

# Creation of New Biomedical and Hazardous Waste Management Tools for THAI-NIH



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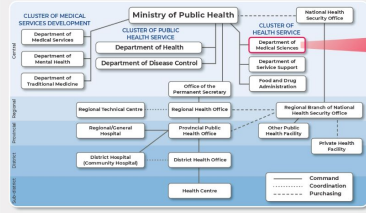
## Abstract

This presentation outlines a Biorisk Management (BRM) partnership project that involved developing uniformity with the hazardous waste management policies at the Thailand NIH, as biomedical and hazardous waste management are a critical component of the biorisk management plan at the institution. The project reviewed existing policies with related local, national and international waste management best practices to update biomedical waste and hazardous waste program at the Thailand NIH.

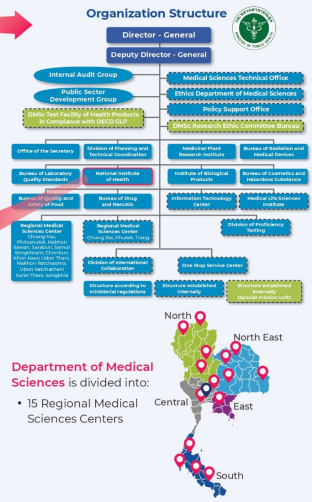
## Background

This new Regional Public Health Laboratory (RPHL) twinning initiative is a unique, first of its kind partnering and networking project opportunity pairing Biorisk Management (BRM) experts from Australian laboratories with BRM professionals from Thailand and Malaysia. Projects that support BRM in Thailand and Malaysia, will also ultimately support the RPHL network and its 14 member countries.

### MINISTRY OF PUBLIC HEALTH, THAILAND



### DEPARTMENT OF MEDICAL SCIENCES



### NATIONAL INSTITUTE OF HEALTH (NIH)

- 9 groups of Laboratory units (25 Laboratories)
- Total staff = 290



### Department of Medical Sciences is divided into:

- 15 Regional Medical Sciences Centers



## Goals and Objectives

1. Assemble waste management working committee.
2. Compared existing policies with local, national and international biomedical and hazardous waste policies and best practices.
3. Created initial drafts of waste checklist and tools.
4. Compiled all existing hazardous waste forms for distribution.
5. Provided drafts to safety officers for evaluation and feedback.
6. Utilized comments to finalize waste management tools.

## Project Rationale

Biomedical and Chemical waste management is a critical for protecting staff and complying with regulations, standards, and guidelines.

- Lack of uniformity with waste management policies at our institution.



## Project Summary

We established a working committee representing the NIH Safety Office, Quality Management, and also included the NIH Deputy Director to address a lack of uniformity with hazardous management waste policies.

This committee was tasked with identification of gaps in the existing waste management program at the THAI-NIH.

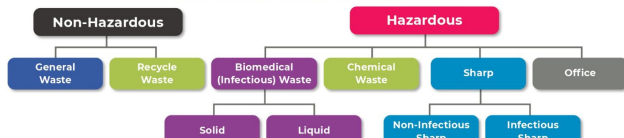
## Results

- Established a waste management committee
- Developed a combined biomedical and hazardous waste self-audit checklist
- Collected waste inspection data from 22 NIH Laboratories
- Created educational infographics on biomedical waste, chemical waste and emergency response

## 1. Compared existing policies with local, national and international biomedical and chemical waste policies and best practices

Standard	Organization (Documents are in Thai Language)	National	International
Document Abbreviation	SOP-NIH BIO-Safety-DMSc CHEM-Safety-DMSc	PAT-Act*	WHO, LBM4*
Documents Name	SOP 13-01-003 Waste Management, National Institutes of Health Biological Laboratory Safety Manual, Department of Medical Sciences	Chemical Laboratory Safety Manual, Department of Medical Sciences	Pathogens and Animal Toxins Act, B.E. 2558 (2015), Department of Medical Sciences Laboratory Biosafety manual, 4th edition: Decontamination and waste management Biorisk management for laboratories and other related organizations
Related Content	SOP 13-01-003 (The content in SOP uses BIO-Safety-DMSc and CHEM-Safety-DMSc as reference)	Chapter 13: Infectious Waste Management Infectious waste from biological laboratories 31 Non-Hazardous Waste	The Pathogens and Animal Toxins Act 2015 was established for the controlled production, possession, sales, 31 Considerations for waste 8:8 Decontamination and waste management The organization shall establish and
			ISO 35001* ISO 15190*
			71: Waste disposal and management 71:1 General considerations 71:2 Waste

### NIH DMSc Waste Management



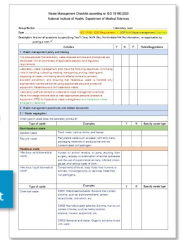
SOP/Bio/CHEM Safety DMSc	PAT Act	ISO 35001	WHO LBM4	ISO 15190
Collection	Transfer (Ministry Law)	Decontaminate	Segregate	Handling
Moving	Transport (Ministry Law)	Identification	Storage	Collection
Transportation	Collect	Segregation	Transport	Treating
Disposal	Stored	Packaging Transport	Record	Transporting
	Moved	Dispose	Emergency Response	Storing
	Dispose	Document & Procedure	Disposing	

## 2. Created initial drafts of waste checklist and tools

### OVERVIEW OF THE THAI-NIH WASTE CHECKLIST

- Waste Management Checklist according to ISO 35001 and 15190 (Thai and English versions were created)
1. Waste management policy and training (3 questions)
  2. Waste management procedures and related documents (47 questions)
    - 2.1 Segregation
    - 2.2 Collection and provision of waste containers
    - 2.3 Treatment (Decontamination)
    - 2.4 Transport
    - 2.5 Disposal
  - 3.3. Hazardous waste emergency response (5 questions)

55 total hazardous waste questions on the checklist



## 3. Compiled all existing hazardous waste forms for distribution

### WASTE MANAGEMENT RECORD FORM

1. Chemical waste container attachment form (DMSc)
2. Chemical waste disposal form (CW 01-13: Chemical waste) (DMSc)
3. Glassware/ infectious waste for decontaminate (autoclave) form (NIH)
4. Infectious waste submission record form (DMSc)
5. Incidence record form (DMSc)



## 4. Utilized comments to finalize waste management tools

22 of 25 Labs completed the review of the checklist and provide feedback.

Topic	Completed to fill form in checklist	Notes	Topic	Comments
1. Waste management policy and training (3 questions)	22/22 (100%)		1. Waste management policy and training (3 questions)	-
2. Waste management procedures (47 questions)	19/22 (86.4%)		2. Waste management procedures (47 questions)	No guideline for disposal form/bag/ice waste
3. Hazardous waste emergency response (5 questions)	22/22 (100%)		3. Hazardous waste emergency response (5 questions)	-

3 Lab/22: not completed on chemical waste

6/22 (27.3%): Not indicated the examples of waste in the Lab

8/22 (36.4%): Not indicated the chemical & concentration used for decontaminate



## Resources Created

Waste checklists, updated standard operating procedures, disposal forms, and training infographics were created as part of the project. The tools and checklists were utilized in 22 labs at the NIH, and the results were utilized to standardize the hazardous waste programs.

## OUR TOOLS ENSURE THAT STAFF UNDERSTAND AND EFFECTIVELY IMPLEMENT A NEW WASTE MANAGEMENT CHECKLIST.

This tools were created after reviewing completed checklists from 22 NIH labs.



Thai and English versions were created.



## Conclusion

The updated and standardized biowaste and hazardous waste policies were used within 22 labs within the NIH DMSc Thailand. We will also share our resources with laboratories within the Department of Medical Sciences, Thailand.

## Next Steps

- Engage the Thai public health community in waste management initiatives and encourage participation through workshops, events, and volunteer programs.
- Launch educational campaigns to raise awareness about waste management practices, recycling, and the importance of waste reduction.

## Acknowledgements

- NIH, DMSc Staff, Safety officer, The Director
- Defense Threat Reduction Agency
- Regional Public Health Laboratory (RPHL)
- Sandia National Laboratories

