National Institutes of Health - Pakistan
(Center for Disease Control)
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National Focal Point for IHR

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Advisory for Prevention and Treatment of *Corynebacterium Diphtheria*

Purpose:

Diphtheria is a potentially life-threatening bacterial disease caused by infection with toxin producing strains of *Corynebacterium diphtheriae.* It is transmitted usually from person-to-person through respiratory droplets from coughing or sneezing. In Pakistan, sporadic cases of Diphtheria continue to be reported and usually presented during November to February. In the year of 2022, there were 26 laboratory confirmed cases reported from all across the country. This 'Advisory' is intended to alert the Health Professionals to remain vigilant for picking up suspected Diphtheria cases and to undertake prevention and control measures during the winter season of 2022.

Case Definition:

Probable Case:

Any Person who meets the clinical case definition for respiratory diphtheria i.e. upper respiratory tract illness characterized by laryngitis or pharyngitis or tonsillitis and a visible adherent "membrane" on the tonsils, pharynx and/or nose and without epidemiological linkage and laboratory confirmation.

Confirmed case:

Any confirmed case is a probable case that has been laboratory confirmed or linked epidemiologically to a laboratory confirmed case. Persons with positive *C. Diphtheriae* culture but asymptomatic, should not be reported as suspected or confirmed cases.

Mode of Transmission:

Diphtheria transmitted from person to person, skin lesions usually through respiratory droplets (coughing or sneezing). Infection may come by contact/touching open sores (skin lesions) and material objects (toys or clothes) used by the person who already is sick with diphtheria. Incubation period is usually 2-5 days, occasionally longer.

Diagnosis:

Bacteriological culture and PCR can be used to detect toxigenic strains of *C. diphtheria* is standard test for confirmation

Specimen collection

- Collect nasopharyngeal and throat swabs by using polyester, rayon or nylon swabs for culture.
- The swabs should be placed in transport media such as Amies or Stuart and shipped overnight with ice packs
- Pseudo membrane must not be removed as it **usually result in bleeding at the site**.

Packaging: Triple Packaging

Storage: 4-8°C for 48-72 hours, long term storage should be at -20°C

Transportation-Transport swabs and pieces of pseudo-membrane in Amies transport medium and sterile saline, respectively, on ambient temperature.

Treatment:

Immediately start the treatment if diphtheria is suspected without waiting for laboratory confirmation. Diphtheria patients are usually kept in isolation, until they are no longer able to infect others (48 hours after antibiotic treatment begins). Treatment includes diphtheria antitoxin to neutralize the toxin and antibiotics. Give the entire treatment dose of antitoxin IV (or IM) in a single administration (except for series of injections needed for desensitization).The recommended DAT treatment dosage ranges are for pharyngeal or laryngeal disease of 2 days duration (20,000 – 40,000 IU), for nasopharyngeal disease (40,000-60,000 IU), extensive disease of 3 or more days duration, or any patient with diffuse swelling of neck (80,000 – 100,000 IU) should be administered immediately after throat swabs have been taken. Give children the same dose as adults. Repeated doses of DAT after an appropriate initial dose are not recommended and may increase the risk of adverse reactions.

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The antibiotic of choice for treatment of either respiratory or cutaneous diphtheria is erythromycin or penicillin, which may be given in the following dosages over a duration of 14 days: Intramuscular procaine penicillin G, 25,000-50,000 units/[kg/d] for children and 1.2 million units/d for adults, in two divided doses; parenteral or oral erythromycin, 40-50 mg/[kg/d], with a maximum of 2 g/d, in 4 divided doses; oral penicillin V, 125-250 mg four times daily. For patients who can swallow and are less ill, Oral azithromycin can be used dose for children: 10-12 mg/kg once daily (max. 500 mg/day) and for adults 500 mg once daily for total of 14 days.

Vaccination:

- There are four combination vaccines used to prevent diphtheria, tetanus and pertussis: DTaP, Tdap, DT, and Td. Two of these (DPT and DT) are given to children younger than 7 years of age, and two (Tdap and Td) are given to older children and adults.
- Three doses of diphtheria vaccines (DPT/Pentavalent) as per EPI immunization Schedule, preteens get a booster dose of a diphtheria vaccine (Tdap) at 11 or 12 years of age, teens who did not get Tdap at 11 or 12 years of age should get a dose and adults should receive a dose of Td every 10 years.

Prophylaxis:

- For close contacts, especially household contacts, a diphtheria toxoid (dT) booster, appropriate for age, should be given.
- Surveillance for 7 days for all persons with close contact, regardless of vaccination status, and throat culture
- Antibiotics for prophylaxis. Choose one of the following antibiotics for prevention: IM benzathine penicillin as a single dose for children aged ≤ 5 years administer (600,000 units) and for those > 5 years recommended dose (1,200,000 units). Oral erythromycin for children 40 mg/kg/day, administered in divided dose, 10 mg per dose, and every 6 hours. Oral erythromycin for adults (1 g/day) administered in divided dose, 250 mg per dose every 6 hours for 7 days. Oral Azithromycin doses for Children (10-12 mg/kg once daily, to a max of 500mg/day) and for adults 500mg once daily for 7 days.

NIH Support:

- NIH as reference lab, provide free of cost laboratory support for suspected Diphtheria cases. Samples along with demographic details, history of illness, vaccination and treatment, in Amies transport medium must be immediately transported to NIH under intimation to the Field Epidemiology & Disease Surveillance Division (FE&DSD), NIH.
- Health professionals and authorities throughout the country are regularly sensitized through Seasonal Awareness and Alert Letters (SAAL) being issued by this Institute thrice a year since 2004 (the latest copy can be visited at the website (www.nih.org.pk). For preparedness against the common diseases, the provincial health department needs to utilize the data and recommendation given in the SAAL.
- For any further assistance in this context, the Center for Disease Control (CDC) (051 – 9255566 and Fax No. 051-9255099) and Microbiology Department of Public Health Laboratories Division (051 – 92552380), NIH may be contacted.
- DRAP (Drug regulatory authority of Pakistan) is advised to ensure the availability of DAT (diphtheria antitoxin) in the country.

<u>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.</u>

Major General
Prof. Dr. Aamer Ikram, HI(M)
Chief Executive Officer

<u>Distribution Overleaf</u>

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46. Medical Superintendent, Railway Hospital, Rawalpindi
47. In-charge, Federal Disease Surveillance Unit (FDSRU), NIH Islamabad
48. Officer In-charge, Provincial Disease Surveillance Unit (PDSRU) at Provincial Health Directorates, Lahore, Hyderabad, Peshawar, Quetta, Gilgit and Muzaffarabad
49. Deputy Commissioners with the request to direct all concerned departments at district level

Copies to:

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 NHSR&C, Islamabad
6. SPS to Secretary, M/o NHSR&C, Islamabad
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