



# **ANNUAL REPORT 2015**

## **V**ictorian **P**oisons **I**nformation **C**entre

**13 11 26**

**Emergency Department  
Austin Hospital  
Heidelberg 3084**

**[www.austin.org.au/poisons](http://www.austin.org.au/poisons)**

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## **Introduction**

The Victorian Poisons Information Centre (VPIC) commenced operation in 1962. It was located at the Royal Children's Hospital, Melbourne from 1976 to 2008. In August 2008, the centre moved to the Austin Hospital, to co-locate and integrate with the Austin Hospital Clinical Toxicology Service (AHCTS). VPIC is located in the Austin Hospital Emergency Department, and is directed administratively as part of the Austin Hospital Pharmacy Department.

VPIC provides members of the Victorian public with:

- risk assessment, first aid, and management advice in the event of poisoning or suspected poisoning involving: accidental/unintentional exposures that include therapeutic errors and occupational workplace exposures; deliberate self poisonings; envenomations; toxic hazard situations
- advice regarding the need for medical assessment
- information, advice and resources about prevention of poisoning
- referral to other information sources or agencies if appropriate
- selected drug information.

VPIC provides health professionals with:

- a risk assessment in the event of poisoning or suspected poisoning involving: accidental/unintentional exposures that include therapeutic errors and occupational workplace exposures; deliberate self poisonings; envenomations; toxic hazard situations
- information about the potential toxic effects from an exposure
- initial and ongoing management advice
- information on formulation of products
- referral to other information sources or agencies if appropriate
- referral to a member of the supporting medical toxicology team (registrar, fellow or consultant) for complicated and/or severe cases, following agreed escalation protocols
- information and data about trends in poisonings (toxicovigilance).

VPIC aims to prevent unnecessary visits to general practitioners and hospitals and unnecessary ambulance callouts, and to ensure patients who are poisoned or envenomed receive the most appropriate treatment promptly.

The VPIC telephone number is **13 11 26**. This number can be used Australia-wide for the cost of a local call (excluding mobile phones).

## **Hours of Operation**

VPIC operates Monday to Friday (0800 to 2130 hours), and Saturday and Sunday (0800 to 2100 hours), ie 93.5 hours per week. Outside these times, calls are diverted to the New South Wales (NSW) Poisons Information Centre. Overnight shifts (12 midnight to 0600 hours) are shared between the four Australian PICs (NSW, Queensland, Western Australia and Victoria). Only one PIC operates overnight, taking all the calls from across Australia while the other three PICs are closed. In December 2015, VPIC increased its overnight shift commitment from six shifts per month to seven shifts per month.

## **Personnel**

### **Director of Austin Health Pharmacy and the VPIC**

Kent Garrett B. Pharm., Grad. Dip. Hosp. Pharm.

**Manager, VPIC**

Jeff Robinson B. Pharm., FSHP, Grad. Dip. Hosp. Pharm.

**Medical Director of VPIC**

Dr Shaun Greene MB ChB, MSc (Medical Toxicology), FACEM

**Specialists in Poisons Information (SPIs)**

Janet Browning B. Pharm., Dip. Hosp. Pharm.

Mark Colbridge B. Sc (Hons)

Dr Dawson MacLeod B. Pharm., Grad. Dip. Biotech., Grad. Cert. Clin. Tox., PhD

Hamish McCracken B. Pharm., Grad. Dip. Psych.

Christine McKenzie B. Pharm., Grad. Cert. E-Health Comm., Grad. Cert. Clin. Tox.

Jeff Robinson B. Pharm., FSHP, Grad. Dip. Hosp. Pharm.

**Toxicology Fellow in Training**

Dr Anselm Wong MB BS, FACEM, Dip. Tox – until May 2015

Dr Yit Leang MB BS, FACEM – from August 2015

**On-Call Clinical Toxicologists**

The following clinical toxicologists shared the VPIC on-call responsibilities during 2015:

Professor George Braitberg MB BS, FACEM, FACMT, Dip Epi Biostats (Melbourne Health)

Dr. Dino Druda B. Med. Sc (Hons), MB BS, MRCP (UK), FACEM, Grad. Cert. Clin. Tox. (Monash Health)

Professor Andis Graudins MB BS, PhD, FACEM, FACMT (Monash Health)

Dr Shaun Greene MB ChB, MSc (Medical Toxicology), FACEM (AHCTS)

Dr Fergus Kerr MB BS, FACEM (AHCTS) – until May 2015.

Dr. Zeff Koutsogiannis MB BS, FACEM, Grad. Cert. Clin. Tox. (AHCTS)

Dr Anselm Wong MB BS, FACEM, Dip. Tox (AHCTS) – from May 2015

AHCTS is comprised of a toxicology registrar (six month rotation) and three toxicology consultants (Dr. Fergus Kerr until May 2015; Dr. Shaun Greene; Dr. Zeff Koutsogiannis; Dr. Anselm Wong from May 2015). Dr. Anselm Wong, who joined AHCTS in May 2013, completed his clinical toxicology fellowship in May 2015. His replacement, Dr. Yit Leang, commenced his clinical toxicology fellowship training in August 2015.

In July 2014, a shared AHCTS/Monash Health on-call toxicology service (VAMPIRE) commenced. The shared service continued during 2015. Two clinical toxicologists from Monash Health, Professor Andis Graudins and Dr. Dino Druda, joined the AHCTS toxicologists to provide a specialised management and advice service for toxicology/toxinology admissions at Austin Health and Monash Health, and other Victorian hospitals via VPIC call referral. Professor George Braitberg (Melbourne Health – Royal Melbourne Hospital) also participates in the on-call service.

VPIC staff enjoy a close day-to-day working relationship with the AHCTS team. VPIC SPIs have ready access to the toxicology registrar, toxicology fellow or the on-call consultant in complicated and/or severe poisoning cases meeting case escalation criteria. In addition, a range of external consultants (clinical pharmacologists, mycologists and botanists) are available to VPIC staff to provide specialist advice in these areas if needed.

Additionally, Drs. Greene, Koutsogiannis, Druda, Wong and Professor Graudins continued their participation in the national toxicology on-call roster.

## **Clinical Governance Activities**

Clinical governance has been defined as the framework through which health care organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish.

The following clinical governance activities were undertaken during 2015:

- Internal review of all VPIC calls by a second VPIC staff member.
- Review of all VPIC potentially 'critical incident' calls by the Toxicology Registrar, ie all calls received from hospitals, general practitioners and ambulances. The Registrar provides feedback as appropriate, and the call review forms part of the Registrar's training.
- Reports of all shared-service cases and VPIC calls referred to the registrar, fellow or on-call toxicologist were emailed to VPIC, AHCTS and Monash Health Toxicology staff, with follow-up reports if appropriate.
- Next day follow-up of any Victorian cases that were referred to the national roster toxicologist overnight. If appropriate, follow-up reports of these cases were emailed to VPIC, AHCTS, Monash Health Toxicology staff and the national toxicology/PIC email distribution list.
- Ongoing involvement in VPIC/AHCTS educational activities, eg monthly Global Educational Toxicology Uniting Project (GETUP) videoconferencing with the PICs in Fiji and Fresno, California; two half-day Toxicology Forums; Austin Hospital Grand Rounds; case discussions including morbidity and mortality review, teaching sessions and Toxicology Journal Club held every Wednesday.
- Ongoing review of VPIC/AHCTS policies, procedures, protocols, clinical guidelines and position statements. These reviews are performed every two years or earlier if indicated.
- VPIC and AHCTS staff attended the national PIC/Toxicology Clinical Meetings held in Sydney (TAPNA) and Perth (TAPNA and the Asia Pacific Association of Medical Toxicology (APAMT)).
- Annual Austin Health Performance Review and Development (PRD) for all VPIC staff.

## **Poisoning Prevention Activities**

The following poisoning prevention activities were undertaken during 2015:

- Printed material (pamphlets, telephone stickers, posters, information sheets) and fridge magnets were supplied to child care centres, kindergartens, local councils, Maternal and Child Health Centres, GP surgeries etc throughout the year.
- In April, Jeff Robinson liaised with the mycologists at the Royal Botanic Gardens, Melbourne and the Media Unit of the Victorian Department of Health and Human Services to release a Chief Health Officer Advisory 'Death Cap Mushrooms growing in Melbourne.'
- In November, VPIC received a donation from the Heidelberg Rotary Club to pay for re-designed 'Easy As ABC' fridge magnets.
- The bites and stings information on the VPIC website [www.austin.org.au/poisons](http://www.austin.org.au/poisons) was updated. The website contains: poisoning/envenomation prevention and first aid advice; information sheets for members of the public; links to other resources such as VPIC Annual Reports, the Practice Standards for Australian Poisons Information Centres, Chemical Safety, Drug and Alcohol Services, first aid courses, food poisoning, various Helplines, child safety/injury prevention, lead exposure resources, Occupational Health and Safety.

## **Toxicovigilance Activities**

Toxicovigilance is the active process of identifying and evaluating toxic risks, and evaluating the measures taken to reduce or eliminate them. It involves the analysis of PIC data to identify if there are specific circumstances or agents giving rise to poisoning, or certain populations or locations suffering a higher incidence of poisoning or the need for public education and restrictions on the availability of certain products. Toxicovigilance may lead to PIC safety alerts in cases of sentinel events. Toxicovigilance can also reveal whether there is an emerging toxicological problem resulting from, for example, the reformulation of a product or a change to its packaging or labelling or the availability of a new drug of abuse.

To support toxicovigilance activities, VPIC has developed collaborative links with: the other Australian PICs; public health agencies such as the Victorian Department of Health and Human Services Environmental Health Unit; the Victorian Institute of Forensic Medicine (VIFM); regulatory authorities such as the Therapeutics Goods Administration (TGA); medication safety bodies; child safety groups, eg Kidsafe, Royal Children's Hospital Safety Centre.

The following toxicovigilance activities were undertaken during 2015:

- VPIC call data pertaining to methotrexate therapeutic errors in the last 10 years was provided to Rose Cairns, NSW Poisons Information Centre, as part of a national study of this issue.
- VPIC call data pertaining to alcohol-based hand hygiene products (ABHHP) exposures was provided to the Royal Children's Hospital, Melbourne.
- VPIC call data pertaining to intentional methadone exposures was provided to Rose Cairns, NSW Poisons Information Centre.
- VPIC call data pertaining to intentional buprenorphine exposures was provided to Rose Cairns, NSW Poisons Information Centre.
- VPIC call data pertaining to Lye water exposures was provided to Dr. Carolyn Lewis, South Australian Health Department.
- VPIC call data pertaining to amyl nitrite and other volatile nitrite exposures in the last 10 years was provided to Rose Cairns, NSW Poisons Information Centre, as part of a national study of these products.
- VPIC call data pertaining to benzodiazepine, zolpidem, zopiclone, melatonin and other hypnotic/sedative exposures in the last 10 years was provided to Rose Cairns, NSW Poisons Information Centre, as part of a national study into the effects of the rescheduling of alprazolam.

## **Publications and International Conference Presentations**

The following publications and international conference presentations were achieved during 2015:

- Wong A, Vohra R, Ruha AM, Koutsogiannis Z, Graeme K, Dargan PI, Wood DM, Greene SL. The Global Educational Toxicology Uniting Project (GETUP): an Analysis of the First Year of a Novel Toxicology Education Project. *J Med Toxicol* 2015; 11(3): 295–300.
- Wong A, Little M, Caldicott D, Easton C, Andres D, Greene SL. Analytically confirmed recreational use of Phenibut ( $\beta$ -phenyl- $\gamma$ -aminobutyric acid) bought over the internet. *Clin Tox* 2015; 53(7): 783–4.
- Wong A, Sivilotti MLA, Dargan PI, Wood DM, Greene SL. External validation of the paracetamol-aminotransferase multiplication product to predict hepatotoxicity from paracetamol overdose. *Clin Tox* 2015; 53(8): 807–14.

- Wong A, MacLeod D, Robinson J, Koutsogiannis Z, Graudins A, Greene SL. Oxycodone/naloxone preparations can cause acute withdrawal symptoms when misused parenterally or taken orally. *Clin Tox* 2015; 53(8): 815–8.
- Wong A, Mac K, Aneman A, Wong J, Chan BS. Modern Intermittent Haemodialysis (IHD) is an Effective Method of Removing Salicylate in Chronic Topical Salicylate Toxicity. *J Med Toxicol* Published first online 3<sup>rd</sup> September 2015. DOI 10.1007/s13181-015-0502-z.
- Graudins A. Paracetamol poisoning in adolescents in an Australian setting: Not quite adults. *Emerg Med Australas* 2015; 27: 139–44.
- Rotella JA, Wong A, Howell J, Rowbotham A, Greene SL. High-visibility warning labels on paracetamol-containing products do not prevent suprathreshold ingestion in a simulated scenario. *Clin Tox* 2015 DOI: 10.3109/15563650.2015.1098657.
- Wong A, Graudins A. Simplification of the standard three-bag intravenous acetylcysteine regimen for paracetamol poisoning results in a lower incidence of adverse drug reactions. *Clin Tox* 2015 DOI: 10.3109/15563650.2015.1115055.
- Wong A, Sivilotti MLA, Dargan PI, Wood DM, Greene SL. Letter in reply to Chiew and Buckley. Re: External validation of the paracetamol-aminotransferase multiplication product to predict hepatotoxicity from paracetamol overdose. *Clin Tox* 2015; 53(10): 1154.
- Wong A, Sivilotti MLA, Dargan PI, Wood DM, Greene SL. Letter in reply to Riggan et al. Re: External validation of the paracetamol-aminotransferase multiplication product to predict hepatotoxicity from paracetamol overdose. *Clin Tox* 2015; 53(10): 1157.
- Wong A, Dargan P, Koutsogiannis Z, Sokol J, Ramkrishna J, Greene SL. Chronic Ayurvedic medicine use associated with major and fatal congenital abnormalities. *MJA* 2015; 203(11): 443–5.
- Graudins A, Harper A. Comparison of adverse drug reaction rates using a two-bag to a standard three-bag intravenous acetylcysteine regimen for paracetamol poisoning. EAPCCT Conference, Malta, May.
- Wong A, Dargan PI, Koutsogiannis Z, Greene SL. Chronic ayurvedic medicine use in pregnancy associated with fetal abnormalities. EAPCCT Conference, Malta, May.
- Lee HM, Graudins A. Head injury or intoxication? Unidentified eye drop ingestion resulting in naphazoline toxicity in a toddler. EAPCCT Conference, Malta, May.
- Ruggoo V, Lee HM, Graudins A. Severe hypertensive crisis and takotsubo cardiomyopathy after intrathecal clonidine pump failure. EAPCCT Conference, Malta, May.
- Wong A, Little M, Caldicott D, Easton C, Andres D, Greene SL. Multiple intensive care admissions associated with analytically confirmed recreational use of Phenibut ( $\beta$ -phenyl- $\gamma$ -aminobutyric acid) purchased over the Internet. EAPCCT Conference, Malta, May.
- Wong A, Mac K, Aneman A, Wong J, Chan BS. Modern intermittent haemodialysis (IHD) is an effective method of removing salicylate in chronic topical salicylate toxicity. EAPCCT Conference, Malta, May.
- Wong A, Sivilotti ML, Dargan PI, Wood DM, Greene SL. External validation of the paracetamol-aminotransferase multiplication product to predict hepatotoxicity from paracetamol overdose. EAPCCT Conference, Malta, May.
- Wong A, MacLeod D, Robinson J, Koutsogiannis Z, Graudins A, Greene SL. Oxycodone/naloxone preparations can cause acute withdrawal symptoms following intravenous and oral exposure. EAPCCT Conference, Malta, May.
- Rotella JA, Wong A, Howell J, Rowbotham A, Greene SL. High-visibility warning labels on paracetamol-containing products do not prevent suprathreshold ingestion. EAPCCT Conference, Malta, May.

- Wong A, Vohra R, Ruha AM, Koutsogiannis Z, Graeme K, Wood DM, Dargan PI, Creaton A, Greene SL. The Global Educational Toxicology Uniting Project (GETUP). EAPCCT Conference, Malta, May.
- Wong A. Videoconferencing for Global Toxicology Education: ACMT'S GETUP Initiative. APAMT Conference, Perth, December.

### **Conference and Meeting Attendances**

The following conferences and meetings were attended during 2015:

- As part of the Global Educational Toxicology Uniting Project (GETUP), VPIC/AHCTS staff participated in monthly videoconferencing with the PICs in Fiji, California and South Africa.
- VPIC and AHCTS staff attended and presented at the half-day Toxicology Forums held at the Austin Hospital in April and November.
- In March, VPIC and AHCTS staff attended a Monash Health Toxicology Service half-day seminar held at Dandenong Hospital.
- In March, Jeff Robinson attended a meeting of PIC Managers in Sydney to discuss the findings of the KPMG national PIC costing study.
- VPIC and AHCTS staff attended and presented at the two national PIC/Toxicology Clinical Meetings (TAPNA), held in May (Sydney) and December (Perth).
- In May, AHCTS staff attended and presented at the EAPCCT Conference in Malta.
- In July, AHCTS staff attended and presented at the ACEM Winter Symposium held in Alice Springs.
- In December, VPIC and AHCTS staff attended and presented at the Asia Pacific Association of Medical Toxicology (APAMT) conference held in Perth.
- In December, Jeff Robinson and Shaun Greene attended the national PIC/Toxicology Business Meeting held in Perth.
- In December, Jeff Robinson and Shaun Greene participated in the Poisons Information and Toxicology Network Australia (PITNA) Working Party teleconference.

### **Other Activities**

The following additional activities were undertaken during 2015:

- VPIC/AHCTS educational activities continued to be held every Wednesday, eg teaching sessions, ward round, case discussions including morbidity and mortality review, Toxicology Journal Club.
- Review of VPIC/AHCTS clinical guidelines, policies, procedures, protocols and position statements was ongoing. Abridged versions of clinical guidelines were placed on the Austin Health intranet (Hub) and full versions in the ToxLibrary.
- The process of culling hard-copy references and uploading them into the ToxLibrary was commenced.
- Development of clinical management guidelines for common poisonings, in preparation for uploading these to the VPIC website, was commenced.
- Ongoing update of the VPIC Policy and Procedure Manual and the VPIC Training Manual.
- During 2015, Jeff Robinson was Chairman of the Victorian Department of Health and Human Services Reference and Evaluation Group for the re-tendered Clinicians Health Channel.
- Jeff Robinson continued has membership of the NSW Poisons Information Centre Advisory Council.
- Shaun Greene, Jeff Robinson and Anselm Wong continued their membership of the Royal Children's Hospital Toxicology Committee, to assist in the review of the RCH toxicology clinical practice guidelines.



- During 2015, just one meeting of the Poisons Information and Toxicology Network Australia (PITNA) Working Party was held. The group continues to make slow progress towards finalising a cross-jurisdictional Memorandum of Understanding (MOU) covering PIC services, and a national PIC call costing model to be based on the KPMG national PIC costing study.
- In early 2015, Jeff Robinson and the Drugs and Poisons Regulation Group within the Victorian Department of Health and Human Services provided extensive VPIC service costing information to KPMG, as part of a national PIC costing study.
- In January, expanded options were added to the following VPIC call database fields: query type, exposure type, routes of exposure, location of exposure. This followed discussions and agreement between the four Australian PIC Managers to adopt agreed definitions and a harmonised dataset across the four PICS.
- In January, Jeff Robinson was interviewed by journalists from The Herald-Sun newspaper for articles about summertime marine envenomations and outdoor garden exposures to herbicides and pesticides.
- In January, Jeff Robinson met with Austin Health IT to discuss VPIC's business continuity requirements in case of a major hospital IT outage.
- In February, Jeff Robinson reviewed the 'Fungi Poisoning' monograph produced by the Better Health Channel, Victorian Department of Health and Human Services.
- In April, VPIC and AHCTS staff provided detailed feedback into the revised version of the Guidelines for the Management of Paracetamol Poisoning in Australia and New Zealand.
- In June, a draft national policy entitled 'Australian Poisons Information Centres' Policy regarding Calls received from Lifeline Australia Counsellors' was produced.
- In June, the Austin Health/VPIC/Royal Botanic Gardens Melbourne mushroom identification service agreement was renewed.
- In June, Jeff Robinson reviewed the 'Child Poisoning in The Home' monograph produced by the Better Health Channel, Victorian Department of Health and Human Services.
- In July, Jeff Robinson reviewed the chapter on Poisoning Prevention for the 6<sup>th</sup> Edition of the RCH Child Safety Handbook.
- In August, September and November, all VPIC staff attended the 2-day Victorian Health Services Chemical, Biological and Radiological (CBR) course, held in Melbourne.
- In August, a quotation for the development and ongoing support of a national PIC call database was commissioned. Progress in this area has been slow, with a number of issues requiring further discussion and resolution before this can proceed.
- In August, VPIC assisted Victoria Police to prepare a media release following the theft of pentobarbitone sodium (Lethabarb) injection from a suburban veterinary clinic.
- In August, Shaun Greene was involved in the production of a Penington Institute educational video for general practitioners 'Prescription and Use of Narcan Minijet'.
- In September, Jeff Robinson worked with the Austin Health Clinical Costing Unit to determine the average cost of a call to VPIC.
- In October, Christine McKenzie and Janet Browning undertook the annual review of the Victorian Therapeutic Advisory Group's Register of Emergency and Life Savings Drugs. This included refinement of the list of infrequently-used, non-time-critical antidotes to be kept at the Austin Hospital.
- In December, Jeff Robinson wrote an article about the features of the TOXINZ database for inclusion in the Clinicians Health Channel newsletter.
- In the latter part of 2015, Shaun Greene updated the Ciguatera chapter for: Brent J et al. Critical care toxicology: diagnosis and management of the critically poisoned patient. 2nd ed.

- During the second half of 2015, Dr Joanne Grindlay, (Paediatric Emergency Physician, Royal Children’s Hospital, Melbourne) undertook sabbatical leave at VPIC/AHCTS.
- VPIC operations were shown to many visitors, including Austin Hospital pharmacy interns, Master of Clinical Pharmacy students, staff from other Australian PICs, Pharm. D. graduates from the USA and visiting clinical toxicologists from Nepal and Iran.

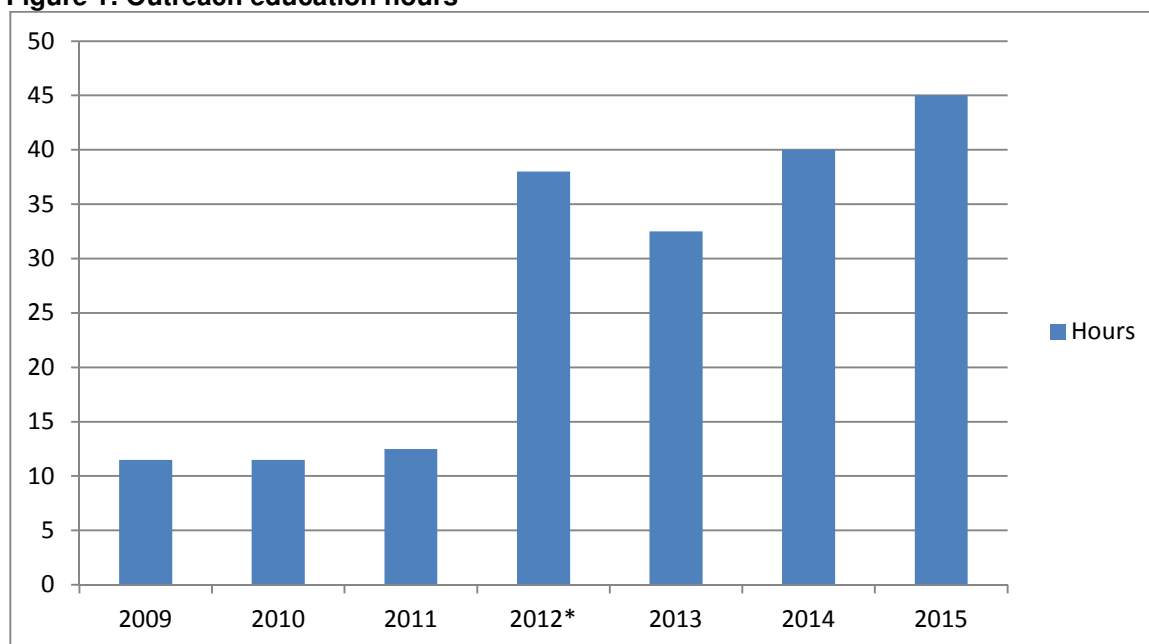
## Key Performance Indicators

### Outreach education hours

A total of 45 outreach education hours were delivered during 2015, see Figure 1 below. This was a slight increase compared to 2014. Highlights included:

- Half-day Toxicology Forums held at the Austin Hospital in April and November.
- Presentations at two of the national PIC/Toxicology Clinical Meetings (TAPNA), held in Sydney in May and Perth in December.
- A half-day Monash Health Toxicology Service seminar held at Dandenong Hospital in March.
- Toxicology/toxinology updates delivered to medical and nursing staff at Bendigo, Wangaratta, Epworth and Western Hospitals.
- Presentation on ‘Accuracy of QT interval measurements on electronic ‘smart’ devices’ as part of the ACEM Winter Symposium in Alice Springs in July.
- Presentation on ‘Opioid Prescribing in Emergency Departments’ as part of the ACEM Annual Scientific Meeting in Brisbane in November.
- Presentations to Networking Health Victoria general practitioners, general medicine physicians/registrars and others on methylamphetamine (Ice) abuse and analgesic abuse.
- Presentation and educational video for general practitioners on ‘The prescription and use of Narcan Minijets.’
- Presentations to ED registrars and FACEM Trainees at the Austin Hospital.
- Presentations to undergraduate medical and pharmacy students, trainee paramedics, emergency nurse practitioners and rural general practitioners.

**Figure 1: Outreach education hours**

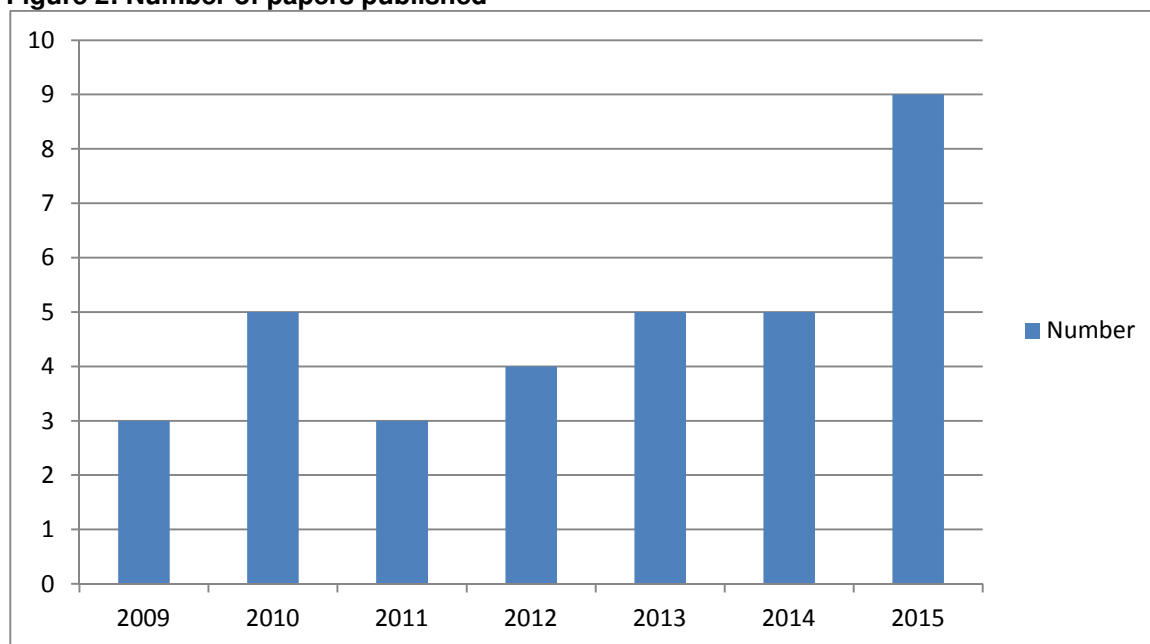


\* From 2012, ongoing additional Victorian Department of Health and Human Services funding to support Outreach Education has seen a significant increase over previous years.

### Number of papers published

A total of 9 papers were published during 2015, see Figure 2 below. This was a significant increase over recent years.

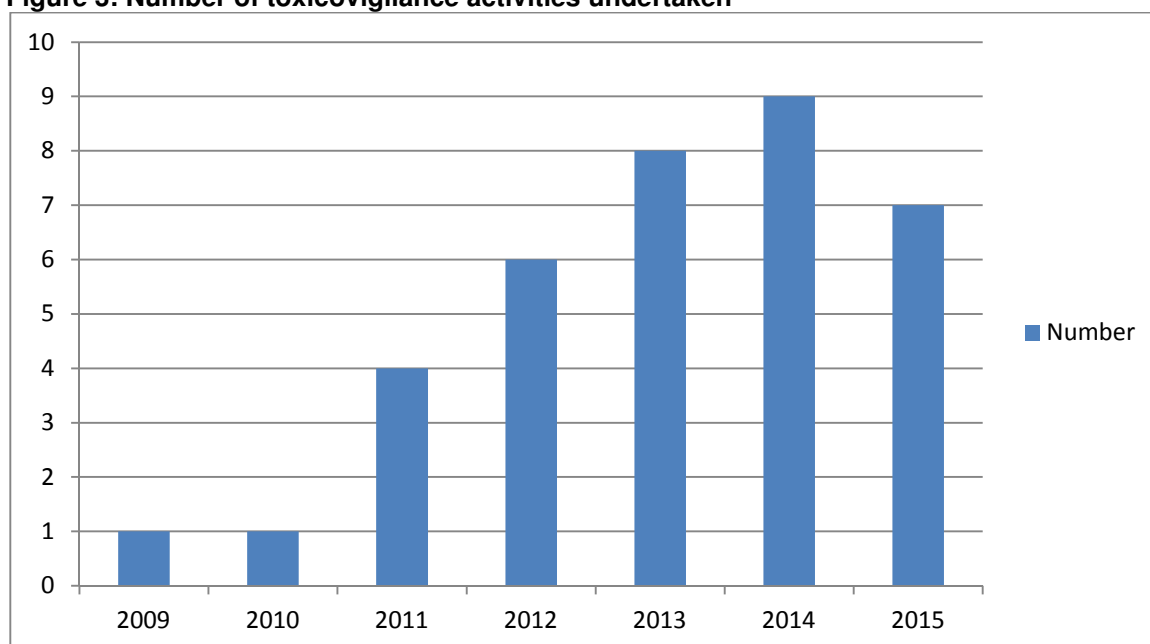
Figure 2: Number of papers published



### Number of toxicovigilance activities undertaken

A total of 7 toxicovigilance activities were undertaken during 2015, see Figure 3 below. This was a slight decrease compared to 2013 and 2014.

Figure 3: Number of toxicovigilance activities undertaken

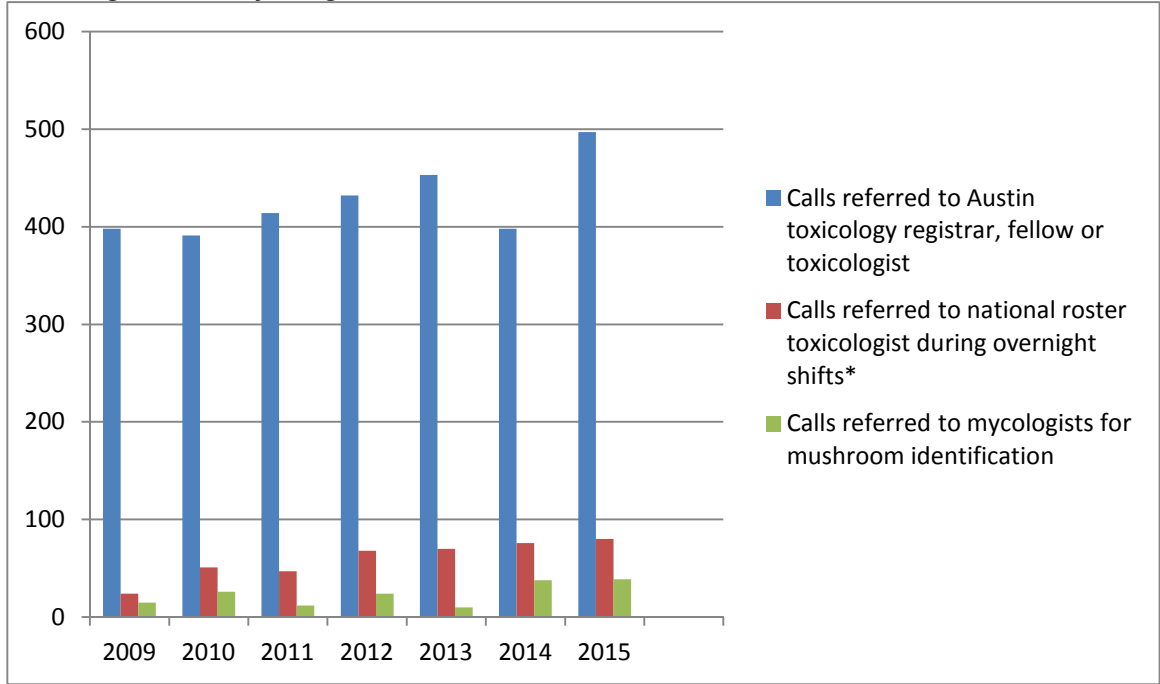


**Calls referred to the Austin toxicology registrar, fellow, toxicologists, national roster toxicologists and mycologists**

VPIC staff follow escalation protocols to refer complicated and/or severe poisoning cases to the toxicology registrar, fellow or on-call toxicologist for management advice. On-call staff must be readily contactable and must respond promptly, within 10 to 15 minutes, to the health professional who contacted VPIC. When working an overnight shift, such calls are referred to the national roster clinical toxicologist. During normal operating hours in 2015, 497 calls were referred to the Austin Hospital toxicology registrar, fellow or on-call toxicologist (1.4% of total calls answered during normal operating hours). In the 70 overnight shifts worked by VPIC during 2015, 80 calls were referred to the national roster clinical toxicologist (2.8% of overnight shift calls). See Figure 4 below.

VPIC and the senior mycologists at the Royal Botanic Gardens, Melbourne, have an ongoing service agreement whereby calls to VPIC that involve ingestion of a potentially toxic mushroom are referred to the on-call mycologist for identification of the mushroom/s involved (39 such cases in 2015, very similar to 2014). Mushroom identification may involve emailing photos or couriering specimens to the mycologists.

**Figure 4. Calls referred to Austin toxicology registrar, fellow, toxicologists, national roster toxicologists and mycologists**

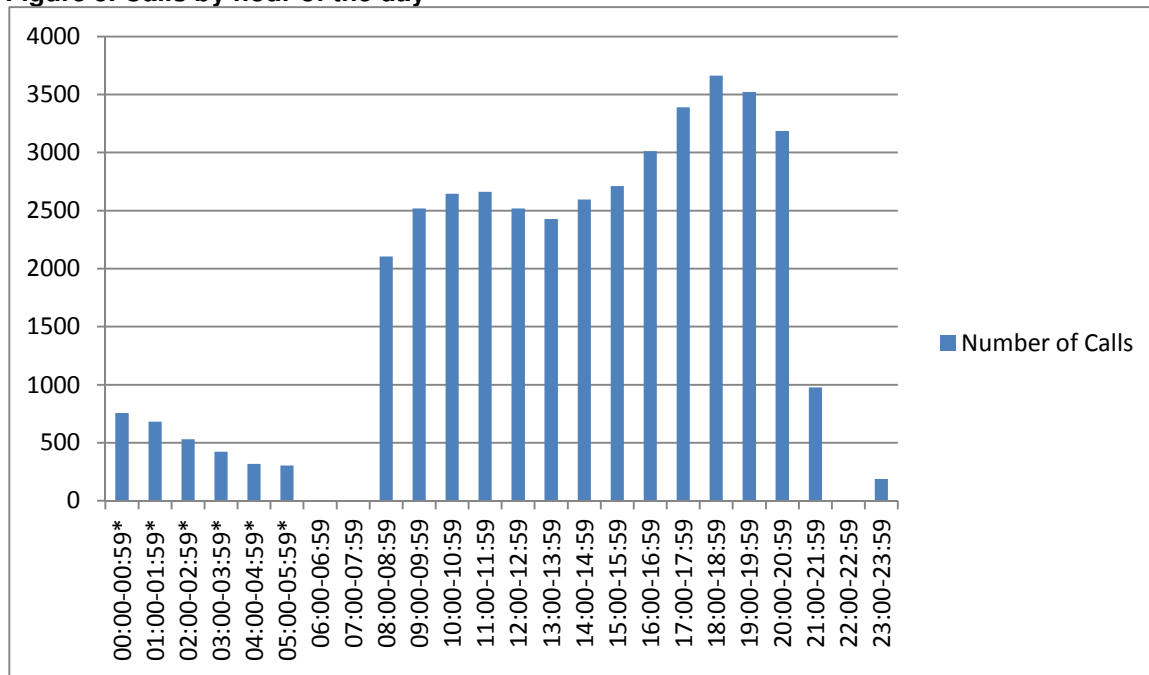


\* VPIC worked 25 overnight shifts in 2009. This increased to 52 shifts in 2010, 54 shifts in 2011, 56 shifts in 2012, 66 shifts in 2013, 67 shifts in 2014 and 70 shifts in 2015.

### Calls by hour of the day

As in previous years, most calls were received between 1600 and 2100 hours, with the period between 1800 and 2000 hours being the busiest, see Figure 5 below.

**Figure 5. Calls by hour of the day**

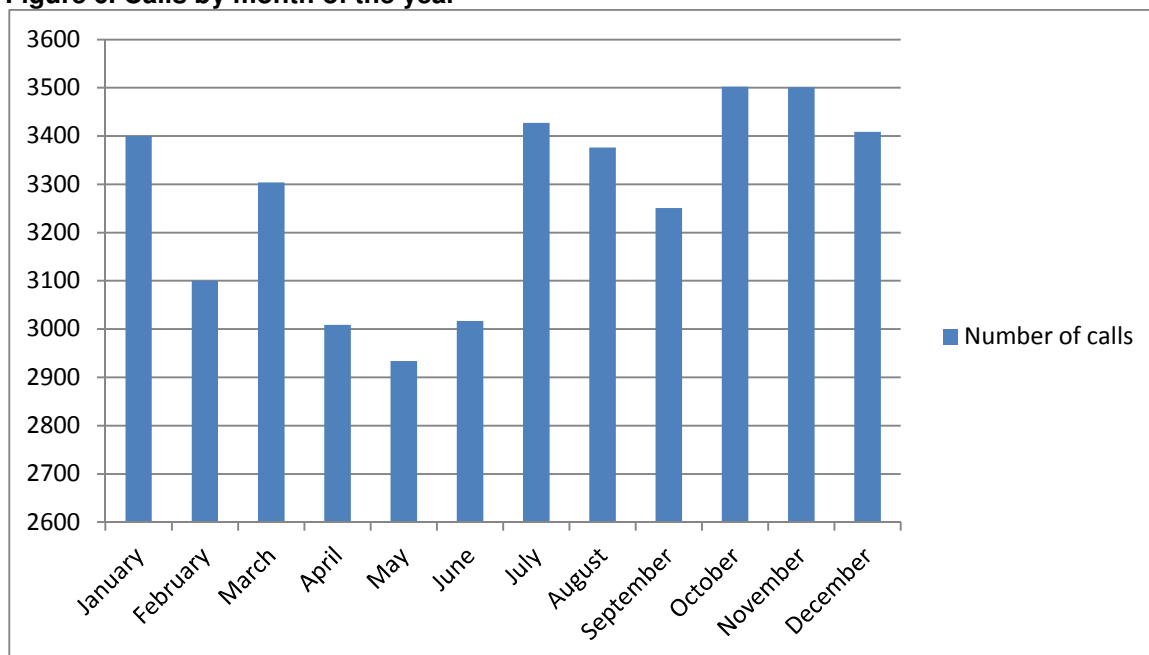


\* As VPIC works just seven national overnight shifts per month, the overnight call numbers (12 midnight to 0600 hours) are much lower than daytime numbers.

### Calls by month of the year

VPIC call numbers always taper off over the winter months, see Figure 6 below. This is most likely due to more limited outdoor activity during these months. Calls numbers relating to outdoor activities, eg bites, stings and envenomations, increase during the warmer months.

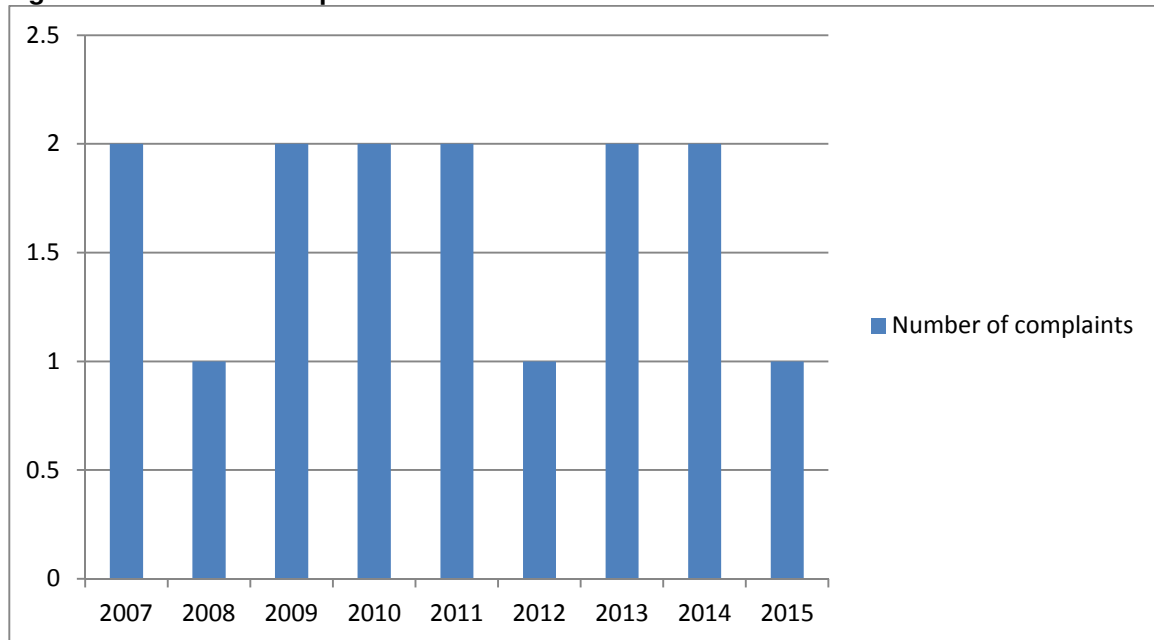
**Figure 6. Calls by month of the year**



### Complaints received

Just one complaint about the VPIC service was received during 2015. It was handled according to the VPIC complaints investigation procedure.

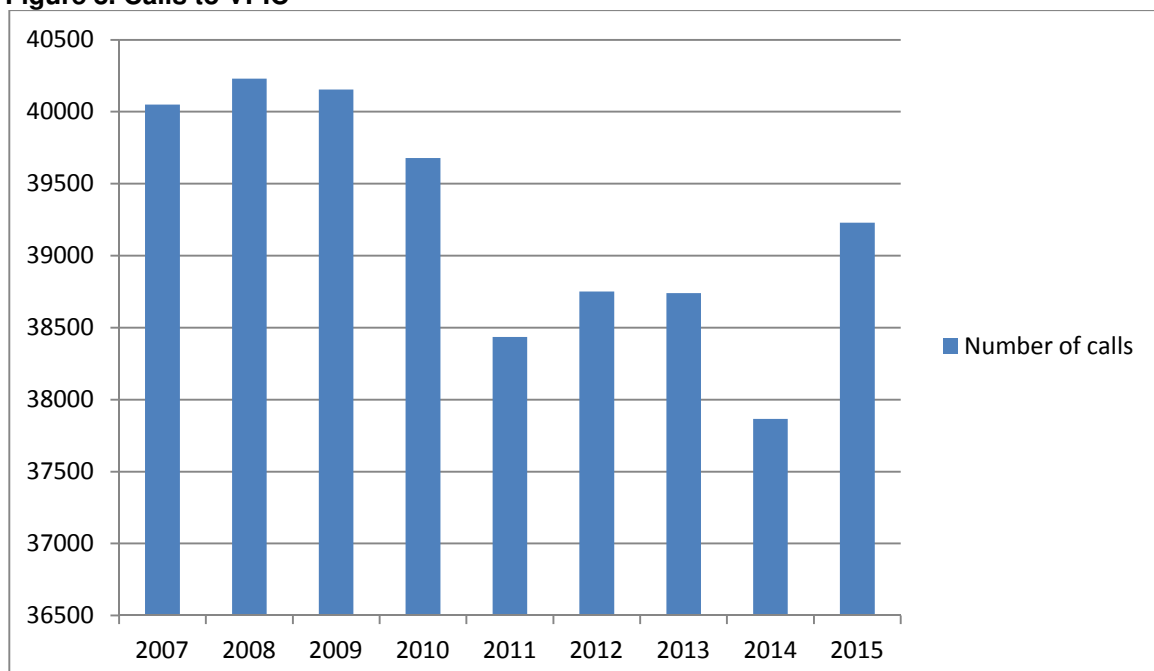
**Figure 7. Number of complaints received**



### Calls to VPIC

VPIC received a total of 39,230 calls in 2015, an average of 107 calls per day. This was slightly above 2014 (37,866 calls, average 104 calls per day) and 2013 (38,740 calls, average 106 calls per day) and 2012 (38,751 calls, average 106 calls per day). The 2015 total includes 2,835 calls answered by VPIC during 70 overnight shifts (New South Wales 881, Victoria 687, Western Australia 423, Queensland 545, South Australia 174, Tasmania 40, Australian Capital Territory 56, Northern Territory 29). Eighty of these overnight calls were referred to the national roster toxicologist.

**Figure 8. Calls to VPIC**



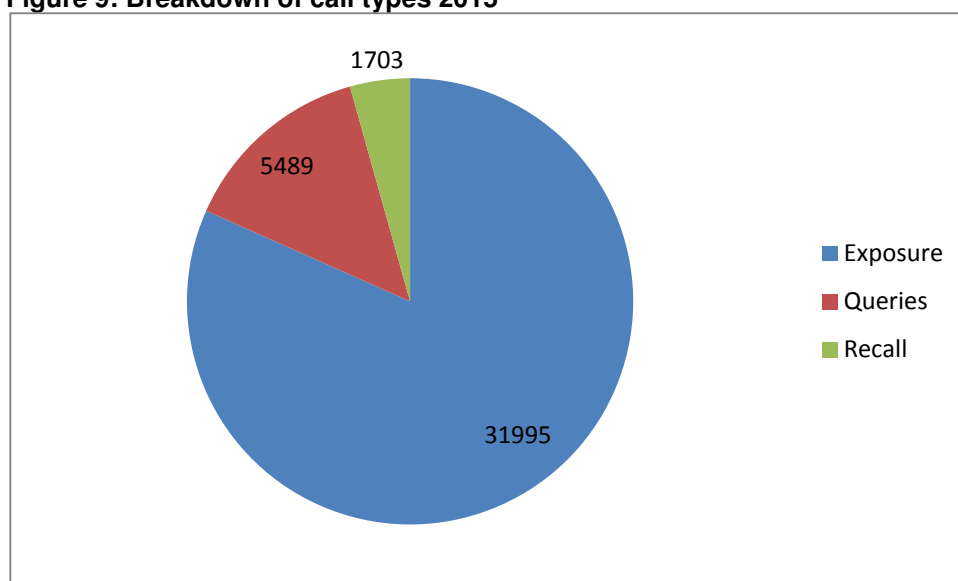
## Call types (Figure 9)

Most calls involved an exposure. Approximately one-in-seven calls were queries.

Call type	Number of calls	%
Exposure to a poison	31,995	82
Queries	5,489	14
Recall*	1,703	4
Hoax	43	<1
Total	39,230	100

\* A recall is a second or subsequent call about a particular exposure.

**Figure 9: Breakdown of call types 2015**



\* A recall is a second or subsequent call about a particular exposure.

## Query types

The types of queries received are shown below.

Query type	Number of calls	%
Drug information: adverse drug reaction	301	5
Drug information: pregnancy	229	4
Drug information: breastfeeding	244	4
Drug information: missed dose	591	11
Drug information: dosage	477	9
Drug information: interactions	399	7
Drug information: refusing dose	12	<1
Drug information: other	728	13
Medical	297	5
Request for pamphlets, stickers, fridge magnets etc	77	2
PIC phone number check	122	2

Manufacturer	464	8
Request for Material Safety Data Sheet (MSDS)	80	2
Wrong number	409	7
Complaint or compliment	2	<1
Product recall or safety alert	29	<1
Poisons information: other	717	13
Other queries	311	6
Total	5,489	100

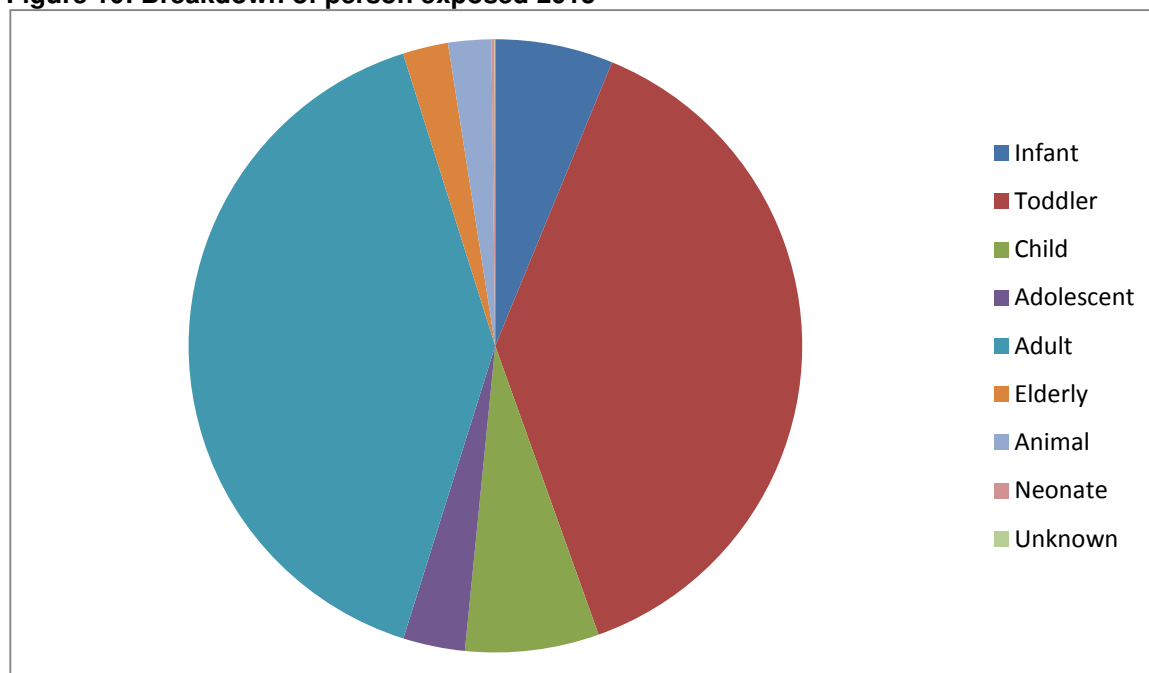
### Person exposed (Figure 10)

The majority of calls about exposure to a poison involved toddlers.

Person exposed	Number of calls	%
Neonate (0 to 4 weeks)	53	<1
Infant (4 weeks to 1 year)	1,988	6
Toddler (1 to 4 years)	12,260	39
Child (5 to 14 years)	2,260	7
Adolescent (15 to 19 years)	1,042	3
Adult (20 to 74 years)	12,885	40
Elderly (>75 years)	770	2
Unknown	11	<1
Animal*	726	2
Total	31,995	100

\* Callers phoning about an exposure involving an animal were referred to their vet

Figure 10: Breakdown of person exposed 2015





**Person-calling (animal exposures excluded)**

The majority of calls about exposure to a poison were received from parents.

<b>Person-calling</b>	<b>Number of calls</b>	<b>%</b>
Family member: parent	14,471	46
Family member: spouse or partner	794	3
Family member: grandparent	482	2
Family member: other	974	3
Self	6,107	20
Doctor	3,976	13
Nurse	1,323	4
Carer	1,260	4
Friend	537	2
Ambulance: officer	408	1
Ambulance: communications or despatch	307	1
Pharmacist	219	<1
Counsellor, eg Lifeline, Suicide Help Line etc	124	<1
Teacher or educational worker	108	<1
Police	18	<1
Veterinary personnel	63	<1
Other health professional, eg dentist, psychologist, social worker, optometrist	58	<1
Medical receptionist	16	<1
Other, eg fire brigade, media, prison officer etc	24	<1
<b>Total</b>	<b>31,269</b>	<b>100</b>

**Types of exposure (animal exposures excluded)**

The majority of calls about exposure to a poison involved unintentional accidental exposures.

<b>Types of exposure</b>	<b>Number of calls</b>	<b>%</b>
Unintentional accidental	20,121	64
Unintentional therapeutic error	5,368	17
Unintentional workplace	807	3
Unintentional food poisoning	88	<1
Unintentional environmental	22	<1
Unintentional other	17	<1
Adverse reaction	196	1
Intentional deliberate self poisoning	3,730	12
Intentional misuse	460	1
Intentional recreational abuse	304	1
Intentional other	135	<1
Other	21	<1
<b>Total</b>	<b>31,269</b>	<b>100</b>

### Routes of exposure (animal exposures excluded)

The majority of calls about exposure to a poison involved ingestion.

Route of exposure	Number of calls	%
Ingestion	32,805	82
Ocular	1,919	5
Inhalation	1,786	5
Dermal	1,689	4
Bite/sting	931	2
Injection	403	1
Buccal/sublingual/oral mucosal	206	<1
Nasal	84	<1
Aural	25	<1
Vaginal	14	<1
Rectal	12	<1
Other/unknown	10	<1
Total	39,884*	100

\* The number of routes of exposures is greater than the person exposed, person calling and types of exposure numbers because a call sometimes has more than one exposure route, eg household items sprayed into the mouth, face and eyes.

### Location of exposure (animal exposures excluded)

Over 90% of exposures occurred at home.

Location of exposure	Number of calls	%
Home and surroundings	28,510	91
Nursing home/aged care facility	186	1
CRU/group home/supported accommodation	770	2
Child care centre	81	<1
Workplace: office	46	<1
Workplace: farm/agricultural	182	1
Workplace: retail outlet	46	<1
Workplace: hospitality	68	<1
Workplace: garage/workshop	100	<1
Workplace: laboratory	36	<1
Workplace: minesite	5	<1
Workplace: other	324	1
Education facility	250	1
Entertainment venue	55	<1
Open space, eg park, beach	308	1
Medical facility: hospital	110	<1
Medical facility: non-hospital	54	<1
Prison, detention facility	40	<1
Restaurant/food service	24	<1
Other/unknown	74	<1
Total	31,269	100

#### Patient disposition – neonates (0 to 4 weeks)

The majority of neonates exposed to a poison required no referral.

Patient disposition	Number of calls	%
No referral required	47	88
Hospital refer	0	0
In hospital	3	6
GP refer	1	2
At GP surgery	0	0
Other	2	4
Total	53	100

#### Patient disposition – infants (4 weeks to 1 year)

The majority of infants exposed to a poison required no referral.

Patient disposition	Number of calls	%
No referral required	1,837	92
Hospital refer	31	2
In hospital	73	4
GP refer	12	<1
At GP surgery	21	1
Other	14	<1
Total	1,988	100

#### Patient disposition – toddlers (1 to 4 years)

The majority of infants exposed to a poison required no referral.

Patient disposition	Number of calls	%
No referral required	10,683	87
Hospital refer	383	3
In hospital	812	7
GP refer	70	<1
At GP surgery	178	1
Other	134	1
Total	12,260	100

#### Patient disposition – children (5 to 14 years)

The majority of children exposed to a poison required no referral.

Patient disposition	Number of calls	%
No referral required	1,681	74
Hospital refer	126	6
In hospital	305	13
GP refer	34	2
At GP surgery	51	2
Other	63	3
Total	2,260	100

### Patient disposition – adolescents (15 to 19 years)

The majority of adolescents exposed to a poison were already in hospital.

Patient disposition	Number of calls	%
No referral required	192	18
Hospital refer	188	18
In hospital	528	51
GP refer	47	4
At GP surgery	28	3
Other	59	6
Total	1,042	100

### Patient disposition – adults (20 to 74 years)

The majority of adults exposed to a poison required no referral.

Patient disposition	Number of calls	%
No referral required	6,670	52
Hospital refer	1,500	12
In hospital	3,232	25
GP refer	540	4
At GP surgery	397	3
Other	546	4
Total	12,885	100

### Patient disposition – elderly (>75 years)

The majority of elderly people exposed to a poison required no referral.

Patient disposition	Number of calls	%
No referral required	517	66
Hospital refer	60	8
In hospital	128	17
GP refer	29	4
At GP surgery	7	1
Other	29	4
Total	770	100

### Symptom severity at the time of the call (animal exposures excluded)

The majority of human exposures were asymptomatic at the time of the call to VPIC.

Poisoning severity score*	Number of calls	%
None	23,297	75
Minor	7,401	24
Moderate	430	1
Severe	137	<1
Fatal	4	<1
Total	31,269	100

\* Symptom severity scoring is based on the Poisoning Severity Score. Persson HE, Sjöberg GK, Haines JA, Pronczuk de Garbino J. Poisoning severity score. Clin Tox 1998; 36(3): 205-13.

### Top ten exposure substances

VPIC's top ten exposure substances during 2015 are shown below.\*

<b>Substance</b>	<b>Number of calls</b>
Paracetamol	2,113
Benzodiazepines	1,231
Ibuprofen	1,113
Selective serotonin re-uptake inhibitor antidepressants	889
Topical antiseptics, hand sanitisers	668
Bleach (hypochlorite based)	640
Quetiapine	627
Paracetamol/narcotic combination analgesic	587
Silica gel	482
Toilet bowl cleaner/deodoriser: cage/disc type	464

\*These are not necessarily the most toxic, but rather may be the most accessible.

## Exposures to non-medicine, non-drug products

Substance/product	Number of calls (all routes of exposure)
<b>HOME PRODUCTS</b>	
<b>Adhesives, glues, cements, pastes</b>	
Cyanoacrylates	120
Epoxy resins	16
Model glues, cements	8
Non-toxic glues, pastes	49
Adhesive, glue, cement, paste: other/unknown	55
<b>Art, craft, hobby, writing products</b>	
Chalk	30
Correction fluid	12
Crayon	29
Glazes	2
Paint: artists' paints, non-water colour	7
Paints: artists' paints, water colours	26
Paper/cardboard	28
Pencil	13
Pens/ink (including stamp pad ink, textas)	212
Printer ink/cartridge	9
Art, craft, writing products: other/unknown	42
<b>Batteries</b>	
Automotive	18
Disc/button	68
Penlight/dry cell	120
<b>Cleaners, bleaches, detergents etc</b>	
Bleach (hypochlorite based)	640
Bleach: other/unknown	2
CD/DVD cleaner	1
Cleaner: all purpose/hard surface	375
Cleaner: ammonia based	17
Cleaner: baby bottle	4
Cleaner: bathroom/shower/tile	92
Cleaner: carpet	62
Cleaner: drain	101
Cleaner: floor	86
Cleaner: glass/window	94
Cleaner: industrial	106
Cleaner: leather/vinyl/upholstery	6
Cleaner: nappy	14
Cleaner: oven	182
Cleaner: other/unknown	204

Detergent: anionic/non-ionic (not hand dish type)	15
Detergent: automatic dishwasher liquids	28
Detergent: automatic dishwasher powders/tablets	276
Detergent: automatic dishwasher rinse agents	64
Detergent: hand dish	458
Detergent: laundry	347
Disinfectant	307
Dry cleaning agent	1
Fabric softener	24
Ironing aid/starch	7
Laundry additive	45
Pre-wash stain remover	108
Rust remover: other/unknown	9
Sugar soap (sodium carbonate)	19
Tape head cleaner	1
Toilet bowl cleaner/deodoriser: cage/disc type	464
Toilet bowl cleaner: powder/liquid	52
Vaporiser cleaning tablet	9
<b>Fire extinguishers</b>	
Dry powder	42
Foam	1
<b>Food products, food poisoning</b>	
Artificial sweeteners	1
Ciguatera	3
Dietary/nutritional/energy/workout supplements	138
Food additives	147
Food allergy	13
Food poisoning	77
Food recall/scare	7
Food spoilage	234
MSG (Chinese Restaurant Syndrome)	1
<b>Garden products</b>	
Fertiliser: household plant food	33
Fertiliser: outdoor	78
Soil/potting mix	40
<b>Miscellaneous home products</b>	
Air fresheners	230
Blu-tac	22
Bubble blowing solution	142
Charcoal	15

Christmas decorations	7
Cigarettes and tobacco products	116
Coins	30
Cyalume light sticks/glow necklaces	254
Desiccants: other/unknown (not silica gel)	69
Dyes: fabric	14
Dyes: food	6
Dyes: other/unknown	27
Fire starters	102
Foreign body	168
Fragrant oil/pot pourri oil	115
Freezer/cold packs	116
Glass	4
Incense	4
Massage oil	20
Matches	17
Pet food	35
Plastic/polystyrene	96
Room deodoriser	53
Silica gel	482
Thermometer: mercury	53
Thermometer: non-mercury	7
Toys	179
Water crystals/gel beads/hydrogels	7
Household products: other/unknown	710
<b>Photographic products</b>	
Photographic chemicals	6
<b>Polishes and waxes</b>	
Polish/wax: car	11
Polish/wax: floor (including sealers)	2
Polish/wax: furniture	28
Polish/wax: metal	12
Polish/wax: shoe/boot	9
Polish/wax: other/unknown	1
<b>Swimming pool and aquarium products</b>	
Aquarium products	43
Pool chlorine	85
Pool test kits/solutions	4
Pool products: other/unknown	24
<b>BUILDING/HANDYMAN PRODUCTS</b>	
<b>Building products</b>	
Asbestos	13
Asphalt/bitumen	1
Caulking compounds and construction putties	18



Cement/concrete/lime	44
Fibreglass	4
Insulation	3
Methyl ethyl ketone	13
Methyl ethyl ketone peroxide	7
Soldering flux	3
Building/handyman products: other/unknown	87
<b>Paints and paint strippers</b>	
Copper chrome arsenate (wood preservative)	20
Creosote (wood preservative)	3
Paints: anticorrosive	3
Paints: oil-based	47
Paints: water-based house type	46
Paint strippers: methylene chloride based	16
Paint strippers: other/unknown	8
Paint thinner	43
Paints: other/unknown	98
Varnishes and lacquers	17
Wood stains	16
<b>CAR/BOAT PRODUCTS</b>	
Car products: antifreeze	27
Car products: brake fluid, transmission fluid etc	16
Car products: other/unknown	81
<b>CHEMICALS</b>	
<b>Alcohols</b>	
Alcohol ethanol (beverage)	330
Alcohol ethanol (non-beverage)	115
Alcohol: higher (butanol, propanol etc)	1
Isopropanol	20
Methanol	14
Alcohol: other/unknown	1
<b>Essential oils</b>	
Camphor	12
Clove oil	24
Eucalyptus oil	258
Tea tree oil	83
Essential oil: other/unknown	112
<b>Fumes, gases, vapours</b>	
Carbon dioxide	2
Carbon monoxide	75
Chlorine	13
Chlorine/chloramine gas (mixing household	44

cleaning agents)	
Helium	1
Hydrogen sulphide	10
Lacrimators (Mace spray, tear gas etc)	3
Methane and natural gas	84
Polymer fume fever	2
Propane and other simple asphyxiants	10
Smoke/toxic products of combustion	83
Fume/gas/vapour: other/unknown	56
<b>General chemicals</b>	
Acetone (not nail polish removers)	25
Acids: other/unknown	42
Alkalis (not cleaners)	56
Ammonia (not cleaners)	12
Borates (not insecticides)	18
Copper sulphate	15
Corrosives: other/unknown	8
Cyanide	4
Ethylene glycol and other glycols	24
Formaldehyde/formalin	33
Hydrochloric acid	52
Hydrofluoric acid	32
Hydrogen peroxide (non-medical)	41
Iodine (non-medical)	11
Isothiazolones (acticide, biocide, kathon, octhilinone etc)	1
Methylene chloride (not paint strippers)	1
Phenol and other phenolics	6
Potassium permanganate	5
Strychnine	1
Sulphur	5
Toluene diisocyanate	7
Chemicals: other/unknown	188
<b>Heavy metals</b>	
Aluminium	10
Chromium salts	2
Copper	6
Lead	36
Mercury (not thermometers)	30
Metal fume fever	8
Selenium	2
Heavy metals: other/unknown	8
<b>Hydrocarbons</b>	
Hydrocarbons: aliphatic	39
Hydrocarbons: aromatic	6

Hydrocarbons: halogenated	36
Hydrocarbons: other/unknown	8
Kerosene	22
Lamp oil	10
Oils: lubricating/engine/machine	102
Petrol	207
Shellite	1
Toluene/xylene	11
Turpentine, mineral	125
<b>BITES AND STINGS</b>	
<b>Insects</b>	
Ant	17
Bee	46
Caterpillar	5
Centipede/millipede	14
Mosquito	1
Scorpion	25
Tick	15
Wasp/hornet	92
Insect bites: other/unknown	84
<b>Mammals</b>	
Animal bite: dog/cat	2
Animal bite: other/unknown	16
<b>Marine</b>	
Fish stings: other/unknown	39
Jellyfish and other <i>Coelenterate</i> stings	15
Stingray	3
Marine bites/stings: other/unknown	9
<b>Reptiles and amphibians</b>	
Snake	125
<b>Spiders</b>	
Redback spider	137
White-tailed spider	73
Spider bite: other/unknown	281
<b>COSMETICS AND PERSONAL CARE PRODUCTS</b>	
<b>Cosmetics</b>	
Antiperspirants	51
Baby oil	52
Baby wipes	21
Bath oil/bubble bath/bath preparations	164
Cleanser: skin	5
Creams/lotions/make-up	217
Deodorants	85

Depilatories	30
Lipstick/lip balms	39
Perfume/cologne/aftershave	187
Soap	229
Sunscreen/suntan products	91
Talc and other external powders	72
Cosmetics: other/unknown	32
<b>Dental/oral care products</b>	
Denture cleaning agents	37
Mouthwash: ethanol containing	50
Mouthwash: non-ethanol containing	23
Mouthwash: other/unknown	1
Teething gels	72
Toothache drops	13
Toothpaste with fluoride	92
Toothpaste without fluoride	3
Dental care products: other/unknown	11
<b>Hair care products</b>	
Hair colours (not peroxide)	32
Hair colours (peroxide)	34
Hair conditioner	27
Hair gel/mousse	6
Hair rinses, perms	2
Hair spray	13
Shampoo antidandruff: selenium based	3
Shampoo antidandruff: zinc pyrithione	8
Shampoo antidandruff: other	6
Shampoo non-medicated	93
Hair care: other	40
<b>Nail products</b>	
Nail hardener	1
Nail polish	139
Nail polish remover	204
Nail primer	1
Nail products: other/unknown	33
<b>PESTICIDES/HERBICIDES/FUNGICIDES</b>	
<b>Baits</b>	
Rodenticides: anticoagulant (warfarin type)	18
Rodenticides: anticoagulant (long-acting)	235
Rodenticides: other/unknown	73
Baits: other/unknown	42
<b>Carbamates</b>	
Carbamates	7
Carbamates in combination with other	4

pesticides	
<b>Chlorinated hydrocarbons</b>	
Chlorinated hydrocarbons (endrin, dieldrin, heptachlor etc)	5
<b>Fumigants</b>	
Bromides	4
Phosphine	5
Fumigants: other	1
<b>Fungicides</b>	
Carbamate type	3
Copper type	1
Fungicides: other/unknown (non-medical)	13
<b>Herbicides</b>	
Glyphosate	257
Herbicides: carbamate type	1
Herbicides: chlorphenoxy type (2, 4 D; MCPA etc.)	44
Herbicides: protox inhibitor type (acifluorfen, oxyfluorfen etc)	3
Herbicides: pyridine type (clopyralid, triclopyr etc.)	25
Herbicides: triazine type (atrazine, simazine etc.)	6
Herbicides: urea type	2
Paraquat/diquat	32
Herbicides: other/unknown	87
<b>Insecticides/pesticides</b>	
Borates/boric acid pesticides	65
Insect coils	3
Insect repellants containing DEET	48
Insect repellants not containing DEET	22
Pyrethrins/pyrethroids	392
Rotenone	2
Snail/slug bait: iron edetate	6
Snail/slug bait: metaldehyde	22
Snail/slug bait: methiocarb	4
Pesticides: other/unknown	75
<b>Moth repellents</b>	
Naphthalene moth repellants	24
<b>Organophosphates</b>	
Organophosphates	62

<b>PLANTS AND MUSHROOMS</b>	
Mushrooms	283
Plants: amaryllidaceae	38
Plants: amygdalin/cyanogenic glycosides	52
Plants: anticholinergic	5
Plants: cactus	5
Plants: capsaicin	12
Plants: cardiac glycosides	16
Plants: daphne	2
Plants: dermatitis	30
Plants: dieffenbachia	3
Plants: euphorbiaceae	52
Plants: gastrointestinal irritants	48
Plants: grayanotoxins	5
Plants: hallucinogenic	4
Plants: holly	1
Plants: lantana	2
Plants: non-toxic	66
Plants: oxalate	140
Plants: solanine	66
Plants: stimulants	3
Plants: toxalbumins	1
Plants: other/unknown	132
<b>VETERINARY PRODUCTS</b>	
Veterinary: animal vaccines	60
Veterinary: external medicines	121
Veterinary: flea collars/insecticidal washes	26
Veterinary: heart worm preparations	16
Veterinary: internal medicines	222
<b>MISCELLANEOUS NON-MEDICINE, NON-DRUG EXPOSURES</b>	
Faeces/urine	68
Snail/slug	29

## Exposures to medicines and drugs

<b>Medicine/drug</b>	<b>Number of calls (all routes of exposure)</b>
<b>ANAESTHETICS</b>	
Anaesthetics: inhalation	2
Anaesthetics: topical/local	35
Anaesthetics: other/unknown	1
Nitrous oxide	3
<b>ANALGESICS</b>	
Aspirin/narcotic combination analgesic	1
Aspirin/salicylates	182
Codeine	30
Fentanyl	8
Morphine	26
Oxycodone	412
Paracetamol	2,113
Paracetamol/caffeine combination	9
Paracetamol/metoclopramide combination	1
Paracetamol/narcotic combination	587
Tapentadol	13
Tramadol	167
Analgesics: narcotic other/unknown	6
Analgesics: non-narcotic other/unknown	6
<b>ANTICHOLINERGICS</b>	
Atropine	2
Benztropine	26
Orphenadrine	6
Anticholinergic drugs: other/unknown	37
<b>ANTICOAGULANTS and BLOOD PRODUCTS</b>	
Apixaban	9
Dabigatran	7
Heparin	6
Rivaroxaban	28
Warfarin	86
Anticoagulants: other/unknown	41
<b>ANTI-HISTAMINES</b>	
Cetirizine	91
Dexchlorpheniramine	20
Fexofenadine	90
Loratadine	118
Pheniramine	1
Promethazine	133
Antihistamines: other/unknown	36

<b>ANTIMICROBIALS</b>	
<b>Antibiotics</b>	
Aminoglycosides	1
Antibiotic combinations (Augmentin, Bactrim etc.)	55
Cephalosporins	85
Macrolides	70
Penicillins	212
Quinolones	8
Tetracyclines	59
Antibiotics: other/unknown	47
<b>Antifungals</b>	
Antifungal drugs (ketoconazole, fluconazole etc)	20
<b>Antiparasitics/Anthelmintics</b>	
Anthelmintics	103
Antianaerobes (metronidazole, tinidazole etc)	19
Antimalarials (not quinine, chloroquine)	5
<b>Antivirals</b>	
Antiviral drugs	26
<b>ANTIMIGRAINE DRUGS</b>	
Ergot alkaloids	1
Triptans (naratriptan, sumatriptan etc)	9
Migraine preparations: other/unknown	28
<b>ASTHMA/RESPIRATORY DRUGS</b>	
Anticholinergics (ipratropium, glycopyrronium, tiotropium, aclidinium, umeclidinium etc)	110
Bronchodilators (salbutamol, terbutaline, eformoterol, salmeterol, indacaterol, vilanterol etc)	42
Leukotriene receptor antagonists (montelukast, zafirlukast etc)	35
Preventors	49
Theophylline and other xanthines	4
<b>CARDIOVASCULAR DRUGS</b>	
ACE inhibitor/diuretic combinations	20
ACE inhibitors	161
Adrenaline	43
Alpha blockers	47
Angina preparations	7



Angiotensin II antagonist/diuretic combinations	71
Angiotensin II antagonists	168
Antiarrhythmic agents	25
Antihypertensives: other (not diuretics)	28
Antiplatelet agents: other (clopidogrel, dipyridamole, ticagrelor etc)	68
Beta blockers	290
Calcium antagonist/ACE inhibitor combinations	28
Calcium antagonist/angiotensin II antagonist combinations	37
Calcium antagonist/angiotensin II antagonist/diuretic combinations	3
Calcium antagonist/statin combinations	7
Calcium antagonists	178
Cardiac glycosides	53
Diuretics: other	81
Diuretics: potassium sparing	22
HMG CoA reductase inhibitors (statins)	194
Lipid lowering agents: fibrates (gemfibrozil, fenofibrate etc)	10
Lipid lowering agents: other	5
Nitrates	19
Vasodilators	23
Vasopressors	3
Cardiovascular drugs: other/unknown	7
<b>CENTRAL NERVOUS SYSTEM DRUGS</b>	
<b>Antidepressants</b>	
Agomelatine	22
Duloxetine	92
Mianserin	1
Mirtazapine	231
Monoamine oxidase inhibitors	20
Selective serotonin reuptake inhibitors (citalopram, escitalopram, fluoxetine etc.)	889
Tricyclic antidepressants	183
Venlafaxine/desvenlafaxine	333
Antidepressants: other/unknown	22
<b>Antiepileptics</b>	
Carbamazepine	116
Gabapentin	17
Lamotrigine	101
Levetiracetam	36
Phenytoin	21
Pregabalin	189

Topiramate	41
Valproic acid	241
Antiepileptics: other/unknown	38
<b>Antipsychotics</b>	
Amisulpride	15
Aripiprazole	45
Clozapine	29
Olanzapine	231
Phenothiazines (chlorpromazine, trifluoperazine etc)	96
Quetiapine	627
Risperidone	149
Ziprasidone	8
Antipsychotics: other/unknown	44
<b>CNS depressants</b>	
Barbiturates	14
Benzodiazepines	1,231
Chloral hydrate	1
Doxylamine	102
Hypnotic/sedative: over-the-counter	1
Melatonin	122
Zolpidem	50
Zopiclone	104
Hypnotic/sedative: other/unknown	7
<b>CNS stimulants</b>	
Amphetamines (for ADHD, not street drugs)	152
Caffeine	63
<b>CNS – miscellaneous</b>	
Antidementia agents (donepezil, galantamine, memantine, rivastigmine)	26
Antiparkinsonian agents	55
Baclofen	43
Clonidine	88
Lithium	100
CNS drugs: other/unknown	5
<b>COUGH/COLD PREPARATIONS</b>	
Antitussives	38
Cough/cold preparations with paracetamol	256
Cough/cold preparations without paracetamol/aspirin	187
Dextromethorphan	23
Pseudoephedrine	7
Throat lozenges with local anaesthetic	1
Throat lozenges without local anaesthetic	17

<b>DRUGS USED IN ADDICTIVE DISORDERS</b>	
Antismoking products (nicotine gum, lozenges, patches; e-cigarettes; varenicline)	78
Buprenorphine	28
Bupropion	5
Disulfiram	2
Methadone	31
Naltrexone	6
<b>EAR PREPARATIONS</b>	
Ear drops	51
<b>EYE PREPARATIONS</b>	
Contact lens preparations	21
Eye drops: imidazoline-based	8
Eye drops: other/unknown	46
Eye ointment	3
<b>GASTROINTESTINAL PREPARATIONS</b>	
Antacids	61
Antidiarrhoeals: diphenoxylate/atropine	2
Antidiarrhoeals: loperamide	24
Antiemetics	108
Antispasmodics (hyoscine butylbromide etc)	35
Histamine H <sub>2</sub> - antagonists (cimetidine, ranitidine etc.)	33
Laxatives	136
Proton pump inhibitors (omeprazole, pantoprazole, esomeprazole etc.)	210
Gastrointestinal preparations: other/unknown	61
<b>METABOLISM</b>	
<b>Electrolytes/minerals</b>	
Calcium salts	62
Fluoride	2
Iron (not multivitamins)	97
Potassium salts	30
Electrolytes: other/unknown	38
<b>Vitamins</b>	
Folic acid	43
Vitamin A	3
Vitamin B group	29
Vitamin C	57
Vitamin D	230
Vitamins compound with iron	156
Vitamins compound without iron	206

Vitamins: other	26
<b>Other metabolic</b>	
Androgenic and anabolic agents	3
Antihormones (tamoxifen, cyproterone, flutamide etc.)	23
Antithyroid preparations	11
Bisphosphonates	19
Corticosteroids	247
Diet aids/anorectics – over-the-counter	14
Diet aids/anorectics – prescription	49
Hypoglycaemics, oral: alpha glucosidase inhibitors (acarbose etc)	2
Hypoglycaemics, oral: biguanides (metformin)	147
Hypoglycaemics, oral: combination products (metformin/glibenclamide, metformin/rosiglitazone, metformin/sitagliptin etc)	28
Hypoglycaemics, oral: DPP-4 inhibitors (sitagliptin, vildagliptin etc)	15
Hypoglycaemics, oral: glitazones	1
Hypoglycaemics, oral: sodium-glucose co-transporter (SGLT) inhibitors (canagliflozin, dapagliflozin, empagliflozin etc)	2
Hypoglycaemics, oral: sulphonylureas (glibenclamide, gliclazide, glipizide etc)	57
Insulin	104
Oestrogens/progestogens (not oral contraceptives)	20
Oral contraceptives: oestrogen and progestogen	208
Oral contraceptives: progestogen only	40
Thyroxine	124
Thyroid preparations: other/unknown	7
Hormones: other/unknown	13
<b>NONSTEROIDAL ANTI-INFLAMMATORY DRUGS AND GOUT MEDICATIONS</b>	
Allopurinol	27
Celecoxib	35
Colchicine	12
Diclofenac	140
Ibuprofen	1,113
Ibuprofen plus codeine	90
Indomethacin	19
Mefenamic acid	26
Naproxen	54
NSAIDs: other/unknown	55

<b>NOSE PREPARATIONS</b>	
Nose drops/sprays: imidazoline-based	15
Nose drops/sprays: other/unknown	16
Nasal preparations: other/unknown	3
<b>STREET DRUGS</b>	
Amphetamine and related drugs	105
Amyl nitrite and other volatile nitrites	12
Cannabinoids, synthetic (Spice, Kronic, K2, Jungle Fever, Northern Lights, Marley etc)	36
Cathinones (mephedrone, methyldone etc)	1
Cocaine	16
Ecstasy and other hallucinogenic amphetamines	45
Gamma hydroxybutyrate	30
Hallucinogenics: other/unknown	1
Heroin	19
Inhalant abuse (chroming)	17
Ketamine/methoxetamine	6
LSD	6
Marijuana	34
Street drugs: other/unknown	60
<b>TOPICAL PREPARATIONS</b>	
Acne preparations	29
Antipruritics (calamine lotion etc)	29
Capsaicin	17
Chest rubs	134
Hydrogen peroxide	17
Lice/scabies preparations	79
Liniments	140
Nappy rash products	335
Topical antibiotics	30
Topical antifungals	121
Topical antiseptics (handsanitiser etc)	668
Topical antivirals	2
Topical corticosteroids	201
Wart/corn preparations	18
Topical preparations: other/unknown	112
<b>MISCELLANEOUS MEDICINE/DRUG CALLS</b>	
Antineoplastics	17
Chloroquine/hydroxychloroquine	11
Herbal preparations	140
Homeopathic preparations	56
Immunosuppressants	34
Methotrexate	35

Muscle relaxants: other	2
Neuromuscular blockers	1
Radiopharmaceuticals	1
Unknown tablets/capsules	42
Urinary alkalinisers	1
Urinary antiseptics	2
Vaccines/toxoids/antivenoms	49
Vaporiser fluids and inhalants	181
Other over-the-counter-medicines	29
Other prescription medicines	73