

Healthcare risk waste and waste legislation in South Africa

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ABSTRACT

Healthcare risk waste is highly regulated in several countries by well-developed legislative frameworks; however, there is a lack of development and adherence to directives and laws in developing countries such as South Africa. Although legislation is in place, it does not always address medical waste in detail to assist with issues such as segregation, categorisation, collection, transport, treatment and final disposal practices. Incineration is still the most common means of treatment, which has shifted the focus of the Department of Environmental Affairs, the department responsible for overseeing waste disposal, to air quality monitoring. The objective of this paper is to highlight issues related to HCRW management, and to suggest a way forward, rather than to provide an in-depth analysis of the problem.

Keywords: healthcare risk waste, medical waste, incineration, legislation

Waste is continuously generated as communities expand. Healthcare risk waste (HCRW) is generated primarily at healthcare facilities such as hospitals, clinics, community health centres, laboratories, research institutions, dental facilities, emergency services, ports of entry, veterinarian practices, old age homes, and forensic pathology services. HCRW comprises:

- laboratory waste
- anatomical or pathological waste
- genotoxic or cytotoxic waste
- infectious waste (including highly infectious or isolation waste)
- sharps waste
- sanitary waste
- nappy waste
- chemical waste
- low-level radioactive waste and pharmaceutical waste¹⁻⁴

The management of HCRW, also referred to as medical waste, is highly regulated, with different environmental and health legislation for guidance and regulation thereof. Since 2000, the industry has developed into an extremely profitable enterprise in South Africa. The treatment of HCRW began in the provinces of Kwa-Zulu Natal, Western Cape and Gauteng. Currently, the largest number of incinerators, which are most commonly used for HCRW disposal, are located in Gauteng.

The implementation of the Air Quality Act (Act no. 39 of 2004)⁵ ended on-site healthcare facility treatment of generated HCRW in South Africa. In 2000, the Danish International Development Assistance (DANIDA), together with the South African Department of Environmental Affairs (DEA) began to establish strategies and legislative frameworks to manage this relatively unknown type of waste. This led to the development of tender specifications, and tests for sustainability of cost-effective management, containment and transport of HCRW. The first set of HCRW

regulations applicable to the Gauteng province was published in 2004; however, resources for enforcement of these regulations remain limited.⁶

These statutory changes were necessary due to the country-wide uncontrolled dumping of HCRW and poor quality waste services. The poor performance of contracted service providers adversely affected the management of HCRW. Nevertheless, gaps in knowledge and expertise in the field were slowly overcome, and enterprises were established for the treatment and transport of HCRW. HCRW depots for temporary storage were also introduced.

The first waste treatment plants were based on incineration and autoclaving principles. Although the DEA has considered alternative treatment technologies, after approximately 12 years of implementation of the HCRW Regulations, the main treatment of HCRW, including pathological waste, is still incineration. Pathological waste such as placentas and other human body residues, poses a risk for healthcare workers (HCWs) as well as those involved in packaging, transporting, treating and/or burying human tissues.

The DEA's current regulatory framework pertaining to waste management, environmental conservation and pollution prevention is regulated in the National Environmental Management: Waste Act (Act No. 59 of 2008)⁷ and the Environment Conservation Act (Act No. 73 of 1989)⁸ which have several regulations promulgated.⁹ The DEA and the National Department of Health (DoH) prepared two sets of regulations but promulgation is still awaited.

The HCRW industry was plagued by sporadic dumping as well as non-functioning treatment plants in 2008. Consequently, the DEA granted authorisation for highly hazardous landfill sites within the borders of the country, that would not create a health hazard to the environment.^{10,11}

There is a need for legislation to define effective processes of alternative on-site methods for treating HCRW in a manner in which it is rendered safe.



THE PROBLEM

The different categories of HCRW and the differences in inherent bacterial contaminants pose a risk to the immediate surrounding environments of health facilities, and to communities, especially where HCRW is dumped and/or mismanaged.¹²⁻¹⁷ HCRW, although a minor waste category, increases exponentially.

According to the World Health Organization (WHO), waste in primary healthcare facilities consists of 80% non-infectious waste, 15% pathological waste and infectious waste, 1% sharps waste, 3% chemical or pharmaceutical waste, and less than 1% pressurised cylinders and broken thermometers.¹ The mean composition of the waste at two hospitals in Limpopo province in a study published in 2008 was, in decreasing order, 60.1% general waste, 30.3% medical waste, and 8.9% sharps waste. A mean generation rate of 0.60 kg waste per patient per day was recorded. The management of the abovementioned healthcare waste in developing countries is also a big concern and it needs to be prioritised.^{6,18}

In 2011, the United Nations Special Report on Human Rights and Toxic Waste warned the world that not enough attention was being paid to the problems caused by medical waste.¹⁹

Disposal of HCRW is a problem in South Africa and there is a need for legislation on HCRW, which is of the same standard as that from the European Union (EU) and other developed countries. The HCRW that was dumped in Pietermaritzburg and KwaZulu-Natal in the World's View plantations could be traced to Daymed Hospital, while another dumping was found in Phayaphini, a township near Prestbury in KwaZulu-Natal.²⁰ Another case of dumping of HCRW occurred in the southern Pretoria area: the *Pretoria News* reported dumped waste near a soccer field in Olievenhoutbosch.⁸

WASTE MANAGEMENT STRATEGY

A HCRW strategy for South Africa can be based on established international principles. The following is a summary of information available.²¹⁻²⁹

1. A compulsory policy to comply with HCRW is needed, similar to

The European Community Directive 75/442/EEC of 15 July 1975 which obliged member states to adhere to the requirements as set in Council Directive 91/689/EEC – the main directive for the proper management of HCRW.

2. EC and United Kingdom legislation governs the management of clinical waste and emphasises the importance of a waste strategy document and sanctions for non-compliance to legislative requirements.
3. Healthcare waste, including infectious waste, is defined in certain countries as clinical waste as it can be pre-treated and can be disposed of in the normal waste stream. Aspects to consider include generation, storage, handling, transportation and disposal of HCRW.
4. The establishment of a waste management strategy with segregation at the point of generation, with cost-saving effects, is important. This is based on the 'duty of care principle' which emphasises the important role that each person plays in waste disposal.
5. HCRW premises incinerators must meet emission and licensing standards.
6. HCRW should be part of, and not separated from, other statutory waste-managed systems.
7. Multiple legislative requirements have negative effects, due to differences in primary definitions, classifications, waste management processes, costs, and descriptions of environmental or economic consequences for HCRW.
8. Record-keeping is obligatory when incineration is the main treatment method and must be implemented to comply with air emissions standards, even if regulations outlaw the incineration of medical waste on site.
9. Developing and developed communities need to establish HCRW policies in accordance with WHO recommendations.

SOUTHERN AFRICA

Differences in terminology were observed during the literature search on the internet, where risk waste was referred to as 'medical waste', 'healthcare risk waste' and 'clinical waste'. The DEA has standardised its legislation, using the term 'healthcare risk waste'. In Botswana HCRW

is known as 'clinical waste'. A general misunderstanding of what clinical waste comprises, created additional problems due to lack of training in terms of waste segregation. The Botswana Government developed a Clinical Waste Management Code of Practice in 1996 but many health-care workers are not conversant with this Code.⁶ In South Africa, the Hazardous Substance Act, 1973 (Act No. 15 of 1973)³⁰ classifies hazardous waste according to the inherent risk to human health, whereas general waste is defined as "waste that does not pose a significant risk to the environment and the greater public". The Gauteng Healthcare Waste Regulation of 2004³¹ stipulates that all pathological waste must be treated by incineration; no other regulatory requirements are promulgated in Gauteng. Another legal complication in South Africa is the right of ownership in terms of human tissue, e.g. when the placenta culture needs to be scrutinised in terms of the National Health Act No. 61 of 2003, Chapter 8: regulating human tissues.^{32,33,35} The development of new waste statutes in South Africa is a step in the right direction of an all-inclusive approach to waste management.³⁵

CONCLUSION AND RECOMMENDATIONS

The legislative framework in South Africa is becoming more standardised, in accordance with that of the EU. However, despite the stringent regulatory measures that are in place, HCRW dumping still occurs and the common cause is not known. Legal requirements are recommended for the challenge; even in Africa, standardised action is possible for HCRW disposal. Existent measures such as fines, administrative procedures and legal procedures do not adequately address the problem of HCRW.

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DECLARATION

The authors declare no conflicts of interest.

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