

# Healthcare waste management in low resource countries: Nigeria experience

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## Abstract

Healthcare waste management (HCWM) is central to infection prevention and control (IPC) as poor management exposes health care workers, waste handlers and communities to avoidable injuries and infections. Ensuring appropriate safe healthcare management of medical waste at health facilities (HF); Nigerian in country capacity was built through advocacy, training and supportive supervision by PEPFAR funded AIDSTAR-One (previously Making Medical Injections Safer (MMIS)) project. Though political support differs across states, Lagos state leads in support towards strengthening their (Health care waste management (HCWM) systems and conducts annual HCWM summit to create awareness across the country to promote best practices. Geospatial Information System (GIS) mapping of Health care waste (HCW) treatment equipment in Nigeria was conducted in 2012 to support stakeholders in HCWM planning. Advocacy for national intervention resulted in approval of the National HCWM policy in September 2013. A 2004 survey had showed 85% of health facilities reported improper HCWM, whereas a follow up comparative study at AIDSTAR-One focal sites showed significant improvements. There is weak central direction in strengthening the HCWM systems at all levels, and segregation commodities are inadequate due to low budgetary allocation.

**Keywords:** Medical Waste Disposal, Infection Control

## Background

The management of HCW in Nigeria has shown remarkable improvement from its sub-optimal state during the 2004 baseline assessment of injection safety and healthcare waste management practice in

health facilities (HFs) in the country.<sup>1</sup> The baseline assessment showed low capacity (knowledge) among health workers for HCWM, poor segregation, and lack of budgeting for Healthcare waste management (HCWM) among other things observed. In recent

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times, HCWM had been approached from the broader view of infection prevention and control (IPC), and this led to the formation of IPC committees in HFs to promote appropriate HCWM.<sup>2</sup>

### Intervention

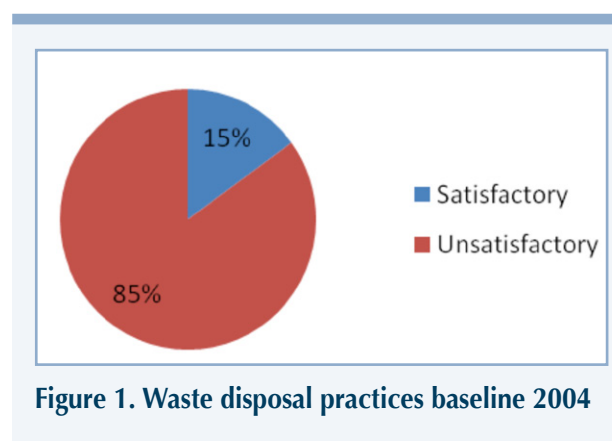
The grave disease burden transmitted through unsafe injections and healthcare management made WHO in collaboration with partners through the Safe Injection Global Network (SIGN) developed and provided developing (middle to low income) countries with Health facility assessment Tool C and an intervention strategy. The USAID PEPFAR funded AIDSTAR-One project adopted the World Health Organization (WHO) Injection safety and healthcare waste management technical approach that promotes sustainability by working through government structures and stakeholders for policy development and implementation.<sup>3</sup> AIDSTAR-One, previously the Making Medical Injections Safer (MMIS) project, conducted national health facility assessment (HFA) in 2004 utilizing the World Health Organization (WHO) Injection Safety Assessment Tool (Tool C).<sup>1,4</sup> Targeted health facilities received technical assistance including training and capacity building; provision of seed stock of IS commodities, behavioral communication and changes to effect new skills, training and seed stock for appropriate health care waste management (HCWM), and supportive monitoring and evaluation to guide interventions for effective impact. The project working with stakeholders developed a minimum package for HCWM, as a tool to encourage health facilities work to attain the minimum level of compliance to appropriate HCWM. Health facilities were encouraged to develop health facility based HCWM plans through their Infection Prevention Control Committees (IPC) with HCWM Subcommittees to improve HCWM systems in their facility. To ensure access to final treatment and disposal of health care waste (HCW) from this HFs, the project conducted a GIS mapping of waste treatment equipment location in the country, highlighting those with storage facilities, and ash pit. Community outreaches were conducted to promote messages on proper HCWM in HFs and the effect of improper HCWM to the community.

The project also worked with the Lagos state government that has created awareness for HCWM among health workers and communities through their annual HCWM summit across the country. Despite the capacity building and awareness creation, political support for the proper management of HCW has still been rather low, resulting in poor management of HCW in the Health facilities.

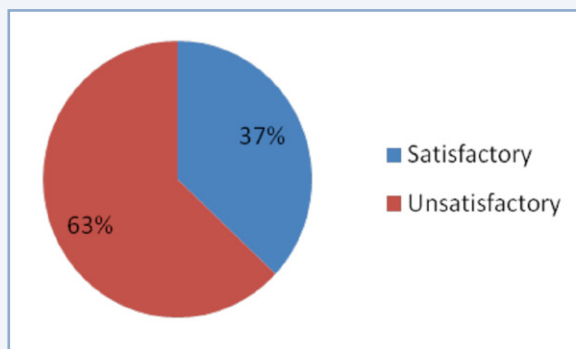
Health facility assessment was done through observations and in depth interviews of health care provider providing service and disposal of resultant waste methods, interviews with personnel who handle the healthcare waste from the service providers to the waste handlers –injections, phlebotomy providers, laboratory technicians supervisors and staff in charge of medical waste.

### Results

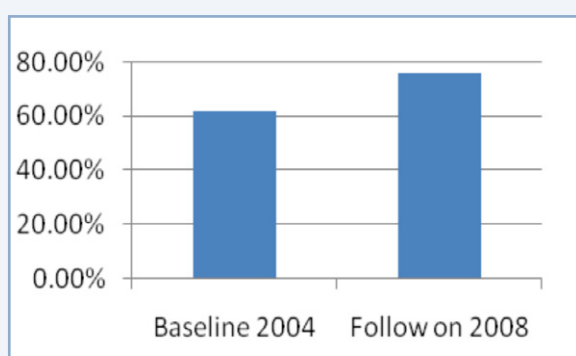
Health waste best practices were next to nothing in Nigeria with injection safety and healthcare waste management limited to immunization services where only 3-5% of unsafe practices and no intervention in the 95% of curative services before intervention. The 2004 National health facility baseline assessment therefore showed an abysmally low level of HCWM best practices in most health facilities (Figure 1). However; follow on assessment in 2008 at project intervention areas showed a remarkable comparable improvement (Figure 2) as seen in the reduction in the number of health facilities with loose biological waste (Figure 3) and sharps waste lying around the facility outside safety boxes (Figure 4). Health Facilities with waste segregation in colour coded bins at point of generation rose from 0% to 80%.



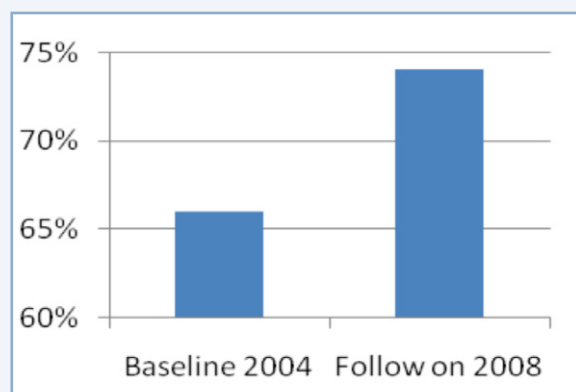
**Figure 1. Waste disposal practices baseline 2004**



**Figure 2. Waste disposal practices follow up on 2008**



**Figure 3. Health facilities without loose biological waste**



**Figure 4. Health facilities without loose sharps around facilities**

The National Stakeholders forum used the WHO best practices<sup>3</sup> to develop a minimum package for various levels of service delivery that was incorporated into the Tool C utilised by independent data collectors under the supervision a Consultant and the Government of Nigeria (GON) who took the audit for comparison.

Despite the capacity building and awareness creation, political support for the proper management of HCW has still been rather low, resulting in poor management of HCW in the Health facilities.

### Challenges

The National HCWM Policy which has been in draft form since 2007 has had a long bureaucratic delay in its approval process. The document is supported by the National HCWM guidelines which gives clear guidance as to how HCW should be managed from segregation to treatment and disposal.<sup>2</sup> Capacity has been built among health workers and awareness has been created; however this is in only a few states and Local Government Areas supported by the AIDSTAR-One project and other PEPFAR partners.<sup>4</sup> Behaviour change continues to pose a great challenge to achieving a sustainable HCWM system in Nigeria.

The lack of environmentally safe final disposal technologies in many areas of the country,<sup>4</sup> as seen in the result of the Geospatial Information System (GIS) mapping of waste treatment equipment, was also a challenge as the project was unable to undertake capital intensive options like the procurement of high temperature incinerators.

### Conclusion

A key lesson learned from the activities was that advocacy at all levels and at every opportunity yields results. Working with existing structures on the ground is essential. Continuous supportive supervision and capacity building was found to be effective in improving the quality of services.

Health care waste management interventions in countries with low resources, such as Nigeria, can make steady progress over time if stakeholders appreciate their importance as key IPC measures to ensure the safety of the health workforce, patients, and communities. Government need to take the lead by developing and implementing relevant policies and regulations to ensure compliance as well as policies to encourage private sector participation in HCWM system strengthening.

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