safe work australia

Health monitoring

Guide for tetrachloroethylene

safe work australia

Contents

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.

Tetrachloroethylene

Tetrachloroethylene (CAS 127-18-4) is a colourless, volatile, non-flammable, chlorinated hydrocarbon. It is used as a solvent and chemical intermediate.

Tetrachloroethylene has an ether-like odour that may emit toxic fumes of phosgene when exposed to sunlight or flames.

Synonym: perchloroethylene.

Work activities that may represent a high risk exposure

Under the Work Health and Safety (WHS) Regulations, tetrachloroethylene is listed as a restricted hazardous chemical and must not be used for spray painting without authorisation from a relevant WHS regulator.

Common uses for tetrachloroethylene are in textile processing and cleaning, degreasing and dry cleaning.

The major uses of tetrachloroethylene are:

- as a solvent in dry cleaning
- as a degreasing agent in metal cleaning including railway cleaning
- for processing and finishing textiles
- manufacture and use for cleaning automotive products
- used to kill parasitic worms
- manufacture of fluorocarbons
- pesticides, mostly in grain fumigation
- as insulating fluid and cooling gas in electrical transformers
- paint, printing and adhesive manufacture and use
- coal industry
- petroleum refining, and
- carpet cleaning.

The transport and distribution industries may also pose an exposure risk.

Sources of non-occupational exposure

Tetrachloroethylene can be found as a contaminant in water and food. Non-occupational exposure can occur through:

- ambient air – when released evaporative losses during dry cleaning, during manufacture, from use in metal degreasing, in production of fluorocarbons and other chemicals, in the textile industry, and in miscellaneous solvent-associated applications
- drinking water – when due to improper disposal contaminating land and ground water sources especially around waste disposal and industrial sites, and
- fresh dry cleaning.

1. Health monitoring for tetrachloroethylene under the WHS Regulations

Collection of demographic, medical and occupational history

Physical examination with emphasis on the central nervous, respiratory and reproductive systems and skin

Tetrachloroethylene blood level prior to shift

Health monitoring before starting work in a tetrachloroethylene process

Health monitoring for tetrachloroethylene 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 tetrachloroethylene
- 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 by the registered medical practitioner should place emphasis on the central nervous system (CNS), respiratory system, reproductive system and skin if work and medical history indicates this is necessary.

Tetrachloroethylene is a respiratory irritant and it is important to investigate respiratory symptoms. However, spirometry may not be required at this stage.

If frequent or potentially high exposure (half of the eight hour time weighted average (TWA) or more) is suspected as part of on-going work, it is recommended to conduct liver and kidney function tests prior to commencing work and at regular intervals thereafter.

During exposure to a tetrachloroethylene process

2. Monitoring exposure to tetrachloroethylene

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

Absorption of tetrachloroethylene via inhalation is high (60-90 per cent) with uptake increased during exercise. Tetrachloroethylene may also be absorbed through the skin. Tetrachloroethylene is only slowly metabolised and accumulates in fatty tissue as the unchanged compound.

Regardless of the route of exposure, the main route of elimination of absorbed tetrachloroethylene is via exhalation as the unchanged compound (around 95 per cent). The major urinary metabolite is trichloroacetic acid, representing one to three per cent of the inhaled dose.

According to the WHS laws, blood levels of tetrachloroethylene should be used in a health monitoring program for this compound. At this stage, there is no agreed biological exposure standard for tetrachloroethylene in blood; however, the following biological exposure limits have been established by reputable international agencies:

Biological exposure guide for tetrachloroethylene:

Blood tetrachloroethylene:

0.4-0.5 mg/L

This may be used as a guide in a health monitoring program for tetrachloroethylene.

Given the toxicokinetics of tetrachloroethylene, in particular the compartmentalisation of tetrachloroethylene in adipose tissue, a sampling time prior to a workshift, after preceding shifts, has been recommended.

Tetrachloroethylene blood concentrations of persons not occupationally exposed range below 1 ppb (0.001 mg/L).

Other health monitoring methods

Other tests that may be used to test the worker's tetrachloroethylene exposure levels:

- exhaled air levels of tetrachloroethylene, or
- urinary trichloroacetic acid.

Given the nature of the metabolism and elimination of tetrachloroethylene, tetrachloroethylene concentrations in exhaled air and blood are less variable than urinary concentrations of the metabolite, trichloroacetic acid. Furthermore, trichloroacetic acid is a metabolite of other chlorinated solvents, such as trichloroethylene and 1,1,1-trichloroethane. Therefore, measurement of urinary trichloroacetic acid levels is less specific and more variable than exhaled air or blood tetrachloroethylene levels as a measure of tetrachloroethylene exposure.

If urinalysis is performed, the following values may be used as a guide for assessing exposure to tetrachloroethylene:

Urinary trichloroacetic acid[1]*:*

0.02 mmol/L (3.5 mg/L)

Urine samples should be collected at the end of the work week.

If exhaled air concentrations are measured, the following value may be used as a guide for assessing exposure to tetrachloroethylene:

Exhaled air tetrachloroethylene concentration[2]*:*

3 ppm

Expired breath samples should be taken pre-shift, next day (16 hours after end of shift; for similar reasons to those regarding blood sampling) in an uncontaminated or 'clean' area.

Workplace exposure standard

The work place exposure standard for tetrachloroethylene is:

- TWA of 50 ppm (340 mg/m^3), and
- short term (15 minute time weighted average) exposure limit (STEL) of 150 ppm (1020 mg/m^3).

A physical examination and blood 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 tetrachloroethylene or where results of biological monitoring indicate exposure that may

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[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 Biological Exposure Indices, 7th Ed, Cincinnati.*

cause adverse health effects, the registered medical practitioner should consider recommending the worker be removed from tetrachloroethylene-related work.

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

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

This assessment should take into consideration the clinical condition of the worker, the resolution of symptoms and remediation of the circumstances that led to the symptoms if possible.

At termination of work in a tetrachloroethylene process

3. Final medical examination

A collection of a specimen of blood for tetrachloroethylene levels should be collected on the last shift on the last day of work and a final medical examination carried out by the registered medical practitioner as soon as practicable thereafter.

Workers with health conditions or continuing symptoms due to tetrachloroethylene 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 use of tetrachloroethylene

4. Route of occupational exposure

The primary routes of occupational exposure are via inhalation and skin contact.

Accidental ingestion may be possible, especially when eating or smoking with contaminated hands.

Tetrachloroethylene is readily absorbed following inhalation and oral exposure.

5. Target organ/effect

The target organs and potential effects of tetrachloroethylene exposure include:

Table 1 Target organs and potential effects of tetrachloroethylene exposure

Target organ	Effect
Central nervous system	• CNS depression, fatigue, dizziness, headache, light-headedness • Sedation • Coma • Death
Liver	• Hepatic damage with jaundice
Skin	• Severe irritation • Dry skin • Redness • Burning sensation
Kidneys	• Glomerular or tubular dysfunction
Respiratory tract	• Irritation
Eyes	• Irritation • Burning sensation

6. Acute effects

CNS

CNS symptoms from exposure to tetrachloroethylene may include:

- light-headedness
- fatigue
- headache
- irritability
- vertigo
- dizziness
- loss of coordination
- mild elation
- exhilaration
- difficulty speaking
- impaired concentration
- reversible mood and behavioural changes

- hallucinations
- severe psychosis
- agitation
- ataxia
- drowsiness
- loss of consciousness
- seizures, or
- coma.

Respiratory system

Respiratory symptoms from tetrachloroethylene exposure may include:

- upper respiratory tract irritation
- cough
- chest tightness
- asthma
- hypersensitivity pneumonitis, and
- pulmonary oedema.

Skin

Dermal contact with tetrachloroethylene may cause:

- irritation
- skin erythema, and
- blistering.

Eyes

Ocular symptoms of tetrachloroethylene exposure may include:

- irritation
- burning sensations
- impairment in visual functions including colour discrimination and contrast sensitivity, and
- alterations in visual contrast sensitivity.

Gastrointestinal

Symptoms from ingestion of tetrachloroethylene may include:

- gastric irritation
- nausea, andr
- vomiting.

7. Chronic effects

The major effects from chronic inhalation exposure are CNS effects. This may lead to:

- memory and concentration impairment
- vision disturbances
- dizziness
- irritability
- unsteady gait
- sleep disturbances, andr
- peripheral neuropathy.

Chronic skin exposure may lead to irritation and contact dermatitis.

Chronic exposure may also cause:

- liver and kidney abnormalities, and
- disturbances of the reproductive system including:
    - menstrual disorders
    - spontaneous abortions
    - sperm abnormalities, and
    - decreased fertility.

Liver abnormalities may include:

- jaundice
- abnormal liver function, and
- hepatocellular damage.

Chronic exposure may result in abnormal renal function, such as glomerular dysfunction, tubular dysfunction or acute renal failure.

8. Carcinogenicity

Tetrachloroethylene has been classified as a Category 2 carcinogen according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) as it is suspected of causing cancer in humans.

9. GHS classification

The following GHS health hazard classification for tetrachloroethylene has been taken from Safe Work Australia's Hazardous Chemicals Information System:

Hazard category

Carcinogenicity – category 2

Source documents

Agency for Toxic Substances and Disease Registry; Toxic Substances Portal; Tetrachloroethylene (PERC).

American Conference of Governmental Industrial Hygienists (ACGIH) (2017) Documentation of the Biological Exposure Indices, 7th Ed, Cincinnati.

Brodkin, C.A., Daniell, W., Checkoway, H., Echeverria, D., Johnson, J., Wang, K., Sohaey, R., Green, D., Redlich, C., Gretch, D. and Rosenstock, L. (1995) Hepatic ultrasonic changes in workers exposed to per-chloroethylene. *Occ. Environ. Med.* 52: 679-685.

Carpenter, C.P. (1937): The chronic toxicity of tetrachloroethylene. *J. Ind. Hyg.Toxicol.* 19: 323-336.

Centers for Disease Control and Prevention; The National Institute for Occupational Safety and Health; Tetrachloroethylene.

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

Dekant, W., Haug, R. and Henschler, D. (1985) Absorption, elimination and metabolism of tetrachloroethylene. *Nauyn-Schmiedeberg's Arch. Pharmacol*. 329:R24.

Health and Safety Executive; Guidance; Tetrachloroethylene: health effects, incident management and toxicology.

IARC (1995) *Dry cleaning, some chlorinated solvents and other industrial compounds*. Lyon, International Agency for Research on Cancer (IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 63).

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

Mundt, K.A., Birk, T. and Burch, M.T. (2003) Critical review of the epidemiological literature on occupational exposure to perchloroethylene and cancer. *Int. Arch. Occ. Environ. Health* 76: 473-491.

National Industrial Chemicals Notification and Assessment Scheme; Priority Existing Chemical 15; Tetrachloroethylene.

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

Safe Work Australia; *Hazardous Chemicals Information System*.

US Department of Labor, Occupational Safety and Health Administration; Chemical Sampling Information; Tetrachloroethylene.

Scientific Committee on Occupational Exposure Limits (2009) Recommendation SCOEL/SUM/133; Tetrachloroethylene (perchloroethylene).

World Health Organization (2006); *Concise International Chemical Assessment Document 68; Tetrachloroethylene* (PDF 1.14MB).

Health monitoring report

Tetrachloroethylene

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 – Tetrachloroethylene

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 (WHS) 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 ☐ N/A
(include a separate section for each PCBU)

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 tetrachloroethylene risk work (tick all relevant boxes)
(information provided by the PCBU)

☐ New to tetrachloroethylene work

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☐ New worker but not new to tetrachloroethylene work

☐ Current worker continuing in tetrachloroethylene work

Worked with tetrachloroethylene 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.

Tetrachloroethylene industry/use

☐ Dry cleaning industry

☐ Automotive industry

☐ Pharmaceutical industry

☐ Fluorocarbon manufacturing industry

☐ Paint, printing and glue manufacturer

☐ Electrical industry

☐ Other (specify):

Other chemicals the worker may be exposed to: Click here to enter text.

Controls		
Eye protection	☐ Yes	☐ No
Wear gloves	☐ Yes	☐ No
Respirator use	☐ Yes	☐ No
Respirator type	Click here to enter text.	
Local exhaust ventilation	☐ Yes	☐ No
Overalls/work clothing	☐ Yes	☐ No
Laundering by employer	☐ Yes	☐ No
Emergency eye wash and showers (with hot and cold water)	☐ Yes	☐ 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.

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 tetrachloroethylene

☐ Review workplace controls

☐ The worker should be removed from work with tetrachloroethylene.
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.

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)
Dry cleaning	☐ No	☐ Yes	Click here to enter text.
Metal cleaning	☐ No	☐ Yes	Click here to enter text.
Processing and finishing textiles	☐ No	☐ Yes	Click here to enter text.
Manufacture and cleaning of automotive products	☐ No	☐ Yes	Click here to enter text.
Pharmaceuticals	☐ No	☐ Yes	Click here to enter text.

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			Comments (all 'yes' answers)
Manufacture of fluorocarbons	☐ No	☐ Yes	Click here to enter text.
Grain fumigation	☐ No	☐ Yes	Click here to enter text.
Electrical work	☐ No	☐ Yes	Click here to enter text.
Paint, printing and adhesive manufacture and use	☐ No	☐ Yes	Click here to enter text.
Coal preparation	☐ No	☐ Yes	Click here to enter text.
Petroleum refining	☐ No	☐ Yes	Click here to enter text.
Carpet cleaning	☐ No	☐ Yes	Click here to enter text.
Other (please specify)	☐ No	☐ 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	☐ No	☐ Yes	Click here to enter text.
Have you ever had any operations or accidents or been hospitalised for any reason	☐ No	☐ Yes	Click here to enter text.
Are you currently being treated by a doctor or other health professional for any illness or injury	☐ No	☐ Yes	Click here to enter text.
Are you currently receiving any medical treatment or taking any medications. Please detail.	☐ No	☐ Yes	Click here to enter text.
Are you pregnant or breast-feeding, or contemplating pregnancy	☐ No	☐ Yes	Click here to enter text.
Do you currently smoke	☐ No	☐ 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	☐ No	☐ 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	☐ No	☐ Yes	Click here to enter text.
Itchy eyes, runny or congested nose	☐ No	☐ Yes	Click here to enter text.

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Do you have or have you ever had:			**Comments** (all 'yes' answers)
Loss of hearing or ringing in the ears	☐ No	☐ Yes	Click here to enter text.
Wheezing, bronchitis or asthma now or in the past	☐ No	☐ Yes	Click here to enter text.
Any other lung or respiratory conditions (emphysema, pneumonia or sinusitis)	☐ No	☐ Yes	Click here to enter text.
Allergies, hay fever, or allergic bronchitis	☐ No	☐ Yes	Click here to enter text.
Liver disease (including alcohol related or other hepatitis)	☐ No	☐ Yes	Click here to enter text.
Kidney or bladder disease	☐ No	☐ Yes	Click here to enter text.
Fits, blackouts, dizziness or fainting	☐ No	☐ Yes	Click here to enter text.
Epilepsy	☐ No	☐ Yes	Click here to enter text.
Severe headaches or migraines	☐ No	☐ Yes	Click here to enter text.
Chronic fatigue or tiredness	☐ No	☐ Yes	Click here to enter text.
Any neurological condition affecting nerves in your feet or hands, your coordination or balance	☐ No	☐ Yes	Click here to enter text.
Skin disorders or dermatitis	☐ No	☐ Yes	Click here to enter text.
Any form of cancer	☐ No	☐ Yes	Click here to enter text.
Any other significant health conditions	☐ No	☐ Yes	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.

Sugar: Click here to enter text.

Referred for further testing

☐ No ☐ Yes

Cardiovascular system			**Medical comments** (for all yes/abnormal)
Blood pressure	☐ Normal	☐ Abnormal	Click here to enter text.
Heart rate	☐ Normal	☐ Abnormal	Click here to enter text.
Heart sounds	☐ Normal	☐ Abnormal	Click here to enter text.
Murmurs present	☐ No	☐ Yes	Click here to enter text.

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Cardiovascular system			**Medical comments** (for all yes/abnormal)
Evidence of cardiac failure/oedema	☐ No	☐ Yes	Click here to enter text.
Respiratory system			
Breathing normal and regular in character	☐ Yes	☐ No	Click here to enter text.
Auscultation normal	☐ Yes	☐ No	Click here to enter text.
Signs of past/present respiratory disease	☐ No	☐ Yes	Click here to enter text.
Nervous system			
Muscular tone, co-ordination	☐ Normal	☐ Abnormal	Click here to enter text.
Tremor	☐ No	☐ Yes	Click here to enter text.
Skin			
Eczema, dermatitis or allergy	☐ No	☐ Yes	Click here to enter text.
Skin cancer or other abnormality	☐ No	☐ Yes	Click here to enter text.
Evidence of nail biting	☐ No	☐ Yes	Click here to enter text.
Other	☐ No	☐ Yes	Click here to enter text.

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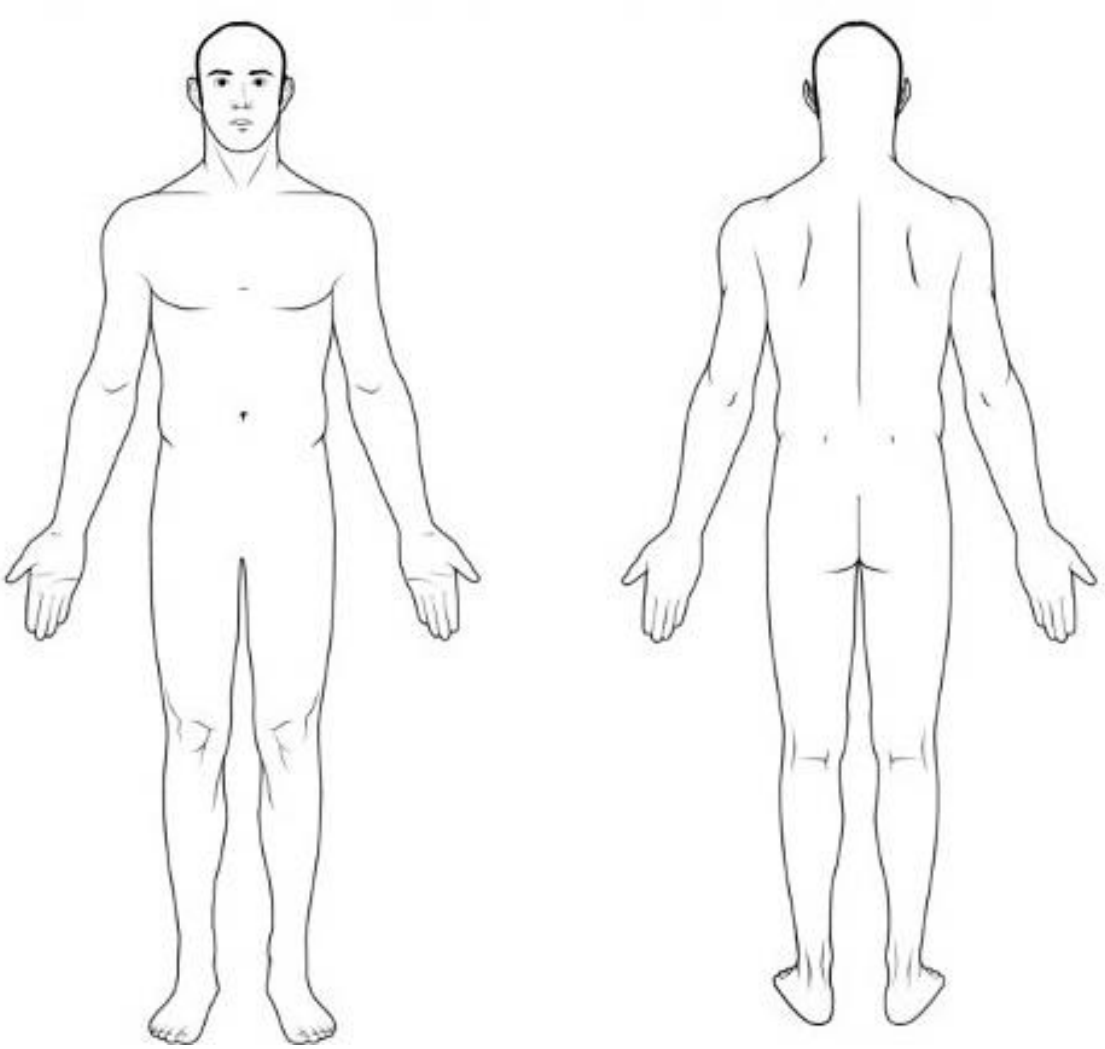

Figure 1 Template of the human body to indicate the location of abnormalities

Eye			**Medical comments** (for all abnormal)
Evidence of eye irritation	☐ No	☐ Yes	Click here to enter text.

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.