



# Chemical Safety, Substitution and Management Training for Health Workers

## TRAINING SYLLABUS

# MODULE 1

## Formation of Chemical Safety and Management Committee

### Objectives:

At the end of the course, the trainees are expected to:

- 1 Establish the formation of their Chemical Safety and Management Committee in their respective health care facilities
- 2 Identify the function and responsibilities of the members of the Chemical Safety and Management Committee
- 3 Develop a committee/ organizational chart and relate it with the functions of other departments or units in the hospital
- 4 Include the following in the hospital's manual of operation and/ or policies and procedures
  - Chemical Safety and Management Committee composition, function/ responsibilities of the committee and members
  - Chemical Safety and Management Committee chart (its relationship with other departments/ units in the hospital)

### Topics:

- Composition and Function of Chemical Safety and Management Committee
- Responsibilities of members of the Chemical Safety and Management Committee

### Teaching/Learning Methodology:

- Group Discussion among members of the Chemical Safety and Management Committee
- Documentation of the responsibilities and functions of the Chemical Safety and Management Committee
- Plenary/ Presentation of output per hospital on during the actual training

### Time Allotted:

- 3-5 hours; own time of participants/ members of the Chemical Safety Management Committee

### Materials Needed:

- Available references
- Blackboard / whiteboard/ manila paper
- Writing pens/ chalks
- Bond papers
- Venue for discussion

### References:

Workshop output of participating Health Care Facilities

# MODULE 2

## Documentation and Identification of existing Health Care Wastes and Practices in Handling Chemicals of the Health Care Facility

### Objectives:

At the end of the course, the trainees are expected to:

- 1 Document the volume (milliliters or liters) and/ or weight (kilograms) of the following health care wastes generated by the hospital per day for one (1) month:
  - a. sharps
  - b. infectious wastes – dressings from infected or surgical wounds, wastes from surgeries and autopsies, cultures and stocks from infectious agents from laboratory work, wastes that has been in contact with infected patients (dialysis equipment such as tubings, filters, etc.)
  - c. food wastes (biodegradable)
  - d. general wastes (non-biodegradable) – plastics, papers, cartons, etc.
  - e. pathological wastes – tissues, organs, body parts, blood, placenta and body fluids
  - f. chemical wastes – fixers, developers, laboratory reagents
  - g. pharmaceutical wastes
- 2 Identify priority chemicals for substitution in the health care facility considering the following factors:
  - a. present use/ function of the chemical disinfectant/ cleaner
  - b. present use of medical supply/ies containing hazardous chemicals (i.e. tubings containing PVC, etc.)
- 3 Refer to the matrix on the next page for proper documentation of health care wastes in the hospitals/ health care facilities.
- 4 Review and discuss the practices in handling chemicals on the following aspects:
  - a. segregation
  - b. collection and disposal
  - c. chemical waste treatment
  - d. Safety practices
- 5 Present results of output for Module 2 during the actual training.

### Topics:

- Identification of priority chemicals in the health care facility
- Handling, collection, disposal and treatment of chemical wastes
- Safety practices in handling chemicals

### Teaching/ Learning Methodology:

- Documentation and monitoring skills of trainees on weight and volume healthcare wastes, handling of chemicals and safety practices are enhanced

### Time Allotted:

- 1 day actual review and discussion on handling of chemicals
- 1-2 days for review of hospital's record for monitoring the volume of different types of health care wastes

### Materials Needed:

- Ordinary weighing scale
- Beaker or graduated cylinder
- Sample Matrix for healthcare waste documentation
- Papers and writing pens

Healthcare Wastes	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Total per week/ month
1. Sharps								
2. Infectious wastes								
3. Food wastes								
4. General wastes								
a. plastics								
b. papers								
c. cartons								
5. Pathological wastes								
6. Chemical wastes								
7. Pharmaceutical wastes								

### References:

- Manual on Health Care Waste Management 3rd edition, Department of Health, December 2011
- Chartier, Yves, et.al, Safe Management of Wastes from Health Care Activities second edition, World Health Organization, 2013.

# MODULE 3

## Policies and Regulations related to Chemical Safety, Substitution and Management (including local and international regulations)

### Objectives:

At the end of the course, the trainees are expected to:

- 1 Know and understand the different international and local policies related to chemical safety and management
- 2 Know and understand the initiatives of the different government agencies with regards to chemical safety and management (i.e., Department of Health, Department of Energy and Natural Resources, local government units, etc.)
- 3 Know and understand the different components of a Comprehensive Chemicals Policy Program in Health Care :
  - Purpose
  - Long-term goals
  - Principles
  - Benefits
- 4 Recommend possible policies/ law on chemical safety, substitution and management

### Topics:

- DOH-DENR Joint Administrative Order No. 02 series of 2005 dated August 24, 2005 entitled “Policies and Guidelines on Effective and Proper Handling, Collection, Transport, Treatment, Storage and Disposal of HCW”
- Executive Order No. 301 (2004) “Establishing a Green Procurement Program for All Departments, Bureau, Offices and Agencies of the Executive Branch of Government”
- DOH Administrative Order No. 2008-0021 dated July 30, 2008 “Gradual Phase out of Mercury in all Philippine Healthcare Facilities and Institutions”
- DOH Administrative Order No. 2008-0023 dated July 30, 2008 “National Policy on Patient Safety”

- The Basel convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1989)
- Chemicals Convention, 1990 (No. 170)
- Globally Harmonised System for Classification and Labelling of Chemicals (GHS)

### Teaching Methodology:

- Lecture- discussion

**Time Allotted:** 1.5 hours

### Materials Needed:

- Writing pens, Papers and Reference materials

### References:

- Manual on Health Care Waste Management 3rd edition, Department of Health, December 2011
- Chartier, Yves, et.al, Safe Management of Wastes from Health Care Activities second edition, World Health Organization, 2013.
- <http://elibrary.judiciary.gov.ph/index10.php?doctype=Executive%20Orders&do cid=5d3ffd0d08f72df23d314ca4b4f60615455a487b23672>
- [http://denr.gov.ph/policy/2005/dao/ joint\\_ dao2005-02.pdf](http://denr.gov.ph/policy/2005/dao/ joint_ dao2005-02.pdf)
- [http://www.saicm.org/index.php?option=com\\_content&view=article&id=454&Itemid=691](http://www.saicm.org/index.php?option=com_content&view=article&id=454&Itemid=691)

# MODULE 4

## Understanding Chemicals and its Hazardous Effects

### Objectives:

At the end of the course, the trainees are expected to:

- 1 Understand the definition of the following:
  - a. Chemicals
  - b. Chemical Hazards
  - c. Chemical Wastes
  - d. Hazardous Chemicals
  - e. Waste Reduction/ Minimization of Chemicals
  - f. Chemical Inventory
  - g. Chemical Storage
- 2 Know the different routes of exposure of chemicals.
- 3 Identify the two (2) types of Chemical Hazards
- 4 Identify the different types of chemicals used in the health care facility.

### Topics:

- Definition of different types of Chemicals
- Different sources and composition of chemical wastes
- Hazardous Effects of Chemicals
- Handling, Storage, Transport and Disposal of Chemical Wastes

### Teaching/Learning Methodology:

- Lecture- discussion

**Time Allotted:** 1.5 hours

### Materials Needed:

- Writing pens
- Papers
- Workshop output from previous modules
- Reference materials

### References:

- Health Care Without Harm website
- World Health Organization website
- Manual on Health Care Waste Management 3rd edition, Department of Health, December 2011
- Chartier, Yves, et.al, Safe Management of Wastes from Health Care Activities second edition, World Health Organization, 2013.
- Department of Occupational Health and Safety, Chemical Safety Division, "Chemical Safety and Waste Management Manual 2002 edition", University of Alabama at Birmingham.
- <https://www.osha.gov/dsg/hazcom/msdsformat.html>
- [www.csooc.org/files/haz\\_com\\_training](http://www.csooc.org/files/haz_com_training)

# MODULE 5

## Chemical Safety Management and Substitution

### Objectives:

At the end of the course, the trainees are expected to:

- 1 Know and understand the importance of chemical management through hazard communication:
  - a. Proper labeling
  - b. Material Safety Data Sheet (MSDS)
  - c. Education and training
- 2 Identify the components of material safety data sheet (MSDS)
- 3 Know the components of Chemical Hygiene Plan
- 4 Know the components of Chemical Substitution Plan

### Topics:

- Hazard Communication
- Chemical Hygiene Plan

### Teaching/Learning Methodology:

- Lecture- discussion
- Workshop: Develop a Chemical Hygiene and Substitution Plan for your health care facility

**Time Allotted:** 2 hours

### Materials Needed:

- Sample MSDS of a Chemical Disinfectant
- Writing pens, Papers and Reference materials

### References:

- Manual on Health Care Waste Management 3rd edition, Department of Health, December 2011
- Chartier, Yves, et.al, Safe Management of Wastes from Health Care Activities second edition, World Health Organization, 2013.
- Department of Occupational Health and Safety, Chemical Safety Division, “Chemical Safety and Waste Management Manual 2002 edition”, University of Alabama at Birmingham.
- International Labour Organization, Five Day Training Workshop on Chemical Safety <http://www.ilo.org/legacy/english/protection/safework/cis/products/safetytm/5daytra>.
- [http://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/GHS\\_presentations/English/hazcom\\_e.pdf](http://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/GHS_presentations/English/hazcom_e.pdf)
- [http://www.unece.org/trans/danger/publi/ghs/presentation\\_e.html](http://www.unece.org/trans/danger/publi/ghs/presentation_e.html)
- <https://www.osha.gov/dsg/hazcom/msdsformat.html>
- [http://www.mvapmed.com/MSDS\\_Forms/Cidex%20OPA%2020390.pdf](http://www.mvapmed.com/MSDS_Forms/Cidex%20OPA%2020390.pdf)
- [www.csooc.org/files/haz\\_com\\_training](http://www.csooc.org/files/haz_com_training)

# MODULE 6

## Handling, Transport and Disposal of Chemicals in Health Care

### Objectives:

At the end of the course, the trainees are expected to:

- 1 Determine the different impacts on improper disposal of chemical wastes
- 2 Know and understand the following:
  - ✓ proper handling of chemicals
  - ✓ storage of chemicals
  - ✓ collection and transport of chemicals
  - ✓ disposal of chemicals
- 3 Determine the different types of treatment for chemical wastes.

### Topics:

- Handling, storage, transport and disposal of chemicals/ chemical waste

### Teaching/Learning Methodology:

- Lecture- discussion

**Time Allotted:** 1 hour

### Materials Needed:

- Writing pens, Papers and Reference materials

### References:

- Manual on Health Care Waste Management 3rd edition, Department of Health, December 2011
- Chartier, Yves, et.al, Safe Management of Wastes from Health Care Activities second edition, World Health Organization, 2013.
- Department of Occupational Health and Safety, Chemical Safety Division, "Chemical Safety and Waste Management Manual 2002 edition", University of Alabama at Birmingham.
- International Labour Organization, Five Day Training Workshop on Chemical Safety <http://www.ilo.org/legacy/english/protection/safework/cis/products/safetytm/5daytra.htm>
- [http://www.unece.org/trans/danger/publi/ghs/presentation\\_e.html](http://www.unece.org/trans/danger/publi/ghs/presentation_e.html)
- [http://www.nptel.iitm.ac.in/courses/IITMADRAS/Environmental\\_Chemistry\\_Analysis/Pdfs/7\\_5.pdf](http://www.nptel.iitm.ac.in/courses/IITMADRAS/Environmental_Chemistry_Analysis/Pdfs/7_5.pdf)

# MODULE 7

## Personnel Safety/ Use of Appropriate Personal Protective Equipments

### Objectives:

At the end of the course, the trainees are expected to:

- 1 Know and understand the use of the different personal protective equipments (PPEs) use for handling and transporting chemicals and chemical wastes.
- 2 Identify and enumerate the general safety rules in chemicals management.
- 3 Develop a list of PPE materials needed by your health care facility for chemicals management and include the list in your chemicals safety management manual.

### Topics:

- Safety of Personnel
- Appropriate Personal Protective Equipments

### Teaching/Learning Methodology:

- Lecture
- Workshop

**Time Allotted:** 1.5 hour

### Materials Needed:

- Workshop output from previous modules

### References:

- Manual on Health Care Waste Management 3rd edition, Department of Health, December 2011
- Chartier, Yves, et.al, Safe Management of Wastes from Health Care Activities second edition, World Health Organization, 2013.
- Department of Occupational Health and Safety, Chemical Safety Division, “Chemical Safety and Waste Management Manual 2002 edition”, University of Alabama at Birmingham.
- Asia-Pacific Bio-safety Training Network
- International Labour Organization, Five Day Training Workshop on Chemical Safety <http://www.ilo.org/legacy/english/protection/safework/cis/products/safetytm/5daytra.html>
- [http://www.unece.org/trans/danger/publi/ghs/presentation\\_e.html](http://www.unece.org/trans/danger/publi/ghs/presentation_e.html)

# MODULE 8

## Prevention of Chemical Hazards/ Management of Spills

### Objectives:

At the end of the course, the trainees are expected to:

- 1 Identify and respond to the following:
  - a. Chemical Spill
  - b. Chemical Fire
- 2 Learn different techniques on how to prevent chemical hazards
- 3 Demonstrate the procedures on how to respond to the following:
  - a. Chemical Spill
  - b. Chemical Fire
- 4 Document/ write the procedure for chemical spill prevention and response

### Topics:

- Chemical Hazards
- Management of Chemical Spills

### Teaching/Learning Methodology:

- Lecture- discussion
- Demonstration of Management of Chemical Spills
- Return-demonstration
- Workshop: Write the procedure for chemical spill prevention and response for your own health care facility

**Time Allotted:** 2 hours

### Materials Needed:

- Writing pens, Papers
- Workshop output of participants
- Procedure for Chemical spill prevention and response

### References:

- Manual on Health Care Waste Management 3rd edition, Department of Health, December 2011
- Chartier, Yves, et.al, Safe Management of Wastes from Health Care Activities second edition, World Health Organization, 2013.
- Department of Occupational Health and Safety, Chemical Safety Division, "Chemical Safety and Waste Management Manual 2002 edition", University of Alabama at Birmingham.
- Asia-Pacific Bio-safety Training Network
- International Labour Organization, Five Day Training Workshop on Chemical Safety <http://www.ilo.org/legacy/english/protection/safework/cis/products/safetytm/5daytra.html>
- [http://www.unece.org/trans/danger/publi/ghs/presentation\\_e.html](http://www.unece.org/trans/danger/publi/ghs/presentation_e.html)
- <http://www.ehs.columbia.edu/ChemicalSpills/Fires.html>

# MODULE 9

## Plan of Action and Implementation

### Objectives:

At the end of the course, the trainees are expected to:

- 1 Develop a plan of action on chemical substitution and management per health care facility considering the following components:
  - Activities
  - Schedule of Implementation
  - Personnel or Department In-Charge
  - Resources Needed
  - Budget

*(Example shown at the bottom of this page)*
- 2 Identify the different components/ elements of an effective plan of action to implement an Institutional Chemical Policy
  - Measurable Goals
  - Timeliness, Point People and Scheduled Review of Pilot Results and Planning for Future Actions
  - Education and Capacity Building
  - Labeling and Communication
  - Report on Progress
  - Auditing Information
- 3 Follow the checklist for Chemicals Policy Implementation so that each health care facility shall effectively execute the plan of action.

### Topics:

- Safety of Personnel
- Appropriate Personal Protective Equipments

### Teaching/Learning Methodology:

- Lecture
- Workshop

**Time Allotted:** 1.5 hours

### Materials Needed:

- Workshop output from previous modules

### References:

- Manual on Health Care Waste Management 3rd edition, Department of Health, December 2011
- Chartier, Yves, et.al, Safe Management of Wastes from Health Care Activities second edition, World Health Organization, 2013.
- Department of Occupational Health and Safety, Chemical Safety Division, "Chemical Safety and Waste Management Manual 2002 edition", University of Alabama at Birmingham.
- Asia-Pacific Bio-safety Training Network
- Susan Wilburn, et.al, Guide to Choosing Safer Products and Chemicals: Implementing Chemicals Policy in Health Care, Health Care Without Harm, May 2008.
- International Labour Organization, Five Day Training Workshop on Chemical Safety <http://www.ilo.org/legacy/english/protection/safework/cis/products/safetytm/5daytra.htm>
- [http://www.unece.org/trans/danger/publi/ghs/presentation\\_e.html](http://www.unece.org/trans/danger/publi/ghs/presentation_e.html)
- [http://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs\\_rev01/English/00e\\_intro.pdf](http://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev01/English/00e_intro.pdf)

Goals	Activities	Schedule	Personnel or Department In-Charge	Resources Needed	Budget
1 Develop policies and procedures on Chemical Substitution and Management	1 Draft policies and procedures on chemicals substitution and management	September 18, 2013	Chemicals Management Committee	<ul style="list-style-type: none"> <li>• Office supplies</li> <li>• Computer</li> <li>• Venue for meeting</li> </ul>	Php 5,000.00
	2 Submission to Hospital Administrator for approval	September 20, 2013	Chemicals Management Committee	<ul style="list-style-type: none"> <li>• Office supplies</li> <li>• Computer</li> <li>• Venue for meeting</li> </ul>	Php 5,000.00