

# Health monitoring

*Guide for beryllium*



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# Introduction

This guide is intended to be read by a registered medical practitioner with experience in health monitoring who is engaged by person conducting a business or undertaking (PCBU) to carry out or supervise health monitoring. It provides practical guidance to registered medical practitioners about requirements under the work health and safety (WHS) laws for health monitoring.

This guide applies to all workplaces covered by the WHS Regulations where health monitoring is required.

## **How to use this guide**

This guide includes references to the legal requirements under the WHS Act and WHS Regulations. These are included for convenience only and should not be relied on in place of the full text of the WHS Act or WHS Regulations.

The words 'must', 'requires' or 'mandatory' indicate a legal requirement exists that must be complied with. The word 'should' is used in this guide to indicate a recommended course of action, while 'may' is used to indicate an optional course of action.

This guide provides information for those registered medical practitioners engaged by a PCBU to carry out or supervise health monitoring for workers. This guidance should be read in conjunction with the following:

- *Health monitoring guide for registered medical practitioners*
- *Health monitoring guides for hazardous chemicals*
- *Health monitoring guide for workers*
- *Health monitoring guide for persons conducting business or undertakings (PCBUs).*

## **Health monitoring under the WHS Regulations**

In certain circumstances, the model WHS Regulations place duties on a PCBU to provide health monitoring to workers. These requirements arise if the worker is carrying out work with hazardous chemicals including lead and asbestos. In addition, the work being carried out must be the kind of work specified in the WHS Regulations. A PCBU has the duty to determine if health monitoring is required.

The WHS Regulations prescribe that health monitoring is carried out by or supervised by a registered medical practitioner with experience in health monitoring.

## Beryllium

Beryllium (CAS 7440-41-7) is a grey metal that is found in nature as a mineral with silica or with aluminium and silica. Beryllium exists as a free metal or in an ionic state (Be[II]).

Beryllium occurs naturally as the silicate, bertrandite, and the aluminosilicate, beryl.

### Work activities that may represent a high risk exposure

Under the Work Health and Safety (WHS) Regulations, beryllium and its compounds are listed as restricted hazardous chemicals and must not be used for abrasive blasting at a concentration of 0.1 per cent beryllium without authorisation from a relevant WHS regulator.

Beryllium metal is used:

- in structural material in space technology
- as an additive of rocket fuels
- as a moderator and reflector in nuclear reactors
- in navigational systems, and
- in manufacturing:
  - aircraft disc brakes
  - X-ray transmission windows
  - missile parts
  - fuel containers
  - heat shields, and
  - alloys.

Beryllium hydroxide is the feedstock for production of beryllium oxides, metal and copper beryllium master alloy.

Beryllium oxide is used in the manufacturing of:

- specialty electrical and high-technology ceramics, for example resistor cores
- special glass
- electronic heat sinks
- electron and laser tubes
- electrical insulators
- electronic components, for example circuit chip carriers
- nuclear moderators and fuels
- military vehicle armour
- rocket nozzles, and
- laser components.

Certain types of slags (coal, copper) used in abrasive blasting operations may contain heavy metals such as beryllium and arsenic as a trace contaminant.

### Sources of non-occupational exposure

The primary source of non-work related exposure to beryllium is from combustion of fossil fuels. Other sources of non-occupational exposure include hazardous waste sites and tobacco smoke.

Beryllium is also found in consumer products such as computers, mobile phones and televisions but direct contact with beryllium is unlikely.

## 1. Health monitoring for beryllium under the WHS Regulations

Collection of demographic, medical and occupational history

Records of personal exposure

Physical examination with emphasis on respiratory and dermatological systems

Urinary beryllium level

The health monitoring under the WHS Regulations is applicable to beryllium and its inorganic compounds. The toxic effects of beryllium compounds are primarily attributed to the beryllium ion. Hence, beryllium and its compounds are considered to have a similar hazard and toxicity profile.

In this guide, 'beryllium' is used to refer to beryllium or its compounds.

## Health monitoring before starting work in a beryllium process

Health monitoring for beryllium may be required before the worker starts work so that changes to the worker's health can be detected.

Initial discussions about a health monitoring program should include:

- possible health effects from exposure to beryllium
- how to recognise and report symptoms, and
- what is involved in the health monitoring program, for example the frequency of testing and the tests that may be needed.

An initial physical examination should place emphasis on the respiratory system, including baseline spirometry and skin if work and medical history indicates this is necessary, for example through the presence of symptoms.

Beryllium compounds may be sensitisers and previous work history with the chemical and symptoms of sensitisation should be investigated.

## During exposure to a beryllium process

### 2. Monitoring exposure to beryllium

Where workers are exposed, suspected of being exposed or are concerned about exposure to beryllium, the person conducting the business or undertaking (PCBU) has a duty to arrange a health monitoring appointment with a registered medical practitioner. For example, an appointment should be arranged following spills or loss of containment of beryllium resulting in excessive exposure to workers or when workers develop symptoms of beryllium exposure.

Periodic medical examinations of workers exposed to beryllium should include work history, medical history and a physical examination with emphasis on the respiratory and dermatological systems.

Exposure to beryllium in the workplace is predominantly via inhalation. Only low levels of absorption via the dermal and oral routes is expected, but precautions should be taken to minimise this, given the potential health effects of beryllium. Exposure to beryllium via inhalation leads to the long term storage of beryllium in the lungs and skeleton.

Approximately 90 per cent of absorbed beryllium is eliminated from the body via urine. Therefore, urinary levels of beryllium can provide an indication of occupational exposure. Urine samples should be collected at the end of shift, preferably at the end of the working week.

No biological guidance values have been published for beryllium. There have been reports that background levels of beryllium in the urine of individuals, including smokers, who have

not been occupationally exposed to beryllium, are less than 13 µmol/mol creatinine<sup>1</sup> (approximately 1.4 µg/L, using a creatinine concentration of 1.4 g/L). Background urinary beryllium levels of 0.04–0.05 µg/L have been reported. Urinary beryllium levels above 1.4 µg/L indicate an individual has likely been exposed to beryllium at the workplace.

A correlation of exposure level with adverse health effects has not been established. Therefore, an individual with an exposure level greater than the background level should be monitored for signs and symptoms of beryllium exposure. Additional medical examinations may be warranted.

### **Workplace exposure standard**

The workplace exposure standard for beryllium (and compounds) is:

- eight hour time weighted average (TWA) of 0.002 mg/m<sup>3</sup>.

A physical examination and urinary testing may be indicated if the results of air monitoring indicate frequent or potentially high exposure (half of the TWA or above).

### **Removal from work**

Where a medical examination indicates the worker is displaying symptoms of exposure to beryllium or where results of biological monitoring indicate exposure that may cause adverse health effects, the registered medical practitioner should consider recommending the worker be removed from beryllium-related work.

When removal from beryllium-related work is indicated the registered medical practitioner must provide the PCBU with the following recommendations:

- the worker should be removed from work with beryllium, and
- the PCBU should review control measures and carry out recommended remedial action.

The worker must be informed of the results of health monitoring.

### **Return to work**

Should a worker be removed from beryllium-related work, they must not return until the registered medical practitioner has:

- assessed them as medically fit, and
- made a recommendation to the PCBU that the worker can return to remediated beryllium-related work.

This assessment should take into consideration the clinical condition of the worker, the worker's urinary beryllium levels and remediation of the circumstances that led to the symptoms if possible.

## **At termination of work in a beryllium process**

### **3. Final medical examination**

A final medical examination should include a physical examination with emphasis on the respiratory system and skin, noting abnormal lesions or symptoms of sensitisation.

Workers with health conditions or continuing symptoms due to beryllium exposure should be advised to seek continuing medical examinations as organised by the registered medical practitioner supervising the health monitoring program.

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<sup>1</sup> *Chemical analysis branch handbook, 9th Edition, Workplace and biological monitoring exposure analysis, WorkCover NSW (PDF 3.39MB).*

A health monitoring report from the registered medical practitioner should be provided to the PCBU as soon as practicable after the completion of the monitoring program, and at regular intervals for longer term or ongoing health monitoring processes. The report must include:

- the name and date of birth of the worker
- the name and registration number of the registered medical practitioner
- the name and address of the PCBU who commissioned the health monitoring
- the date of the health monitoring
- any test results that indicate whether or not the worker has been exposed to a hazardous chemical
- any advice that test results indicate that the worker may have contracted an injury, illness or disease as a result of carrying out the work that triggered the requirement for health monitoring
- any recommendation that the PCBU take remedial measures, including whether the worker can continue to carry out the type of work that triggered the requirement for health monitoring, and
- whether medical counselling is required for the worker in relation to the work that triggered the requirement for health monitoring.

## Potential health effects following exposure to beryllium

### 4. Route of occupational exposure

The primary route of beryllium exposure is via inhalation.

### 5. Target organ/effect

The target organs and potential effects of beryllium exposure include:

**Table 1** Target organs and potential effects of beryllium exposure

Target organ	Effect
<b>Skin</b>	<ul style="list-style-type: none"> <li>• Inflammatory (oedematous papulovesicular) dermatitis</li> <li>• Irritation</li> <li>• Sensitisation</li> </ul>
<b>Respiratory tract</b>	<ul style="list-style-type: none"> <li>• Irritation of the nose, throat and respiratory system</li> <li>• Fibrosis</li> <li>• Pulmonary oedema</li> <li>• Chemical wall pneumonitis</li> <li>• Chronic beryllium disease (CBD)</li> <li>• Sensitisation</li> </ul>
<b>Eyes</b>	<ul style="list-style-type: none"> <li>• Irritation</li> </ul>

### 6. Acute effects

Acute beryllium disease sets in during or soon after exposure and usually resolves after removal from exposure. Symptoms include:

- irritation of the nose and throat
- cough
- shortness of breath
- inflammation of the airways

- pulmonary oedema, or
- pneumonitis.

## 7. Chronic effects

The most common adverse health effects associated with overexposure to beryllium in the workplace include beryllium sensitisation, chronic beryllium disease (CBD) and lung cancer.

### Beryllium sensitisation

Beryllium sensitisation is the activation of the immune system following beryllium exposure. Sensitised individuals can go on to develop CBD, which is a debilitating and potentially fatal lung disease characterised by lesions in the lungs known as granulomas. Beryllium sensitisation can result from inhalation or skin exposure to beryllium and is an essential step for development of CBD. Between one and 10 per cent of workers who work with beryllium may become sensitised. Of those workers who become sensitised, at least 10 per cent may later develop CBD.

### Chronic beryllium disease (CBD)

The common symptoms of CBD are:

- shortness of breath
- dry cough
- wheezing
- fatigue
- cor pulmonale (right ventricular hypertrophy)
- joint pain
- weight loss and anorexia
- fever, or
- night sweats.

CBD is a progressive disease but the rate of progression varies between individuals. Some workers develop signs and severe symptoms immediately after initial exposure to beryllium. Others may not experience signs and symptoms until months or years after initial exposure. Also, it is important to note that the symptoms can sometimes worsen even after the worker has been removed from exposure. CBD can progress to a chronic obstructive lung disorder.

Although the granulomas of CBD are typically found in the lungs, they may also occur in the skin, liver, spleen, kidney, bone, nervous system, skeletal muscles, lymph glands and the wall of the heart. It can be fatal in 10 per cent of cases.

### Skin

Skin exposure can result in delayed hypersensitivity reactions, including contact dermatitis and subcutaneous nodules.

## 8. Carcinogenicity

Most beryllium compounds have been classified as Category 1B carcinogens under the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) as they are presumed to cause cancer in humans. An increased risk of lung cancer has been observed in workers exposed to beryllium or beryllium compounds.

For further information on specific beryllium compounds, refer to Safe Work Australia's Hazardous Chemical Information system or the relevant safety data sheet.



## 9. GHS classification

Different beryllium compounds may have different health hazard classifications. The specific beryllium compound to which a worker is exposed will need to be reviewed to ensure appropriate identification of the health hazards. The relevant classification can be located on the safety data sheet of the product the worker is using.

### Source documents

Canadian Centre for Occupational Health and Safety (2014); Beryllium – Health Effects; <https://www.ccohs.ca/oshanswers/diseases/beryllium.html>.

Centers for Disease Control and Prevention; National Biomonitoring Program; Biomonitoring summary; Beryllium;

[https://www.cdc.gov/biomonitoring/Beryllium\\_BiomonitoringSummary.html](https://www.cdc.gov/biomonitoring/Beryllium_BiomonitoringSummary.html).

[\*Chemical analysis branch handbook, 9th Edition, Workplace and biological monitoring exposure analysis\*](#), WorkCover NSW (PDF 3.39MB).

DFG (2015) List of MAK and BAT Values.

EU Scientific Committee on Occupational Exposure Limits (SCOEL). Recommendation from the scientific committee on occupational exposure limits for beryllium and inorganic beryllium compounds. SCOEL/REC/175.

Health and Safety Executive (2011); [\*Beryllium; A review of the health effects and the evidence for screening or surveillance in workers exposed to beryllium\*](#); (PDF 1MB).

Lauwerys, R.R. and Hoet, P. (2001) *Industrial Chemical Exposure Guidelines for Biological Monitoring*, 3rd Ed, Lewis Publishers, Boca Raton.

National Industrial Chemicals Notification and Assessment Scheme, Inventory Multi-Tiered Assessment and Prioritisation (IMAP) [Human Health Tier II Assessment for Beryllium Metal and Beryllium Oxide](#).

Occupational Safety and Health Administration; Health and Safety Topics; Beryllium; United States Department of Labor; <https://www.osha.gov/SLTC/beryllium/>.

Safe Work Australia (2013); [Workplace Exposure Standards for Airborne Contaminants](#) (PDF 873KB).

Safe Work Australia; [Hazardous Chemicals Information System](#).

United States Department of Labor, Occupational Safety and Health Administration; Health and Safety Topics; Beryllium – Health effects; <https://www.osha.gov/SLTC/beryllium/healtheffects.html>.

US Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (2002) [Toxicological profile for beryllium](#). (PDF 1.99MB).



# Health monitoring report

*Beryllium*

This form contains confidential information and must not be disclosed to another person except in accordance with the Work Health and Safety Regulations or with consent of the worker

## Health monitoring report – Beryllium

This health monitoring report is a confidential health record and must not be disclosed to another person except in accordance with the Work Health and Safety Regulations or with the consent of the worker.

There are two sections. Complete both sections and all questions as applicable.

**Section 1** A copy of this section should be forwarded to the person conducting the business or undertaking (PCBU) who has engaged your services.

**Section 2** may contain confidential health information. Information that is required to be given to the PCBU should be summarised in Section 1.

### Section 1 – A copy of this section to be provided to the PCBU

#### Person conducting a business or undertaking

**Company/organisation name:** Click here to enter text.

**Site address:** Click here to enter text.

**Suburb:** Click here to enter text.

**Postcode:** Click here to enter text.

**Site Tel:** Click here to enter text.

**Site Fax:** Click here to enter text.

**Contact Name:** Click here to enter text.

**Other businesses or undertakings engaging the worker**  
(include a separate section for each PCBU)

N/A

**Company/organisation name:** Click here to enter text.

**Site address:** Click here to enter text.

**Suburb:** Click here to enter text.

**Postcode:** Click here to enter text.

**Site Tel:** Click here to enter text.

**Site Fax:** Click here to enter text.

**Contact Name:** Click here to enter text.

#### Worker details (tick all relevant boxes)

**Surname:** Click here to enter text.

**Given names:** Click here to enter text.

**Date of birth:** Click here to enter a date.

**Sex:**  Male  Female

**Address:** Click here to enter text.

**Suburb:** Click here to enter text.

**Postcode:** Click here to enter text.

**Current job:** Click here to enter text.

**Tel (H):** Click here to enter text.

**Mob:** Click here to enter text.

**Date started employment:** Click here to enter a date.

**Employment in beryllium risk work** (tick all relevant boxes)  
(information provided by the PCBU)

New to beryllium work

This form contains confidential information and must not be disclosed to another person except in accordance with the Work Health and Safety Regulations or with consent of the worker

- New worker but not new to beryllium work
- Current worker continuing in beryllium work

**Worked with beryllium since:** [Click here to enter a date.](#)

**Risk assessment completed:**  Yes  No

**Work environment assessment** (tick all relevant boxes)  
(information provided by the PCBU)

**Date of assessment:** [Click here to enter a date.](#)

**Beryllium industry**

- Extraction of beryllium (smelting and refining)
- Cadmium manufacture/ extraction
- Welding
- Dental labs
- Electroplating
- Abrasive blasters (slag)
- Electronics industry
- Other (specify): [Click here to enter text.](#)

**Other chemicals the worker may be exposed to:** [Click here to enter text.](#)

**Controls**

Wear gloves	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Respirator use	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Respirator type	<a href="#">Click here to enter text.</a>	
Local exhaust ventilation	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Overalls/work clothing	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Laundering by employer	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Wash basins and showers (with hot and cold water)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Other please specify		

**Health monitoring results**

**Biological monitoring results**

Include/attach test results that indicate whether or not the worker has been exposed

Date	Tests performed	Recommended action or comment
<a href="#">Click here to enter text.</a>	<a href="#">Click here to enter text.</a>	<a href="#">Click here to enter text.</a>
<a href="#">Click here to enter text.</a>	<a href="#">Click here to enter text.</a>	<a href="#">Click here to enter text.</a>
<a href="#">Click here to enter text.</a>	<a href="#">Click here to enter text.</a>	<a href="#">Click here to enter text.</a>
<a href="#">Click here to enter text.</a>	<a href="#">Click here to enter text.</a>	<a href="#">Click here to enter text.</a>

**Comments about health monitoring results (for example any early indications or diagnosis of injury, illness or disease):** [Click here to enter text.](#)

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### Recommendations (by registered medical practitioner) (tick all relevant boxes)

#### Further/additional health monitoring for worker

- This is the final health monitoring report
- Repeat health assessment in [Click here to enter text.](#) month(s) / [Click here to enter text.](#) week(s)
- Counselling required
- Medical examination by registered medical practitioner. On [Click here to enter a date.](#)
- Referred to Medical Specialist (respiratory/dermatology/other). On [Click here to enter a date.](#)

#### Recommendations to PCBU

- The worker is suitable for work with beryllium
- Review workplace controls
- The worker should be removed from work with beryllium. On [Click here to enter a date.](#)
- The worker is fit to resume work. On [Click here to enter a date.](#)
- Biological monitoring results indicate unacceptably high exposure levels

**Specialist's name:** [Click here to enter text.](#)

**Additional comments or recommendations:** [Click here to enter text.](#)

### Registered medical practitioner (responsible for supervising health monitoring)

**Name:** [Click here to enter text.](#)

**Signature:**

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**Date:** [Click here to enter a date.](#)

**Tel:** [Click here to enter text.](#)

**Fax:** [Click here to enter text.](#)

**Registration Number:** [Click here to enter text.](#)

**Medical Practice:** [Click here to enter text.](#)

**Address:** [Click here to enter text.](#)

**Suburb:** [Click here to enter text.](#)

**Postcode:** [Click here to enter text.](#)

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## Section 2 – This section to be retained by the registered medical practitioner

### Person conducting a business or undertaking

**Company/organisation name:** Click here to enter text.

**Site address:** Click here to enter text.

**Suburb:** Click here to enter text.

**Postcode:** Click here to enter text.

**Site Tel:** Click here to enter text.

**Site Fax:** Click here to enter text.

**Contact Name:** Click here to enter text.

### Other businesses or undertakings engaging the worker

N/A

**Company/organisation name:** Click here to enter text.

**Site address:** Click here to enter text.

**Suburb:** Click here to enter text.

**Postcode:** Click here to enter text.

**Site Tel:** Click here to enter text.

**Site Fax:** Click here to enter text.

**Contact Name:** Click here to enter text.

### Worker details (tick all relevant boxes)

**Surname:** Click here to enter text.

**Given names:** Click here to enter text.

**Date of birth:** Click here to enter a date.

**Sex:**  Male  Female  Pregnant/breastfeeding

**Address:** Click here to enter text.

**Suburb:** Click here to enter text.

**Postcode:** Click here to enter text.

**Current job:** Click here to enter text.

**Tel (H):** Click here to enter text.

**Mob:** Click here to enter text.

**Date started employment:** Click here to enter a date.

### Past employment and exposure details (tick all relevant boxes)

#### Have you ever worked in any of the following jobs?

If you answered 'yes' to any of the questions, please advise if you experienced any symptoms such as cough or wheeze or asthma when working.

			Comments (all 'yes' answers)
Extraction of beryllium (smelting and refining)	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Electroplating industry	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Abrasive blasting (slag)	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Welding or metal fabrication	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Electronics industry	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.

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### Comments (all 'yes' answers)

Ceramic manufacturing	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Use of 'Jason gun' (RAN)	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Nuclear industry	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Aerospace industry	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Other (please specify)	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.

### General health questionnaire (tick all relevant boxes)

### Comments (all 'yes' answers)

Did you suffer any incapacity lasting two weeks or longer in the last two years	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Have you ever had any operations or accidents or been hospitalised for any reason	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Are you currently being treated by a doctor or other health professional for any illness or injury	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Are you currently receiving any medical treatment or taking any medications. Please detail.	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Do you practice personal hygiene at work, for example nail biting, frequency of hand washing, eating or smoking, clean shaven, shower and change into clean clothes at end of shift	<input type="checkbox"/> No	<input type="checkbox"/> Yes	

### Specific health questions (tick all relevant boxes)

Do you have or have you ever had:			Comments (all 'yes' answers)
Blurred vision or other vision problems	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Itchy eyes, runny or congested nose	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Shortness of breath on exertion	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Wheezing, bronchitis or asthma now or in the past	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Any other lung or respiratory conditions (emphysema, pneumonia or sinusitis)	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Allergies, hay fever or allergic bronchitis	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.

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Do you have or have you ever had:			Comments (all 'yes' answers)
Does anyone in your immediate family (blood relatives only) have asthma, hay fever or eczema	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Abnormal breathing sounds at night, snoring or choking in your sleep or sleep apnoea	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Breathing problems, nasal blockage, nose bleeds or lump in nose	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Liver disease (including alcohol related or other hepatitis)	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Vomiting or passing blood	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Chronic fatigue or tiredness	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Significant weight loss	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Skin disorders or dermatitis	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Any form of cancer	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Any other significant health conditions	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.

### Respiratory questionnaire (tick all relevant boxes)

	Yes	No	Details
<b>Cough and phlegm</b>			
1	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
2	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
<b>If no go to Q9</b>			
3	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
4	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
5	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
<b>If no go to Q9</b>			
6	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.



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		Yes	No	Details
7	In the past three years have you had a period of increased cough and phlegm lasting for three weeks or more	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
8	If Yes, have you had more than one such period	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
<b>Breathlessness</b>				
9	Do you get short of breath when hurrying on level ground or walking up a slight hill	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
<b>If no go to Q13</b>				
10	Do you get short of breath walking with other people of your own age on level ground	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
11	Do you have to stop for breath when walking at your own pace on level ground	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
12	Have you at any time in the last 12 months been woken at night by an attack of shortness of breath	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
<b>Wheezing and chest tightness</b>				
13	Have you had attacks of wheezing or whistling in your chest at any time in the last 12 months	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
14	Have you ever had attacks of shortness of breath with wheezing	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
15	If Yes, was your breathing absolutely normal between attacks	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
<b>Smoking</b>				
16	Do you or did you smoke more than one cigarette/day; a cigar/week; two oz. pipe tobacco/month)	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
<b>If no proceed to <i>General health assessment</i></b>				
17	Do (did) you inhale smoke	<input type="checkbox"/>	<input type="checkbox"/>	If yes, indicate: <input type="checkbox"/> Slightly <input type="checkbox"/> Moderately <input type="checkbox"/> Deeply
18	How old were you when you started smoking regularly			Click here to enter text.
19	Do (did) you smoke manufactured cigarettes	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

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	Yes	No	Details
<b>If no go to Q24</b>			
20			How many cigarettes do (did) you smoke per day on weekdays Click here to enter text.
21			How many per day on weekends Click here to enter text.
22			Do (did) you smoke plain or filtered cigarettes Click here to enter text.
23			What brands do (did) you usually smoke Click here to enter text.
24	<input type="checkbox"/>	<input type="checkbox"/>	Do (did) you smoke hand rolled cigarettes Click here to enter text.
<b>If no go to Q27</b>			
25			How much tobacco do (did) you usually smoke per week in this way Click here to enter text.
26	<input type="checkbox"/>	<input type="checkbox"/>	Do (did) you put filters in these cigarettes
27	<input type="checkbox"/>	<input type="checkbox"/>	Do (did) you smoke a pipe
<b>If no go to Q29</b>			
28			How much tobacco do (did) you usually smoke per week in this way Click here to enter text.
29	<input type="checkbox"/>	<input type="checkbox"/>	Do (did) you smoke cigars
<b>If no go to Q31</b>			
30			How many of these do (did) you usually smoke per week in this way Click here to enter text.
31	<input type="checkbox"/>	<input type="checkbox"/>	If you are a present smoker have you been cutting down in the past year
32			If you are a past smoker when did you give up smoking altogether Click here to enter text.

**Registered medical practitioner to provide comments for any 'Yes' responses: (reference Question number):**

Click here to enter text.

### General health assessment (if applicable)

**Height:** Click here to enter text. cm

**Weight:** Click here to enter text. kg

**BP:** Click here to enter text. / Click here to enter text. mmHg

#### Urinalysis

**Blood:**  Normal  Abnormal

**Protein:** Click here to enter text.

**Referred for further testing**

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**Sugar:** Click here to enter text.

No  Yes

<b>Cardiovascular system</b>			<b>Medical comments</b> (for all yes/abnormal)
Blood pressure	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	Click here to enter text.
Heart rate	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	Click here to enter text.
Heart sounds	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal	Click here to enter text.
Murmurs present	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Evidence of cardiac failure/oedema	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
<b>Respiratory system</b>			
Breathing normal and regular in character	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Click here to enter text.
Auscultation normal	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Click here to enter text.
Signs of past/present respiratory disease	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.

### Spirometry

At least three technically acceptable manoeuvres should be obtained with the highest and second highest FEV<sub>1</sub> and FVC within 0.15 L (within 0.100 L for those with an FVC of equal to or less than 1.0 L)<sup>2</sup>. Use best result for FEV<sub>1</sub> and FVC, even if from different tests.

	<b>Actual</b>	<b>Predicted</b>	<b>% Predicted</b>	
<b>FEV<sub>1</sub></b>	Click here to enter text. L/min	Click here to enter text. L/min	Click here to enter text. %	Click here to enter text.
<b>FVC</b>	Click here to enter text. L/min	Click here to enter text. L/min	Click here to enter text. %	Click here to enter text.
<b>FEV<sub>1</sub>/FVC</b>	Click here to enter text. L/min	Click here to enter text. L/min	Click here to enter text. %	Click here to enter text.
		<b>Yes</b>	<b>No</b>	
Spirometry quality acceptable?	<input type="checkbox"/>	<input type="checkbox"/>		Click here to enter text.
Spirometry normal?	<input type="checkbox"/>	<input type="checkbox"/>		Click here to enter text.

### Chest X-ray (if required)

All chest X-rays undertaken by a specialist radiology clinic and must be read by registered medical radiation practitioner (radiologist).

**Date of X-ray:** Click here to enter text.

**Meets quality criteria?**  Yes  No

**X-ray reported as:** Click here to enter text. **ILO Classification:** Click here to enter text.

<b>Skin</b>			<b>Medical comments</b> (for all abnormal)
Eczema, dermatitis or allergy	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Skin cancer or other abnormality	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.

<sup>2</sup> Miller MR, Hankinson J, et al, 'Standardisation of spirometry', Series 'ATS/ERS Task Force: Standardisation of Lung Function Testing', Brusasco V, Crapo R, Viegi G (eds), Number 2 in this series, Eur Respir J, vol. 26, pp 319-338, 2005. <http://www.thoracic.org/statements/resources/pfet/PFT2.pdf>.

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Skin			Medical comments (for all abnormal)
Evidence of nail biting	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Other	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.

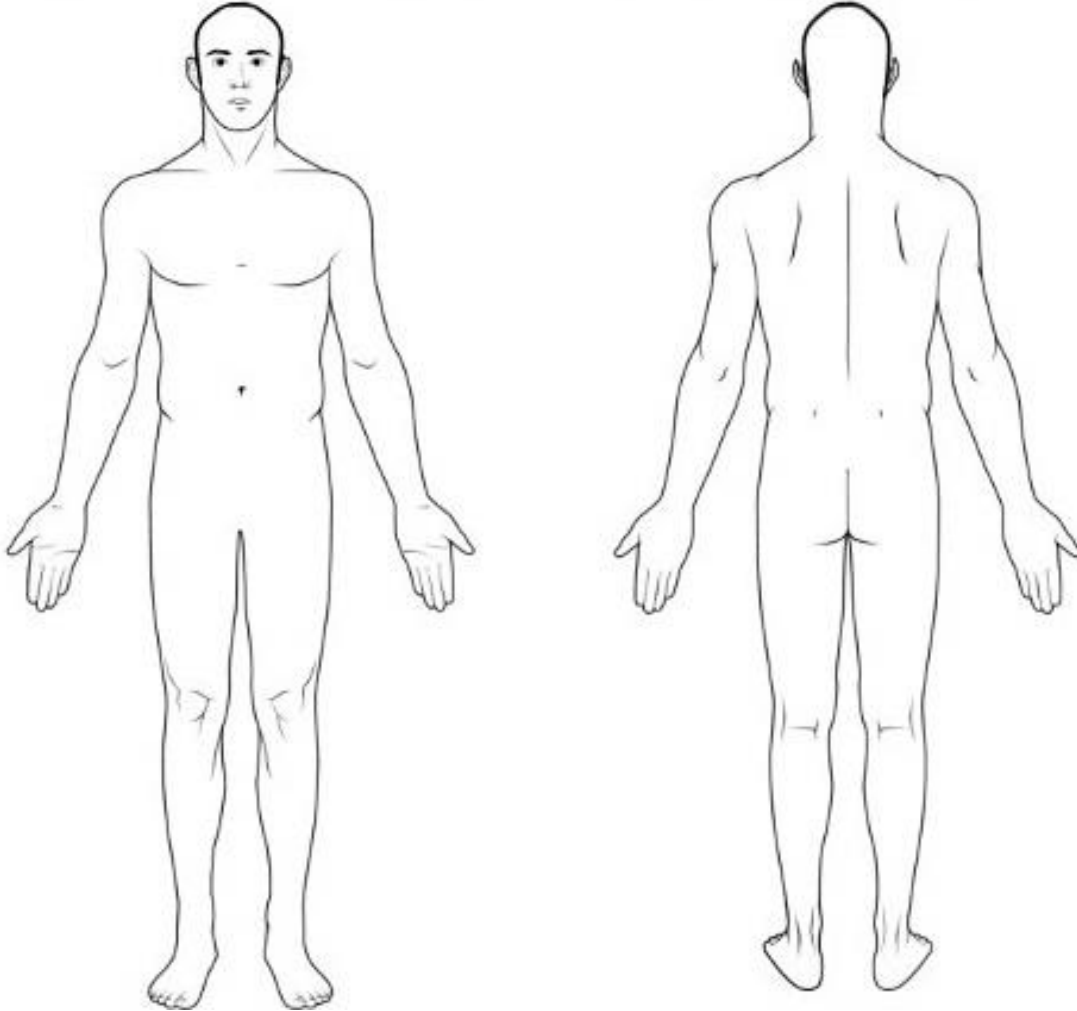


Figure 1 Template of the human body to indicate the location of abnormalities

### Biological monitoring results

Include/attach at least the previous two test results (if available)

Date	Tests performed	Recommended action or comment
Click here to enter a date.	Click here to enter text.	Click here to enter text.
Click here to enter a date.	Click here to enter text.	Click here to enter text.
Click here to enter a date.	Click here to enter text.	Click here to enter text.
Click here to enter a date.	Click here to enter text.	Click here to enter text.

### Other medical history, family medical history, current medication, comments, tests or recommendations (use separate sheet if necessary)

Click here to enter text.

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**Registered medical practitioner** (responsible for supervising health monitoring)

**Name:** Click here to enter text.

**Signature:**

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**Date:** Click here to enter a date.

**Tel:** Click here to enter text.

**Fax:** Click here to enter text.

**Registration Number:** Click here to enter text.

**Medical Practice:** Click here to enter text.

**Address:** Click here to enter text.

**Suburb:** Click here to enter text.

**Postcode:** Click here to enter text.