

**Handling and Management of Solid Healthcare Waste at
Ramallah Hospitals**

By

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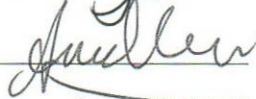
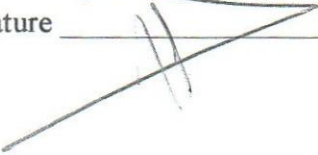
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Declaration:

- I certify that this thesis submitted for the degree of Master is the result of my own research, except where otherwise acknowledged, and that this thesis (or any part of the same) has not been submitted for a higher degree to any other university or institution.

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Dedication

This thesis is dedicated to my lovable Parents, brothers, sisters, my wife, and my two daughters; Mirna and Mirrel.

This work is also dedicated to my best friends Rana Ahed, Rana Abu Al-humus, Issam Mughanam and Burhan Daraghma.

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Abstract

The healthcare waste produced in the course of healthcare activity carries a higher potential for infection and injury than any other type of waste. The total absence of management measures to prevent exposure to hazardous healthcare waste results in the maximum health risk to the general public, patients, healthcare personnel and waste workers. It is of vital importance to note that even very limited waste management measures can dramatically reduce this risk.

Healthcare waste is a major problem in any society and particularly in developing countries. In the West Bank, healthcare waste management has not been given the proper attention during the years of Israeli occupation. With the growing number of hospitals established in the West Bank since 1996, healthcare waste management has become a primary concern particularly for health workers.

The researcher in this study explored the current status of the healthcare waste handling management and disposal procedures in Ramallah district hospitals. All ten hospitals (government, private and NGO's) in the Ramallah district were visited. A total 106 employees of the visited hospitals were invited to fill in a questionnaire that was developed especially for the purpose of this study based on the WHO developed instrument for hospital waste control and management.

A quantitative approach and design was utilized, where it systematically describes the phenomenon under investigation as it occurs in its natural environment.

It was found that almost all studied hospitals lack a system for segregation, treatment and proper disposal of healthcare waste. In addition, the lack of guidelines, legislation and a monitoring system has exacerbated the problem.

The researcher recommends that the need for a comprehensive plan should be set by the Palestinian Authority and namely the Palestinian Ministry of Health for a healthcare waste management in the West Bank as a whole and in Ramallah district in particular. The plan should include a description of the existing problems and the ways and methods to deal with them. It should develop regulations, legislations and guidelines at central and local levels to guide the operation of solid and hazardous waste systems management.

Implementation of the recommendations should be incremental, but it is of paramount importance that municipal authority and managers of Healthcare establishments are made fully aware of the need for proper waste management procedures.

الملخص التنفيذي

- الفضلات الإكلينيكية تعتبر من أكثر الفضلات خطورة حيث من الثابت إنها تشكل مصدرا خطرا على المجتمع وعناصره البيئية المختلفة إذا أسيت إدارتها.

سوء إدارة الفضلات الإكلينيكية تعتبر من أهم المشاكل التي تواجه المجتمعات وخصوصا البدائية منها. ففي فلسطين هذه الفضلات لم تعنى بأي اهتمام خلال سنوات الاحتلال، ونظرا لنقص المعلومات حول كيفية إدارة الفضلات الإكلينيكية وبسبب الزيادة المطردة في أعدادها فقد وجد من الضروري إجراء دراسة لبحث هذه المشكلة.

إن الباحث في هذه الدراسة قام بفحص الممارسات اليومية المتعلقة بإدارة الفضلات الإكلينيكية من مصدرها إلى مرحلة التخلص منها في مستشفيات رام الله.

لقد تمت الدراسة باستخدام أسلوب الزيارات الشخصية إلى عشرة مستشفيات في رام الله من مختلف القطاعات الصحية، وقد تم دعوة 106 موظفين من هذه المستشفيات للمشاركة في تعبئة استبيان طور خصيصا لهذه الدراسة. أظهرت نتائج الدراسة أن معظم المستشفيات المشمولة في الدراسة ليس لديها أية طريقة لمعالجة الفضلات الإكلينيكية .

إن الباحث يرى أن الحاجة ماسة إلى وضع خطة شاملة لإدارة الفضلات الإكلينيكية من قبل السلطة الفلسطينية وخاصة وزارة الصحة، إن هذه الخطة يجب أن تحتوي على طرق إدارة النفايات الطبية مثل الفصل، المعالجة وطرق التخلص منها كما يجب أن تحتوي على قوانين وأنظمة للتعامل مع هذه الفضلات .

Chapter 1

Introduction

Recent years have manifested increasing awareness towards environmental issues. One of which was the enhanced population growth rate, which puts stress on the rural communities and environmental resources as well as the sanitation services. The health sector is one of the major service areas that were affected by the population growth. It started to grow rapidly to provide needed health services across the country. Apparently, this growth has led to higher generation of healthcare waste. Handling and disposal of healthcare waste is part of a nation's total solid waste disposal problems. Most consumers including health professions and services have exacerbated this problem due to the increasing use of disposables.

This emphasizes the importance of managing healthcare waste in view of its associated hazard, since its impact may exceed other known hazardous waste. Secondly, this waste is often treated similar to domestic waste despite its known hazard, particularly in the absence of legislations, regulations and guidelines governing the type of treatment to be pursued (Bernstein, 1989).

Healthcare waste generators should be responsible for the proper disposal of the waste they generate, in order to ensure the proper treatment and safe disposal for the sake of minimizing the risk that may be impacted on the population and the environment.

1.1 Background and Problem Statement

Healthcare waste generated is in itself hazardous to the environment and the population. It carries a major source of potential infectious and bodily injuries (from needlestick).

It may contain any of a great variety of pathogenic micro-organisms, which may enter the human body and inflict major health problems both to the health care staff and the general population. Individual cases of accidental and subsequent infections caused by health care waste are well documented (Bernstein, 1989). Many cases of infections (including HIV/AIDS and Hepatitis B and C) result from exposure to improperly managed health care waste. Apart from the fear of hazards, the general public is very sensitive to the individual impact of health waste, particularly anatomical waste, that is recognizable human body parts including fetuses (Gostin, 1997).

To eliminate the hazard of healthcare waste, adequate and appropriate methods of dealing and treating of the waste should be available and implemented by the producing parties. Management of healthcare waste is a critical part of environmental health protection.

While hospitals are considered the primary generators of healthcare waste by volume, the figures captures only a fraction of the healthcare facilities that generate healthcare waste (Rutala *et al.* 1989). Approximately 500,000 tons of healthcare waste is produced in the USA annually by about 375,000 waste generators (U.S. EPA, 1991; Schmidt, 1996). Most healthcare waste (about 77%) is produced by hospitals which comprise about 2% of the total number of generators. The remainder of healthcare waste is produced by large, diverse group of generators, including physicians, clinics, dentists and pharmacies, most of which generates less than 50 pounds (22.7Kg) / month (Schmidt, 1996).

Between 75% and 90% of the waste produced by healthcare providers is non-risk or "general" health-care waste, comparable to domestic waste. It comes mostly from the administrative and housekeeping functions of healthcare establishments and may also include waste generated during maintenance of healthcare premises. The remaining 10-25% of health-care waste is regarded as hazardous and may create a variety of health risks (WHO, 1999)