

TRAINING MANUAL

on Standard Operating Procedures for preventing and responding to Public health emergencies at Points of Entry



Directorate of Quarantine, Ministry of Health , Sri Lanka

Supported by the



International Organization for Migration (IOM)

2014

**Training Manual
on
Standard Operating Procedures
for
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Public Health Emergencies
at Points of Entry**

**Directorate of Quarantine
Ministry of Health, Sri Lanka**

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FORWARD

Sri Lanka's geopolitically significant location closer to one of the busiest maritime routes has resulted in significantly large flow of population movements and trade through the country's points of entry (sea ports & air ports). Human mobility has been recognized as a greater facilitator of international spread of diseases and country has increased susceptibility for such events. The International Health Regulations (IHR) (2005) identifies several human health hazards - may be of biological (infectious, zoonotic, food related), chemical, radiological, or nuclear origin or source, which may cause a public health emergency of international concern (PHEIC); as manifested by imported or exported human cases, infected/contaminated vectors, or contaminated goods. The emergence and re-emergence of infectious diseases as well as threats of deliberate use of biological and chemical agents in other parts of the world have highlighted the need to strengthen our points of entry as well as to prepare and respond to such an emergency. In addition, the complex nature of operations at the points of entry, involving several stakeholders, demands a well-coordinated response.

The Directorate for Quarantine was established by the Ministry of Health in 2008 to ensure the implementation of IHR (2005) in the country. All Port Health Officers - Medical Officers and Public Health Inspectors - operating at the Port Health Offices at sea ports and air ports are under the administration of the Directorate for Quarantine. They are responsible for preventing the introduction of biological as well as chemical, radiological, or nuclear hazards to Sri Lanka through the points of entry.

A training needs assessment was conducted among the Medical Officers and Public Health Inspectors at all Port Health Offices in August 2014 using a pre-tested, self-administered questionnaire which covered 34 activities under 12 areas specified in the standard operating procedures for points of entry (2014) published by the Directorate for Quarantine. Each activity was assessed on four aspects: how important the activity is to the successful performance of the job, how well activity is currently performed, how the activity could be improved through training alone and through changes in work system.

The findings of the assessment were presented and discussed among a group of MO-PH and PHI-PH representing all Port Health Offices. This training manual was prepared based on the priority training needs identified in the assessment and the subsequent discussion. It is expected that regular in-service training programmes will be carried out using this manual to ensure availability of minimum required trained personals to meet IHR (2005) requirements. As the next step, simulations or drills to respond to a PHEIC will be carried out at the points of entry to Sri Lanka. In addition, training programmes will be conducted for the Medical Officers, Nursing Officers and Supportive Staff of adjacent hospitals who would be attending to a PHEIC.

1. Lesson Outcomes

On successful completion of this lesson, you should be able to:

- Describe a public health emergency of international concern (PHEIC) as specified in the IHR (2005)
- Describe the stakeholders operating at the sea ports and the air ports that are involved in implementing the IHR (2005)

2. Introduction

The International Sanitary Regulations, first adopted in 1951, were renamed as the International Health Regulations (IHR) in 1969. The 1951 IHR intended to monitor and control only six serious infectious diseases: cholera, plague, yellow fever, smallpox, relapsing fever and typhus. Developments in international ship/aircraft traffic affected the international transmission of disease and in May 2005, the World Health Assembly adopted a revised IHR which entered into force in June 2007.

3. Exercise

- Describe what you understand by the term 'public health emergency of international concern (PHEIC)
- List different types of hazards identified in the IHR (2005) which may cause PHEIC?
- Describe how these hazards can be manifested at sea ports or air ports?
- List the different stakeholders operating at the sea ports and the air ports who are involved detecting the entry of these hazards?
- Discuss the deficiencies in the present notification system in relation to surveillance of a PHEIC?

A Public Health Emergency of International Concern (PHEIC)

A PHEIC is an extraordinary event which creates a public health risk to other countries through the international spread of disease/events and potentially requires a coordinated international response.

According to the Annex 2 of the IHR (2005), a PHEIC may be declared when the Ministry of Health is satisfied that:

- there is an outbreak or imminent outbreak of an infectious disease or chemical/radio-nuclear event that poses a substantial risk to the population of Sri Lanka

- or upon activation by World Health Organization (WHO).

Hazards identified in the IHR (2005) which may cause a PHEIC

1. Biological
 - 1) Infectious
 - 2) Zoonotic - Zoonotic diseases are communicable diseases of animals that can cause disease when transmitted to humans
 - 3) Food related
2. Chemical agents
3. Radio-nuclear material

Manifestation of these hazards at the sea ports or the air ports

1. Human case/s
2. Infected or contaminated vectors (rats, mosquitoes, flies, cockroaches, ticks, mites, midges, fleas)
3. Contaminated goods

Stakeholders operating at the sea ports and the air ports who are involved in preventing the entry of these hazards into or out of the country

1. All Port Health Officers - Medical Officers (MOPH) and Public Health Inspectors (PHIPH) - operating at the Points of Entry (POE) are under the administration of the Directorate of Quarantine (DQ).
2. Imported animals (as cargo or pet) and livestock (as cargo) -
 - prior approval from Director General - Animal Production and Health
 - after arrival, approval from Quarantine Unit of Department of Animal Production and Health within the Port
3. Food (as cargo) -
 - prior approval that the food items are fit for human consumption is needed from the Director General of Health Services (DGHS).
 - Health clearance from Food and Drug Inspectors (FDI) of the Food Control Administration Unit, Directorate for Environment & Occupational Health, Ministry of Health
4. Chemical (Chairman - Central Environment Authority)
5. Radio-nuclear hazards - Legal shipments of radiological material by licensed importers is released only with clearance from Atomic Energy Regulatory Authority (AERC). All such cargo goes through the scanning process of the Megaport surveillance system at the port.
6. Import of primates as pets from Yellow Fever Endemic areas or where origin of the primates cannot be ascertained is not permitted.

Since 1987, notification of communicable diseases is a legal requirement in Sri Lanka.

- a) The 'list of notifiable diseases' in Sri Lanka was last updated in 2005
- b) This list does not include the entire IHR notifiable conditions such as:
 - 1. Severe Acute Respiratory Syndrome (SARS)
 - 2. Avian influenza caused by new sub-types
 - 3. Ebola
 - 4. Middle East Respiratory Syndrome Corona Virus (MERS-CoV)
- c) Director Quarantine is also not specified as to be notified the multi-hazards of IHR.

1. Lesson Outcomes

On successful completion of this lesson, you should be able to:

- Describe main national legislations and regulations related to implementing the IHR (2005) in Sri Lanka

2. Introduction

A suitable legal framework is a mandatory requirement to prevent the entry of multiple hazards as specified under the IHR (2005). Preventing the introduction and spread of biological, chemical or radio-nuclear hazards into and out of Sri Lanka as well as ensuring a safe environment for travellers and control of vectors and reservoirs in and near points of entry are some of the core capacities to be filled.

3. Exercises

- A. List the main national legislations and regulations related to infectious diseases and contaminated food that are under the authority of the Ministry of Health
- B. List the main national legislations and regulations related to zoonotic, chemical and radio-nuclear hazards
- C. Describe the implementation of IHR (2005) through the national legislations and regulations at sea ports or air ports in Sri Lanka
- D. Discuss the issues related to successful implementation of IHR (2005) through the existing legislations under the authority of the Ministry of Health

National legislations and regulations related to infectious diseases and contaminated food that are under the authority of the Ministry of Health

- 1) Quarantine and Prevention of Diseases Ordinance (1960) - for preventing the introduction and spread of all contagious and infectious diseases into and outside of Sri Lanka.
- 2) Food Act (No. 20 of 1991), (amendment 2011) - for the importation as well as manufacture, sale, storage or distribution of food. This is applicable for the eating establishments and flight catering facilities at the sea ports and air ports.
- 3) Prevention of Mosquito Breeding Act (No.11 of 2007) - is applicable for control of vectors and reservoirs in and near the sea ports and air ports which would prevent transport of an infectious agent into or out of the country.
- 4) SARS regulations (2003)

- 5) List of notifiable diseases (2005) - approved by the Advisory Committee on Communicable Diseases. Notification of communicable diseases is a legal requirement in Sri Lanka since 1897. Any person who breaches this regulation will be guilty of an offence and will be prosecuted in the Magistrate Court. Any medical practitioner who attends a person suffering from any disease in the list of notifiable diseases should notify (on suspicion) it to the proper authority. There are two groups of diseases: Group A and Group B. Group B diseases should be notified to the Medical Officer of Health (MOH), Regional Epidemiologist and the Chief Epidemiologist. Group A diseases should be notified to the DGHS and DDG (PHS). In addition, mode of notification can be telephone, Fax, Telegram, or manually using the form H544.

National legislations and regulations related to zoonotic, chemical, radiological and nuclear hazards

- 1) Animal Diseases Act (No. 59 of 1992) of the Department of Animal Production and Health for control of import and export of animals and products in and out of the country.
- 2) Atomic Energy Authority Act (No.19 of 1969) for control of importation, exportation, production, acquisition, treatment, storage, transport and disposal of radioactive materials.
- 3) National Environmental Act, (amendment No. 53 of 2000) of the Central Environment Authority for control of importation, exportation, production, acquisition, treatment, storage, transport and disposal of chemicals.
- 4) Chemical Weapons Conventions Act (No. 58 of 2007) of the National Authority for the Implementation of Chemical Weapons Conventions in Sri Lanka (NAICWC).

Implementation of the legislations under the authority of the Ministry of Health at sea ports or air ports

- The Quarantine and Prevention of Diseases Ordinance is the key legal document in relation to the implementation of IHR (2005). As per the ordinance, all vessels arriving from foreign ports are granted health clearance ('free pratique') by the Port Health Medical Officers based on the information submitted by the Master of the ship/Pilot in Command of the aircraft, on travellers and nature of the cargo, prior to arrival. This is followed by inspection of IHR related documents after arrival.
- Detection of a PHEIC due to an infectious disease at the at sea port or airport would be through the same channel of communication. If there is any death/case/suspect due to infectious disease that could be of PHEIC on board, risk assessment of a death/case/suspect is done by the MO-PH after visiting the ship.

- In the situation of dead/case/suspected animals due to a zoonotic disease on board or cargo containing contaminated/suspected food, livestock, chemical or radio-nuclear hazard on board, the relevant focal points are informed through the MO-PH.
- After assessment of the case/other travellers or animals or cargo on board, the ship is declared as **infected* (affected), suspected or healthy** in accordance with special provisions relating to a PHEIC. If declared as healthy, the pilot is granted permission by the MO-PH to bring the ship to the harbour.

Discuss the issues related to successful implementation of IHR (2005) through the existing legislations under the authority of the Ministry of Health

- The existing Quarantine and Prevention of Diseases Ordinance primarily addresses 'contagious diseases' and already 'infected persons', but not 'events' or 'threats' as specified in IHR (2005).
- Competent Authority for the ordinance is the Director General of Health Services. The Director/Quarantine or the MO-PH who are vital for the implementation of the IHR have not been delegated with authority.
- Roles and responsibilities of the two National Focal Points (Director/Quarantine and Chief Epidemiologist) and the international notification are not stated.
- Preparedness for a PHEIC is not included.
- Partnerships and coordination with other ministries/agencies or other units within MOH which are necessary for the response and preparedness of multi-hazard nature of IHR are not stated.
- Documents such as the Maritime Declaration of Health, Aircraft General Declaration, Ship Sanitation Certificates/Ship Sanitation Control Certificates/ Ship Sanitation Control Exemption Certificates, as specified in IHR (2005) are not indicated.
- The DGHS, who is the Chief Authority, has not delegated the authority to MO-PH or PHI-PH for implementing the Food Act or the Prevention of Mosquito Breeding Act in and near POE.

1. Lesson Outcomes

On successful completion of this lesson, you should be able to:

- Describe the procedure for assessment of travellers or cargo a ship or aircraft arriving from a foreign port for public health risks

2. Introduction

As per the IHR (2005), a sensitive and a flexible surveillance system is needed for detection, risk assessment and alert/notification of a PHEIC. All vessels arriving from a foreign sea port or airport granted 'free pratique' by the Port Health Medical Officers after excluding any public health risk among the travellers or in the cargo. The Shipping Agent plays a crucial role as the intermediary in conveying the information from the Master of the ship to the Harbour Master, Port Health Medical Officers and the Pilot Station and in coordinating the logistical arrangements.

Master of any ship/Pilot in Command who is unwilling to submit the information required by the Port Health Medical Officer is not granted 'free pratique' and will be requested to depart immediately without being permitted to communicate with the shore or with any other vessel in the port. However, the ship/aircraft will be permitted to take on fuel, water and stores while in quarantine at a designated place in the port. Any passenger in such a ship/aircraft, who desire to disembark with or without their baggage or to tranship from the ship/aircraft, may be permitted to do so, on the condition that they agree to health measures recommended by the Port Health Medical Officer.

3. Exercise

- A. List the information submitted by the Master of the ship/Pilot in Command to the Port Health Medical Officers
- B. List the focal points functioning at the sea port or the airport for detecting zoonotic, food borne, chemical or radio-nuclear hazards
- C. **Practical session**-issuing a Ship Sanitation Control Certificate or Ship Sanitation Control Exemption Certificate to a Ship

Information submitted by the Master of the ship/Pilot in Command to the Port Health Medical Officers

Information submitted by the Master of the ship/Pilot in Command

- a) Date and time of arrival of the ship/aircraft
- b) Information on travellers - crew and passenger list
- c) Information on nature of the cargo and operations to be carried out in the port i.e food items, animals, chemicals, radio-nuclear material
- d) IHR inspection of documents for a ship
 - 1) Maritime Declaration of Health/Aircraft General Declaration
 - 2) List of ports for the past 30 days with arrival and departure dates
 - 3) If the ship touched any port in the Yellow Fever* Endemic Countries in the last 30 days - details of country, port, departure dates
 - 4) Ship Sanitation Control Certificate or Ship Sanitation Control Exemption Certificate
 - 5) International Certificate of Vaccination for Yellow Fever
 - 6) Details of any deaths, cases, suspects due to a PHEIC on board
 - 7) Details of any stowaways on board
 - 8) Details of any pet animals and their vaccination details

** Any traveller visited/transited through yellow fever affected countries as alerted by WHO, having come to Sri Lanka within 6 days of departure and having a valid certificate of vaccination against Yellow Fever should be allowed to enter the country.*

** Any traveller visited/transited through yellow fever affected countries as alerted by WHO, having come to Sri Lanka within 6 days of departure, but unable to produce a valid certificate of vaccination against yellow fever, should be quarantined until the certificate becomes valid, or until a period of not more than 6 days, calculated from the date of last possible exposure to infection, has elapsed, whichever occurs first.*

** Such traveller should be transferred to Infectious Disease Hospital (IDH) or the local hospital identified for Quarantine.*

**Any traveller coming to Sri Lanka, having an exemption from Yellow Fever vaccination, signed by an authorized Medical Officer or an authorized health worker should not be quarantined. He/she should be placed under surveillance and be informed by PHMO to report any fever/other symptoms immediately to PHMO.*

Focal points functioning at the sea port or the airport for detecting Zoonotic, food borne, chemical or radio-nuclear hazards

- Imported animals (as cargo or pet) - Quarantine Unit of Department of Animal Production and Health within the port or local Veterinary Surgeon
- Import of primates* as pets from Yellow Fever Endemic areas or where the origin of the primates cannot be ascertained, is not permitted in to Sri Lanka
- Imported food items (as cargo) - Food and Drug Inspectors of the Food Control Administration Unit, Directorate for Environment & Occupational Health, Ministry of Health or the local Medical Officer of Health or the Port Health Public Health Inspector
- Food items of plant origin (e.g. Chickpea) - Plant Quarantine Division of the Department of Agriculture is needed.

** Port Health Medical Officer should advise the Master of the ship that such primates should be kept on board in a mosquito free environment/cabin and not to be allowed to move around on board.*

Practical Session - issuing a Ship Sanitation Control Certificate or Ship Sanitation Control Exemption Certificate

- Inspect areas, systems and services on board for public health risks - observations, measurement, testing, sampling
- Use the **check list** given in the “Handbook for Inspection of Ships and Issuance of Ship Sanitation Certificates WHO”
- **Ship Sanitation Control Exemption Certificate** - issued if there is a valid Ship Sanitation Control Certificate and also satisfied that the ship is free of infection and contamination on inspection, including vectors and reservoirs
- **Valid Ship Sanitation Control Certificate**
 - issued within 6 months
 - from IHR-2005 Authorized Port's List
- Ships arriving from Yellow Fever endemic countries within 30 days from the date of departure - Port Health Medical Officer shall request the Master of the Ship to disinsect the ship as per WHO recommended procedures and appropriate insecticides
- Ships arriving from an area affected by a vector-borne disease - Port Health Medical Officer shall request the Master of the ship to apply vector control measures

- **Ship Sanitation Control Certificate -**
 - If the Ship Sanitation Control Certificate is not valid
 - If the Port Health Medical Officer is not satisfied that the ship is free of infection and contamination

- Port Health Medical Officer shall advise the Master of the ship to apply relevant control measures to the ship (deratting, disinfection, disinsection or decontamination and/or sanitary measures for travellers)
 - Under the supervision of the Port Health Public Health Inspector
 - As per WHO recommended procedures and appropriate insecticides
 - When the ship and its holds are empty, and before loading cargo (in the situation of a ship in ballast)
 - To baggage, cargo, containers, goods, postal parcels and human remains as well as to places in the ship such as crew cabins, deck, pantry, galley and other places as required
- When control measures are reported as completed ship shall be inspected again
- A note should be made on the certificate:
 - Evidence found (e.g. presence of vectors on board)
 - Control measures taken

- Recommend the competent authority of the next known Port of call to make any follow-up inspection required to determine the success of the vector control measures applied
- Extending the validity of the Ship Sanitation Control Certificate or Ship Sanitation Control Exemption Certificate by one month if inspection or control measures required cannot be accomplished at the port.

1. Lesson Outcomes

On successful completion of this lesson, you should be able to:

- Describe a Rapid Response Team to respond to a PHEIC at a sea port or airport
- Describe the coordinated action for assessment of affected or suspected cargo for public health risks in a PHEIC

2. Introduction

Rapid assessment of affected or suspected cargo on board for public health risks would be through the Port Health Medical Officer. In the situation of dead, affected or suspected animals due to a zoonotic disease on board or cargo containing contaminated or suspected food, livestock, chemical or radio-nuclear hazard on board, the relevant focal points function at the sea port or airport are informed through the Port Health Medical Officer. As per the WHO guidelines, multi-sectoral Rapid Response Teams should be available 24/7 to rapidly respond to a PHEIC

3. Exercises

- A. Describe the composition of the Rapid Response Team at a sea port or airport
- B. Describe the channel of communication if a PHEIC is detected or suspected on board
- C. **Practical session** - Desk top simulation (Chapter 9 and 10)

Composition of the Rapid Response Team at a sea port or airport

Rapid Response Team consists of:

- Chairman - Sri Lanka Ports Authority or Sri Lanka Airport and Aviation Services
- Harbour Master or Deputy Harbour Master
- Resident Manager of the Sea Port or Ground Manager of the airport
- Sri Lanka Navy or Sri Lanka Air Force
- Harbour Police or Airport Police
- Harbour Security or Airport Security
- Ceylon Association of Shipping Agents or Aircraft Agents
- Director General of Health Services
- Director General - SL Customs
- Director General - Department of Immigration and Emigration
- Director General - Department of Animal Production and Health
- Director General - Disaster Management Centre

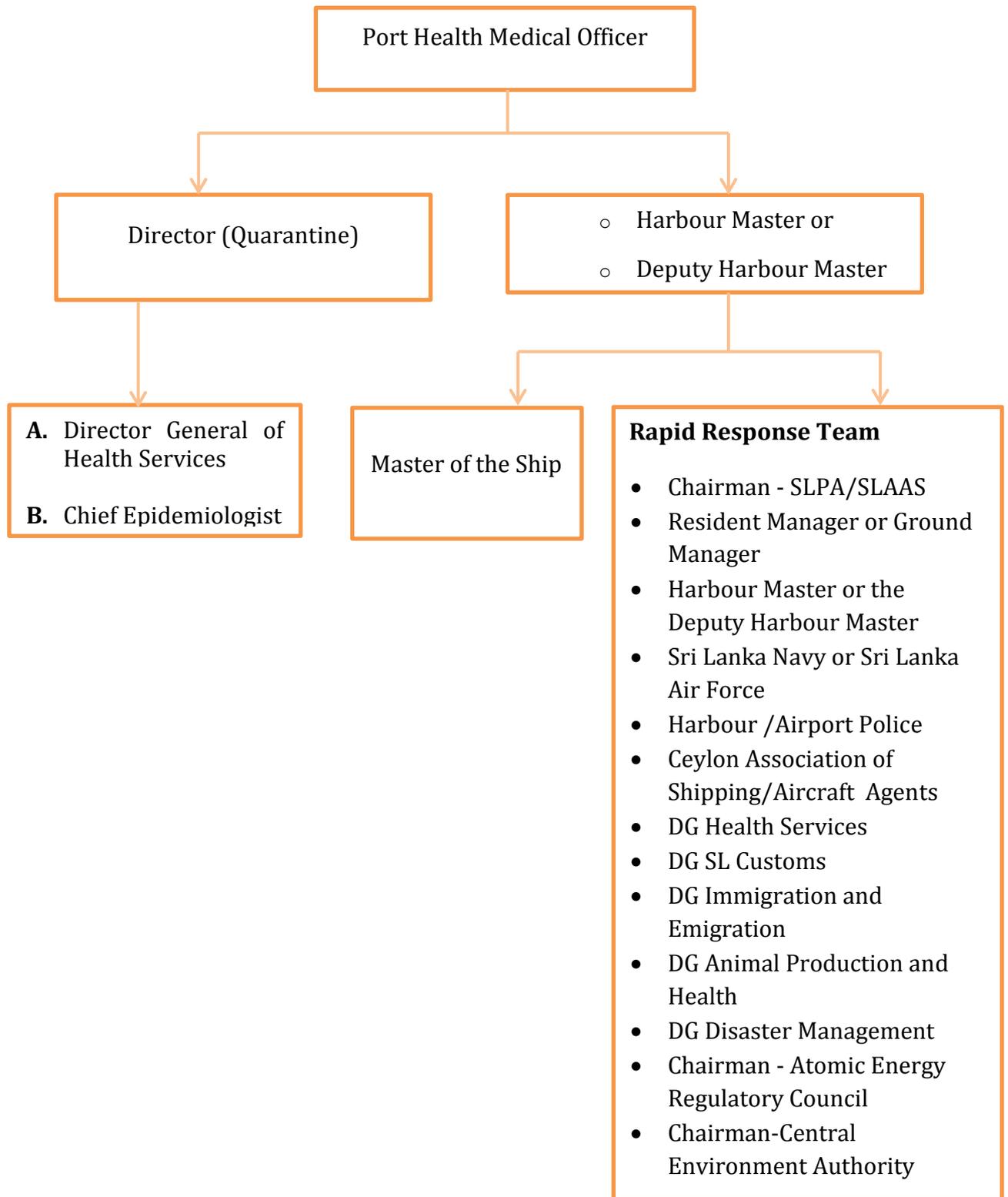
- Chairman-Atomic Energy Regulatory Council
- Chairman-Central Environment Authority

Channel of communication if a PHEIC is detected or suspected on board

- 1) After visiting the ship/aircraft, the Port Health Medical Officer will inform the relevant focal points at the sea port or the airport about the death, case or suspected animals or contaminate or suspected cargo (food, chemical or radio-nuclear material)
- 2) The rapid risk assessment will be carried out by the relevant focal points
- 3) Based on the results of the assessment, the Port Health Medical Officer will declare the ship or the aircraft as **infected (affected), suspected or healthy**
 - a) If declared as **infected (affected) or suspected**, Port Health Medical Officer shall immediately notify the following authorities over the telephone:
 - Director/Quarantine
 - Harbour Master or the Deputy Harbour Master at the sea port or
 - Ground Manager of the Airport
 - b) The Director (Quarantine) shall then notify the:
 - Director General of Health Services
 - Chief Epidemiologist
 - Port Health Medical Officers operational at other Port Health Offices
 - c) Director General of Health Services shall notify the:
 - Disaster Preparedness and Response Division, Ministry of Health
 - d) Harbour Master or the Ground Manager shall notify the:
 - Sri Lanka Navy or Sri Lanka Air Force
 - Harbour Police or Airport Police
 - Harbour Security or Airport Security
 - Ceylon Association of Shipping Agents or Aircraft Agents
 - Director General - SL Customs
 - Director General - Department of Immigration and Emigration

and depending on the hazard:

- Director General- Department of Animal Production and Health or
- Director General - Disaster Management Centre or
- Chairman - Atomic Energy Regulatory Council or
- Chairman - Central Environment Authority



Chapter 5

Disposal of solid and liquid waste in contact with a case or a suspect having an infectious disease in a PHEIC

1. Lesson Outcomes

On successful completion of this lesson, you should be able to:

- Describe the procedure for removal of solid and liquid waste in contact with a case or a suspect with an infectious disease in a PHEIC
- Describe the procedure for Personal Protective Equipment (PPE) in an infectious disease in a PHEIC

2. Introduction

All solid waste in contact or potential contact with the case or suspect with an infectious disease in a PHEIC should be removed and disposed safely.

Any liquid waste (contaminated water, urine, vomitus, faeces, body fluids, waste water) which might contaminate the waters of the port should be removed and disposed safely. Waste should be segregated at point of generation to enable appropriate and safe handling.

A separate waste management plan should be developed for safe handling (containment and packing), safe storage, treatment, transport and safe disposal of waste from a case or suspect.

A dedicated waste management team should be identified with specific training on standardized procedures for waste handling, including wearing appropriate PPE.

Protocols should be developed for safe bagging and packaging, storing, and transporting packaged waste.

Employer must select a PPE that will protect the workers against the hazards to which they may be exposed.

Training, practice, and observation of workers in correct donning and doffing of a PPE are important.

Workers must wear the PPE to minimize exposure via mucous membranes or non-intact skin, or through inhalation of bio-aerosols (aerosolized droplets containing infectious particles that can be inhaled).

Similarly, they should remove the PPE avoiding self-contamination or others in the process, and dispose contaminated equipment of appropriately.

The PPE also minimize exposure to cleaning chemicals, splashes or spatters during environmental cleaning and disinfection activities.

The PPE needed during handling patients, cleaning and decontamination:

- Nitrile gloves (double gloves, heavy-duty rubber gloves over nitrile)
- Goggles or face shields
- Fluid-resistant or fluid-impermeable gowns, coveralls, and aprons
- Facemasks (e.g., surgical masks) that cover the nose and mouth
- Dedicated work clothing and washable shoes with shoe/boot covers
- Additional respiratory protection (e.g., N95 or powered air-purifying respirators, or better) may be necessary

The order of PPE removal may vary depending on the type of the PPE used, the nature of the tasks, and which devices or garments are contaminated

- Remove outer gloves simultaneously with gown or coveralls
- Decontaminate the PPE between removal steps

Showers should be available for use by workers after removing the PPE.

Routine environmental cleaning and disinfection (with regular cleaning material and 1% Chlorine solution or 70% alcohol) of the PPE doffing area should be performed at least once per day, and also after each doffing of grossly contaminated PPE.

- Cleaning should be performed by a healthcare worker wearing clean PPE
- A registered hospital disinfectant should be used
- When cleaning and disinfection are complete, the worker should carefully doff the PPE and perform hand hygiene

3. Exercises

- A. Describe the guidelines for disposal of solid waste and liquid waste in contact with a case or a suspect with an infectious disease in a PHEIC
- B. Describe the procedure for use of PPE in an infectious disease in a PHEIC
- C. **Practical Session** - safe removal and disposal of solid waste and liquid waste in contact with a case or a suspect with an infectious disease in a PHEIC

This will be conducted at the Infectious Disease Hospital (IDH)

Guidelines for removal of solid waste in contact with a case or a suspect

This usually includes: linens, pillows or mattresses, and textile privacy curtains, used healthcare products (absorbent pads, dressings), used PPE (gowns, masks, gloves, goggles, face shields, respirators, boots etc.), medical equipment, emesis pans, portable toilets, objects with porous surfaces that cannot be disinfected, by-products of cleaning

- Appropriate Personal Protective Equipment (PPE) should be used by waste collection workers who are handling, transporting, and disposing waste
- The PPE is same as those used for patient care and correct putting on and taking off procedures should be followed
- Solid, non-sharp, infectious waste is discarded in leak-proof biohazard bags and covered bins
- Waste bags should never be overfilled. Bags should be closed when two thirds full.
- Safe containment and packaging of waste should be performed as close as possible to the point of generation
- Staff should avoid opening containers to manipulate the waste after primary containment
- All filled solid waste bags should be placed in a leak-proof container
- Number of personnel handling waste before and after primary containment should be limited
- Waste inactivation is through incineration which is done off-site
- Should use an authorized agency for the transportation of waste
- Waste that has been appropriately incinerated is not infectious, does not pose a health risk, and is not considered to be a hazardous material
- Sharp objects (e.g. needles, syringes, glass articles) that has been in contact with blood or body fluids should be placed inside puncture resistant waste containers

Guidelines for removal of liquid waste in contact with a case or a suspect with an infectious disease in a PHEIC

This usually included: urine, vomitus, faeces, body fluids, waste water

- Faeces, urine, vomitus, and liquid waste from washing, can be disposed of in the sanitary sewer*. No further treatment is necessary
- Primary handling of liquid waste should occur in the affected/suspected person's room
- Appropriate PPE should be used
- The PPE are same as those used for patient care and correct putting on and taking off procedures should be followed
- Clean and disinfect flush handles, toilet seat, and lid surfaces with disinfectant/cleaner

**Sanitary sewers - underground carriage system for transporting sewage through pipes to treatment or disposal*

Procedure for proper use of PPE in an infectious disease in a PHEIC

- a) A designate space is needed to put on/remove PPE
- b) Each step of putting on/removal of PPE procedure must be supervised by a trained person
- c) Ensure that workers have sufficient time to put on and remove PPE correctly without disturbances

Protocol for putting on PPE

- Gather all the necessary items of PPE beforehand
- Remove personal clothing and items (e.g., jewellery, watches, cell phones, pens etc)
- Put on the scrub suit in the changing room
- Put on rubber boots. If not available, use closed, puncture and fluid resistant shoes and put on overshoes (shoe covers)
- Place the impermeable gown over the scrubs
- Put on face protection- medical mask, goggles or a face shield. If available, put a head cover
- Perform hand hygiene
- Put on gloves (over cuff) - If an impermeable gown is not available, place waterproof apron over gown
- While wearing the PPE, avoid touching or adjusting it
- Remove gloves if they become torn or damaged
- Change gloves between patients
- Perform hand hygiene before putting on new gloves
- Use double gloves for any strenuous activity (e.g. carrying a patient or handling a dead body) or tasks in which contact with blood and body fluids are anticipated.
- Use heavy duty/rubber gloves for environmental cleaning and waste management

Removal of Personal Protective Equipment (PPE)

- Remove waterproof apron and dispose it safely. If the apron is to be reused, place it in a container with disinfectant
- If wearing overshoes, remove them with your gloves still on
- Remove gown and gloves and roll inside out and dispose them safely
- If wearing rubber boots, remove them (ideally using the boot remover) without touching them with your hands. Place them in a container with disinfectant.
- Perform hand hygiene
- If wearing a head cover, remove it now (from behind the head)
- Remove face shield or goggles (from behind the head). Place eye protection in a separate container for cleaning and disinfection. Remove mask from behind
- Perform hand hygiene

Cleaning and Disinfection

- PPE should be worn when cleaning the PPE removal area
- Disinfect immediately any visibly contaminated PPE with either 1% Chlorine solution or 70% alcohol (contact time 30 minutes) after cleaning with standard detergents or disinfectants
- PPE removal area should be cleaned with regular standard detergents /disinfectants and then with 1% Chlorine solution or 70% alcohol.
- If reusable heavy-duty gloves are used for cleaning and disinfecting, they should be disinfected and kept in the room or anteroom

Chapter 6

Decontamination, disinfection or disinsect of Ship or aircraft or baggage arriving with persons affected or suspected as having an infectious disease in a PHEIC

1. Lesson Outcomes

On successful completion of this lesson, you should be able to:

- Describe the procedure for decontamination, disinfection or disinsect of the ship/aircraft, baggage or cargo arriving with persons affected or suspected as having an infectious disease in a PHEIC

2. Introduction

Decontamination, disinfection of baggage or cargo should be carried out at a location specially designated in the ship.

Loading or unloading of baggage or cargo is prohibited until the procedures are completed.

Areas within the ship and the premises of the port which may be contaminated by persons confirmed/suspected as having an infection of PHEIC shall be disinfected or decontaminated.

Once a person has been confirmed as having an infection which is a PHEIC, the level of decontamination depends on the person's symptoms at that time:

- If the person **had only fever** with no gastrointestinal (diarrhea, vomiting) or hemorrhagic (bleeding) symptoms, the person should not be contaminating their environment.
- If the person had fever and **diarrhoea, vomiting, and/or unexplained bleeding**, decontamination of the environment may be needed.

Other travellers should avoid contaminated areas until after the completion of the assessment and decontamination

Decontamination - procedure whereby health measures are taken to eliminate an infectious or toxic agent or matter on a human or animal body surface, in or on a product prepared for consumption or on other inanimate objects, including vessel, aircraft and conveyance, that may constitute a public health risk

Disinfection - procedure whereby measures are taken to control or kill infectious agent/s on a human or animal body, on a surface or in or on baggage, cargo, containers, conveyances, goods and postal parcels by direct exposure to chemical or physical agents

Disinsect - procedure whereby health measures are taken to control or kill the insect vectors present in baggage, cargo, containers, vessel, aircraft, conveyances, facilities, goods and postal parcels

3. Exercise

- A. Describe the guidelines for decontamination, disinfection of the ship/aircraft, baggage or cargo arriving with persons affected or suspected as having an infectious disease in a PHEIC
- B. **Practical Session** - decontamination or disinfection of the ship/aircraft, baggage or cargo arriving with persons affected or suspected as having an infectious disease in a PHEIC

This will be conducted at the sea port or airport in collaboration with the Infectious Disease Hospital (IDH)

Guidelines for decontamination, disinfection of the ship/aircraft, baggage or cargo arriving with persons affected or suspected as having an infectious disease in a PHEIC

- Isolate areas of suspected contamination until decontamination is completed to minimize exposure of individuals not performing the work
- Personal protective equipment (PPE) should be worn when cleaning the area
- Registered disinfectants should be used in accordance with the manufacturer's labelled instructions
- When cleaning and disinfection are complete, the healthcare worker should carefully doff the PPE and perform hand hygiene
- Showers should be available for use by healthcare workers after removing the PPE
- Cleaning with a moistened cloth helps to avoid contaminating the air and other surfaces with air-borne particles
- Allow surfaces to dry naturally before using them again
- Dry sweeping with a broom should never be done
- Rags holding dust should not be shaken out and surfaces should not be cleaned with dry rags
- Cleaning should always be carried out from "clean" areas to "dirty" areas, in order to avoid contaminant transfer

- Any visibly contaminated areas/spill (with blood, urine, faeces, vomit, or other body fluids) should be disinfected immediately with either 1% Chlorine solution or 70% alcohol (contact time 30 minutes) after cleaning with standard detergents or disinfectants.
 - Cover the material fully with absorbent material (e.g. paper towels), then pour disinfectant to saturate the area
 - Allow disinfectant to soak into the spill for the recommended time period for the specific disinfectant (according to manufacturer's instructions)
 - Use disposable, absorbent towels to remove bulk spill material

- To assure complete disinfection, further disinfect the surface after the bulk material(s) has been removed, using a suitable disinfectant
- Dispose the materials used for containing the spill and for cleaning and disinfection in a biohazard bag and remove as solid waste
- Ensure adequate ventilation in areas where workers are using disinfectants, such as by opening windows and doors, or using mechanical ventilation equipment
- Use tools, such as tongs from a spill kit, rather than doing clean-up work directly with gloved hands
- After cleaning and disinfection work is complete, remove the PPE in a way that avoids self-contamination
- Avoid cleaning techniques, such as using pressurized air or water sprays that may result in the generation of bio-aerosols

1. Lesson Outcomes

On successful completion of this lesson, you should be able to:

- Describe the procedure for disposing human remains of persons affected or suspected as having infectious disease in a PHEIC

2. Introduction

1. If a dead body is brought to the sea port or to the airport, clearance is needed from Port Health Medical Officer to bring the body into the country. Guidelines for the disposal of such dead body have been prepared by the **Epidemiology Unit**.
2. Transportation of human remains should be minimized to the extent possible.
3. In the event of a human remain sent in a hermetically sealed casket (i.e. a casket that is airtight and secured against the escape of microorganisms), the casket will be considered hermetically sealed if accompanied by valid documentation and on visual inspection; the seal appears not to have been broken.
4. In the event of a death on board, the body should be wrapped in a plastic shroud, while preventing contamination of the outside of the shroud. Leave any intravenous lines or endotracheal tubes that may be present in place.
5. Avoid washing or cleaning the body. After wrapping, the body should be immediately placed in a leak-proof plastic bag of sufficient thickness and zippered closed. The bagged body should then be placed in another leak-proof plastic bag of sufficient thickness and zippered closed before being transported to the morgue.
6. Prior to transporting the body to the morgue, surface decontamination of the corpse-containing body bags should be done by removing visible soils on outer bag surfaces with either 1% Chlorine solution or 70% alcohol. After the visible soils have been removed, the disinfectant should be re-applied to the entire bag surface and allowed to air dry.
7. Following the removal of the body, the room should be cleaned and disinfected using the same disinfectants. Reusable equipment should be cleaned and disinfected according to standard procedures.

8. Exercises

- A. Describe the guidelines for disposal of human remains of persons affected or suspected as having infectious disease in a PHEIC
- B. **Practical Session** - procedure for disposal of human remains of persons affected or suspected as having infectious disease in a PHEIC

This will be conducted at the sea port or airport in collaboration with the Infectious Disease Hospital (IDH)

Guidelines for disposal of human remains of persons affected or suspected as having infectious disease in a PHEIC

- Post-mortem examination of patients should be limited to essential evaluations only
- Post-mortem examination should be performed by trained personnel wearing appropriate personal protective equipment (PPE), which should be removed immediately after and discarded appropriately
- Hand hygiene (washing thoroughly with soap and water or an alcohol based hand rub) should be performed immediately following the removal of the PPE
- PPE is not required for individuals driving or riding in a vehicle carrying human remains, provided that drivers or riders will not be handling the remains of a suspected or confirmed case and the remains are safely contained and the body bag is disinfected
- Remains should be cremated or buried promptly in a hermetically sealed (air tight) casket by trained personnel
- Embalming should not be performed
- The body bag should not be opened and the remains should not be removed from the body bags
- Bagged bodies should be placed directly into a hermetically sealed casket
- Once the bagged body is placed in the sealed casket, no additional cleaning is needed unless leakage has occurred
- Mortuary care personnel should also wear the PPE when handling the bagged remains
- In the event of leakage of fluids from the body bag, areas should be thoroughly cleaned and decontaminated with either 1% Chlorine solution or 70% alcohol
- Reusable equipment should be cleaned and disinfected according to standard procedures. No PPE is needed when handling the cremated remains or the hermetically sealed closed casket

1. Lesson Outcomes

On successful completion of this lesson, you should be able to:

- Describe different stakeholders at the sea port involved in coordinating the actions to be taken in a radiological emergency at the sea port
- Describe the procedure that you should follow when there is a radiological emergency at the sea port

2. Introduction

Legal shipments of radiological or nuclear material by licensed importers are only released with clearance from the Atomic Energy Regulatory Authority (AERC). At present all cargo containing radio-nuclear goes through the scanning process of the 'Megaport surveillance system' installed at the Port of Colombo.

3. Exercise

A. Time: Day 1 Hour 0

20 staff members of the SLPA who have been handling a cargo to unload from a ship have been reported to the Medical Centre of the SLPA with vomiting, few hours after commencing work.

B. Time: Day 1 Hour 6

The Port Health Medical Officer investigated the possible causes, and identified the cargo as having a radio-nuclear material.

C. Time: Day 1 Hour 12

It was observed that a liquid coming out of the cargo as radioactive. Some of the materials were seen to be flowing into the drainage system of the ship.

D. Time: Day 2 Hour 0

3 staff members of the SLPA who were involved in cleaning the ship are reported to have been in contact with the radioactive fluid.

E. Time: Day 3 Hour 0

The ship requested clearance to leave the port.

A. Day 0 Hour 0 - 20 staff members of the SLPA were reported to the Medical Centre with vomiting, few hours after commencing work

- The Medical Officer in-charge of the SLPA Medical Centre will carry out a preliminary investigation about the incident
 - The Port Health Medical Officers (MO-PH) are informed about the incident
- B. Day 0 Hour 6 - Port Health Medical Officer identified the cargo as having a radio-nuclear material.**
- MO-PH already has information on travellers and nature of the cargo, submitted by the Master of the ship, prior to arrival (Maritime Declaration of Health, Ship Sanitation Control Certificate, prior approval certificates for import of animals/food) and information gathered after inspection on board
 - MO-PH identifies the cargo as having radio-nuclear material
 - MO-PH informs the Focal Point appointed by the Chairman of the Atomic Energy Regulatory Council (AERC)
 - After the initial assessment of the cargo by the Focal Point of the AERC and workers by the MO-PH, the ship is declared as **affected**
 - MO-PH shall advise the Harbour Master and the Master of the ship that until authorized to do so by the MO-PH: cargo is not allowed to be removed from the ship
 - MO-PH shall immediately notify the Director/Quarantine and the Harbour Master over the telephone. Director (Quarantine) will notify the Director General of Health Services
 - Harbour Master shall notify the relevant members of the Rapid Response Team (RRT) of the sea port
 - The RRT will coordinate all measures to respond to the emergency within the Port of Colombo
 - Staff who may be contaminated by radio-nuclear material will be transferred immediately to the National Cancer Institute, Maharagama for further assessment, decontamination and other supportive services
- C. Day 0 Hour 12 - a liquid coming out of the cargo is identified as radioactive**
- Cleaning and decontamination of the ship will be carried out as per the recommendations of the Focal Point appointed by the Chairman of the AERC
- D. Day 1 Hour 0 - 3 staff members involved in cleaning the ship have been in contact with the radioactive fluid**
- Staff who were involved in cleaning the ship will be transferred immediately to the National Cancer Institute, Maharagama for further assessment and decontamination
- E. Day 3 Hour 0 - ship requests clearance to leave the port**
- The Chairman of the AERC will decide whether to transfer back the cargo to the country of origin or to allow unloading for decontamination
 - If decide to unload, cargo should be transported outside the port

- Awaiting removal, such cargo shall be stored at a designated place in the port
- Modes of safe transport, safe storage and responsible personnel shall be decided by the AERC.
- Personal protective equipment shall be provided to handlers of the hazardous radio-nuclear material by the AERC.

Evaluation Guide

1 = Poor (*Procedures lacking; serious problems*)

2 = Average (*Elements of the process are evident, but with deficiencies and gaps*)

3 = Good (*The process is evident, but there are gaps*)

4 = Very Good (*The complete process is evident*)

5 = Excellent (*Additional elements are created and complement the guidelines established*)

1. Lesson Outcomes

On successful completion of this lesson, you should be able to:

- Describe different stakeholders at the airport involved in coordinating the actions to be taken in an emergency due to an infectious disease of PHEIC at the airport
- Describe the procedure to be followed when there is an emergency due to an infectious disease of PHEIC at the airport

2. Introduction

Surveillance for any infectious disease is carried out by the Port Health Office of the airport. All vessels arriving from foreign airports should be granted health clearance by the Port Health Medical Officers based on the information submitted by the Pilots in-command of the aircraft on travellers. Rapid detection of a PHEIC due to an infectious disease at the airport would be through the same channel of communication.

3. Exercise

A. Time: Day 1 Hour 0

5 asymptomatic passengers declared at the airport health desk to have visited West African countries

B. Time: Day 2 Hour 0

A message has been received from the Pilot in-Command to the Air Traffic Controller that a passenger who has a history of recent travel to Liberia has developed fever, weakness, muscle pain, headache, sore throat, vomiting and rash on board. The flight is landing in an hour. The passenger locator form is filled

C. Time: Day 2 Hour 1

The flight containing the patient has landed. The sick patient's wife is accompanying the patient but she does not complain of any symptoms

D. Time: Day 2 Hour 1.5

There are 100 more persons - a crew of 10 in the flight, 20 transit passengers

E. Time: Day 2 Hour 3

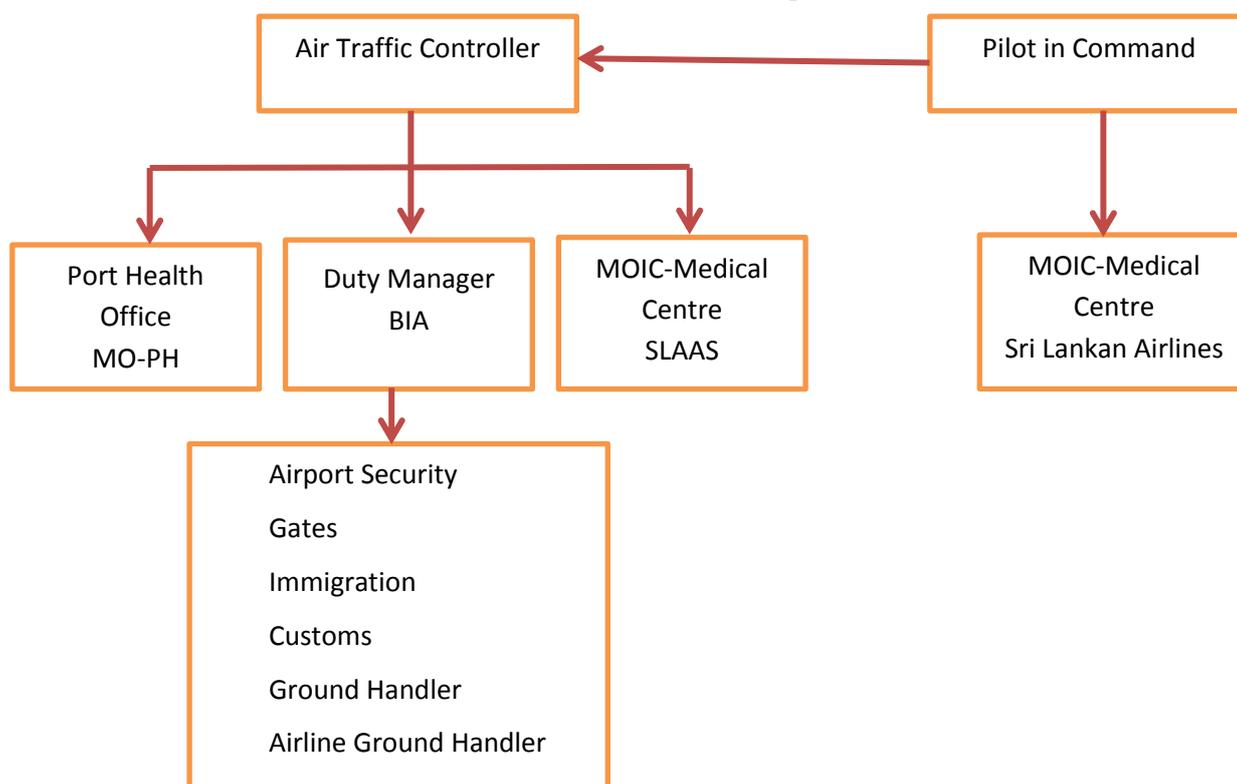
It has been found that the patient has vomited in the flight near the seat. The patient has frequently used the flight lavatory

- A. Day 1 Hour 0 - asymptomatic passengers declared at the airport health desk to have visited West African countries
- These passengers should be referred to the MO-PH by the staff at the airport health desk
 - MO-PH will gather relevant information and kept under surveillance
- B. Day 2 Hour 0 - symptomatic passenger is reported by the Pilot in-command of the aircraft
- The Air Traffic Controller will inform the MO-PH, Medical Officer in-charge of the SLAAS Medical Centre and the Ground Manager about the suspected case
 - The MO-PH shall advise the Ground Manager and the Pilot in-command of the aircraft that until authorized to do so by the MO-PH: travellers will not be allowed to disembark or cargo will not be removed from the aircraft
 - The patient will be brought to the isolation room at the airport and the risk assessment will be done by the MO-PH at the isolation room
 - After the initial assessment of the patient, MO-PH shall immediately notify the Director/Quarantine and the Chief Epidemiologist over the telephone about the suspected case
 - Director (Quarantine) shall immediately notify the Director General of Health Services.
 - The aircraft will be declared as **suspected** by the MO-PH
 - The Ground Manager shall notify the relevant members of the Rapid Response Team (RRT) of the airport
 - The RRT will coordinate all measures to respond to the emergency within the airport
 - The suspected passenger will be transferred immediately to the Infectious Disease Hospital (IDH) for further assessment, care, isolation and other supportive services
 - Ambulance with specially designated equipment and staff (Medical Officers, Nursing Officers, supportive staff) will be used to transfer the suspected patient
 - Appropriate Personal Protective Equipment (PPE) will be provided by the Port Health Office to all staff in contact with travellers (SLPA staff, Customs Officers, Immigration Officers etc) at the airport
 - PPE will be also provided by the Port Health Office to travellers who had close contact with the suspected infectious traveller
- C. Day 2 Hour 1 -asymptomatic wife accompanies the suspected case
- The MO-PH will refer the wife to IDH for quarantine
 - If incubation period is known, she will be quarantined for a period not exceeding the incubation period of the infection she has been exposed. The period will be calculated from the time of the last exposure to infection by the designated medical team.
- D. Day 2 Hour 1.5 - 100 more persons - a crew of 10 in the flight, 20 transit passengers.
- Those who have been exposed to the infection but allowed to disembark will be placed under surveillance for a period not exceeding the incubation period of the infection to which they have been exposed.

- Such person should be issued with a card by the MO-PH with clear written instructions for the duration of surveillance and contact details of the MO-PH
- The MO-PH should request the person to report to him, if necessary, at specified intervals during the period of surveillance as noted in the card issued to him/her
- Vaccinations and/or prophylaxis will be decided by the designated medical team and as per the case management protocols
- The Medical Officer of Health (MOH) of the area, where the persons intend to stay during the period under surveillance, should be informed over the phone/fax/e mail about such person/s
- If such person develops symptoms and/or signs during the incubation period, he/she should be advised to get admitted to the nearest designated hospital
- Such persons should be advised to inform the MO-PH if he/she plans to depart for another place in Sri Lanka. In such a situation, the MO-PH should immediately inform the MOH of the place to which the person is proceeding. The person under surveillance should be advised to report to the MOH on arrival to that place.
- Transit passengers and crew members -will not be allowed to disembark.

F. Day 2 Hour 3 - suspected patient has vomited in the flight near the seat and has frequently used the flight lavatory

- Guidelines for decontamination, disinfection of the aircraft and baggage arriving with persons suspected as having an infectious disease in a PHEIC is mentioned in Chapter 6
- Guidelines for removal of solid and liquid waste in contact persons suspected as having an infectious disease in a PHEIC is mentioned in Chapter 5



Evaluation Guide-tool to quantify the assessors-whether relevant persons are doing the activities correct

- 1 = Poor (*Procedures lacking; serious problems*)
- 2 = Average (*Elements of the process are evident, but with deficiencies and gaps*)
- 3 = Good (*The process is evident, but there are gaps*)
- 4 = Very Good (*The complete process is evident*)
- 5= Excellent (*Additional elements are created and complement the guidelines established*)