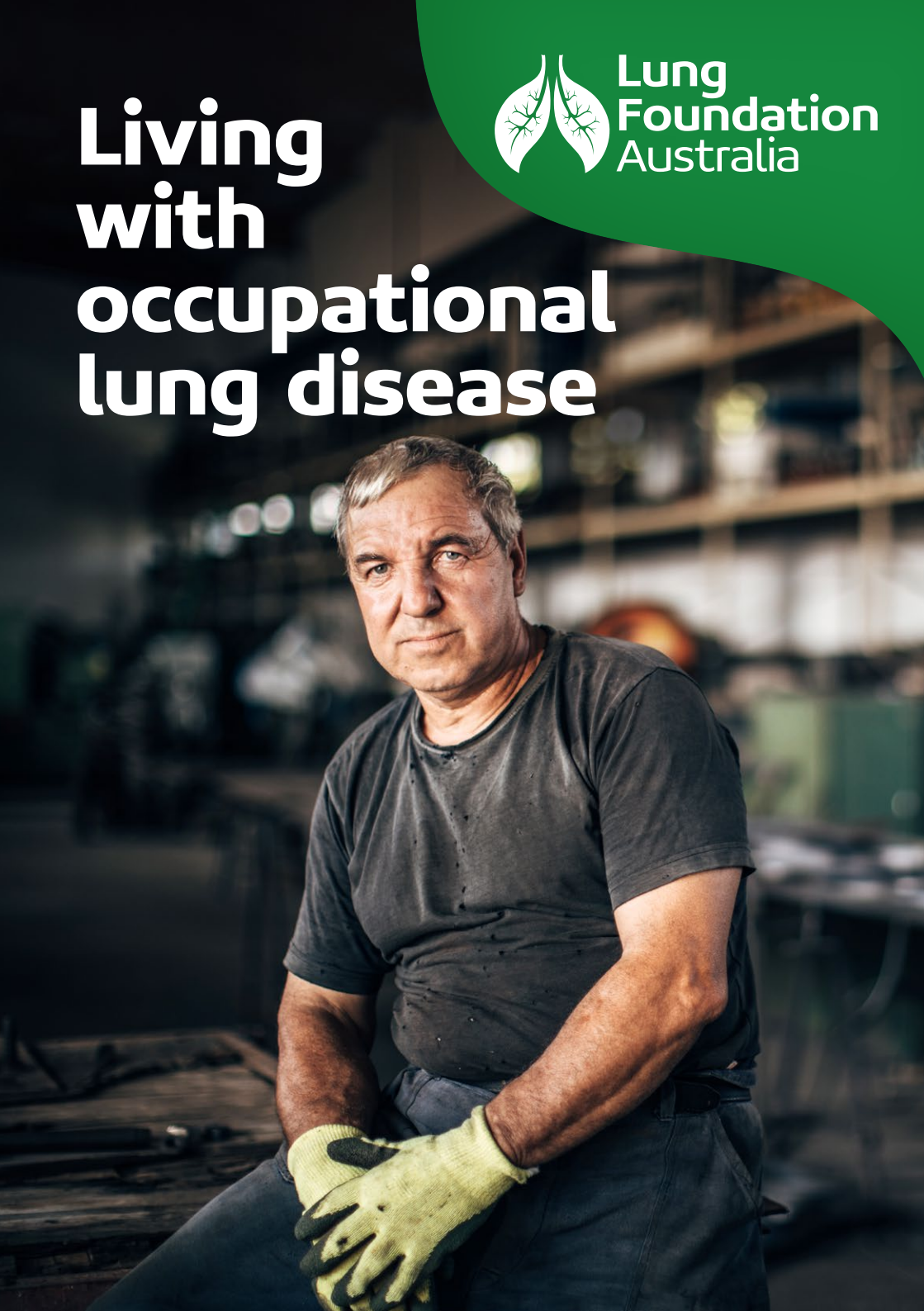
Lung Foundation Australia

Living with occupational lung disease



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Introduction

This booklet contains information for people who have been diagnosed with an occupational lung disease as well as their family and carers.

It has been designed to help you understand more about the different types of occupational lung diseases and how they are managed.

This booklet is a general guide and does not replace the information provided to you by your treating healthcare team. For information that is specific to your diagnosis, it is important that you consult with your healthcare team.

What are occupational lung diseases?

The term occupational lung disease covers a wide variety of different lung conditions which are caused by breathing in dust, fumes, gases or other hazardous agents in the work environment.

These diseases vary greatly in their nature, depending on the hazardous agent and protective measures implemented to reduce or manage exposure. They may be acute or chronic, and either malignant, or non-malignant, or infectious.

WHO IS AT RISK?

Anyone who is exposed to a hazardous agent at work is at risk of developing an occupational lung disease. It may not only be people working directly with hazardous agents, but also employees who are exposed by working in close proximity to hazardous agents, such as administration staff.

The risk of developing an occupational lung disease may continue even after exposure to the hazardous agent ends, as some types of these diseases may take years to develop. This is known as a long latency period.

Certain industries such as agriculture, building and construction, and mining have long been known to contribute to the development of occupational lung disease. However, the burden of occupational lung disease is prone to change over time, due to the continuous introduction of new products to market with potential unknown effects on lung health.

Types of occupational lung diseases

Although there are many different occupational lung diseases, common types include:

- Pneumoconiosis
- Asbestosis
- Silicosis
- Coal worker's pneumoconiosis
- Chronic Obstructive Pulmonary Disease
- Hypersensitivity pneumonitis
- Mesothelioma
- Work-related asthma
- Occupational lung infections.

They are caused by a wide range of hazardous agents, many of which may not be known.

Depending on the type of hazardous agent you are exposed to, symptoms may develop immediately, or after months, years or decades of exposure. With many occupational lung diseases, symptoms may only present long after your exposure to the hazardous agent has stopped, or even after you have retired from the workforce.

Diagnosis

The first step to identifying the risk of, or diagnosing any occupational lung disease, is a discussion with your GP about your medical and occupational history, including symptoms you may be experiencing and any previous or current exposure to hazardous agents. Your doctor will ask about:

- The type of work you were doing and the possible hazardous agents involved
- The frequency and duration of exposure
- The type of protective measures used to reduce your risk of exposure, such as personal protective equipment.

Your doctor will also ask you about other lifestyle factors, such as smoking and/or vaping history, including whether you have been exposed to passive (second-hand) smoke. Even if you have a history of smoking, you can still be diagnosed with an occupational lung disease.

If you do have symptoms, your doctor will also ask you:

- What they are
- When you experience them
- How long you have had them for
- Whether you have used any medication to manage them.

Occupational lung diseases can be difficult to diagnose. To confirm the diagnosis, your GP will refer you to a respiratory specialist or occupational specialist doctor, such as an occupational physician, early on in the process. An occupational physician is an expert in work-related disease.

If you've been involved in any health monitoring (or surveillance) schemes and have the results, take these with you to your doctor's appointments.

Your healthcare team

When you are diagnosed with an occupational lung disease, you should have a whole team of healthcare professionals working together with you. Each member of your treating healthcare team will specialise in different aspects of your disease management. This will also include supporting you to undertake self-management strategies like exercise and maintaining a healthy diet, as well as looking after your mental health and emotional wellbeing.

You may engage with:

Your GP can discuss the role of each of these health professionals in your care.

PREPARING FOR MEDICAL APPOINTMENTS

Attending multiple medical appointments as part of managing your occupational lung disease can be overwhelming. You will not only need to provide details about your medical history, current symptoms and workplace exposure, but also take on board and process a lot of information.

Some of these tips may help you to feel more prepared:

- **Write down a list of questions, issues and any symptoms** you wish to discuss and take them with you.
- Keep a **list of your treating healthcare team**, including their phone numbers, emails and addresses. Ask how it is best to contact them if an urgent situation arises or if you think of further questions.
- Consider **bringing someone with you** to your appointment, like a partner, family member or friend, to listen and take notes for you or even to prompt you to ask the questions on your list.
- **Keep a diary** between your appointments. You may want to record how you are feeling on a day-to-day basis for a few weeks, noting if your symptoms have changed. A diary can help provide an accurate record.
- Keep a **current list of medications**, vitamins, supplements and anything else you are taking. Note dosage and how often you take them, so you can share this information with your healthcare team.
- **Attend all of your appointments** to receive the most comprehensive care – you may need tests repeated and it is likely you will need ongoing assessment to monitor your disease.

Maintaining your mental health

Being diagnosed with an occupational lung disease can feel overwhelming and frightening. Your life and that of your family will go through a series of significant changes, and it may take some time to adjust to the physical challenges and new limitations of living with an occupational lung disease. There is no correct way to feel about your diagnosis. Everyone will have their own unique experience.

One of the most significant changes you will need to adjust to is changing occupations or industries or, potentially, leaving the workforce entirely – possibly much earlier than you anticipated. Giving up a career you enjoy and have experienced success in can be distressing, especially if this impacts you financially.

You may feel as if you have lost part of your identity, your sense of self, your independence, and maybe even loss of your work mates. Your role within your family and your intimate relationships may also change. With loss, comes grief. Grief is a natural and expected emotional reaction in coming to terms with your 'new normal'.

While you are experiencing this loss and grief, you will be getting used to regular appointments with your treating healthcare team, which can be stressful. You may also be investigating a worker's compensation claim, requiring you to engage with even more professionals separate to your healthcare team, such as insurers and lawyers. It is normal to feel overwhelmed with your situation and experience a rollercoaster of emotions.

Acknowledging the impact this process will have on your mental health early can help you and your family be prepared and put steps in place to look after your emotional wellbeing as well as your physical wellbeing. It can be helpful to talk to someone you trust about how you are feeling and express your worries and concerns. If you are not able to speak to a family member or friend, reach out to a member of your treating healthcare team or your GP.

You may need assistance in developing strategies to manage the range of emotions you are experiencing. If you are in any doubt or feel like you are not coping as well as you would like to, seek input from a mental health professional like a psychologist or social worker through your GP or healthcare team.

A mental health care plan is developed with your GP and can help you access mental health professionals such as psychologists, social workers or occupational therapists. The plan can help to make appointments more affordable.
You don't have to be diagnosed with a mental health condition to talk to your doctor about whether a plan would be suitable for you. You might feel nervous about starting the conversation, but your GP is there to support you.

Other strategies to help may include:

- **Taking one step at a time**. You don't have to resolve everything all at once. You might find it more manageable to tackle one issue at a time.
- **Asking for help and accepting help when it is offered**. Your friends and family want to help you manage both your disease and your everyday life, so try and let them in and accept help when you need it.
- **Finding a support group**. Talking about what you are going through with others who understand can make all the difference and help you feel less isolated and alone. You could join an online support group or meet with people face-to-face.
- **Being kind to yourself**. Give yourself permission to not always feel on top of everything. Recognise that you will have 'good days' and 'bad days'.

For more strategies, access Lung Foundation Australia's free mental health resources, Mind Matters.

It is important to develop strategies to suit your situation, including how you will maintain your relationships and activities with your family and friends. People with strong social connections report greater feelings of wellbeing. Maintaining relationships and connection might feel difficult, especially when you are dealing with the physical challenges or symptoms of your disease, but staying connected is essential for your mental health and emotional wellbeing.

CARING FOR SOMEONE WITH AN OCCUPATIONAL LUNG DISEASE?

A diagnosis of an occupational lung disease can affect more than the person with the disease. It can affect the whole family. If you are caring for someone living with an occupational lung disease and are struggling to cope yourself, it's important you seek help and support as well. You will face challenges as you navigate the 'new normal' – from the impact on your family's financial position to the change in your role within the family and even your relationship. Everyone experiences the challenges they are presented with differently, but it can generate strong emotions and you should not hesitate to seek support from family, friends or your GP.

For advice about looking after yourself when you are a carer, access Lung Foundation Australia's free mental health resources, Mind Matters.

Looking after yourself

Although there is currently no cure for most occupational lung diseases, taking care of your health and managing your disease on a day-to-day basis can help improve how you feel. You can improve your overall quality of life, slow the progression of symptoms, and keep your disease as well managed as possible.

Prevent further exposure

Further exposure to the hazardous agent that caused your disease could result in your disease progressing or worsening. It is essential to avoid any further exposure. This may mean having to modify the way you work, changing occupations or industries, or leaving the workforce entirely. These options might be very challenging and confronting to consider, however it is essential to reduce the risk of further damage to your lungs.

Your respiratory specialist or occupational physician will discuss ongoing work options with you and future health impacts. They can help guide you in making these important decisions.

Quit smoking and vaping

Smoking can make an occupational lung disease worse and can also cause other lung diseases. If you smoke or vape, quitting is critical to help you improve your lung health. Giving up smoking or vaping can be difficult. For support to quit, talk to your GP or connect with a Quitline counsellor or an online service like QuitCoach. Stopping smoking or vaping will prevent further damage to your lungs.

Avoid excessive alcohol and illicit substances

You may feel as if using alcohol and/or illicit substances will help you cope with what you are going through. While it may initially seem like this is helping you to cope, drinking too much alcohol and/or using illicit substances is ultimately going to make you feel worse and can become very destructive, very quickly. If you are engaging in these activities, try

and find some healthier ways to cope and reduce your use. For support, talk to your GP or connect with an alcohol and drug service.

Exercise

There are many benefits to being physically active. When you exercise, it can help to increase energy levels and strength, relieve stress and help with feelings of anxiety and depression. When you are living with an occupational lung disease, exercise is particularly important as it can reduce symptoms like breathlessness and improve your ability to do everyday activities.

It may be hard to know how much or what type of exercise is possible, so speak with your healthcare team about what is right for you. An exercise physiologist or physiotherapist can provide advice on a personal exercise program. You may also be able to participate in a pulmonary rehabilitation program. If you haven't seen a health professional to support you with a personal exercise program, ask your treating healthcare team or GP for a referral.

Pulmonary rehabilitation is an exercise and education program designed specifically for people living with a lung condition. Delivered by health professionals, it teaches you the skills needed to become as fit and strong as possible, manage breathlessness and to stay well and out of hospital. The program may run for six to eight weeks, with most participants given exercises to do at home so that they can maintain their fitness.

Maintain a healthy diet

It is important to eat a nutritionally balanced and varied diet, with lots of fruit and vegetables, and to maintain a healthy body weight. Eating well is especially important for people with lung disease, as foods contain essential nutrients to help prevent infections and keep your body healthy. Eating well will also help keep your energy levels up. Some of the medications may affect your appetite. If you find you have lost your appetite or its increased, talk to your healthcare team for advice on how to manage it or ask for a referral to a dietitian.

Rest

Get enough rest and good quality sleep. Physically, you may not always be able to achieve everything you were able to in the past. Allowing for rest periods when you need them is important, as pushing through when you are already fatigued may leave you feeling wiped out in the days afterwards.

You may also need to pace your normal tasks to help prevent fatigue. Breaking daily tasks up into smaller steps and planning for breaks will help you to have enough energy to complete an activity. Set achievable goals and be patient with yourself. Learning to pace, plan and prioritise your daily activities may help you to save energy.

Keep your vaccinations up to date

People with lung disease can have more difficulty recovering from respiratory illnesses, so taking steps to protect yourself with vaccinations is important. Talk to your healthcare team about which vaccinations are suitable for you, including the seasonal influenza and pneumonia vaccinations. Lung diseases also increase your risk of developing a severe case of COVID-19, so vaccination is usually recommended, although you should discuss your individual case with your doctor.

If you do start to develop a respiratory illness, see your doctor as soon as possible for management and treatment to prevent any worsening of your disease.

Take your medications as prescribed

It is important to take your medications as prescribed. Medication should not be stopped unless advised by your doctor. Bring your prescriptions to your appointments and make sure you take your medications with you if you go to hospital.

Legal and financial information

WORKER'S COMPENSATION

If you intend to make a worker's compensation claim, you should do this as soon as a doctor has indicated there is a link between your disease and your employment, as time limits apply and these vary by Australian state and territory.

If you are able to make a worker's compensation claim, it may help you with the following:

- Medical expenses
- Loss of income
- Rehabilitation services.

UNIONS

If you are a member of a union, they may be able to help and support you after a diagnosis or during a compensation claim. A union's key role includes acting as an employee representative and providing support in the event of any workplace issues.

LEGAL AND FINANCIAL ADVICE

Regardless of whether you seek compensation or not, make sure you get independent legal and financial advice. Talking to a professional can help outline your options.

There are a number of financial support services that can be accessed for free or are low cost. Ask for a referral to a social worker if you have not already received one.

Support services

The following organisations may be useful. Please note that these are a guide only. Use your discretion to determine if they are appropriate for your circumstances.

Organisation	Telephone No.	Website
Australian Association of Social Workers	-	aasw.asn.au
Asbestos Disease Support Society	1800 776 412	adss.org.au
Asbestos Victims Association (SA) Inc	08 8212 6008	avasa.asn.au
Asbestosis and Mesothelioma Association of Australia Limited	1800 017 758	asbestosisassociation.com.au
Alcohol and Drug Foundation	1300 858 584	adf.org.au
Beyond Blue	1300 224 636	beyondblue.org.au
Carer Gateway	1800 422 737	carergateway.gov.au
Carers Australia	1800 242 636	carersaustralia.com.au
FriendLine	1800 424 287	friendline.org.au
Head to Health	-	headtohealth.gov.au
Lifeline Australia	13 11 44 (24/7)	lifeline.org.au
MATES	1300 642 111	mates.org.au
MensLine	1300 789 978	mensline.org.au
MindSpot	1800 614 434	mindspot.org.au
Quitline	13 78 48	quit.org.au
Silicosis Support Network	1800 776 412	silicosissupport.org.au
Suicide Call Back Service	1300 659 467 (24/7)	suicidecallbackservice.org.au
The Department of Health	1800 020 103	health.gov.au

For more organisations offering support, visit Lung Foundation Australia's Occupational Lung Disease National Directory.

Pneumoconiosis

Pneumoconiosis is the general term for lung fibrosis, or lung scarring, caused by inhalation of dust. Inhaling this dust causes a reaction in the lungs, including inflammation, which can lead to scar tissue (fibrosis) or small masses of tissue (nodules) forming. Many different dusts can cause pneumoconiosis and there are many different types of this disease. The most common types of pneumoconiosis include asbestosis (see page 25), coal worker's pneumoconiosis, also known as black lung disease (see page 35) and silicosis (see page 29). Sometimes, people have a mixed-dust pneumoconiosis where they have been exposed to more than one hazardous dust. Some of these dusts can also cause Chronic Obstructive Pulmonary Disease (COPD) (see page 39).

Other types of pneumoconiosis* include:

Disease	Cause of disease
Aluminosis - also known as aluminium lung	Aluminium-bearing dust
Berylliosis – also known as chronic beryllium disease	Dusts or vapours containing beryllium
Byssinosis – also known as brown lung disease	Dust from vegetable fibres, such as flax, hemp or cotton
Hard metal pneumoconiosis – also known as hard metal lung disease	Dusts from hard metals such as tungsten, tungsten carbide and cobalt
Diffuse dust-related fibrosis - also known as diffuse dust fibrosis or coal mine dust-related diffuse fibrosis	Coal mine dust
Talcosis	Talc dust

*This is not an exhaustive list of all types of pneumoconiosis.

SYMPTOMS

Many people with early stages of pneumoconiosis have no symptoms. When symptoms do present, they may range from mild to severe. The condition is usually progressive with worsening of symptoms, particularly if exposure continues. The symptoms of pneumoconiosis are similar to other lung diseases, and include:

Cough

Shortness of breath

Chest tightness

The symptoms of pneumoconiosis do not usually develop until many years after you have been exposed to the causative dust. By the time you start to display symptoms, you may no longer work in the occupation or industry where you were exposed.

DIAGNOSIS

In addition to the initial discussions with your GP and specialist doctor, you are also likely to undergo a series of tests. These may include:

Physical examination: Your doctor will listen to your chest and examine your breathing.

Lung-function (breathing) tests: Used to measure how well your lungs are working and to help with assessing the stage of disease.

Chest X-ray: This has been the first-line investigation for pneumoconiosis for many years. It is essential that it is interpreted by an expert radiologist with specialist training in this area. The specialist will look for evidence of nodules and scarring, and compare them with standard images to make an assessment of severity.

High-resolution CT scan (HRCT): Used commonly to confirm the diagnosis, and to exclude any other diseases.

Arterial blood gas analysis: Used to measure how well your lungs bring oxygen into your blood and remove carbon dioxide. Blood taken from an artery can assist your doctor in knowing how your lungs have been affected, and whether you need other treatment, including oxygen.

Lung biopsy: This is usually not needed but may occasionally be used if the diagnosis is unclear or to rule out other lung conditions.

MANAGEMENT

Although there is currently no cure for any type of pneumoconiosis, there are some management strategies available that may slow progression of the disease and help reduce your symptoms. There are also some medications in clinical trial phase. Your doctor will talk to you about what is suitable for you.

Medication: There are some medications available that may help reduce your symptoms. Inhaled medications may be beneficial in some people and newer treatments, such as anti-fibrotic agents, are now being trialled to help slow progression of the disease.

Oxygen therapy: Oxygen therapy may be prescribed by your doctor if you have low blood oxygen levels. Oxygen may be used during exercise, overnight, or on a continuous basis. Oxygen will not necessarily relieve breathlessness, but it will ensure your vital organs are receiving enough oxygen to function. It may also help to alleviate fatigue, as well as improve your concentration and help you stay active.

Lung transplantation: Lung transplantation may be considered in very severe cases of pneumoconiosis. If you are suitable for lung transplantation, your doctor will discuss the risks and benefits of the surgery, as it is a major procedure.

Asbestosis

Asbestosis is caused by breathing in high levels of asbestos fibres, generally over long periods of time. The fibres lodge in the lung tissue, causing inflammation and scarring in the lungs. Symptoms do not usually develop until many years after continued exposure to asbestos, in some cases up to 10 to 30 years after exposure has occurred.

Asbestosis affects everyone differently. The impact of the disease can vary between people. Some people can live a long time with asbestosis, but for others, the disease may progress at a faster rate. If you have asbestosis you are at an increased risk of lung cancer. If you have asbestosis and you also smoke, this risk is very high.

Asbestos is a group of naturally occurring minerals. It is very fibrous, and the tiny fibres can be easily breathed in and become caught in the lungs. The risk of developing asbestosis increases with the number of fibres inhaled and the frequency of exposure.

SYMPTOMS

Common symptoms of asbestosis include:

Shortness of breath

Cough

Fatigue

Clubbing (swelling) of the fingers

Weight loss (in the late stages)

DIAGNOSIS

In addition to the initial discussions with your GP and specialist doctor, you are also likely to undergo a series of tests. These may include:

Physical examination: Your doctor will listen to your chest and examine your breathing for any signs of crackling.

Lung-function (breathing) tests: Used to measure how well your lungs are working.

Chest X-ray: Used to look for any signs of scarring on your lungs, as well as other signs of asbestos exposure, such as pleural plaques (thickened areas in the lining of the lung).

Chest CT scan: This type of scan can detect asbestosis more accurately than a chest X-ray.

Lung biopsy: This is usually not needed but may occasionally be used if the diagnosis is unclear, or to rule out other conditions.

MANAGEMENT

Although there is currently no cure for asbestosis, there are management strategies available that may help reduce your symptoms. Research in this area is ongoing, and there are some new trial medications being investigated. Your doctor will talk to you about what is suitable.

Medication: There are some medications available that may help reduce symptoms, including:

- Inhaled medications like relievers may be recommended to help open up the airways and make breathing easier, although they are not a standard treatment for asbestosis.
- Newer treatments, such as anti-fibrotic agents, are now being trialled to treat asbestosis. They are intended to slow the rate of progression of the scarring in the lungs and preserve lung function.
- Pain relief or antibiotics may be recommended in certain situations, such as for chest pain or infection, although they are not a regular treatment for asbestosis.

Oxygen therapy: Oxygen therapy may be prescribed by your doctor if you have low blood oxygen levels. Oxygen may be used during exercise, overnight, or on a continuous basis. Oxygen will not necessarily relieve breathlessness, but it will ensure your vital organs are receiving enough oxygen to function. It may also help to alleviate fatigue, as well as improve your concentration and help you stay active.

Surgery: Surgery is not a usual treatment for asbestosis but may be needed for complications such as pleural effusion (fluid on the lungs) or in cases of very severe disease.

Silicosis

Silicosis is mainly caused by inhaling respirable crystalline silica dust, which is created when cutting, drilling, grinding and polishing certain types of stone, rock, sand and clay. Over time, inhaling this dust causes inflammation which leads to scarring of the lung tissue. This can cause stiffening of the lungs, making it difficult to breathe.

SYMPTOMS

There are three types of silicosis – acute, accelerated and chronic. The level of exposure and the length of time a person is exposed will affect the type of silicosis which may develop.

Initially, you may not notice any symptoms, except in acute silicosis. Over time, as the disease progresses, symptoms slowly develop.

Common symptoms of silicosis include:

Shortness of breath

Dry or productive (sputum) cough

Wheeze

Other symptoms of silicosis may include tiredness, chest pain and weight loss.

The three types of silicosis differ by the time of exposure to silica dust and their features:

Acute silicosis

Develops after weeks to months of exposure – typically less than 2 years.

- Caused by exposure to very high levels of silica dust.
- If exposure to silica dust continues, usually results in a progressive deterioration to respiratory failure over months to years.

Accelerated silicosis

Develops after 3 to 10 years of exposure.

- Caused by exposure to high levels of silica dust.

Chronic silicosis

Develops after more than 10 years of exposure, although sometimes after 30 years of exposure.

- Most common form of silicosis.
- Presents as:
  - Simple silicosis – small white spots (nodules) on the chest X-ray, or
  - Complicated silicosis – large areas of scarring, also known as Progressive Massive Fibrosis.
- Simple silicosis can progress to complicated silicosis.

In all types of silicosis, progression can occur even after removal from exposure.

DIAGNOSIS

In addition to the initial discussions with your GP and specialist doctor, you are also likely to undergo a series of tests. These may include:

Physical examination: Your doctor will listen to your chest and examine your breathing.

Lung-function (breathing) tests: Used to measure how well your lungs are working. Whilst there are simple lung function tests that can be performed in any clinic, full (extended) lung function tests performed in a respiratory function laboratory are recommended for silicosis.

Chest X-ray: This has been the first-line investigation for silicosis for many years, but it is essential that it is interpreted by an expert radiologist with specialist training in this area. More imaging is likely to be needed.

High-resolution CT scan (HRCT): Used commonly to help to confirm the diagnosis, and to exclude any other diseases. HRCT is increasingly becoming the first-line imaging test, particularly with silicosis associated with artificial stone.

Arterial blood gas analysis: Used to measure how well your lungs bring oxygen into your blood and remove carbon dioxide. Blood taken from an artery can assist your doctor to know how your lungs have been affected, and whether you need other treatment, including oxygen. This is generally performed as part of lung function testing.

6-minute walk test: This is used to assess the physical capability of the individual.

Testing may also include a **bronchoscopy** (tube inserted into the airway), **endobronchial ultrasound** (an ultrasound is taken through the airway walls) and a **biopsy** (taken via a bronchoscope or an open, surgical procedure). These tests are not always needed if the diagnosis can be made through medical and occupational history and radiological imaging alone (i.e. chest X-ray, HRCT).

MANAGEMENT

Although there is currently no cure for silicosis, there are management strategies available which may slow progression of the disease and help reduce your symptoms. Your doctor will talk to you about what is suitable for you.

Medication: There are some medications available that may help relieve symptoms. Inhaled medications like relievers help to open up the airways and make breathing easier. Inhaled corticosteroid medication may also be prescribed, although this is generally to assist with other co-existing lung diseases. There are also some other medications currently in clinical trial phase.

Oxygen therapy: Oxygen therapy may be prescribed by your doctor if you have low blood oxygen levels. Oxygen may be used during exercise, overnight, or on a continuous basis. Oxygen will not necessarily relieve breathlessness, but it will ensure your vital organs are receiving enough oxygen to function. It may also help to alleviate fatigue, as well as improve your concentration and help you stay active.

Whole lung lavage: This procedure is currently being trialled in Australia to determine the benefits and risks as a treatment for people living with silicosis. It involves a general anaesthetic and flushing several litres of a salt-water solution through each lung with the aim of "washing out" damaging silica crystals. If shown to be effective, it will most likely have a role in the treatment of acute silicosis or early stages of silicosis.

Lung transplantation: If you have very severe silicosis, and your condition is worsening, your doctor may recommend lung transplantation. If you are suitable for lung transplantation, your doctor will discuss the risks and benefits of the surgery, as it is a major procedure.

Coal worker's pneumoconiosis

Coal Worker's Pneumoconiosis (CWP), also known as black lung disease, is a type of pneumoconiosis caused by inhaling coal dust, generally over long periods of time. Inhaling this dust causes a reaction in the lungs, including inflammation, which can lead to scar tissue (fibrosis) or small masses of tissue (nodules) forming. In instances of heavy coal dust exposure, CWP may develop into Progressive Massive Fibrosis, where there are large areas of scar tissue in the lungs.

SYMPTOMS

Many people with CWP have no symptoms, particularly in early stages of the disease. When symptoms do present, they may include:

Dry or productive cough (occasionally sputum is black)

Shortness of breath

Chest tightness

Generally, CWP takes many years to develop. In most cases, it may take 10 to 15 years or more. The time between exposure and disease development is called a latency period.

DIAGNOSIS

In addition to the initial discussions with your GP and specialist doctor, you are also likely to undergo a series of tests. These may include:

Physical examination: Your doctor will listen to your chest and examine your breathing.

Lung-function (breathing) tests: Used to measure how well your lungs are working and to help with assessing the severity of the disease.

Chest X-ray: This has been the first-line investigation for pneumoconiosis for many years. It is essential that it is interpreted by an expert radiologist with specialist training in this area. The specialist will look for evidence of nodules and scarring and compare them with standard images to make an assessment of severity.

High-resolution CT scan (HRCT): Used commonly to confirm the diagnosis, and to exclude any other diseases.

Arterial blood gas analysis: Used to measure how well your lungs bring oxygen into your blood and remove carbon dioxide. Blood taken from an artery can assist your doctor to know how your lungs have been affected, and whether you need other treatment, including oxygen.

Lung biopsy: This is usually not needed but may occasionally be used if the diagnosis is unclear, or to rule out other lung conditions.

MANAGEMENT

Although there is currently no cure for CWP, there are some management strategies available that may slow progression of the disease and help reduce your symptoms. There are also some medications in clinical trial phase. Your doctor will talk to you about what is suitable for you.

Medication: There are some medications available that may help reduce your symptoms. Inhaled medications may be beneficial in some people and newer treatments, such as anti-fibrotic agents, are now being trialled to help slow progression of the disease.

Oxygen therapy: Oxygen therapy may be prescribed by your doctor if you have low blood oxygen levels. Oxygen may be used during exercise, overnight, or on a continuous basis. Oxygen will not necessarily relieve breathlessness, but it will ensure your vital organs are receiving enough oxygen to function. It may also help to alleviate fatigue, as well as improve your concentration and help you stay active.

Lung transplantation: Lung transplantation may be considered in very severe cases of CWP. If you are suitable for lung transplantation, your doctor will discuss the risks and benefits of the surgery, as it is a major procedure.


list

Chronic Obstructive Pulmonary Disease

If you work in an industry or occupation where you are exposed to certain dusts, fumes, gases or other hazardous agents, you are likely to be at a higher risk of developing Chronic Obstructive Pulmonary Disease (COPD). COPD is an umbrella term for a group of lung diseases including emphysema and chronic bronchitis. It is a progressive disease that causes narrowing of the airways in the lungs, making it difficult to breathe. Smoking is the most well-known cause of COPD, but it may also be caused by occupational factors and your underlying genetic make-up. You can develop COPD through both a history of smoking and exposure to hazardous agents in the workplace. It can be difficult to determine the contribution of each exposure to the development of COPD.

SYMPTOMS

Symptoms of COPD tend to come on slowly and can be very mild at first. Over time your symptoms may worsen.

Common symptoms of COPD include:


Shortness of breath


Persistent cough


Increased mucus production


Fatigue


Frequent chest infections


Taking longer to recover from a cold or chest infection


Wheeze


Weight loss

DIAGNOSIS

In addition to the initial discussions with your GP and specialist doctor, you are also likely to undergo a series of tests. These may include:

Physical examination: Your doctor will listen to your chest and examine your breathing.

Lung-function (breathing) tests: Spirometry is the most common breathing test used to confirm a diagnosis of COPD. The results will help your doctor know if you have COPD or another lung condition such as asthma and assist with establishing disease severity. Full lung function tests done in a respiratory laboratory are helpful in assessing and monitoring COPD.

Chest X-ray: This can detect emphysema and rule out other lung problems, or heart failure.

Chest CT scan: This is usually not needed in mild or early stages of COPD, but may be used to rule out other diseases, or if your condition is more severe.

Arterial blood gas analysis: Used to measure how well your lungs bring oxygen into your blood and remove carbon dioxide. Blood taken from an artery can assist your doctor in knowing how your lungs have been affected, and whether you need other treatment, including oxygen.

Laboratory tests: Blood tests are included as part of investigation for an accurate diagnosis.

MANAGEMENT

Although there is currently no cure for COPD, there are management strategies to help slow progression of the disease and reduce your symptoms. Your doctor will talk to you about what is suitable for you.

Medication: Inhaled medications are commonly used to manage COPD. They help to reduce symptoms, improve exercise tolerance and prevent flare-ups. They work by helping to open up your airways and make breathing easier. They may also help reduce the underlying airway inflammation and mucus. Some inhaled medications are used on a regular basis, even when you are feeling well, whereas others are used on an as-needed basis in the event of symptoms or a flare-up. Sometimes oral steroids and antibiotics may be needed.

Oxygen therapy: Oxygen therapy may be prescribed by your doctor if you have low blood oxygen levels. Oxygen may be used during exercise, overnight, or on a continuous basis. Oxygen will not necessarily relieve breathlessness, but it will ensure your vital organs are receiving enough oxygen to function. It may also help to alleviate fatigue as well as improve your concentration and help you stay active.

Sleep apnoea treatment: If you have both COPD and sleep apnoea it can affect your ability to get enough oxygen. Therefore, treatment for sleep apnoea may also help to improve your COPD symptoms.

Surgery: Surgery may be an option for a selected group of patients with severe COPD and gas trapping (retention of excess air in all or part of the lung, especially during exhalation).

Hypersensitivity pneumonitis

Hypersensitivity pneumonitis, also known as extrinsic allergic alveolitis, occurs when the tissue in your lungs has an allergic reaction to an inhaled substance and becomes inflamed (swollen and irritable). The disease is known to develop in many diverse occupations and industries, and it is likely that some people are more susceptible to developing the disease than others. Generally, you have to be exposed to the substance over some months or years to develop the condition.

While there are several hundred substances known to cause hypersensitivity pneumonitis, a number of specific disease names* have been given as a result of the known substance that has caused it. These include:

Specific disease name	Cause of disease
Bird fancier's lung	Bird feathers and droppings
Bagassosis	Mouldy sugar cane
Farmer's lung	Mould that grows on hay, straw or grain
Humidifier lung	Fungus growing in humidifiers, air conditioners and heating systems
Hot tub lung	Bacteria in the water vapour (mist) from hot tubs, particularly indoor hot tubs
Miller's lung	Mouldy grain, flour or dust

*This is not an exhaustive list of all types of hypersensitivity pneumonitis.

SYMPTOMS

Common symptoms of hypersensitivity pneumonitis include:


Shortness of breath


Cough


Fever


Headache


Shivering


Fatigue


Aching muscles and joints

There are three types of hypersensitivity pneumonitis: acute, sub-acute and chronic. They differ based on the length of time people experience symptoms, as well as the types of symptoms experienced.

- Acute hypersensitivity pneumonitis: often referred to as an "acute attack" – usually occurs for 4-6 hours after heavy exposure to the substance. Symptoms may last for 12 hours to a few days, and generally resolve if further exposure is avoided.
- Sub-acute hypersensitivity pneumonitis: symptoms that last for weeks to months.
- Chronic hypersensitivity pneumonitis: symptoms last for years. In rare cases, chronic hypersensitivity pneumonitis can lead to irreversible, permanent scarring of the lung tissue – a condition known as Pulmonary Fibrosis.

Chronic hypersensitivity pneumonitis is more likely to cause shortness of breath, cough, fatigue and weight loss than acute hypersensitivity pneumonitis, which generally presents with fever, fatigue and muscle aches as well as the respiratory symptoms.

If severe Pulmonary Fibrosis develops, then finger or toe clubbing may occur (rounding and widening of the ends of the digits and the nails).

DIAGNOSIS

Through discussions with your GP and specialist doctor, you will be asked about specific substances you have been exposed to, such as bacteria and mycobacteria, fungi, moulds, proteins or chemicals, and animal and vegetable dusts, including substances that may be present at your home. You are also likely to undergo a series of tests. These may include:

Physical examination: Your doctor will listen to your chest and examine your breathing.

Lung-function (breathing) tests: Used to measure how well your lungs are working.

Chest X-ray or chest CT scan: These may be able to detect the disease early in its progress and can determine if it has caused any scarring to your lungs.

Bronchoscopy: This may help with the diagnosis by viewing the inside of the lungs, and collecting tissue samples.

Lung biopsy: This may be needed if the diagnosis is unclear following other investigations.

MANAGEMENT

If you and your doctor can identify the substance you are allergic to, the single most important thing to do is to avoid any further exposure to it. If your disease is diagnosed early, avoiding the substance you are allergic to may help reverse the damage to your lungs, or even cure it. If avoidance strategies don't work, your doctor may prescribe medications to help manage your disease.

Medication: There are several types of medications that may help you manage your symptoms. These include corticosteroids, which reduce inflammation, and immunosuppressive medications, which also reduce inflammation and prevent your immune system from reacting to the substances you are inhaling. Your doctor may also suggest reliever medication which helps to open up your airways and make breathing easier.

Oxygen therapy: Oxygen therapy may be prescribed by your doctor if you have low blood oxygen levels. Oxygen may be used during exercise, overnight, or on a continuous basis. Oxygen will not necessarily relieve breathlessness, but it will ensure your vital organs are receiving enough oxygen to function. It may also help to alleviate fatigue, as well as improve your concentration and help you stay active.

Lung transplantation: Surgery is rarely used as a treatment for hypersensitivity pneumonitis, but in very severe disease, lung transplantation may be considered. If you are suitable for lung transplantation, your doctor will discuss the risks and benefits of the surgery, as it is a major procedure.

Mesothelioma

Like asbestosis, mesothelioma develops as a result of inhaling asbestos fibres. However, asbestosis and mesothelioma are different diseases. Mesothelioma is a type of cancer that affects the mesothelium, a thin tissue membrane covering internal organs of the body. Ninety percent of all mesotheliomas are pleural – affecting the mesothelium around the lungs. However, some can occur in the abdomen (known as abdominal mesothelioma) and very rarely, elsewhere.

SYMPTOMS

It usually takes many years for mesothelioma to develop after a person is exposed to asbestos – between 20 and 60 years, although most commonly around 40 years after exposure. The latency period (time between exposure and disease) is particularly long with mesothelioma, so long that it might be difficult to recall the original asbestos exposure.

Common symptoms of pleural mesothelioma include:


Shortness of breath


Cough


Chest pain


Losing weight for no apparent reason


Not feeling hungry


Fatigue

Many patients with mesothelioma present with fluid on the lungs (known as pleural effusion).

DIAGNOSIS

In addition to the initial discussions with your GP and specialist doctor, you are also likely to undergo a series of tests. These may include:

Physical examination: Your doctor will listen to your chest and examine your breathing.

Lung-function (breathing) tests: To measure how well your lungs are working. This is typically performed if you have respiratory symptoms, or before surgery.

Chest X-ray: To look for any abnormalities in the lungs.

CT scan: To show the location and thickness of tumour/s in the chest or abdomen as well as to show whether the cancer has spread anywhere else in the body.

Biopsy: To determine whether the tumour is mesothelioma, and if so, the type of mesothelioma cells present. A biopsy is considered the most accurate test to diagnose mesothelioma. It may be done via a needle or keyhole surgery. Sometimes this can be done at the same time as having an operation which prevents fluid from coming back around the lungs (a pleurodesis).

Sputum cytology test: Your sputum (phlegm) can be examined to see if there are any cancer cells present.

PET Scan: To further examine the pleura and to see whether the cancer has spread anywhere else in the body.

Blood test: There are some blood tests being investigated for their usefulness in diagnosis, but usually blood tests are taken to assess your general health and fitness for treatment.

MANAGEMENT

Although mesothelioma can be difficult to treat, it may be possible to keep the disease under control for months or years. Currently, treatment usually includes chemotherapy, radiotherapy or immunotherapy – or a combination of all three. There are some other management strategies available, which are designed to slow progression of the disease and help improve your quality of life. With mesothelioma, it is usual to be referred to a lung cancer specialist (i.e. oncologist, radiation oncologist or lung cancer surgeon) or specialised cancer service to ensure you get optimal treatment.

Chemotherapy: Anti-cancer medication which aims to kill cancer cells. The medication is usually given through a drip, but tablets are increasingly used. There are many different combinations of chemotherapy drugs and your doctor will choose the best one for you.

Radiotherapy: Also known as radiation therapy, uses high-energy targeted radiation to kill cancer cells by targeting their DNA. Radiotherapy is normally done several times per week for a number of weeks. More directed radiotherapy called proton therapy is being investigated for mesothelioma.

Pleurodesis: This is a type of surgery for people who develop fluid on their lungs as a result of the disease. This helps in preventing the fluid from coming back and causing breathlessness. It won't cure the disease, but it may help improve your quality of life by helping you breathe easier.

Immunotherapy: This is a newer type of therapy for mesothelioma and assists the body's own immune system to fight cancer. These medications, which are given through a drip, can be used as a single therapy or in combination with other treatments, such as chemotherapy.

Surgery: In some cases, removal of all or part of the tumour may be possible in combination with other treatments.

As research in this area evolves, so too do treatments for this cancer. If you have been diagnosed with mesothelioma, talk to your doctor about any clinical trials that you may be eligible to enrol in.

Work-related asthma

Work-related asthma is an underdiagnosed disease in Australia. It is caused by inhaling dust, fumes, gases or other potentially hazardous agents while at work, making the airways inflamed and irritable. It is likely to occur in up to 20 per cent of cases of asthma. Work-related asthma describes the development of asthma (occupational asthma) or worsening of existing asthma (work-exacerbated asthma) due to occupational factors.

There are more than 2,000 known substances which can cause occupational asthma, and more are being described every year. Anyone exposed to hazardous agents at work can develop occupational asthma, although people with a family history of allergies are at greater risk.

SYMPTOMS

With work-exacerbated asthma, you can develop symptoms quite quickly. However, symptoms of occupational asthma, which is caused by exposure to hazardous agents, usually develop over months or years.

Asthma may be preceded by nasal symptoms such as congestion or sneezing. Symptoms may occur at the time of exposure, however they can also occur several hours after exposure (up to 12 hours). Generally symptoms are better when away from work, on days off and on holidays. However, symptoms can be variable and may be difficult to relate to work, especially with shift work.

Symptoms of work-related asthma are similar to other forms of asthma, and include:


Shortness of breath


Wheeze


Tightness in the chest


Cough

Other possible accompanying symptoms may include:

 Runny nose

 Nasal congestion

 Eye irritation and tearing

Initially, people find their symptoms are worse on the days they work and then improve when they are away from the workplace such as on weekends and annual leave. However, in the later stages of the development of occupational asthma, where airways may be continually inflamed, symptoms may continue even when away from work.

DIAGNOSIS

Work-related asthma is diagnosed in the same way as any other type of asthma, except your doctor will ask you specific questions about your workplace, symptoms and medical history, including:

- Where you work and what your role is.
- What agents you are exposed to – they may even ask about specific occupational allergens (i.e. flour dust, latex, animal fur skin and saliva) and occupational irritants (certain chemicals and fumes, mists and vapours, as well as wood dust).
- Whether your symptoms are worse on the days you work – including whether they wake you up at night.
- Whether your symptoms change when you are away from your workplace.
- Your medical history – such as whether you had asthma symptoms as a child or have a history of allergies.
- Whether you smoke – which may increase sensitivity to workplace triggers.

You are also likely to undergo a series of tests, such as:

 Physical examination: Your doctor will listen to your chest and examine your breathing.

 Lung-function (breathing) tests: Spirometry is the most common breathing test used to confirm a diagnosis of asthma.

Serial measurement of Peak Expiratory Flow (PEF): These are lung measurements that you can take at home or at work with a hand-held device. Measuring your PEF regularly (sometimes up to 4 times a day) can show a pattern that is consistent with occupational asthma. This is often done if your doctor needs to find out if you are able to keep working in the same environment.

Your doctor may also perform tests to determine if you have a reaction to any specific substances. These may include:

- Allergy skin tests: Your doctor will prick your skin with a small amount of a purified allergy extract to see if your skin reacts.
- Challenge test: In a laboratory or hospital environment, you will inhale small amounts of substances thought to be causing your symptoms, to see if any trigger your asthma symptoms.
- Fractional exhaled nitric oxide (FeNO) test: This is a simple breath test which indicates the amount of inflammation in your airways.

MANAGEMENT

If the substance causing your asthma is identified, it is essential to limit or prevent any further exposure to it. By limiting or preventing exposure early enough, your asthma may subside or even be cured. However, if exposure continues over a long period of time, you may be left with asthma even after you have limited your exposure or left the job.

Medication: You are likely to need medication to control your symptoms and prevent asthma attacks or flare-ups. Treatment is the same as for other types of asthma, with inhaled medications being prescribed. It is common to have a regular inhaler, taken even when you feel well, and a reliever medication, to reduce symptoms when they flare up. Newer biological treatments are effective for asthma but have not been specifically studied in occupational asthma.

Occupational lung infections

Although most infections that occur in the lungs are typically acquired in the community, there are a range of viral or bacterial infections that are caused by work conditions or practices. Some common infections include:

- **Tuberculosis**, which is a bacterial disease that most commonly affects the lungs. It is not common in Australia and is typically acquired overseas. In an occupational setting, the risk is primarily in healthcare workers, but may also occur in people who work in crowded environments, such as in prisons.
- **Legionella pneumonia**, which is a lung infection caused by inhaling legionella bacteria. These bacteria are found in water systems in an occupational setting and occasionally in other water systems such as evaporative air conditioners. It typically affects people involved in maintaining hot water pipes, reservoirs, pumps or fountains and can also spread to the community.
- **Zoonotic diseases**, which are diseases from animals, such as Q fever, which causes "flu-like" symptoms, and psittacosis, which causes pneumonia. These typically affect workers who have close contact with animals (Q-fever) or birds (psittacosis).
- **Pneumonia**, which is a potentially fatal lung infection that can be caused by viruses (viral pneumonia), bacteria or fungi. Pneumococcal pneumonia, which is caused by the bacterium Streptococcus pneumoniae, can occur in welders.

SYMPTOMS

The symptoms vary depending on which type of infection you have, although in general, symptoms of lung infections typically include:


Cough, often with sputum which may be yellowish or green in colour


Coughing up rusty or blood-stained sputum


Shortness of breath


Fever or chills


Muscle aches and pains

Each infection is different, although most people will start to experience symptoms several days to two to three weeks after they have been exposed to the virus or bacteria.

DIAGNOSIS

Your doctor will ask about your symptoms, your job and other activities where you could have been exposed. If your doctor thinks an infection is the cause of your symptoms, they will examine your lungs, and test if you have a fever. Other tests will depend on what infection they suspect but are likely to include sputum samples and blood tests. Nasal and throat swabs may also be needed.

MANAGEMENT

Most occupational lung infections can be effectively treated with antibiotics, although the specific antibiotic selected depends on which infection you have. Tuberculosis requires specialist management as treatment is complicated and needs to occur over many months.

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About Lung Foundation Australia

Lung Foundation Australia is the only charity and leading peak body of its kind in Australia that funds life-changing research and delivers support services that give hope to Australians. Since 1990, we have been working to ensure lung health is a priority for all by promoting lung health and early diagnosis, advocating for policy change and research investment, raising awareness about the symptoms and prevalence of lung disease and championing equitable access to treatment and care.

You can contact Lung Foundation Australia for more information and to access our support services including:

- Information and Support Centre
- Lung disease information and resources
- Education webinars
- Lung Cancer Support Nurse
- Respiratory Care Nurse
- Peer support
- Referral to pulmonary rehabilitation
- Lungs in Action exercise programs
- E-newsletter

For more information about the services listed, please **free call 1800 654 301** or email **enquiries@lungfoundation.com.au**.

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