

Health monitoring

Guide for cobalt



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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.

Cobalt

Cobalt (CAS 7440-48-4; Co) is a grey metal that exists in a number of oxidation states, including divalent (Co[II]) and trivalent (Co[III]) oxidation states.

Cobalt is also a component of Vitamin B₁₂.

Work activities that may represent a high risk exposure

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

Examples of work activities involving cobalt and its compounds that may require special attention include:

- electroplating
- refining or processing alloys
- in nickel-metal hydride batteries, and
- as a colorant in glazes for arts and crafts including glass, ceramics and paints.

Sources of non-occupational exposure

Cobalt is found in soil, water, plants and animals.

Most non-work related exposure to cobalt is largely from food including green leafy vegetables and grains.

It is a required trace element for blood formation.

1. Health monitoring for cobalt under the WHS Regulations

Collection of demographic, medical and occupational history

Physical examination with emphasis on the respiratory system and skin

Urinary cobalt level

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

In this guide, 'cobalt' is used to refer to cobalt and its compounds.

Health monitoring before starting work in a cobalt process

Health monitoring for cobalt 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 cobalt
- 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 and skin if work and medical history indicates this is necessary, for example through the presence of symptoms.

Cobalt compounds may be skin or respiratory sensitisers and previous work history with the chemical and symptoms of sensitisation should be investigated. It may be considered useful to carry out spirometry testing and skin examination to establish baseline values even without the presence of symptoms.

During exposure to a cobalt process

2. Monitoring for exposure to cobalt

Where workers are exposed, suspected of being exposed or are concerned about exposure to cobalt, 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 cobalt resulting in excessive exposure to workers or when workers develop symptoms of cobalt exposure.

Cobalt is present in workplace air samples as a dust, fume or mist. Deposition of particles in the respiratory tract is dependent on particle size and the physiology of the exposed individual. Soluble cobalt compounds absorb faster than the less soluble compounds. Cobalt particles slowly enter the systemic circulation from the lungs through dissolution or mechanical transfer to the gastrointestinal tract by mucociliary action and swallowing. The half-life of cobalt in the lungs increases with time due to the binding of cobalt to cellular components in the pulmonary tissues.

Following inhalation, cobalt is eliminated through both the faecal and urinary routes.

The following test should be used to assess the worker's level of exposure to cobalt:

- end of shift urinary cobalt level.

Where urinalysis is carried out, the following value should be considered when assessing exposure to cobalt:

Biological exposure standard for cobalt¹

Urinary cobalt:

29 µmol/mol creatinine (15 µg/L)

Urine should be collected at the end of shift, preferably at the end of the working week. Care should be taken during sample collection to avoid contamination from air and exposed skin and clothing.

The urinary concentration of cobalt increases during the work day and excretion is not complete by the start of the next working day. Therefore, the urine concentration is reflective of exposure over the previous several days.

The form of cobalt in the inhaled air (particle size, solubility) has an effect on the air/urine concentration relationship. Therefore, the type of cobalt compound the worker is exposed to should be noted. The biological exposure standard is applicable for all cobalt metal and inorganic compounds, including cobalt oxides², with the exception of cobalt combined with tungsten carbide or in other hard metals.

¹ See [Chemical analysis branch handbook, 9th Edition, Workplace and biological monitoring exposure analysis, WorkCover NSW \(PDF 3.39MB\)](#) for more details

² American Conference of Governmental Industrial Hygienists (ACGIH) (2017) *Documentation of the Threshold Limit Values and Biological Exposure Indices, Cobalt, 7th edition, Cincinnati.*

Cobalt with tungsten carbide has been associated with lung necrosis (hard metal lung disease) and an increase in mortality due to lung cancer. The biological exposure standard may not be protective for these adverse effects. Therefore, urinary concentrations of cobalt should be as low as possible and well below the biological exposure standard in workers exposed to cobalt with tungsten carbide (ideally approaching the background levels).

Urinary levels of cobalt in non-occupationally exposed individuals, noting that cobalt is an essential element, have been reported to be less than 3 µmol/mol creatinine (less than 1.1 µg/L using a creatinine concentration of 1.4 g/L). Levels are slightly higher in smokers but the difference in levels between smokers and non-smokers is insignificant when compared with the much higher levels in workers.

A physical examination should be carried out on an annual basis with emphasis on the respiratory system and skin.

Other health monitoring methods

Other biological tests that may be used (or have been used) to test worker exposure to cobalt include blood cobalt levels. Concentrations of cobalt in blood may indicate recent exposure and generally correlate well with air concentrations of cobalt. This method may be used in the event of acute exposures, such as accidental spills. No biological exposure guidance values have been published for this method, as the urinalysis test is generally preferred due to the ease of sample collection.

Workplace exposure standard

The workplace exposure standard for various cobalt compounds are:

Table 1 Workplace exposure standards for various cobalt compounds

Cobalt compound	Eight hour time weighted average (TWA; mg/m ³)
Cobalt carbonyl (as Co)	0.1
Cobalt hydrocarbonyl (as Co)	0.1
Cobalt, metal dust & fume (as Co)	0.05

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

NOTE: Cobalt compounds are readily absorbed through the skin and air monitoring results may not be a true indication of exposure.

Removal from work

Where a medical examination indicates the worker is displaying symptoms of exposure to cobalt 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 cobalt-related work.

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

- the worker should be removed from work with cobalt, 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 cobalt-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 cobalt-related work.

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

At termination of work in a cobalt process

3. Final medical examination

A urine sample should be collected on the last day of the worker's final shift, and a final medical examination should be carried out at the same time or as soon as possible thereafter. Emphasis should be placed on the skin and respiratory system and any other organs or systems that were indicated during the health monitoring program.

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

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 cobalt

4. Route of occupational exposure

The primary route of cobalt exposure is via inhalation.

5. Target organ/effect

The target organs and potential effects of cobalt include:

Table 2 Target organs and potential effects of cobalt exposure

Target organ	Effect
Heart	<ul style="list-style-type: none"> • Cardiomyopathy
Skin	<ul style="list-style-type: none"> • Irritation • Sensitisation • Allergic contact dermatitis
Respiratory system	<ul style="list-style-type: none"> • Dyspnoea • Wheezing • Coughing • Pneumonitis • Obstructive lung damage and 'hard metal lung disease'
Eyes	<ul style="list-style-type: none"> • Irritation

6. Acute effects

Acute oral exposure to cobalt can result in gastrointestinal effects and effects on the blood, liver and allergic dermatitis.

Acute effects of inhalational exposure to cobalt include respiratory effects such as:

- wheezing
- coughing
- decrease in lung function
- congestion, and
- haemorrhage of the lung.

7. Chronic effects

Chronic effects of exposure to cobalt include respiratory effects such as asthma, fibrosis and lung damage, and more rarely cardiac effects and congestion of the liver and kidneys.

The clinical presentation of hard metal lung disease is variable; some patients present with subacute alveolitis and others with chronic interstitial fibrosis. In this respect, hard metal lung disease is somewhat similar to hypersensitivity pneumonitis (extrinsic allergic alveolitis). Indeed, like hypersensitivity pneumonitis and chronic beryllium disease, hard metal lung disease differs from the common mineral pneumoconioses in that the occurrence of the disease is not clearly related to the cumulative dust burden, but is more probably due to individual susceptibility. Thus the term hard metal pneumoconiosis has tended to be abandoned in favour of 'hard metal lung disease'. The patient may experience work-related bouts of acute illness that may lead progressively to pronounced disease with more persistent shortness of breath. In other instances, the course of the disease is more insidious and the work-relatedness of the condition is not clearly apparent.

Most studies have found no relation between disease occurrence and length of occupational exposure; disease presentation appears to depend on individual susceptibilities. Subacute presentations may be found in young workers after only a few years exposure, but may also occur in older workers with very long careers. Chronic presentations are more likely in older subjects. The role of smoking in the susceptibility to hard metal disease has not been evaluated thoroughly.

8. Carcinogenicity

Most cobalt compounds have been classified as Category 1B carcinogens according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) as they are presumed to cause cancer in humans. For further information on specific cobalt compounds, refer to Safe Work Australia's Hazardous Chemical Information system or the relevant safety data sheet.

9. GHS classification

Different cobalt compounds may have different health hazard classifications. The specific cobalt compound to which a worker is exposed will need to be reviewed to ensure appropriate identification of the health hazards. For the GHS classification of a specific cobalt compound, refer to Safe Work Australia's Hazardous Chemical Information System or the relevant safety data sheet for detailed information.

Source documents

American Conference of Governmental Industrial Hygienists (ACGIH) (2017) Documentation of the Threshold Limit Values and Biological Exposure Indices, Cobalt, 7th edition, Cincinnati.

Balmes, J. R. (1987). Respiratory effects of hard-metal dust exposure. *Occupational medicine* (Philadelphia, Pa.) 2(2): 327-344.

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

Cugell, D.W., Morgan, W.K.C., Perkins, D.G. and Rubin, A. (1990). The respiratory effects of cobalt. *Archives of internal medicine*, 150(1), 177-183.

Cugell, D.W. (1992). The hard metal diseases. *Clinics in chest medicine* 13(2): 269-279.

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

National Institute of Environmental Health Sciences (2002) [Cobalt Dust \[7440-48-4\] Review of Toxicological Literature](#) (PDF 359KB).

Safe Work Australia, [GHS Hazardous Chemical Information List](#)

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

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

US Environmental Protection Agency (2000) [Cobalt compounds](#) (PDF 57KB).



Health monitoring report

Cobalt

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 – Cobalt

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.

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

Type of cobalt used (if known; please specify): [Click here to enter text.](#)

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

Worked with cobalt 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.](#)

Cobalt industry/use

- Electroplating
- Refining or processing alloys
- In nickel-metal hydride batteries
- Glazes for arts and crafts (colorant)
- 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	Click here to enter text.	
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
Click here to enter text.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.	Click here to enter text.

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

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 cobalt
- Review workplace controls
- The worker should be removed from work with cobalt. 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:

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.

Type of cobalt used (if known; please specify): Click here to enter text.

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)
At a smelter or refinery	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Electroplating	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Refining or processing alloys	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
In nickel-metal hydride batteries	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.

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			Comments (all 'yes' answers)
Glazes for arts and crafts (colorant)	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Manufacturing of chemicals, or pharmaceuticals	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Click here to enter text.
Exposed to metal fumes, gas, dust or solvent exposure	<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 currently smoke	<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)
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. 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.
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.
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.

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Do you have or have you ever had:**Comments** (all 'yes' answers)

Any other significant health conditions

 No Yes[Click here to enter text.](#)**Respiratory questionnaire** (tick all relevant boxes)

		Yes	No	Details
Cough and phlegm				
1	Do you usually cough first thing in the morning	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
2	Do you usually cough during the day or at night	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
If no go to Q9				
3	Do you cough like this on most days for as much as three months of the year	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
4	Do you usually bring up phlegm from your chest first thing in the morning	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
5	Do you usually bring up phlegm from your chest at any other time of the day or night	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
If no go to Q9				
6	Do you bring up phlegm like this on most days for as much as three months each year	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
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.
Breathlessness				
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.
If no go to Q13				
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.

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	Yes	No	Details
12	<input type="checkbox"/>	<input type="checkbox"/>	Have you at any time in the last 12 months been woken at night by an attack of shortness of breath Click here to enter text.
Wheezing and chest tightness			
13	<input type="checkbox"/>	<input type="checkbox"/>	Have you had attacks of wheezing or whistling in your chest at any time in the last 12 months Click here to enter text.
14	<input type="checkbox"/>	<input type="checkbox"/>	Have you ever had attacks of shortness of breath with wheezing Click here to enter text.
15	<input type="checkbox"/>	<input type="checkbox"/>	If Yes, was your breathing absolutely normal between attacks Click here to enter text.
Smoking			
16	<input type="checkbox"/>	<input type="checkbox"/>	Do you or did you smoke more than one cigarette/day; a cigar/week; two oz. pipe tobacco/month Click here to enter text.
If no proceed to <i>General health assessment</i>			
17	<input type="checkbox"/>	<input type="checkbox"/>	Do (did) you inhale smoke 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	<input type="checkbox"/>	<input type="checkbox"/>	Do (did) you smoke manufactured cigarettes Click here to enter text.
If no go to Q24			
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.
If no go to Q27			
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

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	Yes	No	Details
If no go to Q29			
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
If no go to Q31			
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

Sugar: Click here to enter text.

No Yes

			Medical comments (for all yes/abnormal)
Cardiovascular system			
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.
Respiratory system			
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.

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Spirometry

At least three technically acceptable manoeuvres should be obtained with the highest and second highest FEV₁ and FVC within 0.15 L (within 0.100 L for those with an FVC of equal to or less than 1.0 L)³. Use best result for FEV₁ and FVC, even if from different tests.

	Actual	Predicted	% Predicted	
FEV₁	Click here to enter text. L/min	Click here to enter text. L/min	Click here to enter text. %	Click here to enter text.
FVC	Click here to enter text. L/min	Click here to enter text. L/min	Click here to enter text. %	Click here to enter text.
FEV₁/FVC	Click here to enter text. L/min	Click here to enter text. L/min	Click here to enter text. %	Click here to enter text.
		Yes	No	
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.
Skin				
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.
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.

³ 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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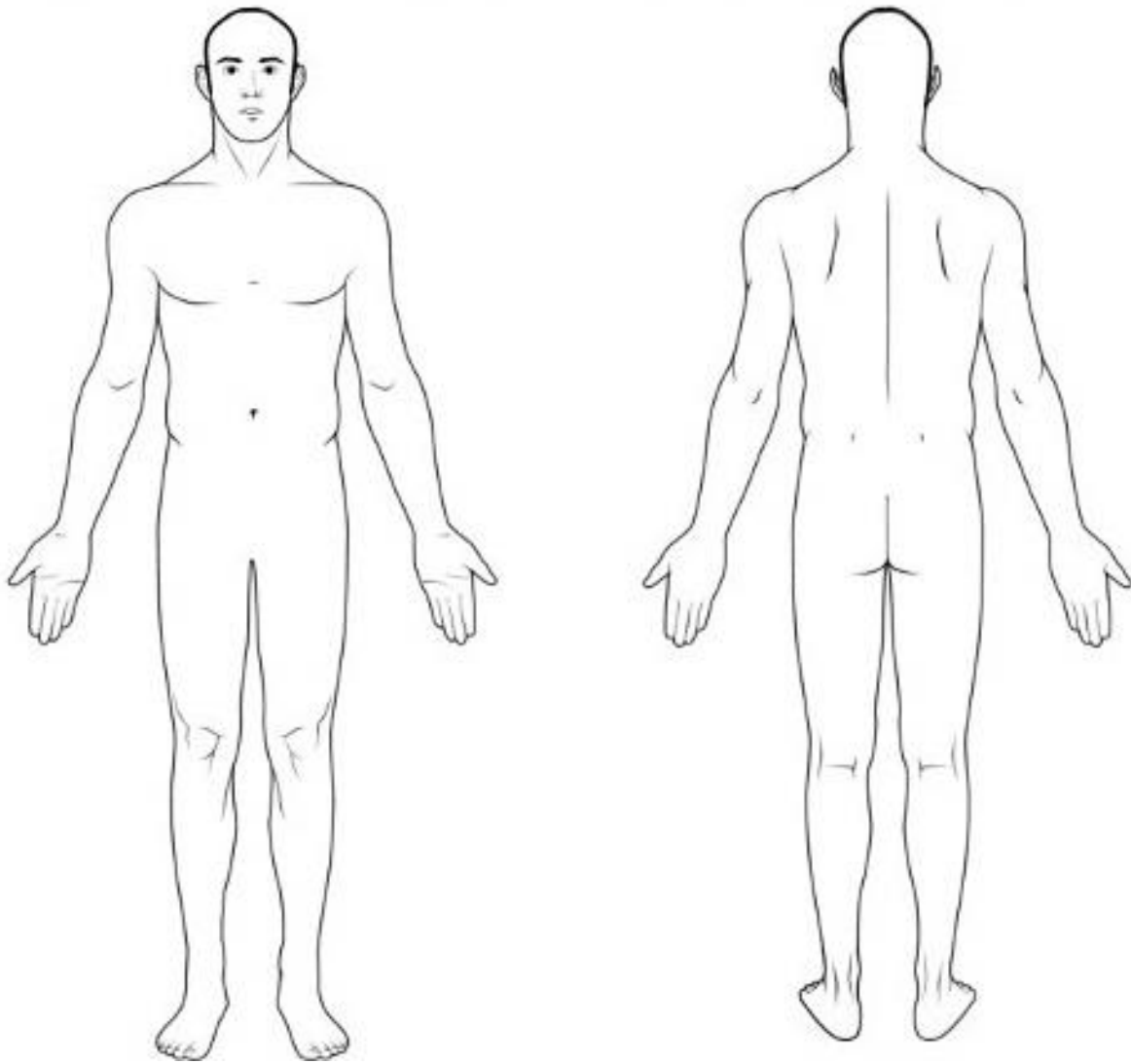


Figure 1 Template of the human body to indicate the location of abnormalities

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:

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.