



Poisoning profile in Portugal: analysis of data from the Portuguese Poison Information Center (2021–2024)

Joana Carneiro ¹  0009-0004-7078-8910
Fátima Rato ²  0000-0002-0434-4316
Luís Belo ³  0000-0002-3941-6850
Carla Matos ^{1,4,5}  0000-0003-0617-3538
Carla Guimarães Moutinho ^{1,4,5}  0000-0003-1310-4696
Márcia Carvalho ^{1,4,5}  0000-0001-9884-4751

¹ FP-I3ID, Fernando Pessoa University, Porto, Portugal

² Poison Control Center (CIAV), Lisboa, Portugal

³ UCIBIO i4HB, Faculty of Pharmacy, University of Porto, Portugal

⁴ LAQV/REQUIMTE, Laboratory of Bromatology and Hydrology, Department of Chemical Sciences, Faculty of Pharmacy, University of Porto, Portugal

⁵ RISE-Health, Faculty of Health Sciences, Fernando Pessoa University, Porto, Portugal

ARTICLE INFO

Received 20 April 2026

Accepted 11 June 2026

Keywords:

intoxication

epidemiology

pharmaceutical drug

National Poison Information Center
Portugal

ABSTRACT

Introduction: Poisonings represent an important public health problem, being responsible for hospitalizations, significant morbidity, and mortality worldwide. In Portugal, the National Poison Information Center is a telephone-based advisory service and the only one providing guidance to both the public and healthcare professionals in the management of exposures to potentially toxic agents. Identification of the most frequently involved agents may support the development of educational interventions, optimization of prescribing practices, and implementation of public policies aimed at risk reduction.

Objectives: To characterize the profile of poisonings reported to National Poison Information Center between 2021 and 2024, identifying the most affected population groups, as well as the routes and circumstances of exposure, and the main toxic agents involved.

Methodology: A retrospective observational study was conducted based on the analysis of poisoning cases reported through telephone calls to National Poison Information Center between January 1, 2021, and December 31, 2024. The following variables were analyzed: sex, age group, circumstance and route of exposure, toxic agent, and therapeutic classes involved. Non-human poisoning cases

Contributions: Conceptualization: FR and MC; Data curation: JC, FR and MC; Formal Analysis: JC, FR and MC; Funding acquisition: MC; Investigation: JC; Methodology: JC, FR and MC; Project administration: FR and MC; Resources: FR and MC; Software: JC, FR and MC; Supervision: FR and MC; Validation: FR, LB, CM, CGM and MC; Visualization: JC; Writing – original draft: JC; Writing – review & editing: FR, LB, CM, CGM and MC.

Please cite this article as: Carneiro J, Rato F, Belo L, Matos C, Moutinho CG, Carvalho M. Poisoning profile in Portugal: analysis of data from the Portuguese Poison Information Center (2021–2024). *Athena Health & Research Journal*. 2026; 3(Suppl. 2). doi:10.62741/ahrj.v3iSuppl. 2.166

Corresponding Author:

Márcia Carvalho; RISE-Health,
Fernando Pessoa University -
Faculty of Health Sciences,
Fernando Pessoa Teaching and
Culture Foundation, Porto, Portu-
gal; mcarv@ufp.edu.pt

DOI: 10.62741/ahrj.v3iSuppl.
2.166

This article is licensed under the
terms of the Creative Commons
Attribution-NonCommercial 4.0
International License.

were excluded. Pharmacotherapeutic categories were classified according to the Anatomical Therapeutic Chemical classification.

Results: Between 2021 and 2024, a total of 96,817 human poisoning cases were recorded, with the annual number of notifications remaining relatively stable. Most exposures occurred in adults (65%), while children accounted for 35% of cases. Among adults, the most affected age groups were 20–29 and 40–49 years, whereas in children the 1–4 years age group predominated. Overall, poisonings were more frequent in females (60%) than in males (40%). The digestive route was predominant in both adults and children, accounting for more than 80% of cases. Exposure circumstances were mainly accidental in children (59.3%) and intentional in adults (51.6%). Medications were the main toxic agents involved in both adults and children (61.9%), followed by chemicals (24.1%), alcohol and other drugs (6.7%), biocidal agents (4.5%), and animals, plants and mushrooms (2.8%). In adults, the main therapeutic groups involved were medications acting on the central nervous system (CNS), particularly anxiolytic benzodiazepines, antidepressants, and antipsychotics, followed by drugs affecting the cardiovascular and musculoskeletal systems. In children, anxiolytic benzodiazepines were also the most frequent, followed by nonsteroidal anti-inflammatory drugs (NSAIDs) and analgesics and antipyretics.

Conclusion: The data highlight distinct patterns of poisoning between adults and children, with a predominance of intentional exposures among young adults and accidental exposures in the pediatric population. Medications, particularly psychotropic drugs, were the main agents implicated in the poisonings. These findings underscore the central role of National Poison Information Center in national toxicology surveillance and support, as well as the importance of preventive strategies aimed at the most vulnerable groups.
