Why the Public Should Be Concerned About Medical Waste Management in Our Cities.

David Okello highlights a critical public health concern on hazardous medical waste management and proposes practical solutions to mitigate its impact.



A Hospital incinerator

Summary

The rapid growth of private medical and diagnostic facilities in sub-Saharan Africa has expanded access to healthcare but also intensified challenges in managing hazardous medical waste. In Kampala, Uganda, a 1997 study found that 51% of private clinics burned medical waste in open spaces, 20% buried it untreated, and nearly a third disposed of it indiscriminately. Three decades later, similar patterns persist across Uganda and the region, revealing a continuing and escalating public-health and environmental hazard.

Poor segregation, inadequate treatment infrastructure, weak regulatory oversight, and informal disposal pathways expose healthcare workers, waste handlers, and communities to infection, toxins, and pollution. Environmental impacts—ranging from contaminated groundwater to toxic air emissions further undermine urban liability.

This article revisits earlier findings in light of contemporary realities, including recent concerns raised by Kampala's Minister for Capital City and Metropolitan Affairs about the worsening waste crisis. It argues that medical-waste management must be recognized as a critical public-interest issue rather than a purely technical concern.

Practical interventions are proposed: stronger enforcement of regulations, shared treatment infrastructure for small facilities, continuous training and vaccination of staff, community education, and adoption of non-burn and digital tracking technologies. The paper concludes that safe medical-waste management is a shared civic responsibility, requiring collaboration among governments, healthcare providers, civil society, and citizens.

Introduction

Across sub-Saharan Africa, urbanization and the proliferation of private healthcare facilities have transformed access to medical services. While this trend is largely positive, it has also intensified the production of medical waste, much of it infectious, toxic, or hazardous. Yet, the systems for managing such waste have not evolved at the same pace.

In 1997, colleagues from Makerere Medical School and I investigated waste-disposal practices in private medical clinics in Kampala, Uganda. The findings were alarming: 51% of clinics burned waste in open spaces, 20% buried it untreated, and nearly a third disposed of it indiscriminately into the environment [1]. These practices were not anomalies but symptoms of deeper systemic weaknesses, poor infrastructure, limited knowledge, and

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Plastic bottles damp site

weak regulatory enforcement.

At the time, private practice was a relatively new phenomenon. Many clinics were small, owner-operated, and poorly equipped for safe waste handling. Nearly three decades later, the situation warrants renewed scrutiny. Private clinics, laboratories, and pharmacies have multiplied in every urban neighborhood. While access to healthcare has improved, the scale of hazardous waste generation has expanded exponentially—without corresponding improvements in regulation or infrastructure.

A subsequent study by Semboga[2] at Makerere University found that even government facilities struggled with effective segregation and disposal due to chronic underfunding, logistical delays, and inadequate staff training. The study warned that poor handling exposes healthcare workers, patients, and the public to serious risks, and recommended continuous training, vaccination of staff, increased funding, and stricter enforcement of protective measures.

Emerging Urban Concerns

Just two weeks ago, the Minister for Kampala Capital City and Metropolitan Affairs expressed concern about the deteriorating waste situation in the city during a briefing to the Rotary Club of Kampala. In her remarks, she referenced the Kiteezi landfill disaster of August 10, 2024, when a massive garbage slide triggered a landslide that killed at least 24 people and displaced over 1,000 residents.

While the Minister focused primarily on household waste, she emphasized that the rapid growth of medical waste from private health facilities presents an even greater and more complex challenge. Unlike ordinary refuse, medical waste includes infectious materials, sharps, and toxic chemicals that require specialized handling. Once released into poorly regulated municipal waste streams, it poses serious risks to workers, nearby residents, and the broader environment.

This recent policy attention underscores the urgency of recognizing medical-waste management as both a public health and urban governance issue.

Health and Environmental Threats

Improper medical-waste disposal has direct and indirect consequences for human health and the environment. Contaminated sharps, used syringes, and blood-stained materials are vectors for hepatitis B, hepatitis C, HIV, and other infections[3]. Informal recyclers and waste handlers, often unprotected by gloves or masks, are at high risk of needle-stick injuries and infections[4]. Children and residents of nearby settlements may unknowingly come into contact with discarded medical waste, further amplifying exposure risks.

Environmental impacts are equally serious. When untreated medical waste is buried or dumped, chemical residues and pathogens can leach into soil and groundwater, compromising food and water safety[5]. Open burning and poorly maintained incinerators emit dioxins, furans, and heavy metals, toxic compounds linked to respiratory diseases, reproductive harm, and cancer [6].

The cumulative social and economic costs spanning healthcare expenses, environmental remediation, and diminished public trust are substantial. Medical-waste mismanagement thus represents not only an environmental failure but also a governance deficit.

Why the Public Should Care

The management of medical waste is often perceived as a technical or administrative task confined to health authorities. In reality, it is a public-interest issue with far-reaching implications. A single lapse in segregation or disposal can release infectious or toxic materials into the community.

The way cities handle medical waste is a mirror of collective values commitment to health, environmental stewardship, and civic responsibility. When the public is informed and vigilant, unsafe practices are less likely to persist. Conversely, apathy allows dangerous practices to remain hidden.

Public participation is therefore crucial. Citizens must demand transparency from both healthcare providers and city authorities. Medical-waste management should become as visible a civic priority as clean water, sanitation, or air quality.

What Can Be Done

Addressing this challenge demands a comprehensive, multi-sector response grounded in evidence and accountability.

1. Strengthen Regulation and Enforcement: Existing frameworks for medical-waste management must be operationalized. Regulatory bodies need adequate funding, trained inspectors, and legal authority to impose penalties. Transparent audits and data sharing can reinforce accountability, especially among small private providers.
2. Invest in Shared Infrastructure: Many small clinics lack resources to build or operate their own waste-treatment systems. Cities should develop centralized, energy-efficient treatment hubs that serve multiple facilities. Public-private partnerships could help sustain such systems while maintaining affordability and environmental standards.
3. Continuous Training and Worker Protection: Healthcare workers and waste handlers require regular training in waste segregation, labelling, and storage. Universal vaccination, especially against hepatitis B, and provision of personal protective equipment (PPE) should be mandatory.
4. Community Education and Engagement: Public education campaigns can raise awareness about the dangers of improper medical-waste disposal and empower communities to report unsafe practices. Civic engagement can also strengthen political will for sustained reform.
5. Promote Innovation and Digital Tracking: Adoption of non-burn technologies such as autoclaving, microwaving, and chemical disinfection can reduce pollution. Digital tracking systems—already used in some high-income countries—can ensure traceability from generation to final disposal, minimizing illegal dumping.
6. Foster Collaboration Across Sectors: Effective solutions require cooperation among ministries of health, local governments, environmental authorities, healthcare associations, and civil-society groups. Medical-waste management must be integrated into urban development and public health planning.

Lessons from Across Africa

Uganda's experience reflects a continent-wide challenge.

In Kenya, a study in Nairobi County revealed that 93% of healthcare waste consisted of sharps, yet segregation errors were frequent. Incineration remained the dominant disposal method, often without emission controls[6].

In Ghana, both public and private hospitals struggle to enforce waste-segregation policies. Limited funding, inadequate supervision, and poor staff training impede compliance despite established national guidelines[7, 8].

In Nigeria, investigations across Ibadan and Lagos found that infectious and non-infectious wastes were often mixed and discarded with general municipal refuse due to inadequate infrastructure[9, 10]. Waste volumes exceeded 10,000 kilograms daily in some urban centres.

In Burkina Faso, field studies revealed that both health workers and informal waste pickers handled medical waste without protective gear, resulting in frequent needle-stick injuries and heightened infection risks[11].

These examples underscore a consistent pattern across African cities: weak implementation of existing policies, insufficient funding, and lack of enforcement. Without urgent reforms, unsafe medical-waste practices will continue to endanger urban populations and ecosystems.

Conclusion

Nearly three decades after initial warnings were raised, unsafe medical-waste disposal remains a silent but escalating crisis. Despite clear evidence and available solutions, many African cities continue to rely on open burning, uncontrolled dumping, and burial of medical waste.

Safe medical-waste management is not a luxury; it is a basic public health necessity. Its neglect undermines not only environmental integrity but also public trust in healthcare and local governance.

Citizens, healthcare providers, and policymakers must recognize this issue as a shared civic duty. Through enforcement, investment, education, and innovation, cities can build systems that protect health, dignity, and environmental sustainability.

The public should be concerned—not because this challenge is new, but because it has been ignored for far too long.

References

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