NPIS
National Poisons Information Service

Health Protection Agency

National Poisons Information Service

Annual Report 2008/2009

National Poisons Information Service

Commissioned by the Health Protection Agency through its Centre for Radiation, Chemical and Environmental Hazards

NPIS Units at 31 March 2009

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Foreword

As this year's striking cover indicates, advising on abuse of prescribed pharmaceuticals, alcohol and drugs of misuse forms a large part of the work of the National Poisons Information Service. Suspected poisoning remains a common reason for presentation to primary and secondary care services, and this year's annual report provides considerable evidence of the continuing relevance of the NPIS in supporting the efficient working of frontline NHS staff.

The importance of our poisons information database TOXBASE, providing rapid and convenient access to detailed information on a large number of potential toxins, has empowered NHS staff to manage most episodes of poisoning without the need to use the NPIS telephone service. Formal feedback from users of the online service, available for the first time this year, has demonstrated a very high degree of user satisfaction.

The number of telephone enquiries appears to have stabilised and those that are received are more complex, as evidenced by their increasing duration and the number requiring advice from an NPIS consultant. Again, user surveys continue to demonstrate high satisfaction with the telephone service, as does the recently instituted stakeholder feedback exercise for consultant referrals.

NPIS staff are entitled to have considerable pride in these achievements, but more can be done. To date, the service has been funded to be reactive to episodes of acute poisoning, but there could be benefits from the NPIS becoming more supportive in the prevention of poisoning and NPIS data are an important signal for avoidable episodes. In this report, the issue of co-proxamol poisoning has been highlighted, where preventative work involving the NPIS has already provided benefits, but further coordinated work is needed in other areas highlighted, such as medication errors and carbon monoxide poisoning.

A key component of poisons prevention work is the provision of information to the public. NPIS staff are enthusiastic about collaborating with other agencies to promote prevention.

During the year Dr Pat McElhatton retired as Head of the UK Teratology Information Service. We would like to take this opportunity to acknowledge the key role that she has played in developing this service over many years and to wish her well in her retirement.

Elaine Lynch-Farmery
Centre for Radiation, Chemical and Environmental Hazards,
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Simon Thomas
Chair, NPIS Clinical Standards Group

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Executive Summary

Background

Poisoning accounted for over 500,000 NHS hospital bed-days in the UK in 2007/08. This significant workload falls mainly on hospital emergency departments, minor injuries units, primary care services, and the NHS patient helplines (NHS Direct and NHS 24).

The Health Protection Agency 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 care professionals in the UK. The work of the NPIS is essential in supporting health care for this large patient group, encouraging optimal care for those with serious poisoning, and preventing unnecessary hospital admissions when the risk of toxicity is low.

The NPIS provides evidence-based information via its telephone service and its online poisons information database, TOXBASE. NPIS policy has been to encourage use of TOXBASE as a first point of call for information, reserving telephone enquiries for more complex cases.

All NPIS units now enter patient data on to a secure central database, UKPID, allowing staff to retrieve information already entered about enquiries irrespective of their location, allowing better collaborative working. Statistics relating to poisons enquiries are also more easily available on a national level; some of these data are presented in this report and illustrate the type and value of information now available for public health surveillance purposes.

Activity

In 2008/09 the NPIS received over 625,000 enquiries via TOXBASE or telephone. Poisons enquiry sessions on TOXBASE numbered over 570,000, an increase of 20% over the previous year; hits on individual products exceeded 1.3 million.

To underpin this important activity, over 3,800 TOXBASE entries were written or revised during 2008/09, an increase of over 80% in comparison to the previous year.

Over 57,000 telephone enquiries were answered in 2008/09, an increase of 8.8% on 2007/08. Around a third (nearly 19,000) involved children under 10 years, reflecting the frequency of suspected accidental poisoning in this age group; a further 11% (over 6,200) involved those aged 10–19 years. In addition, there was a 19% increase in referrals of more complex cases to NPIS consultant clinical toxicologists, who handled almost 1,500 enquiries during the year.

Hospitals accounted for 61% of the TOXBASE sessions and 36% of the telephone enquiries. Enquiries from NHS Direct (in England and Wales) and NHS 24 (in Scotland) accounted for 31% of the TOXBASE sessions and 19% of the telephone enquiries.

The NPIS provides advice and support on drug and chemical exposure during pregnancy through the UK Teratology Information Service (UKTIS). During 2008/09 there were approximately 34,000 accesses to pregnancy information on TOXBASE, a slight increase over the previous year, and UKTIS answered around 4,250 pregnancy-related telephone enquiries, a slight reduction on the previous year.

Clinical Governance

Recommendations arising from the external clinical governance review, formally published in August 2007, have now been implemented, including better contingency arrangements for the national telephone service, call recording in all units, establishment of a curriculum of competencies for specialists in poisons information, and increased opportunities for joint education and development for NPIS staff.

The NPIS is subject to detailed quality assurance mechanisms and stakeholder feedback demonstrates an exceptionally high degree of user satisfaction with the NPIS working arrangements. Quality assurance of telephone enquiries, both poisons information and teratology enquiries, continues to demonstrate outstanding user satisfaction with these services. This year, quality assurance methods for TOXBASE and for consultant referrals have been developed and have also produced excellent stakeholder feedback for both of these services.

Issues of Interest

This year the issue of drugs of misuse is highlighted again, because of its public health importance, especially for younger people. In the past year, the proportion of NPIS telephone enquiry workload has increased for cocaine, methylamphetamine, benzylpiperazine, gamma hydroxybutyrate (GHB) and gammabutylactone (GBL). The numbers of TOXBASE accesses relating to benzylpiperazine and GBL have also increased. Reductions in the proportions of NPIS telephone and TOXBASE workloads for MDMA (ecstasy) and amphetamines have continued. Interestingly, telephone enquiries are now being received regarding the new stimulants dimethoxybromophenethylamine (2C-B) and trifluoromethylphenylpiperazine (TPMPP).

Pharmaceuticals continue to be a large component of the work of the NPIS. In this year's report data on medication errors are again highlighted. These were the source of over 9,200 of the telephone enquiries in 2008/09 and especially involved older age groups, where medication errors result in more telephone contacts with the NPIS than does intentional self-poisoning.

Poisoning caused by non-pharmaceuticals is also common and suspected exposure to other chemicals (industrial, agricultural, garden and household products) accounts for a significant number of TOXBASE sessions, with over 30,000 product accesses to household cleaners alone. As in previous years, enquiries relating to pesticides are uncommon and only a few are associated with serious toxicity.

This year poisoning with methanol and glycols (e.g. ethylene glycol) is again highlighted. Although not a common source of enquiries overall, these agents are the second most common reason for referral to an NPIS consultant.

Carbon monoxide remains an important cause of death by poisoning in the UK and concerns remain that chronic poisoning may be underdiagnosed. During the year the NPIS advised on over 310 reported cases. Although most patients had no effects or minor features, 5% had moderate and 2% had severe features of poisoning.

Monitoring the effects of drug regulation on poisoning is an important public health role for the NPIS, and we show the marked effect of the 2005 change in the UK in the licensed availability of co-proxamol on enquiries to the service.

Finally, two appendices show the contribution that NPIS staff have made to the development and dissemination of the national and international clinical toxicological evidence base.

1 Introduction

Poisoning continues to be an important public health issue in the UK. It accounted for over 500,000 NHS hospital bed-days in the UK in 2007/08 and 180,000 NHS finished consultant episodes. This creates a significant workload for health service staff, especially hospital emergency departments and minor injuries units. In addition, many other cases of suspected toxin exposure are managed in the community, without referral to hospital. Thousands of different types of agents are involved and the appropriate management of poisoning continues to be a major task for NHS staff.

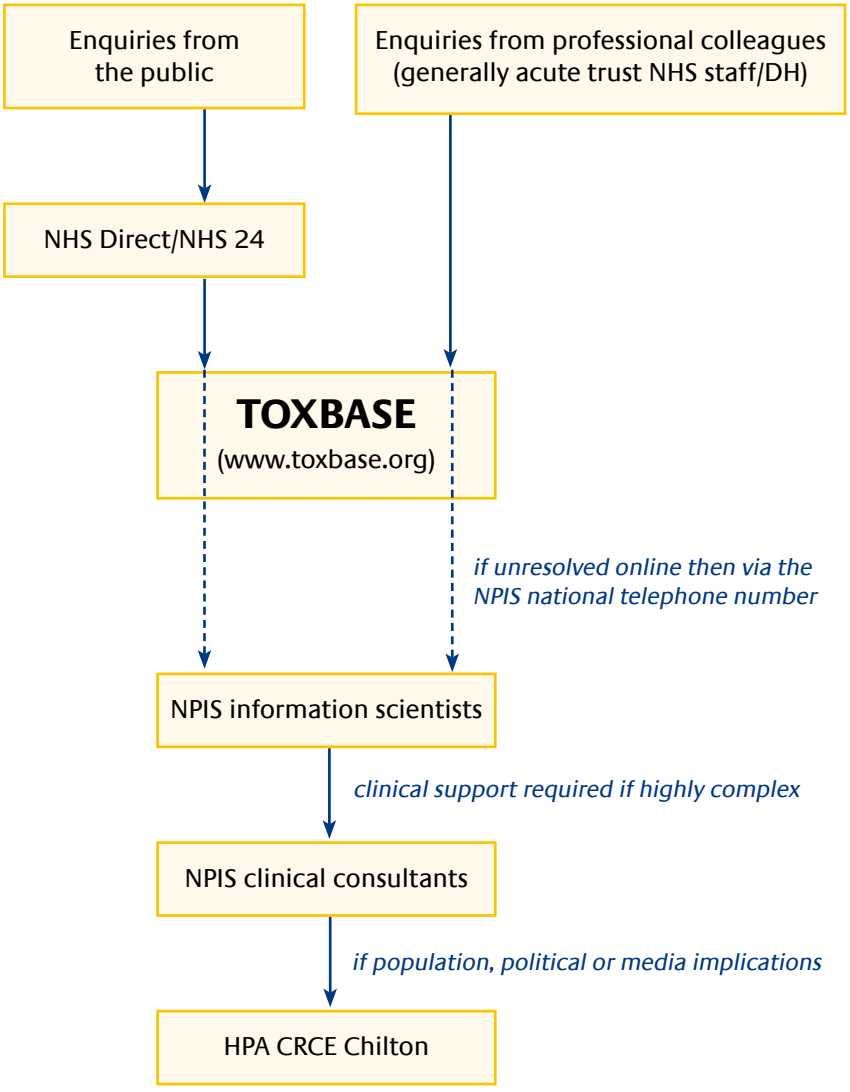
Although the majority of poisoning-related deaths occur outside hospital, reduction of in-hospital morbidity and mortality is still an important challenge. Many enquiries are about potential poisoning in primary care settings, and are made to NHS patient helplines (NHS Direct in England and Wales and NHS 24 in Scotland). Appropriate referral, triage and treatment of patients, both in primary care settings 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 optimising their management is a further challenge for the NHS. Appropriate advice often prevents unnecessary hospital attendance or admission.

The National Poisons Information Service (NPIS), a network of dedicated units commissioned by the Health Protection Agency (HPA), provides information on the diagnosis and treatment of poisoning to health care professionals in the UK. Its objectives are to optimise patient care throughout the patient care pathway, minimise the adverse consequences of poisoning, and reduce unnecessary use of hospital facilities. The NPIS is funded mainly through 'Government Grant in Aid' from the UK Health Departments, some contract income and some research income.

2 NPIS Structure

The National Poisons Information Service (NPIS) provides a 24-hour consultant-supported clinical toxicology on-call service that gives advice on the management of poisoning and on the clinical implications of chemical incidents and accidents. 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 care professionals in the UK in 1999. TOXBASE has received major software updates since that time and was moved to a new platform in spring 2008. In 2008 all NPIS units installed systems to record all NPIS telephone enquiries for quality assurance and clinical governance purposes.

There are currently four HPA-commissioned 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; it uses the NPIS out of hours. Clinical staff in these units also provide specialist clinical services to their local populations. The NPIS is contracted to provide poisons information in the Republic of Ireland by the provision of TOXBASE to major hospital emergency departments and to the National Poisons Information Centre in Dublin. Out-of-hours telephone support is provided by NPIS specialists in poisons information (SPIs) and consultants.



How poisons enquiries are answered

Information on TOXBASE sessions and telephone enquiries is provided in this report. The increasing use now being made of TOXBASE as a result of NPIS promotional exercises has allowed staff to perform more strategic work for the service, including production of TOXBASE monographs. Telephone enquiries are received by information scientists who may have a scientific, nursing or pharmacy background. NPIS consultant clinical toxicologists are available for further advice as appropriate.

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

In order to maintain a consistent approach, irrespective of the provider unit answering an enquiry, it is essential to have national mechanisms for addressing issues that affect the service.

Commissioning issues are dealt with by the HPA NPIS Commissioning Group, which meets quarterly and more often as 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. Operating procedures are regularly reviewed and made available to all NPIS staff via TOXBASE.

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

In addition, there are regular meetings of the HPA NPIS TOXBASE Editing Group and the UKPID User Group. These have representation from each provider unit and discuss issues relating to TOXBASE and UKPID, the common NPIS call-logging software. The National Poisons Information Centre in Dublin and the Northern Ireland Regional Medicines and Poison Information Service also contribute to TOXBASE development.

NPIS National Telephone Support

A single national telephone number for the service operates, underpinned by a complex call-routing system designed to send each enquiry to the NPIS unit most appropriate to receive it, on the basis of geographical location and availability of information scientist to handle it. An out-of-hours telephone enquiry rota for the NPIS units is in place, supported by an on-call rota for NPIS consultant clinical toxicologists.

This networked service enables information to be provided from all units during the extended working day (Monday to Friday, 08.00–20.00 hours), with two units open until 23.00 hours, and a single unit open overnight. Each unit handles telephone enquiries from a designated geographical area during the day. Birmingham, Cardiff and Newcastle support the out-of-hours national rota for telephone enquiries. If all lines into the geographically preferred unit are busy, the call is automatically transferred to a unit with available capacity, thus ensuring that all telephone calls are answered.

A business continuity plan is in place to ensure the integrity of the telephone answering service. Should any of the three out-of-hours units become unable to accept enquiries to their landlines (e.g. switchboard failure or building evacuation) then calls can be diverted to authorised mobile telephones held within each unit.

3 NPIS Activities in 2008/09

NPIS activity has increased during 2008/09, including a 20% increase in logons to the online poisons information database, TOXBASE, an 8.8% increase in telephone enquiries, and a 19% increase in referral of more complex cases to the NPIS consultants.

3.1 Overall Service Profile

The total number of TOXBASE user sessions (defined as logons to the TOXBASE site) was 571,378; an increase of 20% on 2007/08 (Figure 3.1), although a new software counting system was introduced in 2008 which may account for some of the increase. This figure includes 3,614 sessions for educational purposes, a 10% decrease on 2007/08 and 13,881 made by the NPIS units in Birmingham (3,656), Cardiff (5,225) and Newcastle (5,000), an increase of 50% on 2007/08. NPIS units may access TOXBASE to answer telephone enquiries, for training/educational purposes, to access operating procedures and rotas, and for monograph-writing purposes. Since NPIS Edinburgh does the bulk of the final editing and checking on TOXBASE, accesses are not counted from this source. In addition, there were 1,376 sessions from the Northern Ireland Regional Medicines and Poison Information Service, and 2,423 sessions from the National Poisons Information Centre in Dublin and 7,011 sessions from

Box 3.1 Non-UK and Subscription Users of the NPIS

An out-of-hours telephone enquiry service for the Republic of Ireland is provided by the NPIS under contract. In 2008/09 there were 2,170 telephone enquiries that were routed to the NPIS national telephone out-of-hours rota (a decrease of 11% over 2007/08).

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 2009 there were 79 registered Irish users who had 16,468 sessions on TOXBASE (an increase of 13% on 2007/08).

The NPIS units received 336 telephone enquiries from the Channel Islands, Isle of Man and other countries. There were 1,173 sessions on TOXBASE from the Channel Islands, 676 from the Isle of Man, and 10,140 from other countries (a 9.5% increase on 2007/08). This includes fee-paying poisons centres in Australia, Brazil, Hong Kong, Singapore and the United Arab Emirates, as well as European poisons centres by special arrangement.

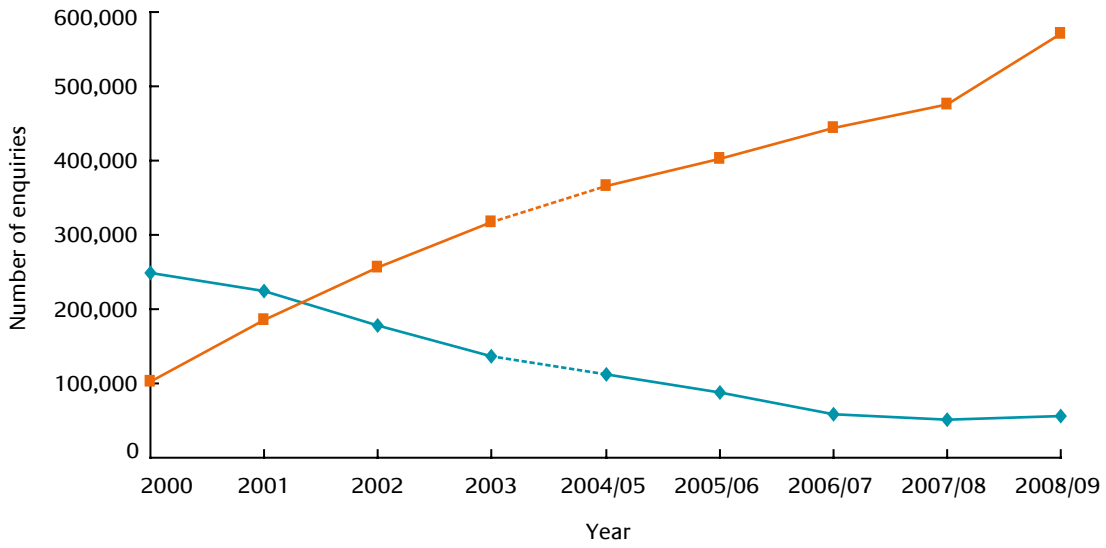


FIGURE 3.1 Telephone enquiries (♦) and TOXBASE (■) sessions from 2000 to 2008/09 (data for 2000–2003 by calendar year; subsequent years by financial year)

TABLE 3.1 Origin of poisons enquiries to the NPIS in 2008/09

Country	Telephone enquiries		TOXBASE sessions*		Total	Population estimate (mid-2007)
	Number	Rate per 100,000 population	Number	Rate per 100,000 population		
England	45,204	88.6	419,939	822	465,143	51,092,000
Scotland	2,467	47.6	54,972	1,064	57,439	5,168,500
Wales	4,672	156.8	33,594	1,127	38,266	2,980,000
Northern Ireland	593	33.4	14,842	836	15,435	1,775000

* This underestimates TOXBASE activity, since the number of products accessed per session varies, with some users logging off less frequently and accessing more products per session than others. As in previous years, Wales has the highest combined enquiry rate.

other poisons units outside the UK. The analyses presented in this part of the report include 525,241 sessions made by English, Scottish, Welsh and Northern Irish users only and exclude those made by the NPIS units. Each consists of one logon period during which the user may access one product several times or several separate products on the database. There were 1,368,309 product accesses in 2008/09, but applying the same criteria as for session data analysis, 1,158,258 product accesses were included in further analyses.

The total number of telephone enquiries received by the NPIS in 2008/09 was 57,029 (excluding 4,248 calls made to UKTIS), an 8.8% increase on the figure for 2007/08 (see Figure 3.1).

Table 3.1 shows the number of poisons enquiries from the UK mainland countries and relates that to population. Table 3.2 shows the variation in TOXBASE use by strategic health authorities in England compared with use in Scotland, Wales and Northern Ireland.

TABLE 3.2 Regional distribution of TOXBASE sessions in 2008/09

Country	Strategic health authority	Number of TOXBASE sessions	TOXBASE sessions per 100,000 population	Population estimate (mid-2007)
England	East Midlands	36,787	836	4,400,000
	East of England	43,339	766	5,661,000
	London	50,768	672	7,557,000
	North East	27,160	1,059	2,565,000
	North West	64,905	946	6,864,000
	South Central	36,258	901	4,025,000
	South East Coast	23,344	545	4,283,000
	South West	40,316	779	5,177,000
	West Midlands	51,116	950	5,382,000
	Yorkshire and The Humber	54,472	1,052	5,177,000
Scotland	–	54,972	1,064	5,169,000
Wales	–	33,594	1,127	2,980,000
Northern Ireland	–	14,842	863	1,775,000

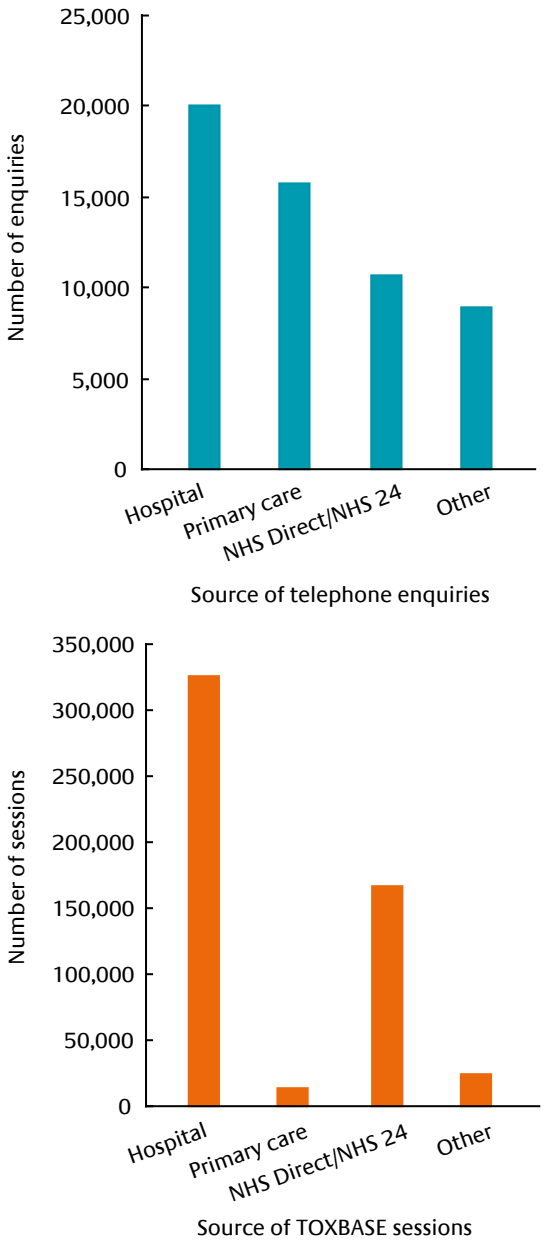


FIGURE 3.2 Telephone enquiries and TOXBASE sessions in 2008/09 by source of enquiry

Figure 3.2 shows that 325,416 (61%) of TOXBASE sessions and 20,064 (36%) of telephone enquiries came from hospitals. In addition, 167,050 (31%) of TOXBASE sessions and 10,716 (19%) of telephone enquiries came from NHS Direct (England and Wales) or NHS 24 (Scotland).

Of the telephone enquiries, 45% were made by doctors and 42% by nurses, almost identical to the proportions for last year.

Box 3.2 TOXBASE Editing

With the increased use of TOXBASE by health care professionals as the first, and often only, source of advice, it is essential that the information it contains is kept as up to date as possible. Because of the numbers of monographs involved, this is a very substantial workload, which is shared by the NPIS units. TOXBASE entries that are new to the database and major updates are circulated to all the NPIS units for review before going 'live'. Areas of clinical controversy or uncertainty are discussed by the NPIS directors at the quarterly NPIS Clinical Standards Group meetings. Monthly literature reviews, undertaken in the main by NPIS Birmingham, are circulated as *Current Awareness in Clinical Toxicology* (see Section 3.5), to assist in updating TOXBASE.

The HPA NPIS TOXBASE Editing Group includes representatives of clinical and information staff from all the NPIS units, together with a public health physician and scientist from the HPA Centre for Radiation, Chemical and Environmental Hazards. It meets approximately three times a year to agree policy for TOXBASE development, discuss the format for TOXBASE monographs, and agree and prioritise work programmes on the database content.

During 2008/09, 3,835 entries were written or revised, an increase of 82% over the figure for 2007/08. The NPIS has moved to a five-year rolling review of all entries.

The age of patients who were the subject of telephone enquiries is shown in Figure 3.3. Age was not recorded in 2,538 enquiries. It should be noted that the exact age is not always available from the enquirer, but it is usually known whether the subject is a child or adult. Over a third (18,864; 36%) of telephone enquiries for which the subject's age was known involved children under 10 years of age. The great majority these (89%) concerned children under 5 years old, reflecting the patterns of accidental childhood exposures in the general population. Enquiries about those aged 10–19 years account for a further 12% of activity. The 0–19 year age group is the subject of further discussion in Section 5.2.

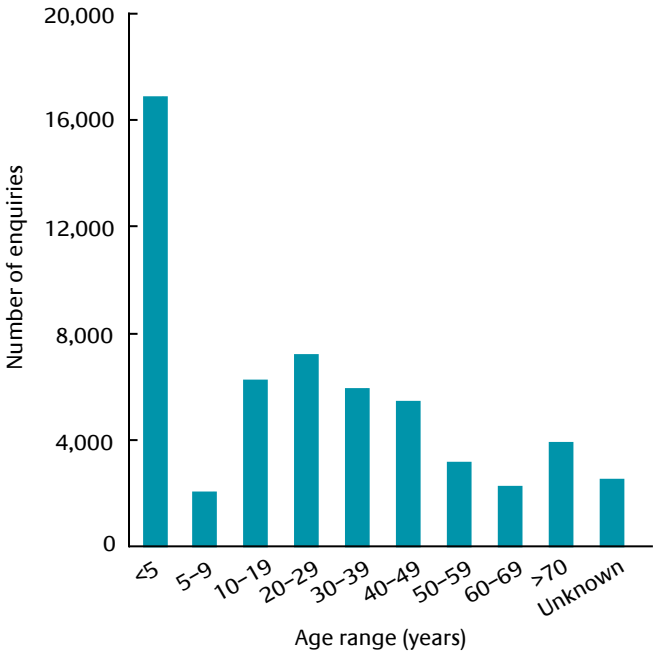


FIGURE 3.3 Age of poisoned patients reported in telephone enquiries to the NPIS in 2008/09

Overall, around 46% of patients were male and 53% female (1.6% unrecorded). For place of occurrence, 87% of all potential exposures were reported to have happened in the home, 3.2% in agricultural or other workplaces and 2.2% in medical facilities, with 7.4% classified as 'other' or unknown. Close to half (49%) involved accidental poisoning, 28.5% deliberate poisoning, 16.6% medication error (by patients, carers or medical professionals) and 1.8% substance abuse (with 2.0% other circumstances and 2.1% unknown).

The types of products that were the subject of telephone enquiries are shown in Figure 3.4. The breakdown is similar to that in 2007/08, with pharmaceuticals again involved in over 50% of enquiries. It should be noted that the figure for industrial chemicals includes all instances of alcohol ingestion taken with or without an overdose.

Most exposures (87%) were by ingestion, but other routes included inhalation (3.3%), eye contact (2.6%), skin contact (1.9%) and multiple or other routes (4.8%).

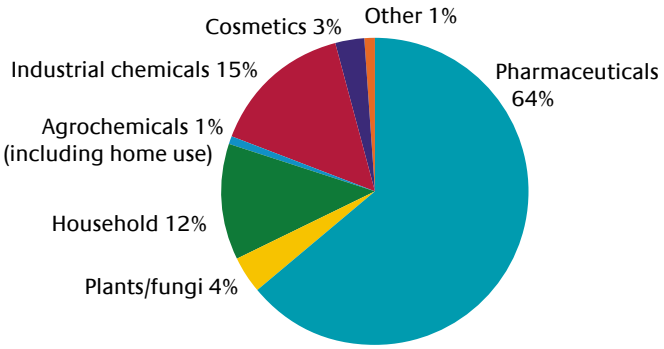


FIGURE 3.4 Types of products involved in telephone enquiries to the NPIS in 2008/09

Table 3.3 shows the ten pharmaceutical agents that were the most frequent subject of enquiries by telephone and TOXBASE accesses. One of these was the compound analgesic co-codamol (paracetamol and codeine). The number of enquiries listed for paracetamol in the table does not include those for co-codamol. The pattern of enquiries is similar for both telephone and TOXBASE, with analgesics and drugs that affect the central nervous system predominating, and similar to that in 2007/08.

Figure 3.5 shows recent annual trends for the most commonly accessed agents as a percentage of all TOXBASE activity. Paracetamol has consistently been the source of most accesses. With the exception of citalopram, the proportion of TOXBASE activity relating to these agents appears to have decreased in the last year.

TABLE 3.3 Pharmaceutical agents: top telephone enquiries and TOXBASE sessions in 2008/09

Telephone		TOXBASE	
Agent	Number of enquiries	Agent	Number of sessions
Paracetamol	5,916	Paracetamol	81,446
Ibuprofen	3,176	Ibuprofen	46,516
Co-codamol	1,215	Salicylates*	24,087
Diazepam	1,171	Citalopram	21,541
Citalopram	1,138	Diazepam	21,254
Zopiclone	1,121	Zopiclone	17,177
Salicylates*	856	Fluoxetine	15,440
Fluoxetine	853	Co-codamol	12,710
Olanzapine	573	Tramadol	12,136
Mirtazapine	566	Amitriptyline	12,046

* Including aspirin.

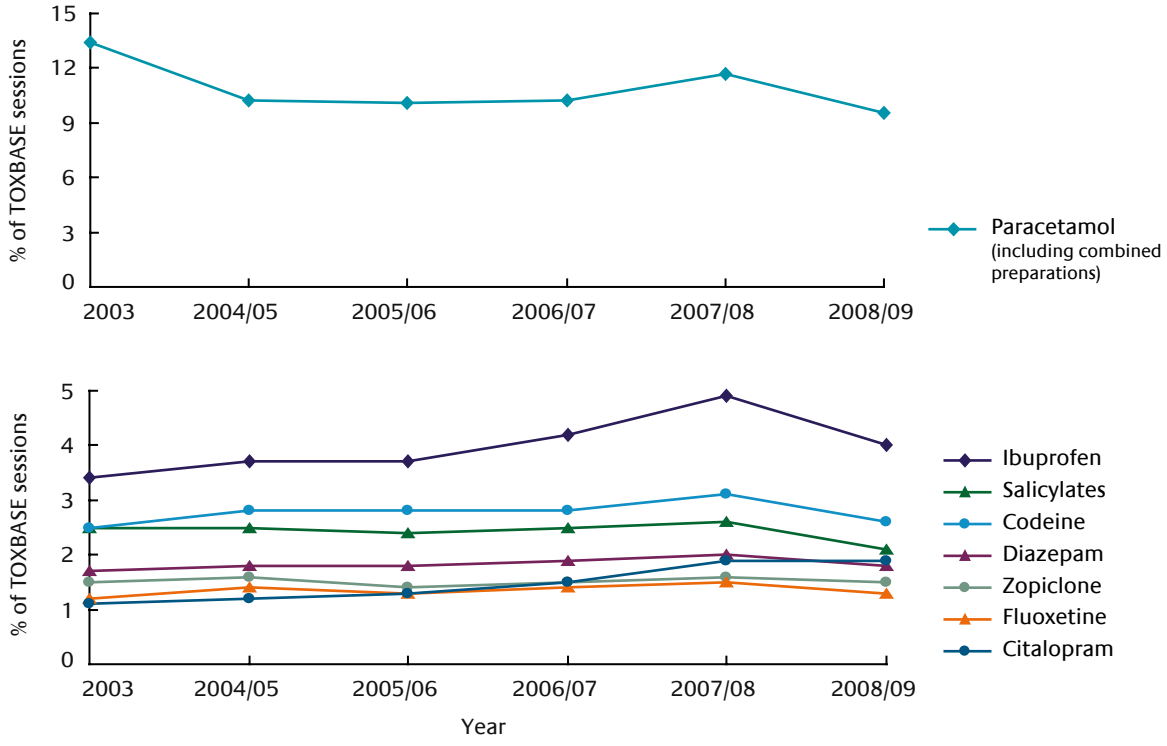


FIGURE 3.5 Percentage of TOXBASE sessions on common pharmaceutical agents from 2003–2008/09 (data for 2003 by calendar year; subsequent years by financial year)

3.2 Consultant Referrals

Since May 2005, the NPIS has operated a national consultant clinical toxicology on-call rota, with consultant clinical toxicologists from all four units sharing out-of-hours cover (18:00 to 09:00 Monday to Thursday, weekends and public holidays) for the UK and the Republic of Ireland. The rota, managed from NPIS Edinburgh, currently involves 11 consultants, all of whom are involved in the care for poisoned patients in their own local NHS poisons treatment facilities. A nationally agreed operating procedure is used to determine when specialists in poisons information should refer enquiries. For daytime cover, units are supported by consultants, academic clinical staff and specialist registrars (SpRs), usually under the supervision of local NPIS consultants, but units can provide cross-cover when required during the working week.

For telephone enquiries details of the original call are available on the UKPID central server for audit and checking, and the call reference number is sent to the relevant consultant for audit purposes. In addition, consultants keep contemporaneous local records of advice given, which are passed to the NPIS unit that took the original call for addition to the call record.

For the purposes of collating and auditing consultant referrals, NPIS Cardiff provides a monthly spreadsheet of enquiries that were referred to a consultant.

During 2008/09 there were 1,462 referrals to consultants, a 19% overall increase on 2007/08, resulting from a 36% increase in office-hours referrals, with out-of-hours referrals similar to 2007/08. Referral rates have been increasing since January 2008 (Figure 3.6). Consultant referrals by geographical origin and by each NPIS unit are shown in Tables 3.4 and 3.5. Consultant referrals were more common on weekdays than at weekends (Figure 3.7).

TABLE 3.4 Referrals by country in 2008/09, with 2007/08 for comparison

	Referrals in 2008/09		
Country	Number	Rate per 100,000 population*	Number of referrals in 2007/08
England	1,059	2.1	855
Scotland	278	5.4	213
Wales	86	2.9	100
Northern Ireland	15	0.8	19
Republic of Ireland	19	–	36
Other	5	–	9
Total	1,462	–	1,232

* Population data from Table 3.1.

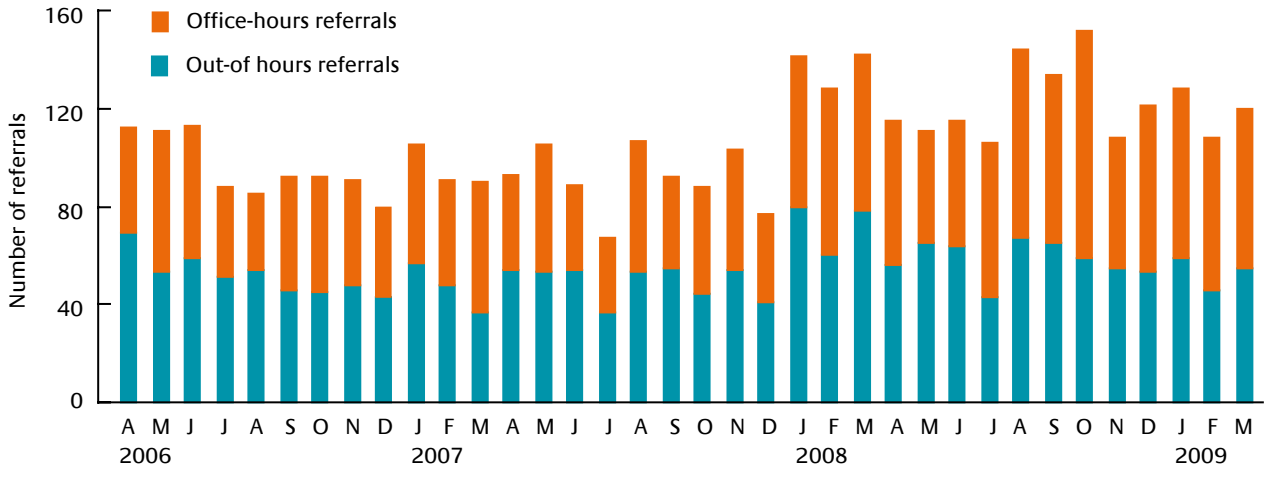


FIGURE 3.6 Monthly referrals (including out-of-hours and office-hours referrals)

TABLE 3.5 Referrals by referring NPIS unit in 2008/09

NPIS unit	Total number of referrals	Rate per 1,000 telephone enquiries
Birmingham	430	24.4
Cardiff	386	20.0
Edinburgh	244	168.0*
Newcastle	407	24.0
Total	1,462	26.3

* The high referral rate for Edinburgh may be associated with close working arrangements due to office layout.

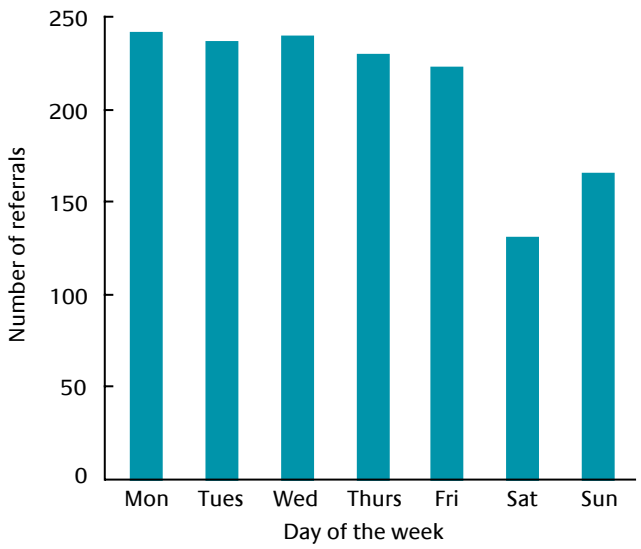


FIGURE 3.7 Number of referrals by day of the week in 2008/09

The vast majority of consultant referrals came from hospitals (1315; 89.9%), with fewer from GPs (105; 7.2%), NHS Direct/ NHS 24 (10; 0.7%) and others (32; 2.2%). Hospital referrals by department are shown in Table 3.6. There was an increase in referrals from intensive care units and high dependency units compared with previous years.

The products which were most often the subject of referrals to an NPIS consultant are shown in Table 3.7. While paracetamol, co-codamol, aspirin, amitriptyline and ibuprofen all figure in the top ten telephone enquiries, digoxin, ethylene glycol/ methanol and iron are the subject of less common enquiries to the NPIS but cause a disproportionately large number of serious poisonings. In 109 referrals the product taken (if any) was unknown and advice on differential diagnosis was required.

TABLE 3.6 NPIS consultant referrals from hospital by department in 2008/09 (where confirmed, 1,279 referrals)

Source	Number of referrals	% of referrals
Emergency departments	540	42.2
HDU/ITU	269	21.0
Medical	116	9.1
Paediatric	109	8.5
Admissions/short stay/ assessment	111	8.7
Pharmacy/MI	31	2.4
Surgery	14	1.1
Psychiatry	10	0.8
Others	79	6.2

TABLE 3.7 Products commonly causing referral to an NPIS consultant in 2008/09

Product	Number of referrals
Paracetamol	224
Methanol and glycols	79
Lithium	60
Digoxin	53
Co-codamol	54
Lead	52
Ibuprofen	49
Aspirin	42
Citalopram	39
Drug (unknown)	39
Cocaine	37
Diazepam	37

Analysis of the consultant referrals is used to improve the services offered by the NPIS. This includes additions and changes to TOXBASE entries that reflect user concerns. Any problems highlighted by such calls, or in cases that are difficult or complex, result in further discussion by email, telephone, or at one of the NPIS CPD meetings. This year CPD topics have included chemical terrorism, tricyclic antidepressant poisoning, acetylcysteine (the antidote for paracetamol) and nickel.

The NPIS national out-of-hours on-call consultant rota continues to work well. The number of referrals has increased this year, primarily due to additional referrals being made during office hours. Frequent contact by email and telephone, together with regular education meetings, helps to ensure consistency of advice. Information gleaned from analysis of the enquiries has assisted in identifying toxicological and methodological problems, improving the clarity of TOXBASE entries and informing the need for research in a number of areas.

3.3 UKTIS

The UK Teratology Information Service (UKTIS), previously the National Teratology Information Service (NTIS), was established as part of NPIS Newcastle in 1995. It advises on all aspects of drug and chemical toxicity in pregnancy. Information is provided to health care professionals via the telephone information service and also online through TOXBASE, which holds pregnancy summaries on maternal exposures to various drug and chemicals. To date, there are approximately 500 pregnancy monographs, 300 of which are available through TOXBASE.

UKTIS also provides advice on drug and chemical exposure during pregnancy on request to official organisations such as the Health Protection Agency, the Medicines and Healthcare products Regulatory Agency, the Commission for Human Medicines, the European Medicines Agency, the British National Formulary and the Neonatal Formulary.

UKTIS enquiries

During 2008/09 the UK Teratology Information Service received 4,248 telephone enquiries, a decrease of 5% over the figure for 2007/08. The distribution of telephone enquiries taken by UKTIS in England, Scotland, Wales and Northern Ireland is shown in Table 3.8. In addition, UKTIS also took 53 calls from outside the UK, the majority from the Republic of Ireland.

TABLE 3.8 Distribution of telephone enquiries to UKTIS in 2008/09

Country	Number of enquiries	% of enquiries	Rate per 100,000 population*
England	3,723	87.6	7.3
Scotland	252	5.9	4.9
Wales	183	4.3	6.2
Northern Ireland	37	0.9	2.1
Outside the UK, including the Republic of Ireland	53	1.3	–
Total	4,248	100	–

* Population data from Table 3.1.

Of the enquiries made, 3,130 (73.6%) sought information about maternal exposures. The majority (43%) were regarding pregnant women who had already been exposed to a drug or chemical, whilst 27% were pre-prescription enquiries. Hospital pharmacists (39%) remain the most frequent caller group, followed by GPs (21%), NHS Direct and NHS 24 staff (9%), consultants (7%) and community pharmacists (6%). Therapeutic use of medicines during pregnancy remains the largest category about which enquiries are made (89%) (Table 3.9).

TABLE 3.9 Telephone enquiries to UKTIS by type/ substance exposure in 2008/09

Type of exposure	Number of enquiries	% of enquiries
Therapeutic	3,758	88.5
Poisoning and overdose	276	6.5
Substance abuse	37	0.8
Complementary medicines	41	1.0
Occupational	54	1.3
Environmental	40	0.9
Other	42	1.0
Total	4,248	100

As in previous years, the top three substances involved in enquiries to UKTIS are paracetamol, fluoxetine and citalopram. Advice about maternal exposure to antidepressants and antipsychotics was also commonly requested.

Pregnancy summaries

To assist with enquiry answering, summary information on exposure during pregnancy has been written for a number of drugs and chemicals. The pregnancy summaries hosted by the TOXBASE website had approximately 34,000 hits during 2008/09, compared with 33,000 in 2007/08 (Figure 3.8).

This sustained TOXBASE activity has been encouraged by the addition of 65 new or updated pregnancy monographs to the website during 2008/09, an increase of 34% on the number produced last year. Monographs produced this year concerned maternal exposure to antibiotics, antimalarials, antipsychotics and antihypertensives. As previously, the most accessed monographs are those for antibiotics (5%), antiemetics (4%), antidepressants (5%) and antipsychotics (4%).

In 2008/09 the National Electronic Library for Medicines website began to host the summary sections of updated or new pregnancy monographs. These summaries are freely accessible via the internet with instructions to link to TOXBASE for access to the complete monographs. Alerts are sent to registered NHS users via email when any new or updated pregnancy summary is published.

Pregnancy follow up and outcomes

As few data exist on the potential fetotoxicity of drug and chemical exposures in pregnancy, UKTIS attempts to obtain pregnancy outcome data for enquiries meeting specific follow-up criteria (Table 3.10) and for which sufficient patient identification is provided at the time of the call. To date, UKTIS has good outcome information on over 10,000 exposed pregnancies.

Of the 4,248 enquiries to UKTIS in 2008/09, 965 (around 23%) will have been or will be followed up shortly after the

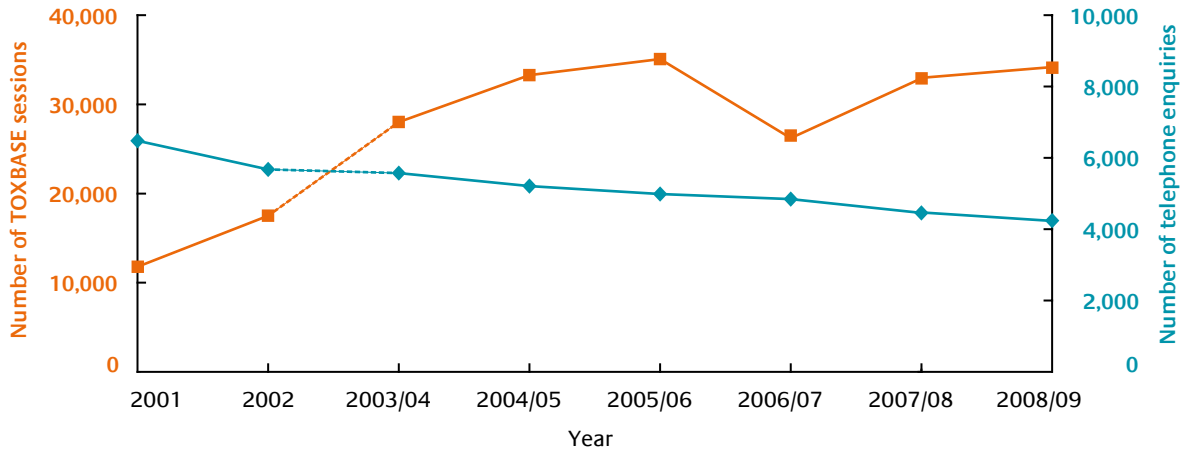


FIGURE 3.8 Telephone enquiries and TOXBASE sessions from 2001 to 2008/09 (data for 2001 and 2002 by calendar year; subsequent years by financial year)

TABLE 3.10 UKTIS prospective follow-up criteria for 2008/09
Poisoning/overdoses
Drugs under intensive surveillance by the MHRA ('black triangle' drugs)
Known or suspected human teratogens
Chemical exposures
Occupational or environmental exposures
Drugs of abuse

estimated date of delivery to obtain information on the pregnancy outcome. To date, 809 completed pregnancies, from enquiries made in 2008/09, have been followed up by UKTIS to obtain this information. Only 259 (32%) responses have been received so far. The remaining 156 pregnancies are still ongoing and UKTIS will attempt to follow these up after their estimated date of delivery.

Software development

During 2008/09 UKTIS has been updating its software for logging pregnancy enquiries and outcome data (Figure 3.9). This will allow more efficient logging, checking and follow up of pregnancy enquiries and the generation of automated reports on all exposures, improving surveillance for potential teratogens.

Currently UKTIS only has the capacity to follow up pregnancies which meet specific criteria. The improved software will allow UKTIS to follow up more of the prospective pregnancy enquiries, increasing the number of pregnancy outcomes on which information will be available. By following up all prospective enquiries made to UKTIS, there will be more information on pregnancy outcomes where there was exposure to non-teratogenic agents. This will provide the UKTIS with valuable 'control' pregnancy outcome data.

Retirement of Dr P R McElhatton

Dr Patricia McElhatton retired as Head of UKTIS in December 2008 after serving for 14 years. She was a co-founder and manager of the teratology service when it was based at Guys Hospital from 1983–1995. When the service moved to Newcastle upon Tyne in 1995 Dr McElhatton became its head.

In addition to her post as consultant teratologist, Dr McElhatton held a number of external positions, including Honorary Research Fellow at the Drug Safety Research Unit, Member of the Expert Advisory Panel to the National Focus on Chemical Incidents (now part of the HPA), Member of the Advisory Committee on Pesticides, Specialist Advisor to the National Collaborating Centre for Mental Health Guideline Development Group, and an Expert Member of the Advisory Committee on the Fetal Effects of Premature Alcohol Exposure.

We thank Dr McElhatton for her energy and foresight in establishing the service in Newcastle and for her major contribution to forming the European Teratology Network. We wish her well in her retirement.

3.4 Product Data Centre

Many accidental and deliberate poisonings occur from exposure to consumer products. In order for the NPIS to provide accurate advice on the treatment and management of such patients, reliable information on the composition of consumer products is necessary. Manufactures' product datasheets ('Material Data Safety Sheets', MSDS) also provide information for updating TOXBASE, enabling end-users to obtain specific advice on many common products.

NPIS Birmingham has the responsibility of providing product data on pesticides and herbicides to all the NPIS units and liaises with manufacturers to ensure that the data held are comprehensive and up-to-date. In 2008/09, 11,253 MSDS were added to the Product Data Centre, which now holds 48,917 MSDS, after removal of 12,000 out-of-date MSDS during 2008/09. The database is indexed by product name, manufacturer, date of MSDS, and the accession date for the MSDS to the database.

In practice, the most common search undertaken by NPIS staff of the Product Data Centre is by product name (full or partial name) and/or by manufacturer, which is the information usually available at the time of the NPIS enquiry. The date of the MSDS can differentiate between information on updated formulations. Where these fields are insufficient, the database is also fully text searchable, which enables searches to be made on any other criteria, e.g. active ingredients or use.

NPIS Birmingham has developed a database to support the Product Data Centre. This second database holds contact details for more than 2,500 companies and assists in the tracking of correspondence with companies. It also includes data on the current marketing status of products such as pesticides.

3.5 Current Awareness in Clinical Toxicology

To ensure that NPIS staff are equipped to answer enquiries on all aspects of human toxicology and that TOXBASE is kept up-to-date, access to current scientific literature is essential. With the assistance of the other NPIS units, NPIS Birmingham produces *Current Awareness in Clinical Toxicology* each month. Each issue lists some 300 citations, with around 10–12 key papers highlighted because of their importance to clinical management of poisoning. In the digital version, 80% of the citations have abstracts. Citations are selected using searches specially developed for the purpose run against Medline, Embase and Current Contents.

Current Awareness is distributed electronically or in hard copy to all NPIS units and can be used to produce citations for scientific papers employing any reference style. In addition, the American Academy of Clinical Toxicology (AACT), the European Association of Poisons Centres and Clinical Toxicologists (EAPCCT) and the Asia Pacific Association of Medical Toxicology (APAMT) distribute *Current Awareness* to their members worldwide.

All citations in *Current Awareness* are added to a literature database, which currently contains 64,000 references. The database is fully searchable using keywords, authors, journals and text words.

4 Quality Assurance

4.1 Telephone Information Service User Satisfaction

Since 2002, the NPIS units have collected information on user satisfaction with their telephone service, to establish if it is meeting the needs of their users and to identify and address any problems. The exercise conducted in 2008/09 was the sixth national exercise to be conducted, in accordance with the national contractual arrangements with the HPA.

Questionnaires were sent to a random sample of callers intended to represent at least 3% of all telephone enquiries in each unit. Edinburgh is required to survey a larger proportion in order to obtain an adequate sample size, because it takes fewer telephone enquiries.

Survey results

Data are presented for the period April 2008 to March 2009. Equivalent figures for 2007/08 are provided in parentheses for comparison. During 2008/09, the four NPIS units answered 56,165 enquiries [50,821] that involved a specific patient and sent out 2,239 [1,915] questionnaires, a 4% sample overall. There were 1,016 [869] responses with a response rate of 45% [44%], typical for surveys of this type.

The designation of responders reflects the users of the service. The only changes of note compared with 2007/08 have been a small reduction in responder numbers from NHS Direct/24 to 17% [21%] and an increase from ambulance personnel to 5.7% [2.9%]. Since 2002, more responses have been received from consultants and GPs and fewer from junior hospital doctors.

During 2008/09 there was a slight reduction in the proportion of callers accessing TOXBASE before ringing the service.

For those accessing TOXBASE first, the telephone enquiry was most often made because, as in previous years, they considered that there was too little information available on TOXBASE to answer their enquiry or that there were special circumstances. In recent years there has been a reduction in the number of respondents reporting that local protocols required them to make a telephone enquiry, and a reduction in the number making enquiries because information on TOXBASE appeared to conflict with other information.

However, there has been an increase in the proportion of respondents who considered that the information on TOXBASE was inadequate or that they could not interpret it.

For those who did not access TOXBASE first, the numbers who did not know what TOXBASE was fell to 22% [30%]. As for last year, most respondents in this group were GPs. Other common reasons were a lack of access to TOXBASE (28%) and difficulty logging on (16%). The numbers of people reporting that they have not been trained in TOXBASE use has fallen in recent years.

To assess the quality of the service as perceived by users, respondents were asked to what degree they agreed or disagreed with a series of statements relating to the particular enquiry they made to the NPIS. Although questions are framed differently, in the graphs high scores always indicate a high overall satisfaction rating. Respondents showed a high degree of satisfaction in the way they answered the various questions posed, especially those relating to the politeness of the staff, confidence in the reply, the relevance of the reply and the amount of information provided. Satisfaction scores were lowest with the speed of delivery of information and time taken to answer the telephone, although satisfaction scores were still more than 84% for both these questions. The rank order of satisfaction scores with each question was the same as that last year (Table 4.1).

Across all these items the quality of service has been maintained since 2002 and evidence of improvement in perceived quality has been observed for responses to the questions 'I had to wait a long time before the 'phone was answered by a specialist in poisons information', 'The information was given to me too quickly', and 'I was given too much information'.

There continues to be a very high rating of overall satisfaction with the service, defined as a score of 5 or 6 out of a total of 6, with an overall satisfaction score of 96.0% [95.0%] if non-responders are excluded from the denominator (Figure 4.1). There has been no appreciable change in the total figure since 2002, but the proportion of respondents scoring the service as 6/6 ('excellent') has increased from 66.8% in 2002 to 75.0% in 2008/09.

TABLE 4.1 Summary of user satisfaction scores

Rank	Question	Satisfaction score*
1	The person I spoke to was polite and pleasant (agree)	97.6
2	I had confidence in the reply I was given (agree)	95.8
3	The reply from the NPIS was relevant and useful (agree)	95.6
4	The information was sufficient for my needs (agree)	94.4
5	I was given too much information (disagree)	92.6
6	Once I got through to the specialist in poisons information the enquiry took too long to be dealt with (disagree)	91.6
7	I had to wait a long time before the 'phone was answered by a specialist in poisons Information (disagree)	89.3
8	The information was given to me too quickly (disagree)	84.1

* Satisfaction score is the proportion of respondents who agree (or disagree) 'completely' or 'a lot'.

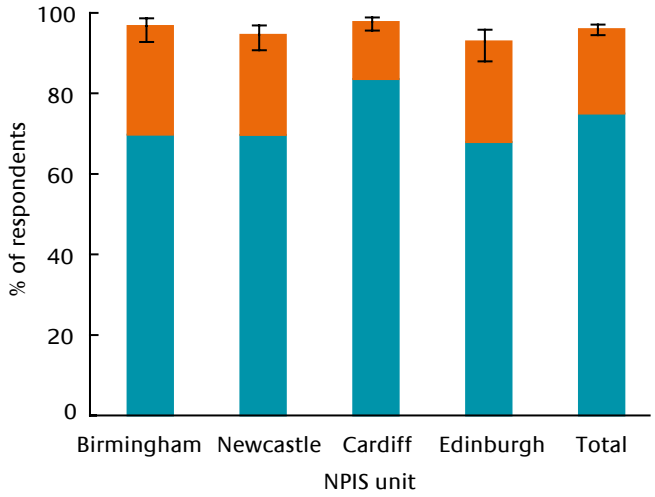


FIGURE 4.1 Overall quality scores (with 95% confidence intervals) for the NPIS units, expressed as a percentage of respondents scoring 5 (■) or 6 (■) out of a possible 6. Non-respondents are excluded from the denominator

Comparisons between units

Because of variations in response rate and limited sample size, small differences in results between the NPIS units may be difficult to interpret. Formal statistical comparisons have not been performed, although 95% confidence intervals are supplied for the overall quality scores.

The patterns of enquiries by professional grouping are broadly similar between the units, although, as in previous years, a higher proportion of respondents to the NPIS Edinburgh were general practitioners and a lower proportion were from NHS 24.

All units had a satisfaction rating of over 90% for all the questions listed in Table 4.4, except for satisfaction about waiting times (Newcastle and Birmingham), the time taken to handle enquiries once answered (Edinburgh), information being provided too quickly (all units), and being given too much information (Newcastle and Edinburgh).

The proportions of respondents indicating high overall satisfaction scores were above 90% for all units (Figure 4.2).

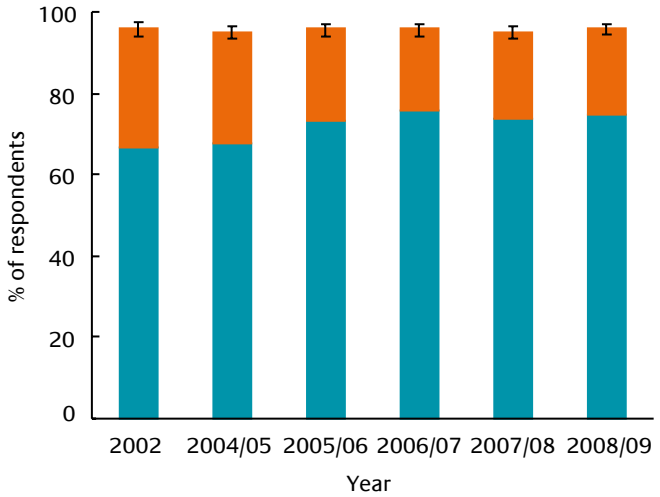


FIGURE 4.2 Overall quality scores (with 95% confidence intervals) for 2002–2008/09 for the NPIS units, expressed as a percentage of respondents scoring 5 (■) or 6 (■) out of a possible 6

Summary

As in previous years, the overall response rate is typical of surveys of this type.

Respondents continue to have a high level of satisfaction with the service, both overall and for each of the specific issues enquired about.

Satisfaction was slightly lower relating to information being delivered too quickly, the time taken to answer the telephone and too much information being provided, but responses to all of these have improved since 2002.

No specific issues were identified where there has been a reduction in satisfaction with time.

Issues to address

NPIS staff should take particular care not to give excessive amounts of information and to provide information at an appropriate pace to meet the enquirer's needs.

Individual NPIS units should consider their own data in detail, including free text comments, since these are often very informative.

NPIS should continue to raise the profile of TOXBASE, particularly in the primary care setting, and encourage its widespread availability.

The survey exercise should be repeated regularly with adequate numbers of questionnaires sent out by all units to achieve meaningful results.

4.2 Consultant Referrals Quality Assurance

Since 1 January 2009, a quality assurance exercise has been conducted on all consultant enquiries. Two questionnaires have been distributed, one to callers who spoke to a consultant and one to the consultant taking the enquiry, to assess the effectiveness of the system.

Response from enquirers referred to NPIS consultants

There were 32 replies received to the end of March 2009 (from 11 consultants, 18 junior doctors, 2 general practitioners and 1 'other'). All 32 respondents had a clear recollection of the call – 13 had asked to speak to a consultant and 19 spoke to a consultant because the specialist in poisons information advised it.

Respondents were asked how long it took before they spoke to the consultant and 28 replies gave a time of less than 1 hour, of which 6 stated less than 5 minutes, 1 less than 10, 3 less than 15, and 11 less than 30 minutes. No time of more than 1 hour was given. No respondent said that the delay affected patient care.

Enquirer satisfaction scores for the service they had received from the consultant referral were high (Table 4.2).

TABLE 4.2 Summary of enquirer satisfaction scores

Rank	Question	Satisfaction score*
1	The information was given to me too quickly (disagree)	90.6
1	The person I spoke to was polite and pleasant (agree)	90.6
1	I was given too much information (disagree)	90.6
4	The advice from the NPIS consultant was relevant and useful (agree)	87.5
4	I had confidence in the advice I was given (agree)	87.5
6	The information was sufficient for my needs (agree)	81.3

* Satisfaction score is the proportion of respondents who agree (or disagree) 'completely' or 'a lot'.

Response from NPIS consultants who have taken clinician referrals

There were 78 replies received to the end of March 2009. In all 78 cases the consultant had a clear recollection of the call. In 24 cases the caller asked to speak to a consultant; in 19 cases it was the consultant's decision after discussion with the specialist in poisons information; in 27 cases the SPI suggested it; in 5 cases the consultant could not remember.

Consultants were reported to contact enquirers rapidly; in 59 cases this was within 5 minutes. The interval was 5–15 minutes in 12 cases, 15–30 minutes in 3 cases, and 30–60 minutes in 1 further case. Reasons for delay in reaching the caller included time taken to research a substance before answering and delays in reaching the doctor at the hospital.

Consultants were generally happy with the appropriateness of referral, the way information was presented to them, and the service they had provided (Table 4.3).

Consultants were asked to grade the service they provided on a scale of 1–6. The average was 5.4, which compares well with the average of 5.3 as assigned by callers for the overall quality of the service.

TABLE 4.3 Summary of NPIS consultant satisfaction scores

Rank	Question	Satisfaction score*
1	The information I provided appeared to be understood (agree)	92.3
2	The information from the enquirer was well presented by the SPI (agree)	88.5
2	The person I spoke to was polite and pleasant (agree)	88.5
4	The referral to an NPIS consultant was appropriate (agree)	84.6
5	I obtained additional material from the enquirer that they had not initially reported or been asked (agree)	32.1

* Satisfaction score is the proportion of respondents who agree 'completely' or 'a lot'.

Summary

Callers and consultants all rated the service provided highly. Most callers thought the advice was relevant, useful and sufficient and they had confidence in the reply. Consultants generally thought the referrals were appropriate and the information was well presented by the SPIs. On occasion, they obtained additional important information while speaking to the caller. Both callers and consultants were considered polite and pleasant by the other. As all responses were anonymised it is not possible to link enquirer and NPIS consultant responses and assess their correlation.

This survey did not include NPIS specialists in poisons information, and it was therefore not possible to capture reasons for variability in times of response to the enquirer by the NPIS consultant. This is being addressed in ongoing work.

Some NPIS consultants felt that it would improve the service for them to be connected directly via their mobile telephones to enquirers while they were still connected to the NPIS unit, and thus avoid delays that arise in contacting busy clinical staff. While not appropriate for all consultant referrals, a trial of this approach is under way.

It should be noted that owing to the small numbers involved, these data should be interpreted cautiously. Audit of NPIS consultant referrals will continue.

4.3 TOXBASE User Satisfaction

One concern that the NPIS has had in previous years has been the difficulty in obtaining formal quality assurance on TOXBASE from users. To that end an online quality assurance questionnaire was placed on TOXBASE on 3 March 2009.

The system was designed to ask users automatically to complete and submit short quality assurance forms during their online session. Invitations were initially set to be generated between every two and every six database logins. This number was adjusted until a return rate of around four to six per day was achieved.

A total of 231 returns were received between 3 and 31 March. The responders were NHS Direct/NHS 24 staff (100), nurses (46), junior hospital doctors (36), pharmacists (13), hospital consultants (9) and general practitioners (3). The remaining 24 indicated another designation – these included middle grade doctors, biomedical scientists and 9 ambulance staff/ paramedics.

On type of enquiry, 102 users reported that they primarily used TOXBASE for 'routine enquiries', 39 for 'complex enquiries' and 90 for a 'triage decision'. On frequency of use, 113 reported using TOXBASE daily, 84 weekly and 34 accessed it only occasionally.

Users were then asked to grade a series of statements on a scale of 1 to 6 where 1 = disagree completely and 6 = agree completely. Satisfaction scores were high (Table 4.4).

TABLE 4.4 Summary of user satisfaction scores

Rank	Question	Satisfaction score*
1	I had confidence in the information for my query	91.4
2	Logging onto the database was easy	78.8
3	Finding the information I required was easy	72.3

* Satisfaction score is the proportion of respondents who agree 'completely' or 'a lot'.

When asked to indicate their overall satisfaction with TOXBASE on a scale of 1 to 6 where 1 = poor and 6 = excellent, 198 (86%) scored either 5 or 6.

Users provided additional comments about several issues. Predominant amongst these were problems with IT and with searching the database. IT problems mostly appeared to be at the user's interface.

In response to concerns regarding the search facility, the TOXBASE help facility and frequently asked questions section were updated. In addition, improvements to the search facility were implemented. Comments and suggestions were also fed back to the TOXBASE Editing Group and the NPIS Clinical Standards Group.

Summary

The majority of respondents reported that use of TOXBASE was easy and that it provided the information they required.

The questionnaire has improved feedback to the NPIS and the TOXBASE Editing Group and has facilitated improvements in the search facility.

Further quality assurance returns on TOXBASE will be used to monitor progress and feed back to the service on these issues and aspects of data content and presentation.

4.4 UKTIS User Satisfaction

A random sample of 240 (5.6%) enquiries, 20 per month, made directly to UKTIS was selected for quality assurance monitoring. Questionnaires were sent to enquirers one to four weeks after each enquiry. As of May 2009, 146 (60%) responses had been received.

The assessment of overall quality is shown in Figure 4.3. Of all respondents, 129 rated the service as 'excellent' or 'very good', 15 rated it as good and only 1 person rated the service as 'average'. No respondent rated the service as 'below average' or 'poor'.

Twelve of the respondents made helpful comments on how the service could be improved. Common themes were increased advertising of the service, better use of electronic communication options, increased information on TOXBASE with more frequent updating of monographs, and extension of core opening times.

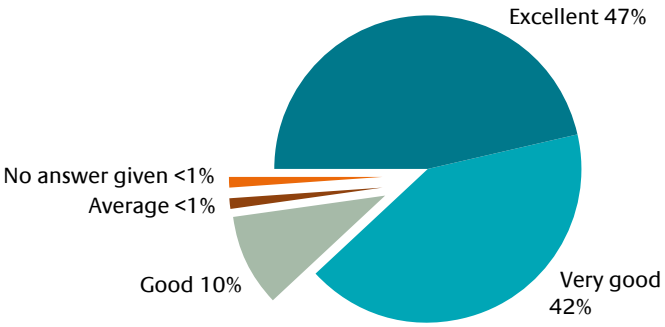


FIGURE 4.3 Overall satisfaction with the information received from UKTIS

5 Poisonings of Interest in 2008/09

5.1 Drugs of Misuse

Surveillance of telephone enquiries and accesses to TOXBASE relating to drugs of misuse is important because of the considerable public health implications associated with the toxic effects of these agents. The NPIS is able to provide time trends in activity relating to individual agents, presented as proportions of the total numbers of calls received or accesses made each year. This is necessary for accurate interpretation, because the total number of TOXBASE accesses has been increasing and telephone enquiries stabilising in recent years.

Heroin and methadone

Strong opiates like heroin or methadone are commonly implicated in deaths relating to drugs of misuse, so monitoring NPIS data relating to these agents is especially important. These demonstrate a reduction with time in the proportion of telephone enquiries that relate to heroin. However, the proportion of TOXBASE activity has changed very little. There has also been little recent change in the proportion of telephone or TOXBASE activity relating to methadone.

Cocaine

Last year we commented on increases in the proportion of TOXBASE and telephone activity relating to cocaine in recent years. This is of concern because of the serious toxic effects of this drug. The finding was consistent with data from other sources, demonstrating an increase in the frequency of hospital admissions and mortality associated with cocaine*. During 2008/09, the proportion of telephone activity relating to cocaine has again increased slightly, and cocaine remains the most common drug of misuse involved in telephone enquiries. Over the same time there has been a small reduction in the proportion of TOXBASE activity relating to the drug. Nevertheless TOXBASE accesses for cocaine are now almost as common as those for MDMA (ecstasy).

Other stimulants

Last year we reported increases in the proportions of TOXBASE and telephone activity relating to methylamphetamine and benzylpiperazine. During 2008/09 telephone activity has risen further for both agents. TOXBASE activity has also increased for benzylpiperazine, while activity for methylamphetamine has fallen. Enquiries relating to both of these drugs remain uncommon.

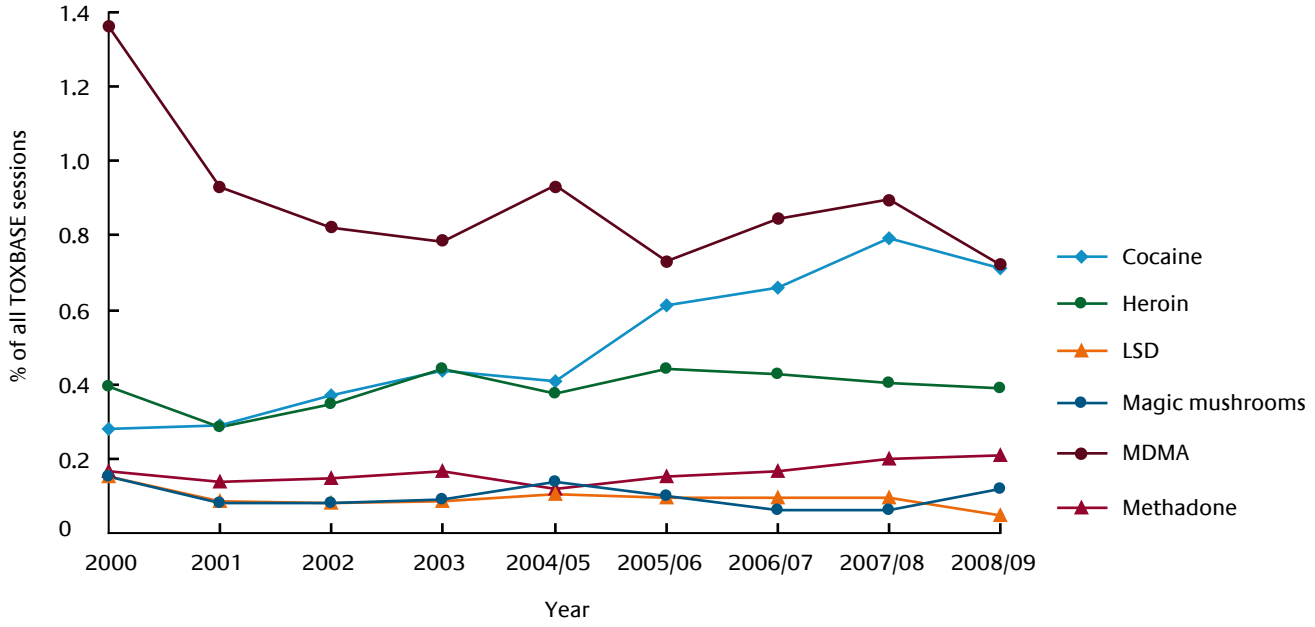
The previously reported reduction in telephone workload relating to MDMA and amphetamines has continued; a reduction in TOXBASE workload has also been observed for these agents over the last year.

Of interest, during 2008/09 the NPIS received a small number of enquiries relating to newer stimulants including 17 enquiries relating to trifluoromethylphenylpiperazine (TFMPP) and 5 about dimethoxybromophenethylamine (2C-B). The NPIS will continue to monitor enquiry data about newer recreational drugs.

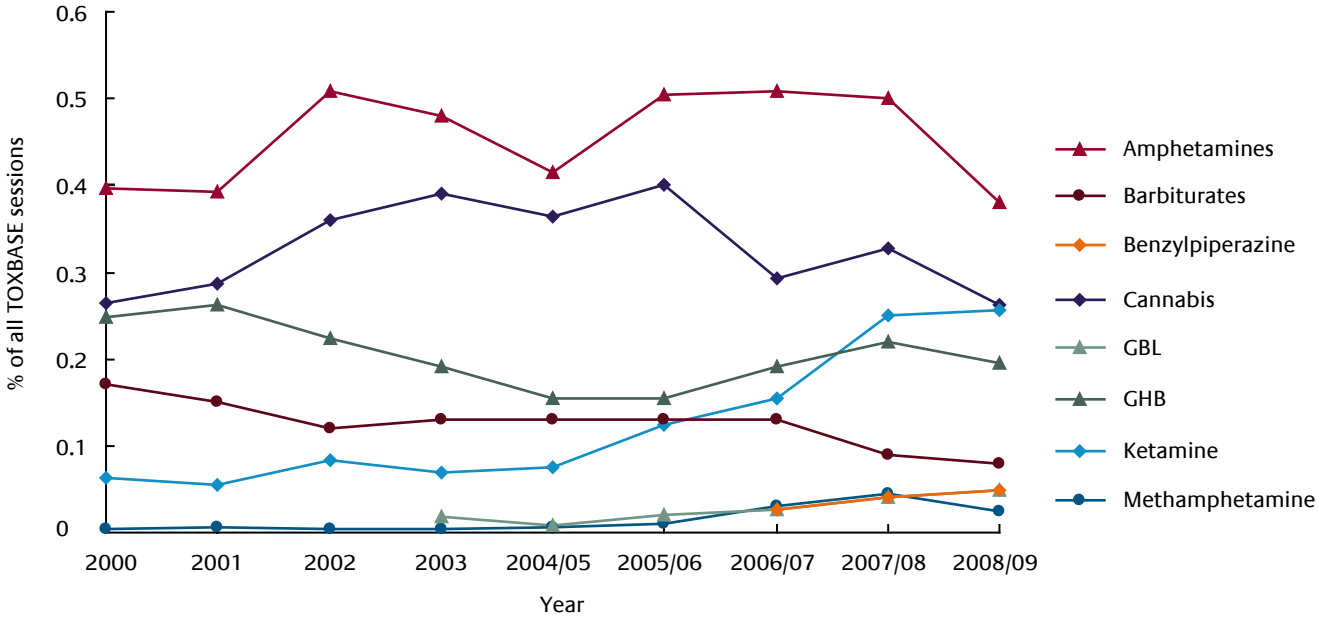
Others

Telephone activity relating to gamma hydroxybutyrate (GHB) or gammabutyrolactone (GBL) has increased in the last two years and an increase has also been seen in TOXBASE activity for GBL, while activity relating to GHB has fallen slightly. The recent downward trend in TOXBASE and telephone workload relating to cannabis has been maintained during 2008/09. There has also been little change in the annual statistics relating to LSD or hallucinogenic ('magic') mushrooms in recent years.

* Schifano F and Corkery J. Cocaine/crack cocaine consumption, treatment demand, seizures, related offences, prices, average purity levels and deaths in the UK 1990–2004. J Psychopharmacol 2008; 22: 71–70.

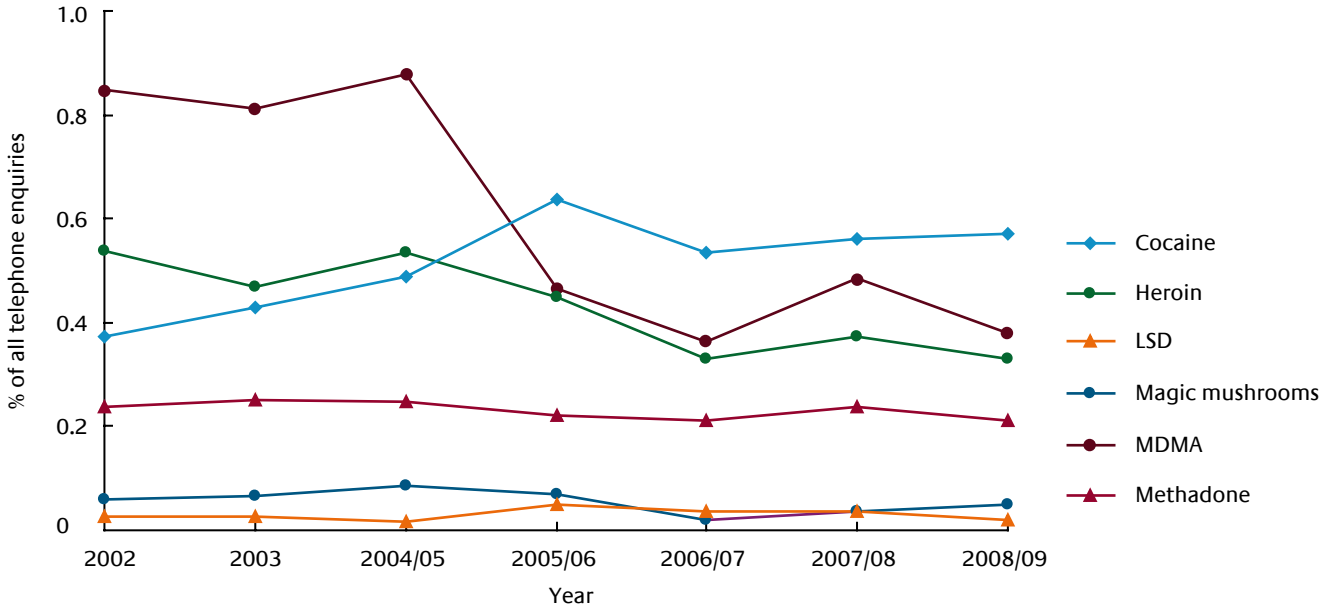


(a) Class A drugs of misuse

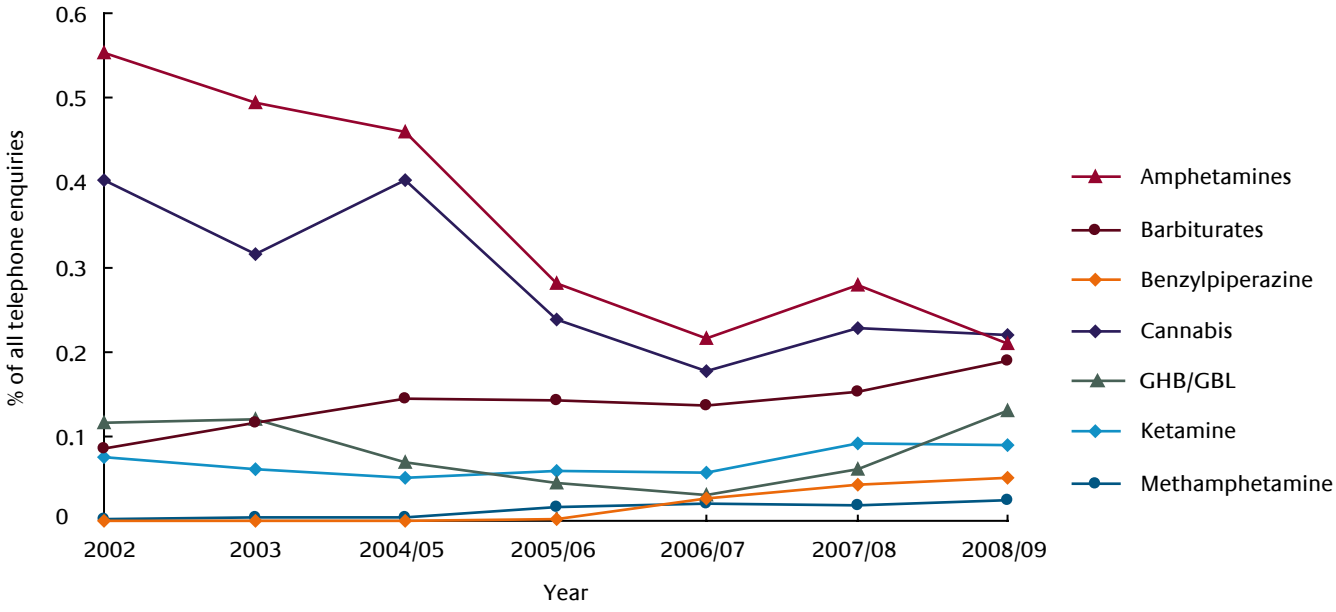


(b) Other drugs of misuse

FIGURE 5.1 Proportion of TOXBASE sessions relating to specific drugs of misuse (data for 2000–2003 by calendar year; subsequent years by financial year)



(a) Class A drugs of misuse



(b) Other drugs of misuse

FIGURE 5.2 Proportion of NPIS telephone enquiries relating to specific drugs of misuse (data for 2000–2003 by calendar year; subsequent years by financial year)

5.2 Telephone Enquiries Involving Children and Young People

The NPIS received 25,087 telephone enquiries relating to children and young people (those aged 0–19 years). These enquiries are an indication of the types of poisonings suspected in the age group and are not a measure of incidence.

The distribution by age and gender is shown in Figure 5.3; in line with previous UK and international experience, more males than females are involved in enquiries concerning the under 10s, while more females are involved in those for 10–19 year olds.

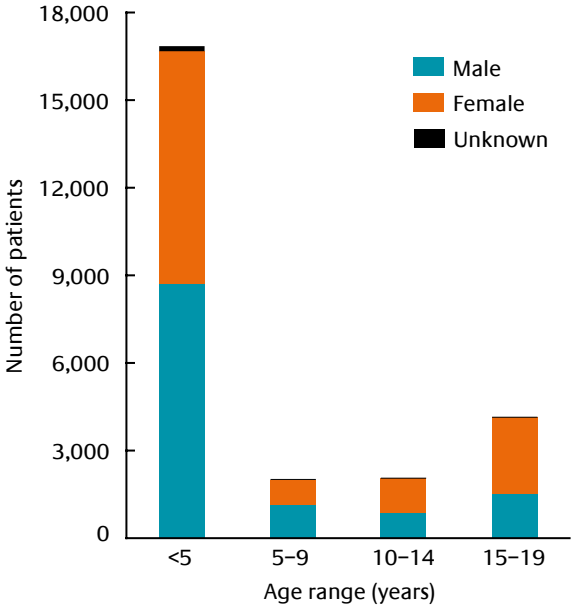


FIGURE 5.3 Age groups of patients aged 0–19 years in telephone enquiries in 2008/09

For those aged 0–9 years, for whom there were 18,864 telephone enquiries, 92% were accidental exposures and 7.3% medication errors. For those aged 10–19 years, with 6,223 enquiries, 53% were intentional, 25% accidental and 13% medication errors (see Table 5.1).

The agents most commonly involved are shown in Table 5.2.

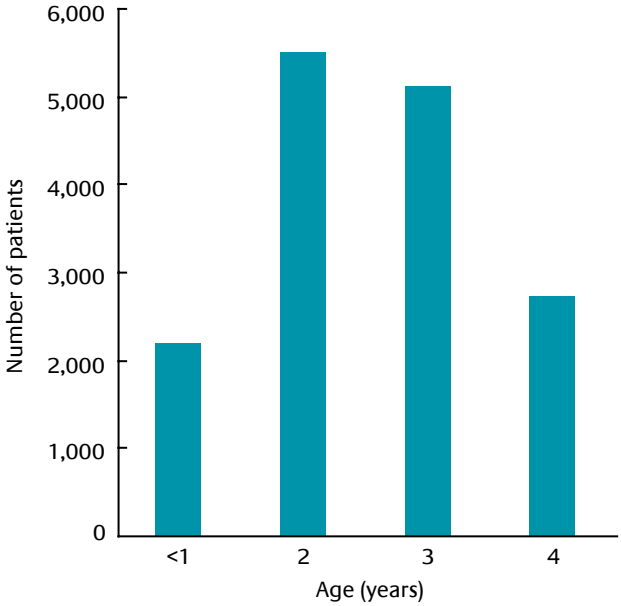


FIGURE 5.4 Age of patients aged 0–4 years in telephone enquiries in 2008/09

TABLE 5.1 Reason for telephone enquiry for 0–19 year olds in 2008/09

	0–9 year olds		10–19 year olds	
Circumstance	**Number**	**%**	**Number**	**%**
Accidental	17,277	91.6	1,587	25.5
Intentional	47	0.2	3,288	52.8
Recreational abuse	0	0.0	254	4.1
Medication error	1,373	7.3	785	12.6
Other	99	0.5	147	2.3
Unknown	68	0.4	162	2.6
Total	18,864		6,223	

For those aged 0–9 years, 98% had no or minor symptoms, 0.7% moderate symptoms, and 0.12% severe symptoms (no agent predominated). For those aged 10–19 years, 91% had no symptoms or minor symptoms, 4.0% moderate symptoms, and 1.3% severe symptoms (of these 81 enquiries, 17 concerned paracetamol and 7 co-codamol).

TABLE 5.2 Agents most commonly involved in telephone enquiries for 0–19 year olds in 2008/09

0–9 year olds		10–19 year olds	
Agent	**Number of enquiries**	**Agent**	**Number of enquiries**
Ibuprofen	409	Paracetamol	1,411
Paracetamol	347	Ibuprofen	460
Silica gel	326	Alcohol	216
Calpol Infant	267	Cocodamol	197
Sudocrem	224	Fluoxetine	141
Glow Stick	163	Aspirin	135
Olbas Oil	158	Citalopram	86
Microgynon	127	Ferrous sulphate	82
Bold 2 In 1 Liquitab	126	Mefenamic acid	75
Bassetts Soft&Chewy Vitamins	105	Drug (unknown)	70
Amoxicillin	95	Ecstasy	66
Karvol Decongestant Capsules	91	Risperidone	64
Ferrous sulphate	89	Codydramol	63
White spirit	84	Diazepam	61
Mushroom (unknown)	81	Diclofenac	57
Microgynon 30	78	Concerta Xl	52
Ariel Liquitab	70	Tramadol	49
Diclofenac	68	Zopiclone	49
Airwick Plug In Airfreshener	67	Anadin Extra	48
Karvol	65	Nurofen	47

Summary

Paracetamol and ibuprofen were the agents about which most enquiries were made in both age groups. In children aged 0–9 years household products were common, but in those aged 10–19 years, apart from alcohol, the commonest agents were all drugs. For those aged 0–9 years the vast majority (92%) were accidental exposures, but for those aged 10–19 years intentional ingestions were most common (53%). Medication errors were responsible for 7.3% and 12.6% of enquiries, respectively, in the two age groups described.

5.3 Telephone Enquiries Involving Older People

With larger numbers of the population living to a greater age, but sometimes with increasing ill health, impaired sight or memory problems, poisoning in these age groups is important. The NPIS received 6,142 telephone enquiries relating to older people (those over 60 years of age). These enquiries are an indication of the types of poisonings suspected in the age group and are not a measure of incidence.

The distribution by age and gender is shown in Figure 5.5; more females than males are involved in all age groups. Of these exposures, 3,002 (49%) were considered to be medication errors, 2,012 accidental exposures, and 790 deliberate, with 338 other or unknown.

The agents most commonly involved are shown in Table 5.3.

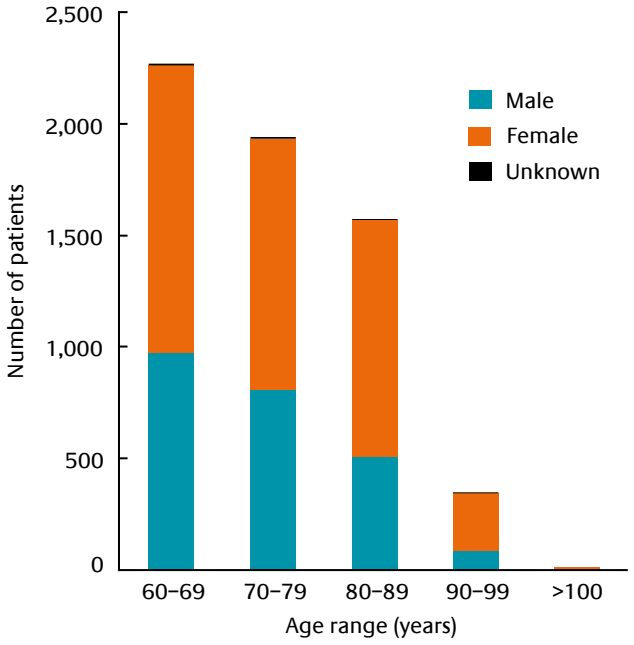


FIGURE 5.5 Age groups of patients aged 60 years and over in telephone enquiries in 2008/09

TABLE 5.3 Agents commonly involved in telephone enquiries in those aged 60 years and over in 2008/09

Agent	Number of telephone enquiries
Paracetamol	375
Digoxin	189
Aspirin	188
Spiriva	177
Ramipril	132
Zopiclone	131
Co-codamol	130
Atenolol	123
Amlodipine	115
Simvastatin	111

For 5,574 (91%) of the enquiries there were no or minor symptoms, 236 moderate, 114 severe and 218 were coded as not applicable or not known. The enquiries most frequently considered severe involved digoxin (28) and paracetamol (17).

Of the 3,002 medication errors for this age group, the most common involved ingestion of a tiotropium (Spiriva) capsule (206; 6.9%), which is intended for use in an inhaler but is similar in appearance to oral capsules. Few adverse effects were seen with these ingestions. Other common drugs for which medication errors occurred were paracetamol (174), digoxin (117), ramipril (103) and aspirin (101).

Summary

More females than males are involved in poisoning enquiries in older people. This may in part reflect the population demographic in this age group. Medication errors were relatively common as a cause of enquiry, and while generally patients came to little harm, these were occasionally potentially serious. Most exposures involved frequently used drugs in this age group.

5.4 Medication Errors

The NPIS receives telephone enquiries relating to suspected medication errors as a cause of potential overdose and details of these are recorded on the UK Poison Information Database (UKPID).

Medication errors are a cause for concern for those involved and are a potential source of serious harm to the patient. They may occur as a result of a patient being given the wrong dose of the intended medicine, the correct dose of medicine at incorrect intervals or via the wrong route, or the wrong medicine(s) entirely. Errors may occur at any point between deciding to administer a particular dose of medicine, the identification and dispensing of the medication, and its administration to the patient. Reasons for receiving the wrong medicine also include misidentification of the patient, for example administering another patient's medicine by accident, misidentification of the medicine or dose, and incorrectly written or unclear prescriptions.

This year 9,234 enquires were made concerning medication errors. This represents 16.6% of all telephone enquiries made to the NPIS, an increase both in the total number and in the proportion of enquiries concerning medication errors since last year (6,946 enquiries, 13.2%).

Over a third of these enquiries involved children under 5 years old or adults over 70 years. See Figure 5.6.

The proportion of enquiries received by the NPIS concerning medication errors increases with age; only 6% of enquiries concerning children under 5 years are about suspected medication errors, while this increases to over a quarter in patients aged 50–59 years old and over a half for patients over the age of 70 (Figure 5.7). Females were more commonly involved (58%) and this was out of proportion to the sex ratio for general enquiries to the NPIS, where specified (52% female, 46% male).

The vast majority of medication errors occurred at home (8,218 or 89%). However, some occurred in hospitals (4%), nursing homes (4%), GP surgeries (1%) and prisons (1%). The enquiries originated from hospitals (18%), NHS Direct or NHS 24 (26%), primary care settings (42%), ambulance services (6%), and community pharmacists (3%).

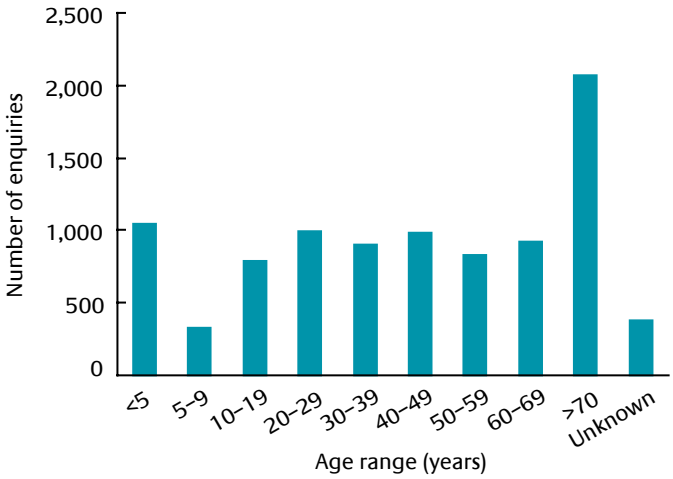


FIGURE 5.6 Number of medication errors resulting in telephone enquiries by age in 2008/09

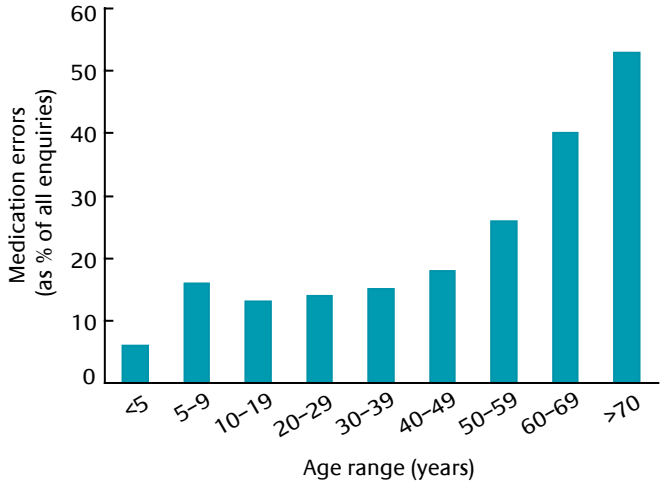


FIGURE 5.7 Medication errors as a percentage of the total number of telephone enquiries for each age group in 2008/09

Drugs used as analgesics or for joint disorders (30%), central nervous system drugs (22%) and cardiovascular drugs (16%) were most commonly implicated. Of interest, 6% resulted from dental pain leading to self-administration of excess analgesia. This is a particular concern as it may cause excess intake of paracetamol, which can cause severe liver dysfunction (Figure 5.8). The route of exposure was ingestion in 93% of cases but 3% involved injections and 1% eye exposure.

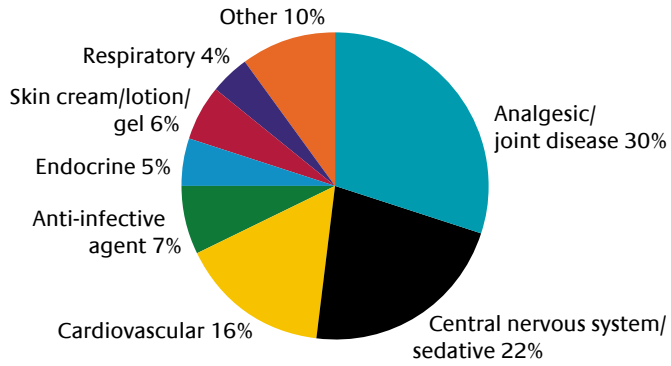


FIGURE 5.8 Pharmaceuticals involved in telephone enquiries on medication errors by drug class in 2008/09

Of the 78 incidents that occurred in GP surgeries, 55 (71%) involved vaccines and 28 of these occurred in children under 5 years old. The vast majority of vaccination errors in GP surgeries related to excess vaccination, due to vaccines being repeated inadvertently, the wrong volume being administered or two different vaccines containing the same active ingredient being administered. In six cases the adult formulation of a vaccine had been given to a child.

Incidents reported from hospitals involved a wider range of medicines, both ingested (57%) and injected (39%). Causes of error included the administration of medicines at the wrong dose, time interval or route.

Thirty-four per cent of medication errors involved a single acute exposure. A further 36% occurred where the substance was already being taken as a long-term medicine. Thirty per cent involved multiple or prolonged exposures.

Fortunately most medication errors did not result in serious harm, with 81% of patients having no features of poisoning and a further 15% developing only mild features. Only 1% developed moderate features and only 22 enquiries (0.23%) had severe features. These involved 20 patients, ten over 70 years of age and two children.

These data demonstrate the importance of medication errors and their contribution to the workload of the NPIS, especially in older age groups, where medication errors result in more telephone contacts with the NPIS than does intentional self-poisoning. Those who are responsible for prescribing, administering and taking medicines must be aware of the potential for harm and should be vigilant in ensuring the safe and effective use of medicines.

5.5 Pesticides

Exposures to five pesticide groups about which the NPIS received enquiries for the years 2005/06 to 2008/09 are shown in Figure 5.9. Total pesticide enquiries account for only about 1.9% of the NPIS workload, with pyrethroids the most common source of exposure. There were fewer enquiries regarding paraquat in 2008/09 as home and garden preparations have not been marketed since May 2005 and paraquat was withdrawn from sale completely in the UK in July 2008. Branded products that used to contain paraquat remain on sale, but with different active herbicide ingredients.

The poisoning severity score (PSS), where reported for each group of pesticides, is compared in Figure 5.10, with most incidents in 2008/09 resulting in no symptoms or only mild symptoms.

Of the 390 exposures due to carbamates, glyphosate, paraquat, pyrethroids and organophosphorus insecticides reported in 2008/09, only seven were graded PSS 3 (severe). Three were due to organophosphorus insecticides (pirimiphos methyl, fenthion and probably diazinon), two to glyphosate (in one case glyphosate was co-ingested with a substantial amount of aspirin) and two to paraquat (in one case the toxicity was due predominantly to paracetamol).

Pesticides continue to account for only a small percentage of the NPIS workload. Most exposures result in only mild symptoms or the patient remains asymptomatic.

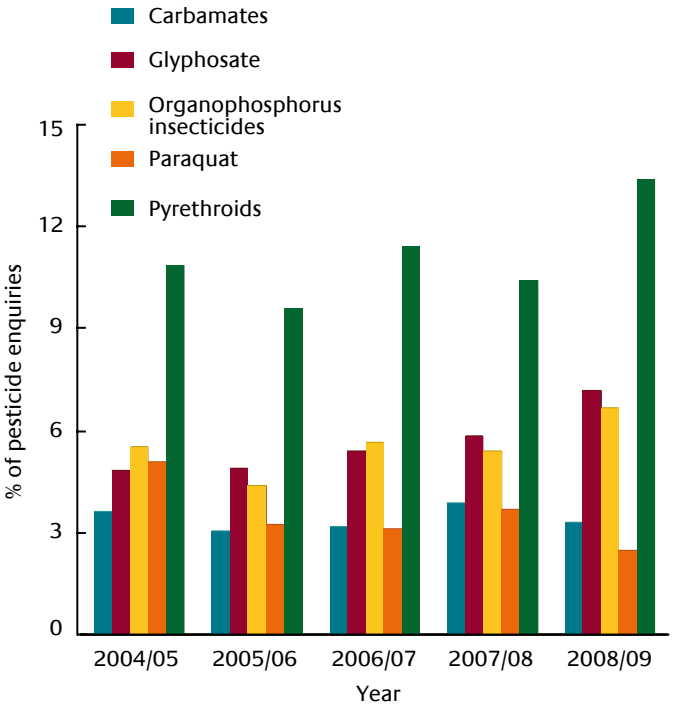


FIGURE 5.9 Five pesticide groups involved in telephone enquiries as a percentage of all pesticide enquiries from 2004/05 to 2008/09

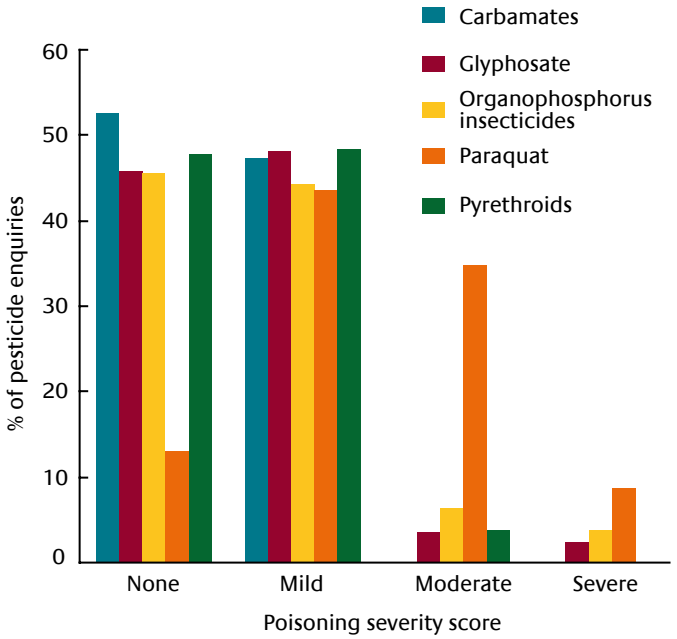


FIGURE 5.10 Poisoning severity scores (where reported) as a percentage of all scores for that product exposure in five pesticide groups from telephone enquiries in 2008/09

5.6 Methanol and Glycols

Methanol and glycols (ethylene and diethylene glycols) are contained in many antifreeze and screenwash preparations. We are again focusing on these chemicals because they are an important cause of morbidity and mortality after the ingestion of even small amounts of pure chemical. These chemicals are also a common reason for referral to NPIS consultants.

In recognition of the toxicity of these agents, the TOXBASE entry emphasises the importance of prompt administration of appropriate antidotes, either fomepizole or ethanol, to inhibit the metabolism of methanol, ethylene or diethylene glycols in cases of suspected poisoning with these chemicals.

During 2008/09 the NPIS received 386 telephone enquiries on products containing methanol and ethylene and diethylene glycols. In addition, there were 102 telephone enquiries relating to antifreeze and 24 enquiries involving screenwash preparations where the ingredients were unknown. As would be expected, most exposures to these products (459 of 512, 89.6%) involved ingestion, with occasional enquiries relating to dermal (17) or eye (14) exposure or inhalation (17). Exposure occurred in the home in 89% of cases, while 3.5% occurred at work. At the time of the enquiry, the poisoning severity score (PSS) was available in 478 cases and was severe in 49, moderate in 46, and minor in 142 patients.

Table 5.4 summarises the age distribution for the individual chemicals. Most exposures occurred in those aged between 20 and 49 years and were thought to be accidental in 242 (47.3%) of the cases. Overall the ratio of males to females was 1.53 : 1 (the gender was known in 506 of 512 cases), which may be due to greater use of these substances by men.

The NPIS has supported attempts to address problems encountered in the clinical management of toxic alcohol poisoning. During 2008/09, 24-hour availability of assays for methanol, ethylene and diethylene glycols became available from the Toxicology Laboratory at the City Hospital, Birmingham. The NPIS also brokered arrangements to ensure the ready availability of fomepizole so that patients could be treated with an antidote in a timely manner before the onset of complications.

Toxic alcohol poisoning continues to be a concern to clinicians contacting the NPIS and further audits in this area will be conducted to assist NPIS staff in providing optimal management advice.

TABLE 5.4 Age of patients exposed to methanol and glycols and to antifreeze and screenwash formulations where the ingredients were unknown, in 2008/09

Patient age (years)	Methanol	Ethylene glycol	Diethylene glycol	Antifreeze	Screenwash
<5	28	9	1	1	7
5–9	6	0	0	1	1
10–19	19	21	0	6	1
20–29	21	47	0	23	2
30–39	19	36	0	21	5
40–49	19	43	1	26	2
50–59	13	21	0	12	1
60–69	21	11	1	1	4
>70	30	4	0	9	0
Unknown	5	9	1	2	1
Total	181	201	4	102	24

5.7 Co-proxamol

In 2005 the UK Medicines and Healthcare products Regulatory Agency (MHRA) initiated a phased withdrawal of co-proxamol (paracetamol 325 mg and dextropropoxyphene 32.5%). This was partly in response to concern from the NPIS as to the number of deaths occurring following overdose, especially before patients were able to reach hospital for therapy. Research data indicated that the opioid ingredient dextropropoxyphene was likely to be responsible.

The NPIS has monitored the effect of the withdrawal on enquiries relating to this product as part of an assessment of the success of the MHRA policy. There has been a decrease in the number of co-proxamol related telephone enquiries to the NPIS of around 85% (see Figure 5.11), similarly there has been a reduction in the number of TOXBASE product accesses from over 7,000 in 2004/05 to just over 2,000 in 2008/09 (over a 68% reduction).

Figure 5.12 shows the age distribution of the patients involved in co-proxamol exposures between 2004/05 and 2008/09. Although call numbers have reduced since the phased withdrawal, the age and gender patterns of distribution have not altered. Most of the exposures were intentional (see Figure 5.13) and most occurred at home; well over 90% of exposures each year occurred at home. In general, the majority of exposures did not involve co-proxamol alone and usually an additional pharmaceutical agent was concomitantly ingested (see Figure 5.14).

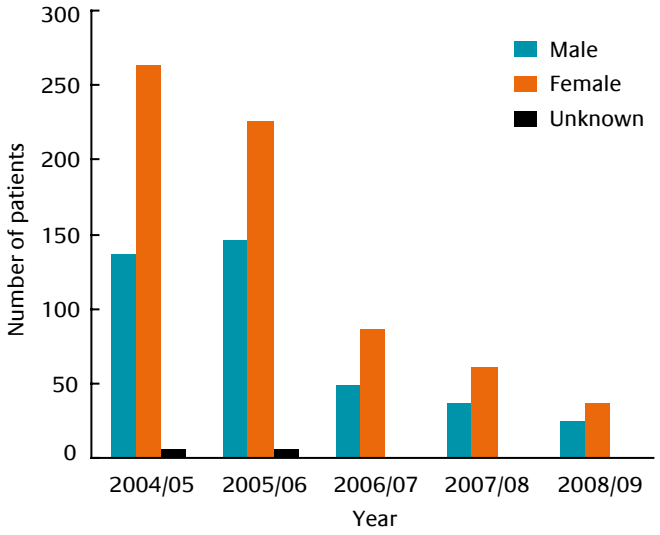


FIGURE 5.11 Gender distribution of patients involved in telephone enquiries about co-proxamol between 2004/05 and 2008/09

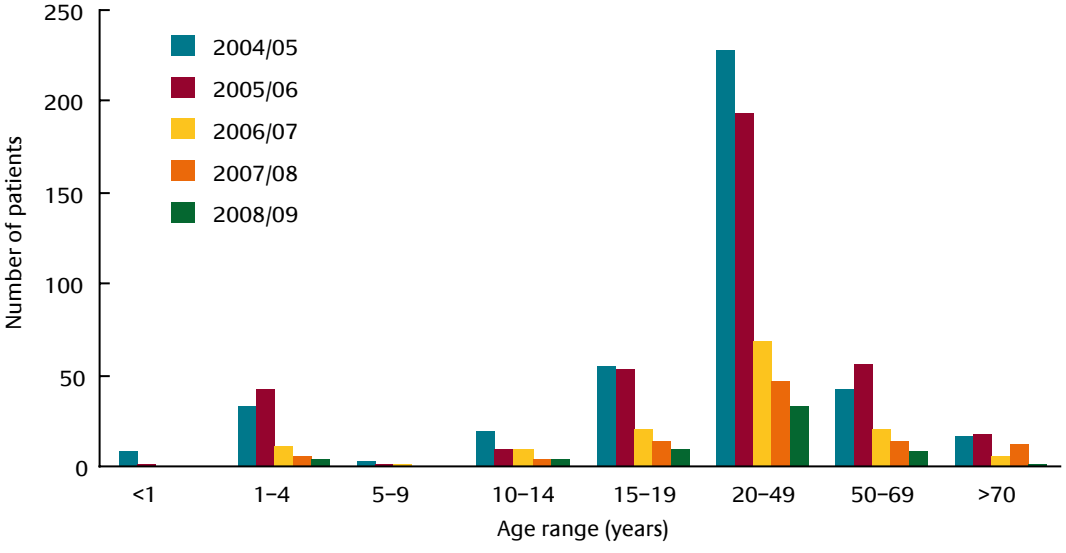


FIGURE 5.12 Age distribution of patients involved in telephone enquiries about co-proxamol between 2004/05 and 2008/09

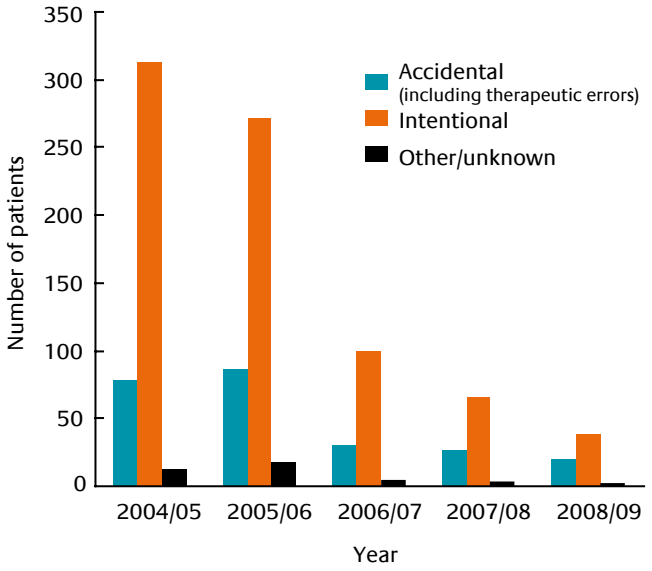


FIGURE 5.13 Circumstances of patients involved in telephone enquiries about co-proxamol between 2004/05 and 2008/09

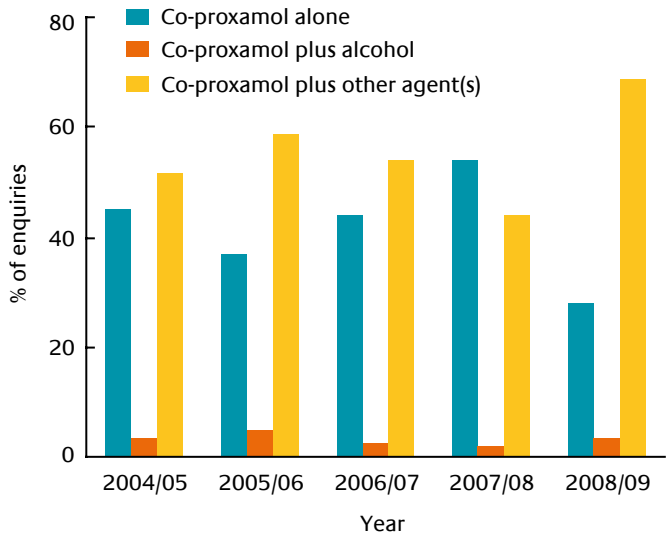


FIGURE 5.14 Proportions of telephone enquiries relating to co-proxamol, co-proxamol plus alcohol or co-proxamol plus other agent ingestions between 2004/05 and 2008/09

Summary

TOXBASE product accesses for co-proxamol (co-proxamol containing preparations) have fallen year on year since the introduction of the phased withdrawal in 2005. Similarly, the number of co-proxamol related telephone enquiries has also fallen; however, the distribution of male to female patients and the age range of patients involved in the enquiries has not changed. Enquiries relating to intentional ingestions that occurred at home remain the most frequent.

Recently published work confirms the impact of this change on mortality in England and Wales and in Scotland*,† and the European Medicines Evaluation Agency has recently indicated it wishes to see a Europe-wide ban‡.

* Hawton K, Bergen H, Simkin S, Brock A, Griffiths C, Romeri E, Smith KL, Kapur N and Gunnell D. Effect of withdrawal of co-proxamol on prescribing and deaths from drug poisoning in England and Wales: time series analysis. BMJ, 2009, June 18; 338: b2270.

† Sandilands EA and Bateman DN. Co-proxamol withdrawal has reduced suicide from drugs in Scotland. Br J Clin Pharmacol, 2008, 66: 290–293.

‡ See http://www.emea.europa.eu/pdfs/human/referral/dextropropoxyphene/40106109en.pdf

5.8 Carbon Monoxide

Carbon monoxide poisoning remains a cause of concern within the UK. It arises from incomplete combustion of carbon-containing fuels. In contrast to most cases of suspected poisoning reported to the NPIS, carbon monoxide exposures may involve more than one person at a time. Concern exists that carbon monoxide poisoning is under-diagnosed because of its relatively non-specific features. Management involves the medical treatment of individuals as well as environmental interventions to prevent further exposure.

There were 294 telephone enquiries made to the NPIS concerning cases of suspected carbon monoxide poisoning during 2008/09. In 28 enquiries multiple individuals were thought to have been exposed and the total number of cases reported was 314. The maximum number of people exposed in a single incident was eight.

There is a seasonal variation in the incidence of carbon monoxide poisoning, with episodes more commonly reported between September and March, presumably relating to the use of additional heating equipment during the cooler months (Figure 5.15).

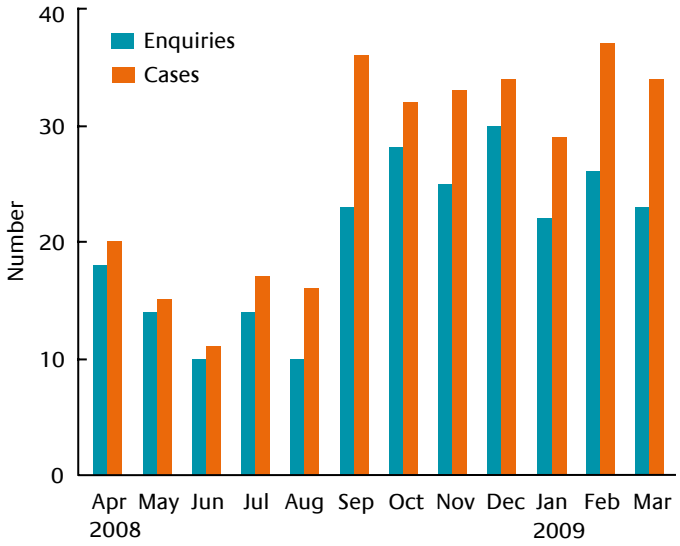


FIGURE 5.15 Number of telephone enquiries and total numbers of cases relating to carbon monoxide exposure in 2008/09

Exposures occurring in a domestic environment accounted for 84% of enquiries, with a further 9% happening in the workplace and 3% reported from a public area. The age distribution for patients exposed to carbon monoxide is shown in Figure 5.16.

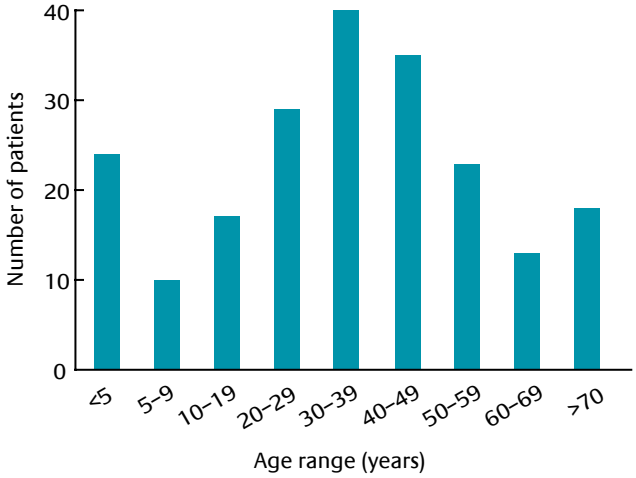


FIGURE 5.16 Age of patients in telephone enquiries relating to carbon monoxide exposure (where known) in 2008/09

Eighty-nine per cent of the exposures were reported to be accidental, with a further 9% reported as intentional. Poisoning severity scores (PSS) recorded for intentional and accidental individual exposures showed that intentional exposures tended to produce more severe effects.

Using the PSS, 35% of cases had no recorded features of toxicity, 54% were recorded to have minor features, 5% showed moderate features and 2% severe features. The PSS was not available or not applicable in 3% of cases.

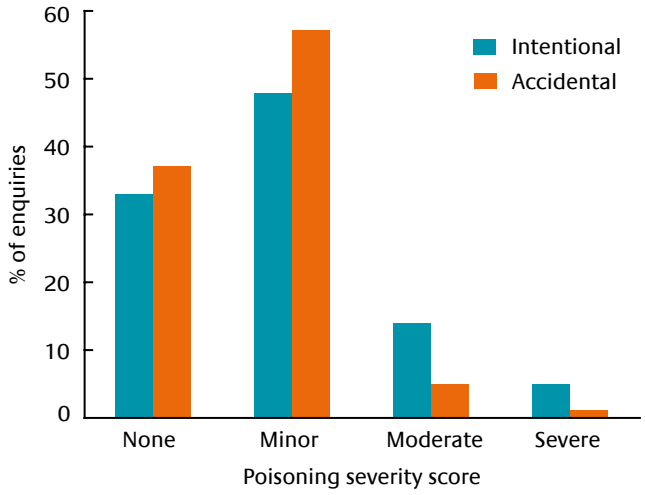


FIGURE 5.17 Poisoning severity score for telephone enquiries on intentional and accidental exposure to carbon monoxide

These data demonstrate that, despite awareness-raising campaigns, carbon monoxide poisoning remains a concern, particularly during the cooler months. The public and medical professionals should consider the possibility of carbon monoxide poisoning, particularly when several patients present with similar features from the same location. The importance of proper maintenance of heating appliances should be emphasised.

5.9 Lead Exposure in Pregnancy

This year UKTIS has analysed the data it holds on the outcome of pregnancy after lead exposure because there is limited evidence available on the impact of this on the developing fetus. Previously published studies have suggested increased risks of spontaneous abortion, intrauterine growth retardation, prematurity and neurodevelopmental delay, but data on effects on risk of congenital malformations are limited. Small numbers of previously published cases have suggested an increase in the incidence of minor congenital abnormalities following maternal exposure to lead during pregnancy, but a causal relationship has not been established and there is no compelling evidence of an increased risk of major malformations.

Using its prospective follow-up procedures, UKTIS has obtained pregnancy outcome data on 73 cases of lead exposure during pregnancy (Table 5.5), of which 28 were also reported to have been exposed to other chemicals or medications. The malformation rate among the live-born infants exposed to lead during pregnancy was 3 out of 67 (4.5%, 95% confidence interval 1.2, 13.4), which is not significantly higher than the background rate, although a small increase in risk of malformation cannot be excluded.

UKTIS also has retrospective outcome data on ten pregnancies in which exposure to lead occurred; three were exposed to other substances also. Six pregnancies resulted in spontaneous abortion (two of which involved multiple exposures) and a further case resulted in a stillbirth. The three remaining pregnancies resulted in live-born infants, all with congenital malformations, although no specific pattern of malformations was observed. It should be noted that health care professionals are more likely to report cases retrospectively when there has been an adverse outcome.

The published data, alongside those provided by UKTIS, do not demonstrate an increased risk of major malformations following exposure to lead during pregnancy, although other adverse health effects are recognised.

TABLE 5.5 Pregnancy outcome data on 73 cases of lead exposure during pregnancy

Trimester	Total pregnancies/ total live-borns	Normal infants	Neonatal problems	Congenital malformations	Elective termination of pregnancy	Spontaneous abortion
1st	20/17	16	–	1*	1	2
2nd	8/8	7	1	–	–	–
1st and 2nd	8/8	7	1	–	–	–
3rd	6/6	5	1	–	–	–
Throughout	6/6	5	–	1†	–	–
Unknown	25/22	20	1	1‡	–	3
Total	73/67	60	4	3	1	5

Note: No intrauterine deaths were reported.

* Positional talipes with a slight degree of plagiocephaly and motor delay associated with hypotonia after maternal exposure to lead fumes from paints and pottery glazes.

† Ventricular septal defect with poor feeding and jaundice after maternal exposure to lead chloride throughout pregnancy.

‡ Left calcaneal valgus after maternal exposure to lead, salbutamol inhaler and fusidic acid cream, timings unknown.

6 Conclusions

The review of the NPIS data for 2008/09 confirms that all components of the service continue to work well.

The numbers of enquiries via all sources has increased, and the reduction in telephone enquiries appears now to be stablising, with a small increase in the current year. This was associated with an increase in the number of consultant referrals, suggesting that an increasing proportion of telephone calls are about more complex cases.

Stakeholder feedback demonstrates a very high level of user satisfaction with the telephone information services provided by the NPIS and UKTIS. Stakeholder feedback on TOXBASE was implemented and demonstrates high levels of user satisfaction. This has also enabled specific improvements in the database to be made. Additionally, in the small analysis done both enquirers and NPIS consultants had a high degree of satisfaction with this aspect of the national service.

The agents most commonly involved in enquiries were pharmaceuticals, as in previous years, with paracetamol and ibuprofen the most frequently implicated. However, there were many enquiries about non-pharmaceutical agents. Methanol and glycols were the second most common reason for referral to a NPIS consultant.

This year's report illustrates some of the public health areas that NPIS data have the potential to influence. There has again been an increase in the proportion of enquiries that involve cocaine. The increase in enquiries for methamphetamine and benzylpiperazine are also of concern, although these drugs are much less commonly encountered. Over the same period enquiries and accesses relating to MDMA (ecstasy) have declined as a proportion of overall activity, as has the telephone workload relating to cannabis and amphetamines. New agents continue to present and the NPIS monitors these and TOXBASE entries are developed to support frontline NHS staff.

The phased withdrawal of co-proxamol has allowed the NPIS to assess the timescales of the effect of this action in reducing poisons enquiries. These data are more rapidly available than other public health data, as they are collected and can be analysed in real time.

Whilst the majority of medication errors occurred in the home, and most (98%) resulted in few adverse features, the potential to cause serious adverse effects is important. Around one-sixth of NPIS telephone enquiries relate to medication error incidents.

An increased risk of adverse fetal outcomes following maternal exposures or overdose cannot be excluded for many substances, as available data on pregnancy outcome are limited. UKTIS continues to collect these data to make available to health care professionals to help guide their clinical decisions. This year UKTIS has provided data on risks of fetal malformation following exposure to lead during pregnancy. Although these are too limited to exclude any increase in risk, together with other published evidence they do provide some reassurance that any increase in risk is limited.

7 Recommendations

The NPIS has maintained its role as a world leader in the provision of accurate, timely and accessible advice on the clinical management of poisoning. To this end, NPIS staff continue to have a major priority in updating of the thousands of monographs on TOXBASE to ensure that they are current and of the highest possible quality. In addition, quality assurance and response to user concerns or problems remain a high priority.

The recommendations set for 2008/09 together with their outcomes and new recommendations for 2009/10 are shown below.

Recommendations and Outcomes for 2008/09

1 To institute electronic call recording by all NPIS units

Outcome All poisoning-related telephone enquiries received by the NPIS units are now recorded

2 To develop stakeholder feedback mechanisms for TOXBASE

Outcome An electronic quality assurance system has been developed, tested and implemented. User feedback is proving helpful in refining database functionality and aspects of content

3 To develop stakeholder feedback mechanisms for consultant referrals

Outcome Questionnaires for stakeholder and NPIS consultant feedback were developed and used. As a result, further work is under way to understand better the time delays in response for some calls and NPIS consultants are testing the possibility of direct transfer of enquirer calls to their mobile telephones

4 To develop a framework to provide simple advice on poisoning for the general public on the HPA website

Outcome Ongoing – the NPIS has discussed this issue with other agencies and is organising a meeting of interested parties during 2009/10

5 To alert health care professionals to new NTIS advice via the National Electronic Library for Medicine

Outcome Summaries of all new or revised guidance from UKTIS are now sent to all health care professionals who register for this service via the National Electronic Library for Medicine

6 To modernise the teratology database to facilitate better follow-up and surveillance

Outcome A new teratology database is in development and scheduled for launch during 2009/10

7 To seek funding to improve the functionality of UKPID in line with the wider needs of the HPA and NPIS

Outcome Ongoing – scoping work has been carried out and further work is planned to review the wider needs of the NPIS in relation to the telephone information database

Recommendations for 2009/10

1 To review and further develop stakeholder feedback and quality assurance on all aspects of the NPIS

2 To establish a forum with partner agencies to consider what further steps could be taken to prevent poisoning, including developing a framework for the provision of such advice for the general public

3 To continue to develop 'short advice boxes' on the most common and potentially most toxic ingestions as part of the ongoing TOXBASE editing process in the absence of specific funding to accelerate this activity

4 To increase the profile of UKTIS amongst clinical user groups

5 To plan a second meeting with major funding bodies and stakeholders to review the current NPIS provision and establish their priorities for the service

APPENDIX A

National and International Appointments of NPIS Staff

NPIS staff have a role in supporting many important aspects of toxicology, both nationally and internationally. These include advisory roles to international and national bodies, including government, as well as academic activities. The range of their roles presented below provides a flavour of these activities and indicates the wider 'added value' of the NPIS.

NPIS Birmingham

Dr S M Bradberry

INTERNATIONAL JOURNALS

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

ADVISORY COMMITTEES

Member: Pesticide Incident Appraisal Panel

UK ACADEMIC ACTIVITES

Joint Course Organiser: MSc (Toxicology), University of Birmingham

Professor J A Vale

INTERNATIONAL ACTIVITIES

Member: Advisory Board Hong Kong Poisons Centre

INTERNATIONAL SOCIETIES

American Academy of Clinical Toxicology: Lifetime Achievement Award

INTERNATIONAL JOURNALS

Reviews Editor: Clinical Toxicology

Editorial Board Chairman: Medicine

Editorial Board Member: Drugs

ADVISORY COMMITTEES

Chairman: Ministry of Defence Research Ethics Committee

Consultant: dstl Porton Down

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

UK ACADEMIC COMMITTEES

Joint Course Organiser: MSc (Toxicology), University of Birmingham

Examiner: MRCP(UK) Part 2 Clinical Examination

External Examiner: Cardiff University

NPIS Cardiff

Dr C V Krishna

ADVISORY COMMITTEES

Member: New Medicines Group, All Wales Medicines Strategy Committee

Senior Medical Officer: Yellow Card Centre (Wales)

Member: All-Wales Specialist Training Committee in Clinical Pharmacology

UK ACADEMIC COMMITTEES

Deputy Course Coordinator: Certificate/Diploma/MSc in Medical Toxicology, Cardiff University

Member: Steering Committee, Diploma in Therapeutics, Cardiff University

Member: Steering Committee, Diploma/MSc in Therapeutics, Cardiff University

Professor P A 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

Chairman: All-Wales Specialist Training Committee in Clinical Pharmacology

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

Faculty Lead: Medicines Management, 1000 Lives Campaign, Wales

Honorary Secretary: Clinical Pharmacology Colloquium

Dr A Thomas

ADVISORY COMMITTEES

Member: New Medicines Group, All Wales Medicines Strategy Committee

Senior Medical Officer: Yellow Card Centre (Wales)

Member: All-Wales Specialist Training Committee in Clinical Pharmacology

UK ACADEMIC COMMITTEES

Member: Steering Committee, Diploma/MSc in Medical Toxicology, Cardiff University

Member: Steering Committee, Diploma in Therapeutics, Cardiff University

Dr J P Thompson

INTERNATIONAL ACTIVITIES

Member: Advisory Board Hong Kong Poisons Centre

INTERNATIONAL SOCIETIES

Chair: Human Toxicology Section British Toxicology Society

Member: Clinical Section Committee, British Pharmacological Society

ADVISORY COMMITTEES

Member: Appraisal Panel for Suspected Adverse Reactions to Veterinary Medicines

Member: Expert Advisory Group on Management of Casualties Caused by Chemical Terrorism

Member: New Medicines Group, All Wales Medicines Strategy Committee

Senior Medical Officer: Yellow Card Centre (Wales)

Member: All-Wales Specialist Training Committee in Clinical Pharmacology

UK ACADEMIC COMMITTEES

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

Course Coordinator: Certificate/Diploma/MSc in Medical Toxicology, Cardiff University

Member: Steering Committee, Diploma in Therapeutics, Cardiff University

Member: Steering Committee, MSc in Occupational Health, Policy and Practice, Cardiff University

NPIS Edinburgh

Professor D N Bateman

INTERNATIONAL ACTIVITIES

Advisor: World Health Organization/International Programme on Chemical Safety

INTERNATIONAL SOCIETIES

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

INTERNATIONAL JOURNALS

Editor in Chief: Clinical Toxicology

ADVISORY COMMITTEES

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

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

UK NHS NATIONAL COMMITTEES

Medical Director: Yellow Card Centre (Scotland) (until Oct 2008)

Expert Toxicology Advisor: Scottish Government

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

Dr M Eddleston

INTERNATIONAL ACTIVITIES

Temporary Advisor: World Health Organization/Department of Mental Health

INTERNATIONAL SOCIETIES

Board Member: Asia Pacific Association of Medical Toxicology
Member: European Association of Poison Centres and Clinical Toxicologists

UK ACADEMIC ACTIVITIES

Member: British Pharmacology Society, British Toxicological Society, Royal Society of Tropical Medicine and Hygiene

Mrs A M Good

INTERNATIONAL SOCIETIES

General Secretary: European Association of Poisons Centres and Clinical Toxicologists

Dr H K R Thanacoody

UK ACADEMIC ACTIVITIES

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

Member: Independent Scientific Advisory Committee, MHRA

Dr W S 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

Clinical Pharmacology and Therapeutics Representative: Medical and Radiology Education and Training Advisory Committee for South East of Scotland Deanery

External Examiner: Certificate and Diploma in Clinical Pharmacology, Newcastle University

Acute Medicine representative: Medicines Policies Committee, Lothian University Hospitals NHS Trust

Royal College of Physicians Representative: Specialist Advisory Committee in Toxicology, Royal College of Pathologists

NPIS Newcastle

Dr P R McElhatton

ADVISORY COMMITTEES

Member: Expert Advisory Panel to the National Focus on Chemical Incidents (now part of the HPA)

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

Professor S H L Thomas

INTERNATIONAL SOCIETIES

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

Expert Panel Member: European Medicines Agency

INTERNATIONAL JOURNALS

Senior Editorial Board Member: Clinical Toxicology

Editorial Board Member: Pharmacoepidemiology and Drug Safety

International Editorial Board Member: British Journal of Clinical Pharmacology

ADVISORY COMMITTEES

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

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

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

Member: Expert Advisory Group on the Management of Casualties caused by Chemical Terrorism (Blain II) (now the DH/HPA Chemical, Biological, Radiation and Nuclear Weapons Group)

Member: Ministry of Defence Research Ethics Committee

Member: Ministry of Defence Advisory Group on Special Medical Countermeasures

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 2008/09

Over 70 contributions to the scientific literature were published in 2008/09 from the four NPIS units.

Peer-reviewed Papers

Adams RD, Lupton D, Good AM, Bateman DN. UK childhood exposures to pesticides 2004-2007: a TOXBASE toxicovigilance study. Arch Dis Child 2009; 94: 417–20.

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