

ENDORSEMENT

THESIS TITLE

**Medical Waste Management Among Health Workers in Gaza
Governorates**

Supervisor :

Title

Dr. Yousef Abou safieh

Minister of Environment

Y. Abou Safieh

Signature

9.9.2000

Date

Advisor :

Title

Dr. Suzane Shushaa

Director of Research in MOH

Signature

Date

S. Shushaa

8.11.2000

External Examiner :

Title

Ulrich Laser

Section of International

Public Health

School of Public Health

University of Bielefeld

Signature

Date

*On behalf of
Dr. Tehia Abed*

9.9.2000

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ملخص

إدارة النفايات الطبية بين العاملين في محافظات غزة

أجريت تلك الدراسة لتسليط الأضواء على مشكلة معالجة النفايات الطبية من حيث الجمع والتخزين والتخلص منها وذلك في المستشفيات والعيادات الحكومية في محافظات غزة , وكان الهدف من هذه الدراسة

- تقييم معرفة العاملين ومواقفهم وممارساتهم في معالجة النفايات الطبية.
- وصف وتحليل الوضع الحالي لإدارة النفايات الطبية.
- وضع قاعدة بيانات فيما يتعلق بالنفايات الطبية بحيث تخدم صناع القرار.
- اقتراح توصيات من خلال نتائج البحث لإدارة النفايات الطبية.

وقد استخدم الاستبيان لجمع المعلومات من العاملين في الحقل الصحي من أطباء وممرضين وفنيين وعمال، وقد تم اختيار العينة بالأسلوب العشوائي وفق خطة معينة تتناسب مع توزيع العاملين في الخدمات الصحية الحكومية في محافظات قطاع غزة الخمس. وكان حجم العينة 400 شخص ونسبة الاستجابة 65%. وقد استخدم أيضا نظام مراقبة لنفس المراكز التي وزعت فيها الاستبيانات وذلك وفق قائمة مراجعة حتى تتمكن من إدخالها إلى الحاسب الآلي و تم أيضا عقد مقابلات لستة عشر شخصا من صناع القرار في وزارات مختلفة تتعامل مع النفايات الطبية أو لها علاقة بهذا الموضوع .

وقد أشارت نتائج البحث إلى أنه لا يوجد حاليا قانون أو إدارة خاصة لإدارة النفايات الطبية، ولا يوجد فصل لأنواع النفايات الطبية المختلفة عدا الإبر والسرنجات التي يتم وضعها في علب خاصة جاءت كهبة من منظمة الصحة العالمية.

ليس هناك فصل للنفايات الطبية عن النفايات العادية عن طريق أكياس بألوان ونوعية خاصة، بل أن أكياس النفايات العادية تستعمل في جمع ونقل النفايات الطبية التي يتم تخزينها مع النفايات العامة في الشارع في

عيادات الرعاية الأولية وعلى أبواب المحارق في المستشفيات.

يتم التخلص من النفايات الطبية في عيادات الرعاية الأولية مع النفايات العامة، أما في المستشفيات فهي تحرق في محارق خاصة دون نظام متابعة لتلك المحارق أو للإجراءات الوقائية للعاملين عليها.

معرفة العاملين كانت مرتفعة بالنسبة للإبر والسرنجات كمخلفات خطيرة، وكذلك لأخطار النفايات الطبية على الصحة وتأثيرها الضار الطبية على البيئة.

كان هناك نقص واضح في المعلومات عن المواد المشعة والعلب المضغوطة كمكونات للنفايات الطبية، والأخطار الناتجة عن سوء التعامل مع النفايات الطبية والأمراض التي يمكن أن تنتج من ذلك.

أما مواقف العاملين فقد أشارت تلك الدراسة إلى مستوى عال في المواقف الإيجابية نحو التقدم والحاجة إلى التعليمات والتدريبات الخاصة بهذا الموضوع. وقد عبر العاملون عن مواقف سلبية نحو المحارق والوضع الحالي للتخلص من النفايات الطبية.

أما الممارسات فلم تكن على المستوى المطلوب و ذلك نتيجة لنقص الإمكانيات المادية والتقنية، نقص في معرفة العاملين وعدم التنسيق بين الوزارات .

وعلى ضوء تلك النتائج توصي الدراسة .

- بسن قانون خاص وإنشاء دائرة خاصة للنفايات الطبية تتولى الإشراف ومتابعة الموضوع.
- توفير الإمكانيات المادية والتقنية.
- توفير العلاقة والتعاون الأوثق بين الوزارات في هذا الموضوع.
- التثقيف الصحي والتدريب لجميع العاملين في مجال الرعاية الصحية عن طريق عقد الدورات والمحاضرات.
- التثقيف الصحي للمجتمع ككل بخصوص هذا الموضوع عن طريق وسائل الإعلام كالتلفزيون والجراند والمجلات.

Abstract

The study "Medical Waste Management Among Health Workers in Gaza Governorates" was conducted to identify and highlight the problem of medical waste management in terms of collection, storage and disposal among health workers in governmental hospitals and clinics in Gaza Governorates. The survey was carried out using self-administered questionnaire for health workers of different professions who were asked about their knowledge, attitudes and practices in regard to medical waste; checklist for observation of the current situation and in depth interviews. The questionnaire sample size was 400 subjects and the response rate was 65%. Observation was done on five hospitals and eleven primary health care clinics and interviews were done for sixteen stake holders in different ministries. Results of the baseline survey showed that medical waste is not governed by legal aspects, and there is no authorized system for medical waste management. Separation of different types of waste at site is done only for sharps. There is no system of color coding bags. Storage and disposal is with domestic wastes in primary health care clinics, and in hospitals it is stored near incinerators where it is incinerated with no emission control. Precautions and safety measures are insufficient especially for incinerator workers. The study revealed some gaps in knowledge among health workers, positive attitudes towards improvement and inadequate practices due to inaccessibility of necessary facilities. It is recommended that decision makers should formulate legislation and codes of practice and enforce them, develop an authorized system that deal with all aspects of medical waste, make accessible adequate facilities and equipment, facilitate the collaboration between all levels of government regarding medical waste and above all raise the level of awareness of health workers, patients and all the community.

Chapter 1

Introduction

1.1 Statement of the problem

Medical waste is a public health issue that attracts attention in both developed and developing countries. The tendency to use disposable materials, coupled with population explosion results in increase in the volume and complexity of medical waste. Also the emergence of diseases like Hepatitis B and HIV has increased the concern about medical waste. Hospitals and clinics are assumed to be blessings for people, but in fact they have another negative side. For certain categories of wastes generated by these places are among the most hazardous and potentially dangerous of all the waste arising in the community. These wastes carry a higher potential for infection and injury than any other type of waste. Inadequate and inappropriate handling of medical waste may have serious public health consequences and a significant negative impact on the environment.

Dangers arising from improper management of wastes in hospitals and clinics are numerous, not only to health care workers, but to patients and their relatives and children who come in contact with the waste and are exposed to infection, especially from needles and other sharps. Discarded drugs can be found fairly in hospital ground and in clinic trashes and may be collected and consumed or sold without professional advice. In addition to health hazards, ecological risks have to be considered, such as microbiological and chemical contamination of soil and ground water and poisonous emissions from burning plastics. In the long run medical waste

negative impact impairs not only the quality of life of the community, but also affects the welfare of the entire population and national economy.

So proper management of medical waste is essential, and on site survey of the current situation is a basis for developing an effective waste management system.

This study highlights the problem of medical waste in governmental institutions so that it might help in identifying the problem and acts as a starting point for further investigations in health care institutions including UNRWA, NGOs, military, police, and private sector.

Chapter 7

7.1 Conclusion

It can be concluded from the study that medical waste in Gaza Governorates is not given the right concern. Legislation, national regulations and codes of practice are in the process of development but there is no authorized system responsible for medical waste management. Separation of different types of waste at the site of generation is not practiced except for sharps which are collected in special boxes. No color coding bags or storage rooms are used. Medical waste is transported in thin plastic bags and stored with domestic waste in primary health care clinics and in open air near the incinerator in hospitals where it is incinerated. Supervision and monitoring on incinerators is weak, and protective devices for incinerators workers are nearly absent.

Knowledge is high concerning sharps as a constituent and hazardous category of medical waste, exposure of health care workers to hazards of medical waste and that medical waste is a major pollutant to environment. There is a gap in knowledge concerning pressurized and radioactive items as constituents and hazardous categories of medical waste, occupational hazards as main routes of exposure, and diseases transmitted through improper management of medical waste.

The current situation of medical waste in Gaza Governorates is unsatisfactory. It is a result of inaccessibility of necessary supplies and facilities, lack of knowledge among health workers and lack of coordination among different ministries. These are the basic needs that should be tackled in the future, and this leads us to suggest the following strategy:

7.2 Recommended Strategy For Medical Waste Management

7.2.1 Authorized directorate

One of the most important issues in the recommended strategy is to establish a complete and integrated safe and well functioning system for medical waste management. It includes improved organization, cooperation and collaboration efforts to help to protect all staff, patients, visitors, external waste handlers and all the community against the risks of medical waste. This involves establishment of an authorized directorate responsible for all aspects of medical waste. It requires a definite budget, special departments and authorized personnel. Its function will be to monitor medical waste not only in governmental institutions, but in all other sectors including UNRWA, NGOs, military, police and private sector. Documentation is essential, so medical waste directorate ought to have a system of documentation and registries for all aspects of medical waste including quantities, handling methods, disposal methods and accidents and diseases that might result from improper management of medical waste. Registration of all accidents will help to sensitize the public and decision makers, because the moving character of those stories creates consciousness to change.

7.2.2 Coordination between ministries

Coordination between different ministries concerned with medical waste is essential for proper management. MOE formulate legislation, rules and guidelines and make sure that medical waste generated not only from governmental institutions, but also from other sectors like UNRWA, NGO, military, police and private sectors, does not

pollute the environment. It has also the role of setting standards for incinerators emissions and continuous monitoring of these emissions. MOH has the responsibility of proper handling and management of medical waste and municipality has the role of final disposal.

7.2.3 Health Education

Proper medical waste management system requires implementation of training health and awareness programs. Health professionals should be made aware of constituents of medical waste, of the potential danger that may result from improper management of medical waste and the means of avoiding that danger. So health education programs through instructions, seminars and films should be organized to health workers. Also training courses on certain practices should be conducted to health workers. Evaluation of the impact of the educational programs and training courses should be made in order to see if these programs achieved the desired objectives of increasing knowledge, modifying attitudes and changing practices. The community should have its share of knowledge of hazards of medical waste. The Ministry of Health should start a coordinated national health education program including the hazards of improper management of medical waste. Such a program can be carried out through written material, posters, magazines and the use of audiovisual aids including television programs. Also information concerning the hazards of medical waste should be incorporated as a part of the general health curriculum beginning in the earliest grades of school.

Health education should not only be confined to hazards of medical waste, but it should include *waste minimization*; which is reduction of the waste at source, this could involve good housekeeping, preventive actions and recycling.

7.2.4 Provision of adequate facilities and supplies

Needed facilities for proper medical waste handling such as color coding bags, puncture proof containers and special cars for medical waste transport should be provided. Medical waste bags and containers should be provided to private sectors and other institutions with symbolic prices. Also full safety in handling medical waste should be ensured. This can be done by provision of protective devices like special protective clothing, special hand and arm protection , eye and face protection and respiratory equipment. Personnel should be made aware of the value of these equipment and devices, and then they should be enforced by rule to using them.

7.2.5 Handling and disposal of medical waste

A national program containing uniform requirements for medical waste handling and disposal should be created. Requirements must include the following:

- Definition of medical waste by category.
- Handling and packaging requirements.
- Transport requirement.
- Disposal facility requirement.

7.2.5.1 Segregation

Segregation is the corner stone of waste management. Medical waste should be segregated at source, where the waste is generated. It should be segregated according to the following categories:

7.2.5.1.1 Non hazardous waste or general waste:

Usually requires no special measure. Recycling should be practiced whenever possible. It should be stored in leak proof containers and protected from scavengers such as rodents, dogs and people.