

National Poisons Information Service

Annual Report 2005/2006



National Poisons Information Service

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



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We are grateful for the support and help of all our NPIS
colleagues in the production of this report.

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Foreword



This is a landmark report for both the Health Protection Agency (HPA) and the National Poisons Information Service (NPIS). It marks the completion of the first year of the new networked arrangements for giving advice and support to those in the NHS who diagnose and care for patients who have ingested poisonous substances. This report is the first under the banner of the HPA but builds on many earlier annual reports prepared by the NPIS under the previous arrangements with the Health Departments in the UK.

The service provided by the NPIS is detailed in the report. It also addresses the patterns of poisoning prevalent in the population, where an enquiry – either by phone or via the Internet – is made by a health professional. It is important to recognise that this pattern does not reflect the full burden of poisonings on the NHS, the private healthcare sector or the population as a whole.

As in previous years, ingestion of products containing paracetamol is the most common reason for enquiries to the service. Addressing this major public health issue should remain a priority. Children under ten years old are still the largest single age group involved in telephone enquiries to the service and ingestion of household chemicals by this group is common. Measures targeted at reducing accidental poisoning in children are needed. Studies show that poisoning, especially self-poisoning in adults, is associated with inequalities in opportunities and low self-esteem and this wider social context should not be ignored.

We hope you find the report interesting and food for both thought and local action.

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Executive Summary

Managing poisoning is an important support task for the Health Protection Agency as this clinical problem accounts for over 100,000 NHS hospital admissions each year.

The National Poisons Information Service (NPIS), a network of dedicated units commissioned by the HPA, provides information on the diagnosis and management of poisoning to health professionals in the UK. It also provides advice and support on poisoning during pregnancy through the National Teratology Information Service (NTIS).

In 2005/06 the NPIS received nearly 500,000 poisons-related enquiries, an increase of 10,000 on the previous year. This was primarily due to activity on TOXBASE, the UK online poisons information database, for which annual poisons enquiry sessions exceeded 400,000 for the first time. Around 87,000 telephone enquiries were also handled, 35% of which related to children under ten years old.

The NPIS provides TOXBASE and telephone support to NHS Direct (in England and Wales) and NHS 24 (in Scotland); these enquiries made up 28% of the total number of TOXBASE sessions and 15% of the telephone enquiries in 2005/06. It is also contracted to provide poisons information in the Republic of Ireland by the provision of TOXBASE and out-of-hours telephone support from both information scientists and NPIS consultants.

In 2005, a single national consultant clinical toxicology rota was introduced to answer out-of-hours referrals to NPIS consultants. Advantage was taken of the single telephone number to reorganise the provision of out-of-hours poisons information, with three NPIS units participating in the unified out-of-hours rota.

Governance arrangements were introduced to support these changes. An NPIS continuing education programme was established to support these new working structures and improve governance. NPIS clinical policies and TOXBASE advice continue to be informed and approved by the NPIS Clinical Standards Group, which meets on a regular basis.

This report for 2005/06 provides information about TOXBASE sessions and telephone enquiries across the UK, including details of common agents.

- Paracetamol is the individual product about which the NPIS receives enquiries most frequently, with in excess of 115,000 enquiries (99,431 TOXBASE accesses and approximately 16,000 telephone enquiries).
- Ibuprofen (in excess of 42,500 enquiries) is next.
- Common psychoactive medications include diazepam (approximately 23,000 enquiries), zopiclone (16,000), fluoxetine (14,000) and citalopram (13,500).

In all these examples TOXBASE accesses exceeded telephone enquiries by at least five-fold.

For the first time, in this year's report information on telephone enquiries on selected drugs of abuse is included. As previously, specific information is provided on carbon monoxide and pesticide and herbicide enquiries.

1 Introduction

Poisoning accounts for over 100,000 NHS hospital admissions in the UK* each year (around 1% of the total number) and is also a significant workload for hospital accident and emergency departments and minor injuries units. Many 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; there is no separate public access telephone service in Northern Ireland). Appropriate triage and treatment of patients, both in primary care and in hospitals, is a key approach to reducing morbidity and mortality. Very many accidental exposures to poisons occur in children* and managing these appropriately is a further challenge for the NHS.

The National Poisons Information Service (NPIS), a network of dedicated units commissioned by the Health Protection Agency, provides information on the diagnosis, treatment and care of poisoning to health professionals in the UK. Its objectives are to optimize patient care throughout the patient pathway and reduce unnecessary admissions to hospital facilities. The NPIS programme cost £2.9 million in 2005/06. 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 24% of the expenditure, information staff 54%, and purchases, management and overheads 22%.

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 transferred to the Internet in 1999 and adopted as the first-line information source for health professionals in the UK.

When first received, telephone enquiries are managed by information scientists – who may have a scientific, nursing or pharmacy background – or specialist nurses, with NPIS consultant clinical toxicologists on-call for further advice if required. A single telephone number has operated since 2000 to distribute telephone enquiries more evenly across the UK.

With increasing use now being made of TOXBASE, a new national out-of-hours telephone enquiry rota 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 1 May 2005. New national working practices



* *Health Protection in the 21st Century. Understanding the Burden of Disease: preparing for the future.* London, Health Protection Agency, 2005, www.hpa.org.uk.

and policies were implemented, including governance structures and standardised consultant referral criteria.

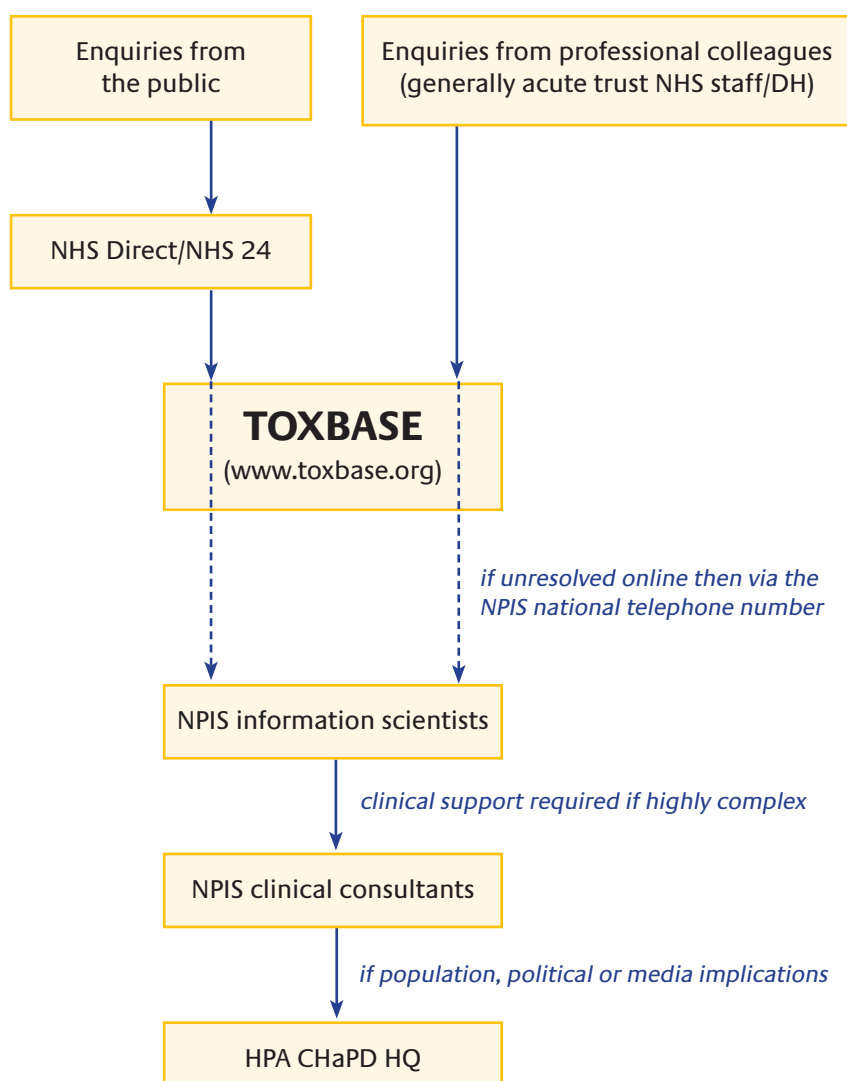
There are currently four NPIS 'provider' units (two in England and one each in Scotland and Wales). Northern Ireland has a daytime locally commissioned poisons information service and uses the national service out-of hours. Guy's and St Thomas' Hospital Foundation Trust ceased to be an NPIS provider in November 2005.

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 Newcastle NPIS Unit in 1995. Information on aspects of the toxicity of drugs and chemicals in pregnancy is increasingly 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 and herbicides is also provided.

How poisons enquiries are answered



2 Number and Source of Enquiries

The total number of telephone enquiries received by the NPIS in 2005/06 was 87,456, a decrease of 22.7% on the 2004/05 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 for more complex enquiries. It reflects the policy of a managed reduction in telephone enquiries and continues the decreases seen since 2001.

User sessions (defined as logons to the TOXBASE site) totalled 420,449 (an increase of 10.6% on 2004/05). This includes 980 sessions for educational purposes and 18,091 made by poisons units themselves (which might be to answer telephone enquiries, or for educational or monograph writing purposes), of which 5,531 were from poisons units outside the UK granted access to TOXBASE. All of the latter are excluded from the rest of this part of the report, together with any temporary users, leaving a total of 401,378 sessions. During these sessions information on 929,462 products was accessed.

Figure 2.2 shows the running daily total telephone enquiries received by the four units (Birmingham, Cardiff, Edinburgh and Newcastle) for 2005/06. The average is 173 enquiries per day (range 128–248).

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

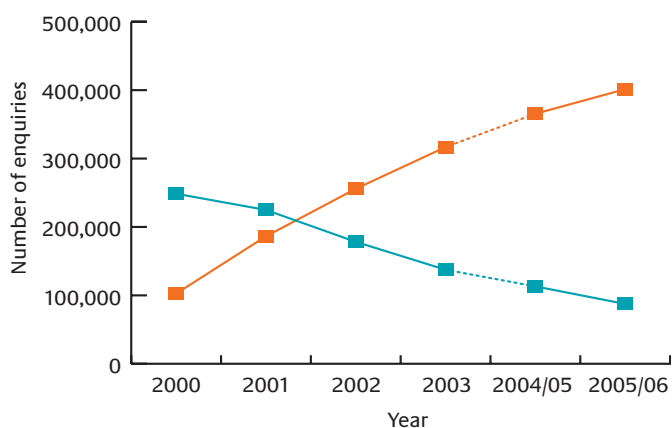


FIGURE 2.2 Telephone enquiries to the NPIS national telephone line in 2005/06 (running seven-day average)



TABLE 2.1 Regional distribution of poisons enquiries to the NPIS in 2005/06

NPIS region	Telephone enquiries	TOXBASE sessions*	Total enquiries	Telephone enquiries as a percentage of the total	Population (mid-2004 figures)	Total enquiries/ 100,000 population
England	68,593	325,442	394,035	17.4%	50,093,100	786.6
Scotland	2,505	35,617	38,122	6.6%	5,078,400	750.1
Wales	8,231	17,871	26,102	31.5%	2,952,500	884.1
Northern Ireland	590	12,126	12,716	4.6%	1,710,300	743.5

* Excludes NPIS and educational TOXBASE usage.

FIGURE 2.3 Telephone enquiries (■) and TOXBASE sessions (■) by source of enquiry in 2005/06

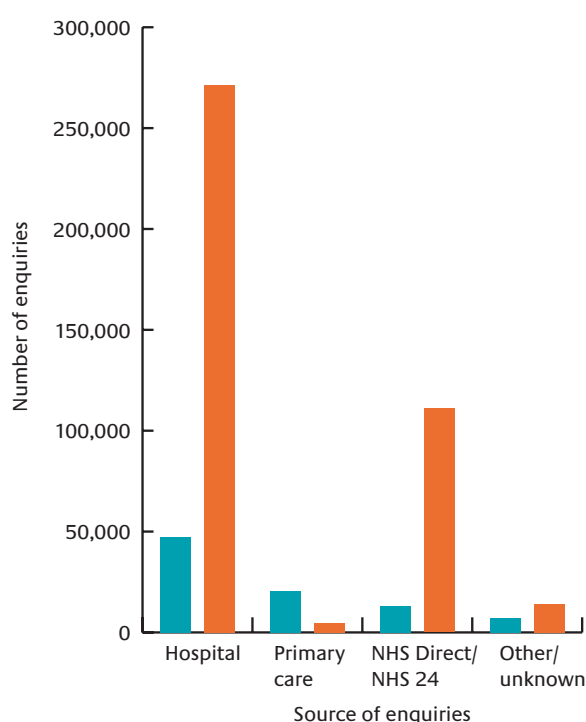


Table 2.1 shows the distribution of telephone enquiries and TOXBASE sessions by country of the UK. When telephone enquiries and TOXBASE sessions are combined and adjusted for population, the data can be used to compare access to the NPIS by country. The total for Scotland is lower than expected, in part because the Royal Infirmary of Edinburgh uses TOXBASE on a local network for which no usage figures are available. Table 2.2 shows the number of sessions by strategic health authority or health board for England, Scotland and Wales. Some areas, e.g. Iechyd Morgannwg, appear to have very high usage but this is because the Welsh NHS Direct centre is in that area. The Directors of Public Health in areas with extremely high or low usage are being approached to discuss possible factors underlying these findings.

Figure 2.3 shows that 67.6% of TOXBASE sessions and 54.2% of telephone enquiries came from hospitals. In addition, 27.7% of TOXBASE sessions and 15.2% of telephone enquiries came from NHS Direct (England and Wales) and NHS 24 (Scotland). There is no separate public access telephone service in Northern Ireland.

Of the telephone enquiries, 36.9% were made by doctors and 45.9% by nurses. This ratio is partly explained by the fact that NHS Direct and NHS 24 are staffed by nurses, and that enquiries from accident and emergency departments are usually initiated by nursing staff.

TABLE 2.2 TOXBASE sessions by strategic health authority or health board (where known) in 2005/06

Country	Strategic health authorities and boards	TOXBASE sessions	Sessions/100,000 population
England	Avon, Gloucestershire and Wiltshire	14,230	663
	Bedfordshire and Hertfordshire	8,786	550
	Birmingham and the Black Country	14,854	659
	Cheshire and Merseyside	18,081	772
	County Durham and Tees Valley	6,130	468
	Coventry, Warwickshire, Hereford and Worcestershire	6,976	458
	Cumbria and Lancashire	11,480	604
	Dorset and Somerset	5,698	481
	Essex	9,671	600
	Greater Manchester	20,788	838
	Hampshire and Isle of Wight	12,379	708
	Kent and Medway	11,156	708
	Leicestershire, Northamptonshire and Rutland	8,212	530
	Norfolk, Suffolk and Cambridgeshire	15,608	730
	North and East Yorkshire and Northern Lincolnshire	11,438	713
	North Central London	3,948	335
	North East London	8,687	580
	North West London	10,162	588
	Northumberland, Tyne and Wear	10,565	764
	Shropshire and Staffordshire	11,887	802
	South East London	10,037	673
	South West London	8,543	667
	South West Peninsula	11,372	728
	South Yorkshire	14,025	1,109
	Surrey and Sussex	10,126	397
	Thames Valley	15,553	749
	Trent	17,484	670
	West Yorkshire	17,489	842
Scotland	Argyll and Clyde	2,047	536
	Ayrshire and Arran	2,300	861
	Borders	687	620
	Dumfries and Galloway	792	653
	Fife	1,920	539
	Forth Valley	1,470	573
	Grampian	4,730	456
	Greater Glasgow	9,266	1,254
	Highland	1,654	716
	Lanarkshire	3,292	522
	Lothian	4,637	458
	Orkney	73	528
	Shetland	136	706
	Tayside	2,492	623
	Western Isles	121	491
Wales	Bro Taf	4,001	603
	Dyfed Powys	1,147	235
	Gwent	3,068	631
	Iechyd Morgannwg	6,651	934
	North Wales	3,003	544

3 Nature of Enquiries

A total of 26,716 telephone enquiries (34.8%) for which age was known involved children under ten years of age. Overall, 44.5% of cases were male and 49.8% female (5.7% unrecorded). For the place of occurrence, 85.2% of all incidents were reported to have happened in the home, 2.3% in agricultural or other workplaces, 1.6% in medical facilities, 4.6% other, 5.5% unknown and 0.8% not entered. Just over half, 50.9%, involved accidental poisoning, 33.6% deliberate poisoning, 7.0% therapeutic error (by patients, carers or medical professionals) and 1.0% substance abuse (7.5% other circumstances). The age of patients who were the subject of telephone enquiries is shown in Figure 3.1.

Figure 3.2 shows the types of products that were the subject of telephone enquiries, with pharmaceuticals accounting for two-thirds.



FIGURE 3.1 Age range of poisoned patients reported in telephone enquiries to the NPIS in 2005/06

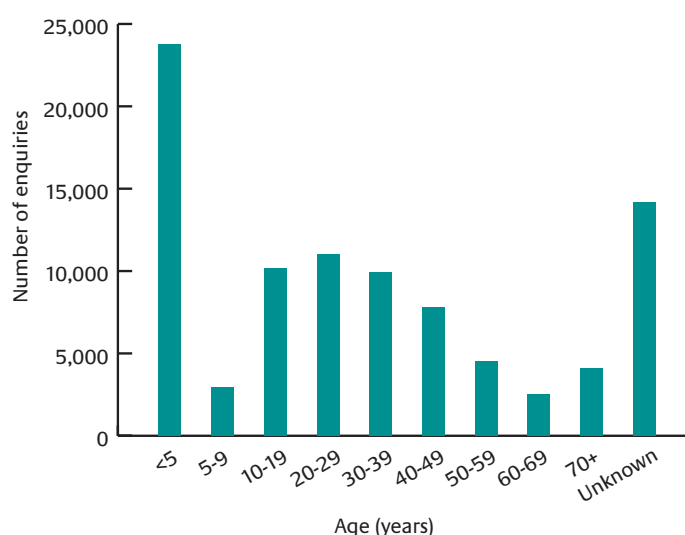


FIGURE 3.2 Types of products involved in telephone enquiries to the NPIS in 2005/06

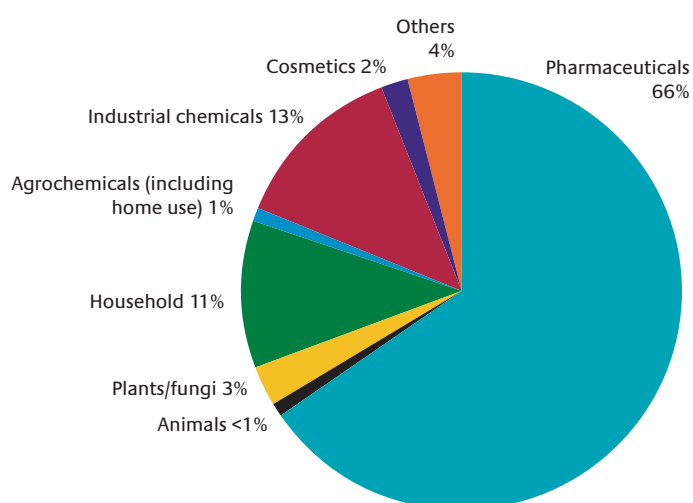


Table 3.1 shows the top ten pharmaceutical agents that were the subject of enquiries by telephone or TOXBASE. Two of the agents were the compound analgesics co-codamol (paracetamol and codeine) and co-dydramol (paracetamol and dihydrocodeine). The number of enquiries listed for paracetamol in the table does not include those for compound analgesics. With these drugs included, there were 99,431 TOXBASE sessions and approximately 16,000 telephone enquiries involving paracetamol. The pattern of enquiries is similar for both telephone and TOXBASE, with analgesics and drugs that affect the central nervous system predominating. As to the route of exposure, 87.1% were the result of ingestion, 3.0% eye contact, 2.8% inhalation, and 2.3% skin contact, with the remainder (4.8%) multiple or other routes.

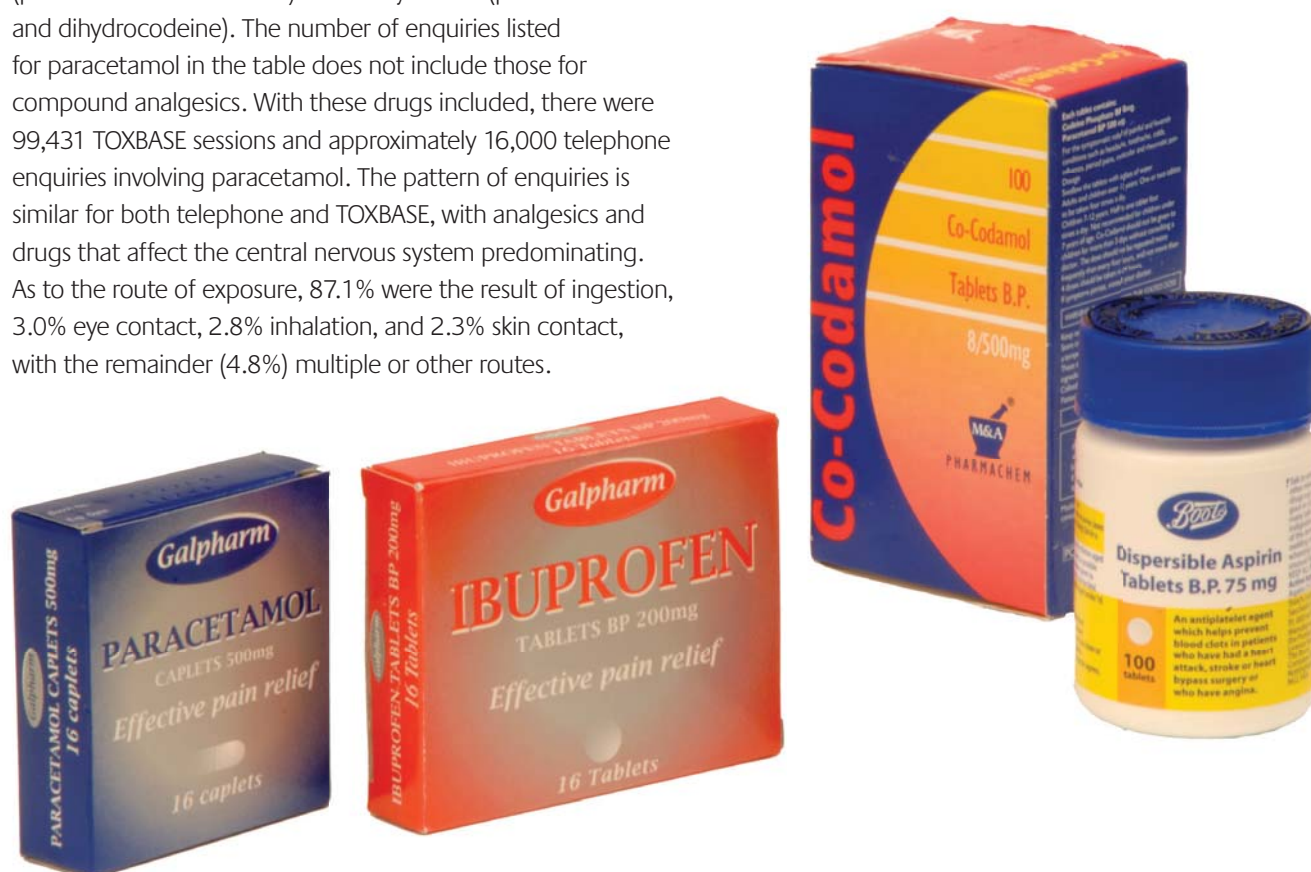


TABLE 3.1 Top pharmaceutical agents: telephone enquiries and TOXBASE accesses in 2005/06

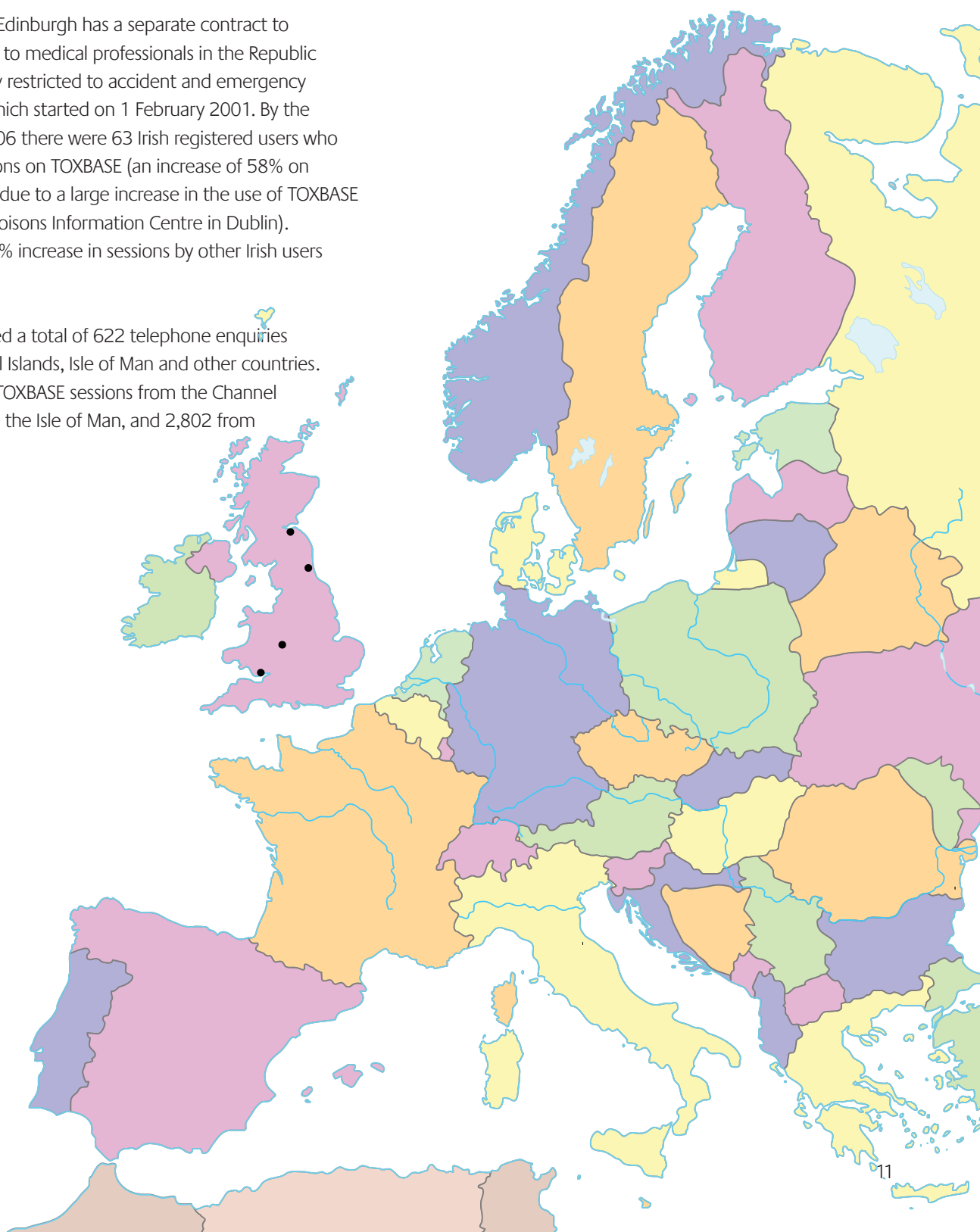
Telephone	Number of enquiries	TOXBASE	Number of accesses
Paracetamol	12,293	Paracetamol	80,425
Ibuprofen	5,408	Ibuprofen	37,173
Diazepam	3,256	Aspirin	23,139
Aspirin	2,532	Diazepam	17,724
Zopiclone	2,443	Zopiclone	13,975
Fluoxetine	1,787	Fluoxetine	12,390
Co-codamol	1,630	Citalopram	12,252
Citalopram	1,592	Codeine	11,910
Diclofenac	1,229	Co-codamol	10,487
Co-dydramol	1,184	Amitriptyline	9,675

4 Non-UK Enquiries

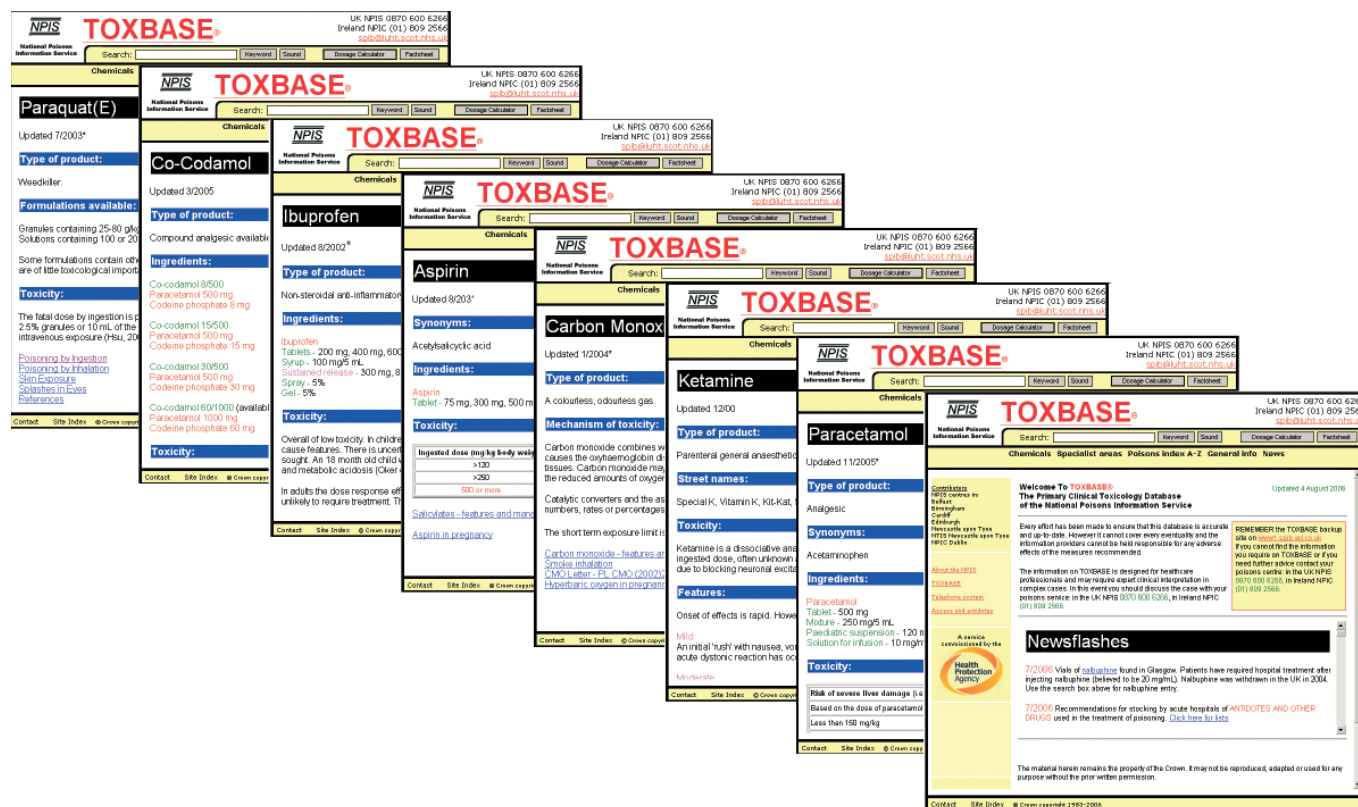
An out-of-hours telephone enquiry service for the Republic of Ireland is provided under contract. In 2005/06 there were 3,262 telephone enquiries that were routed to the NPIS national telephone out-of-hours rota (a decrease of 24.3% over 2004/05).

In addition, NPIS Edinburgh has a separate contract to provide TOXBASE to medical professionals in the Republic of Ireland (initially restricted to accident and emergency departments), which started on 1 February 2001. By the end of March 2006 there were 63 Irish registered users who had 11,790 sessions on TOXBASE (an increase of 58% on 2004/05, mainly due to a large increase in the use of TOXBASE by the National Poisons Information Centre in Dublin). There was a 15.5% increase in sessions by other Irish users (8,555 sessions).

NPIS units received a total of 622 telephone enquiries from the Channel Islands, Isle of Man and other countries. There were 836 TOXBASE sessions from the Channel Islands, 429 from the Isle of Man, and 2,802 from other countries.



5 TOXBASE Editing



TOXBASE contains entries on approximately 12,000 substances and products as well as 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, or at their quarterly meetings at the NPIS Clinical Standards Group. Regular literature reviews are conducted by NPIS Birmingham and circulated as *Current Awareness in Clinical Toxicology*, to assist in updating 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 2005 a formal NPIS work programme was agreed, which included identifying specific areas of work for the individual NPIS units. This work was facilitated by the introduction of the national on-call systems for the NPIS, which freed information officer time to work on TOXBASE. Entries submitted to the editing process are shown in Table 5.1.

TABLE 5.1 Entries submitted to TOXBASE editing process in 2005/06

NPIS unit	Entries submitted
Birmingham	150
Cardiff	115
Edinburgh	655
Newcastle, including NTIS	40
Total	960

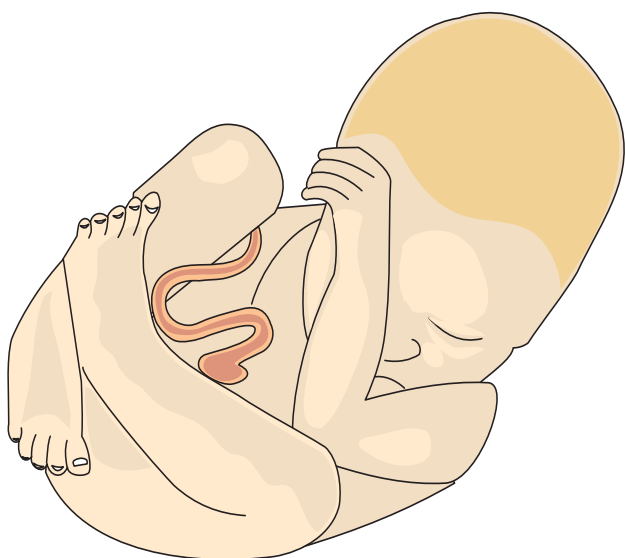
Review and removal of very old entries (those prior to 1992) was almost completed by April 2005. NPIS Edinburgh is now reviewing all those dated between 1993 and 2000 that have not otherwise been recently updated.

6 National Teratology Information Service

The National Teratology Information Service (NTIS) was established in Newcastle upon Tyne in 1995. During 2005/06 the NTIS continued to provide a national service to enquiries on aspects of toxicity of drugs and chemicals in pregnancy to healthcare professionals. As part of its routine surveillance activities, the NTIS seeks information on the outcome of pregnancy when there has been confirmed exposure to a substance on its priority follow-up list. This includes all chemical exposures and drug overdoses, as well as exposures to recently introduced medicines, known teratogens and other pharmaceuticals where there is limited information available on pregnancy outcome. The NTIS is also responsible for producing information for TOXBASE on drug and chemical exposure during pregnancy.

The NTIS received 4,984 telephone enquiries during 2005/06 about drug and chemical exposures in pregnancy, a decrease of 4.7% compared to 2004/05. Over the same period there were 35,077 accesses to teratology monographs on TOXBASE, an increase of 12.6% over the previous year. This is in accordance with the policy to increase the quantity and awareness of pregnancy information on TOXBASE.

Further details on the work of the NTIS are included in the NPIS Newcastle annual report, which will be available on the HPA website later in 2006.



7 Out-of-hours Consultant Referrals

In previous years the NPIS units made their own local arrangements for providing consultant advice for telephone enquiries. Following implementation of the European Working Time Directive, the NPIS moved to a national consultant clinical toxicology on-call rota from 1 May 2005, with consultants and senior staff from the four units (Birmingham, Cardiff, Edinburgh and Newcastle) providing out-of-hours cover (18.00 to 09.00 hours, Monday–Friday, and 24 hours at weekends and public holidays) for the UK and the Republic of Ireland. All NPIS consultant staff involved in the rota care for poisoned patients in their own local NHS poisons treatment facilities. A nationally agreed protocol is used to determine when information officers should refer enquiries. The national rota is managed from NPIS Edinburgh.

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 local records of advice given, which can be passed back to the NPIS unit that took the original call for collation as necessary. A centralized database of all enquiries is being developed.

Daytime referrals are handled by each unit for its own enquiries but cross-cover from another unit can be arranged if required, e.g. Edinburgh shares consultant cover during some of the working week with Newcastle. These daytime referrals are excluded from this section.

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 time of enquiry, source, agents and reason (five categories) were extracted and are given below.

Individual consultants now are on-call for fewer days per year. Although they receive a larger number of referrals when on-call, this has not proved excessive.

Referrals

There were 937 referrals between 1 May 2005 and 31 March 2006. Figure 7.1 shows the number of referrals by month, and Figure 7.2 shows the distribution by day of the week. The range was 0–13 referrals per day. There were an average of 2.2 referrals per night on weekdays and 4.2 per 24-hour period at weekends.

FIGURE 7.1 Out-of-hours NPIS consultant referrals by month for 2005/06

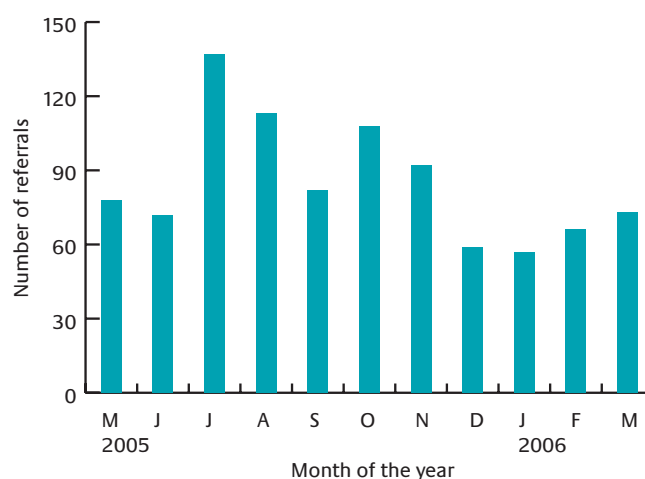


FIGURE 7.2 Out-of-hours NPIS consultant referrals by day of the week for 2005/06

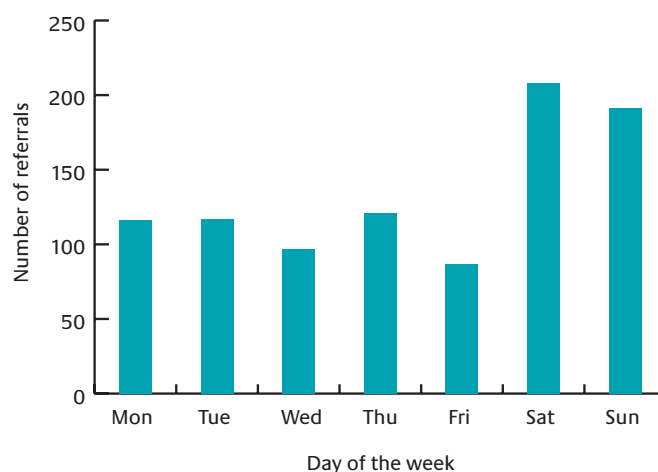
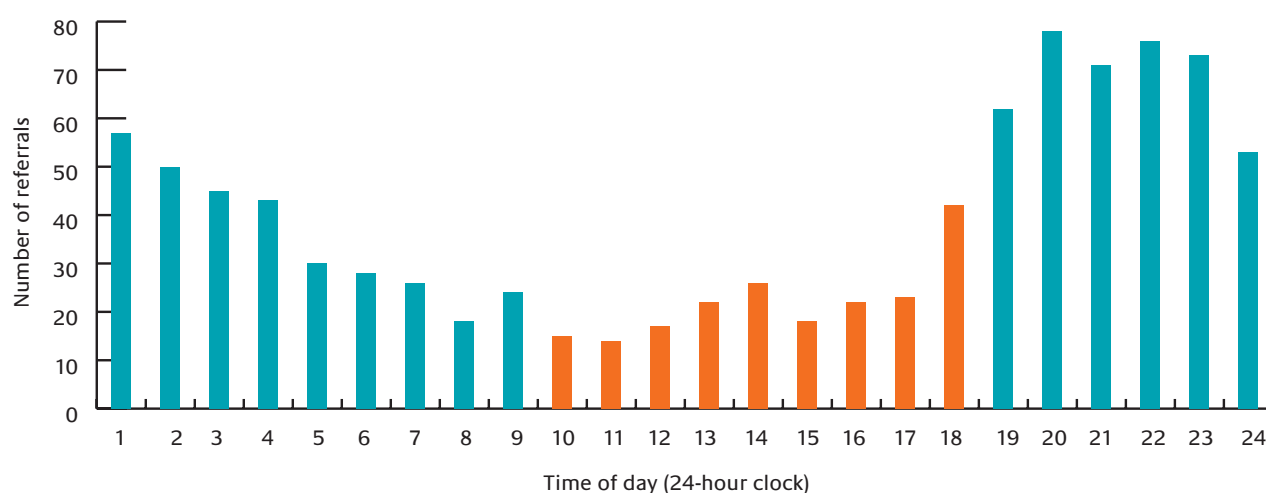


FIGURE 7.3 Out-of-hours NPIS consultant referrals by time of day for 2005/06
(the orange bars indicate hours only covered in this report at weekends and public holidays)



The distribution of consultant referrals by the time of day is shown in Figure 7.3. Daytime hours are only covered during weekends and public holidays and are shown by the orange bars.

Table 7.1 shows the referral by country of origin, with the majority of referrals coming from England.

Referred calls, where known, came from hospitals (907), NHS Direct (9), GPs (8), GP out-of-hours services (3), HM Prison Service (2), NHS 24 (1), government (1), member of the public (1), and public health service (1); this leaves 4 calls from unknown sources. Table 7.2 shows the referrals by hospital department.

TABLE 7.1 Out-of-hours NPIS consultant referrals by country and referring NPIS unit for 2005/06

Country	Number of referrals	% of total
England	758	80.9
Scotland	58	6.2
Wales	69	7.4
Republic of Ireland	46	4.9
Other	3	0.3
Unknown	3	0.3

TABLE 7.2 Out-of-hours NPIS consultant referrals from hospitals by department source (where known, 862 referrals) for 2005/06

Source	Number of referrals	% of total
Emergency departments	555	64.4
Medical wards	125	14.5
High dependency units/intensive therapy units	104	12.1
Paediatric units	51	5.9
Others (where known)	9	1.0
Surgical wards	8	0.9
Pharmacy departments	6	0.7
Coronary care units	4	0.5

The distribution of referrals by type of agent is as follows: 76.5% of referrals involved pharmaceuticals, 13.2% chemicals (household, agricultural or industrial), 2.8% flora and fauna, 2.2% other categories, and 5.3% unknown toxin. The top agents involved in enquiries are shown in Table 7.3.

TABLE 7.3 Top agents involved in out-of-hours NPIS consultant referrals for 2005/06

Agent	Number of referrals	% of total
Paracetamol	183	34.5
Ethanol	69	13.0
Digoxin	37	7.0
Iron	36	6.8
Ibuprofen	30	5.6
Lithium	30	5.6
Zopiclone	30	5.6
Amitriptyline	29	5.5
Antifreeze (ethylene glycol/methanol)	29	5.5
Aspirin	29	5.5
Diazepam	29	5.5

Where available, the reason for referral was given as specific management advice (534), general management advice (250), diagnosis (51), laboratory and concentrations (28), consultant requested (8), and others (5).

Specific management advice included advice on dose and appropriateness of giving an antidote or other specific treatment (285) [including treatment of metabolic acidosis in 139 cases, and on the paracetamol antidote acetylcysteine in 30], haemodialysis and haemofiltration (33), adverse reactions and injections (17), therapeutic errors (15), management of hypotension (20), and renal failure (12).

The NPIS has recently started collecting information on whether the consultant actually talked to the caller or whether the information was relayed by the information officer. In 52 (33.5%) of 155 referrals audited the consultant spoke directly to the clinician caring for the patient.

Feedback into NPIS services

Analysis of the consultant referrals is used to improve the services offered by the NPIS. Any problems highlighted or difficult enquiries are discussed by email, telephone or at one of the NPIS continuing professional development educational meetings. This year meeting topics have included tricyclic antidepressants, late presentation paracetamol, toxic alcohols, iron, aspirin, aconitine and managing acid base disturbances in poisoning.

A review of paracetamol consultant enquiries identified a number of queries about interpreting blood tests at the end of the antidote infusion, and indications for continuing the antidote. This led to a change in the TOXBASE paracetamol entry. It is hoped that more precise information will be more helpful to users and thus reduce the need for consultant referrals. Similarly, changes are being made to the management advice on TOXBASE for paracetamol overdose presenting after 24 hours.

More precise indications for the use of other specific treatments, doses and locations of less commonly used antidotes could perhaps also help reduce the number of other calls requiring referral.

Conclusions

The NPIS national out-of-hours on-call consultant rota is working well. Individual consultants are on-call for fewer sessions per year than previously, dealing with a larger number of referrals. Frequent contact by email and telephone, together with regular educational meetings, helps to ensure consistency of advice. Information gleaned from analysis of the calls has assisted in identifying problems for enquirers and improving the clarity of TOXBASE entries. It has also identified needs for research in a number of areas.

8 NPIS National Telephone Support

Previously, each NPIS unit provided a 24-hour telephone information service on a regional basis. Following the HPA national review of the NPIS, a networked service was introduced from July 2005, accessed via a single national phone number.

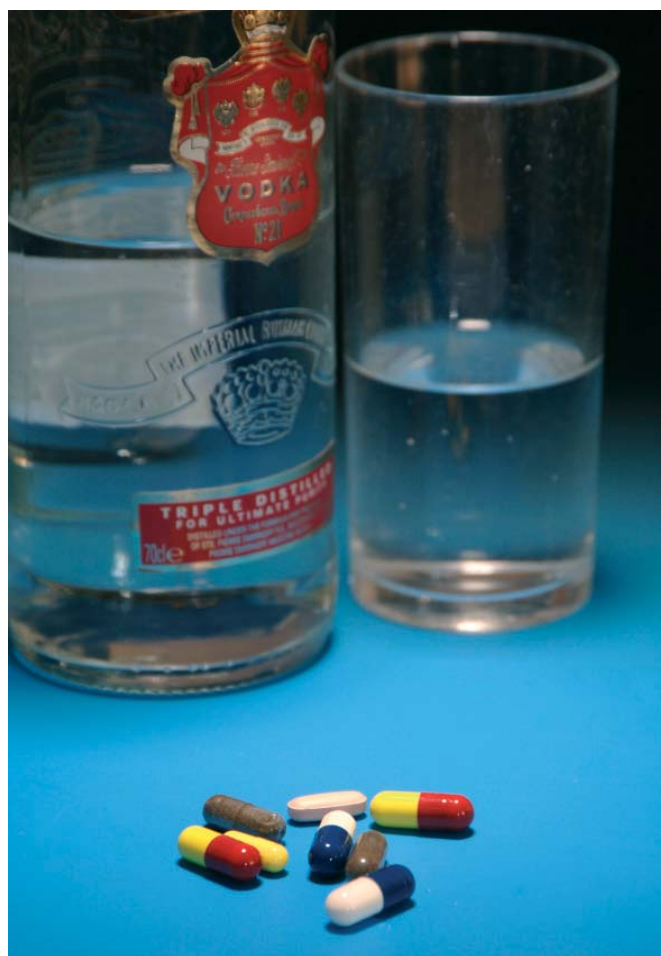
The NPIS national network enables information to be provided from all units during the day, with two units remaining open until 23.00 hours and a single unit remaining open overnight.

Each unit now 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.

Coordination and review of the NPIS telephone network on-call rota and call switching are undertaken by NPIS Cardiff. This has involved considerable effort in implementing the complex call switching arrangements. A single national number is used for the whole of the UK.

Birmingham, Cardiff and Newcastle operate call queuing systems, enabling 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.

The automatic routing of calls has resulted in more effective call answering by the NPIS. In practice, there are 300 fewer telephone calls each week going to an answerphone service.



9 Stakeholder Feedback

The NPIS units collect information annually by a questionnaire survey on user satisfaction with the service provided. This allows the NPIS to identify those areas that are working well and those that could be improved. It is appropriate for the units to seek out this evidence actively, so that they can identify and address problems, both internal (e.g. difficulties accessing the service or inappropriate advice) and external (e.g. inadequate access to TOXBASE or users' referral protocols).

In February 2002, the NPIS directors agreed a common method for the quality assurance questionnaire exercise, including a common set of questions. This allows trend analysis and comparison of the participating units.

The results of the exercise for 2005/06 are summarized below. This is the third national exercise to be conducted. The purpose here is to describe the results for the NPIS as a whole. Detailed analysis of individual unit data, including free-text responses, can be found in each NPIS unit's annual report.

Method

Questionnaires were sent out at random to a sample of telephone callers. All data were collected within the 2005/06 financial year. Guy's and St Thomas' Hospital Foundation Trust conducted a quality assurance exercise during 2005/06; however, there were some differences in methodology which preclude comparisons of results with the NPIS units. The data from Guy's and St Thomas' have been included in the statistics when they are consistent with the dataset agreed in 2002.

Results

For comparison, the figures for 2004/05 are shown in italics and square brackets.

A total of 2313 [2229] questionnaires (a sample size of around 3%) were sent by the participating units and 1010 [914] completed replies were returned, a response rate of 44% [41%]. This overall response rate is acceptable since it is typical for surveys of this type.

The respondents included consultants (2% [2%]), junior hospital doctors (13% [13%]), nurses (48% [51%]), hospital pharmacists (1% [2%]) and GPs (27% [25%]), as well as other caller types.

A total of 318 (32%) [318 (33%)] responders or their colleagues had accessed TOXBASE before contacting the NPIS. No TOXBASE access was available for 13% [17%] of respondents.

Where TOXBASE had been accessed, there was not enough information for the question asked (43% [45%]) or there were special circumstances warranting a telephone call (13% [13%]). The main reasons why TOXBASE was not consulted first were the caller had no training in use (15% [13%]), or difficulty in logging on/computer connection (12% [12%]). In 11% [11%] of cases another source of poisons information was accessed (such as the British National Formulary, Substances of Low Toxicity wall poster or an Internet search engine).

Respondents were asked to agree or disagree with the statement 'I would have preferred to have just used TOXBASE for this enquiry'. Here 36% [32%] completely disagreed or strongly disagreed, whereas 8% [10%] completely agreed.

There was a high rate of overall satisfaction with the service, with 898 [862] of the 938 [939] (96% [92%]) respondents to this question scoring this at either five or six out of a possible six.

Comparisons between the NPIS units

Allowing for slight differences in methodology, including a variable response rate, the exercise has identified only minor differences in results between the participating units and these are unlikely to be of statistical importance. Formal statistical comparisons have not been made, but there are no obvious differences between the participating units that supplied comparable data. The proportions of respondents indicating high overall satisfaction scores are similar for all parts of the service.

Trends with time

No change with time has been detected in response rates. Since 2002 the proportions of respondents who are A&E nurses has declined, while responses from GPs, NHS Direct nurses and other nurses have increased. The proportion of respondents accessing TOXBASE prior to ringing NPIS has increased and the non-availability of TOXBASE has fallen slightly. It is less common for information not to be found on TOXBASE or for TOXBASE information to apparently contradict other information the callers have. More calls relate to 'special circumstances'.

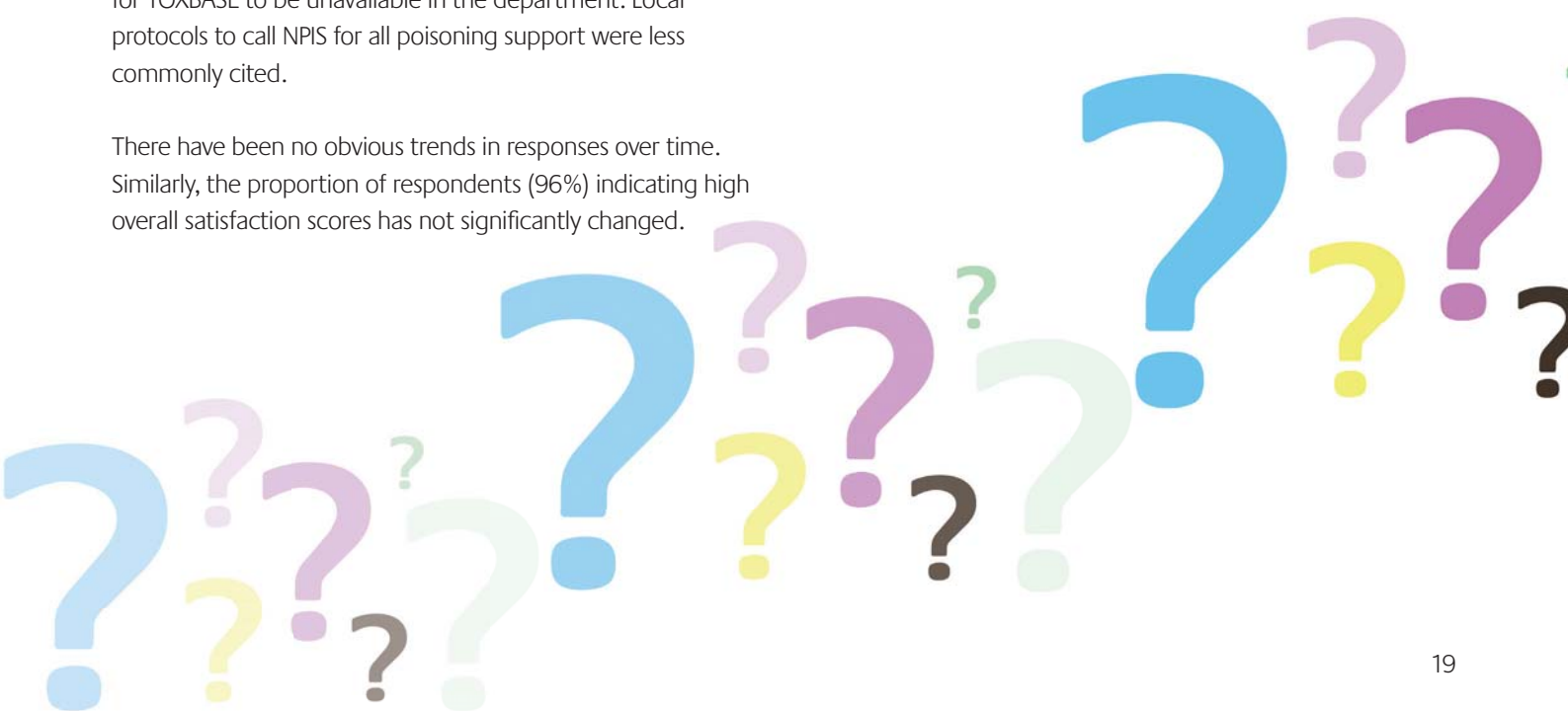
For those who had not consulted TOXBASE it was less common for TOXBASE to be unavailable in the department. Local protocols to call NPIS for all poisoning support were less commonly cited.

There have been no obvious trends in responses over time. Similarly, the proportion of respondents (96%) indicating high overall satisfaction scores has not significantly changed.

Conclusions

Respondents continue to have a high level of satisfaction with the service, both overall and for each of the specific issues asked about. As in previous years, no specific issues were identified where satisfaction appeared particularly low. There is no evidence from this survey that reorganisation of the service has impacted on its quality as perceived by users. There is some evidence for improved availability and increasing use of TOXBASE.

As expected, the overall response rate was typical for this type of survey. It did not address enquiries referred for consultant advice and this will be considered in future.



10 Poisonings with Selected Agents

The examples given here illustrate the data that the NPIS is able to collect from telephone enquiries.

This year data are presented on five drugs of abuse – gamma hydroxybutyrate (GHB), gamma butyrolactone (GBL), ketamine, methylenedioxymethamphetamine (MDMA, or ‘ecstasy’) and methylamphetamine. In addition, data are reported on carbon monoxide and five pesticides and herbicides – carbamate insecticides, glyphosate, organophosphorus insecticides, paraquat and pyrethroids.

Poisoning Severity Scores (PSS)*, where available, are used to 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 International Programme on Chemical Safety and the European Commission.

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

Selected drugs of abuse

The five drugs of abuse reviewed this year 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 quantifying the current UK health impact of these agents.

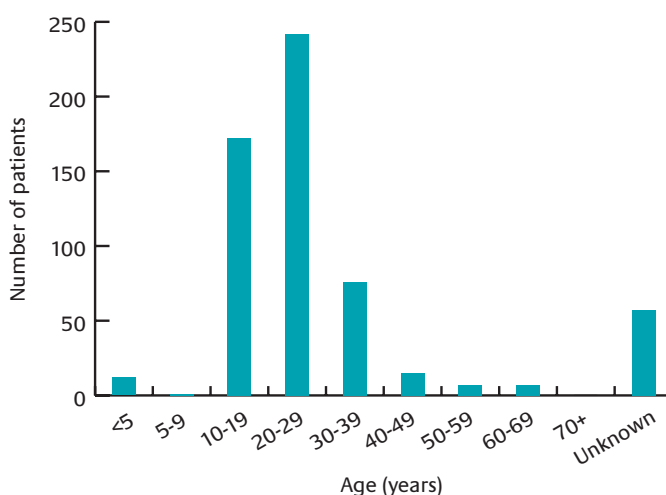
The agents chosen are

- gamma hydroxybutyrate (GHB, 47 patients),
- gamma butyrolactone (GBL, 4),
- ketamine (66),
- methylamphetamine (12),
- methylenedioxymethamphetamine (MDMA, or ‘ecstasy’, 455).

Therefore, out of the total of 87,456 telephone enquiries received by the NPIS units, 584 (<0.7%) concerned suspected exposure to one of these five drugs of abuse. The enquiries concerned 373 males, 178 females, and in 33 cases the gender was unknown. Ages are shown in Figure 10.1.



FIGURE 10.1 Age range of patients in telephone enquiries to the NPIS involving specific drugs of abuse in 2005/06



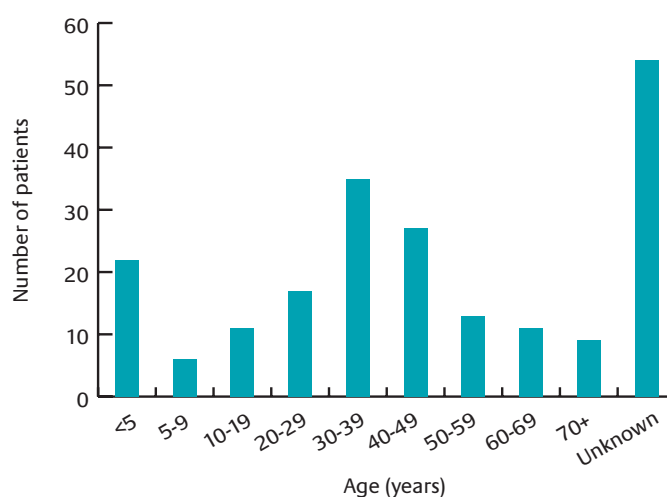
Only 15.2% (89 of 584) were described as accidental and 2.9% (14 of 480 where recorded) chronic. 95.2% (521 of 547 where recorded) of exposures were the result of ingestion.

Not all units record the PSS at the time of the enquiry but, for those that did (174 enquiries), 21.3% (37) of patients had no symptoms at the time of the enquiry, 55.7% (97) had minor symptoms, 17.8% (31) moderate and 5.2% (9) severe. One death from MDMA was reported to the NPIS.

Carbon monoxide

Out of the total of 87,456 telephone enquiries received by the NPIS units, 205 (0.2%) concerned suspected exposure to carbon monoxide. The enquiries concerned 83 males, 80 females and in 42 cases the gender was not known. See Figure 10.2.

FIGURE 10.2 Age range of patients in telephone enquiries to the NPIS involving carbon monoxide in 2005/06



87.8% (180) of exposures occurred in the home, and 16.6% (34) were deliberate exposures. 20.5% (42) of incidents involved chronic exposure.

Not all units record the PSS at the time of the enquiry but, for those that did (65 enquiries), 26.2% (17) of patients had no symptoms at the time of the enquiry, 53.8% (35) had minor symptoms, 9.2% (6) moderate and 10.8% (7) severe. No deaths were reported to the NPIS.

Selected pesticides and herbicides

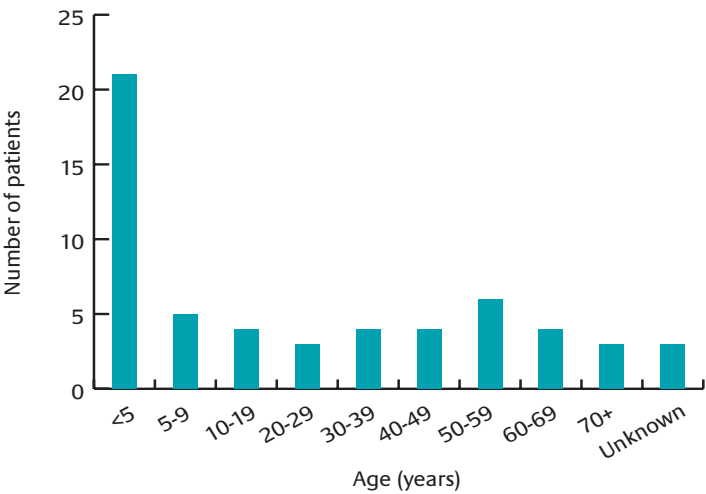
Carbamate insecticides

Out of the total of 87,456 telephone enquiries received by the NPIS units, 55 (<0.1%) concerned suspected exposure to carbamate insecticides. The enquiries concerned 32 males, 22 females, and in 1 case the gender was not recorded. See Figure 10.3.

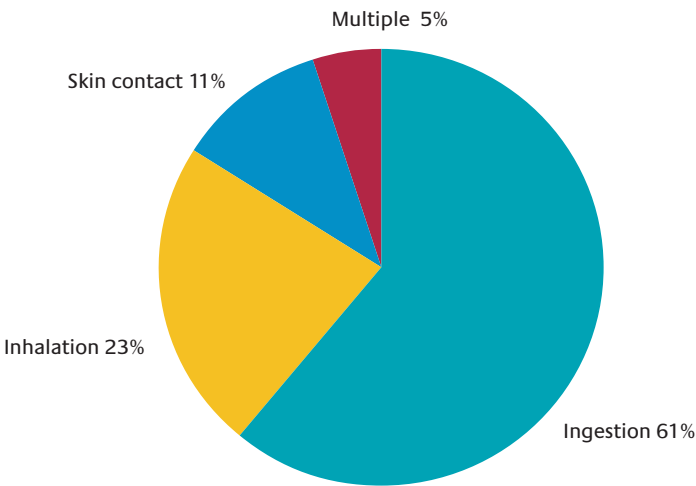
92.7% (51) of incidents occurred at home, 2 in the workplace and 2 location unknown. 5.5% (3) were deliberate exposures. Three were chronic exposures.

Not all NPIS units record the PSS at the time of the enquiry but, for those that did (25 enquiries), 28.0% (7) of patients had no symptoms at the time of the enquiry, 52.0% (13) had minor symptoms and 20.0% (5) moderate symptoms. There were no severe exposures and no deaths were reported to the NPIS.

FIGURE 10.3 Telephone enquiries to the NPIS involving carbamate insecticides in 2005/06



(a) Age range of patients



(b) Routes of exposure (none by injection or eye contact)

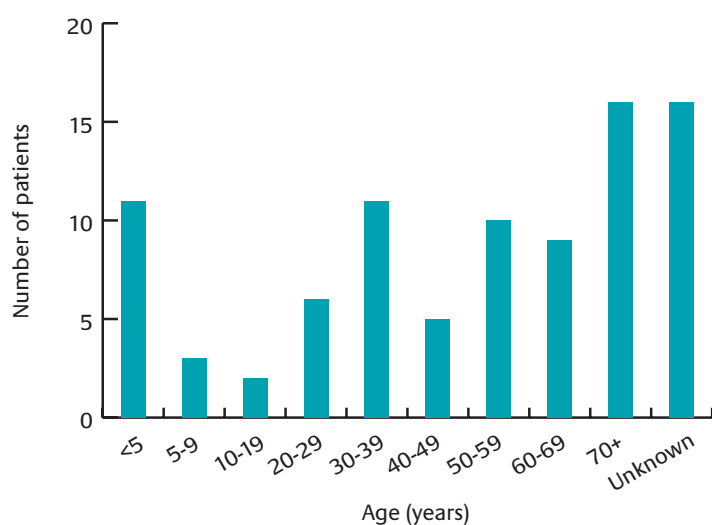
Glyphosate herbicides

Out of the total of 87,456 telephone enquiries received by the NPIS units, 89 (0.1%) concerned suspected exposure to glyphosate-containing herbicides. The enquiries concerned 63 males, 20 females, and in 6 cases the gender was unknown. See Figure 10.4.

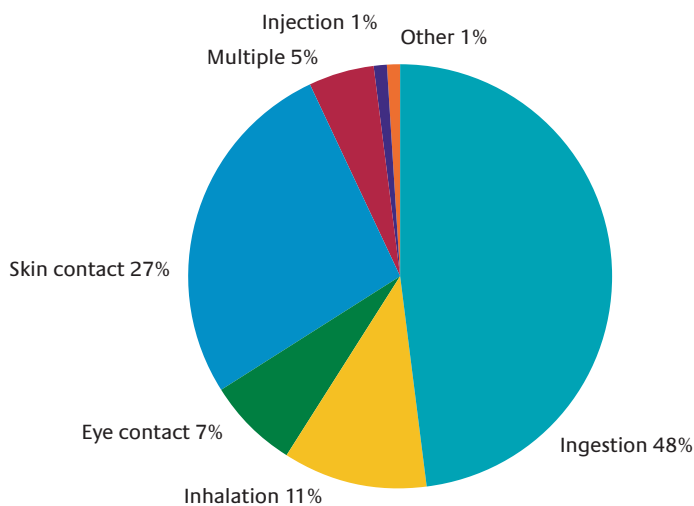
89.8% (80) of incidents occurred at home and 7.9% (7) in the workplace; 9.0% (8) were deliberate exposures. Two were chronic exposures.

In the 26 cases in which the PSS was recorded at the time of the enquiry, 26.9% (7) of patients had no symptoms, 69.2% (18) had minor symptoms, 3.8% (1) moderate and none severe. None of the patients was reported to have long-term sequelae on follow up.

FIGURE 10.4 Telephone enquiries to the NPIS involving glyphosate herbicides in 2005/06



(a) Age range of patients



(b) Routes of exposure

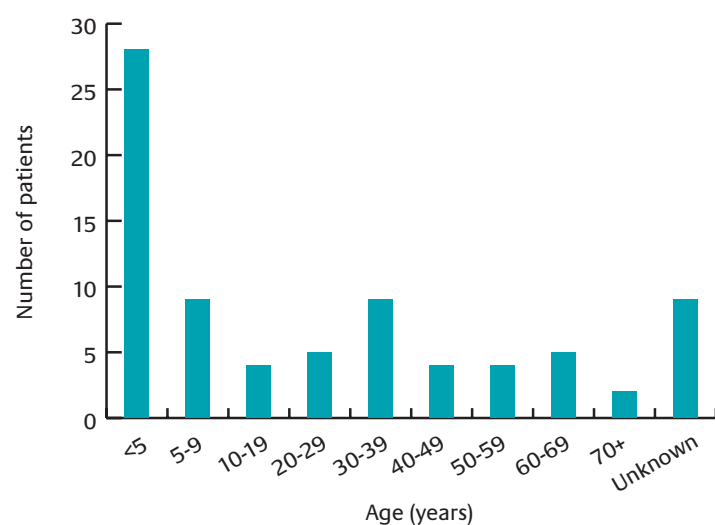
Organophosphorus insecticides

Out of the total of 87,456 telephone enquiries received by the NPIS units, 79 (<0.1%) concerned suspected exposure to organophosphorus insecticides. The enquiries were about 42 males, 35 females and in 2 cases the gender was unknown. See Figure 10.5.

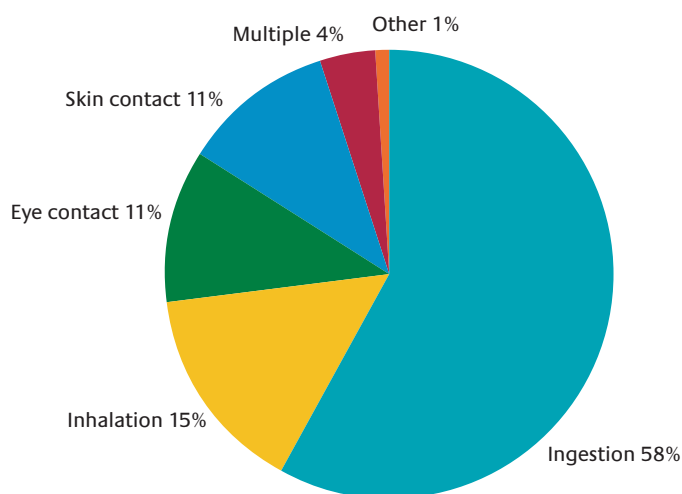
8.9% (7) of 79 incidents occurred at the workplace, 87.3% (69) in the home, 2 in 'other' locations and 1 an unknown location. Two only were deliberate. Six enquiries were said to involve chronic exposure.

In the 31 cases in which the PSS was recorded at the time of the enquiry, 48.4% (15) of patients had no symptoms at the time of the enquiry, 51.6% (16) had minor symptoms, and none moderate or severe. No deaths or long-term sequelae were reported to the NPIS.

FIGURE 10.5 Telephone enquiries to the NPIS involving organophosphorus insecticides in 2005/06



(a) Age range of patients



(b) Routes of exposure

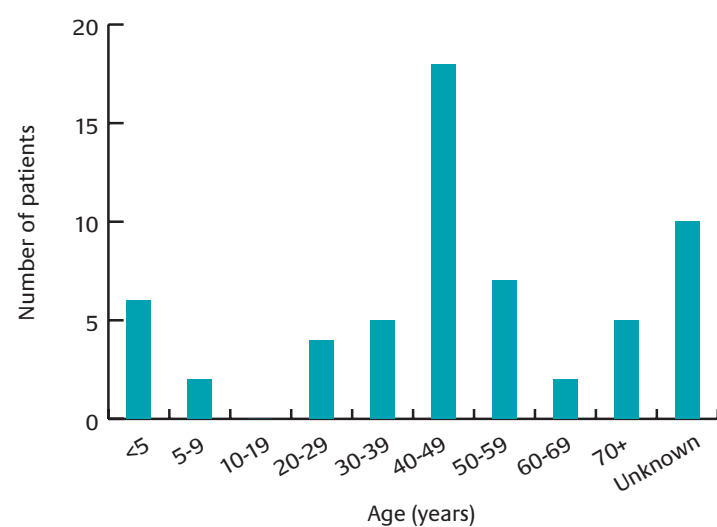
Paraquat

Out of a total of 87,456 telephone enquiries received by the NPIS units, 59 (<0.1%) concerned suspected exposure to paraquat. The enquiries concerned 38 males, 17 females and in 4 cases the gender was unknown. See Figure 10.6.

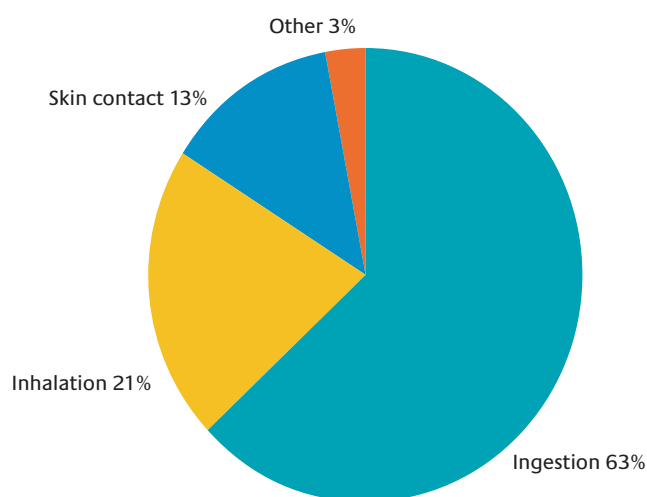
10.2% (6) of incidents were said to occur in the workplace and 83.1% (49) at home; 16.9% (10) were deliberate exposures.

In the 17 cases in which the PSS was recorded at the time of the enquiry, 47.1% (8) of patients had no symptoms, 41.2% (7) had minor symptoms, 11.8% (2) moderate and none severe. No deaths were reported to the NPIS.

FIGURE 10.6 Telephone enquiries to the NPIS involving paraquat in 2005/06



(a) Age range of patients



(b) Routes of exposure (none by eye contact)

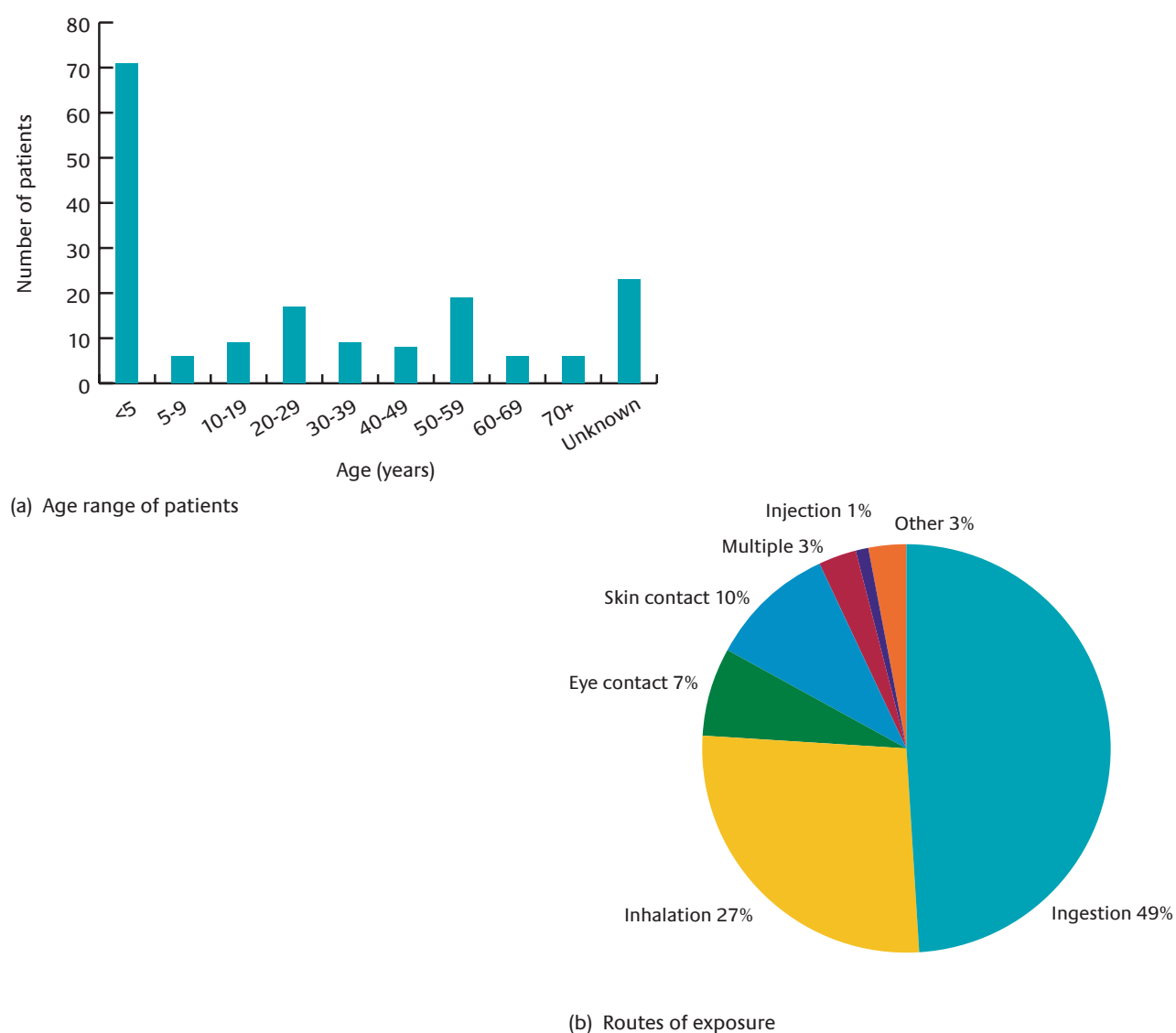
Pyrethroid insecticides

Out of the total of 87,456 telephone enquiries received by the NPIS units, 174 (0.2%) concerned suspected exposure to pyrethroids. The enquiries concerned 77 males, 84 females, and in 13 cases the gender was unknown. See Figure 10.7.

90.2% (157) of incidents occurred at home and 7.5% (13) in the workplace. 3.4% (6) were deliberate exposures. Seven were chronic exposures.

In the 60 cases in which the PSS was recorded at the time of the enquiry, 48.3% (29) of patients had no symptoms at the time of the enquiry, 43.3% (26) had minor symptoms, and 6.7% (4) moderate symptoms. One patient had severe symptoms but these were thought unrelated to the exposure. No deaths were reported to the NPIS.

FIGURE 10.7 Telephone enquiries to the NPIS involving pyrethroid insecticides in 2005/06



Comparison of pesticide/herbicide enquiries

The total number of exposures reported to the NPIS units for each pesticide and herbicide are shown in Figure 10.8, with pyrethroids being most common.

The PSS, where reported, is compared as percentages in Figure 10.9 with most incidents resulting in no symptoms or mild symptoms. There were no deaths reported.

FIGURE 10.8 Numbers of exposures for five pesticide/herbicide groups involved in telephone enquiries to the NPIS in 2005/06

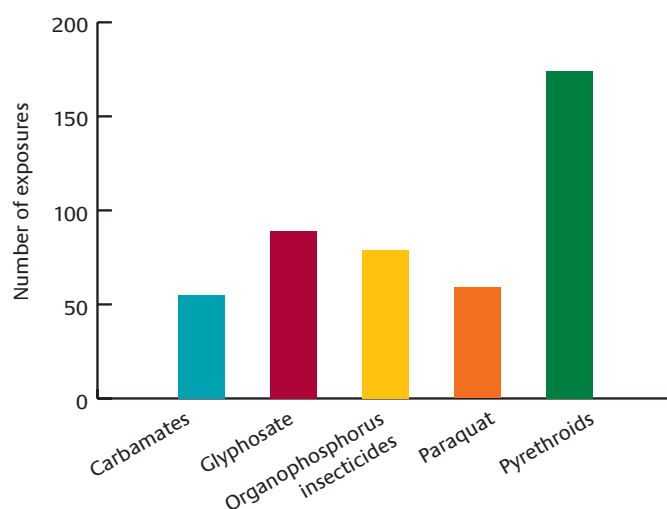
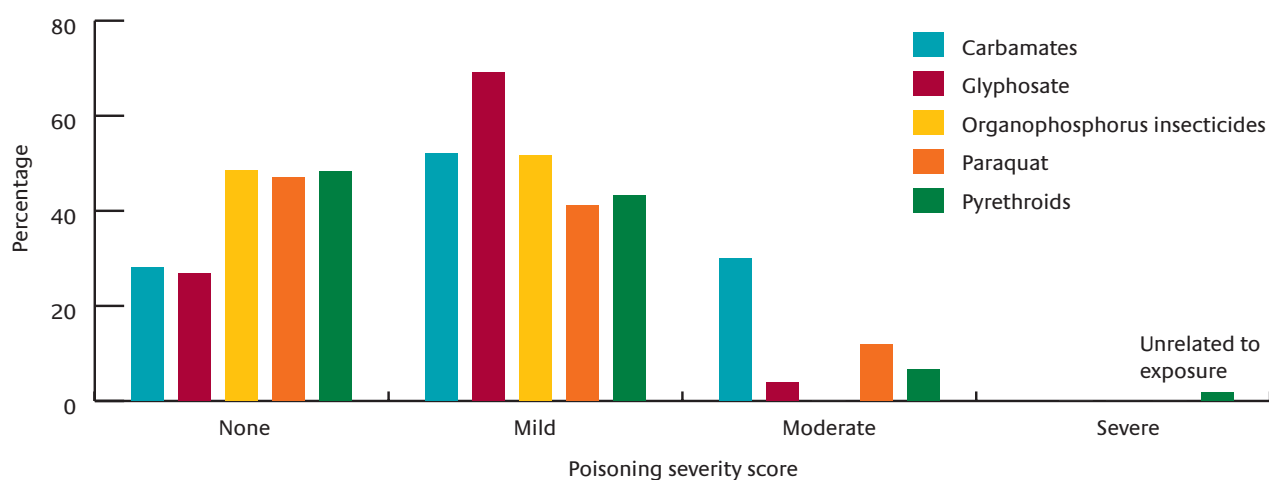


FIGURE 10.9 Poisoning severity scores for exposures to five pesticide/herbicide groups in telephone enquiries to the NPIS in 2005/06



11 Conclusions

In line with agreed strategy, the number of telephone enquiries received by NPIS units continues to decrease and the number of TOXBASE sessions increases. This has led to changes in the telephone enquiry system with the introduction of a national rota for answering out-of-hours telephone enquiries and for NPIS consultant referral.

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 780 TOXBASE sessions and telephone enquiries per 100,000 population in 2005/06.

Enquiries from NHS Direct and NHS 24 centres contribute about 15% to the NPIS telephone enquiries and 28% of TOXBASE sessions.

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

New out-of-hours arrangements for telephone enquiries and consultant referrals are working well.

Enquiries regarding exposure to drugs of abuse involve mainly teenagers and those in their twenties and cause moderate or severe toxicity in about 25% of cases referred to the NPIS.

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



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