

Diagnostic Study on the Management of Pharmaceutical Residues in Pharmacies of the City of Santa Fe †

Flores Hugo Alberto ^{1,*}, Antoniazzi Carolina Elisabet ^{1,2,*}, Gon Lorena ¹, Risiga María Constanza ¹, Blanc Viviana ¹, Moore Aput Matías ¹

¹ Facultad de Ciencias de la Salud (Universidad Católica de Santa Fe), Echagüe 7151, (CP 3000) Santa Fe, Argentina.; hflores@fiq.unl.edu.ar (F.H.A.), gon_lorena@yahoo.com.ar (G.L.), mcrisiga@gmail.com (R.M.C.), vmmblanc@gmail.com (B.V.), mmooreaput@gmail.com (M.A.M.)

² Instituto Nacional de Limnología (Consejo Nacional de Investigaciones Científicas y Técnicas- Universidad Nacional del Litoral). Ciudad Universitaria, Paraje el Pozo, (3000) Santa Fe, Argentina; caroantoniazzi@gmail.com (A.C.E.)

* Correspondence: hflores@fiq.unl.edu.ar (F.H.A.); caroantoniazzi@gmail.com (A.C.E.);

† Presented at The Sixth International Meeting of Pharmaceutical Sciences (RICiFa), November 10-12, 2021, Córdoba, Argentina

Received: 26.04.2022; Revised: 4.05.2022; Accepted: 6.05.2022; Published: 8.05.2022

Abstract: Expired drugs constitute a group of waste without environmental- or health-friendly regulations. Its management includes generation, segregation, treatment, and disposal. We assessed how drug waste of pharmacies is disposed of in the city of Santa Fe to gather data that help generate information to produce scientifically valid norms and procedures. We survey pharmacies in the city of Santa Fe (n=15) chosen at random using the Forms application. Among the ways to dispose, 61% of pharmacies deliver drug waste to drugstores or laboratories, 31% use a disposal system of dangerous waste, and 8% deliver drug waste to the College of Pharmacists. In addition, 80% reported participation in waste disposal programs, 67% consider it advisable to create a regulation that supports and regulates the disposal of expired drugs by pharmacies, while 56% do not inform their clients how they should act in case of having expired drugs at home. Although the responses showed an appreciable degree of commitment to the environment, it is concluded that it is necessary to generate a clear regulation for the disposal of pharmaceutical residues and to generate an awareness campaign for the main actors involved in this issue to reduce environmental pollution.

Keywords: expired drugs; management; awareness.

© 2022 by the authors. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Funding

This research was funded by Universidad Católica de Santa Fe, grant number 7253.

Acknowledgments

We especially thank Dr. Lorenzón for its suggestions and traduction.

Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.