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Subject: ADVISORY ON PREVENTION AND CONTROL OF VACCINE-PREVENTABLE DISEASES

1. BACKGROUND

Vaccine-preventable diseases (VPDs) remain a significant public health concern and continue to pose a threat to population health, particularly among children and other vulnerable groups. Gaps in routine immunization coverage, delayed identification of suspected cases, population mobility, inadequate infection prevention and control (IPC) practices, and delays in case reporting may contribute to the occurrence and spread of vaccine-preventable diseases.

Diseases such as measles, diphtheria, pertussis and tetanus are associated with considerable morbidity and mortality, particularly among individuals who are unimmunized or incompletely immunized. Sustained implementation of routine immunization, effective disease surveillance, timely laboratory confirmation and appropriate clinical management are essential to prevent outbreaks and reduce disease burden.

In view of the foregoing, all concerned health authorities and healthcare institutions are advised to strengthen existing preventive and control measures to ensure timely detection, reporting and management of vaccine-preventable diseases.

2. PURPOSE

The purpose of this advisory is to provide guidance to provincial and federal health departments, healthcare facilities and other relevant stakeholders regarding the prevention, early detection, surveillance and control of vaccine-preventable diseases.

All concerned authorities shall ensure appropriate arrangements for routine immunization, disease surveillance, laboratory diagnosis, clinical management, outbreak investigation and response, and timely reporting in accordance with national policies and guidelines.

3. RISK FACTORS

The following factors may contribute to the occurrence and transmission of vaccine-preventable diseases:

- **Inadequate Immunization Coverage:** Suboptimal routine immunization coverage and missed or delayed vaccine doses may leave susceptible individuals vulnerable to infection.
- **Population Mobility:** Frequent movement of populations across geographical boundaries may facilitate the introduction and transmission of infectious diseases.
- **Immunization Gaps:** Incomplete vaccination records, missed opportunities for vaccination and limited access to immunization services may contribute to the accumulation of susceptible individuals.
- **Cold Chain Management:** Inadequate temperature monitoring, storage and transportation of vaccines may compromise vaccine potency and effectiveness.
- **Delayed Case Detection:** Failure to recognize and promptly report suspected cases may delay public health interventions and facilitate further transmission.
- **Inadequate Infection Prevention and Control:** Deficiencies in standard precautions, isolation arrangements and infection control practices within healthcare facilities may increase the risk of healthcare-associated transmission.

4. CLINICAL PRESENTATION

Healthcare providers shall maintain a high index of suspicion for vaccine-preventable diseases and promptly evaluate individuals presenting with compatible clinical manifestations.

- **Measles:** A highly contagious viral disease characterized by fever, cough, coryza, conjunctivitis and a generalized maculopapular rash. Complications may include pneumonia, diarrhea, otitis media and encephalitis.
- **Pertussis (Whooping Cough):** A highly contagious bacterial respiratory infection caused by Bordetella pertussis. It typically presents with an initial catarrhal phase characterized by coryza, mild fever and cough, followed by paroxysms of severe coughing, inspiratory whoop and post-tussive vomiting. Infants may present with apnoea and may develop severe complications, including pneumonia and respiratory failure.
- **Diphtheria:** An acute bacterial infection commonly presenting with sore throat, fever, malaise and an adherent pseudo membrane over the tonsils, pharynx or larynx. Severe cases may develop airway obstruction, myocarditis and neurological complications.
- **Tetanus:** A serious toxin-mediated bacterial disease associated with contaminated wounds or other breaches in skin integrity. Clinical manifestations include muscle rigidity, painful spasms, trismus (lockjaw) and respiratory compromise.

Early recognition, prompt notification and appropriate clinical management are essential to minimize complications, morbidity and mortality.

5. SPECIMEN COLLECTION, TRANSPORTATION AND LABORATORY CONFIRMATION

All healthcare facilities and concerned laboratories shall ensure appropriate specimen collection, handling, preservation and transportation in accordance with established national guidelines and disease-specific laboratory protocols.

The following specimen-specific requirements shall be observed:

Disease	Specimen	Transport Medium / Container and Requirements
Measles	Blood (serum)	Collect blood in a sterile, leak-proof blood collection tube. Separate serum as per laboratory protocol. No transport medium is required. Maintain at 2–8°C during transportation.
Diphtheria	Throat and/or nasal swab, including material from the edge of the pseudo membrane, where applicable	Collect using appropriate sterile swabs and place in Amies transport medium with charcoal, in accordance with the receiving laboratory's protocol. Transport promptly under recommended temperature conditions.
Pertussis (Whooping Cough)	Nasopharyngeal (NP) swab or nasopharyngeal aspirate	Use a suitable synthetic-fiber NP swab (e.g., nylon flocked or polyester/Dacron). For culture, use Regan-Lowe transport medium. For PCR, use the specimen collection and transport system validated by the receiving laboratory.
Tetanus	No routine specimen required for laboratory confirmation	Tetanus is primarily a clinical diagnosis. Any specialized specimen collection or laboratory investigation shall be undertaken in consultation with the designated reference laboratory.

In addition, the following general requirements shall be observed:

- Ensure that all specimens are collected by trained personnel using appropriate infection prevention and control precautions.
- Clearly label each specimen with the patient's identification details, specimen type, date and time of collection.
- Ensure that specimens are accompanied by the prescribed laboratory request forms containing relevant clinical and epidemiological information.
- Use appropriate leak-proof primary containers, secondary packaging and rigid outer packaging in accordance with applicable triple-packaging requirements.
- Maintain the recommended temperature and cold-chain conditions throughout transportation, as prescribed for each specimen.
- Do not place specimens in an unsuitable transport medium or substitute one transport system for another without consultation with the receiving laboratory.

- Transport specimens to designated provincial reference laboratories or the National Institute of Health (NIH), Islamabad, where national laboratory confirmation is required.
- Ensure timely communication of laboratory results to the concerned healthcare facility and public health authorities for necessary action.

6. TREATMENT AND CLINICAL MANAGEMENT

All healthcare facilities shall ensure that suspected and confirmed cases are promptly assessed and managed in accordance with established national clinical guidelines and standard treatment protocols.

The following clinical management measures shall be ensured:

- **Measles:** Management is primarily supportive and includes adequate hydration, nutritional support, administration of Vitamin A in accordance with national treatment protocols, and appropriate management of associated complications, including pneumonia and secondary infections.
- **Pertussis:** Treatment primarily involves appropriate antibiotic therapy, preferably during the early stage of illness, in accordance with national treatment guidelines. Supportive care, respiratory monitoring and hospitalization may be necessary, particularly in infants and patients presenting with severe disease. Appropriate assessment and management of close contacts, including antibiotic prophylaxis where indicated, shall also be undertaken.
- **Diphtheria:** Requires immediate clinical intervention, including administration of diphtheria antitoxin and appropriate antibiotics, without undue delay, alongside airway monitoring and supportive management.
- **Tetanus:** Requires urgent hospital-based management, including appropriate wound care, administration of tetanus immunoglobulin where indicated, antibiotics, control of muscle spasms and supportive care. Vaccination shall be administered as indicated, since recovery from tetanus does not confer reliable immunity.

All designated healthcare facilities shall maintain adequate stocks of essential medicines, therapeutic supplies and other required resources, including Vitamin A, antibiotics and diphtheria antitoxin, as applicable.

7. PUBLIC HEALTH ACTIONS

a. Strengthening of Disease Surveillance

- Strengthen routine surveillance for all priority vaccine-preventable diseases, particularly measles, poliomyelitis and diphtheria.
- Ensure timely identification, notification and investigation of suspected cases in accordance with national surveillance guidelines.
- Maintain a high index of suspicion for unusual increases in reported cases, epidemiological linkages and geographical clustering.

- Ensure timely investigation of suspected outbreaks and implementation of appropriate public health response measures.
- Engage Field Epidemiology and Training Program (FETP) fellows and alumni, where required, to support epidemiological investigations, risk assessment and outbreak response activities.
- Strengthen coordination between healthcare facilities, District Surveillance and Response Units (DSRUs), Provincial Health Departments and CDC-NIH.

b. Strengthening of Routine Immunization

- Ensure uninterrupted implementation of the routine immunization program in accordance with the national Expanded Program on Immunization (EPI) schedule.
- Identify and follow up children who have missed or delayed scheduled vaccine doses and facilitate catch-up immunization in accordance with national guidelines.
- Strengthen defaulter tracking, immunization microplanning and monitoring of vaccination coverage.
- Ensure availability of vaccines, syringes and other essential immunization supplies at designated vaccination centers.
- Maintain the integrity of the vaccine cold chain through regular temperature monitoring, equipment maintenance and appropriate vaccine storage and transportation.
- Undertake supplementary immunization activities or targeted vaccination interventions when epidemiologically indicated and in accordance with national policy.

c. Multi-stakeholder Engagement and Coordination

- Ensure effective coordination among Provincial Health Departments, District Health Authorities, CDC-NIH, FDI, public health laboratories and healthcare institutions.
- Establish functional coordination and communication mechanisms for timely information sharing, case notification and response to suspected outbreaks.
- Strengthen engagement with public and private healthcare providers to improve early detection, notification and referral of suspected cases.
- Ensure coordinated implementation of prevention and control measures in accordance with the respective mandates of concerned departments and institutions.

d. Personal Protection and Infection Prevention and Control

- Ensure strict implementation of standard precautions and relevant transmission-based precautions in healthcare facilities.
- Encourage individuals with respiratory symptoms to observe respiratory hygiene and cough etiquette, including the appropriate use of face masks where indicated.
- Ensure prompt identification and appropriate isolation of suspected cases of highly transmissible vaccine-preventable diseases.

- Promote appropriate wound cleaning, disinfection and dressing to reduce the risk of tetanus.
- Ensure regular hand hygiene and appropriate use of personal protective equipment by healthcare workers.

e. Risk Communication and Community Engagement

- Conduct regular community awareness sessions on vaccine-preventable diseases, their clinical manifestations, modes of transmission and preventive measures.
- Promote timely completion of routine immunization schedules and address misconceptions regarding vaccine safety and effectiveness.
- Disseminate appropriate information, education and communication (IEC) materials through healthcare facilities and community-based platforms.
- Utilize print, electronic and social media for dissemination of accurate public health information.
- Encourage individuals and caregivers to seek timely medical consultation in case of suspected symptoms and to report suspected cases to the nearest healthcare facility.

f. Healthcare Facility Preparedness

- All designated healthcare facilities shall ensure appropriate arrangements for the assessment, isolation, referral and clinical management of suspected and confirmed cases of vaccine-preventable diseases.
- Ensure availability of trained healthcare personnel, essential medicines, diagnostic facilities and required medical supplies.
- Maintain adequate stocks of Vitamin A for measles case management and other disease-specific therapeutic supplies.
- Establish functional referral mechanisms for patients requiring specialized clinical care.
- Ensure regular monitoring of infection prevention and control practices, environmental hygiene and sanitation within healthcare facilities.
- Conduct periodic assessments of healthcare facility preparedness and address identified gaps through appropriate corrective measures.

8. Reporting and Information Management

All concerned healthcare facilities and health departments shall ensure timely and complete reporting of suspected and confirmed cases of vaccine-preventable diseases.

The following measures shall be undertaken:

- Maintain updated line lists of all suspected and confirmed cases, containing relevant demographic, clinical, epidemiological, laboratory and immunization-related information.

- Ensure timely notification of suspected cases to the concerned District Disease Surveillance and Response Unit and Provincial Health Department in accordance with prescribed reporting timelines.
- Ensure accurate and timely entry of surveillance data into the District Health Information System (DHIS-2), as applicable.
- Share relevant surveillance information with the Provincial DSRU and CDC-NIH for national-level monitoring, analysis and coordination.
- Immediately notify unusual disease occurrences, suspected outbreaks and epidemiologically significant clusters through established surveillance and response channels.
- Ensure that reporting is complete, accurate and timely, with appropriate feedback and data verification mechanisms.

9. COORDINATION AND TECHNICAL ASSISTANCE

For technical guidance and assistance regarding the prevention, surveillance and control of vaccine-preventable diseases, the Centre for Disease Control (CDC), National Institutes of Health, Islamabad, may please be contacted at:

Telephone: 051-9255237
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This advisory may please be widely distributed among all concerned and NIH may please be kept informed of the measures undertaken in respective areas of jurisdiction.