

# New Hazards in Paediatric Poisoning Presentations

**Abstract:**

C Moore, E Crowley, J Doyle, I Okafor, R Mc Namara, S Deiratany, AJ Nicholson  
Children’s University Hospital, Temple St, Dublin 1

**Abstract**

Accidental ingestion is an important preventable cause of childhood morbidity. All accidental ingestion presentations (n=478) to a tertiary paediatric ED from January 2010 to December 2011 were analysed. These results were compared with a similar study in the same institution ten years previously in 2001 and showed that while accidental ingestions constituted a higher proportion of presentations (0.5% in this study v 0.45% in 2001), fewer had investigations performed (21% v 35%) and fewer were admitted (7% v 20%). Accidental ingestions account for 0.5% of presentations and are an important focus of home safety information for parents and guardians. Paracetamol (n=67, 14%) and liquid detergent capsules (n=44, 9.2%) were the two most common substances implicated in these presentations, and have the potential to cause severe morbidity and mortality.

**Introduction**

Children under 10 years old accounted for half of the calls to the Poisons Information Centre in 2010.<sup>1</sup> Studies have reported that poisoning accounts for up to 0.28% of ED visits, with median age 24 months and paracetamol the most common substance ingested.<sup>2,3</sup> Most cases of acute poisoning are accidental, benign and non-toxic.<sup>4,5</sup> A prospective cohort study noted at least one incident of poisoning or suspected poisoning in 19% of children by age three. The aim of this study is to analyse accidental poisoning cases presenting to a tertiary paediatric hospital, to determine the most common substances implicated in these presentations and to compare the results with a similar study undertaken in the same institution ten years previously.

**Methods**

This is a retrospective review of the Temple Street Children’s University Hospital (TS CUH) Emergency Department (ED) information management system (Symphony, Ascribe Ltd). This system is used to identify cases of accidental ingestion by discharge diagnosis. All episodes discharged from ED under a ‘Toxicology, Accidental’ from the 1st of January 2010 until 31st of December 2011 were included. Demographic details, triage diagnosis, length of stay and outcome of episode were available directly from the system, while all other information was gathered from notes.

**Results**

88623 attendances to TSCUH ED were recorded between 1st January 2010 and 31st December 2011. Of these, 478 (0.54%) were discharged with a discharge diagnosis under the heading of a ‘toxicology’. 53.1% were male. Median age on presentation was 2 years and 5 months. The median length of stay in the ED was 2 hours and 37 minutes. The most common category of discharge diagnosis was a ‘accidental drug poisoning’, accounting for 51.5% of presentations. Household products were responsible for 25% of presentations. The most common substance implicated was paracetamol (14%). Liquid detergent tablets were responsible for 9.2%. No investigations were performed in 79.3% of episodes. Paracetamol levels were performed at 4 hours post-ingestion in 4% of episodes, as ingestion was potentially over 150mg/kg as per guidelines. None of the paracetamol levels performed required treatment. Other toxicology tests were performed in 4.8% of episodes – including urine and serum toxicology for benzodiazepines, salicylates and other drugs. 93% of presentations required observation. In 4% of children the administration of activated charcoal by NG was recommended by Toxbase – including cases of recent benzodiazepine and tricyclic antidepressant ingestion. 3% of cases required other treatment: including drinking milk. There was evidence that Toxbase was consulted in 76.9% of the applicable cases, and the NPIC was contacted in 16.2%. 92% of episodes were discharged from ED – with review scheduled in 7.3% of cases. Of those admitted, 91% went to the ward and 9% to ICU.

**Discussion**

In 2001, a comparable study was conducted in the ED of TSH, when accidental ingestions accounted for 0.4% of presentations. The male:female ratio did not change significantly. Drugs and pharmaceutical products accounted for 61% of presentations in 2001 but only 51% in 2010-2011. Paracetamol was the most common substance accidentally ingested in both studies. The second most common substance ingested in our study was liquid detergent tablets, whereas these were not available in 2001 and the second most common substance ingested at that time was benzodiazepines. There were more investigations performed in the 2001 cohort – in 35% of presentations, while only 21% of presentations had investigations performed in our cohort. More of the 2001 cohort (20%) were admitted than this study (7%). The NPIC campaign in 2012 highlighted the need to educate parents and caregivers further on the hazards of household substances.

Paracetamol should be kept out of reach and in child-resistant containers. There were numerous cases of benzodiazepines loose in handbags, which should be kept in child-proof containers. Liquid detergent capsules, first manufactured in 2001, are an emerging threat and appear to be very accessible – potentially based on their easy-to-reach location in kitchens or utility rooms. Morbidity in

accidental ingestions of liquid detergent capsules can be varied and severe, and involve the eyes, the upper gastrointestinal tract and the respiratory system.<sup>8-13</sup> Reducing the accessibility of these hazards should include focusing on the provision of child-resistant packaging.

Correspondence: CM Moore,  
Children’s University Hospital, Temple St, Dublin 1  
Email: carmelmoore@live.ie

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