

# The role of the UK National Poisons Information Service (NPIS) in the diagnosis of death in poisoned and non-poisoned patients

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## Objective

To investigate the number and nature of enquiries to the UK National Poisons Information Service (NPIS) concerning the diagnosis of death in poisoned and non-poisoned patients.

## Methods

A retrospective analysis of UK NPIS enquiries between 1 January 2004 and 1 June 2017 was undertaken for enquiries containing the terms 'brain dead', 'brain death', 'brain stem', 'brainstem' or 'stem testing'. Since enquiries seeking assistance interpreting thiopentone concentrations appeared frequently, a further search was undertaken for all enquiries relating to 'thiopentone' or 'thiopental' to retrieve any additional cases pertinent to the study.

## Results

The original search retrieved 187 enquiries of which 95 were deemed relevant. A further 8 enquiries were identified by the second search, giving a total of 103 enquiries for assessment. These involved 86 patients.

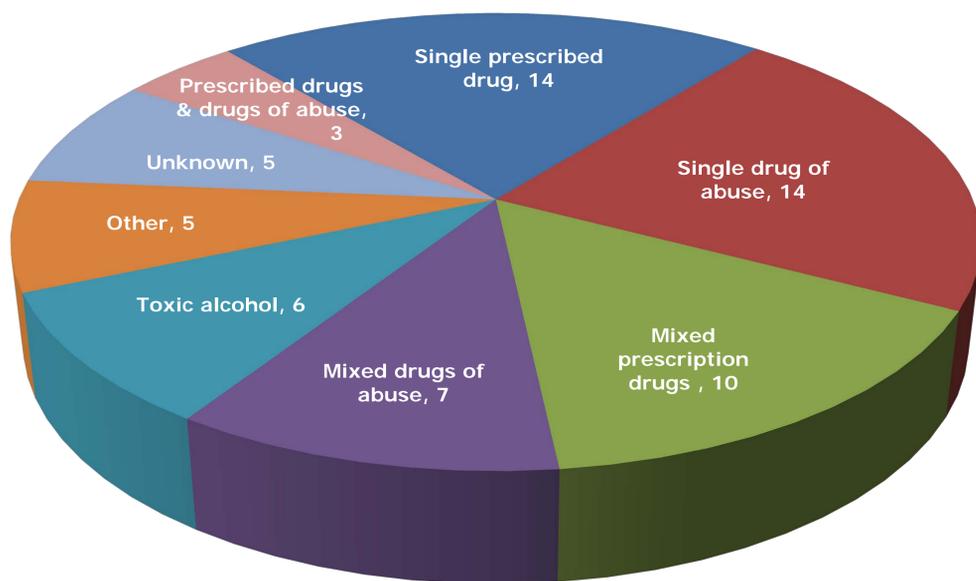


Figure 1. Agents involved in toxicological enquiries (n=64)

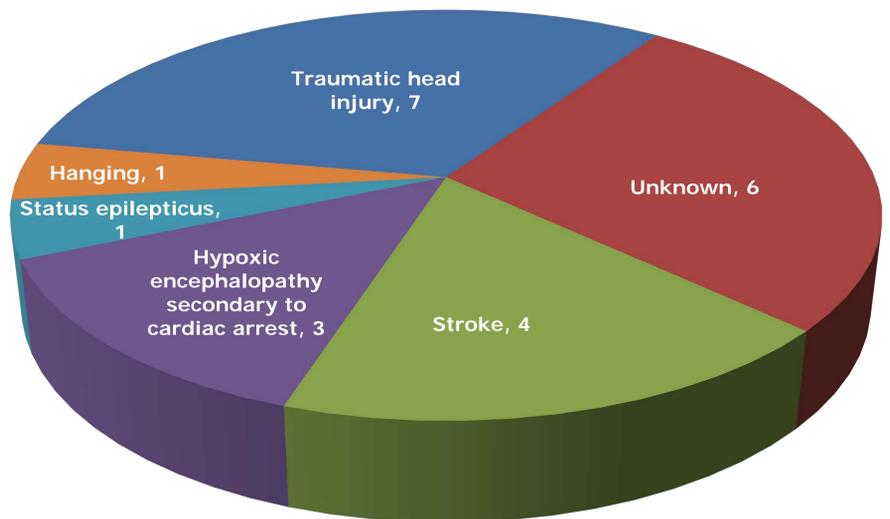


Figure 2. Causes of non-toxicological brain injury (n=22)

The cause of brainstem injury was considered toxicological in 64 patients and non-toxicological in 22. The median age of those with a suspected toxicological cause of brainstem injury was 30 years (IQR 20.8-43.3); 68.8% were male. Agents involved in toxicological enquiries are shown in Figure 1. Stimulant drugs were the most commonly implicated single drug of abuse (n=8), whilst in the single prescribed drug group, tricyclic antidepressants (n=5) were most common.

The median age of patients with a non-toxicological cause of brainstem injury was 23 (IQR 15.5-47); 65.2% were male. The causes of brain injury in these patients are shown in Figure 2.

Reasons for consulting the NPIS (more than one were allowed per case) are shown in Table 1.

## Conclusions

The NPIS serves a vital role in the management of poisoned patients but can also assist in the diagnosis of death in both the poisoned and non-poisoned patient. In this study, the majority of enquiries about the diagnosis of death involved young males with a toxicological cause of brain injury. Most questions related to the timing and interpretation of brainstem tests.

Reason for enquiry to the NPIS	Tox causes	Non-tox causes	Total
How the presence of agents affect brainstem reflex tests	20	6	26
Kinetics and metabolism of agents	22	2	24
Toxicological causes of brainstem signs	16	4	20
Requests for laboratory analysis	3	13	16
Interpretation of quantitative analytical results	6	4	10
Suitability for organ donation	7	0	7
Advice regarding withdrawal of active treatment	5	1	6

Table 1. Reasons for enquiry to the NPIS