



VACCINE: DIPHTHERIA



1. Vaccine indication

Diphtheria toxoid vaccine is indicated for the active primary prevention of diphtheria in persons not yet infected with *Corynebacterium diphtheria*.

2. Rationale for vaccination

The main reason for diphtheria toxoid vaccination is to prevent infection with *C. diphtheria*, and thereby prevent:

- Respiratory obstruction
- Acute systemic toxicity
- Myocarditis
- Neurologic complications

3. Type of vaccine

Inactivated diphtheria toxin.

4. Composition of the vaccine

Diphtheria toxoid is prepared from diphtheria toxin produced from growth of toxin-producing *C. diphtheriae*. The toxin is converted to toxoid by treatment with formaldehyde. To increase its antigenicity, diphtheria toxin is adsorbed onto aluminium salts. Diphtheria toxoid is available in combination with tetanus toxoid as DT, tetanus toxoid and pertussis vaccine as DTP, or in combination with other vaccines. The toxoid should be stored between 2°C to 8°C and must never be frozen

5. Immunogenicity of vaccine and efficacy

Although no acceptable controlled clinical trials have been conducted on the efficacy of the diphtheria toxoid, evidence exists that clinical disease is prevented. The disease has almost disappeared in countries where there is vaccination, and during outbreaks of diphtheria, cases of the disease are negligible in immunised individuals. When partially immunised individuals acquire diphtheria, the disease is milder and complications are fewer.

6. Candidates for vaccination

In South Africa, diphtheria toxoid vaccine (DTP) is given to babies as part of the EPI-SA schedule starting from 6 weeks of age. Infants with HIV infection should be vaccinated within the EPI-SA schedule as the vaccine is completely safe.

In addition, the following persons are also at risk of *C. diphtheriae* infection and should be vaccinated:

- Un-immunised children
- Household contacts of persons infected by diphtheria
- Persons living under crowded conditions

7. Vaccination regimen and route of administration

The diphtheria toxoid vaccine is available in combination with tetanus toxoid and pertussis vaccines (both acellular and whole cell) as DTP and is administered by intramuscular injection to the anterolateral aspect of the thigh for infants, or the deltoid muscle for older children. DTP in combinations such as DTP-Hib or DTP-Hib-Hep B can be given into one limb. If hepatitis B or Hib vaccines are to be administered as monovalents and on the same day as DTP, then the vaccines should preferably be given at different sites.

8. Interchangeability of vaccines

Diphtheria toxoid vaccines from different manufactures can be used interchangeably with no effect on efficacy, to complete a vaccination schedule.

9. Side effects and special precautions

Reactions to DTP are usually mild, although in rare events, cases of allergic reaction to DTP vaccine have been observed. In such cases, vaccination should be discontinued. Common side-effects include:

- Pain and swelling at the site of injection
- Fever that usually disappears within a day
- Irritability and loss of appetite.

Where to find us:

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