

Impact Of Regulations On The Management Of Medical Waste In Kinshasa Laboratories: Analysis Of Regulatory Compliance And Proposals To Strengthen Control And Surveillance Measures - Case Of The Kalamu Health Zone

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Abstract – This article examines the impact of regulations on the management of medical waste in laboratories in the Kalamu health zone, in Kinshasa. A descriptive study was conducted to assess the regulatory compliance of laboratories by analyzing current waste management practices. The results show that although some regulations are respected, there are significant gaps in implementation and monitoring. This article proposes measures to strengthen the regulatory framework and improve the management of medical waste in this health zone.

Keywords – Impact Of Regulations, Medical Waste Management, Kinshasa Laboratoire, Regulatory Compliance.

I. INTRODUCTION

Medical waste management represents a crucial challenge for health systems, particularly in developing countries such as the Democratic Republic of Congo (DRC). In Kinshasa, the capital, medical laboratories face complex waste management issues. According to Dupont (2020), “medical waste management in Africa presents unique challenges due to often inadequate infrastructure and limited resources” (p. 45). Hospital waste management regulations in Kinshasa require reforms to improve compliance and efficiency. Ngandu (2018) highlights that “hospital waste management regulations in Kinshasa require reforms to improve compliance and efficiency” (p. 102).

Medical laboratories produce various types of waste, including infectious, chemical, and radioactive waste, which pose significant risks if not properly managed (World Health Organization, 2017). In the Kalamu health zone, in Kinshasa, regulations on medical waste management aim to minimize these risks. However, despite the existence of these regulations, their implementation and compliance remain problematic. Thus creating concerns about the effectiveness of control and surveillance mechanisms. (DRC Ministry of Health, 2015).

Studies show that compliance with medical waste management standards is far from optimal. Kabila and Mbutu (2019) note that “current regulations have limited impact on the effectiveness of medical waste management in Kinshasa laboratories” (p. 130).

Additionally, Nkongolo (2020) reveals that “the analysis reveals significant gaps in compliance with medical waste management standards in Kinshasa hospitals” (p. 85). Mbemba (2017) emphasizes that “sustainable solutions for medical waste management must include a combination of modern technologies and good management practices” (p. 68). Lukusa and Kambale (2021) suggest that “more rigorous control and monitoring measures are needed to improve medical waste management in Kinshasa” (p. 220). As Kabongo and Mulumba (2018) point out, “the management of biomedical waste in an urban environment like Kinshasa poses significant logistical challenges” (p. 352).

How effective are the current regulations on the management of medical waste in laboratories in the Kalamu health zone in Kinshasa? What are the main gaps in the implementation of this regulation, and what measures can be proposed to strengthen the control and surveillance mechanisms?

We assume that gaps in staff training, insufficient personal protective equipment, and a lack of regular monitoring are key factors contributing to non-compliance with regulations on medical waste management in health care facilities. laboratories of the Kalamu health zone.

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Previous studies have shown that poor management of medical waste can lead to nosocomial infections, injuries, and serious environmental risks (Caniato et al., 2018). Additionally, the lack of adequate training and resources for laboratory staff further complicates the situation (Bassey et al., 2020).

This study aims to assess the impact of current regulations on medical waste management in laboratories in Kalamu Health Zone, identifying gaps and proposing improvements for more effective management. In particular, it examines regulatory compliance and waste management practices and proposes measures to strengthen control and surveillance mechanisms.

II. OBJECTIVE

- Assess the compliance of laboratories in the Kalamu health zone with national regulations on medical waste management;
- Identify factors influencing regulatory compliance in medical waste management;
- Propose specific measures to strengthen control and surveillance mechanisms in order to improve the management of medical waste in laboratories in this health zone.

III. STUDY AREA

The Kalamu commune was established thanks to the Van Malleghen plan in 1950. It is governed by Ordinance Laws No. 82-006 and 82-008 of February 25, 1982, which respectively address the territorial, political, and administrative organization of the Democratic Republic of Congo. These laws divide the city of Kinshasa into communes, neighborhoods, and localities, and define their names. Although it is governed by an earlier ordinance, its creation dates back to October 12, 1957, by Royal Decree No. 21-429.

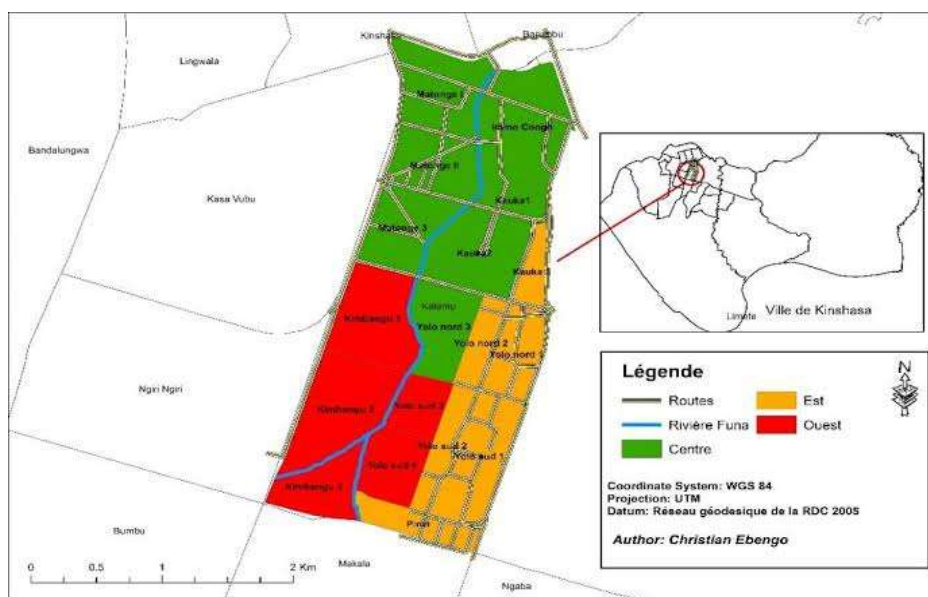


Figure 1. Map of the Kalamu Commune

It is located in the western part of the city of Kinshasa and is bordered to the north by the Kasa-Vubu bridge trench up to the Funa River, to the south by Kikwit Avenue and Luanza Street, to the west by Kasa-Vubu and Elengesa Avenues, and to the east by the Limete commune. It is inhabited by a population of approximately 415,342 people dispersed across various neighborhoods over an area of 6.64 km² (Civil Registry and Population Service, 2023) and is led by a mayor who represents the governor and the local authority. It is subdivided into 18 neighborhoods, each managed by neighborhood chiefs, according to information from the Urban Planning Office of the communal administration.

IV. METHODOLOGY

This descriptive study was carried out in two phases:

- **Data gathering:**
 - ✓ Sample: 15 medical laboratories in the Kalamu health zone.
 - ✓ Tools: questionnaires, semi-structured interviews, direct observations.
- **Data analysis:**
 - ✓ Conformity assessment: comparison of laboratory practices with current regulatory standards.
 - ✓ Statistical analysis: using frequency tests and correlation analysis to examine relationships between the variables being studied.

V. RESULTS

The results show that:

- **Partial compliance:**
 - ✓ 60% of laboratories comply with waste sorting procedures;
 - ✓ 40% correctly follow infectious waste disposal protocols.

- **Gaps identified:**

- ✓ Lack of staff training on waste management (observed in 70% of laboratories);
- ✓ Insufficient personal protective equipment and waste treatment infrastructure.

- **Monitoring and control:**

- ✓ Low frequency of inspections (only 30% of laboratories inspected regularly).
- ✓ Inconsistencies in the application of sanctions for non-compliance.

VI. DISCUSSION

The results indicate that although some regulations are followed, effective implementation of medical waste management is hampered by gaps in staff training and a lack of adequate infrastructure. Insufficient monitoring and inconsistent application of sanctions exacerbate these problems.

To improve waste management, it is essential to strengthen laboratory capacities through regular training and invest in waste management infrastructure. Additionally, a more rigorous monitoring framework, with frequent inspections and dissuasive sanctions, is needed to ensure compliance.

➤ **Proposals to strengthen control and surveillance mechanisms**

To improve medical waste management and strengthen regulatory compliance in laboratories in the Kalamu health zone, several measures can be considered:

- ✓ **Training and awareness:**

- Organize regular training programs for staff on safe medical waste management practices.
- Raise staff awareness of the risks associated with poor waste management and the importance of regulatory compliance.

- ✓ **Strengthening infrastructure and equipment:**

- Ensure an adequate supply of personal protective equipment (PPE) for all personnel handling medical waste.
- Invest in medical waste management infrastructure such as incinerators or adequate sterilization devices.

- ✓ **Increased monitoring and inspection:**

- Increase the frequency of laboratory inspections to verify compliance with medical waste management standards.
- Establish a regular monitoring system to ensure consistent application of established regulations and protocols.

- ✓ **Institutional and regulatory support:**

- Strengthen coordination between local health authorities and laboratories to ensure effective implementation of existing regulations.
- Regularly review and update national regulations on medical waste management to reflect best practices and international standards.

VII. CONCLUSION

This study highlights the importance of strengthening regulation and monitoring of medical waste management in laboratories in Kalamu Health Zone. Concerted efforts are needed to address identified gaps and improve regulatory compliance, thereby protecting public health and the environment.

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