NPIS
National Poisons
Information Service

Health
Protection
Agency

National Poisons Information Service

Annual Report 2006/2007

National Poisons Information Service

Commissioned by the Health Protection Agency through its Chemical Hazards and Poisons Division (CHaPD)

NPIS Units at 31 March 2007

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City Hospital, Birmingham

hosted by Sandwell and West Birmingham Hospital NHS Trust

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NPIS Edinburgh Unit
Royal Infirmary of Edinburgh

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Foreword

This has been another busy year for the UK National Poisons Information Service (NPIS), with enquiry numbers continuing to grow. There has been increased use of the poisons information database, TOXBASE, which is now accessed over 1200 times daily or almost once every minute. This has allowed the planned reduction in telephone enquiries to about 160 daily, enabling rapid telephone access for high level advice, particularly in severe cases of poisoning. Stakeholder feedback from telephone enquirers continues to be excellent.

Networking arrangements have been further consolidated so that the service is now a truly national one with similar operating procedures, irrespective of the provider unit involved. In addition, a well-organised shared education and training programme offers continuing professional development for medical and scientific staff and ensures a consistent approach in the management of poisoning.

An independent clinical governance review has recently been carried out. The review has endorsed the current networked national arrangements and complimented the service on its clinical governance arrangements, which have been judged to be at a better level than seen in many NHS units, particularly in respect of consistency of approach. The review has made some recommendations to further improve clinical governance arrangements and these are already being considered and actioned.

The NPIS intends to maintain its role as a world leader in the provision of accurate, timely and accessible advice on the management of poisoning. To this end, a major priority for NPIS staff is the continued updating of the thousands of monographs on TOXBASE to ensure that they are current and of the highest possible quality.

The successes of the NPIS reflect the hard work of all its staff, who can be very proud of what has been achieved over the past year.

Elaine Lynch-Farmery
Chemical Hazards and Poisons Division, HPA

Simon Thomas
Chair, NPIS Clinical Standards Group

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Executive Summary

Poisoning accounts for over 100,000 NHS hospital admissions in the UK each year and results in a significant workload for hospital emergency departments and minor injuries units. The HPA commissions the four units of the National Poisons Information Service (NPIS) in Birmingham, Cardiff, Edinburgh and Newcastle to provide information and support on the diagnosis and management of poisoning to health professionals in the UK, including NHS Direct (in England and Wales) and NHS 24 (in Scotland). The NPIS also provides advice and support on drug and chemical exposure during pregnancy through the National Teratology Information Service (NTIS).

In 2006/07 the NPIS received over 500,000 poisons-related enquiries. There was increasing activity on TOXBASE, the UK online poisons information database, for which annual poisons enquiry sessions were over 440,000 and product hits exceeded 1 million. At the same time there was a planned reduction in the number of telephone enquiries, which fell from over 92,000 in 2005/06 to 62,000 in 2006/07. Approximately 35% of telephone enquiries related to children under ten years old.

Of the 500,000 enquiries during 2006/07, the NTIS answered close to 5000 pregnancy-related telephone enquiries, a reduction of 2.8% over the previous year. There were over 26,000 accesses to pregnancy information on TOXBASE, a decrease of 25% since 2005/06. This will be reviewed and investigated in 2008/09 if the downward trend is not reversed in 2007/08.

Paracetamol is the individual product about which the NPIS receives enquiries most frequently, with around 104,000 enquiries (almost 96,000 TOXBASE accesses and approximately 8000 telephone enquiries). Ibuprofen (in excess of 41,000 enquiries) is the next most common enquiry. Common psychoactive medications include diazepam (19,000 enquiries), citalopram (15,000), zopiclone (15,000) and fluoxetine (14,000). In all these examples TOXBASE accesses exceeded telephone enquiries by at least ten-fold. This year's report includes information on selected drugs of abuse, carbon monoxide and pesticide poisonings.

The NPIS provides TOXBASE and telephone support to NHS Direct and NHS 24; these enquiries made up 26% of the total number of TOXBASE sessions and 17% of the telephone enquiries in 2006/07. It is also contracted to provide poisons information in the Republic of Ireland by the provision of TOXBASE to major emergency departments and the National Poisons Information Centre (NPIC), Dublin, and out-of-hours telephone support from both NPIS specialists in poisons information (SPIs) and consultants. The Northern Ireland Regional Medicines and Poison Information Service in Belfast provides a daytime service and contributes to TOXBASE. The NPIS provides support to Northern Ireland for telephone enquiries.

The introduction of the single telephone number, reorganisation of the out-of-hours poisons information telephone service and the national consultant clinical toxicology rota to answer out-of-hours referrals to NPIS consultants are now well established. Stakeholder feedback demonstrates an exceptionally high degree of user satisfaction with the new NPIS working arrangements.

The governance arrangements which were introduced to support these changes have been subjected to external review this year. Formal publication of the report is awaited but verbal feedback confirms that the review team was very satisfied with the NPIS governance arrangements:

> "The networking arrangements of the UK NPIS as specified in the documentation provides a perfectly acceptable level of clinical governance and in many respects a better level than seen in many NHS units, particularly in respect of consistency of approach." *from the review team*

The consistency of joint working across the NPIS units has been greatly strengthened by regular, separate meetings of the following NPIS groups: the UKPID User Group, TOXBASE Editing Group, CPD Meetings, Clinical Standards Group, and the HPA NPIS Commissioning Group.

This report for 2006/07 provides information about TOXBASE sessions and telephone enquiries across the UK, including details of common agents. Improvements in data recording have been reported. In 2007 all units will be using the same software (UKPID) to record data that will feed into a central server in Cardiff. This will facilitate future ease of access and analysis.

Two appendices have been included this year. These show the direct added value that NPIS staff contribute to the development and dissemination of the national and international clinical toxicological evidence base.

1 Introduction

Poisoning accounts for over 100,000 NHS hospital admissions in the UK* each year (around 1% of the total number) and, in addition, results in a significant workload for hospital emergency departments and minor injuries units. Many thousands of different agents are involved and the appropriate management of poisoning is therefore a major task for the NHS.

Although the majority of poisoning-related deaths occur outside hospital, reduction of in-hospital morbidity and mortality is still an important challenge. Many enquiries are about potential poisoning in primary care settings, and are made increasingly to NHS patient helplines (NHS Direct in England and Wales and NHS 24 in Scotland). Appropriate triage and treatment of patients, both in primary care and in hospitals, is a key approach to reducing morbidity and mortality. A large number of suspected accidental exposures to poisons occur in children† and managing these appropriately is a further challenge for the NHS. Appropriate advice often prevents unnecessary hospital admissions.

The National Poisons Information Service (NPIS), a network of dedicated units commissioned by the Health Protection Agency, provides information on the diagnosis and treatment of poisoning to health professionals in the UK. Its objectives are to optimise patient care throughout the patient care pathway and reduce unnecessary admissions to hospital facilities. The NPIS programme cost £3.5 million in 2006/07. This was funded mainly through 'Government Grant in Aid' from the UK Health Departments, some contract income and some research income. Medical staff costs are 26% of the expenditure, specialists in poisons information (SPIs) 54%, and all other supporting costs 20%.

The NPIS provides a 24-hour clinical toxicology on-call service that gives advice on the management of more serious poisonings and on the clinical implications of chemical accidents. The NPIS units are all embedded within NHS teaching hospitals; they also provide specialist clinical services to their local populations. The NPIS has provided information by telephone since 1963. The poisons information database, TOXBASE (www.toxbase.org), was introduced in 1982 and was transferred to the Internet and adopted as the first-line information source for health professionals in the UK in 1999.

When first received, telephone enquiries are managed by information scientists – who may have a scientific, nursing or pharmacy background, with NPIS consultant clinical toxicologists available for further advice as required. A single telephone number has operated since 2000 underpinned by a complex call routing system.

With increasing use now being made of TOXBASE, a national out-of-hours telephone enquiry rota for NPIS units was introduced in July 2005. To comply with the European Working Time Directive, a national out-of-hours on-call rota for NPIS consultant clinical toxicologists supporting the NPIS units was introduced from May 2005.

There are currently four NPIS 'provider' units (two in England and one each in Scotland and Wales). The Northern Ireland Regional Medicines and Poison Information Service in Belfast provides a daytime service and uses the NPIS out-of-hours.

Information on the potential toxicity of drugs and chemicals in pregnancy is provided by the National Teratology Information Service (NTIS). The NTIS was established as part of the NPIS (Newcastle Unit) in 1995. Information on aspects of the toxicity of drugs and chemicals in pregnancy is increasingly made available on TOXBASE.

Information on TOXBASE accesses and telephone enquiries is given in this report. Data from the NPIS units have been combined to produce a list of the most frequent enquiries. Information on enquiries regarding selected drugs of abuse, carbon monoxide, and selected pesticides is also provided.

For telephone enquires, data are not always available for all fields, depending on how much information is probably available to the caller. Percentages are calculated using the total number of data available for a particular item and not for the total number of enquiries.

* Health Protection in the 21st Century. Understanding the Burden of Disease: Preparing for the Future. London: Health Protection Agency, 2005.

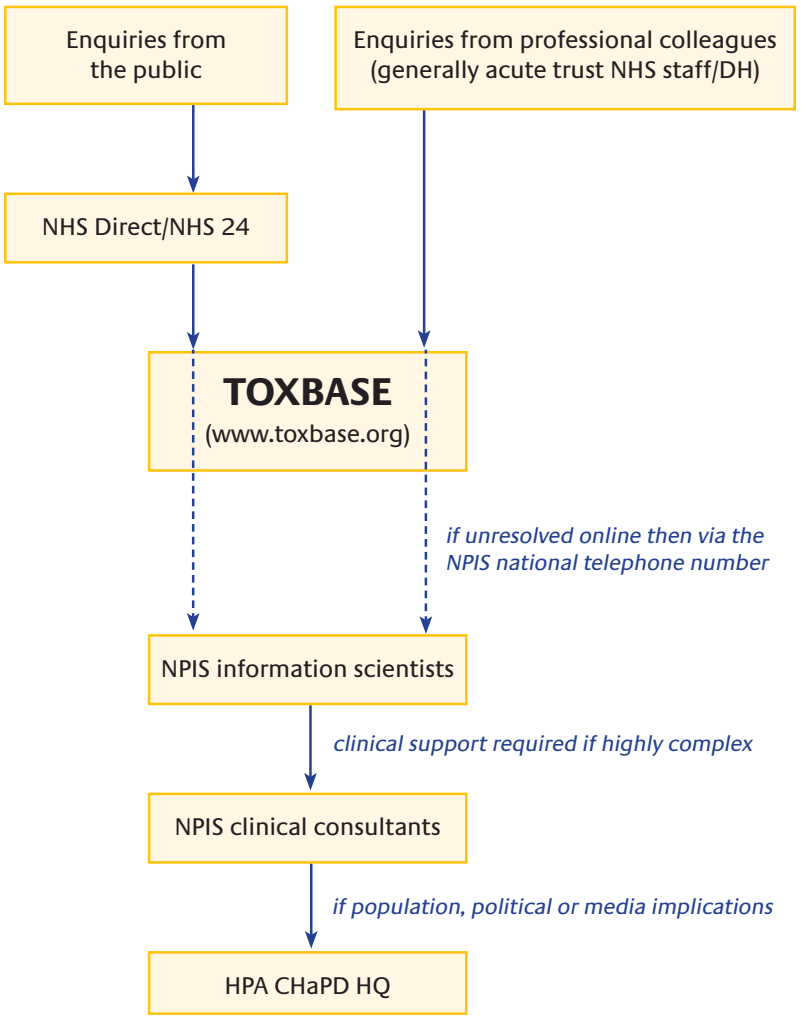
† A First Class Service: Quality in the New NHS. London: Department of Health, 1998.

In order to maintain a consistent approach, irrespective of the provider unit answering an enquiry, it is essential to have national mechanisms for discussing issues that affect the service. Commissioning issues are dealt with by the HPA NPIS Commissioning Group, which meets quarterly and more often if needed. Clinical issues, including clinical governance matters, are discussed at the NPIS Clinical Standards Group, which also meets quarterly, usually on the same day as the HPA NPIS commissioning meetings. These meetings are attended by a representative of the commissioner, a senior clinician from each provider unit, and a senior information scientist. Invitations are also sent to representatives of the National Poisons Information Centre in Dublin.

To encourage a common and evidence-based approach to the clinical management of poisoning, all NPIS clinical and information staff are invited to attend continuing professional development meetings at which important issues are discussed. These have now been taking place for two years and happen at least three times annually, with each provider unit taking it in turn to host the event.

In addition, there are now regular meetings of the TOXBASE Editing Group and the UKPID User Group. These also have representation from each provider unit and discuss issues relating to TOXBASE, the NPIS online information database, and UKPID, the common NPIS call-logging software.

How poisons enquiries are answered



2 Number and Source of Enquiries

The total number of telephone enquiries received by the NPIS in 2006/07 was 57,474 (excluding calls to the NTIS), a 34.3% decrease on the 2005/06 figure (see Figure 2.1). This has been achieved by encouraging wider use of TOXBASE (www.toxbase.org) as the first point of contact, leaving the telephone service available for more complex enquiries. It reflects the policy of encouraging a reduction in simple telephone enquiries whose answers are easily found by consulting TOXBASE and continues the decreases seen since 2001.

The number of user sessions (defined as logons to the TOXBASE site) was 443,121 (an increase of 5.4% on 2005/06). This includes 2957 sessions for educational purposes and 6984 made by the NPIS units in Birmingham, Cardiff and Newcastle (which might be to answer telephone enquiries, or for educational or monograph writing purposes). Since Edinburgh does the bulk of the final editing on TOXBASE, accesses are not counted from this source. In addition, there were 3333 sessions from NPIC, Dublin, and 7665 sessions from other poisons units, including those outside the UK. These are excluded from the rest of this part of the report, together with any temporary users (1326), leaving a total of 420,856 sessions. Each session consists of one logon period during which the user may access one product several times or several separate products on the database. There was a total of 1,084,027 products accesses in 2006/07, but applying the same exclusions as for logons, there were 941,899 product accesses for this analysis.

The running daily total of telephone enquiries received by the four NPIS units for 2006/07 averaged 159 enquiries (range 109–186).

The numbers of telephone enquiries taken by each unit were: Birmingham 15,602, Cardiff 20,833, Edinburgh 1,477, and Newcastle 19,562 excluding the NTIS (24,406 including the NTIS). Edinburgh does not participate in 'out-of-hours' information provision, hence its low call load, but it has the lead responsibility for maintaining TOXBASE. Table 2.1 shows the distribution of telephone enquiries taken by the NPIS and TOXBASE sessions in England, Scotland and Wales. In addition, the NPIS answered 358 telephone enquiries from Northern Ireland (11,863 TOXBASE sessions), 2870 from the Republic of Ireland (9229 TOXBASE sessions) and 399 from other countries (6332 TOXBASE sessions). When telephone enquiries and TOXBASE sessions are combined and adjusted for population the data can be used to compare access to the NPIS by country (Table 2.1). Table 2.2 shows the number of TOXBASE sessions by region for England, Scotland and Wales. Not all sessions are included for England as organisations such as Doctors.net provide TOXBASE to users throughout the UK. (Doctors.net is an Internet site that provides email, links to clinical databases and other resources, and postgraduate education opportunities to registered doctors.)

FIGURE 2.1 Telephone enquiries (■) and TOXBASE (■) sessions from 2000 to 2006/07 (data for 2000–2003 by calendar year; 2004/05 and 2005/06 by financial year)

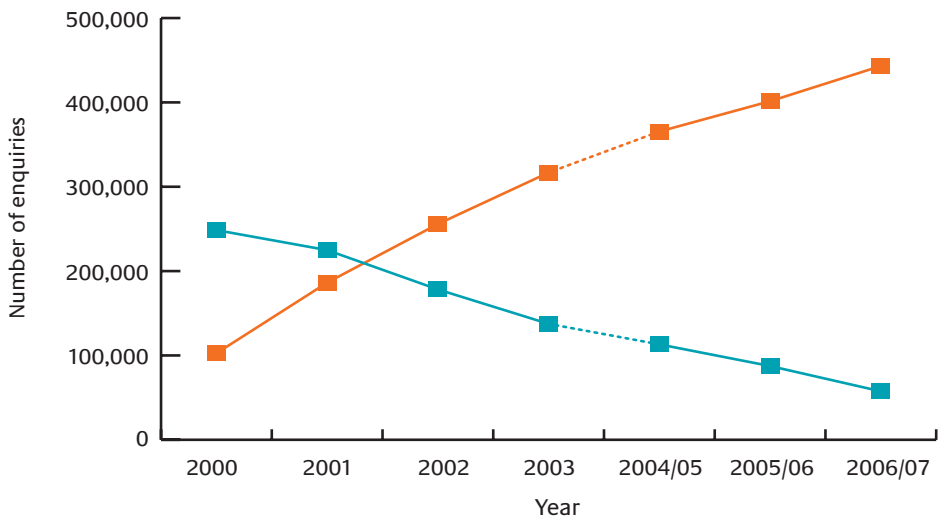


TABLE 2.1 Regional distribution of poisons enquiries to the NPIS in 2006/07

Country	Telephone enquiries	TOXBASE sessions	Total	Telephone as a % of the total	Population (mid-2006 estimates)	Poisons enquiries/ 100,000 population
England	43,892	334,705	378,597	11.6	50,431,700	751
Scotland	2,512	39,877	42,389	5.9	5,094,800	832
Wales	5,871	19,836*	25,707	22.8	2,958,600	869

* This may be an underestimate of TOXBASE activity in Wales. We have assumed TOXBASE sessions are similar to enquiries. However, while in Scotland and England the average is two products per session, in Wales this is five per session and Welsh users may be logging off less frequently. Conversely, Wales has the highest telephone enquiry rate.

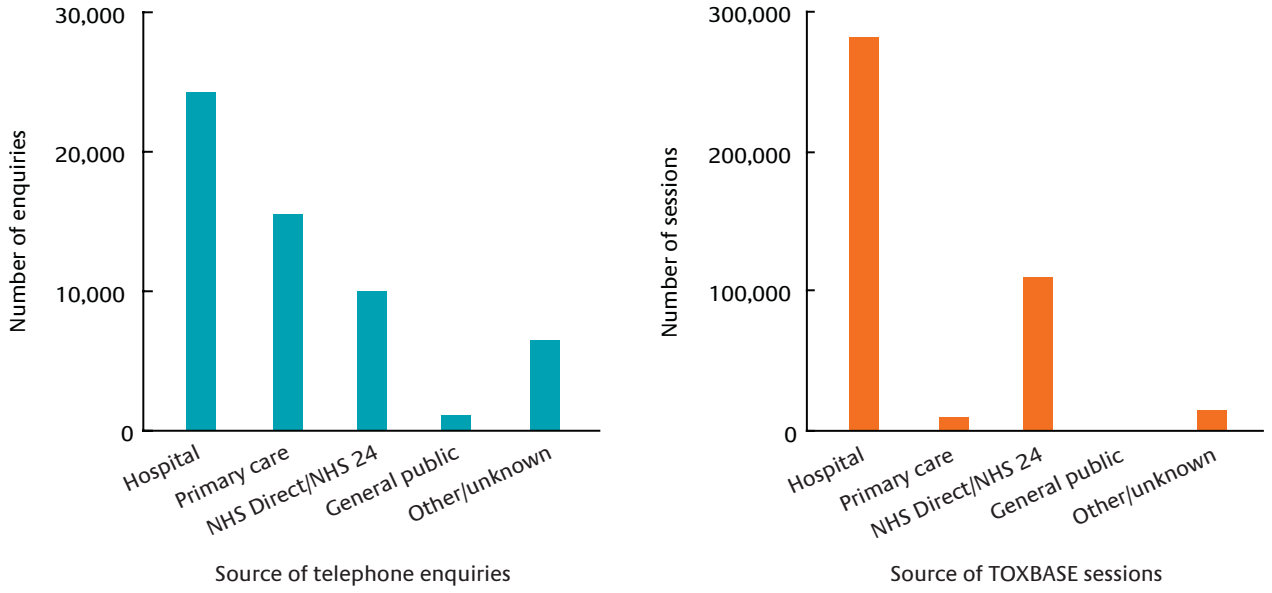
TABLE 2.2 TOXBASE sessions and sessions per 100,000 population by strategic health authority in England, health board in Scotland and region in Wales in 2006/07

Country	Region	TOXBASE sessions	Sessions/100,000 population
England	East Midlands	27,256	633
	East of England	33,652	607
	London	43,500	579
	North East	18,068	706
	North West	52,114	761
	South Central	30,183	764
	South East Coast	21,882	519
	South West	31,718	626
	West Midlands	35,410	660
	Yorkshire and The Humber	40,680	803
Scotland	Ayrshire and Arran	2,693	735
	Borders	656	595
	Dumfries and Galloway	1,233	833
	Fife	2,043	569
	Forth Valley	1,584	554
	Grampian	4,552	859
	Greater Glasgow and Clyde	10,968	920
	Highland	2,794	911
	Lanarkshire	3,751	672
	Lothian	6,246	779
	Orkney	69	349
	Shetland	152	695
	Tayside	3,000	766
	Western Isles	136	516
Wales	Mid and West Wales	8,566	858
	North Wales	3,942	590
	South East Wales	7,328	570

Figure 2.2 shows that 281,734 (67.0%) of TOXBASE sessions and 24,289 (42.3%) of telephone enquiries came from hospitals. In addition, 110,836 (26.6%) of TOXBASE sessions and 10,033 (17.5%) of telephone enquiries came from NHS Direct (England and Wales) and NHS 24 (Scotland). There is no public access telephone service in Northern Ireland.

Of the telephone enquiries, 43.3% were made by doctors and 45.3% by nurses compared with 36.9% and 45.9% last year. Some of this change may result from improved reporting (only 33 unrecorded this year, compared with 4833 in 2005/06). The higher percentage of nurses is partly explained by the fact that NHS Direct and NHS 24 are staffed by nurses, and that the first point of contact in emergency departments is usually a triage nurse.

FIGURE 2.2 Telephone enquiries and TOXBASE sessions in 2006/07 by source of enquiry



3 Nature of Telephone Enquiries

A total of 18,873 (35.3%) telephone enquiries for which age was accurately given involved children under ten years of age. The great majority (88.6%) of these were under five years old.

For all patients, 46.7% were male and 51.9% female (1.3% unrecorded). For place of occurrence, 88.9% of all potential exposures were reported to have happened in the home, 2.7% in agricultural or other workplaces, and 1.6% in medical facilities, with 3.8% classified as 'other' and 3.0% unknown. Over half (56.4%) involved accidental poisoning, 28.9% deliberate poisoning, 8.7% therapeutic error (by patients, carers or medical professionals) and 1.0% substance abuse (5.1% other circumstances). The age of patients who were the subject of telephone enquiries is shown in Figure 3.1. There was improved reporting of age compared with last year. Age was not recorded in 3,489 enquiries compared with 14,167 in 2005/06. It should be noted that the age is not always available from the enquirer, but it is usually confirmed whether the subject is a child or adult.

The types of products that were the subject of telephone enquiries are shown in Figure 3.2, with pharmaceuticals accounting for almost two-thirds.

FIGURE 3.1 Age of poisoned patients reported in telephone enquiries to the NPIS in 2006/07

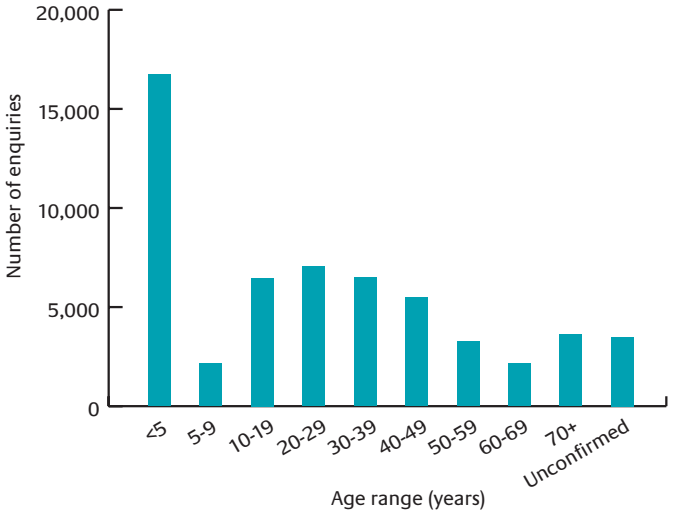


FIGURE 3.2 Types of products involved in telephone enquiries to the NPIS in 2006/07

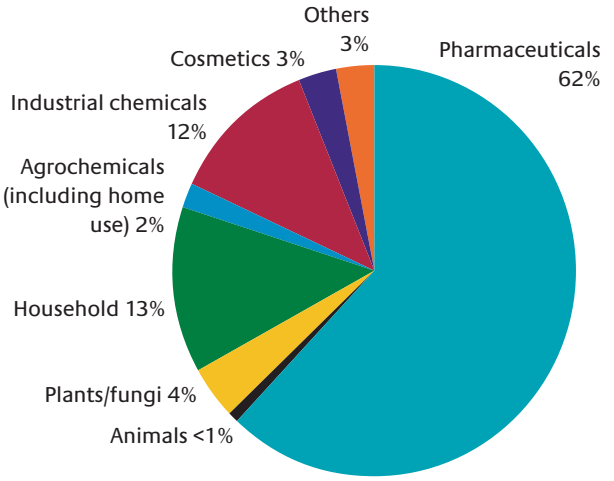
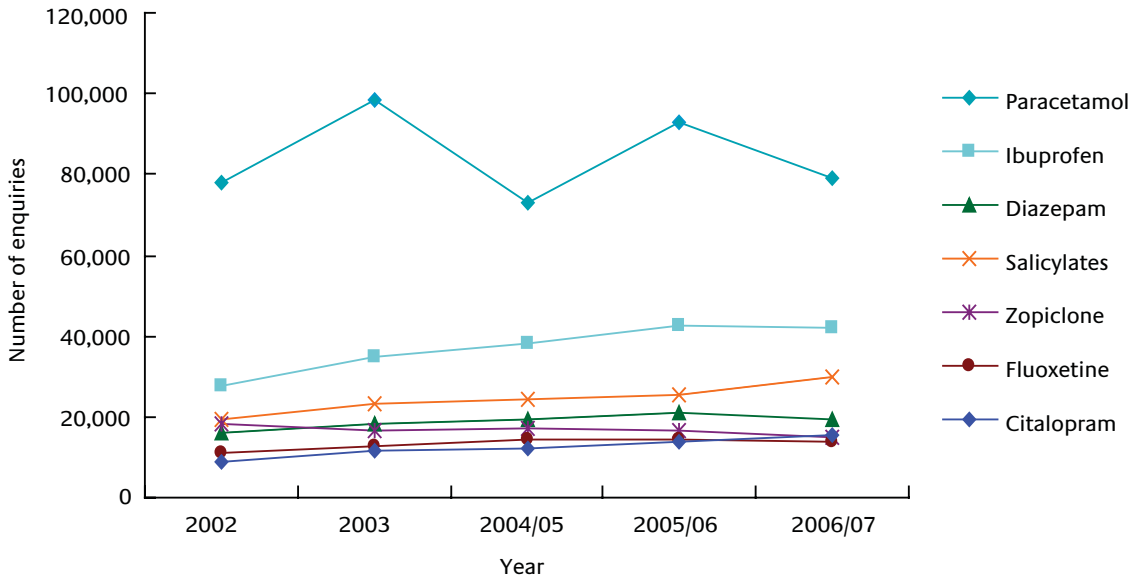


Table 3.1 shows the ten pharmaceutical agents that were the most frequent subject of enquiries by telephone and TOXBASE. One of the agents was the compound analgesic co-codamol (paracetamol and codeine). The number of enquiries listed for paracetamol in the table does not include those for compound analgesics. When co-codamol and other compound analgesics are included there were 95,918 accesses on TOXBASE and almost 8000 telephone enquiries involving paracetamol. The pattern of enquiries is similar for both telephone and TOXBASE, with analgesics and drugs affecting the central nervous system predominating. Most exposures were the result of ingestion (85.9%), 3.5% inhalation, 3.3% eye contact, 2.6% skin contact and the remainder multiple or other routes (4.7%). Figure 3.3 shows trends for the most common seven agents over the last five years. Paracetamol enquiries vary more year to year than those for other common pharmaceuticals, which tended to rise more steadily.

TABLE 3.1 Pharmaceutical agents: top ten telephone enquiries and TOXBASE accesses in 2006/07

Telephone		TOXBASE	
Agent	Number of enquiries	Agent	Number of accesses
Paracetamol	6,030	Paracetamol	72,988
Ibuprofen	2,621	Ibuprofen	39,268
Diazepam	1,320	Salicylates (including aspirin)	29,106
Zopiclone	1,175	Diazepam	18,107
Citalopram	1,054	Co-codamol	15,432
Co-codamol	992	Citalopram	14,282
Aspirin	854	Zopiclone	13,859
Fluoxetine	829	Fluoxetine	13,063
Olanzapine	600	Codeine	11,055
Diclofenac	617	Amitriptyline	10,097

FIGURE 3.3 Enquiries about common agents from 2002 to 2007



Paediatric enquiries

Enquiries about exposures in children under the age of 5 years account for 31.3% of telephone enquiries and those aged 5–9 years 4.0%. The types of products involved are shown in Tables 3.2 and 3.3. The most common agents are paracetamol and ibuprofen, as in enquiries overall. This needs to be addressed by Primary Care Trusts, health boards, community pharmacies and the pharmaceutical industry being urged to support regular, repeated 'used drugs dump' and 'safe storage at home' campaigns.

Most exposures in children are trivial or poisons 'scares' and do not result in serious toxicity. However, in the absence of appropriate advice these do cause considerable anxiety and consume substantial health care resources. These enquiries often involve products such as silica gel, nappy rash creams, multivitamins and oral contraceptives. Although most paediatric enquiries are not associated with significant hazard, it is important to identify those where there is a risk of adverse outcome. For example, a common enquiry in 2006/07 involved clothes washing liquid tablets/capsules which, because of their concentrated nature, are irritating, particularly to the eye.

TABLE 3.2 Types of agents involved in telephone enquiries for children aged 0–4 years in 2006/07

Agents	Number of enquiries
Pharmaceuticals	6,185
Plants	835
Fabric cleaning/care product	480
Surfactant/detergent	422
Essential oil	389
Inert compound	271
Decorative product/DIY/building product	256
Plastic	352
Miscellaneous cleaning products	247
Baby care product	209
Other	7,077
TOTAL	16,723

TABLE 3.3 Types of agents involved in telephone enquiries for children aged 5–9 years in 2006/07

Agents	Number of enquiries
Pharmaceuticals	870
Plants	249
Toy/novelty	104
Insecticide	31
Essential oil	26
Food	26
Irritant/corrosive	26
Foreign body	25
Alcohols	25
Battery	22
Other	746
TOTAL	2,150

4 Non-UK and Subscription Users

An out-of-hours telephone enquiry service for the Republic of Ireland is provided under contract. In 2006/07 there were 2870 telephone enquiries that were routed to the NPIS national telephone out-of-hours rota (a decrease of 12.0% over 2005/06).

In addition, NPIS Edinburgh has a separate contract to provide TOXBASE specifically tailored to medical professionals in the Republic of Ireland. By the end of March 2007 there were 69 Irish registered users who had 12,563 sessions on TOXBASE (an increase of 6.2% on 2005/06).

NPIS units received 399 telephone enquiries from the Channel Islands, Isle of Man and other countries. There were 882 sessions on TOXBASE from the Channel Islands, 517 from the Isle of Man, and 6552 from other countries. The last represents a 133.8% increase over 2005/06 and shows that TOXBASE use is growing abroad. This includes fee-paying poisons centre users in Australia, Brazil and Hong Kong as well as access for all European poisons centres by special arrangement. In addition, as a result of advice from the Medicines and Healthcare products Regulatory Agency (MHRA), a number of pharmaceutical companies have registered for help with producing summary of product characteristics (SPCs). The income thus generated is used to support production of TOXBASE.









5 NPIS National Telephone Support

Following the HPA national review of the NPIS in 2004, a networked service was introduced in July 2005, accessed by a single national phone number. This networked service enables information to be provided from all units during the day, with two units remaining open until 23.00 hours and a single unit remaining open overnight.

Each unit handles telephone enquiries from a designated geographical area during the normal working day. Birmingham, Cardiff and Newcastle support an out-of-hours national rota for NPIS telephone enquiries. In addition, if all lines into the geographically preferred unit are busy, the call is automatically transferred to a unit with available capacity.

Operation of the NPIS national telephone number

The NPIS national telephone number is provided through a contract between the HPA and British Telecom. Coordination and review of the NPIS networked on-call rota and call switching is undertaken by NPIS Cardiff. Considerable effort has been put into implementing the complex call switching arrangements and the operating procedures that underpin this system. A single national number is used for the whole of the UK. Only by dialling this number can the networked NPIS be accessed.

During core hours (Monday to Friday 08.00–20.00 hours), once the number has been dialled, the call is delivered to the British Telecom Inbound Service, its region identified, and the call automatically directed to the geographically appropriate unit.

Birmingham, Cardiff and Newcastle operate call queuing systems. These enable two calls to be held in a queue in addition to the calls being answered. If all poisons enquiry lines at the relevant NPIS unit are busy and the unit's call queuing system is at capacity, then the telephone enquiry is automatically diverted to the next available NPIS 24-hour unit. Enquiries are not redirected to Edinburgh. If all telephone lines are busy, and the call queuing systems are full, callers receive a BT message informing them that all lines are busy.

The automatic routing of calls has resulted in more effective call answering by the NPIS. The number of calls going to the national answerphone is now less than 10 per week, compared to 200–300 previously.

6 Consultant Referrals

From May 2005 the NPIS has operated a national consultant clinical toxicology on-call rota, with consultants from the four units (Birmingham, Cardiff, Edinburgh and Newcastle) providing out-of-hours cover (18.00 to 09.00 hours Monday–Friday, weekends and public holidays) for the UK and Republic of Ireland. The rota currently consists of eight consultants, with two supporting non-consultant colleagues working under a local consultant. All staff on the rota are involved in the care of poisoned patients in their own local NHS poisons treatment facilities. A nationally agreed protocol is used to determine when specialists in poisons information (SPIs) should refer enquiries. The national rota is managed from NPIS Edinburgh.

For daytime cover, units continue to make local arrangements and may be supported by consultants, academic staff and specialist registrars (SpRs) who are not on the UK NPIS consultant toxicologist rota but under the supervision of NPIS consultants. NPIS Edinburgh also supports Northern Ireland enquiries during the working week. Units may also provide cross-cover in emergencies and occasionally in a planned manner to support colleagues in special circumstances during the working week.

Currently copies of the details of the original telephone enquiry are emailed or faxed to the relevant consultants for information, audit and checking. In addition, consultants keep contemporaneous records of advice given, which are passed to the NPIS unit that took the original call for addition to the call record. A centralised database has been developed in NPIS Cardiff which will make this process much easier as consultants will be able to check the records directly online and update them.

For the purposes of collating and auditing consultant referrals, information staff from all the NPIS units were asked to provide outline information on all enquiries that were referred to a consultant out-of-hours. Data on day and month, source, agents and reasons for the referrals are given below.

Referrals

There were 1152 referrals made to NPIS consultants (daytime and out-of-hours) in 2006/07. Figure 6.1 shows these by month since 2005 (daytime referrals were only collected formally from 2006). The number of out-of-hours referrals has levelled out after the initial run-in period now that systems are embedded. Table 6.1 shows the referrals by country, with most referrals coming from England, and by NPIS unit, showing differences in referral rates between units.

FIGURE 6.1 Referrals by month for 2006/07 (out-of-hours and workday referrals) compared with 2005/06 (out-of-hours referrals)

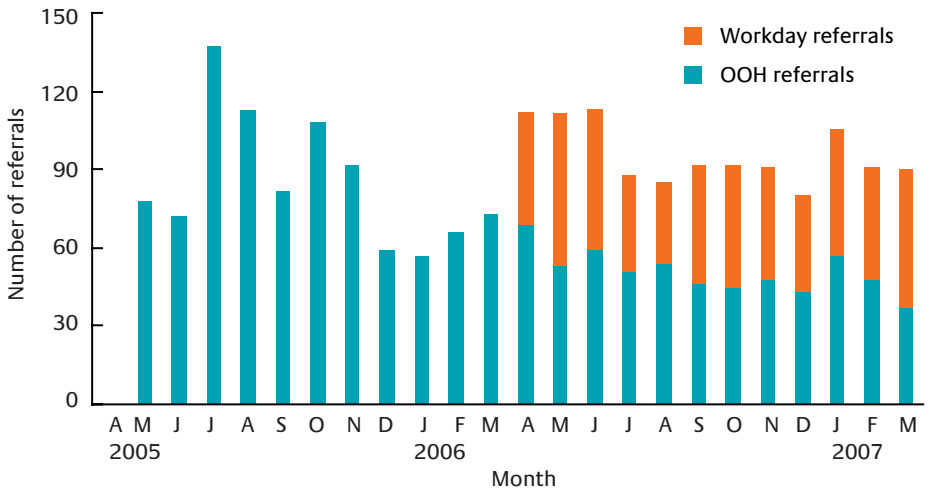


TABLE 6.1 NPIS consultant referrals by country and referring NPIS unit for 2006/07

Country	Number of referrals	% of total
England	826	71.7
Scotland	215	18.7
Wales	68	5.9
Northern Ireland	15	1.3
Republic of Ireland	17	1.5
Other	11	0.9
TOTAL	1152	100

	Out-of-hours referrals		Workday referrals	
NPIS unit	Number	%	Number	%
Birmingham	227	37.1	119	22.0
Cardiff	201	32.8	135	25.0
Edinburgh	16*	2.6	165	30.6
Newcastle	168	27.5	121	22.4
TOTAL	612	100	540	100

* The number from Edinburgh to the out-of-hours rota is small because Scottish calls are transferred to the national telephone rota between 20.00 and 08.00 hours on weekdays and on weekends and public holidays.

FIGURE 6.2 Referrals by day of the week for 2006/07

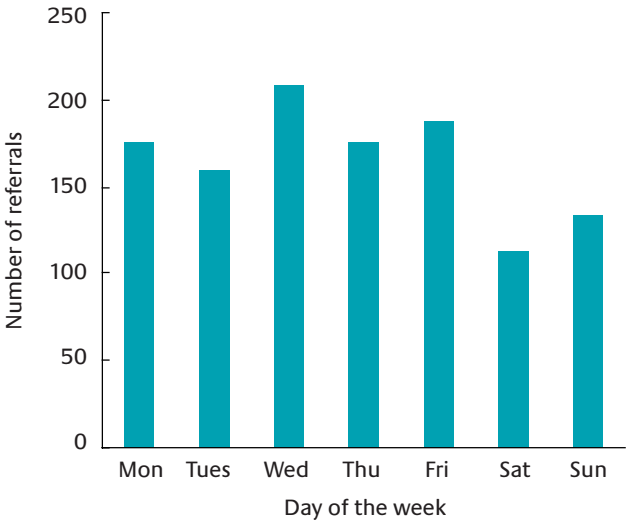


TABLE 6.2 NPIS consultant referrals by hospital department for 2006/07 (where confirmed, 1030 referrals)

Source	Number of referrals	%
Emergency departments	492	47.8
Medical	182	17.7
HDU/ITU	168	16.3
Paediatric	98	9.5
Pharmacy/medicines information	27	2.6
Psychiatry	19	1.8
Surgery	14	1.4
Others	30	2.9

Distribution by day of week for 2006/07 is shown in Figure 6.2. The average number of referrals per day was 3.2 (range 0–9 referrals).

Referred calls came from hospitals (1060; 92.0%), general practitioners (64; 5.6 %), NHS Direct/NHS 24 (5; 0.4%) public health service (5; 0.4%), police (3; 0.3%) and others (10; 0.9%), with five unknown.

Referrals came from doctors (1055; 91.6%), nurses (58; 5.0%), pharmacists (31; 2.7%) and other (8; 0.7%). Hospital referrals by department are shown in Table 6.2.

In approximately one-third of cases (373) the NPIS consultant spoke directly to the enquirer, in the remainder the information was relayed by the SPI.

The principal reasons for referral were given as specific management advice (752) or general management advice (239). Other reasons included diagnosis (26), laboratory advice (22), reassurance (14), and the caller requested a consultant (14). The specific management advice requested involved a variety of measures with advice on antidotes and other specific agents used in treating poisoned patients being most common. There were 28 referrals which involved therapeutic errors.

Professional feedback on NPIS services

Audit and analysis of the consultant referrals are used to improve the services offered by the NPIS. This includes additions and changes to TOXBASE entries that reflect lack of clarity and user concerns. Any problems highlighted by such calls, or in cases which are particularly difficult or complex, prompt further discussion by group email, telephone or at one of the NPIS CPD meetings. This year CPD topics identified as a result of professional feedback have included toxic alcohols, iron, paracetamol, cyanide, hydrofluoric acid and mercury spills.

Conclusions

The NPIS national out-of-hours on-call consultant rota is working well, with the number of referrals reduced over last year as the systems settle in. Frequent contact by email and telephone together with regular educational meetings of groups across the NPIS units help to ensure consistency of advice. Information gleaned from analysis of the enquiries has assisted in identifying challenges, improving the clarity of TOXBASE entries and informing the need for research in a number of areas.

7 Stakeholder Feedback

NPIS units collect information on user satisfaction with the service they offer under the terms of their contracts. This allows the NPIS to identify problems or provide evidence that it is meeting the needs of the users. It is appropriate for them to seek out this evidence actively, so that they can identify and address problems, both internal (e.g. difficulties accessing the service, inappropriate advice, or impolite staff) and external (e.g. inadequate access to TOXBASE, or use of referral protocols). The use of an agreed questionnaire by the NPIS units started in 2002.

During 2006/07 a total of 1883 questionnaires were sent out by the four NPIS units, involving 3.4% of all patient-specific telephone enquiries. Of these, 989 (52.5%) were returned. Responders included consultants (3%), junior hospital doctors (10%), nurses (40%), hospital pharmacists (2%) and GPs (30%). The proportions of responders by professional group (doctors 43%, nurses 40%, others 10%) are similar to those for telephone enquirers as a whole (doctors 43%, nurses 45%, others 11%) without any suggestion of selection or responder bias.

A total of 363 (36%) respondents or their colleagues had accessed TOXBASE before contacting the NPIS. No TOXBASE access was available for 14% of respondents and 24% did not know what TOXBASE was. Of the latter, 50% were general practitioners, who as individuals would need to use TOXBASE very infrequently and 20% were in the nurse (other) category. Those NHS staff managing cases of poisoning most often, i.e. hospital consultants, junior hospital doctors, emergency department nurses, and NHS Direct nurses made up only 0.9%, 5.6%, 1.3% and 2.1% respectively of those responding that they did not know what TOXBASE was.

Where TOXBASE had already been accessed, the most common reasons given by respondents for calling the NPIS were that there was not enough information on TOXBASE to answer the specific question posed or there were special circumstances. The most common reasons given for why TOXBASE was not consulted before making a telephone enquiry were lack of availability in the department, difficulty in logging on/computer connection, or lack of training in the use of the computer or TOXBASE.

Respondents were asked to what degree they agreed or disagreed with a series of statements relating to the particular enquiry they had made to the NPIS. The replies showed a high degree of satisfaction in the way the NPIS staff responded to the various questions posed.

FIGURE 7.1 Overall quality scores (with 95% confidence intervals) for 2006/07 for the four NPIS units, expressed as percentage of respondents scoring 5 (■) or 6 (■) out of a possible 6 (non-respondents are excluded from the denominator)

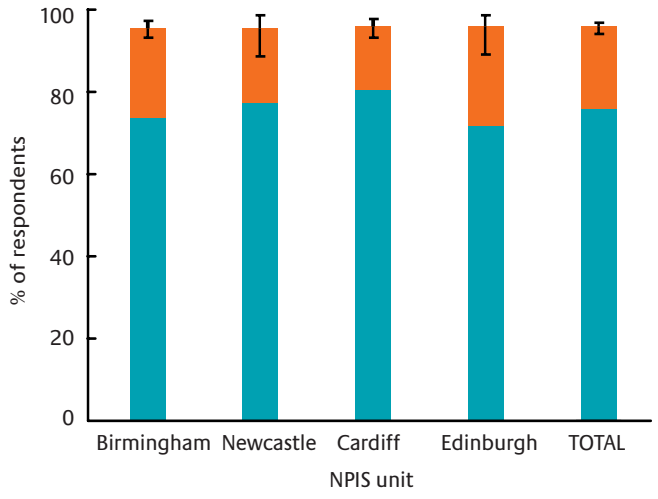
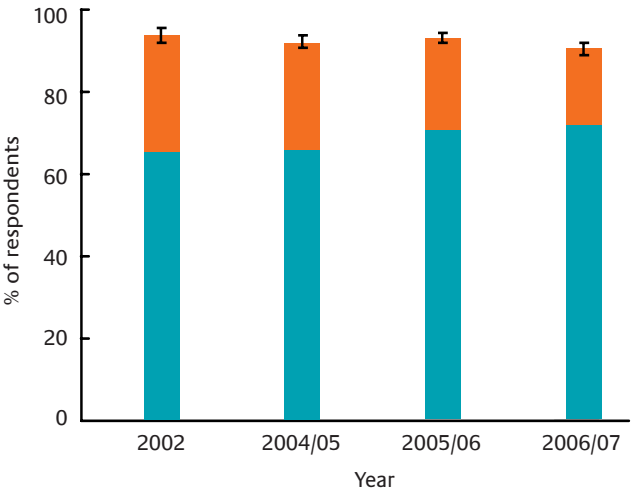


FIGURE 7.2 Overall quality scores (with 95% confidence intervals) for 2002 and 2004/05 to 2006/07 for the NPIS, expressed as percentage of respondents scoring 5 (■) or 6 (■) out of a possible 6 (non-respondents are excluded from the denominator)



Overall satisfaction with the service continues to be high, with 95.7% of respondents scoring the service 5 or 6 out of a possible 6 when non-respondents are excluded from the denominator. The equivalent figure is 90.2% if non-respondents are included. There are no significant differences in satisfaction scores between different NPIS units (Figure 7.1). Time trends show no significant changes in overall satisfaction using a score of 5 or 6 out of a possible 6; however, the numbers of respondents scoring the service at 6 has increased since 2002 (Figure 7.2). Both statistics demonstrate a very satisfactory utility score for the service.

For the 2007/08 exercise a uniform method of randomly allocating enquiries for follow-up will be used in all the participating units.

This exercise only considers user satisfaction with the telephone enquiry service. Methods to evaluate satisfaction with other aspects of the service, including use of TOXBASE and enquiries referred to a consultant, would be helpful. These will be developed over the next year with the view to introduction in 2008/09.

8 TOXBASE Editing

TOXBASE contains entries on approximately 12,000 substances and products as well as approximately 4000 additional information monographs. New TOXBASE entries are circulated to all NPIS units for review before going 'live' on the database. Areas of clinical controversy or uncertainty are discussed by the NPIS directors at regular teleconferences, at quarterly meetings of the NPIS Clinical Standards Group. Literature reviews, undertaken in the main by NPIS Birmingham, are circulated as Current Awareness in Clinical Toxicology, to assist in updating TOXBASE.

The TOXBASE Editing Group includes representatives of clinical and information staff from all the NPIS units, together with a scientific member from the HPA Chemical Hazards and Poisons Division. It meets approximately three times a year to agree policy for TOXBASE development, the development of the TOXBASE newsletter that is sent bimonthly to all registered users, and agree and prioritise work programmes on TOXBASE.

Until 2005 almost all the updating and new entry production occurred in Edinburgh. Annual reviews of the content of the most common 100 accesses to TOXBASE have been conducted for several years. In August 2005 a formal NPIS work programme was introduced, which included specific areas of work being undertaken by all individual NPIS units. This work was facilitated by the introduction of the national on-call systems for the NPIS, which freed SPI time for work on TOXBASE. All NPIS units also participate in reviewing entries within the formal work programme as described below. The total number of TOXBASE entries originating from each unit/centre is given in Table 8.1.

NPIS Edinburgh continues to review any entries older than three years and is moving towards a rolling three-year review of entries by all units. It also reviews all over-the-counter pharmaceuticals (more than 1000) annually.

Editorial review of entries for new agents and complex updated entries

New and updated entries for TOXBASE are reviewed at weekly meetings of the NPIS Edinburgh consultants and information services manager. Those with minor changes are loaded directly to TOXBASE. Generic entries and those with major changes are circulated to the NPIS units and NPIC, Dublin, at the beginning of each month for review and comments by the 28th of that month.

Major new and updated entries provided by the NPIS units are reviewed in Edinburgh for consistency and then sent to the units for comments within one month. In 2006/07, 95 entries were sent out for review to all the NPIS units, the Northern Ireland Regional Medicines and Poison Information Service and the NPIC, Dublin, and they provided detailed comments. This is a major task. These are then discussed at one of Edinburgh's weekly meetings and a final entry agreed. This is available on the TOXBASE private space for two weeks before it goes live. If there are major differences between comments from units/centres then the entry is reviewed at the next TOXBASE Editing Group meeting and the CSG meeting for a final decision.

TABLE 8.1 TOXBASE entries originating from each unit/centre in 2006/07

Unit/centre	Apr–Jun 2006	Jul–Sep 2006	Oct–Dec 2006	Jan–Mar 2007	TOTALS
NPIS					
Birmingham	8	–	50	101	159
Cardiff	73	23	22	72	190
Edinburgh	155	202	885	424	1666
Newcastle	1	–	–	7	8
NTIS Newcastle	–	11	–	–	11
Northern Ireland Regional Medicines and Poison Information Service	3	–	–	–	3
NPIC, Dublin	–	–	–	8	8
TOTALS	240	236	957	612	2045

9 Product Data Centre

Many accidental and deliberate poisonings occur from exposure to consumer products. In order for the NPIS to provide adequate advice on the treatment and management of such patients, reliable information on the composition of consumer products is necessary. Product datasheets (MSDS) also provide information for updating TOXBASE, enabling end-users to obtain specific advice on many common products, thereby helping to free telephone time for the NPIS units to support callers with the more complex enquiries.

NPIS Birmingham has the responsibility of providing product data to all the NPIS units. Currently, the Product Data Centre holds more than 45,000 MSDS, which are accessible by the other units on a 24-hour, 7-days-a-week basis. The database is indexed by product name, manufacturer, date of MSDS, and the date the sheet was scanned into the database.

In practice, the vast majority of enquiries can be dealt with by searching by product name (full or partial name) and/or by manufacturer. The nature of most poisoning exposures is such that this is the information that is generally given to medical personnel and then passed on to the NPIS. The date of the MSDS can differentiate between information on updated formulations. Where these fields are not sufficient, the system is also fully text searchable, which enables searches to be made on any other criteria, e.g. active ingredients or use.

10 Current Awareness in Clinical Toxicology

Current Awareness in Clinical Toxicology is published monthly both in hard copy and digitally and is produced by NPIS Birmingham with the assistance of other NPIS units. Each edition of *Current Awareness* lists some 300 citations (80% have abstracts in the digital version) published in the recent scientific literature relating to clinical, occupational and environmental toxicology. This ensures not only that NPIS staff are equipped to answer enquiries on all aspects of human toxicology but also that TOXBASE is kept up-to-date.

The American Academy of Clinical Toxicology and the European Association of Poisons Centres and Clinical Toxicologists also distribute copies of *Current Awareness* to their members worldwide.

11 National Teratology Information Service

The National Teratology Information Service (NTIS) was established as part of the NPIS Newcastle Unit in 1995. It provides a national service on all aspects of the toxicity of drugs and chemicals in pregnancy. Information is provided to health professionals via the telephone information service and also online on TOXBASE. The NTIS also provides advice on drug and chemical exposure during pregnancy on request to official organisations such as the Medicines and Healthcare products Regulatory Agency, the Commission for Human Medicines, the European Medicines Agency, the British National Formulary and the Neonatal Formulary.

To assist with enquiry answering, summary information has been developed for a number of drugs and chemicals to assist in the provision of risk assessments following exposure during pregnancy. The NTIS now has 410 summaries available and, of these, 200 are can be assessed directly by health professionals on TOXBASE. A new post was established in the NTIS during 2006/07 which will increase the number of pregnancy monographs being put on to TOXBASE each year.

Routine surveillance

Selected enquiries are followed up to obtain information on the outcome of pregnancy. Follow-up is attempted where possible for all cases of poisoning and all occupational and environmental exposures during pregnancy. In addition, enquiries involving drugs on a priority list are also followed up e.g. drugs under intensive surveillance by the Commission for Human Medicines, known or suspected human teratogens, and drugs for which there are few safety data.

Prospective data collection using standardised procedures occurs on two occasions, namely, around the time of the enquiry and then at approximately four weeks after the expected date of delivery (EDD).

To date, follow-up information has been obtained on the outcome of approximately 8000 exposed pregnancies. These include exposures to medicines in therapeutic dose (4540 cases) or in overdose (1642) and chemical exposures, either environmental (744) or occupational (497).

Enquiry workload

During 2006/07 the NTIS received 4844 telephone enquiries related to pregnancy, a decrease of 2.8% over the figure for 2005/06 (Figure 11.1). The regional distribution of enquiries is shown in Table 11.1. The majority were from drug information pharmacists (44.2%) and general practitioners (20.1%).

FIGURE 11.1 Telephone enquiries to the NTIS from 1995 to 2006/07

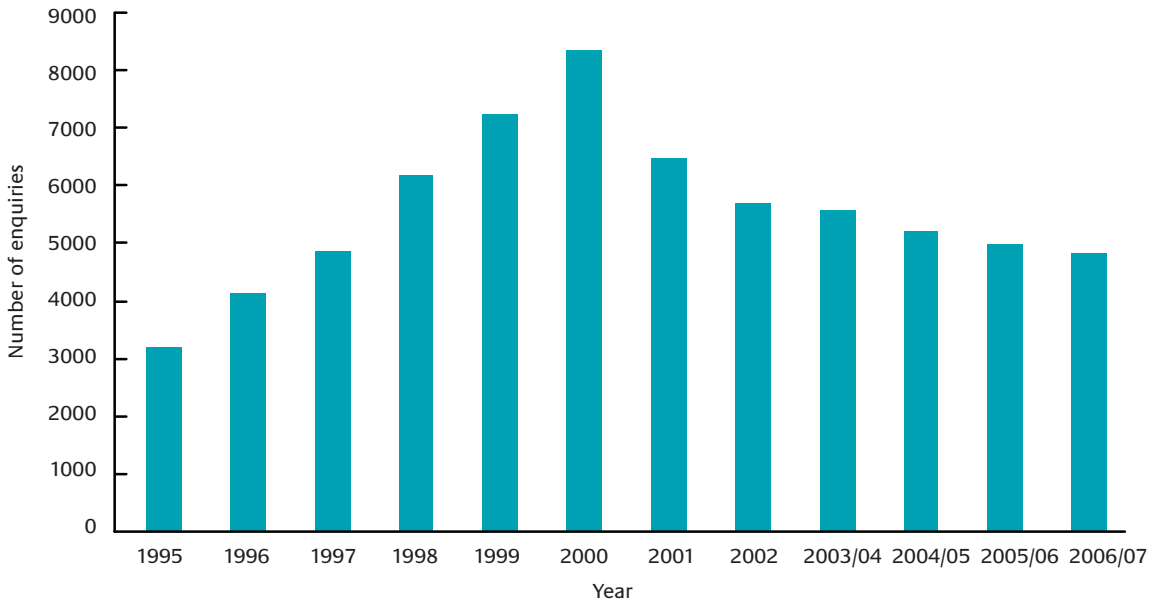


TABLE 11.1 Regional distribution of telephone enquiries to the NTIS in 2006/07

Country	Number of enquiries	% of enquiries
England	4154	85.7
Scotland	267	5.5
Wales	236	4.9
Northern Ireland	68	1.4
Other (including the Republic of Ireland)	119	2.5
TOTAL	4844	100.0

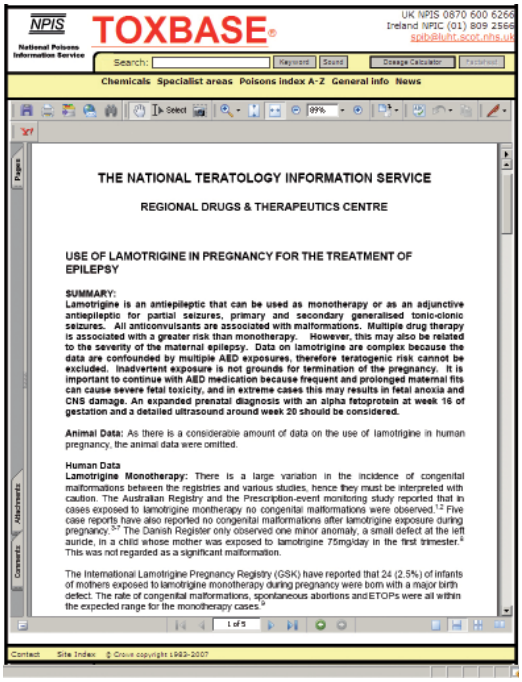
TABLE 11.2 Telephone enquiries to the NTIS by type/ substance exposure in 2006/07

Type of exposure	Number of enquiries	% of enquiries
Therapeutic	4308	88.9
Drug overdose	151	3.1
Poisoning	97	2
Substance abuse	44	0.9
Complementary medicines	56	1.2
Occupational	69	1.4
Environmental	53	1.1
Miscellaneous	66	1.4
TOTAL	4844	100.0

Of these enquiries, 3,647 (75%) concerned maternal exposures and 125 (2.6%) paternal exposures. The remaining 513 (10.6%) were general enquiries not regarding a specific patient. Details of these enquiries are shown in Table 11.2.

Retrospective risk assessment was required in 100 (2.1%) cases and 459 (9.5%) enquiries were requesting preconception counselling.

The pregnancy summaries hosted by the TOXBASE website had 26,213 hits during 2006/07, a 25% decrease on the figure for 2005/06 (Figure 11.2). The reasons for this reduction are being investigated and will be addressed if the downward trend is not reversed in 2007/08.


NPIS National Poisons Information Service
TOXBASE®
UK NPIS 0870 600 6266
Ireland NPIC (01) 809 2566
Chemicals Specialist areas Poisons index A-Z General info News

THE NATIONAL TERATOLOGY INFORMATION SERVICE

REGIONAL DRUGS & THERAPEUTICS CENTRE

USE OF LAMOTRIGINE IN PREGNANCY FOR THE TREATMENT OF EPILEPSY

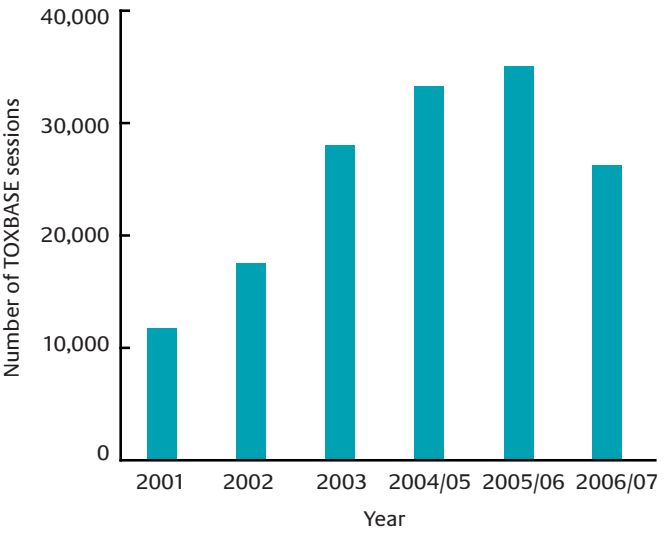
SUMMARY:
Lamotrigine is an antiepileptic that can be used as monotherapy or as an adjunctive antiepileptic for partial seizures, primary and secondary generalised tonic-clonic seizures. All anticonvulsants are associated with malformations. Multiple drug therapy is associated with a greater risk than monotherapy. However, this may also be related to the severity of the maternal epilepsy. Data on lamotrigine are complex because the data are confounded by multiple AED exposures, therefore teratogenic risk cannot be excluded. Inadvertent exposure is not grounds for termination of the pregnancy. It is important to continue with AED medication because frequent and prolonged maternal fits can cause severe fetal toxicity, and in extreme cases this may results in fetal anoxia and CNS damage. An expanded prenatal diagnosis with an alpha fetoprotein at week 16 of gestation and a detailed ultrasound around week 20 should be considered.

Animal Data: As there is a considerable amount of data on the use of lamotrigine in human pregnancy, the animal data were omitted.

Human Data
Lamotrigine Monotherapy: There is a large variation in the incidence of congenital malformations between the registries and various studies, hence they must be interpreted with caution. The Australian Registry and the Prescription-event monitoring study reported that in cases exposed to lamotrigine montherapy no congenital malformations were observed.[1,2] Five case reports have also reported no congenital malformations after lamotrigine exposure during pregnancy.[3-7] The Danish Register only observed one minor anomaly, a small defect at the left auricle, in a child whose mother was exposed to lamotrigine 75mg/day in the first trimester.[8] This was not regarded as a significant malformation.

The International Lamotrigine Pregnancy Registry (GSK) have reported that 24 (2.5%) of infants of mothers exposed to lamotrigine monotherapy during pregnancy were born with a major birth defect. The rate of congenital malformations, spontaneous abortions and ETOPs were all within the expected range for the monotherapy cases.[9]

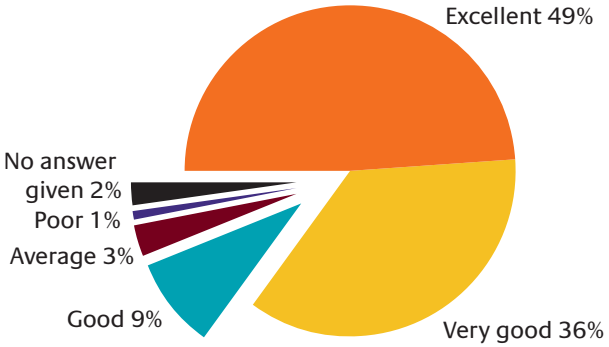
FIGURE 11.2 Number of TOXBASE sessions for pregnancy information, for 2001 to 2006/07



Quality assurance

A random sample of 240 (4.4%) enquiries, 20 per month, made directly to the NTIS was selected for quality assurance monitoring. The quality control questionnaires were sent out between one and four weeks after the enquiry. As of June 2007, 163 (68%) forms have been returned. Overall, respondents reported a very high degree of satisfaction with the service (Figure 11.3).

FIGURE 11.3 Quality assurance questionnaire results: overall satisfaction with the information received from the NTIS



Service developments

During 2006/07 extensive work has been carried out on the NTIS follow-up database. Legacy (manually held) data have been added, and existing data edited and cleaned. This work is continuing and will be completed during the second quarter of 2007/08.

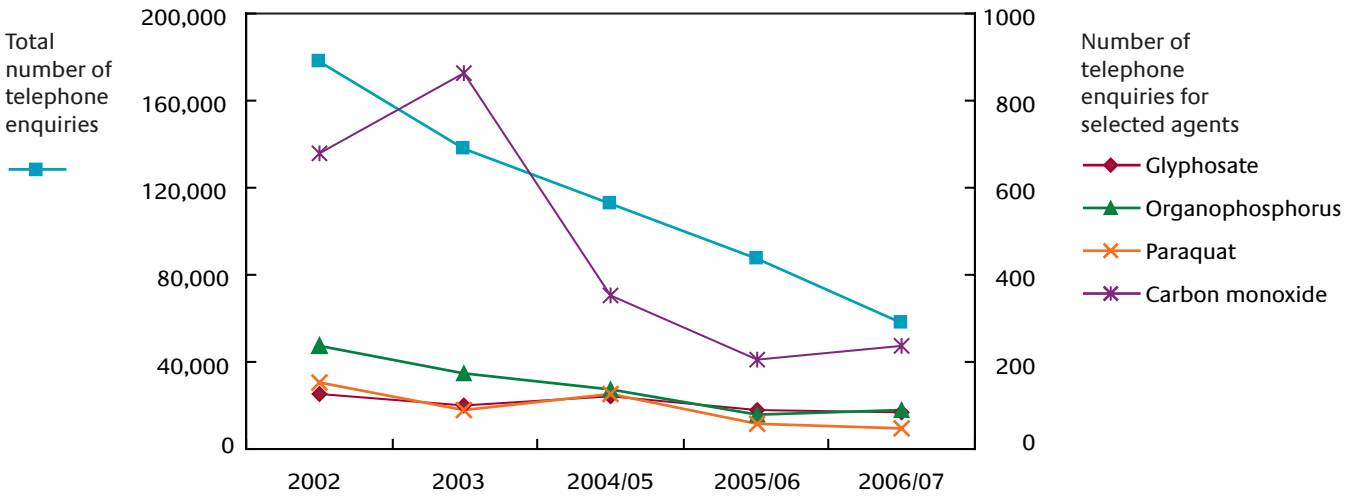
Following a review of staffing within the service, a new post of assistant head of teratology has been created and appointed. This will improve senior scientific capacity and cover for the unit, increase the production and maintenance of pregnancy monographs on TOXBASE, as well as an increase in original research.

12 Enquiries about Selected Agents

The examples given here illustrate the data that the NPIS is able to collect from telephone enquiries. As for last year, the NPIS is reporting specific data on three aspects of the enquiry data handled. These are pesticides (carbamate, organophosphorus and pyrethroid insecticides; the herbicides glyphosate and paraquat), carbon monoxide and five drugs of abuse (gamma hydroxybutyrate (GBH), gamma butyrolactone (GBL), ketamine, methylenedioxymethamphetamine (MDMA; 'ecstasy') and methylamphetamine). Since we have now been collecting data on four of these agents for five years the number for each year is shown in Figure 12.1. Enquiries about carbon monoxide have fallen in line with telephone enquiries while those for pesticides have not fallen proportionately.

Poisoning Severity Scores (PSS)* are currently used by two of the four NPIS units. These grade the severity of symptoms at the time of the enquiry (none, minor, moderate or severe), based on a simple grading scale proposed by the European Association of Poisons Centres and Clinical Toxicologists, and developed jointly with the WHO International Programme on Chemical Safety and the European Commission.

FIGURE 12.1 Trends in telephone enquiries overall and for selected agents for 2002 to 2006/07



* Persson HE, Sjöberg GK, Haines JA, Pronczuk de Garbino J. Poisoning severity score. Grading of acute poisoning. Clinical Toxicology 1998; 36:205–213.

Drugs of abuse

Enquiries about five drugs of abuse are reviewed this year. These have been chosen either because they are current causes of concern in the UK or because increases in use have been observed in other countries. Enquiries to the NPIS are one method of attempting to quantify the current UK health impact of these agents.

The agents chosen this year were gamma hydroxybutyrate (GHB, 30 patients), gamma butyrolactone (GBL, 3), ketamine (56), methylamphetamine (18) and methylenedioxymeth-amphetamine (MDMA, or 'ecstasy', 330).

Of 57,474 telephone enquiries received by the NPIS units, 437 (<0.8%) concerned suspected exposure to one of five drugs of abuse. The enquiries concerned 276 males, 152 females, and in nine cases the gender was unknown. Ages are shown by specific drug in Table 12.1 and overall in Figure 12.2.

There has been an increase in the number of enquiries relating to methylamphetamines since 2005/06, although the total remains very small. Telephone enquiries relating to the other drugs of abuse of interest have all reduced in number, as has the number of all telephone enquiries.

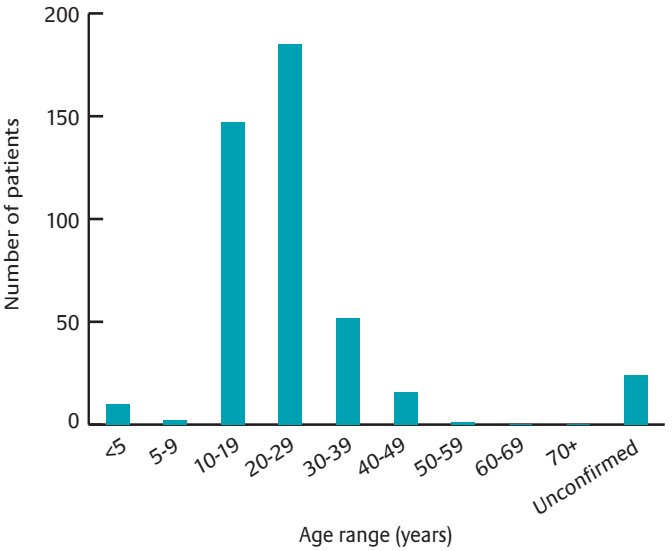
Only 42 of 437 were described as accidental and only three as chronic. Some 405 of exposures were the result of ingestion.

The PSS was recorded for 136 enquiries. Of these, 31 patients had no symptoms at the time of the enquiry, 72 had minor symptoms, 25 moderate and 8 severe. Two deaths involving MDMA (ecstasy) were reported to the NPIS. One was a 'body stuffer' (an individual who ingests drugs, usually unpackaged or poorly packaged, to avoid detection or arrest) who had also taken ecstasy but the main cause of death was thought to be cocaine toxicity. In the second case the patient died after cardiac arrest. The drugs ingested were not confirmed analytically but were thought to be ecstasy, cocaine and alcohol.

TABLE 12.1 Age range of patients in telephone enquiries to the NPIS by specific drug of abuse in 2006/07

Patient age (years)	GBH	GBL	Ketamine	Methyl-amphetamine	MDMA
<5	0	0	1	0	9
5–9	0	0	0	0	2
10–19	7	0	14	2	124
20–29	13	2	29	5	136
30–39	5	0	7	3	37
40–49	2	0	0	5	9
50–59	0	0	1	0	0
60–69	0	0	0	0	0
70+	0	0	0	0	0
Unconfirmed	3	1	4	3	13
TOTAL 2006/07	30	3	56	18	330
(Total 2005/06)	*(47)*	*(4)*	*(66)*	*(12)*	*(455)*

FIGURE 12.2 Age range of all patients in telephone enquiries to the NPIS involving specific drugs of abuse in 2006/07



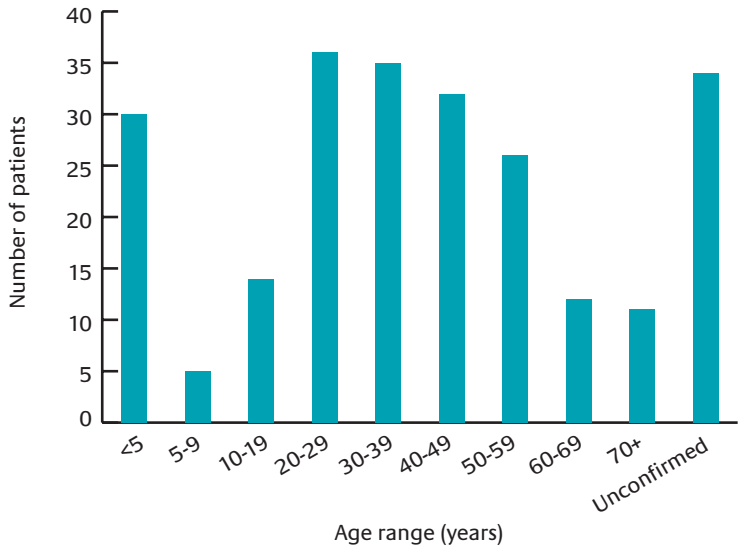
Carbon monoxide

Of 57,474 telephone enquiries received by the NPIS units, 237 (0.4%) concerned suspected exposure to carbon monoxide. The enquiries concerned 104 males, 119 females and in 14 cases the gender was not known. See Figure 12.3.

Of these exposures, 208 occurred in the home, and 29 were deliberate exposures. Seventy-two of the incidents involved chronic exposure.

The PSS was recorded for 61 enquiries. Of these, 20 patients had no symptoms at the time of the enquiry, 39 had minor symptoms, one moderate and one severe. No deaths were reported to the NPIS.

FIGURE 12.3 Age range of patients in telephone enquiries to the NPIS involving carbon monoxide in 2006/07



Selected pesticides

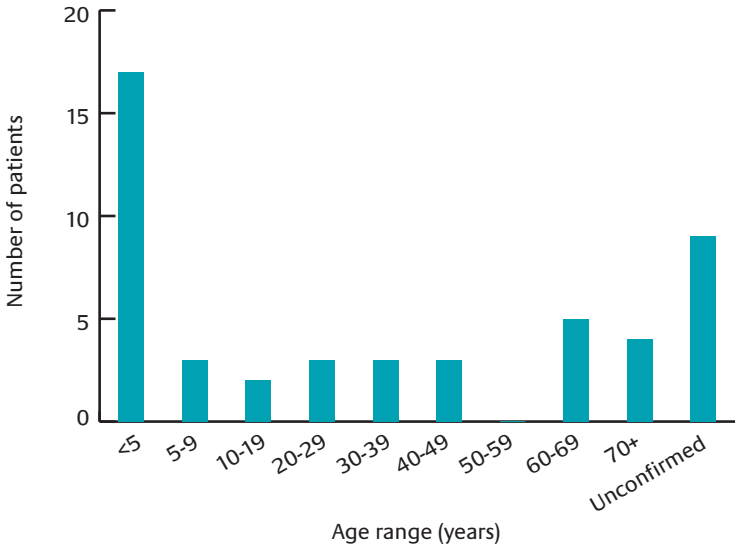
Carbamate insecticides

Of 57,474 telephone enquiries received by the NPIS units, 49 (<0.1%) concerned suspected exposure to carbamate insecticides. The enquiries concerned 22 males, 20 females, and in seven cases the gender was unknown. See Figure 12.4.

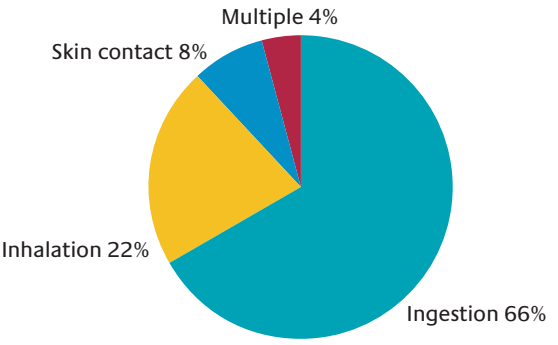
Four incidents occurred in the workplace and 41 at home. Two were deliberate exposures. One was a suspected chronic exposure.

The PSS was recorded for 15 enquiries. Of these, eight patients had no symptoms at the time of the enquiry, six had minor symptoms and one moderate symptoms. There was one death reported to the NPIS. An 83-year-old accidentally inhaled an insecticide containing methiocarb and imidacloprid. He suffered a myocardial infarction and then cardiac arrest two days later but the precise relevance of the pesticide exposure is unclear.

FIGURE 12.4 Telephone enquiries to the NPIS involving carbamate insecticides in 2006/07



(a) Age range of patients



(b) Routes of exposure (no injections, eye contacts or 'other' routes)

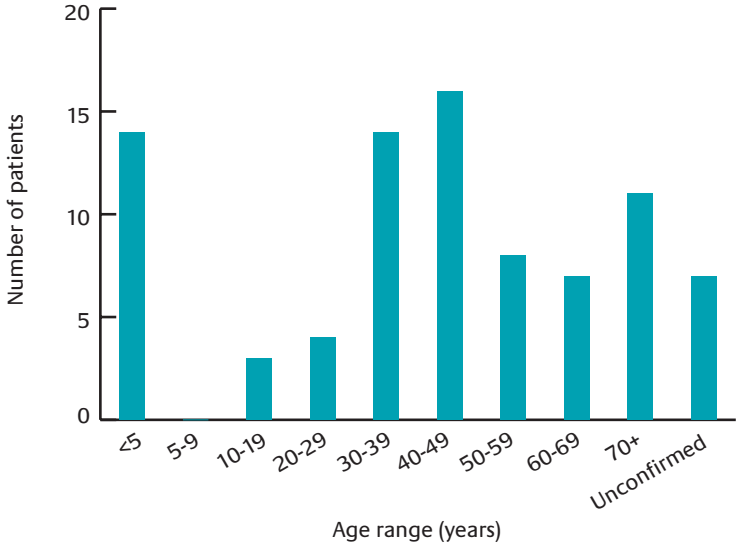
Glyphosate

Of 57,474 telephone enquiries received by the NPIS units, 84 (<0.2%) concerned suspected exposure to glyphosate-containing herbicides. The enquiries concerned 52 males, 30 females, and in two cases the gender was unknown. See Figure 12.5.

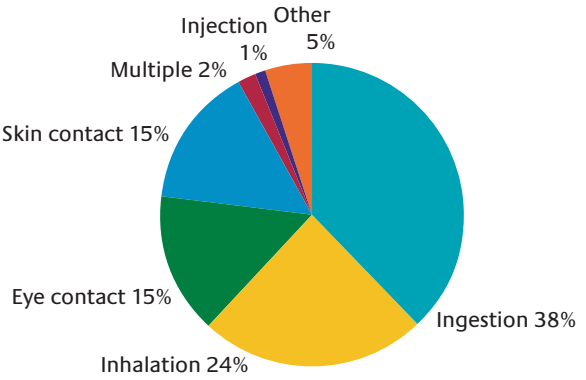
Of these enquiries, 74 of incidents occurred at home and two in the workplace; ten were deliberate exposures. There were no chronic exposures.

The PSS was recorded for 15 enquiries. Of these, four patients had no symptoms at the time of the enquiry, seven had minor symptoms, three moderate and one severe. None of the patients was reported to have long-term sequelae on follow-up and there were no deaths.

FIGURE 12.5 Telephone enquiries to the NPIS involving glyphosate herbicides in 2006/07



(a) Age range of patients



(b) Routes of exposure

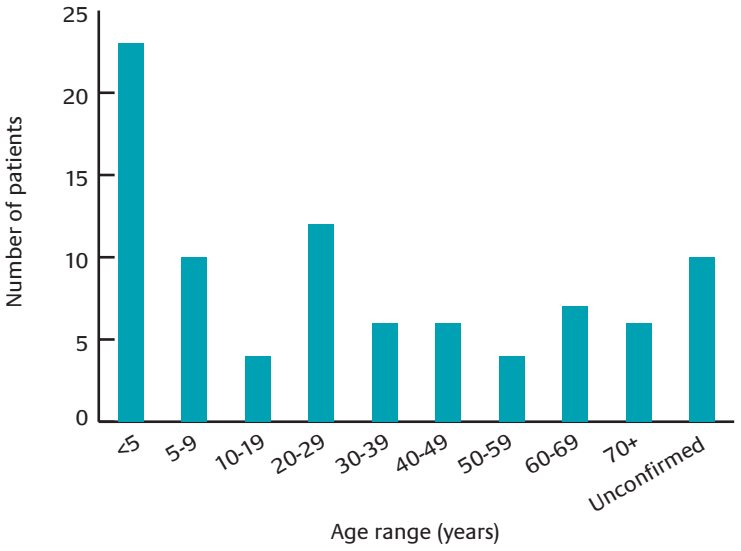
Organophosphorus insecticides

Of 57,474 telephone enquiries received by the NPIS units, 88 (<0.2%) concerned suspected exposure to organophosphorus insecticides. The enquiries involved 47 males, 37 females and in four cases the gender was unknown. See Figure 12.6.

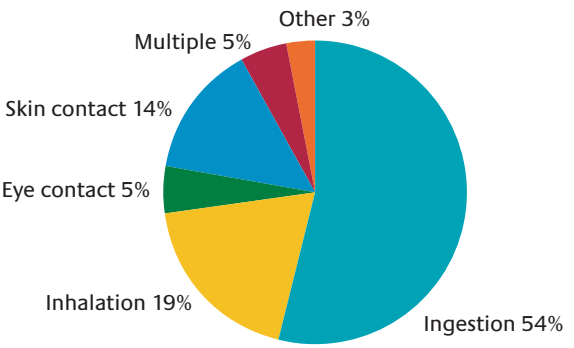
Fourteen of the incidents occurred at the workplace, 65 in the home and only five were deliberate. Ten enquiries were said to involve chronic exposure.

The PSS was recorded for 30 enquiries. Of these, 17 patients had no symptoms at the time of the enquiry, nine had minor symptoms, three moderate and one severe. No deaths were reported to the NPIS but one patient reported long-term sequelae. This was a farmer who had been exposed to organophosphorus sheep dips for some years and attributed a number of symptoms (fatigue, joint aches and pains, and ataxia) to this exposure.

FIGURE 12.6 Telephone enquiries to the NPIS involving organophosphorus insecticides in 2006/07



(a) Age range of patients



(b) Routes of exposure

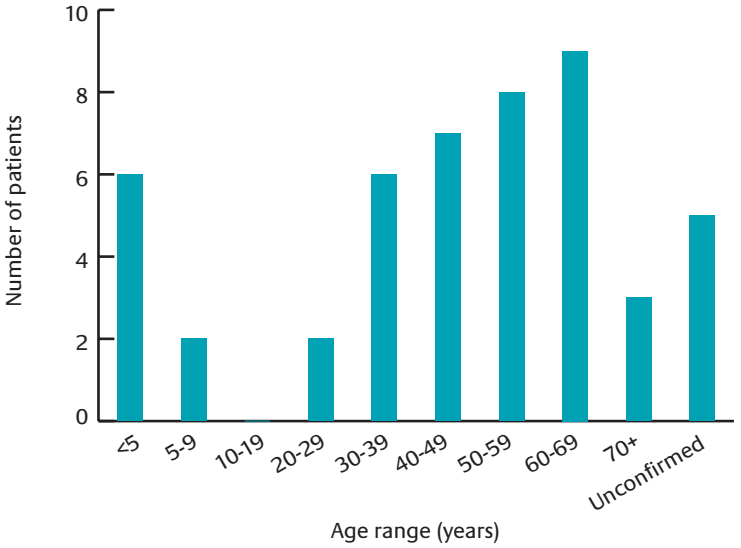
Paraquat

Of 57,474 telephone enquiries received by the NPIS units, 48 (<0.1%) concerned suspected exposure to paraquat. The enquiries concerned 30 males, 15 females and in three cases the gender was unknown. See Figure 12.7.

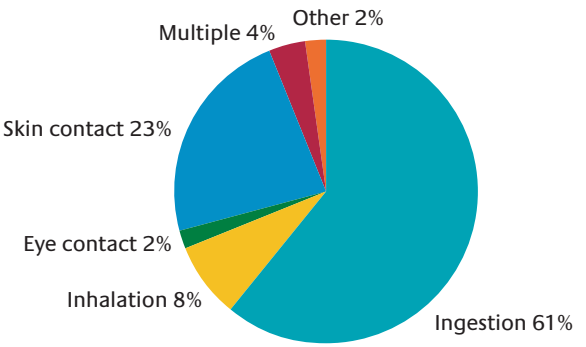
Three incidents were said to occur in the workplace and 42 at home; 20 were deliberate exposures.

The PSS was recorded for 18 enquiries. Of these, five patients had no symptoms at the time of the enquiry, ten had minor symptoms and three moderate symptoms. Two deaths were reported to the NPIS, both after intentional ingestion.

FIGURE 12.7 Telephone enquiries to the NPIS involving paraquat in 2006/07



(a) Age range of patients



(b) Routes of exposure

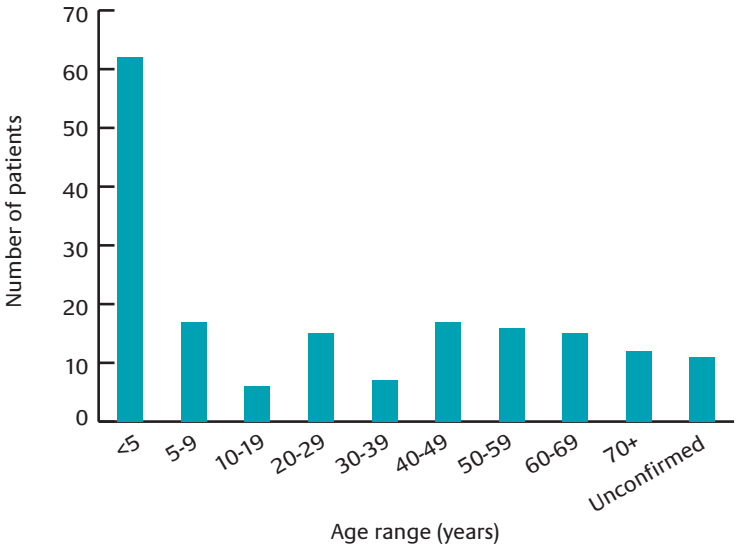
Pyrethroid insecticides

Of 57,474 telephone enquiries received by the NPIS units, 178 (0.3%) concerned suspected exposure to pyrethroids. The enquiries concerned 96 males, 78 females, and in four cases the gender was unknown. See Figure 12.8.

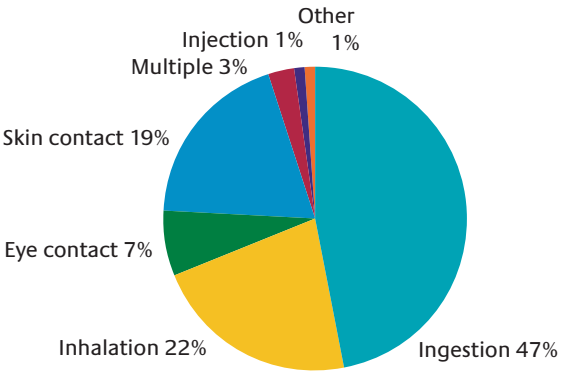
One-hundred and fifty-four incidents occurred at home and 20 in the workplace. Only three were deliberate exposures. Nine were chronic exposures.

The PSS was recorded for 44 enquiries. Of these, 16 patients had no symptoms at the time of the enquiry, 24 had minor symptoms, and three moderate symptoms. One patient had severe symptoms but these were thought unrelated to the exposure. No deaths were reported to the NPIS.

FIGURE 12.8 Telephone enquiries to the NPIS involving pyrethroid insecticides in 2006/07



(a) Age range of patients



(b) Routes of exposure

Comparison of pesticide enquiries

The total numbers of exposures reported to the NPIS units for each pesticide are shown in Figure 12.9, with pyrethroids being most common.

The PSS, where reported, is compared as percentages in Figure 12.10, with most incidents resulting in no symptoms or mild symptoms.

FIGURE 12.9 Numbers of exposures for five pesticide groups involved in telephone enquiries to the NPIS in 2006/07

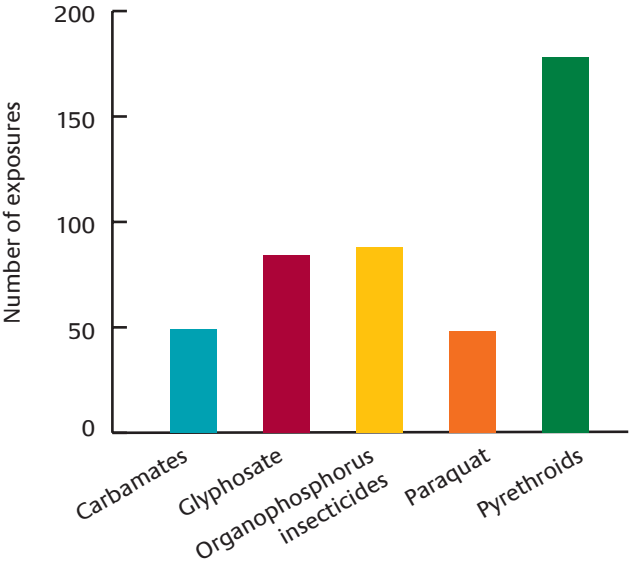
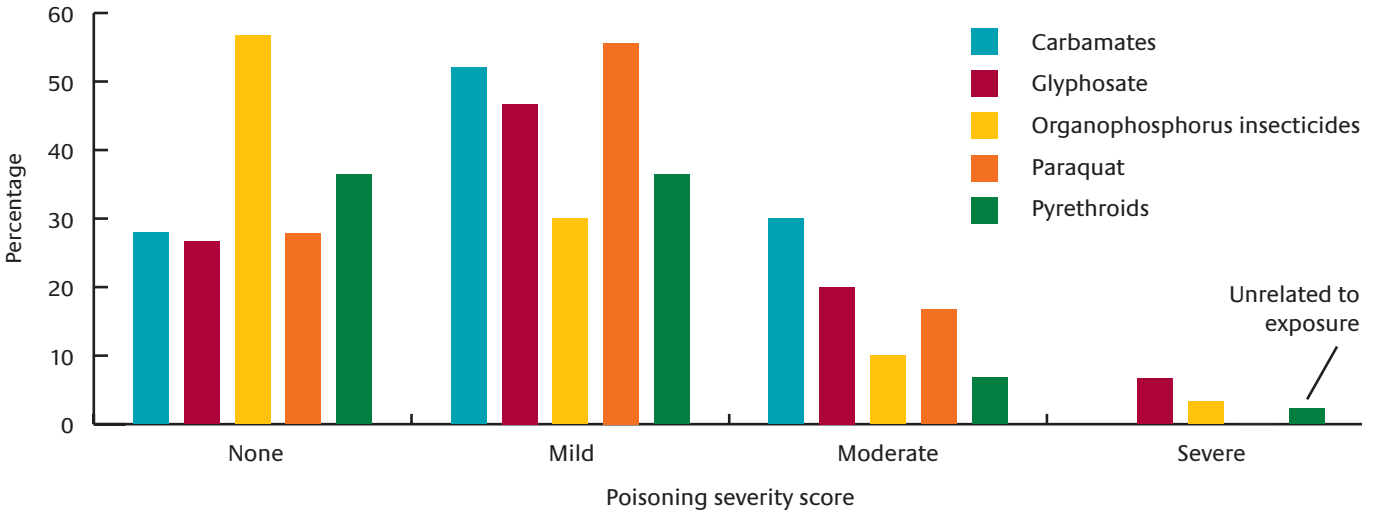


FIGURE 12.10 Poisoning severity scores for exposures to five pesticides groups in telephone enquiries to the NPIS in 2006/07



13 Conclusions

In line with agreed strategy, the number of telephone enquiries received by the NPIS units continues to decrease and the number of TOXBASE sessions increases. A national rota for out-of-hours telephone enquiry answering and for NPIS consultant referrals continues to operate well.

Comparison of statistics across the UK indicates a similar level of NPIS enquiries, but some difference in the method used (TOXBASE or telephone) in different regions. Overall there were approximately 790 accesses to NPIS information sources (TOXBASE sessions and telephone enquiries) per 100,000 population in 2006/07. This compares with 780 in 2005/06.

Enquiries from NHS Direct and NHS 24 contribute about 17% to the NPIS telephone workload and 26% of TOXBASE sessions.

The agents and co-drugs about which the most enquiries were received were similar for telephone enquiries and TOXBASE accesses. The top agents were paracetamol and ibuprofen, as in previous years.

Coordination of the NPIS has resulted in improved concordance with data collection procedures across the units, resulting in a more collaborative approach as the units have adapted to the new styles of working and the agreed operating practices and procedures.

Stakeholder feedback demonstrates a very high level of user satisfaction with the telephone information services provided by the NPIS and NTIS.

Enquiries regarding exposure to pesticides such as glyphosate, organophosphorus insecticides, pyrethroids, carbamates and paraquat represent a small percentage of telephone enquiries but this report illustrates the potential to collect such data for public health surveillance purposes.

Enquiries regarding exposure to drugs of abuse involves mainly teenagers and those in their twenties and caused moderate or severe toxicity in about one-quarter of cases referred to the NPIS.

14 Recommendations

The NPIS intends to maintain its role as a world leader in the provision of accurate, timely and accessible advice on the management of poisoning. To this end, a major priority for NPIS staff is the continued updating of the thousands of monographs on TOXBASE to ensure that they are current and of the highest possible quality.

Specifically, it is the intention of the NPIS:

1. to continue to develop stakeholder feedback mechanisms, including the use and content of TOXBASE,
2. to continue to improve the platform on which TOXBASE operates in order to facilitate use by the many different professional groupings now availing themselves of NPIS facilities and support,
3. to investigate and address the reasons for the recent reduction in accesses to pregnancy summaries on TOXBASE if the downward trend is not reversed in 2007/08,
4. to continue to develop UKPID to facilitate improved data sharing between the NPIS units,
5. to continue to develop training programmes and professional development objectives for all NPIS staff, building on the success of present activities,
6. to use the information collected by the NPIS to support poisons prevention measures and for public health surveillance purposes,
7. to encourage public health measures to be taken by Primary Care Trusts, health boards, community pharmacies and the pharmaceutical industry to minimise exposure to potential poisons in children (these might include repeated 'drug dump' and 'safe storage at home' campaigns),
8. to consider and act on funded recommendations of the 2007 clinical governance review.

APPENDIX A

National and International Appointments of NPIS Staff

Members of the NPIS have a role in supporting many important aspects where their knowledge of toxicology is relevant, both nationally and internationally. These include advisory roles to international and national bodies, including government, as well as academic activities.

The range of roles presented below is included to provide a flavour of these activities and indicate the wider 'added value' of the NPIS, both to the UK and internationally.

NPIS Birmingham

Dr SM Bradberry

INTERNATIONAL JOURNALS

Senior Editorial Board Member: Clinical Toxicology, representing the European Association of Poison Centres and Clinical Toxicologists

Editorial Board Member: Toxicological Reviews

ADVISORY COMMITTEES

Member: Pesticide Incident Appraisal Panel

UK ACADEMIC ACTIVITIES

Joint Course Organiser: Clinical Pharmacology and Toxicology Module (Module 2) of the MSc (Toxicology), University of Birmingham

Dr JA Vale

INTERNATIONAL SOCIETIES

Immediate Past-President and Executive Committee Member: British Toxicology Society

Scientific Committee Member: European Association of Poison Centres and Clinical Toxicologists

INTERNATIONAL JOURNALS

Editor-in-Chief: Toxicological Reviews

Editorial Board Chairman: Medicine

Editorial Board Member: Drugs

ADVISORY COMMITTEES

Chairman: Ministry of Defence Research Ethics Committee

Consultant: dstl Porton Down

UK ACADEMIC ACTIVITIES

Medical Director: MRCP(UK) Examination

Joint Course Organiser: Clinical Pharmacology and Toxicology Module (Module 2) of the MSc (Toxicology), University of Birmingham

NPIS Cardiff

Professor PA Routledge

INTERNATIONAL ACTIVITIES

Associate Director: World Health Organization Clearing House for Chemical Incidents, Cardiff, Wales

INTERNATIONAL JOURNALS

Editorial Board Member: Adverse Reactions and Acute Poisoning Reviews

Editorial Board Member: Adverse Drug Reactions Bulletin

ADVISORY COMMITTEES

Chairman: UK Herbal Medicines Advisory Committee

Chairman: All-Wales Medicines Strategy Group

Consultant Advisor in Toxicology: to the Chief Medical Officer (Wales)

UK ACADEMIC ACTIVITIES

Council Member: British Pharmacological Society

External Advisory Board Member: Liverpool School of Biomedical Sciences

External Examiner in Medicine: University of Liverpool

Gold Medal Examiner in Medicine: University of London

Chairman: All-Wales Specialist Training Committee in Clinical Pharmacology

Course Director: Postgraduate Diploma/MSc Programmes in Medical Toxicology, Therapeutics and Occupational Health, Cardiff University

Medical Director: Yellow Card Centre (Wales)

Dr JP Thompson

INTERNATIONAL ACTIVITIES

Advisor: EU BICHAT Committee

Co-chair: (chemical) World Health Organization working group on international stockpiling of antidotes

Member of the Advisory Board: Hong Kong Poisons Centre

INTERNATIONAL SOCIETIES

Chair: Human Toxicology Section of the British Toxicological Society

ADVISORY COMMITTEES

Chair: Appraisal Panel for Suspected Adverse Reactions to Veterinary Medicines

Committee Member: Veterinary Products Committee

Royal College of Physicians representative: Royal College of Pathologists Specialist Advisory Committee for Toxicology

Committee Member: Expert Advisory Group on the Management of Casualties caused by Chemical Terrorism (Blain II)

Committee Member: Acute Exposure Guideline Levels Advisory Group, Health Protection Agency

UK ACADEMIC ACTIVITIES

Committee Member: Specialist Question Writing Group for Clinical Pharmacology and Therapeutics of the Royal College of Physicians

Course Co-ordinator: Certificate / Diploma / MSc in Medical Toxicology, Cardiff University

NPIS Edinburgh

Professor DN Bateman

INTERNATIONAL ACTIVITIES
Advisor: World Health Organization/International Programme on Chemical Safety

Committee Member: International Advisory Committee IUTOX 2007 Montreal

INTERNATIONAL SOCIETIES
Board Member, Past-President and Scientific Committee Member: European Association of Poisons Centres and Clinical Toxicologists

INTERNATIONAL JOURNALS
Editor: European Journal of Clinical Pharmacology

Editorial Board Member: Human Toxicology UK

Senior Editorial Board Member: Clinical Toxicology

ADVISORY COMMITTEES
Committee Member: Pharmacovigilance Expert Advisory Group, Medicines and Healthcare products Regulatory Agency

Committee Member: Expert Advisory Group on the Management of Casualties caused by Chemical Terrorism (Blain II)

UK NHS NATIONAL COMMITTEES
Committee Member: Scotland A Research Ethics Committee

Medical Director: Yellow Card Centre (Scotland)

Expert Toxicology Advisor: Scottish Executive

UK ACADEMIC ACTIVITIES
Member of Executive: British Toxicological Society

Member: British Pharmacology Society

Board Member: Joint Royal Colleges MRCP (Part 1) Examining Board

Board Member: Joint Royal Colleges MRCP (Part 1) Standard Setting Group

External Examiner: University of Newcastle upon Tyne

Mrs AM Good

INTERNATIONAL SOCIETIES
General Secretary: European Association of Poisons Centres and Clinical Toxicologists

Mr WJ Laing

UK NHS NATIONAL COMMITTEES
Working Group Member: Scottish Toxicology Interest Group

Dr HKR Thanacoody

UK ACADEMIC ACTIVITIES
Member Question Setting Group: Joint Royal Colleges MRCP (Part 1) Examining Board

Dr WS Waring

INTERNATIONAL SOCIETIES
Secretary to the Organising Committee: European Association for Clinical Pharmacology and Therapeutics 2009 meeting

INTERNATIONAL JOURNALS
Editorial Advisory Board Member: Recent Patents on Cardiovascular Drug Discovery

ADVISORY COMMITTEES
Clinical Advisor: Healthcare Commission

UK ACADEMIC ACTIVITIES
Examiner: MRCP Part 2 Clinical Examination (PACES)

Invited external PhD examiner: University of Cambridge

G(I)M Training Committee Member: Lister Postgraduate Institute South East of Scotland Deanery

Committee Clinical Pharmacology and Therapeutics Representative: Medical and X-Ray Education and Training Advisory Committee, South East of Scotland Deanery

NPIS Newcastle

Dr PR McElhatton

ADVISORY COMMITTEES

Member: Expert Advisory Panel to the National Focus on Chemical Incidents

Member (as Reproductive Toxicology Expert): Advisory Committee on Pesticides (to 2006)

Member: Advisory Committee on Pesticides Medical Toxicology Panel (to 2006)

Specialist Advisor: National Collaborating Centre for Mental Health Guideline Development Group

Expert Member: Department of Health Advisory Committee on the Fetal Effects of Premature Alcohol Exposure

Dr SHL Thomas

INTERNATIONAL SOCIETIES

Board Member and Scientific Committee Chair: European Association of Poisons Centres and Clinical Toxicologists

INTERNATIONAL JOURNALS

Editorial Board Member: Clinical Toxicology

Editorial Board Member: Pharmacoepidemiology and Drug Safety

International Editorial Board Member: British Journal of Clinical Pharmacology

ADVISORY COMMITTEES

Member: Medicines and Healthcare products Regulatory Agency – Pharmacovigilance Expert Advisory Group

Member: Technical Subcommittee, Advisory Council on the Misuse of Drugs

Member: Appraisal Committee A, National Institute for Health and Clinical Excellence

Committee Member: Expert Advisory Group on the Management of Casualties caused by Chemical Terrorism (Blain II)

UK NHS NATIONAL COMMITTEES

Director: Yellow Card Centre Northern and Yorkshire

Medical Director: Regional Drug and Therapeutics Centre, Newcastle

UK ACADEMIC ACTIVITIES

Examiner: MRCP Part 2 Clinical Examination (PACES)

Chair: Specialist Training Committee, Clinical Pharmacology and Therapeutics, Northern Deanery

Degree Programme Director: Certificate/Diploma in Therapeutics, Newcastle University

APPENDIX B

Publications by NPIS Staff in 2006/07

More than 70 contributions to the scientific literature were published in 2006/07 from the four NPIS units.

Peer-reviewed papers

Bateman DN. How to recognise and avoid extrapyramidal syndromes. Prescriber 2006; 17:56–59.

Bateman DN, Eddleston M. Clinical Pharmacology: the basics. Surgery 2006; 24:291–295.

Bateman DN, Good AM. Five years of poisons information on the Internet, the UK experience of TOXBASE. Emerg Med J 2006:23:614–617.

Bateman DN, Gorman DR, Bain M, Inglis JHC, House FR, Murphy D. Legislation restricting paracetamol sales and patterns of self-harm and death from paracetamol-containing preparations in Scotland. Br J Clin Pharmacol 2006:62:573–581.

Bateman DN, Thanacoody HKR, Waring WS. Digitalis intoxication induced by paroxetine co-administration. Lancet 2006; 68:1962–1963.

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Geoghegan J, Bleasdale JP, Bradberry SM. Case 7-2006: a man with altered mental status and acute renal failure. N Engl J Med 2006; 354: 2728.

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Khatimi A, Thomas SHL. Causes and management of torsades de pointes. Prescriber 2006; 17: 42–46.

Konradsen F, Dawson AH, Eddleston M, Gunnell D. Pesticide self-poisoning: thinking outside the box. Lancet 2007; 369:169–170.

Konradsen F, Pieris R, Weerasinghe M, van der Hoek W, Eddleston M. Community uptake of safe storage boxes to reduce self-poisoning from pesticides in rural Sri Lanka. BMC Public Health 2007; 7:13.

Li Y, Yu X, Wang Z, Wang H, Zhao X, Cao Y, Wang W, Eddleston M. Gastric lavage in acute organophosphorus pesticide poisoning (GLAOP) – a randomised controlled trial of multiple vs. single gastric lavage in unselected acute organophosphorus pesticide poisoning. BMC Emerg Med 2006; 6:10.

Lucas C, Chrostie GA, Waring WS. Rapid onset of haemodynamic effects after angiotensin converting enzyme-inhibitor overdose: implications for initial patient triage. Emerg Med J 2006; 23:854–857.

Marrs TC, Rice P, Vale JA. The role of oximes in the treatment of nerve agent poisoning in civilian casualties. Toxicol Rev 2006; 25:297–323.

Mohamed F, Senarathna L, Azher S, Sheriff MHR, Buckley N, Eddleston M. Compliance for single and multiple dose regimens of superactivated charcoal: a prospective study of patients in a clinical trial. Clin Toxicol 2007; 45:132–135.

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Proudfoot AT, Bradberry SM, Vale JA. Sodium fluoroacetate poisoning. Toxicol Rev 2006; 25: 213–219.

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Waring WS. Delayed cardiotoxicity in chronic lithium poisoning: discrepancy between serum lithium concentrations and clinical status. Basic Clin Pharmacol Toxicol 2007; 100:353–355.

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Bradberry SM, Lord JM, Rice P, Vale JA. Ricin and abrin poisoning. In: Chemical Warfare Agents: Toxicology and Treatment, 2nd edition (Marrs TC, Maynard RL, Sidell FR, eds). Chichester: John Wiley & Sons, 2007; pp613–631.

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Vale JA, Rice P, Marrs TC. Managing civilian casualties affected by nerve agents. In: Chemical Warfare Agents: Toxicology and Treatment, 2nd edition (Marrs TC, Maynard RL, Sidell FR, eds). Chichester: John Wiley & Sons, 2007; pp249–260.

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Bateman DN, Thanacoody R. Genetic aspects of poisoning. Clin Toxicol 2006; 44: 443–444.

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Bradberry SM. Should sodium calcium edetate remain the chelating agent of choice in the management of lead poisoning? Clin Toxicol 2006; 44:469–70.

Brooke NG, Davies JT, Cooper GA, Thompson JP. Veterinary needlestick injuries reported to the national poisons information service (Cardiff). Clin Toxicol 2006; 44:539.

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Salih I, Thanacoody HKR, McKay G, Thomas SHL. Effect of single dose chlorpromazine on the QTc interval in healthy adult volunteers. Br J Clin Pharmacol 2006; 61:631.

Spears RA, Thomson JP. Intentional poisoning in adolescents 1998–2004. Clin Toxicol 2006; 44:543–544.

Thanacoody HKR, Daly AK, Reilly JG, Ferrier IN, Thomas SHL. Effects of CYP2D6 genotype on QTc interval in recipients of thoiridazine. Br J Clin Pharmacol 2006; 61:621.

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Vale JA. Does urine alkalinization prevent or reduce the severity of non-traumatic rhabdomyolysis-induced renal failure? Clin Toxicol 2006; 44:470–472.

Waring WS, Pettie JM, Dow MA, Bateman DN. Paracetamol appears to protect against N-acetylcysteine-induced anaphylactoid reactions. Clin Toxicol 2006; 44:441–442.


FLUOXETINE CAPSULES 20mg
28 Orodispersible Tablets
TA 4454
ZYPREXA Velotab
10 mg
Orodispersible Tablets, Olanzapine
Amitriptyline
Tablets BP 50 mg
For Oral Administration
50 mg
28 Tablets
Diazepam
2 mg Tablets BP
2 mg
28 Tablets
DICLOFLEX®
75mg SR
Diclofenac Sodium
TOXBASE
Ibuprofen
Diazepam
GHB
Paracetamol
Welcome to TOXBASE
This site was last updated 26 July 2007
Our services are freely available to UK National Health Service hospital departments and general practices. NHS Departments of Public Health and HPA Units. TOXBASE is used by NHS Direct and NHS 24 but it is not available to individual members of the public.
TOXBASE is available to hospital emergency departments in Ireland by contract. It is also available to European poisons centres whose staff are members of the EAPCCT.
Commercial companies and other users, including those overseas, may be allowed access on payment of a yearly subscription, subject to approval of the Health Protection Agency.
If you are already registered with TOXBASE click on the TOXBASE link below to logon:
Toxbase® (Poisons information)
If you are not registered use the link below to enter your details and request registration:
Request Registration
Information provided by users during telephone enquiries to NPIS or from TOXBASE questionnaires is shared between units for the purposes of managing individual patient episodes and for routine surveillance purposes. Callers/TOXBASE users are informed that they should be aware that information that they provide may be seen by other NPIS units and used in this way.
Please remember for computer problems try clicking on the REFRESH button on your browser.
If you are unable to access TOXBASE try the backup site on www.TOXBASEbackup.org Please save this alternative address in your "favourites" or desktop.
If you still cannot get access and need poisons information call NPIS in the UK 0870 600 6266, in Ireland NPIC (01) 809 2566.
If you are having persistent problems contact your IT department or call 0131 242 1381/1383 during office hours or e-mail

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