

Elevated blood lead levels: Clinical guidelines and public health management

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Contributing organisations:

Centre for Disease Control

Department of Health, Northern Territory

Environmental Health Branch,

Department of Health, Northern Territory

Department of Paediatrics

Royal Darwin Hospital, Northern Territory

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General enquiries are welcome and should be directed to:

Community Physician

Centre for Disease Control

Department of Health

PO Box 40596

Casuarina NT 0811

Phone: 08 8922 8089

Facsimile: 08 8922 8310

For further information contact your regional Centre for Disease Control

Darwin: 08 8922 8044

Katherine: 08 8973 9049

East Arnhem: 08 8987 0359

Tennant Creek: 08 8962 4259

Alice Springs 08 8951 7540

This publication draws from the National Health and Medical Research Council (2016) Managing individual exposure to lead in Australia- A guide for health practitioners. Canberra: National Health and Medical Research Council.

Definitions

Case definition

An elevated blood lead level (BLL) is a BLL greater than 5 micrograms per decilitre (mcg/dL) (equivalent to greater than 0.24 micromoles per litre ($\mu\text{mol/L}$)).

All new cases of elevated BLLs are notified if the same individual has not been notified previously. When an individual has been notified previously they will be notified as a new case if a BLL has been $\leq 5\text{mcg/dL}$ anytime since their last notification.

Occupational screening

Occupational screening refers to any testing of BLLs performed as part of a health surveillance program for employees who are about to commence or who are undertaking work in lead-risk jobs as per the *Work Health and Safety (National Uniform Legislation) Regulations*.

Background

Lead in the environment

Lead is a metal with no known biological benefit to humans. It occurs in the environment as a natural metal and a broad variety of compounds. Lead is widely present in foods and water supplies and some 'background' exposure for humans is near universal. In Australia (and worldwide) human exposure to lead has decreased substantially through initiatives targeting major sources including the removal of lead from petrol, house paints and other consumer goods.

Lead is absorbed through breathing lead-contaminated air or swallowing lead-contaminated particles. It is not readily absorbed through the skin.

Effects of lead

Inhalation or ingestion of lead at certain levels can produce neurodevelopmental dysfunction in children and a range of cardiovascular, renal, neurological, and haematological dysfunctions in all people. Children and pregnant women are particularly vulnerable to the effects of lead, and iron deficiency is known to increase absorption of lead.

Between 5-10 mcg/dL, associated harms may be clinically very subtle and difficult to ascribe to lead. In children, lead levels in the 10-20 mcg/dL range may manifest in hearing or cognitive impairment and behavioural changes (hyperactivity, depression, anxiety) or learning difficulties, with poor bone development and anaemia between 20-30 mcg/dL.

In adults, blood pressure can be raised and glomerular filtration rate can decrease at lead levels between 10-20 $\mu\text{g/dL}$ with fatigue, effects on mood and cognition, neuropathies, and further deterioration of renal function between 20-30 mcg/dL.

As levels go higher in both children and adults, further deterioration in neurological function (e.g. balance, fine motor coordination), cognition and behaviour occurs and GI symptoms appear (abdominal pain, constipation and anorexia) as well as anaemia in adults. Other effects include delayed puberty, fertility problems and increased risk of cancer.

At very high levels a severe encephalopathy may develop ($\sim 70\text{mcg/dL}$ in children and $\sim 100\text{mcg/dL}$ in adults).

Lead as a public health issue

Investigating the source of exposure where blood lead levels are >5mcg/dL will reduce the risk of harm not only to the individual, but others in the community, including those who may be more vulnerable to the effects of lead such as children.

A co-ordinated response between clinicians, public health practitioners and environmental health officers can enhance case management and public health protection through timely case detection, identification of lead sources, and enacting targeted interventions and education to remove lead sources.

Surveillance of elevated BLLs can reveal patterns and trends in lead exposures in the NT and can evaluate the effects of regional or Territory wide interventions. This is important as while the effects of lead exposure can be subtle within an individual, these effects may have a considerable impact when compounded at a population level (e.g. an average of 2 point drop in IQ across the population).

Reporting requirements

When a laboratory receives a result of a BLL >5mcg/dL, the laboratory will forward the result and relevant patient information to the Centre for Disease Control (CDC) as required by the *Guideline for the reporting of elevated blood lead levels in the Northern Territory*.

Testing blood lead levels

Testing a BLL should be considered when there is clinical suspicion of lead exposure either due to symptoms or behaviours and environmental factors that suggest of risk of lead exposure.

Blood lead levels represent lead exposure in recent weeks to months. It does not indicate the total amount stored in the body.

Indications for testing

Clinical	Behavioural	Environmental
Developmental delay in children	Known to handle, play with or mouth lead containing products (lead pellets, lead sinkers, batteries)	Individual lives in or visits dilapidated pre-1980 houses with flaking paint, or pre-1980 houses undergoing renovations.
Behavioural or cognitive problems		
Family member or other close individual has an elevated BLL	Sniffing lead containing petrol or other lead containing substances	Other known or suspected environmental exposure (e.g. contaminated water, food)

Blood lead levels in venous blood can be done in a purple top EDTA tube. A separate sample is needed as the specimen goes interstate.

Response to elevated blood lead levels

Overview

The key points in the management of BLLs >5mcg/dL:

- Most cases can be adequately managed through individual assessment to identify and remove likely lead exposures and provide targeted education to minimise further exposure
- Medical intervention and hospitalisation is rarely required
- Investigation and assessment of lead sources when required should be logically planned and proportionate to the situation
- The most effective management strategy is to remove the source of lead. Strategies to restrict access and education on personal behaviours are important supplementary measures.
- The aim of monitoring and follow up is to ensure the effectiveness of management strategies in protecting individuals from lead harms
- Managing elevated BLLs in children and pregnant women should be prioritised

See the Testing and Management flow chart on [page 12](#) for an overview of the steps in the response by different agencies.

The steps of management outlined here are guidelines only. From case to case, it may be reasonable to diverge from this approach, for example, when a common source is already identified for a household member. When in doubt, health practitioners or those working with lead exposed individuals can contact the Community Physician at CDC.

Occupational screening

Blood lead testing undertaken as part of Health Monitoring of employees should be conducted and managed according to the *Work Health Safety Regulations* and NT Worksafe guidelines. Any related queries should be directed to the relevant business or NT Worksafe. Testing and management are the responsibility of the business requesting the testing and any related queries should be directed to the relevant business or NT Worksafe.

Clinical response

BLL >5mcg/dL to <10mcg/dL

Key steps:

1. Complete Lead Exposure Questionnaire if source unknown (with parent/guardian if a child)
2. Send Questionnaire to CDC
3. Test and treat iron deficiency
4. Educate household on minimising lead exposure
5. Consider testing other household members or those suspected of being exposed to the lead source

Follow up blood test: in 6 months

The Lead Exposure Questionnaire is attached to these guidelines or can be obtained through the CDC.

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An attending medical officer, nurse, allied health professional or Aboriginal Health Worker may go through the questionnaire with the individual and/or family. The purpose of the Lead Exposure Questionnaire is to identify the source of lead exposure. These results should direct actions to remove the source of lead, and provide supporting education to individuals and families. When the lead source cannot be removed, strategies to restrict access and education to reduce exposure should be actioned. When the lead source is not identified, general education and advice may be given.

Once the questionnaire has been completed, a copy should be sent to the Community Physician at CDC and management options can be discussed if advice is required.

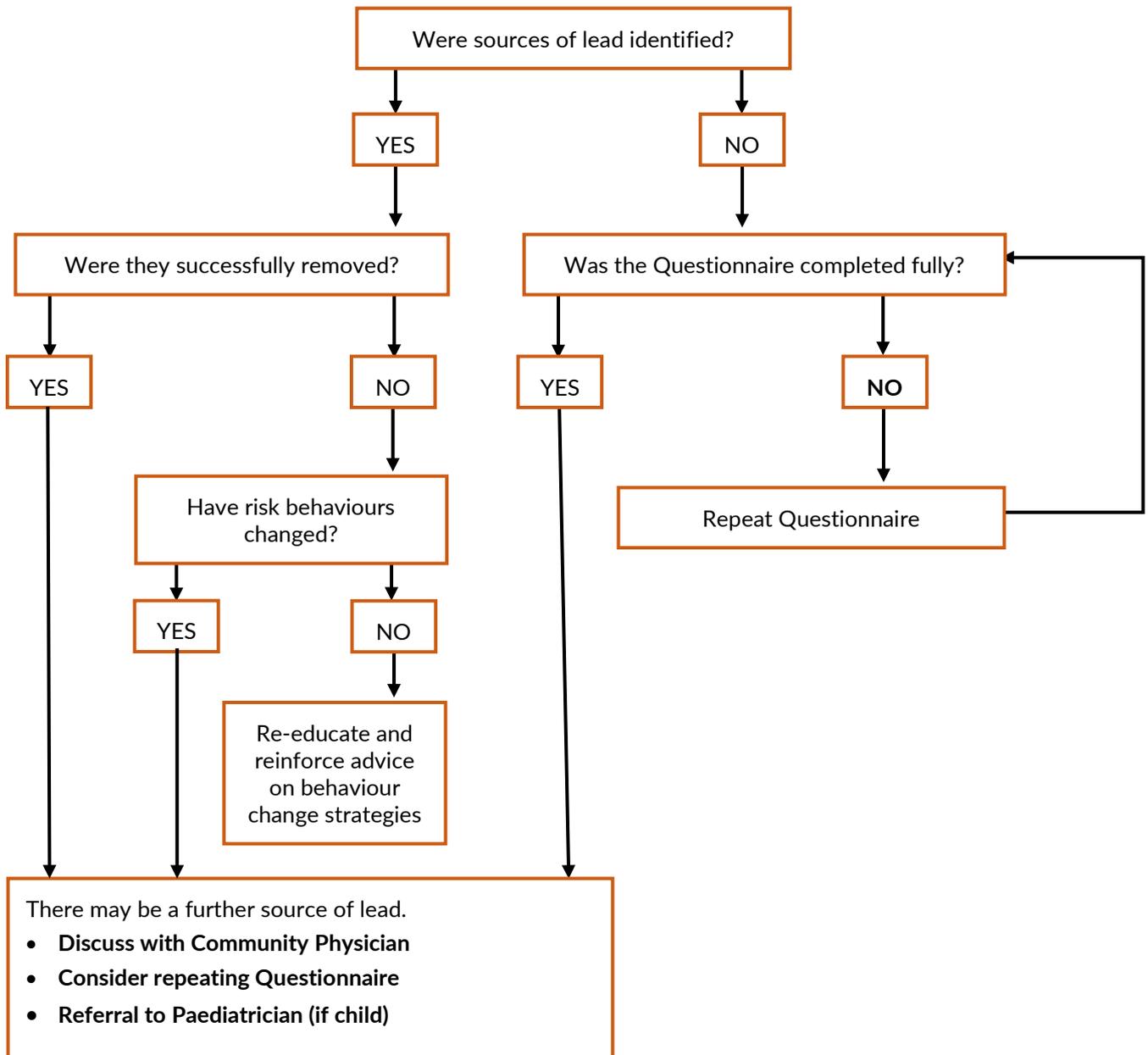
Testing of household or other close contacts should be considered where there may be shared exposures. Other children or pregnant women should be prioritised.

Follow-up of the case should occur with the aims to:

- Provide education to individuals/families on strategies to remove/restrict/reduce access to lead sources
- Test for iron deficiency where indicated and treat appropriately
- Undertake a repeat BLL after 6 months to ensure the lead exposure has abated.

If the repeat BLL is at the same level or higher, the management steps can be revisited ([Figure 1 page 8](#)). Further advice to the individual/family may be needed, and the case can be discussed with the Community Physician at CDC. If the case is a child, they should be referred to a paediatrician.

Figure 1: Algorithm for when repeat testing results for >5mcg/dL to <10mcg/dL is same or higher



BLL 10mcg/dL to <20mcg/Dl

Key steps:

1. Complete Lead Exposure Questionnaire if source unknown (with parent/guardian if a child)
2. Send Questionnaire to CDC
3. Test and treat iron deficiency
4. Educate household on minimising lead exposure
5. Consider testing other household members or those suspected of being exposed to the lead source
6. Refer to paediatrician if a child

Follow up blood test: in 3 to 6 months

BLLs in this level are likely to be causing harms which may or may not be associated with symptoms. The first step is to complete the Lead Questionnaire to identify possible sources of lead (see section on BLL >5mcg/dL to <10mcg/dL). The results should be shared with the Community Physician at CDC and individual case management strategies discussed as a first line.

If the Lead Exposure Questionnaire suggests there is a particular environmental source, a source likely to be of public health concern, or where no source is identified, the Community Physician will decide whether Environmental Health involvement is required.

The CDC and Environmental Health officers will work with the attending health practitioner to investigate the case further and provide strategies for the removal, restriction, or reduction of the lead source.

Repeat testing should be done in 3 months, or up to 6 months in cases where the exposure to lead is believed to have been effectively stopped (due to removal of source or effective behaviour change). If the repeat BLL is the same level or rising consider additional steps as for 20mcg/dL to <45mcg/dL and/or discuss with the Community Physician.

BLL 20mcg/dL to <45mcg/dL

Key steps:

1. Complete Lead Exposure Questionnaire if source unknown (with parent/guardian if a child)
2. Send Questionnaire to CDC
3. Test and treat iron deficiency
4. Educate household on minimising lead exposure
5. Consider testing other household members or those suspected of being exposed to the lead source
6. Refer to paediatrician if a child
7. Abdominal X-ray if source unknown

Follow up blood test: in 1 month

BLL \geq 45mcg/dL

Key steps:

1. Admission to hospital for children, consult a physician for adults
2. Chelation considered with specialist input
3. Complete Lead Exposure Questionnaire if source is unknown (with parent/guardian if a child) and discuss case with Community Physician
4. Test and treat iron deficiency
5. Consider testing other household members or those suspected of being exposed to the lead source

Follow up blood test: determined by management plan

This level is harmful and acute symptoms may be present, for example gastrointestinal, cognitive or behavioural changes. Children with BLLs in this range should be admitted to hospital. Chelation is generally indicated for children with BLLs \geq 45mcg/dL and adults with BLLs \geq 70mcg/dL, or where severe symptoms and signs are present (e.g. encephalopathy).

The Community Physician will coordinate the required public health and environmental health investigation and management of the exposure.

Education resources for clinicians

Please see the Resources section ([page 13](#)) for information on what education tools are available for practitioners.

Centre for Disease Control

Notification of cases

The Centre for Disease Control maintains a database of all new cases of elevated BLLs in the NT Notifiable Disease System (NDS). A “new” case is when an individual has not been notified previously, or when an individual has been notified previously they are notified as a new case if a BLL has been \leq 5mcg/dL anytime since their last notification.

CDC receives laboratory results of elevated BLLs automatically via fax. The CDC “On call” staff member who is responsible for the daily handling of notifiable disease results will ascertain whether the BLL was tested for occupational screening or not. Both occupational and non-occupational elevated BLLs are notified and entered into the NDS, however CDC will only follow up non-occupational cases. If occupational, the responsibility for follow up is on the business of the employee.

Case management coordination

The Community Physician or his/her delegate is responsible for ensuring Lead Exposure Questionnaires are completed. The Community Physician and other CDC team members can assist health practitioners to interpret questionnaire results and advise on case management. This may involve:

- Behaviour change strategies and referral services
- Educational tools and resources for individuals and families.

Public health intervention

Where an individual case or aggregate surveillance data of elevated BLLs indicate wider public health risks, the CDC will coordinate an appropriate public health response.

This may involve:

- Discuss questionnaire results and case details with Environmental Health branch to plan investigations
- Advise health practitioners of “at risk” populations who require BLL testing
- Coordination with other government departments and authorities where relevant. For example: Department of Primary Industry and Resources, Parks and Wildlife Commission, Department of Health Primary Care Services, Aboriginal Community Controlled Health Organisations, Aboriginal Land Councils, Food Standards Australia New Zealand.

Environmental Health

Where preliminary case management has identified a likely environmental source, Environmental Health Officers (EHOs) can offer advice and assistance to health practitioners regarding removal/restriction/reduction strategies.

In cases where there is no identified source, or where there are wider public health concerns, an EHO may carry out environmental investigation, risk assessment and management of lead exposures in coordination with CDC and relevant authorities. Steps may include:

- A desktop study of known lead sources in the environment where a case resides, including checks with relevant NT government agencies on historical lead sources in the built environment and drinking water.
- Home risk assessment by phone or by visit using XRF apparatus
- Environmental testing with XRF apparatus and water sampling

The EHO provides information on results of testing and recommendations on remediation options in coordination with CDC to the attending health practitioner or relevant community authorities.

Contacts

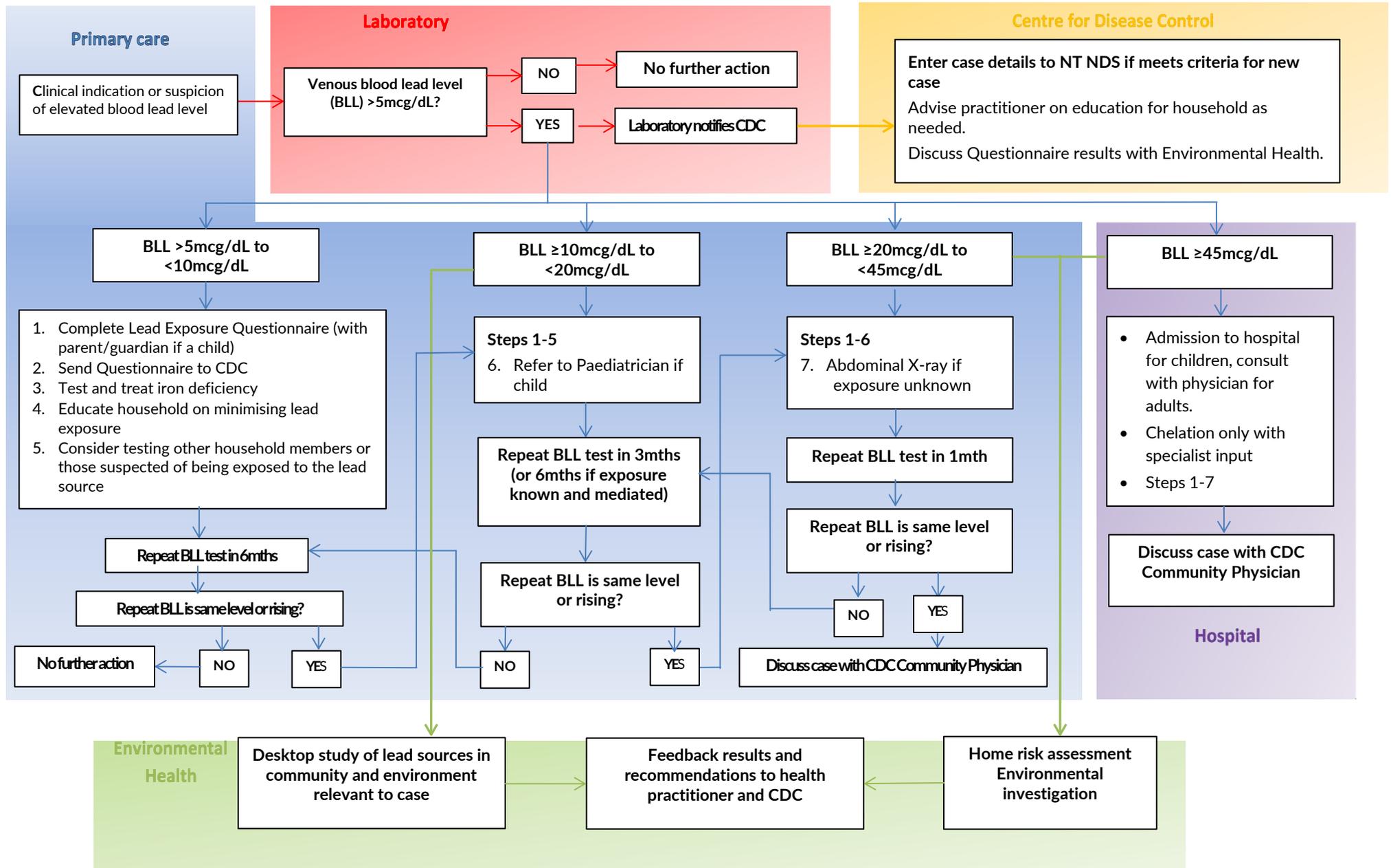
Centre for Disease Control

Phone: 08 8922 8804
Fax: 08 8922 8310
Email: CDCSurveillance.Darwin@nt.gov.au

Environmental Health Branch

Phone: 08 8922 7377
Fax: 08 8922 7036
Email: envirohealth@nt.gov.au

Testing and management flow chart for non-occupational elevated blood lead



Resources

Common lead sources (Derived from Appendix 1 from NHMRC Guidelines)

In the home

- Fishing sinkers
- Curtain weights
- Food or drink containers made with lead
- Imported toys or jewellery
- Imported traditional medicines or cosmetics
- Old pipes, solder and plumbing fittings
- Soil contaminated with lead
- Handling old car batteries

Activities

- Hunting with lead shot or eating game shot with lead shot
- Casting lead to make fishing sinkers or ammunition
- Handling or recycling lead containing objects such as car batteries, motor vehicle bodies, electronics
- Soldering
- Exposure to lead dust at shooting ranges
- Exposure to certain lead containing fuels (aviation fuels and some racing fuels)
- Home renovations of pre-1970s houses
- Restoring boats/cars

Strategies to reduce lead exposure

Remove the lead source

- Remove lead containing products e.g. car batteries
- Replace lead shot with non-toxic shot (steel, bismuth)

Restrict access and reduce exposure to lead source

- Don't handle lead shot directly
- Relocate from old homes undergoing renovation, and thoroughly clean homes once renovations are complete and household is relocated
- Don't allow children in areas where lead related activities take place (e.g. casting, soldering, mechanic works)
- Use appropriate protective equipment if handling lead containing objects – separate set of clothing, use gloves.
- Avoid and safely remove dust (with wet mopping) associated with any lead related activity or object.
- Good hand hygiene using soap and water (alcohol based hand rubs do not remove lead)
- Avoid buying products internationally that may contain lead
- Restrict access to lead containing fuels

Education tools and resources

- NHMRC Frequently Asked Questions- Evidence on the Effects of Lead on Human Health (a resource developed by the NHMRC containing practical information that people can consider to reduce their risk of lead exposure.

https://www.nhmrc.gov.au/files/nhmrc/publications/attachments/eh58d_faq_effects_lead_human_health_a.pdf

- NT Health Primary Health Care Outreach and CDC Resources:

- Lead Exposure Questionnaire
- CDC Lead & health Factsheet
- Lead Facts Factsheet
- Lead Story for Adults & Young People, Lead Story for Children (December 2016)
- Elevated Lead Levels (presentation for clinicians) (December 2016)
- Lesson Plan for children

<https://health.nt.gov.au/professionals/centre-for-disease-control/resources-and-publications>

http://library.health.nt.gov.au/chronic_conditions_resource_guide

If you are having difficulty locating any of the resources, please contact the Centre for Disease Control.

Appendix 1: Supplementary guidelines for management and referral of people with elevated blood lead levels due to Avgas sniffing

In early 2017 it became apparent that an outbreak of AVGAS sniffing had occurred in some communities in E. Arnhem leading to elevated blood lead levels. Avgas sniffing may be more widespread. This supplementary document details the investigation and management of solvent abusers suspected of sniffing Avgas including referral procedures.

Testing of blood lead levels in the context of Volatile substance use

Who to test:

Clinical presentation of lead toxicity is a difficult diagnosis and often elevated lead levels remain asymptomatic. So, in addition to testing of patients with suspected lead toxicity based on clinical presentation, please also consider lead testing in:

1. Communities where there is definite evidence of AVGAS sniffing
Active recall for testing of all those known or suspected to be abusing Avgas

AND

Opportunistic testing of any presentation of volatile substance abuse
2. Communities where there is the possibility of AVGAS sniffing (Avgas available with or without reports of theft)
Opportunistic lead testing of anyone with known or suspected volatile substance abuse

What to test for:

- Standard workup of volatile substance abuse as per CARPA (6th ed. pp. 251-53)
AND
- Blood lead level
- Full blood examination
- Iron studies
- UEC
- LFT

How to test:

Two purple top EDTAs (One for FBC, one for lead, as they go to different laboratories) and **one yellow top** (Iron, UEC and LFTs).

Management of elevated blood lead levels in the context of Avgas sniffing

If elevated blood lead levels results are found in the context of AVGAS sniffing, then an essential **first step is to make every effort to prevent any further solvent abuse**. Based on the level:

- **>5 - 9.9 µg/dL**
 - Clinical assessment

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- **Treat iron deficiency** if indicated
- **Engage with family** for education with Social and Emotional Wellbeing or Volatile Substance Abuse team if available
- **Recall** for repeat lead levels in 6 months

- **10 – 19.9 µg/dL**
 - **As above**
 - **Refer to paediatrician** if a child for outpatient visit at next paediatric visit to community (non-urgent)
 - **Recall** for repeat lead levels in 3 months

- **20 – 44.9 µg/dL**
 - **As above**
 - **Recall** for repeat lead levels in 1 month

- **45 – 69.9 µg/dL**
 - **Urgent consult**, for children with paediatrician; for adults with physician.
 - **Discussion** with Duty RMP regarding transfer (low acuity patient transfer preferred)
 - **Admission to hospital** within two days
 - **Notify** admitting team for impending transfer

≥ 70 µg/dL or acutely unwell children or adults with symptoms of lead toxicity, with any blood lead level

- Urgent admission to hospital
- Liaise with duty RMP for urgent evacuation
- Notify admitting team for impending transfer

Case coordination

Elevated BLL information will automatically be sent from laboratories to the Centre for Disease Control. The Community Physician is the team member designated to following up cases of elevated BLLs and can provide public health advice and/or instigate further investigation/interagency responses into cases of elevated BLLs due to Avgas sniffing.

Appendix 2: Lead exposure questionnaire

Lead exposure questionnaire			
Position:			
Department / Clinic:		Time	
Name & signature of person(s) conducting questionnaire		HRN	
Name (patient):	Surname:		Given Name(s):
Date of Birth:	/ /	Gender: Male <input type="checkbox"/> Female <input type="checkbox"/>	Residential address:
Contact details:	Home Phone: Click here to enter text.		
	Mobile Phone: Click here to enter text.		
Do you identify as:			Medical practitioner information
Aboriginal <input type="checkbox"/>			Name:
Torres Strait Islander <input type="checkbox"/>			Contact:
Aboriginal and Torres Strait Islander <input type="checkbox"/>			
Neither Aboriginal nor Torres Strait Islander <input type="checkbox"/>			Clinic Name:
Unknown / not answered <input type="checkbox"/>			
Country of birth:			
Guardian / parent information	Surname:		Relationship:
	Given name:		
	Surname:		Relationship:
	Given name:		
Language spoken:			
Interpreter name:	Surname:		Relationship to person:
	Given name:		
List all people living in the same house as you / your child:			
1.		6.	
2.		7.	
3.		8.	
4.		9.	
5.		10.	

1.0 Child Behaviour and Habits	
This is a questionnaire to try and find the things in the environment, in the land, water or air that may be affecting your child. The questions may feel personal, but they are to help us find where the lead is coming from. There are lots of questions and some might seem strange, that's because there are many different places where the lead can come from.	
1.1 Has the person lived in this community their whole life?	Description and Observations
Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
1.2 How long has the person been living at the current address	Description and Observations
Unknown / Not answered <input type="checkbox"/>	
1.3 Previous address, if any:	Description and Observations
1.4 Does this person regularly visit another home/place?	Description and Observations
Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If yes, who does the place belong to? How many times per week?	
Questions 1.5-1.10 for children only – Adults progress to question 2	
1.5 Do they attend family day care, day care, school?	Description and Observations
Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If yes, who does the place belong to? How many times per week?	
1.6 Does your child have any favourite places to play?	Description and Observations
Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If yes, please specify?	
1.7 Does your child put their fingers or thumb in their mouth?	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
1.8 Does your child chew, mouth, eat non-food items (e.g. toys, keys, batteries, bullets, rocks)	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	

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1.9 Does your child put dirt in their mouth or eat dirt?	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
1.10 Does your child wash their hands when they come inside?	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
2.0 Bush tucker and hunting	
Sometimes there is lead in some of the animals we eat. That is why we are now going to ask about some of the animals that you eat. Firstly about animals from the oceans or rivers.	
2.1 Do you / your child go fishing?	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
2.2. Have you / your child handled lead fishing sinkers?	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
2.3 Do you / your child eat any foods caught from the sea and rivers? (e.g. fish, turtle, shellfish including mussels, oysters)	Description and Observations
Everyday <input type="checkbox"/> Every week <input type="checkbox"/> Less than every week <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
2.4 Do you / your child ever go hunting? (If no, go to 2.9)	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
2.5 What do you go hunting with? (tick all that apply):	Description and Observations
Gun with lead bullets <input type="checkbox"/> Gun without lead bullets <input type="checkbox"/> Other <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If other, please specify:	
2.6 Do you handle lead bullets or pellets? Has anyone seen your child play with lead bullets or pellets that go in a gun?	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
2.7 If a child, does he/she ever suck the lead bullets / pellets that go in the gun?	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	

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2.8 If a child, has he/she ever swallowed lead bullets / pellets that go in the gun?	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
2.9 Do you / your child eat meat that is shot with a shotgun using lead bullets / pellets?	Description and Observations
Everyday <input type="checkbox"/> Every week <input type="checkbox"/> Less than every week <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> Which animals? Click here to enter text.	
2.10 In particular, do you / your child eat magpie goose?	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
2.11 Have you ever seen any lead pellets or stones in the meat you / your child eats?	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
3.0 Water	
3.1 Where do you drink your water from? (tick all that apply)	Description and Observations
Home (tap) <input type="checkbox"/> Bore <input type="checkbox"/> River <input type="checkbox"/> Creek <input type="checkbox"/> Lake <input type="checkbox"/> Billabong <input type="checkbox"/> Shop <input type="checkbox"/> Other <input type="checkbox"/> Please specify?	
4.0 Occupation and hobbies	
Now we are going to ask about other things that people do for work or do for fun. Doing some jobs and some things for fun make it more likely that you or your children will get high lead levels.	
4.1 Do you or anybody living in your house work with or use lead in any of the following jobs and activities: (e.g. Building, scrap metal, removal of paint, building or fixing roads, work with batteries, lead smelting, lead mining, work with brass, work using solder, making/staining glass, fixing cars or panel beating, boat building, casting lead sinkers, home or furniture restoration)	Description and Observations
Yes <input type="checkbox"/> No (Go to question 4.6) <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If yes, please specify:	

4.2 If a child, does he/she have any access to equipment from the workplace or play where these things are done? e.g. Work tools, boots or vehicle	Description and Observations
Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If yes, please specify: Click here to enter text.	
4.3 Do any residents of the home use any alternative medicines, herbal preparations or tonics? E.g. Ayurvedic medicine, bush medicine.	Description and Observations
Yes <input type="checkbox"/> No (Go to question 4.6) <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If yes, please specify:	
4.4 Do any of household residents use any traditional cosmetics?	Description and Observations
Yes <input type="checkbox"/> No (Go to question 4.6) <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If yes, please specify:	
4.5 Do you / your child ever play with or sniff petrol?	Description and Observations
Yes <input type="checkbox"/> No (Go to question 4.6) <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If yes, please specify:	
Questions 4.6 - 4.8 for children only	
4.6 Does your child play around old cars?	Description and Observations
Yes <input type="checkbox"/> No (Go to question 4.6) <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If yes, please specify:	
4.7 Does your child play with car batteries or other batteries?	Description and Observations
Yes <input type="checkbox"/> No (Go to question 4.6) <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If yes, please specify:	
4.8 Does your child visit or play at a rubbish dump or around rubbish?	Description and Observations
Yes <input type="checkbox"/> No (Go to question 4.6) <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> If yes, please specify:	

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5.0 Home environment	
5.1 As closely as you can tell, was your house built before 1970?	Description and Observations
Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
5.2 If pre - 1970, have any repairs been done to the house?	Description and Observations
Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
5.3 Is there a sand pit near the house?	Description and Observations
Yes -at home <input type="checkbox"/> Yes - near home <input type="checkbox"/> No <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
5.4 Has fill ever been brought to the property?	Description and Observations
Yes <input type="checkbox"/> No (Go to question 4.6) <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/> (If unknown follow up with the Department of housing and DLPE)	
5.5 Do you or your neighbours burn rubbish?	Description and Observations
Yes -at home <input type="checkbox"/> Yes - near home <input type="checkbox"/> No <input type="checkbox"/> Unknown / Not answered <input type="checkbox"/>	
Additional information	
Authorisations	
Parent / guardian signature	Date:
Parent / guardian signature	Date:

Please return the completed questionnaire by FAX to the Centre for Disease Control

Attention: Community Physician
Fax: 08 89228310
Phone: 08 8922 8044