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What is the Hazardous Substances Disease and Injury Reporting Tool (HSDIRT)?

The Hazardous Substances Disease and Injury Reporting Tool (HSDIRT) is a general practitioner (GP) notification system for hazardous substances disease and injury, as required under section 143 of the Hazardous Substances and New Organisms (HSNO) Act 1996.¹ It also includes lead absorption ≥ 0.24 $\mu\text{mol/L}$ and poisoning arising from chemical contamination of the environment under the Health Act 1956.

Massey University's Environmental Health Intelligence NZ (EHINZ) developed the HSDIRT in conjunction with *bestpractice* Decision Support (BPAC), which develops forms and decisions support tools which are linked to a GP's patient management system.

What is the HSDIRT used for?

The EHINZ undertakes hazardous substances surveillance for the Ministry of Health. This includes data sources such as hospitalisations, mortality and coronial records, and calls to the National Poisons Centre. The HSDIRT is an additional data source and provides information about presentations to primary care as a result of exposure to hazardous substances. Some public health units (PHUs) also use it to record data from hazardous substance-related emergency department attendances.

Why BPAC?

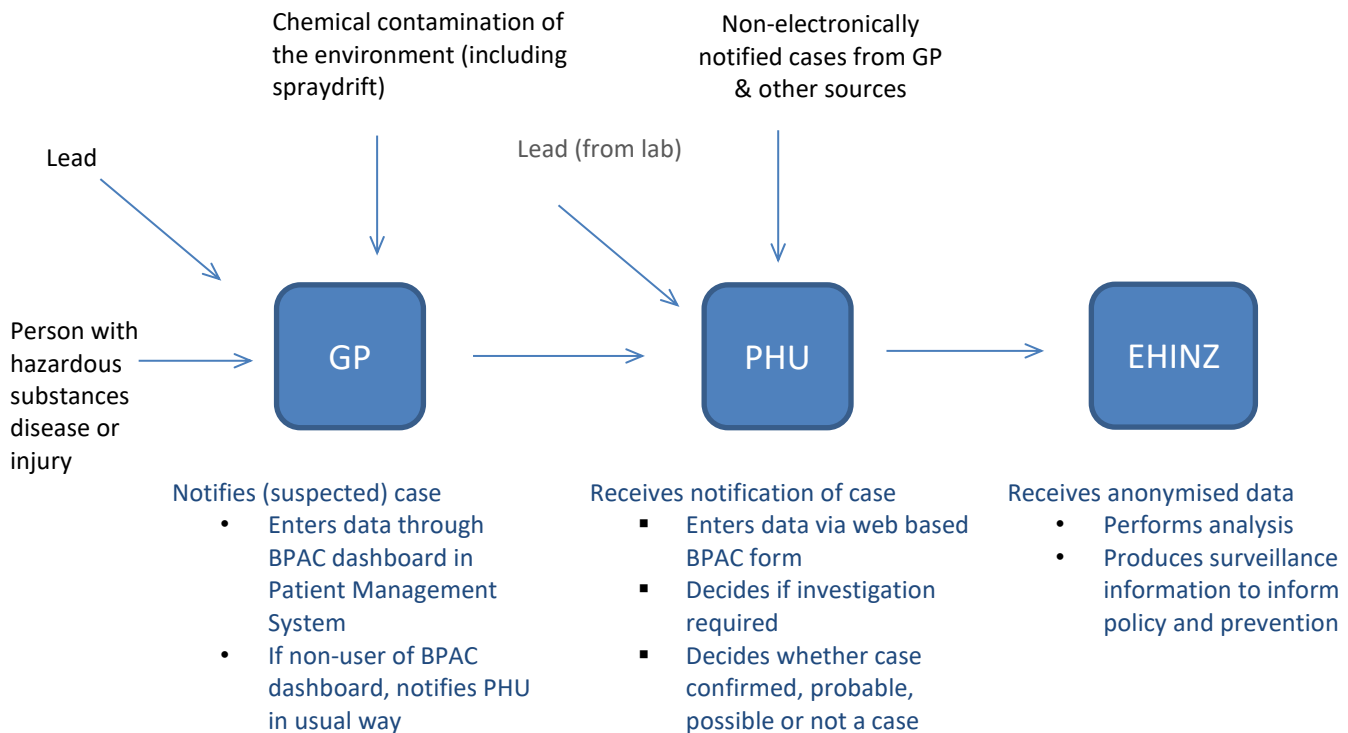
BPAC (or *bestpractice* Decision Support) is a web-based system for decision support that is designed for general practice. Their modules are commonly used by GPs for screening, risk assessment, management and referral and are commonly and widely used around the country. Their tools include the Centre for Adverse Reactions Monitoring form for reporting adverse drug reactions.

How does the HSDIRT work?

When a patient presents to primary care with an injury or disease related to exposure to a hazardous substance (HSNO Act); or lead or chemical contamination of the environment (including spray drift) (Health Act), the GP is able to electronically notify the Medical Officer of Health (MOH) via a BPAC form. The MOH is sent an email (containing no identifiable data) alerting them that a notification has been sent, and they are able to log on to the BPAC secure system to access the notification.

The PHU enters data into the form and submits it electronically to EHINZ via BPAC. BPAC removes identifiable data before making the data available for analysis for surveillance purposes.

¹ The HSNO Act uses the term "injury". This has been defined to include disease as well as injury.



Wouldn't it be better to collect cases directly from the electronic ACC form?

Accident Compensation Corporation (ACC) data has been considered previously and decided against as a single source for primary care information. While case ascertainment would be high, the quality of the data in ACC forms is less fit for the purpose of hazardous substances disease and injury surveillance and would result in lower quality surveillance information.

What is a case?

The HSDIRT requires PHUs to assign a case status of confirmed, probable, possible, not a case or insufficient information to assign case status. Guidance is provided for assigning case status in the *User's Guide for PHUs*. The process is based on the US National Institute of Occupational Safety and Health model and combines the exposure history, the health effects and the evidence supporting a causal relationship.

There may be situations where a GP's diagnosis (or ACC assessment) will be different to the case status assigned by the PHU. This reflects the different classification systems.

How do we know we have a notification?

The PHU-supplied email addresses are used to inform PHUs that new notifications have been sent by GPs. Public Health Units need to ensure that these email addresses are checked routinely, including during periods of annual leave where individuals' rather than generic email addresses have been supplied.

Please notify us if you wish to change the email address.

What notifications are investigated?

The MOH will decide whether an investigation is required. Please refer to the *User's Guide for PHUs* for guidance. Most HSNO Act notifications will not require follow up but may lead to national or local investigation based on trend data.

What happens to notifications arising from occupational exposures?

Section 143 of the HSNO Act 1996 does not differentiate between non-occupational and occupational exposures. Therefore, notifications are required for both modes of exposure.

EHINZ collates and analyse the occupational notifications as well as the non-occupational notifications.

What happens with occupational lead absorption notifications?

Schedule 2 of the Health Act 1956 was amended in 2012 to remove any implication that MOsH have a statutory role in occupational health. Section B of Schedule 2 continues to list lead absorption, allowing the notification of non-occupational cases. For notifications under Section B, the obligations of MOsH are unchanged (ie, public health action such as investigations and follow up will occur as and when appropriate).

Lead absorption is also covered by the HSNO Act. Notifications by medical practitioners of hazardous substances disease and injury will therefore include workplace exposures.

In practice, MOsH will receive notifications both from medical practitioners regarding workplace and non-workplace exposure and from direct laboratory notification (DLN) which have little or no exposure information. If the workplace is identified as a source of exposure MOsH may still choose to follow up cases, particularly if the blood lead level is high enough for para-occupational exposures to potentially be of concern (eg, where a painter may take home work clothing exposing children to lead or transport children in a work vehicle), or where additional exposure sources are involved (eg, hobbies or Ayurvedic medicines).

Occupational lead absorption cases should be entered into the HSDIRT.

What happens with direct laboratory notifications (DLNs) of lead absorption?

Hazardous substances and poisoning arising from chemical contamination of the environment notifications are uncommon and processes vary considerably between regions. Conversely, lead absorption notifications are more common and prior to 2013 had a well-established system in place through EpiSurv. Developing a system to incorporate all three types of notification required a balancing of the differing requirements.

The number of lead notifications have changed considerably following introduction of direct laboratory notification (in 2008) and lowering of the non-occupational blood level.

Direct laboratory notifications have limited information: the test result, case name, case address, case date of birth, ordering medical practitioner and in some cases, NHI. Further information is usually gained by phoning the practice of the ordering medical practitioner and entered manually into the case report form.

With the increase in DLNs, there has been a reduction in the number notified directly from medical practitioners to virtually nil in some areas.

There is not a mechanism for DLNs for lead to automatically be transferred to the HSDIRT. Some scoping work for automatic transfer was done but the Ministry of Health has decided that PHU staff are to transfer DLNs of lead from EpiSurv into the HSDIRT. This requires manual data entry of the data (approximately six fields).

It is suggested that the PHU call the general practice after a DLN has been received and encourage them to complete the HSDIRT. This gives the PHU vital clinical information, does not require data to be manually transferred from the back end of EpiSurv (the GP can attach the blood result to the HSDIRT) and familiarises the GP with the HSDIRT form for future notifications.

What happens with serial blood lead results?

It is the PHU's role to arrange repeat blood lead testing of the index lead absorption case and other household residents as required, as described in the Ministry of Health's lead guidelines. In most cases, a slow but steady fall is expected with a case's blood lead level remaining over the notifiable level for a prolonged period in some instances. A levelling out or a rebound of the blood lead level, would be a cause for concern and likely prompt re-evaluation.

Serial blood lead results can be attached to the original notification.

As stated in the Ministry of Health's *Environmental Health Circular Letter* April 2013, 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.

How can we promote GP use of the HSDIRT?

We ask PHUs to assist by including messages regarding hazardous substances disease and injury notifications in discussions or communications with primary care and to promote the HSDIRT through other locally appropriate means. Some material is available from EHINZ for adaption for local use. Examples of local PHU activities have included articles in newsletters and presentation at a GP Continuing Medical Education session on poisoning. National promotion occurs through the BPAC Journal *Best Practice* and from time-to-time professional media (eg, NZ Doctor) and the BPAC stand at GP conferences.

Can emergency departments and secondary care access the HSDIRT?

Notifications from emergency departments are not able to be incorporated as electronic notifications due to the large number of different IT systems that are currently operating throughout New Zealand – this may be possible in the future if emergency department systems are aligned.

However, we encourage PHUs who currently have arrangements with their local emergency departments to include these cases by manually entering the data where possible.

If a medical practitioner with no access to a practice management system is keen to notify electronically a user name and password can be arranged for that medical practitioner to access the HSDIRT via the web. Please contact us to arrange this with BPAC.

When was the HSDIRT implemented?

The HSDIRT commenced on 1 February 2013 with a pilot period at Regional Public Health. A revised version which incorporated feedback from the pilot commenced in June 2013 and was progressively rolled out throughout New Zealand in 2013.

How can the data inform preventive action?

In 2005 dishwasher powders were recognised as an area of concern with large numbers of children ingesting caustic dishwashing powder and requiring medical attention. Between January 2003 and January 2005 there were 610 calls to the National Poisons Centre (NPC) and 11 admissions to Starship Hospital including five to intensive care. No information was available about primary care cases.

These data were used to inform public health action. A Safekids awareness campaign was initiated and in 2007 ERMA New Zealand (now the Environmental Protection Authority) made changes to the corrosive cleaning products group standard prohibiting the sale of dishwashing powders with a pH of greater than 12.5. Group standards are a regulatory mechanism under part 6A of the HSNO Act 1996 which provide an approval and control regime for specific groups of hazardous substances. As a result of these actions the number of children referred for medical attention following a call to the NPC for dishwashing powder ingestion decreased considerably.

The HSDIRT, as part of the overall hazardous substances surveillance system aims to identify strategies that might reduce future morbidity and mortality resulting from exposure to hazardous substances.

Key points

- Surveillance is done to inform public health action
- Dishwashing powder is a useful example of how changes can be made to improve health outcomes
- Primary care and PHU data is important for both immediate control measures and longer term preventive action.

Refs: Bertinelli, A et al. Serious injuries from dishwasher powder ingestions in small children. *Journal of Paediatrics and Child Health* **42** (2006) 129-133.

Environmental Risk Management Authority New Zealand. Monitoring Report 2011. Available at <http://www.epa.govt.nz/Publications/Monitoring%20Report%202011.pdf>

Safekids New Zealand. Children ingesting dishwashing powder: Update 2007. Available at <http://www.safekids.org.nz/Downloads/Safekids%20Position%20Papers/Safekids%20position%20paper%20Children%20ingesting%20dishwashing%20powder%20-%20Update%202007.pdf>

What is the extent of morbidity from exposure to hazardous substances?

Please see the latest annual fact sheets on hazardous substances hospitalisations, lead absorption notifications and hazardous substances notifications for information. These are available at:

<https://www.ehinz.ac.nz/publications/publication-search/>

Other fact sheets (eg, hazardous substances deaths) are produced periodically.

Where can I find useful resources about hazardous substances?

Lists of resources for PHUs (refer to Appendix 2 *User's Guide for PHUs*) and for GPs are available under the Resources tab of the HSDIRT. The resources may be useful in the investigation of a notification, or in deciding whether a notification needs to occur.

If you have suggestions of additional resources which may be useful to PHU staff or GPs, please let us know and these can be added to the list.

Who do I contact?

If you have any data enquiries or suggestions for modifications to the HSDIRT or additional resources, please contact Jack Turnbull, or alternatively Helene Marsters.

Jack Turnbull
Analyst
Environmental Health Intelligence NZ
Massey University
E: j.turnbull1@massey.ac.nz
DDI: +64 4979 3117

Helene Marsters
Senior Analyst
Environmental Health Intelligence NZ
Massey University
E: T.H.Marsters@massey.ac.nz