

# The pattern of childhood poisoning in the western Cape

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## Summary

**An analysis of poisoning cases treated at the Red Cross War Memorial Children's Hospital during 1987 and of calls received on the poisons line is presented. Treatment of 1116 children was undertaken and 922 telephone calls were logged. Of the patients treated, 60% had ingested a drug and 30% had drunk paraffin. The high prevalence of paraffin poisoning in the western Cape is examined. Constant vigilance must be maintained if childhood poisoning is to be prevented.**

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A poisons service has been in operation at the Red Cross War Memorial Children's Hospital, Cape Town, for the past 17 years.<sup>1,2</sup> It has four components: a Poisons Information Centre, which collects information and maintains the database; a Poisons Information Service to which medical personnel and the general public have 24-hour direct access; a clinical service provided by the outpatient department and wards of the hospital; and a linked toxicology laboratory service provided by the Department of Pharmacology at Tygerberg Hospital, Parowvallei, CP.

A study was undertaken to document the workload carried by the Poisons Information Service and the clinical load handled by the hospital in 1987.

## Materials and methods

### Hospital admissions for poisoning

A search was made of admission records for 1987. Cases of poisoning were identified by the diagnosis codes of the 9th edition of the *International Classification of Diseases* entered on the hospital records computer at the time of discharge against



the name of every child who received inpatient treatment. Coding is done by the paediatric registrar responsible for the child's treatment. Records of the cases extracted were studied in detail.

### Poisons Information Centre

An analysis was made of all calls logged during 1987 and those which pertained to plant poisoning and bites and stings were studied in detail.

The toxic substances implicated in a poisoning episode were allocated to the following categories: drugs; paraffin; agricultural substances (including insecticides, herbicides, rodenticides and fertilisers); household substances (cleaning agents, bleaches and polishes); industrial substances (industrial chemicals, paints, glue and thinners found in factories and workplaces); cosmetics; plants, including mushrooms; bites and stings; miscellaneous (including thermometer mercury and button batteries); and those cases where the toxic agent was unidentified.

As a special study, all telephone calls received on the dedicated poisons line between 9 May and 8 June 1988 were recorded on tape and subjected to detailed analysis (J.C.R.). The substance ingested and the age of the victim were recorded. The caller was classified as a lay person or a medical/paramedical professional.

### Results

Of the 1 116 children (Table I) who presented to the outpatients department with a history suggestive of poisoning during 1987, 352 were admitted (substances ingested are shown in Tables I and II). In 10 patients more than one agent was implicated. Paraffin poisoning and drug ingestion accounted for 86% of admissions. Of the 96 cases of paraffin poisoning all but 2 were patients from poor socio-economic backgrounds.

Category	No.	%
Drugs	673	60,0
Household and cosmetics	21	2,0
Agricultural	7	0,6
Industrial	47	4,0
Plants/mushrooms	3	0,3
Paraffin	332	30,0
Bites and stings	7	0,6
Miscellaneous (known substance)	4	0,4
Unknown substance	22	2,0
<b>Total</b>	<b>1 116</b>	

The drugs most frequently implicated were tranquillisers, sleeping tablets and anticonvulsants (Table III). Poisonous substances in the agricultural category were insecticides (75%) and rodenticides (25%). In the industrial category 9 cases were due to paint thinners and 1 case to 'sugar soap' ingestion. Ingestion of bleach accounted for one-third of cases in the household category.

During the 31 days of the tape-record study 155 telephone calls were received on the 'poison line'. The substances involved have been classified in Table IV and compared with total figures for 1987. A majority of calls (62%) were from members of the public. The remaining 38% were from doctors, nurses, veterinary surgeons and pharmacists. In 37 instances it was not clear if the call related to a particular patient or was a

Cause	No.	%
Drugs	218	60
Paraffin	96	26
Agricultural	12	3
Household	9	3
Industrial	9	2
Plants/mushrooms	3	1
Cosmetics	3	1
Miscellaneous (known substance)	2	1
Toxic agent unidentified	11	3
<b>Total</b>	<b>363</b>	

Category	No.	%
Tranquillisers/sleeping tablets	59	27
Anticonvulsants	37	17
Analgesic/anti-inflammatory	20	9
Cough/asthma/influenza remedies	19	9
Vitamins/minerals (e.g. iron)	15	7
Topical preparations	12	6
Alcohol	8	4
Unidentified tablets	22	10
<b>Total</b>	<b>218</b>	

Category	1-month tape recording		Logged calls, 1987	
	Calls	%	Calls	%
Drugs	72	47	392	43
Household substances	17	11	127	14
Industrial chemicals	17	11	108	12
Miscellaneous (known substances)	15	10	39	4
Agricultural substances	14	9	119	13
Plants/mushrooms	9	6	66	7
Bites and stings	4	3	22	2
Cosmetics	3	2	21	2
Toxic agent unidentified	3	2	18	2
Paraffin	1	1	10	1
<b>Total</b>	<b>155</b>		<b>922</b>	

general enquiry. In the remaining 118 instances (76% of calls) children were the subject of 92 enquiries, adults 16 and animals 2. The remaining 8 calls (7%) were of a general nature.

The subjects of calls relating to bites and stings and plants are set out in Tables V and VI.

### Discussion

The service offered by the Poisons Information Service is not restricted to children and provides telephone advice around the clock to the general public and members of the medical profession. It is manned by a paediatric registrar using a



TABLE V. SUBJECT OF CALLS ABOUT BITES AND STINGS

Perpetrator	No.	%
<b>Scorpion</b>	<b>10</b>	<b>45</b>
<b>Spider</b>	<b>3</b>	<b>14</b>
<b>Bee</b>	<b>3</b>	<b>14</b>
<b>Snake</b>	<b>2</b>	<b>9</b>
<b>Other</b>	<b>4</b>	<b>18</b>
<b>Total</b>	<b>22</b>	

TABLE VI. SUBJECT OF CALLS ABOUT PLANTS

Plant	No.	%
<b><i>Melia azedarach</i> (syringa)</b>	<b>18</b>	<b>28</b>
<b>Mushroom</b>	<b>10</b>	<b>15</b>
<b>Oleander</b>	<b>4</b>	<b>6</b>
<b>Other</b>	<b>33</b>	<b>51</b>
<b>Total</b>	<b>65</b>	

computerised databank devised by one of the authors (M.D.M.). This was designed to provide comprehensive information with South African relevance on poisoning in both adults and children. The databank is regularly updated by a team consisting of a doctor, a pharmacist and a data typist.

Drugs accounted for a majority of the admissions for poisoning during 1987. This is the case in almost any poison unit.<sup>3,4</sup> Of special note in the present audit is the large number (26%) of admissions for paraffin poisoning. This is not found in First-World poison units. Paraffin (kerosene) is much used as domestic fuel in areas of Cape Town that lack electricity. It is sold and stored in inappropriate and dangerously misleading containers, such as cold-drink bottles. These are readily accessible to thirsty toddlers and may be sampled with disastrous results.

Efforts are at present being made to develop an unpleasant tasting substance that can be added to paraffin (McFarlan Smith Ltd, Edinburgh, UK — personal communication). However, this is unlikely to prevent paraffin poisoning because children who ingest the substance choke and inhale the first mouthful; this causes lung damage, which is the characteristic feature. The low prevalence of paraffin poisoning in children from affluent homes reflects the use of other forms of domestic energy.

Drugs were the predominant subject of telephone enquiries (47% of calls). The overall pattern of calls reflected that of poisoning encountered in any European or North American unit.<sup>5,6</sup> It was striking that in the present study paraffin was the subject of only 1% of calls despite being the cause of 26% of admissions. There are probably two reasons for this: (i) paraffin poisoning occurs in poor households in which there is only limited access to a telephone and no knowledge of the Information Service; and (ii) local doctors are familiar with the management of paraffin poisoning and so seldom need advice.

Where the age of the patient was noted (76% of calls), it appeared that the majority of calls (78%) were about poisoned children. Adult patients were involved in only 14% of cases. This may reflect the centre's location at a children's hospital but it also demonstrates that accidental self-poisoning is most common in childhood.

Although bee stings are far more common than scorpion stings, almost half of the calls (45%) received about bites and stings during 1987 involved scorpions. This probably reflects the anxiety aroused by a sting from an unfamiliar creature with recognised lethal potential.

Calls about plants concerned a wide variety of species. The easily accessible berries of *Melia azedarach* (syringa) are widely recognised by the public as poisonous and this notoriety probably explains why they were responsible for 28% of calls.

Analyses of admissions and calls show that drugs are the most common cause of childhood poisoning. Efforts aimed at the prevention of poisoning are therefore most appropriately directed at this group of substances. Although the introduction of childproof containers for the dispensing of solid medicines has reduced the incidence of poisoning with certain drugs, the measure has not been universally successful. Constant vigilance must remain the watchword. Medical practitioners need to warn parents and childminders repeatedly about the danger inherent in leaving medications within sight and reach of small children.

A high prevalence of paraffin poisoning is found in many underdeveloped communities and deserves special attention in South Africa. The selling by retailers of paraffin for domestic use in a miscellany of second-hand bottles is to be deplored. Legislation enforcing the use of a distinctive container for all paraffin sales could be expected to reduce the occurrence of poisoning with this substance. The more widespread availability of electricity in housing areas for the poor and improvement in literacy and education would bring about a substantial reduction in the incidence of this serious form of child poisoning.

A majority of the calls on the 'poison line' predictably come from the western Cape region. However, perusal of the logbook shows that requests for information are also received from all over southern Africa. The time, effort and money spent on the establishment and maintenance of the Poisons Information Service at the Red Cross War Memorial Children's Hospital are thus fully justified, for the service clearly meets a real need.

## REFERENCES

1. Leary PM. A poisons reference centre for children. *S Afr Med J* 1976; **50**: 477-479.
2. Leary PM, Mann MD, Deeny J, Te Water Naude A, Roberts JC, Glasstone M. The development of a microcomputer system for poison information retrieval. *S Afr Med J* 1986; **69**: 757-758.
3. Wiseman HM, Guest K, Murray VSG, Volans GN. Accidental poisoning in childhood: a multicentre survey. *Hum Toxicol* 1987; **6**: 293-301.
4. Lawson GR, Craft AW, Jackson RH. Changing pattern of poisoning in children in Newcastle, 1974-1981. *Br Med J* 1983; **287**: 15-17.
5. Volans GN, Mitchell GM, Proudfoot AT, Shanks RG, Woodcock JA. National Poisons Information Services: report and comment, 1980. *Br Med J* 1981; **282**: 1613-1615.
6. Blodgett Regional Poison Center. *Annual Poisoning Statistics 1987*. Grand Rapids, Mich.: Blodgett, 1988.