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National Focal Point for International Health Regulations

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Subject: **Advisory for Prevention and Control of Monsoon-Related Diseases**

Background

The monsoon season in Pakistan is associated with increased morbidity and mortality due to a wide range of communicable and vector-borne diseases. Heavy rainfall, flooding, waterlogging, disruption of sanitation systems, contamination of drinking water sources, and increased vector breeding create favorable conditions for outbreaks of acute watery diarrhea, cholera, typhoid fever, malaria, dengue, chikungunya, leptospirosis, viral hepatitis A and E, and other infectious diseases.

Population displacement, overcrowding in temporary shelters, poor access to safe water and healthcare services, and interruption of routine public health activities further increase the risk of disease transmission. Timely preparedness, enhanced surveillance, early detection, and prompt response measures are essential to minimize the public health impact of monsoon-related disease outbreaks.

Purpose

This advisory is intended to guide all provincial and federal health departments, healthcare facilities, district administrations, and relevant stakeholders in strengthening surveillance, preparedness, prevention, and response activities for monsoon-related diseases to reduce morbidity and mortality during the monsoon season.

Risk Factors

The monsoon season may exacerbate several factors contributing to disease transmission, including:

- Flooding and waterlogging leading to contamination of drinking water supplies.
- Increased mosquito breeding in stagnant water, resulting in higher transmission of malaria, dengue, and chikungunya.
- Damage to water and sanitation infrastructure.
- Population displacement and overcrowding in relief camps and temporary settlements.
- Poor hygiene and sanitation practices.
- Reduced access to healthcare services and delayed healthcare seeking behavior.
- Consumption of contaminated food and water.
- Increased occupational and environmental exposure to contaminated floodwaters.
- Structural damage to buildings, boundary walls, and roofs resulting in injuries and fatalities.
- Exposure to lightning strikes during thunderstorms.
- Increased contact with snakes and other hazardous animals displaced by flooding.
- Road traffic injuries due to poor visibility, slippery roads, and damaged infrastructure.

Clinical Presentation

Acute Watery Diarrhea / Cholera: Characterized by sudden onset of profuse watery diarrhea, vomiting, dehydration, muscle cramps, and in severe cases shock and death if untreated.

Typhoid Fever: Presents with prolonged fever, headache, abdominal pain, weakness, constipation or diarrhea, and occasionally rash.

Viral Hepatitis A and E: Symptoms include fever, malaise, nausea, vomiting, abdominal discomfort, dark urine, jaundice, and liver tenderness.

Malaria: Common symptoms include fever with chills, sweating, headache, body aches, nausea, and anemia. Severe cases may develop altered consciousness, respiratory distress, and organ failure.

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Dengue Fever: Characterized by high fever, severe headache, retro-orbital pain, body aches, joint pain, rash, nausea, vomiting, and bleeding manifestations in severe cases.

Chikungunya: Presents with fever, severe joint pain, rash, headache, and fatigue.

Leptospirosis: May present with fever, headache, muscle pain, conjunctival suffusion, jaundice, kidney impairment, and hemorrhagic manifestations.

Electrocution: May present with burns, muscle pain, cardiac arrhythmias, loss of consciousness, respiratory arrest, or sudden death.

Drowning: Symptoms may include breathing difficulty, cough, altered mental status, hypothermia, and cardiac arrest.

Trauma due to Wall/Roof Collapse: May result in fractures, crush injuries, head injuries, internal bleeding, and death.

Snake Bite: May present with pain and swelling at the bite site, bleeding, paralysis, respiratory distress, shock, or other signs of envenomation.

Lightning Strike: May cause burns, cardiac arrest, neurological deficits, hearing impairment, and trauma due to falls.

Early recognition and prompt clinical management are critical to reduce complications and mortality.

Specimen Collection, Transportation and Laboratory Confirmation

- Collect appropriate specimens according to the suspected disease, including stool samples, blood samples, serum specimens, and other relevant clinical samples.
- Ensure proper labeling, documentation, packaging, and transportation using triple packaging systems.
- Maintain cold chain requirements during specimen transportation.
- Send specimens to designated provincial public health laboratories and the National Institute of Health (NIH), Islamabad for confirmation when/where required.
- Adhere strictly to standard infection prevention and control measures during collection, handling, and transportation of specimens.

Treatment / Clinical Management

Acute Watery Diarrhea / Cholera

- Prompt rehydration therapy using Oral Rehydration Salts (ORS) and intravenous fluids when indicated.
- Zinc supplementation for children.
- Appropriate antimicrobial therapy for confirmed cholera cases according to national guidelines.

Typhoid Fever

- Early diagnosis and treatment with appropriate antibiotics based on national treatment guidelines and antimicrobial resistance patterns.

Viral Hepatitis A and E

- Supportive management including hydration, nutritional support, and monitoring for complications.

Malaria

- Early diagnosis using microscopy or rapid diagnostic tests and treatment according to national malaria treatment guidelines.

Dengue Fever

- Supportive treatment with close monitoring of warning signs, fluid management, and referral of severe cases.

Chikungunya

- Symptomatic treatment including hydration, rest, and pain management.

Leptospirosis

- Early administration of appropriate antibiotics and supportive care.
- Ensure adequate stockpiles of essential medicines, diagnostics, ORS, intravenous fluids, rapid diagnostic kits, insecticides, and personal protective equipment.

Electrocution

- Ensure scene safety before approaching the victim.
- Immediate assessment of airway, breathing, and circulation.
- Cardiac monitoring and management of burns and associated injuries.

Drowning

- Immediate rescue and resuscitation.
- Oxygen therapy and management of hypothermia.
- Referral of severe cases to higher-level facilities.

Trauma

- Prompt stabilization, hemorrhage control, fracture management, and referral where required.

Snake Bite

- Immobilize the affected limb.
- Avoid harmful traditional practices such as incision, suction, or tourniquets.
- Administer anti-snake venom according to national guidelines where indicated.

Lightning Strike

- Immediate cardiopulmonary resuscitation if required.
- Assessment and management of burns, cardiac complications, and neurological injuries.

Public Health Actions

a. Strengthening Disease Surveillance

- Enhance surveillance for acute watery diarrhea, cholera, typhoid fever, malaria, dengue, chikungunya, leptospirosis, and viral hepatitis.
- Ensure timely detection, reporting, verification, and response to outbreaks.
- Enhance event-based surveillance and community-based surveillance mechanisms where available.
- Engage FETP fellows and trained surveillance staff in outbreak investigation and response activities.

b. Vector Control Measures

- Conduct source reduction activities to eliminate mosquito breeding sites.
- Promote environmental sanitation and proper waste disposal.
- Implement larvicidal and indoor residual spraying where appropriate.
- Strengthen entomological surveillance in high-risk areas.

c. Water, Sanitation and Hygiene (WASH)

- Ensure access to safe drinking water through chlorination and water quality monitoring.
- Promote hand hygiene and safe food handling practices.
- Improve sanitation facilities in affected communities and relief camps.
- Ensure safe disposal of human and solid waste.

d. Multi-sectoral Coordination

- Strengthen coordination among health departments, local government authorities, water and sanitation agencies, disaster management authorities, EPI, public health laboratories, and development partners.
- Establish regular information sharing and coordinated response mechanisms.

e. Personal Protection

- Encourage the use of insecticide-treated mosquito nets.
- Promote the use of protective clothing and mosquito repellents.
- Advise communities to avoid exposure to floodwaters whenever possible.
- Encourage prompt healthcare seeking for fever, diarrhea, jaundice, or other warning symptoms.
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f. Risk Communication and Community Engagement

- Conduct community awareness campaigns on prevention of waterborne and vector-borne diseases.
- Disseminate health education materials through print, electronic, social, and community media platforms.
- Promote household water treatment and safe storage practices.
- Encourage early reporting of suspected cases to health facilities.
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g. Hospital Preparedness

- Ensure readiness of healthcare facilities for management of monsoon-related diseases.
- Designate isolation and treatment areas where necessary.
- Maintain adequate stocks of medicines, diagnostics, IV fluids, ORS, blood products, and infection prevention supplies.
- Strengthen infection prevention and control measures within healthcare facilities.
- Ensure adequate availability of emergency trauma care supplies, anti-snake venom, burn management supplies, oxygen, and resuscitation equipment.
- Maintain readiness of emergency departments for management of electrocution, drowning, trauma, and snake-bite cases.
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h. Personal Protection and Injury Prevention

- Avoid contact with fallen electrical wires, damaged transformers, and flooded areas with electrical installations.
- Switch off electricity supply before entering flooded buildings.
- Avoid sheltering near weak structures, old buildings, trees, and boundary walls during storms.
- Strengthen community awareness regarding the risks of electrocution, drowning, lightning strikes, and structural collapse.
- Restrict children's access to floodwaters, canals, ponds, and other water bodies.
- Wear protective footwear when walking through waterlogged areas to reduce the risk of snake bites and injuries.
- Establish coordination with Rescue 1122, PDMA, local administrations, and emergency medical services for rapid response to emergencies.
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i. Monitoring and Evaluation

- Regularly monitor surveillance indicators, outbreak response activities, laboratory confirmation rates, and disease trends.
- Assess the effectiveness of interventions and implement corrective actions where required.

Reporting

- Maintain line lists of all suspected and confirmed cases with complete epidemiological information.
- Ensure timely reporting through DHIS-2, IDSR, and other designated surveillance platforms.
- Share surveillance data and outbreak reports with Provincial Disease Surveillance and Response Units (DSRUs) and the Center for Disease Control (CDC), NIH.

For any further assistance in this context, the Center for Disease Control (CDC), National Institute of Health (NIH), Islamabad may be contacted.

This advisory may please be widely disseminated among all concerned departments and stakeholders. NIH may kindly be kept informed regarding preparedness and response measures undertaken within respective jurisdictions.



(Dr. Mumtaz Ali Khan)
Chief, CDC-NIH

Distribution overleaf:

Distribution List:

1. Secretary, Health Department, Government of the Punjab, Lahore
2. Secretary, Health Department, Government of Sindh, Karachi
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5. Secretary, Health Department, Government of AJK, Muzaffarabad
6. Secretary, Health Department, Government of Gilgit-Baltistan, Gilgit
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18. Director General, Federal Directorate of Immunization (FDI), Islamabad
19. Animal Husbandry Commissioner, M/o National Food Security & Research, Islamabad
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22. Executive Director, Capital Hospital CDA, Islamabad
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24. Executive Director, National Institute of Rehabilitation Medicine (NIRM), Islamabad
25. Director General Health Services, Capital Development Authority, Islamabad
26. Director General, PAEC Hospital, Islamabad
27. Director General, KRL Hospital, Islamabad
28. Director General, NESCOM Hospital, Islamabad
29. Director General Health Services, Capital Development Authority (CDA), Islamabad
30. Director, Border Health Services-Pakistan, Islamabad
31. District Health Officer, ICT, Islamabad
32. Director, Nuclear Oncology & Radiotherapy Institute (NORI), Islamabad
33. Commandant, PAF Hospital, Islamabad
34. Commandant, Naval Complex Hospital, (PNS Hafeez), Islamabad
35. Medical Superintendent, Social Security Hospital, Islamabad
36. Director, Federal General Hospital, Park Road, Islamabad
37. Executive Director, Shifa International Hospital, Islamabad
38. Executive Director, Quaid-e-Azam International Hospital, Islamabad
39. Executive Director, Maroof International Hospital, Islamabad
40. Commandant, Combined Military Hospital (CMH), Rawalpindi
41. Commandant, Military Hospital (MH), Rawalpindi
42. Medical Superintendent, Cantonment General Hospital, Rawalpindi
43. Medical Superintendent, District Headquarter Hospital, Rawalpindi
44. Medical Superintendent, Fauji Foundation Hospital, Rawalpindi
45. Medical Superintendent, Holy Family Teaching Hospital, Rawalpindi
46. Medical Superintendent, Benazir Bhutto Hospital, Rawalpindi
47. Medical Superintendent, WAPDA Hospital, Rawalpindi
48. Medical Superintendent, Railway Hospital, Rawalpindi
49. Medical Superintendent, IHITC, Islamabad
50. Officer In-charge, Provincial Disease Surveillance & Response Unit (PDSRU) at Provincial Health Directorates, Lahore, Hyderabad, Peshawar, Quetta, Gilgit and Muzaffarabad
51. All Deputy Commissioners with the request to direct all concerned departments at district level.
52. Provincial Coordinator, EPI, Punjab, Sindh, KPK, Balochistan, GB and AJK

C.c:

1. Chief Secretary, Govt of Punjab, Sindh, KPK, Balochistan, GB and AJK.
2. Surgeon General Pakistan Army, GHQ Rawalpindi
3. Chief Commissioner, ICT Administration Islamabad
4. WHO Country Representative, Islamabad
5. SPS to Federal Minister of Health, M/o NHR&C, Islamabad
6. SPS to Secretary, M/o NHR&C, Islamabad
7. PS to Director General Health, M/o NHR&C, Islamabad