

Hazardous Substances Disease and Injury Reporting Tool

A User's Guide for Public Health Units

Table of Contents

1.	Introduction	2
1.1	Types of notifications included in the HSDIRT	4
1.2	General practitioner access to HSDIRT	5
2.	Receiving a notification.....	6
2.1	Email alert of new notification via BPAC.....	6
2.2	Notification from another source	7
2.3	Direct Laboratory Notifications.....	8
2.4	Submitting a new HSDIRT form.....	8
3.	Notification form.....	10
3.1	Notifier/Patient Details tab.....	11
3.2	Exposure Event tab	13
3.3	Assessment tab	15
3.4	Attaching a file	15
4.	Administration view	17
5.	PHU review of a notification	17
5.1	Deciding on further action	17
5.2	Case notes.....	19
5.3	Entering surveillance data.....	19
5.4	Case assignment.....	21
5.5	Forwarding a case to a different PHU	24
5.6	Completion of the form	24
6.	Regular reporting from EHINZ.....	24
7.	Advice from Ministry of Health to investigate.....	24
8.	Privacy and security of patient information sent via BPAC	24
9.	Feedback and queries	25
	Appendix 1 Legislation	27
	Appendix 2 Useful Resources for PHUs.....	29

1. Introduction

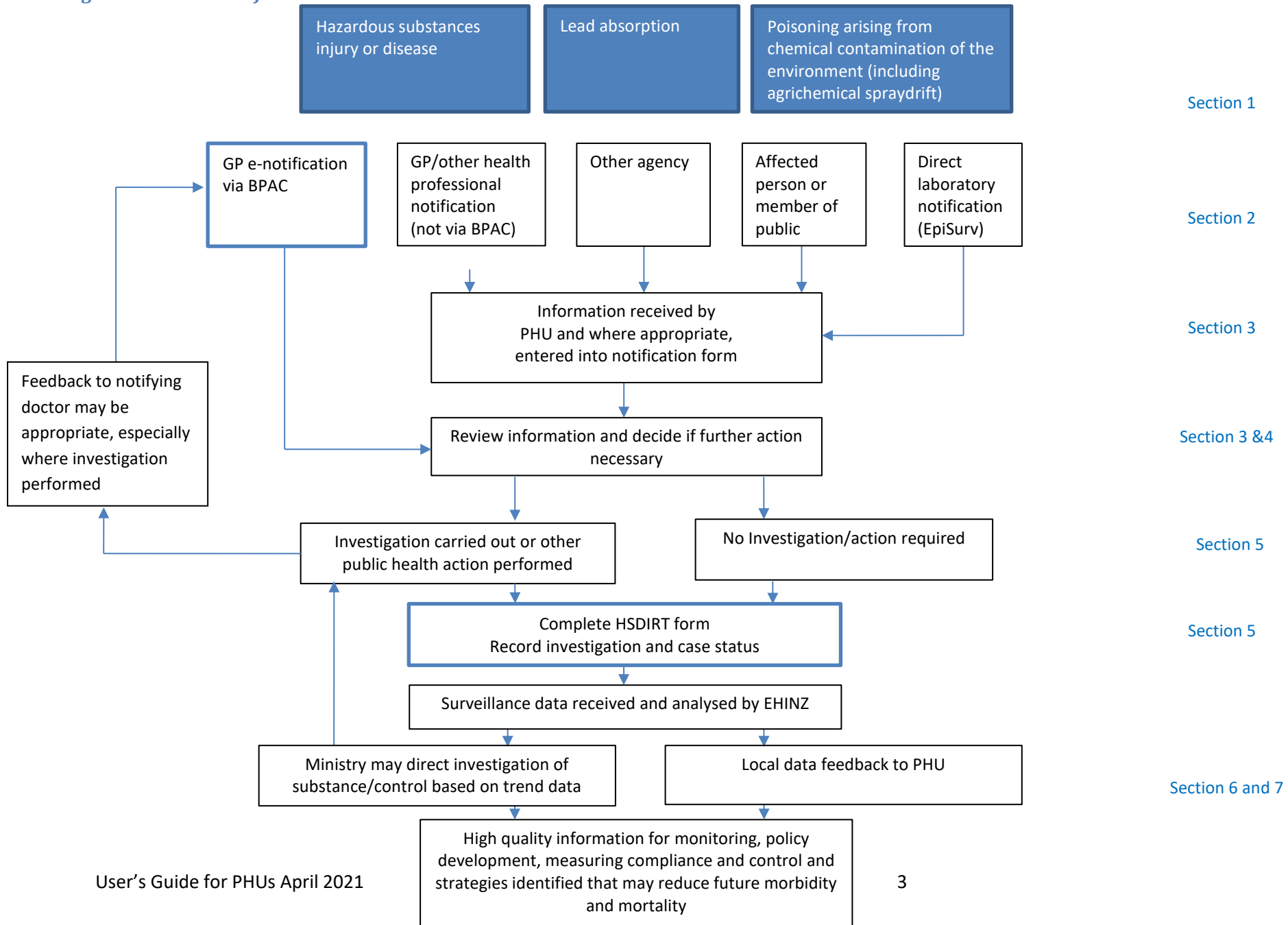
Hazardous substances disease and injuries are required to be notified to a Medical Officer of Health under section 143 2(A) of the Hazardous Substances and New Organisms (HSNO) Act 1996. The Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) was implemented in 2013 to give general practitioners (GPs) an easy mechanism by which to notify cases: an electronic notification form linked to a Patient Management System. The reporting tool was developed by *Bestpractice* decision support (BPAC Inc) and Environmental Health Intelligence NZ (EHINZ), College of Health, Massey University for the Ministry of Health.

The system allows public health units (PHUs) to electronically receive notifications from GPs. Notifications can be reviewed, further data added, and the cases submitted to the nationwide Hazardous Substances Surveillance System (HSSS) with identifiable data removed. The HSSS is maintained by EHINZ for the Ministry of Health.

Surveillance data from PHUs contributes to the overall objectives of the HSSS, which are:

- To describe the distribution and characteristics of exposure to hazardous substances
- To describe the morbidity and mortality experienced by workers and the general public (including children) as a result of exposure to hazardous substances
- To provide high quality information on outcomes, exposures, and hazards for monitoring, policy development, measuring compliance and control
- To identify strategies that might reduce future morbidity and mortality resulting from exposure to hazardous substances.

Figure 1: Overview of HSDIRT



This User's guide explains the HSDIRT system delivered via BPAC. This guide should be used alongside a PHU's existing processes for the investigation of hazardous substances injury or disease, lead absorption or poisoning arising from chemical contamination of the environment. Progressively throughout 2013, the HSDIRT system replaced lead absorption and chemical injury case reporting through EpiSurv.

See the short video *Video walkthrough for PHUs* under the Resources tab (Figure 13) of the HSDIRT or at <https://vimeo.com/359444994> for a summary of how to use the HSDIRT.

1.1 Types of notifications included in the HSDIRT

The Ministry of Health decided that the following notifiable conditions were included in the HSDIRT.

- **Hazardous substances injury or disease**

A hazardous substance is defined in the HSNO Act 1996 as anything that can explode, catch fire, oxidise, corrode, or be toxic to humans. The act was amended in 2005 requiring all medical practitioners to notify injuries caused by hazardous substances to the Medical Officer of Health (see Appendix 1 for section 143 2(A) of the legislation).

The Ministry of Health defines 'injury' for the purposes of section 143 as *any physical harm or damage serious enough to warrant medical treatment by a health professional either at the scene or in a hospital or primary care practice* (Environmental Health Protection Manual Hazardous Substances).

Injuries or diseases caused by hazardous substances form a vast group of diagnoses covering many scenarios and include children swallowing cleaning products or cosmetics, intentional overdoses with agrichemicals, illness caused by exposure to chemicals such as solvents or chlorine, contact dermatitis from chemicals, a fireworks burn or eye injury, or inhalation or 'huffing' of butane.

It does not include medicines in finished dose form (and therefore over-the-counter and prescription drug overdoses), alcohol when classified as a food, chemical toxins associated with food¹, nor radioactive materials as these are covered by different legislation. Manufactured articles other than those including substances with explosive properties such as fireworks are also not included (eg, batteries).

- **Lead absorption**

Notification of non-occupational cases of lead absorption $\geq 0.24 \mu\text{mol/L}$ is required under the Health Act 1956 (also in Appendix 1) and occupational as well as non-occupational cases under the HSNO Act. Although there is no cut-off level for notification of lead absorption in the HSNO Act the Ministry of Health has adopted the same level at which public health action occurs under the Health Act. The electronic HSDIRT form is used for these notifications, from both direct laboratory notification and clinician notification.

¹ Gastroenteritis from chemical toxins associated with food (e.g. toxic shellfish poisoning, ciguatera fish poisoning) are entered into EpiSurv as "acute gastroenteritis" notifications and not into HSDIRT.

Where a person has had a repeat blood lead level taken within 12 months of the original test, the repeat blood test is not included as another notification unless further investigation or public health action has resulted (Ministry of Health. *Environmental Health Circular Letter* April 2013).

- **Poisoning arising from chemical contamination of the environment**

Cases of injury due to chemical contamination of the environment are also required under the Health Act 1956 and can be notified using this form. Examples include a doctor reporting health effects following an agrichemical spray drift event, a skin effect following an oil spill event, cyanotoxin-related illness, and carbon monoxide poisoning (e.g. from incorrect use of a gas appliance, a vehicle left running in an attached garage, a malfunctioning gas appliance).

Only cases of CO poisoning where the exposure was unintentional should be reported as Health Act cases.

Notifications of cases following agrichemical spraydrift can also be reported as cases of the specific agrichemical under the HSNO Act.

Other notifications: Occupational disease and injury

Section 199 of the Health and Safety at Work Act 2015 requires Medical Officers of Health to advise WorkSafe New Zealand (WorkSafe) of work-related notifiable disease or hazardous substances injury. This requirement took effect from 4 April 2016 and applies in cases of:

1. a notification under [section 74](#) of the Health Act 1956 of a notifiable disease that he or she reasonably believes arises from work; and
2. a notification under [section 143](#) of the HSNO Act 1996 of an injury caused by a hazardous substance that he or she reasonably believes arises from work.

Only the name of the case and the nature of the disease or injury are required. The case's informed consent is required before any other information can be disclosed unless one of the exceptions under Rule 11 of the Health Information Privacy Code 1994² applies.

Occupational notifications (whether investigated or not) are analysed by EHINZ and non-identifying aggregate data are published.

Notification on suspicion, excluding lead

GPs are expected to notify cases on suspicion of hazardous substances injury or disease, except for lead absorption where a confirmed lead level of $\geq 0.24 \mu\text{mol/L}$ is required.

WorkSafe requires only confirmed cases to be notified by the medical officer of health to them.

1.2 General practitioner access to HSDIRT

All GPs can have access to the HSDIRT through their patient management system as it is a nationally funded BPAC module, alongside a range of other modules such as adverse drug reaction reporting and childhood asthma management plans. However, some choose not to have BPAC installed on their computer and will therefore not be able to access the notification form.

MedTech, MyPractice, Indici and Profile

The HSDIRT was initially available to GPs who use MedTech as their practice management system – this is the majority of New Zealand GPs. Those practices that didn't use MedTech needed to log on

² <http://www.privacy.org.nz/assets/Files/Codes-of-Practice-materials/Health-Information-Privacy-Code-1994-including-Amendment.pdf>

to the *bestpractice* website, rather than go directly through their PMS. This was a longer route, and also meant that patient demographic information couldn't be automatically populated into the form. Since April 2014, the HSDIRT screen became available for users of MyPractice, Profile and Indici Practice Management System.

For GP MedTech users, an icon can be installed which gives immediate access to the form. Instructions on how to install this icon are available to GPs on the BPAC Dashboard via the News section, this News article contains clickable links to install the required Advanced form and MedTech Icon. If assistance is required, please contact the BPAC Support Line (0800 633 236).

Where GPs do not have access to the HSDIRT, notification can be made using the same method as is done for other notifiable diseases (e.g. phoning the PHU).

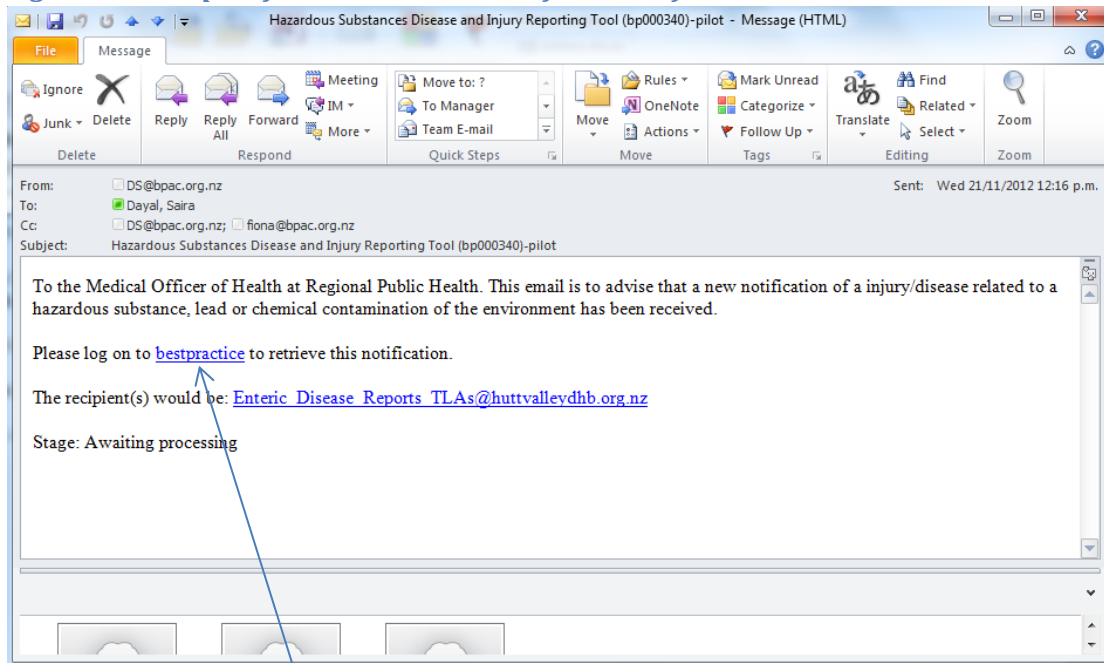
Notification by a practice nurse on behalf of a GP is commonplace for many notifiable diseases and is also possible using the HSDIRT.

2. Receiving a notification

2.1 Email alert of new notification via BPAC

PHUs have an email address to which an alert of a new electronic notification from a GP will be sent. This email address should be checked regularly; as a minimum daily on weekdays. An automated email will alert your PHU that new notifications have been received.

Figure 2: Example of email to alert PHU of new notification



Click on this link to open the new notification.

To access the notification, click on the link in the email. This will access the BPAC site, ask for a username and password, then directly open the notification form as completed by the GP. As the notification is to the Medical Officer of Health, the person accessing the notification and the enclosed confidential clinical information does so under the delegated authority of the Medical Officer of Health.

2.2 Notification from another source

Notifications will also be received by the PHU through other means, for example a GP phone call, emergency department notification or another hospital clinician. These notifications can be entered into the HSDIRT by PHU staff opening a new (blank) notification form. Legislation (Health Act 1956 and HSNO Act 1996) requires that notifications are made by medical practitioners. Other notifications to the PHU from affected people directly or other agencies including the Fire Service may be included if a doctor subsequently agrees to notify. This doctor may be the Medical Officer of Health.

This can be done by going to <https://www.bestpractice.org.nz> and logging on using a user name and password. Select the 'HazSub and Lead Notification' from the module list on the dashboard to open a new form. The popup blocker needs to be switched off for a form to be opened.

Figure 3: Opening a new form- the BPAC dashboard

The screenshot shows the BPAC dashboard interface. At the top, it says 'Welcome Demonstration PHU User 1' and 'not you?'. The 'bestpractice' logo is in the top right. Below the header, there are two main sections: 'Dashboard' and 'Modules'. The 'Dashboard' section shows the date '20 January 2017' and a list of links: 'Parked Modules', 'News', 'Settings', 'Send Feedback', 'Logout', and 'Disclaimer'. The 'Modules' section has two tabs: 'Favourites' (selected) and 'Recently Used'. Under 'Favourites', there are three hazardous substance notification modules, each with a radiation warning icon and a link: 'Hazardous Subs & Lead Notifications', 'Hazardous Substances Administration', and 'Hazardous Substances CSV Export'. Below this is a 'Module List' section with 'open all' and 'close all' buttons. It shows a tree view where 'Hazardous Substances & Lead Notifications' is expanded, showing three sub-items, each with a green checkmark: 'Hazardous Subs & Lead Notifications', 'Hazardous Substances Administration', and 'Hazardous Substances CSV Export'. To the right of the 'Module List' are tabs for 'Forms', 'Clinical Toolkit', and 'Education'. The 'Forms' tab is selected. At the bottom of the dashboard, it says 'bestpractice © 2005 - 2016' and 'Support Line: 0800 633 236'.

Click the plus sign to show all modules available

PHUs can export their own data from the Hazardous Substances CSV Export function.

Selecting the green tick will add the new form to the favourites, top right

Complete the fields in the tabs as described in section 3.

2.3 Direct Laboratory Notifications

Direct laboratory notifications (DLNs) are received through the EpiSurv e-notification system as the HSDIRT system does not currently have compatibility with direct laboratory notification.

Lead DLNs must therefore be transferred into the HSDIRT system. This may be done by printing the notification from EpiSurv then opening a new notification form as described above. The data from the DLN can then be transferred into the relevant fields in the HSDIRT form. Enter the data available from the DLN - this may include entering unknown into several fields and editing at a later date if more information is identified. After submitting the notification form to your PHU, the form can then be accessed via the Administration module with full PHU functions available.

2.4 Submitting a new HSDIRT form

Where PHUs are entering data, enter all information available at the time and select unknown if required (e.g. a DLN where no exposure event information was available). Further information, when obtained, can be entered later by accessing the form from the administration view (see section 4).

It is recommended that PHUs 'submit' notifications and then access them through the administration view for further completion so the full range of functions (e.g. printing, attach files and park) available to PHUs can be accessed. Some functions (e.g. park a case) are not available until the form is submitted to PHUs.

Figure 4: Submitting a new form

PHUs won't be able to use this function until a case has been submitted to them.

PHUs need to submit notifications to themselves so that the full range of functions (e.g. print, attach and park) available to PHUs can be accessed.

Figure 5: Administration view

Hazardous Substances forms: CPHR User 1						
NHI	Status	Recipient	Created	Substance Category	Case Assignment	PHU action
ABC1235	Processed	Centre for Public Health Research	04/10/16 09:53	Household chemical	Definite case	No further investigation
JDR1234	Processed	Centre for Public Health Research	03/06/16 14:34	Lead	Definite case	Investigation underway
JDR1234	Processed	Centre for Public Health Research	03/06/16 12:51	Lead	Definite case	Investigation underway
JDR1234	Processed	Centre for Public Health Research	03/06/16 12:28	Lead	Definite case	Investigation underway
JDR1234	Processed	Centre for Public Health Research	03/06/16 12:12	Lead	Definite case	Investigation underway
AAA9999	Processed	Centre for Public Health Research	21/04/15 08:39	Household chemical	Definite case	Investigation underway
TEST	Processed	Centre for Public Health Research	18/08/14 13:30	Unknown	Definite case	No further investigation

After submitting a case, PHU users can open the case here to get access to the full range of available functions.

3. Notification form

Please ensure your internet browser is set to Internet Explorer.

The notification form is grouped into sections or 'tabs'. Each tab can be viewed by clicking on the title: 'Exposure Event', 'Assessment', 'Notifier/Patient details', 'PHU Review' and 'Resources'. The PHU Review Tab is visible to PHUs only. Move between the tabs by clicking on the title at the top or bottom.

Where a notification is received electronically from a GP, the first three tabs will be completed, but these may be edited by the PHU where more up to date, correct or further data are identified. PHUs are to enter as much information as is available to them to ensure useful information for surveillance purposes.

When a notification form is opened from the administration view, the PHU will notice the buttons at the bottom of the page – 'Attach', 'Print', 'Park', 'Forward', 'Cancel', and 'CPHR'. 'Attach' allows a file to be attached to the notification (see section 3.4). 'Print' allows a copy of the form to be printed. 'Park' allows the form to be closed and re-opened later (through the administration view). 'Forward' is to send the notification to a different PHU if required (see section 5.5). 'Cancel' closes a form without keeping the entered information and 'CPHR' sends a completed form to EHINZ for analysis. The form becomes **read only** after it is sent to CPHR.

EHINZ will not receive a notification until the PHU completes a case and submits the form.

Figure 6: HSDIRT reporting form

Buttons to complete form: **Attach** a file, **Print**, **Park** for later completion, **Forward** to another PHU, **Cancel** without saving and **CPHR** to submit completed form

3.1 Notifier/Patient Details tab

PHUs can start by clicking on and reviewing the Notifier/Patient details tab. Note that the information is pre-populated from the Practice Management System and may not have been viewed by a GP or verified with the patient, so may not be up to date. Occupational data in particular may be incomplete or out of date. Enter corrected data where available.

If entering data for a notification from another source or DLN, enter the details of the medical practitioner notifying the case in the 'Notifier Details'. This may be an after-hours GP, occupational health physician, emergency department doctor and may not be the usual GP (recorded in the right column).

The name of a parent or guardian is requested if the age indicates the patient is younger than 16 years.

Figure 7: Notifier/Patient Details tab

Click on titles to move between tabs. Start with Notifier/Patient details

Name of parent or guardian is requested if the patient is younger than 16 years

Occupation is drawn from the PMS, if not complete or current - update the field

3.2 Exposure Event tab

Details regarding the exposure to the hazardous substance are recorded in the Exposure Event tab. Review the details entered by a GP, or enter new data here.

Additional fields drop down when specific fields are selected. If 'Place of exposure' is workplace, a separate occupation field appears – this acts as a reminder to enter up to date data. If the substance category is agrichemical, a spraydrift question appears. A further section appears if lead is selected: asking for the blood lead result and the setting/ source(s) of exposure. The settings of lead exposure field (options from 'Occupational', 'Non-occupational' and 'Unknown') requires an option to be selected prior to submitting to CPHR.

In the substance name category, GPs are advised to enter a name into at least one category (chemical name, product name or common name), or unknown. PHUs are asked to enter all the information they have – where possible a chemical name and product name can be added to a common name. More than one substance name can be entered by clicking on the '+' sign on the right to add a further line to enter data into.

Figure 8: Exposure Event tab

Exposure Event | Assessment | Notifier / Patient Details | PHU Review

Send notification to Medical Officer of Health at:

Exposure Event

Exposure route: Ingestion Inhalation Skin contact Eye contact Unknown

Date exposure began: OR Month/Year OR Unknown

Exposure length: < 1 day between 1 day & 1 month ≥1 month Unknown

Place of exposure: Home Workplace School/ECC Public place Unknown Other

Occupation:

If you enter Occupation here it won't be written back to the PMS. If you wish to record in the PMS, update the Occupation field in the PMS and then Refresh the form.

Intent: Unintentional Intentional Unknown

Is this case known to be linked to other cases of the same exposure event? Yes No

Substance

Substance categories: Household chemical Agrichemical Industrial chemical Fireworks/explosive Lead Unknown Other

Examples: Household: cosmetic, dishwashing powder; Agrichemical: pesticide, animal remedies, spraydrift; Industrial: solvent, chlorine, fumigant; Other: mercury, arsenic

Lead absorption

Did you obtain a whole blood lead specimen for this lead exposure event? Yes No

Whole blood lead concentration - µmol/L:

Setting of lead exposure: Occupational Non-occupational Unknown

Source(s) of lead exposure: Lead based paint Close contact with person whose occupation involves lead exposure Pica Indoor rifle range Traditional medicine or cosmetic Bullet/sinker manufacture Other

Substance name (complete at least 1 field)

Chemical name	Product name	Common name	Unknown
e.g. sodium hypochlorite	Janola	bleach	<input type="checkbox"/>
<input type="text" value="XXXX"/>	<input type="text" value="XXXX"/>	<input type="text" value=""/>	<input type="checkbox"/>

Exposure Event | Assessment | Notifier / Patient Details | PHU Review

Buttons: Attach, Print, Park, Forward, Cancel, CPHR

If **workplace** is selected, enter occupation if known.

Lead section: drops down if substance category 'lead' was selected.

Where multiple substances are involved, click on the plus sign to enter further names.

For the **substance name** field, enter at least one of the 'Chemical name', 'Product name' and 'Common name'. Multiple/ all names can be entered if known.

3.3 Assessment tab

Figure 9 Assessment tab

Exposure Event	Assessment	Notifier / Patient Details	PHU Review								
Systems affected (tick all that apply)											
<input type="checkbox"/>	Central nervous system	<input type="checkbox"/>	Eye	<input checked="" type="checkbox"/>	Skin						
<input type="checkbox"/>	Cardiovascular	<input type="checkbox"/>	Respiratory	<input type="checkbox"/>	Gastrointestinal						
<input type="checkbox"/>	Musculoskeletal	<input type="checkbox"/>	Psychological	<input type="checkbox"/>	Nil						
<input type="checkbox"/>	Unknown	<input type="checkbox"/>	Other								
Symptoms / signs											
<input type="checkbox"/>	Symptoms only	<input checked="" type="checkbox"/>	Signs with/without symptoms	<input type="checkbox"/>	No signs or symptoms	<input type="checkbox"/>	Unknown				
Are the symptoms/signs consistent with the substance?											
				<input type="radio"/>	Yes	<input type="radio"/>	No	<input checked="" type="radio"/>	Unknown		
Lab tests requested											
				<input type="radio"/>	None requested	<input type="radio"/>	Pending	<input type="radio"/>	Confirmed		
Referral											
				<input checked="" type="radio"/>	None	<input type="radio"/>	Emergency department	<input type="radio"/>	Outpatients	<input type="radio"/>	Other
Additional Information											
				<input type="text"/>							

Assessment of exposure and health

Enter relevant laboratory results where available

Attach Print Park Forward Cancel CPHR

Review or enter data on the health effects reported. 'Systems affected' describes the health effects observed or described to the GP. For example, a headache categorised as central nervous system, shortness of breath as respiratory, nausea and vomiting as gastrointestinal, anxiety as psychological.

Symptoms are how a person describes their disease or injury and are subjective (e.g. abdominal pain, itchy skin). Signs are findings seen by a medical practitioner examining a person or test results, and are objective (e.g. red skin rash, elevated blood lead level). Select from 'symptoms only', 'symptoms and signs' or 'no signs or symptoms'. If the requested laboratory tests were pending at the time of notification, a PHU can seek the result from the laboratory. This information can be used later to assist in case assignment (section 5.4).

3.4 Attaching a file

Some PHUs may keep associated files with the notification form in the HSDIRT system. This can be done using the 'Attach' function at the bottom of the screen.

Click 'Browse' and select the required file. The name of the attached file is visible at the bottom of the screen. The attachment is not sent to CPHR when the form is submitted as it may include identifiable information.

After attaching a file to the HSDIRT form, make sure to click 'Park' to save the changes so files won't be lost.

Figure 10: Attaching a file

Substance name (complete at least 1 field)

Chemical name e.g. sodium hypochlorite	Product name Janola	Common name bleach	Unknown
<input type="text"/>	<input type="text"/>	<input type="text" value="Dishwashing powder tablet"/>	<input type="checkbox"/>

Exposure Event
Assessment
Notifier / Patient Details
PHU Review ▶

Attachments

[386hnbv_attachedhdsirtfile.docx](#)

Attach
Print
Park
Forward
Cancel
CPHR

Attachments

File Selection

- Press 'Browse' to search your folders for the desired file and then double click on your selection.
- Wait while the file is retrieved, if successful you will get a confirmation message under 'File Upload Status'.

File Upload Status:

386hnbv_attachedhdsirtfile.docx has been uploaded

- To select a file to attach to your document - check 'Add File'.
- Un-select a file uncheck 'Add File' or the check box beside the file in the 'Attachment Summary' box (at the bottom of the page).
- To attach selected files to the document - press 'Attach Files'.

Files are ordered by date and time of upload, with the most recent at the top.

386hnbv_attachedhdsirtfile.doc
x

28/05/2013 13:01:33

Add File

1

Attachment Summary

file name: 386hnbv_attachedhdsirtfile.docx	file size: 12.30 kilobytes <input checked="" type="checkbox"/>
---	---

Total Size: 12.3 kilobytes

© bestpractice 2005 - 2013

Click here to open dialog box

4. Administration view

The administration view lists all cases that have been notified to the PHU. They are listed with the most recently notified case at the top. Cases can be sorted according to each column title for example, by substance category or status.

Basic information for team meetings e.g. weekly surveillance meetings can be provided by this view.

Cases can also be deleted from this view using the red box at the right of the table. This may be useful where duplicates have occurred e.g. both clinician and direct laboratory notification. Additionally, if more than one form is completed for a repeat blood lead level on the same person.

Please notify EHINZ if the PHU decides to remove a notification.

Figure 11 Administration view

Search: Main Menu

Hazardous Substances forms: MidCentral PHU User 1									
Patient	NHI	Status	Recipient	Created	Substance Category	Case Assignment	PHU action	PHU Responsible	
Smith, Test	532kjhg	Processed	Centre for Public Health Research	28/05/13 12:10	Lead	Definite case	No further investigation	MidCentral District Health Board	<input type="checkbox"/>
One year old, Roy	386hnbv	Awaiting processing	MidCentral District Health Board	24/05/13 17:47	Household chemical				<input type="checkbox"/>
Example, One	670dfgh	Awaiting processing	MidCentral District Health Board	24/05/13 17:41	Agrichemical				<input type="checkbox"/>
FourteenYearOld, Boy	023jnsbx	Awaiting processing	MidCentral District Health Board	24/05/13 17:32	Fireworks/explosive				<input type="checkbox"/>

Search the notifications for a particular entry, e.g. NHI number or family name.

Notifications which have been submitted to CPHR remain in the administration view as 'processed'

Sort notifications by clicking on a column heading

5. PHU review of a notification

5.1 Deciding on further action

After reviewing the notification data in each of the Notifier/Patient details, Exposure Event and Assessment tabs, a decision on further action can be made. Some cases may require more information from the general practice or individual. The following advice should be used to supplement local decision-making thresholds for investigation which may vary between PHUs.

Investigation guidelines for notifications received through HSDIRT

Not all cases will require investigation by the PHU and it is expected that the majority of HSNO Act cases will not be investigated. It is expected that PHUs will continue to use their own localised processes and priorities when acting on notifications received via the HSDIRT, and the following guidance is to supplement local decision-making.

In the decision to investigate, there are three main responses:

1. No investigation, take no further action,
2. Refer to another agency (such as WorkSafe, a territorial authority or regional council), or
3. Begin an investigation.

Investigation may occur with or without referral to another agency; or in conjunction with another agency.

As with any environmental health activity the response that is appropriate will depend on a variety of factors. The Environmental Health Priority framework from the Ministry of Health's Hazardous Substances Action Plan may help guide decision-making, in particular:

- Significance: does the notification have a significant impact on the health status of the total population or vulnerable groups such as children or pregnant women?
- Effectiveness: are there effective means to address the issue?
- Timeliness: is there any reason why action must be taken urgently or within specific time-periods e.g. public outrage, statutory timeframes, sample half-lives, seasonality of issue, acute risk to health versus chronic risk
- Compliance with statutory, contractual or other requirements
- Tackling this issue will contribute to promoting health status among at-risk communities such as Māori and Pacific people

Likely to investigate

- Unusual exposure with actual or potential significant health consequences
- Exposure to substance which is subject to strict controls
- Where the PHU has identified evidence of a spatial and/or temporal trend
- Large number of people known to be affected
- Children or other vulnerable population affected
- Significant location of exposure e.g. public park, school, early childhood centre
- And, where the time interval between the event and the notification being received allows for a useful investigation.

Likely not to investigate

- Intentional injuries

E.g. intentional adult carbon monoxide poisoning, ingestion of cyanide

NB: There will be cases of intentional injury where public health action will be necessary, e.g. where access to the hazardous substance is gained because of inadequate control.

- Occupational injury and disease

E.g. Chlorine exposure resulting in respiratory symptoms in a swimming pool attendant, spray painter with neurotoxic symptoms

NB: All notifications referred to WorkSafe

- Where there is little evidence of a link between the substance and illness

E.g. Inconsistent symptoms reported following a spray drift event, some notifications from a GP who practises complementary and alternative medicine.

Again, there may be circumstances where public health action or investigation is appropriate e.g. where public concern is particularly high.

- **Some** unintentional child poisonings

E.g. A child swallowing household cleaning product and preventive advice has already been given by the GP

However, in some cases of unintentional childhood poisoning, e.g. heavy metals, public health investigation is warranted.

When a decision is made that no further investigation is necessary, the reason should be documented and the decision should be endorsed by the Medical Officer of Health or the principal/ senior health protection or HSNO enforcement officer.

Cases that are not investigated remain important to include in the HSDIRT system to contribute to overall surveillance. Identification of a national or regional trend from surveillance data may prompt the Ministry of Health or Environmental Protection Authority to undertake an investigation. This may include a national analytical survey of a product e.g. type of cosmetic; household product, where PHUs are involved in sampling or PHUs are requested to investigate cases which may not have previously reached a local threshold for investigation.

5.2 Case notes

The data in the HSDIRT form is intended to record notification and surveillance information. It does not replace case history or investigation notes. These will be kept by PHUs according to their own procedures. A copy of the HSDIRT notification can be printed to include in paper-based case notes by clicking the 'Print' button. Alternatively, electronic case notes can be attached to the notification form using the Attach function as described in section 3.4.

5.3 Entering surveillance data

Complete the PHU review tab when all relevant information has been collected. Enter all available data, including in situations where no investigation has occurred. Where further information is collected and the original GP data are found to be incorrect, update the relevant fields.

The categories for the 'circumstances of the exposure' are based on the life cycle of a hazardous substance and data from this field, alongside 'non-compliance' information will in the future provide unique, useful evidence to inform decision-making around hazardous substances.

Figure 12 PHU review tab

Hazardous Substances Disease & Injury Reporting Tool

bestpra
DECISION SUPPORT FOR HEALTH

Assessment | Notifier / Patient Details | **PHU Review** | Resources

Public Health Unit responsible Please Select

PHU action

- No investigation
- Investigation underway / complete
- Referred to another agency eg WorkSafe

Reporting Source Please Select

Type of notification

- Health Act poisoning arising from chemical contamination of the environment
- Health Act non-occupational lead absorption
- HSNO Act occupational lead absorption or other hazardous substance

Case assignment

- Definite case
- Probable case
- Possible case
- Not a case
- Insufficient info to assign case status

Investigating Officer's name e.g. Health Protection Officer _____

Clinician's name e.g. Medical Officer of Health _____

Date of case review _____

See section 5.5 for forwarding to another PHU – select the correct PHU and “Forward”

See section 5.4 on assigning case status

Exposure Event	Assessment	Notifier / Patient Details	PHU Review
Public Health Unit responsible		Demonstration PHU	
PHU action		<input type="checkbox"/> No further investigation <input type="checkbox"/> Investigation underway <input type="checkbox"/> Referred to another agency eg MBIE <input type="checkbox"/> Investigation complete	
Reporting Source		General Practitioner	
Case assignment			
<input checked="" type="radio"/> Definite case <input type="radio"/> Probable case <input type="radio"/> Possible case <input type="radio"/> Not a case <input type="radio"/> Insufficient info to assign case status			
Investigating Officer's name e.g. Health Protection Officer		<input type="text"/>	
Clinician's name e.g. Medical Officer of Health		<input type="text"/>	
Date of case review		<input type="text"/> <input type="button" value="Calendar"/>	
Exposure event			
Specific name of place where exposure occurred eg Centre Port Wellington. <input type="text"/>			
Address where exposure occurred		Incident Address <input type="button" value="Info"/>	
Street Address	<input type="text"/>	Street Address	<input type="text"/>
Suburb	<input type="text"/>	Suburb	<input type="text"/>
Town/City	<input type="text"/>	Town/City	<input type="text"/>
Postcode	<input type="text"/>	Postcode	<input type="text"/>
DHB	Please Select	DHB	Please Select
What were the circumstances of the exposure? (tick as many as apply). The hazardous substance was being:			
<input type="checkbox"/> manufactured		<input type="checkbox"/> used to manufacture another product	
<input type="checkbox"/> transported		<input type="checkbox"/> disposed of	
<input type="checkbox"/> stored		<input type="checkbox"/> used, for its intended purpose	
<input type="checkbox"/> used, for a purpose outside of its usual use			
Was exposure a result of non-compliance with one or more HSNO controls <input type="radio"/> Yes <input type="radio"/> No			
Notes <input type="text"/>			
Clinical course			
Approx time off work, school, normal duties as a result <input type="radio"/> zero <input type="radio"/> 1-3 <input type="radio"/> 4-9 <input type="radio"/> 10+ days <input type="radio"/> Unknown			
Was person hospitalised <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown			
Died <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown		Date <input type="text"/> <input type="button" value="Calendar"/>	
Exposure Event	Assessment	Notifier / Patient Details	PHU Review

Enter data here where the exposure address is different to the address causing the incident e.g. spraydrift from neighbour

Categories based on lifecycle of hazardous substance.

-
-
-
-
-
-

5.4 Case assignment

PHUs are asked to assign a case status to each notification. In many cases this will be straightforward. For other notifications, a careful review of the exposure history, health effects described by the affected person and reporting practitioner, and a review of the health evidence for the hazardous substance will be required. The process for assigning case status is based on that

used by the National Institute for Occupational Safety and Health of the US Centers for Disease Control for pesticide exposure cases and may not be suitable for some hazardous substance notifications. Feedback on the matrix is appreciated and will be incorporated into future revisions of the Guide.

Choose a category from each part and use the matrix to select a case status.

Part 1 Exposure history

A1Lead Confirmed lead level of $\geq 0.24\mu\text{mol/L}$ with or without exposure history

- A1** Exposure history is corroborated by
- Environmental samples, OR
 - Observation of the environment post exposure by a trained professional (e.g. HPO, MOH) confirms exposure e.g. pesticide residue observed, OR
 - Clinical/Laboratory findings verified by a medical professional which meet the B1 criteria and are characteristic of the hazardous substance
- A2** Evidence of exposure is based on report only
- A3** Strong evidence that no exposure occurred
- A4** Insufficient data on exposure available

Part 2 Health effects

- B1** Abnormal signs or laboratory sample reported by medical practitioner (note that symptoms alone are not enough to meet this criterion)
- B2** Abnormal symptoms only
- B3** No new abnormal symptoms, signs or laboratory samples
- B4** Insufficient data on health effects available

Part 3 Evidence supporting causal relationship between exposure and health effects

C1Lead Confirmed lead level of $\geq 0.24\mu\text{mol/L}$

- C1** All of the following apply
- Health effect/s are characteristic of those known for the hazardous substance/chemical from a reputable source (e.g. TOXINZ, CHEMFIND or other database, safety data sheet, toxicology text, government publication etc.)
 - The temporal relationship between the exposure and health effect is plausible
 - The exposure dose was known/is likely to be sufficient to produce the symptoms experienced
- C2** No evidence of relationship between exposure and health effect
Any of the following apply
- Health effect/s are NOT characteristic of those known for the hazardous substance/chemical from a reputable source (e.g. TOXINZ, CHEMFIND or other database, safety data sheet, toxicology text, government publication etc.)
 - The temporal relationship between the exposure and health effect is NOT plausible
 - The exposure dose was NOT known/NOT likely to be sufficient to produce the symptoms experienced
- C3** Definite evidence of non-hazardous substance cause
- C4** Insufficient data are available to establish causal relationship between exposure and health effects (e.g. minimal human data available)

Part 4 Integration/Matrix

	Definite case	Probable case		Possible case	Insufficient information to assign status	Not a case		
A Exposure	A1/A1Lead	A1	A2	A2	A1 or A2 or A4	A3	Any	Any
B Health effects	B1	B2	B1	B2	B1 or B2 or B4	Any	B3	Any
C Causal relationship	C1/C1Lead	C1	C1	C1	C2 or C4	Any	Any	C3

Resources that may be useful for finding evidence on a causal relationship between exposure and health effects to less common hazardous substances are included in Appendix 2. Of note is the Hazardous Substances Data Bank (HSDB) providing comprehensive, peer-reviewed toxicology data for about 5,000 chemicals through the United States National Library of Medicine’s PubChem.

Details of how to access this are available at

www.nlm.nih.gov/toxnet/Accessing_HSDB_Content_from_PubChem.html

These resources are also accessible via a tab in the form; click on the blue triangle to access the ‘Resources’ tab. Some are most suitable for PHUs, others are best for GPs.

Figure 13 Accessing resources through the notification form

The screenshot shows the 'Hazardous Substances Disease & Injury Reporting Tool' interface. At the top, there are four tabs: 'Exposure Event', 'Assessment', 'Notifier / Patient Details', and 'PHU Review'. Below these, there are fields for 'Public Health Unit responsible' (set to 'Demonstration PHU'), 'PHU action' (with radio buttons for 'No further investigation', 'Investigation underway', 'Referred to another agency eg MBIE', and 'Investigation complete'), and 'Reporting Source' (set to 'Please Select').

A callout box with the text 'Useful resources can be accessed here.' points to the 'Resources' tab. The 'Resources' tab is active, showing two columns of links: 'GP Information' and 'PHU Information'. In the 'GP Information' column, 'Video walkthrough for GPs' is highlighted with a red box. In the 'PHU Information' column, 'Video walkthrough for PHUs' is highlighted with a red box. Other links include 'Frequently Asked Questions', 'Users Guide for GPs (short)', 'Users Guide for GPs', 'Useful resources for GPs', 'Legislation', 'HSDIRT Publications', 'Users Guide for PHUs', 'Useful resources for PHUs', and 'Investigation complete'.

At the bottom of the form, there are four buttons: 'Refresh', 'Park', 'Cancel', and 'Submit'.

5.5 Forwarding a case to a different PHU

There may be cases where a GP selects the incorrect PHU to notify the case, therefore, the notification is sent to the incorrect PHU. If this occurs, change the field 'Public Health Unit responsible' to the correct PHU and click the 'Forward' button at the bottom of the page. The new PHU will receive an email notification to advise them of the notification. A phone call from the referring PHU explaining the circumstances is also recommended.

5.6 Completion of the form

When complete, consider whether your PHU will require a hard copy version of the notification if paper-based files are kept. Use the 'Print' function via the button at the bottom of the screen.

Also consider whether feedback in the form of a letter to the notifying doctor is appropriate, particularly where an investigation has been performed, or where hazardous substance notifications can be encouraged by feedback to clinicians.

Click 'CPHR' to submit the form, it will then become **read only**. The data will be transferred to the EHINZ's Hazardous Substances Surveillance System, with the identifiable data removed by BPAC.

6. Regular reporting from EHINZ

EHINZ will provide each PHU with an annual report. A draft report based on submitted cases as at 1 March (or thereabouts) for the preceding year will be sent for confirmation by the PHU. Notifications that are then identified by the PHU as 'not a case' can be deleted by advising EHINZ. Additional cases cannot be added at this point; they will be included in subsequent national analyses.

National reports in the form of fact sheets on lead absorption and hazardous substances notifications are also available annually.

EHINZ can perform additional analyses on request, for example, GIS coding of cases. These can be discussed by contacting Shunnie Xie (S.Xie@massey.ac.nz or 0800 588 265) or Helene Marsters (T.H.Marsters@massey.ac.nz).

7. Advice from Ministry of Health to investigate

Identification of a national or regional trend from surveillance data may prompt the Ministry of Health to undertake an investigation. This may include a national analytical survey of a product (e.g. type of cosmetic; household product) where PHUs are involved in sampling. PHUs may also be requested to investigate cases which may not have previously reached a local threshold for investigation.

8. Privacy and security of patient information sent via BPAC

All BPAC products need a user name and password to be able to access the programmes, BPAC run server side SSL certificates and use uuencoded documents and bit level encryption to secure the data in transmission.

BPAC meets all relevant aspects of the Health Information Privacy Code 1994 relating to the collection, management and disclosure of health information.

The security for the *bestpractice* servers and application meets or exceeds current New Zealand health standards and includes:

- Health provider access to *bestpractice* is confirmed with username, password server side digital certificate
- Servers are additionally protected from the outside world with industry grade firewalls, intrusion detection, server hardening and security vulnerability patching
- BPAC servers are housed in a secure data hosting facility that provides both electronic and physical security along with natural disaster and fire protection
- Storage of data and personal information complies with the Health Information Privacy Code 1994 and the Privacy Act
- The data base is security controlled and access is restricted. All authorised access to the data base is logged and activity recorded.
- All staff with access to any hardware or data files have signed confidentiality agreements as part of their employment contract.

9. Feedback and queries

Questions and feedback about the HSDIRT are appreciated and will contribute to the ongoing improvement of the system. Questions regarding the HSDIRT can be sent to:

Shunnie Xie
Analyst
Environmental Health Intelligence NZ
Massey University
E: S.Xie@massey.ac.nz
DDI: 04 979 3073 or 0800 588 265

If you have feedback or questions regarding the BPAC system this can be entered using the 'Send Feedback' link in the BPAC dashboard, or by calling 0800 633 236.

Figure 13: Feedback to BPAC

The image shows a screenshot of the 'bestpractice' web application dashboard. The dashboard header includes a welcome message for 'Demonstration PHU User 1' and the 'bestpractice' logo. A navigation menu on the left contains links for 'Dashboard', 'News', 'Settings', and 'Send Feedback'. The main content area shows 'Parked Modules (5)' and 'Recently Used' modules, including 'Hazardous Subs & Lead Notifications', 'Hazardous Substances Administration', and 'Hazardous Substances CSV Export'. A callout box with the text 'Click here to open the feedback form' points to the 'Send Feedback' link in the navigation menu. In the foreground, a 'Feedback Form' window is open in a Google Chrome browser. The form contains the following text: 'Please do not include any patient identifiable information – just send NHI.', 'Please send any comments or questions you have about any aspect of bestpractice Decision Support. Your comments are appreciated and help us to improve our service to you.', a 'Subject:' label with an input field, a 'Comments/Questions:' label with a large text area, and a 'Please enter your email address if you would like specific feedback.' label with a 'Your Email Address:' input field. At the bottom of the form are three buttons: 'Send Feedback', 'Clear Form', and 'Close Window'. The browser's address bar shows the URL 'pilot1.bestpractice.org.nz/Feedback.asp?txtGuideline=hazardous_reporting&Se'. The footer of the form window reads '© bestpractice 2005 - 2016'.

Appendix 1 Legislation

Definition of hazardous substance in Hazardous Substances and New Organisms Act 1996, Part 1 section 2

hazardous substance means, unless expressly provided otherwise by regulations, any substance—

- (a) with 1 or more of the following intrinsic properties:
 - (i) explosiveness:
 - (ii) flammability:
 - (iii) a capacity to oxidise:
 - (iv) corrosiveness:
 - (v) toxicity (including chronic toxicity):
 - (vi) ecotoxicity, with or without bioaccumulation; or
- (b) which on contact with air or water (other than air or water where the temperature or pressure has been artificially increased or decreased) generates a substance with any 1 or more of the properties specified in paragraph (a)

Requirement to notify Medical Officer of Health, in Hazardous Substances and New Organisms Act 1996 section 143 2(A)

143 Notification of hazardous substances injuries

- (1) In this section,—

hospital means a hospital care institution within the meaning of section 58(4) of the Health and Disability Services (Safety) Act 2001

medical practitioner means a health practitioner who is, or is deemed to be, registered with the Medical Council of New Zealand continued by section 114(1)(a) of the Health Practitioners Competence Assurance Act 2003 as a practitioner of the profession of medicine.

(2) If any person, upon admission to a hospital, is found to be suffering from any injury caused by a hazardous substance, the person for the time being in charge of the hospital shall give notice of the injury to the Medical Officer of Health.

(2A) If a medical practitioner finds that a person who is not admitted to a hospital is suffering from an injury caused by a hazardous substance, the medical practitioner must give notice of the injury to the Medical Officer of Health.

Source: New Zealand Legislation website, Parliamentary Counsel Office available at <http://www.legislation.govt.nz/act/public/1996/0030/latest/DLM385138.html>.

Health Act 1956 Schedule 2 Diseases notifiable to Medical Officer of Health (other than notifiable infectious diseases)

Schedule 2

Diseases notifiable to medical officer of health (other than notifiable infectious diseases)

Section B—Other conditions

Cysticercosis

Decompression sickness

Lead absorption equal to or in excess of 0.24 $\mu\text{mol}/\ell$

Poisoning arising from chemical contamination of environment

Taeniasis

Trichinosis

Source: New Zealand Legislation website, Parliamentary Counsel Office available at <https://www.legislation.govt.nz/regulation/public/2021/0035/latest/whole.html#LMS454194>

Requirement of Medical Officer of Health to notify regulator of work-related notifiable disease or hazardous substances injury in Health and Safety at Work Act 2015, section 199

199 Requirement of medical officer of health to notify regulator of work-related notifiable disease or hazardous substances injury

- (1) This section applies if a medical officer of health receives—
 - (a) a notification under section 74 of the Health Act 1956 of a notifiable disease that he or she reasonably believes arises from work:
 - (b) a notification under section 143 of the Hazardous Substances and New Organisms Act 1996 of an injury caused by a hazardous substance that he or she reasonably believes arises from work.
- (2) The medical officer of health must, as soon as practicable after receiving the notification,—
 - (a) advise the regulator of the notification; and
 - (b) provide the regulator with the following information:
 - (i) the name of the person who suffers or suffered from the notifiable disease or injury caused by the hazardous substance; and
 - (ii) the nature of the disease or injury.
- (3) Except as required by subsection (2)(b), the medical officer of health must comply with the Privacy Act 1993 and any relevant code of practice issued under that Act.

Source: New Zealand Legislation website, Parliamentary Counsel Office available at <http://www.legislation.govt.nz/act/public/2015/0070/latest/DLM5977194.html>.

Appendix 2 Useful Resources for PHUs

CHEMFIND

The CHEMFIND database system is owned by Responsible Care NZ (formerly the NZ Chemical Industry Council). It is a website system that contains chemical data, mainly data sheets, which is regularly updated giving users 24-hour access to up-to-date chemical information on hazards identification, composition on ingredients, first aid measures, chemical spills, etc. CHEMFIND is a valuable resource for public health units responding to chemical incidents and emergencies.

The Ministry of Health has purchased CHEMFIND licences for each public health unit's office. Responsible Care NZ will also provide technical assistance 24- hours, seven days a week by phoning 0800 CHEMCALL [243 622] if required.

TOXINZ database

TOXINZ is an internet accessible poisons information database containing recommendations on the management of poisoning from over 190,000 listed chemical products, pharmaceuticals, plants and hazardous creatures. This resource is reviewed and added to accommodate more information. The information is referenced and updated regularly. An annual subscription is required to access the database.

<http://www.toxinz.com>

National Poisons Centre: 0800 POISON (0800 764 766)

The National Poisons Centre (NPC) has a free 24-hour service providing information on the health effects of chemicals, drugs, poisonous plants, poisonous insects and marine animals. The telephone number is 0800 POISON (0800 764 766) (24 hours). TOXINZ is the NPC's internet database.

The main role of the NPC is to provide advice to members of the public and health care professionals about acute poisoning situations. This can involve medicines, chemicals, hazardous creatures (e.g. spiders, snakes, jellyfish), or plants and fungi.

The permanent information specialist staff have expertise in toxicology, medical toxicology, chemistry and pharmacy. The NPC maintains TOXINZ, in addition to a comprehensive toxicology library and has access to a range of other databases and information sources, both nationally and internationally.

<http://www.poisons.co.nz/>

Environmental Protection Authority

Chemical Classification and Information Database

The Chemical Classification and Information Database (CCID) details the chemicals classified in accordance with the Hazardous Substance and New Organisms (HSNO) regulations.

The CCID provides chemical identification information, hazard classifications and classification data.

<https://www.epa.govt.nz/database-search/chemical-classification-and-information-database-ccid/>

Database of approved hazardous substances with controls

This database details the controls on approved hazardous substances. Controls for each approval can be accessed using the substance name. Changes made by reassessment or amendment processes are also included.

<https://www.epa.govt.nz/database-search/approved-hazardous-substances-with-controls/>

International sources – Free access

TOXNET

Online search of multiple databases on toxicology, hazardous chemicals, environmental health, and toxic releases provided by the United States National Library of Medicine (NLM). From late 2019 this content was integrated into PubChem and other NLM databases.

International Program on Chemical Safety

This site provides free access to internationally peer reviewed information on chemicals commonly used throughout the world, which may also occur as contaminants in the environment and food. It consolidates information from a number of intergovernmental organisations whose goal is to assist in the sound management of chemicals. It is indexed by chemical name, some synonyms and CAS numbers. International Chemical Safety Cards, Environmental Health Criteria (EHC) Monographs, UK Poisons Information and other content is available.

<http://www.inchem.org/>

NIOSH Pocket Guide to Chemical Hazards

The Center for Disease Control's National Institute for Occupational Safety and Hygiene (NIOSH) Pocket Guide to Chemical Hazards is intended as a source of general industrial hygiene information on several hundred chemicals/classes for workers, employers, and occupational health professionals. The pocket guide does not contain an analysis of all pertinent data, rather it presents key information and data in abbreviated or tabular form for chemicals or substance groupings (e.g.

cyanides, fluorides, manganese compounds) that are found in the work environment. The information found in the Pocket Guide should help users recognise and control occupational chemical hazards. It is searchable by chemical name, some synonyms and trade names, and CAS numbers.

<http://www.cdc.gov/niosh/npg/>

ATSDR Toxicological profiles

Information about contaminants found at hazardous waste sites, from the Agency for Toxic Substances and Disease Registry

<http://www.atsdr.cdc.gov/toxprofiles/index.asp>

International source – Requires subscription

Chemwatch Product names: (M)SDS Repository, ChemGoldIII, ChemWatcher

Searchable database of industry provided material safety data sheets, and some information provided by independent experts. Chemwatch maintains regulatory information regarding the HSNO Act. This database is best searched using the chemical name of the substance involved.

<http://www.chemwatch.net/>

Ministry of Health Guidelines

Available from <http://www.health.govt.nz/publications>

Hazardous Substance Injuries

Investigation and Surveillance of Poisoning and Hazardous-substance Injuries (2019)

Lead

The Environmental Case Management of Lead-exposed Persons: Guidelines for Public Health Units: (2021)

Guidelines for the Management of Lead-based Paint (2013)

Asbestos

The Management of Asbestos in the Non-occupational Environment: Guidelines for Public Health Units (2017)

All about Asbestos: Protecting your Health at Home (2017)

Removing Asbestos from your Home (2017)

Polychlorinated Biphenyls (PCBs)

Safe Management of PCBs Code of Practice (2017)

Response to Major Fires

Guidelines for Public Health Units: Response to Major Fires (2014)

Dioxins

Dioxins: A Technical Guide (2020)

Agrichemical Spraydrift

The Investigation and Surveillance of Agrichemical Spraydrift Incidents: Guidelines for Public Health Units (2007)
