



**Epidemiology Unit- Ministry of Health**

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**Provincial Director of Health Services** – Southern Province / Western Province / Sabaragamuwa Province

**Regional Director of Health Services** – Galle / Matara / Hambanthota / Colombo / Kaluthara / Rathnapura / Kegalle

**PUBLIC HEALTH MEASURES TO BE ADOPTED IN THE EVENT OF FLOODS**

Due to the prevailing adverse weather condition in the country the above provinces and districts are experiencing emergency situations. As a result a number of internally displaced people are living in temporary shelters. Prevailing flood and heavy rains will pollute the water resources and food supply in those areas.

The annexed guidelines are recommended to minimize the adverse public health impact and prevent the spread of communicable diseases among the displaced population living in temporary shelters. (These documents are also available on the Epidemiology Unit Website: [www.epid.gov.lk](http://www.epid.gov.lk))

All Regional Epidemiologist are requested to communicate with the Epidemiology Unit on daily basis during the emergency situation to provide an update and get any additional support needed from the unit.

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Dr. Samitha Ginige

**Chief Epidemiologist (Acting)**

Copy: Director General of Health Services  
Deputy Director of General (Public Health Services)1  
Director Disaster Management Center  
Director MCH / FHB  
Director HEB  
Provincial CCPs  
Regional Epidemiologists of above districts



## **PUBLIC HEALTH MEASURES TO BE ADOPTED IN THE EVENT OF FLOODS**

The main responsibility of prevention of communicable diseases and disease surveillance lies with the local public health staff (MOH, RE, RDHS and PD) while technical guidance, will be provided by the Epidemiology Unit.

### **1. Safe water**

Need to address - safety, adequacy, supply and source

The water supply measures in short term emergencies involving population displacement and temporary shelters are considered.

- Identify sources of water (eg: wells, pipe borne, tube wells, external supply)
- Co-ordinate with the Divisional Secretary and local government authorities to ensure continuous and adequate supply of safe drinking water
- Adequate water storage tanks should be supplied for proper storage of water.
- First priority is to provide adequate supply of water. The water supplied should be adequately treated. Chlorinated water should be ideal and need to be monitored regularly. In special situations of disasters as in floods, PHI should involve in super chlorination of water.
- If pipe-borne water is not available, water to be collected in tanks or barrels and chlorinated adequately to ensure safety in drinking water.
- Train a group leader in water sanitation. If facilities are available, make arrangements for boiling and proper storage of water at least for children.
- Advise and supervise correct methods of storage and usage of water for different purposes

## 2. Ensuring safety of food

Need to address – safety, adequacy, nutrition (Satisfaction and acceptance also to be considered)

- PHI should co-ordinate with the Divisional Secretary to ensure that food supplied by local authorities and other sources are hygienically prepared before distribution during early recovery period.
- Ensure all food supplies to the displaced are hygienically stored, prepared and distributed.
- Strictly monitor the preparation of food in food handling establishments.
- Establish a food preparation place within the camp as soon as possible and maintain safety practices.
- Educate food handlers on food safety practices and personal hygienic measures.
- PHI should supervise regularly the food preparation practices carried out within the temporary shelter.
- Common food preparation practices at the initial stage may be divided into several groups with time should be encouraged but regular monitoring of food preparation sites should be supervised. Upgrading of the knowledge on nutritious and hygienic preparation of food should be carried out.
- Storage facilities for raw materials should be provided and adequately maintained. It is the responsibility of the PHI to supervise and maintain activities regularly.

## 3. Sanitary facilities

Identify sanitary facilities existing in the camp.

- Ensure adequate sanitary facilities for the displaced within the camp. Where necessary, make arrangements to construct an adequate number of temporary latrines.
- PHI of the area should involve in the assessment of the adequacy of toilets. Shallow or deep trench latrines or temporary pit latrines should be prepared depending on the situation.

- The latrines should be sited at least 30 meters away from any water source. If the ground water is not abstracted, the distance may be reduced depending on the availability of space.
- Need to get the opinion of users also in construction of latrines at the design stage to get the maximum co-operation for proper maintenance.
- Ensure proper disposal of excreta of infants, babies and disabled. Distribute potties for children. Train and educate to discard all excreta and empty potties to latrine pit.
- Ensure cleanliness of toilets. PHI should monitor regularly the cleanliness. Prepare and make available adequate amount of TCL, soap and cleaning equipment to latrines.
- Make arrangements for continuous and adequate water supply and soap for washing purposes.

#### 4. Disposal of refuse

- The number and size of the refuse containers need will vary depending on the situation. The area PHI should co-ordinate with the local authority on the supply of requirements in maintaining proper refuse disposal within the temporary shelter.
- Identify a suitable method of garbage disposal. Co-ordinate disposal of garbage by sanitary burial or burning in suitable adjacent areas of temporary shelters.
- If garbage is removed daily by the local authorities using tractors, ensure enough containers (garbage bins) are made available in the temporary shelters for collection of garbage.
- Co-ordinate with the local authority on regular removal of garbage.
- Train to collect and sort garbage. Dispose in separate containers.
- Make arrangements for refuse storage, collection and transport and regular monitoring by the PHI.
- Control flies, insects and rodents by proper use of physical and chemical methods (insecticides and TCL powder).
- Train to ensure cleanliness in and around the camp.

## 5. **Waste water management**

- Waste water from kitchen, bath areas and laundering is considered here.
- Quantity and nature of waste water problem should be assessed. Disposal options depending on the situation should be considered.
- Co-ordinate with the local authority for proper disposal of waste water produced within the temporary shelter. (eg: Infiltration into soaking pit, diversion into a drain or open channels)
- Should not allow stagnation within the temporary shelter or should not allow drainage through dwellings.

## 6. **Treatment and management of minor ailments**

- Co-ordinate with the local medical institutions/authorities to establish mobile medical teams to visit temporary shelters for the displaced daily and provide treatment.
- Conduct mobile health clinics daily at early recovery phase, and 2-3 days time per week later.
- Pre-plan the health clinic. Eg: age-wise or gender-wise categorization, area for treatment for minor ailments, referrals for follow up for chronic/non communicable diseases, screening for communicable diseases.
- Issue a personal health record for each person to continue and follow up throughout the period of stay in temporary shelters which will facilitate identification of diseases early and prevention of multiplication of treatment.
- Direct and co-ordinate all volunteer health teams and health facilities through the MOH office of the area.

## 7. **Prevention and control of potential outbreaks**

Disaster affected people are particularly vulnerable to communicable diseases which are directly related to environmental health and behaviours. Public education and provision of information in behavioural changes should be carried out to reduce the occurrence and spread of communicable diseases.

- Water quality surveillance for bacteriological testing should be continued weekly in an epidemic related to water and during early phase of recovery of the disaster. Otherwise monthly surveillance will be adequate. Samples should be collected according to the national norms.

- Diarrhoea will result due to contaminated drinking water, food or poor sanitation and unhygienic practices. Prompt action must be taken to ensure early treatment and prevention of further spread. Maintain hygienic practices.
- In case of contagious diseases such as acute respiratory tract infections, eye infections and chickenpox patients should be isolated if facilities are available and referred to the area hospital if necessary. In case of spreading respiratory tract infections contact Epidemiology Unit and MRI for necessary technical support for prevention of spread and viral studies for accurate diagnosis.
- Some disaster conditions give rise to increase in the populations of vector or nuisance species, usually insects and rodents. People living in temporary shelters are specially exposed and prone to diseases spread by vectors. Steps should be taken to control mosquito breeding to prevent and control mosquito borne diseases such as Dengue, Malaria and JE. Ensure maintenance of environmental sanitation. Appropriate advice will be provided by the Epidemiology Unit whenever necessary.
- Promote camp leaders and mobile medical teams to report notifiable diseases and other contagious diseases to the local public health staff as early as possible.
- In the event of any vaccine preventable disease, contact the Epidemiology Unit, Regional Epidemiologist or MOH of the area.
- Routine age appropriate vaccination procedure should be continued through mobile clinics by the area field public health staff.

#### 8. **Prophylaxis for Leptospirosis**

- With the receding of water levels, displaced population starts to go back to their residences. There may be a risk of contact with *Leptospira* contaminated water due to following reasons during this period.
  - The current water levels make the water shallow and muddy
  - The people will be going to their residences shortly and will start cleaning the homes, thereby increasing the possibility of exposure.
- Doxycycline chemoprophylaxis is recommended (**where the disease prevalence is already known to be high**) as follows.

- Doxycycline 200mg stat dose (which will be effective for one week)
- Doxycycline can be taken with or without food, preferably with a full glass of water. **It is contraindicated in,**
  - Age <12 years
  - Pregnancy
  - Lactating mothers
  - The presence of previous allergy
- Doxycycline is generally not prescribed to patients with significant liver or kidney diseases. In case of any doubt, advice may be sought from the consultant physician of the nearest hospital.

## 9. Disease surveillance

### **Major steps in communicable disease surveillance after disaster,**

- (1) Vigilance on occurrences of communicable diseases.
- (2) Carry out field investigation of rumors and notifications of outbreaks of diseases.
- (3) Do relevant laboratory investigations to obtain definitive diagnoses and support for epidemiological investigations.
- (4) Provide epidemiological information to decision makers.
- (5) Strengthen and continue surveillance during and after the recovery phase.

- MOH/PHI should visit temporary shelters daily to inquire into unusual occurrences of disease events/outbreaks. Leaders in temporary shelters should be contacted daily and be inquired about specific communicable diseases and unexpected occurrences of diseases. If any field health staff member received information or a rumour on infectious disease he/she should inform the MOH without delay. The suspected patient of the temporary shelter is visited by the PHI and relevant additional information is obtained from the patient, his/her medical records, his/her family, others in the temporary shelter and the environment. The MOH also should visit the temporary shelter and investigate where necessary. Suspected cases of communicable diseases

should be isolated within the temporary shelter if facilities are available or otherwise arrangements made to isolate in the area hospital to prevent spread. If doubtful cases are present, the MOH of the area should take action to prevent the spread of the disease and confirm the case. Necessary technical advice should be obtained from the Regional Epidemiologist, consultants in regional hospitals and the Epidemiology Unit. Obtain assistance from regional laboratories to confirm the disease which is essential for prevention of spread of diseases.

- MOH should collect communicable disease surveillance data from each temporary shelter in the given format (Annexure 1).
- MOH should consolidate the above data daily and send a consolidated report to RE (Annexure 2) and RE should consolidate it by MOH area and send it to the Epidemiology Unit daily (annexure 3).
- Routine surveillance system should be continued (notification, investigation, prediction and early detection of outbreaks) and returns should be maintained (H399, H 411a and special investigations)
- In addition general information regarding the flood affected area should be filled by the RE in duplicate and one copy to be kept at RDHS office and one to be sent to the Epidemiology Unit (Annexure 4).





**DISEASE SURVEILLANCE IN FLOOD AFFECTED AREAS** **Annexure 1**

MOH Area : .....

PHI Area : .....

Name of Camp / Shelter : .....

Disease	No of Cases							Total No. of Cases
	__/__/20__	__/__/20__	__/__/20__	__/__/20__	__/__/20__	__/__/20__	__/__/20__	
Watery Diarrhoea								
Dysentery								
Enteric Fever								
Viral Hepatitis								
Chickenpox								
Measles								
Acute Respiratory Tract Infection (RTI)								
Conjunctives								
Skin Diseases								
Others								

Note :

- If there are any deaths, state the probable cause of death
- To be filled in duplicate by the PHI by visiting the camp daily. One form is to be kept in the camp and the other at the PHI office.

Signature : .....

Date : .....



**DISEASE SURVEILLANCE IN FLOOD AFFECTED AREAS** **Annexure 2**

MOH Area : .....

Date :   /   /

Temporary Shelter Name	Watery Diarrhoea	Dysentery	Enteric Fever	Viral Hepatitis	Chickenpox	Measles	ARTI	Conjunctives	Skin Diseases	Others

Note :

- If there are any deaths, state the probable cause of death
- To be filled in duplicate by MOH. One form to be sent to RE daily and the other to be kept with him / her.

Signature : .....

Date : .....



**DISEASE SURVEILLANCE IN FLOOD AFFECTED AREAS** **Annexure 3**

District : .....

Date :   /   /

MOH Area	Watery Diarrhoea	Dysentery	Enteric Fever	Viral Hepatitis	Chickenpox	Measles	ARTI	Conjunctives	Skin Diseases	Others

Note :

- If there are any deaths, state the probable cause of death
- To be filled in duplicate by RE. One form to be sent to the Epidemiology Unit daily and the other to be kept with him / her.

Signature : .....

Date : .....



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**INFORMATION ON FLOOD AFFECTED AREAS** **Annexure 4**

District		
Date of update		
MOH areas affected		
Total No. of families affected		
No. of IDP camps		
No. of families displaced		
No. of person displaced		
No. of affected medical institutions		
Major activities carried out		
Other information		
Any additional assistant required		

Signature of the reporting officer .....

Designation .....

Date .....