Generation, sorting and discarding of waste from clinical analysis laboratories in São Tomé and Principe

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Abstract:

Lately, there has been a visible increase in the accumulation of solid waste litter in almost all parts of São Tomé and Príncipe. Residues from clinical analysis laboratories present risks to humans and the environment, and therefore require specific attention in storage, discarding, collection, transport, treatment and disposal. The **objectives** of the work were to identify and quantify the residues produced in the clinical analysis laboratories in São Tomé and Príncipe; to know how they are separated and who collects them, and to identify the final destination of these wastes. All 13 human clinical analysis laboratories and 1 veterinary laboratory in the country were selected. Data was collected by means of a survey to the technicians of these laboratories between March 8 and April 27 of 2022.

According to the results, we estimated that the total amount of waste produced by all 14 laboratories is 339 kg/day or 123.7 t/year, corresponding to 0.35% of all waste produced in the country. 50% of laboratories do not do any kind of pre-treatment of waste, even though it is known that the waste generated in biological laboratories have complex characteristics and require a pre-treatment before being discarded in order to avoid biological contamination. In 13 laboratories (93%), waste collection is made by laboratory employees without specialization in the area. 6 laboratories (43%) do not have locked compartments for temporary storing the waste before collection, so the waste is placed outside of the laboratory, accessible to people passing by and to animals. In 64% of laboratories, waste is collected weekly. Regarding the final destination, 93% of the laboratories incinerate sharp waste (e.g. needles, blades, cutting instruments) and, in 71% of the laboratories the final destination of the non-sharp waste are dumps and open burning. This practice is known to contribute to air pollution and to have direct impacts on the health of the local population.

We concluded that most of the waste produced in clinical analysis laboratories in São Tomé and Principe are disposed and treated in an inappropriate manner and therefore, there is a deficiency in the management of this type waste. These wastes are important, not necessarily because of the amount generated, but because of the potential risk for both health and the environment.

Acknowledgements

The authors would like to acknowledge the financial support of CERNAS – Research Center for Natural Resources, Environment and Society (funded by Fundação Portuguesa para a Ciência e para a Tecnologia, UIDB/00681/2020).