

**NEED FOR WHITE PAPER ON ADULT IMMUNIZATION IN INDIA**

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- Current scenario in India – No coordinated public health infrastructure to support an adult immunization program as there is for children; Little coordination among healthcare providers in terms of vaccine provision; Despite availability of vaccines, many adults remain unvaccinated because they are unaware of the need for adult vaccines or are misinformed about vaccines and the diseases they are designed to prevent; Considerable controversy exists regarding adult immunization especially in developing countries, like India.
- Barriers and challenges of adult immunization – Lack of recognition of the importance of adult immunization; Lack of recommendation from healthcare providers; Lack of healthcare provider knowledge about adult immunization and recommended vaccines; Misrepresentation/misunderstanding of the risks of vaccine and benefits of disease prevention in adults; Lack of understanding of vaccine safety and efficacy; Missed opportunities for vaccination in healthcare providers' offices, hospitals and nursing homes; Lack of publicly-funded vaccine and reimbursement to vaccine providers; Lack of coordinated immunization programs for adults.
- Need for adult immunization – Vaccination recommended: Prevent vaccine-preventable diseases and their sequel; Primary focus of vaccination programs: Historically directed to childhood immunizations; For adults, chronic diseases have been the primary focus of preventive and medical healthcare; Increased emphasis on preventing infectious diseases; Adult vaccination coverage: low for most of the routinely recommended vaccines; Probability of exposure to infectious agents: increased manifold, owing to globalization and increasing travel opportunities both within and across countries; Urgent need to address the problem of adult immunization.
- Mission of white paper – Making adult immunization a public health issue in India to improve patient outcome in adults in India.

**ADULT IMMUNIZATION IN INDIA – CHANGING THE IMMUNIZATION PARADIGM**

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**API Recommendations**

- Influenza – An annual dose of quadrivalent vaccine (latest strains recommended) for all adults, especially high risk: for all >65 years, health workers, pregnant women and <65 years with specific chronic medical conditions; 0.5 mL IM injection of inactivated influenza vaccine (IIV); live-attenuated influenza vaccine (LAIV) is not recommended below 2 years; IIV is recommended from 6 months onwards.
- Typhoid – TCV is preferred at all ages because of its improved immunological properties and expected longer duration of protection; TCV 0.5 mL IM single dose; a booster may be given after 3 years; TCV can be given from 6 months onwards, either with IIV at 6 months or with measles, mumps and rubella (MMR) at 9 months; booster dose may be given after 3 years; When Vi-polysaccharide (ViPS) is used, a single dose of the ViPS vaccine should be administered IM or SC from 2 years of age; revaccination is recommended every 3 years for ViPS; Immunocompromised persons, including those with HIV, should receive TCV or ViPS vaccine.
- Hepatitis B – A single dose (20 µg) administered IM in deltoid muscle recommended in adults (chronic kidney disease [CKD] schedule change) in individuals at high risk (especially medical students and students attending allied health courses); Recommended schedule – 0, 1 and 6 months in those who were not immunized in childhood or if anti-HBs <20; Revaccination is recommended every 5 years.
- Human papillomavirus infection – 0.5 mL IM injection of quadrivalent vaccine is recommended in young adults; For 15 to 26 years, three doses of quadrivalent vaccine; Current Government of India recommends vaccination in 9 to 13 years girls in school.
- *Haemophilus influenzae* type b (Hib) infection – 0.5 mL IM injection is recommended in individuals at risk; Single dose of Hib is recommended in individuals at high-risk in those who were not

previously immunized as well as those who were previously immunized; The vaccine recommended is polyribose phosphate, or outer membrane protein and the carrier is tetanus toxoid conjugate or diphtheria CRM protein.

- Pneumococcal infections – Vaccination is recommended for all, especially high-risk individuals; For individuals till 65 years, PCV13 is recommended in series with PPSV23; 0.5 mL IM injection of PCV13-conjugate vaccine or PPSV23-polysaccharide vaccine in those who were previously not immunized; Single dose of PCV13 and 2 doses of PPSV23, duration between two doses is 2 and 6 months and a booster is given after 5 years; PCV13 followed by PPSV23 at an interval of 2-6 months and repeated after 5 years with PPSV23 in individuals >65 years of age; In immunocompromised patients, PCV13 followed by PPSV23 at 6 to 12 months interval, booster dose of PPSV23 for >65 years after 1 year.
- Measles, mumps and rubella – Recommended in adults (26-55 years) but contraindicated in pregnancy, individuals above 65 years, and immunocompromised states; 0.5 mL of 2 doses (within a gap of 28 days) of the live vaccine administered subcutaneously is recommended in those who were not previously immunized; Recommended in medical students before joining classes (18-24 years), after assessing titer levels of the vaccine.
- Shingles – Recommended in individuals over the age of 60 years; 0.5 mL IM injection administered in deltoid; Two doses 4 to 8 weeks apart.
- Japanese encephalitis – Inactivated vero cell-derived vaccine, 2 doses at a gap of 4 weeks, starting the primary series at ≥6 months of age in endemic settings; Live-attenuated vaccine single dose given at ≥8 months of age; Live recombinant vaccine single dose given at ≥9 months of age; Inactivated JE vaccine can be given to immunocompromised persons including HIV-infected individuals; Healthcare workers at high-risk in endemic regions should be administered vaccines; Migrants to JE endemic area should be vaccinated.
- Cholera – Recommended in regions with endemic cholera, during cholera outbreaks, and

in a humanitarian crisis; vaccines should be used along with other cholera prevention and control strategies; whole-cell recombinant B-subunit (WC-rBS) vaccine is recommended in 2 doses to children aged ≥6 years and adults, with an interval of 1 to 6 weeks between the doses; WC vaccines are recommended in 2 doses administered 14 days apart to individuals aged ≥1 year; Oral cholera vaccine should be considered in healthcare workers involved in emergency and relief duties and those who have an increased probability to be directly exposed to cholera patients or contaminated food or water, especially in areas with poor access to healthcare facilities.

- Yellow fever – Single dose of yellow fever vaccine is adequate to offer sustained lifelong protective immunity; Booster dose is not necessary; Preventive mass vaccination campaigns are recommended for individuals living in areas at risk of yellow fever where there is low vaccination coverage; Vaccination should be given to everyone aged ≥9 months in any area with reported cases.
- Chicken pox – Recommended in those who did not have chicken pox; 2 doses of 0.5 mL attenuated live VZV (Oka strain) vaccine in deltoid area administered subcutaneously; In those who did not receive immunization in childhood, two doses are administered 4 to 8 weeks apart.
- Diphtheria, pertussis and tetanus – Tdap (0.5 mL) injection given IM and then Td given once in 10 years; 0.5 mL IM injection of Td given in 3 doses; 2 doses administered 4 weeks apart, 3rd dose 6 to 12 months after second dose. It is recommended between ages 18 and 64 years. Booster dose of Td vaccine is given once every 10 years till the age of 65 years; Earlier Td was used; however, after 2005, Tdap is given for all three diseases.
- Meningococcal infections – 0.5 mL SC injection given in 2 doses 1 month apart; Recommended for high-risk travelers, outbreaks and mass gatherings; In previously immunized people, a single dose is given. In those who were not previously immunized, 2 doses in those aged <16 years and a single dose in those aged >16 years.

