

DATA HARMONIZATION: COMPARATIVE STUDY OF TWO POISON CENTRES IN LATIN AMERICA USING CITUC-SRL® DATA MANAGEMENT SYSTEM SOFTWARE.

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BACKGROUND: According to the World Health Organization (WHO), a poison center is a specialized unit that advises and supports the prevention, diagnosis, and management of poisonings. Electronic record systems availability enhances data storage, management, and analysis. In 2024, CIAT-Uruguay implemented the CITUC SRL® system, developed and used by CITUC-Chile since 2018. Harmonizing data collection across centers enables comparative analysis.

OBJECTIVE: To perform a comparative analysis of the report profiles received by CIAT-Uruguay and CITUC-Chile in 2024.

METHODS: A retrospective descriptive study using data extracted from the CITUC SRL® database, where reports from both centers are registered. Variables analyzed included caller identity, patient demographics (age group and sex), exposure circumstances, and involved agents. Two multivariable statistical models were constructed to estimate the Odds Ratios (OR). The first model estimated the OR of a case being suicidal, and the second estimated the OR of the exposure dose being in the toxic range, determined by sex, age group, and the country where the case occurred.

RESULTS: Uruguay reported 13,455 cases and Chile 35,386, with incidence rates of 390.7 and 177.3 per 100,000 inhabitants and a relative risk of 2.2 [95% CI 2.16–2.24] times in Uruguay compared to Chile. Most callers were healthcare professionals-physicians (85.9% Uruguay; 70.8% Chile) calling from medical facilities (89.4% Uruguay; 76.2% Chile). The leading exposure circumstances were suicide attempts (46.1% Uruguay; 48.2% Chile), followed by accidental exposures (28.4% Uruguay; 35.2% Chile). Female patients predominated in both countries (58.4% Uruguay; 62.1% Chile). Adults aged ≥18 to <65 years were the most affected group (60.7% Uruguay; 46.4% Chile), followed by adolescents aged ≥12 to <18 years (10.4% Uruguay; 17.8%

Chile). Clonazepam and quetiapine were the most frequently reported agents in both centers. In Uruguay, 60.3% of cases involved doses above toxic thresholds, compared to 48.5% in Chile.

From the multivariable statistical model in both centers, for suicide attempts, it was observed that female patients have an OR of 2.66 [95% CI 2.54-2.79] compared to male patients and adolescents have an OR of 2.26 [95% CI 2.11-2.41] of being suicidal compared to adults. And in Uruguay, the OR of being suicidal is 0.67 [95% CI 0.64-0.70] compared to Chile. Therefore, that being female and adolescent are risk factors for suicide attempts (2.66 and 2.26 times more likely), and in Uruguay, the risk is 33% lower compared to Chile.

From the multivariable statistical model in both centers, for cases in the toxic range, it was observed that female patients have an OR of 0.90 [95% CI 0.86-0.94] compared to male patients. Adults have an OR of 2.68 [95% CI 2.48-2.97] of being in the toxic range compared to older adults. And in Uruguay, the OR is 3.07 [95% CI 2.89-3.26] compared to Chile. Therefore, it is observed that being female is associated with a 10% lower chance of having a toxic dose and being an adult and the case originating from Uruguay are risk factors for having a toxic dose, with 2.68- and 3.07-times higher odds, respectively.

CONCLUSIONS: Despite CITUC-Chile reporting more than double the total number of cases, CIAT-Uruguay reported a 2.2-fold higher incidence rate per 100,000 population than Chile in the same period, and a bigger percentage of these cases reached toxic ranges: 60.3% in comparison to Chile with 47.6%. Nevertheless, both centers showed similar exposure profiles, dominated by cases involving suicide attempts, medical professionals as primary callers, and frequent involvement of clonazepam and quetiapine, although when compared in the multivariable statistical models, females or adolescents have more odds of being suicidal attempts, and males and Uruguay residents shows more odds of being an exposure at toxic dose. Harmonized, high-quality data systems facilitate multicenter studies across regions.

BIBLIOGRAPHY:

1. Directrices para el establecimiento de un centro toxicológico. Chemical Safety and Health Unit (CHE). Organización Mundial de la Salud. (2021)
2. Data base CITUC SRL® (2025). Sistema de registro electrónico de llamados de la central de emergencias del Centro de Información Toxicológica de la Pontificia Universidad Católica de Chile (CITUC).
Disponible en <https://bdcituc.facultadmedicina.uc.cl/cituc-plataforma/login.php>
3. J.C. Rios Bustamante, L. Fruchtengarten, C. Meneses, A.M. Lynch, J. Tempowski, M. Bettini, J.J. Mieres, A. Zucollo, E. Paris, Data harmonization: Comparative study of four poison centres using INTOX data management system software, *Toxicology Letters*, Volume 196, Supplement, 2010, Page S48, ISSN 0378-4274,
<https://doi.org/10.1016/j.toxlet.2010.03.196>.