

## National Immunization Schedule

### Immunity

Immunity means a defence mechanism that can identify and destroy an invading organism in the body.

**Immunization means** enabling the body to quickly respond to attack and enhancing the immune response to a particular organism to prevent disease. According to WHO **immunization is the process whereby a person is made immune or resistant to an infectious disease.** Most popular technique of immunization is vaccination.

**Vaccination** means administration of a **vaccine to improve the immune system to protect against a disease.**

Vaccine means a formulation containing microorganism or virus in a weakened, live or killed state, or proteins and toxins from the organism.

|                          |  |
|--------------------------|--|
| <b>CPV</b>               | Canine parvovirus infection  |
| <b>DtwP</b>              | Combine antigen for protection against diphtheria, tetanus and pertussis.  |
| <b>Hib</b>               | It is <i>Haemophilus influenzae</i> type B vaccine provides protection against Hib disease including meningitis.   |
| <b>MMR vaccine</b>       | It is vaccine against measles, mumps and rubella.  |
| <b>Varicella vaccine</b> | It is also known as chickenpox vaccine that protects against chickenpox.<br>CDC (centers of disease control and prevention) recommends two doses.<br>First dose at age of 12 through 15 months, second dose at age of 4 through 6 years.   |
| <b>Hep A</b>             | It is given to a person who visits countries at high risk of hepatitis A   |
| <b>IPV</b>               | It is injectable polio vaccine that targets the three types of polio 1, 2 and 3 and it is administered by an injection on right upper thigh of the child. OPV and IPV vaccines are interchangeable.<br>Children who started their polio vaccination schedule with OPV should finish it with IPV or vice versa. |
| <b>DtwP and DTaP</b>     | Both provide protection against tetanus, diphtheria and pertussis. Most countries have switched from DPwP to DTaP because DTaP has less adverse effect.  |
| <b>Typhoid CV</b>        | Thyphoid conjugate vaccine is the prevention of thyphoid fever in children age of 6 months and adult up to 45 years of age. Route: IM in anterolateral part of thigh.  |

### National Immunization Schedule

| S. No.                 | Name of vaccine                     | Time period     | Age limit | Dose   | Route of administration | Site of administration |
|------------------------|-------------------------------------|-----------------|-----------|--------|-------------------------|------------------------|
| A. For pregnant women: |                                     |                 |           |        |                         |                        |
| 1.                     | Tetanus and adult diphtheria (Td-1) | Early pregnancy |           | 0.5 ml | Intramuscular           | Upper arm              |

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| S. No.          | Name of vaccine   | Time period  | Age limit                | Dose                                  | Route of administration | Site of administration          |
|-----------------|---|--|--------------------------|---------------------------------------|-------------------------|---------------------------------|
| 2.              | Tetanus and adult diphtheria 2 (Td-2)   | 4 weeks after 1st dose of Td   |                          | 0.5 ml                                | Intramuscular           | Upper arm                       |
| 3.              | Tetanus and adult diphtheria (Td booster)   | If received 2 Td doses in a pregnancy within the last 3 years                          |                          | 0.5 ml                                | Intramuscular           | Upper arm                       |
| B. For infants: |   |  |                          |                                       |                         |                                 |
| 1.              | BCG (Bacillus-Calmette-Guerin)  | At birth or as early as possible till 1 year of age                                    | At birth till one year   | 0.1 ml (0.05 ml until 1 month of age) | Intradermal             | Left upper arm                  |
| 2.              | Hepatitis B: Birth dose   | At birth or as early as possible within 24 hours                                       | At birth within 24 hours | 0.5 ml                                | Intramuscular           | Anterolateral side of mid thigh |
| 3.              | Oral polio vaccine (OPV) type 0   | At birth or as early as possible within first 15 days                                  | Within the first 15 days | 2 drops                               | Oral                    | Oral                            |
| 4.              | Oral polio vaccine (OPV) types 1, 2, 3,   | 6 weeks, 10 weeks and 14 weeks   | Till 5 years of age      | 2 drops                               | Oral                    | Oral                            |
| 5.              | Inactivated polio vaccine (IPV) types 1 and 2   | 6 weeks and 14 weeks   | 1 year of age            | 0.1 ml                                | Intradermal             | Right upper arm                 |
| 6.              | Pentavalent vaccine (diphtheria, pertussis, tetanus, hepatitis B, Hib) types 1, 2 and 3 | 6 weeks, 10 weeks and 14 weeks   | 1 year of age            | 0.5 ml                                | Intramuscular           | Anterolateral side of mid-thigh |
| 7.              | Rotavirus vaccine (RVV) types 1, 2 and 3  | At 6 weeks, 10 weeks and 14 weeks  | 1 year of age            | 5 drops (lyophilized vaccine)         | Oral                    | Oral                            |
| 8.              | Pneumococcal conjugate vaccine (PCV) 1, 2 and booster                                   | At 6 weeks, 14 weeks and 9 months  | 1 year of age            | 0.5 ml                                | Intramuscular           | Anterolateral side of mid-thigh |
| 9.              | Measles and rubella (MR) 1  | 9 completed months to 12 months. Give up to 5 years if not received at 9-12 months age | 5 years of age           | 0.5 ml                                | Subcutaneous            | Right upper arm                 |
| 10.             | Vitamin A (1st dose)  | At 9 completed months  | 5 years of age           | 1 ml (1 lakh IU)                      | Oral                    | Oral                            |

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| S. No.                           | Name of vaccine                                | Time period  | Age limit                 | Dose             | Route of administration                               | Site of administration                            |
|----------------------------------|--|--|---------------------------|------------------|---|---|
| 11.                              | Japanese encephalitis (1st dose)               | At 9 completed months 12 months  | 15 years of age           | 0.5 ml           | Subcutaneous (live vaccine)<br>Intramuscular (killed) | Left upper arm<br>Anterolateral side of mid-thigh |
| C. For children and adolescents: |  |  |                           |                  |   |   |
| 1.                               | Diphtheria, pertussis, tetanus (DPT) booster 1 | 16–24 months   | 7 years of age            | 0.5 ml           | Intramuscular   | Anterolateral side of mid-thigh                   |
| 2.                               | MR 2   | 16–24 months   | 5 years of age            | 0.5 ml           | Subcutaneous  | Right upper arm                                   |
| 3.                               | OPV booster                                    | 16–24 months   | 5 years of age            | 2 drops          | Oral  | Oral  |
| 4.                               | Japanese encephalitis (if applicable)          | 16–24 months   | 15 years of age           | 0.5 ml           | Subcutaneous  | Left upper arm                                    |
| 5.                               | Vitamin A (2nd to 9th dose)                    | 18 months (2nd dose). Then, one dose every 6 months up to the age of 5 years | 5 years of age            | 2 ml (2 lakh IU) | Oral  | Oral  |
| 6.                               | Diphtheria, pertussis, tetanus (DPT) booster 2 | 5–6 years  | 7 years of age            | 0.5 ml           | Intramuscular   | Upper arm   |
| 7.                               | Tetanus and adult diphtheria                   | 10 years and 16 years  | 16 years of age           | 0.5 ml           | Intramuscular   | Upper arm   |
| D. For adults:                   |  |  |                           |                  |   |   |
| 1.                               | Tetanus, diphtheria, pertussis (Td/Tdap)       | 1 dose Td booster every 10 years   | >19 years                 | 0.5 ml           | Intramuscular   |   |
| 2.                               | Human papillomavirus (HPV)                     | 3 doses  | Up to 45 years (female)   | 0.5 ml           | Intramuscular   |   |
| 3.                               | Measles, mumps, rubella (MMR)                  | 1–2 doses<br>01 dose   | 19–49 years<br>> 50 years | 0.5 ml           | Subcutaneous  |   |
| 4.                               | Varicella                                      | 02 doses (0 and 4–8 weeks)<br>02 doses (0 and 4–8 weeks)                     | 19–49 years<br>> 50 years | 0.5 ml           | Subcutaneous  |   |
| 5.                               | Influenza                                      | 01 dose annually   | 19–49 years<br>> 50 years | 0.5 ml           | Intramuscular   |   |
| 6.                               | Pneumococcal (polysaccharide)                  | 01 – 02 doses<br>01 dose   | 19–49 years<br>> 50 years | 0.5 ml           | Intramuscular   |   |

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| S. No.   | Name of vaccine                               | Time period                               | Age limit    | Dose   | Route of administration | Site of administration |
|--|---|---|--------------|--------|-------------------------|------------------------|
| 7.   | Hepatitis A                                   | 02 doses (0) 6–12 months and 6–18 months) | > 19 years   | 1.0 ml | Intramuscular           |                        |
| 8.   | Hepatitis B                                   | 03 doses (0, 1–2 and months, 4–6 months)  | > 19 years   | 1.0 ml | Intramuscular           |                        |
| 9.   | Typhoid                                       | 01 dose every 3 years                     | > 19 years   | 0.5 ml | Intramuscular           |                        |
| E. Vaccines not included in National Immunization Program: |   |   |              |        |                         |                        |
| 1.   | Hib 1 ( <i>Haemophilus influenzae</i> type B) |   | 06 weeks     |        |                         |                        |
| 2.   | Hib 2   |   | 10 weeks     |        |                         |                        |
| 3.   | Hib 3   |   | 14 weeks     |        |                         |                        |
| 4.   | Influenza                                     |   | 16 weeks     |        |                         |                        |
| 5.   | Influenza                                     |   | 7 months     |        |                         |                        |
| 6.   | MMR 1 (measles, mumps and rubella)            |   | 9 months     |        |                         |                        |
| 7.   | Typhoid CV (conjugate vaccine)                |   | 9–12 Months  |        |                         |                        |
| 8  | MMR 2   |   | 15 months    |        |                         |                        |
| 9.   | Varicella 1                                   |   | 15 months    |        |                         |                        |
| 10.  | DTwP B1/DTaP B1                               |   | 16–18 months |        |                         |                        |
| 11.  | IPV B1  |   | 16–18 months |        |                         |                        |
| 12.  | Hib B1  |   | 16–18 months |        |                         |                        |
| 13.  | Hep A2  |   | 18 months    |        |                         |                        |
| 14.  | Booster of typhoid CV                         |   | 02 years     |        |                         |                        |
| 15.  | DTwP B2/DTaP B2                               |   | 4–6 years    |        |                         |                        |
| 16.  | CPV 3   |   | 4–6 years    |        |                         |                        |
| 17.  | Varicella 2                                   |   | 4–6 years    |        |                         |                        |
| 18.  | MMR 3   |   | 4–6 years    |        |                         |                        |
| 19.  | Tdap/Td                                       |   | 10–12 years  |        |                         |                        |
| 20.  | HPV1/HPV2/HPV3 (human papillomavirus)         |   | 10–12 years  |        |                         |                        |
| 21.  | Influenza                                     |   | Annually     |        |                         |                        |

## Experiment 1

Visit a family in nearby village and collect the data of vaccination/immunization of children.

**POOR/MIDDLE CLASS/RICH/CATEGORY, ETC.**

**YES/NO**

[illegible]

| S. No. | Name of child | Date |
|--------|---------------|------|
| 1.     |               |      |
| 2.     |               |      |
| 3.     |               |      |



Any other vaccination

If any dose delayed or missed then reason

**OBSERVATION**

(SUMMARY AND SUGGESTIONS TO EDUCATE THE FAMILY AND COMMUNITY ON IMPORTANCE OF IMMUNIZATION)





## Experiment 2

### OBJECT

Visit a family in nearby village and collect the data of vaccination/immunization of pregnant women.

### SOCIO ECONOMIC STATUS

POOR/MIDDLE CLASS/RICH/CATEGORY, ETC.

### IS PREGNANT WOMEN OF THE FAMILY VACCINATED

YES/NO

### IMMUNIZATION DATA (B: Booster Dose)

| Name of pregnant women<br>with age in years | Td-1 with Date | Td-2 with Date | Td Booster with Date |
|---|----------------|----------------|----------------------|
|   |                |                |                      |
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Any other vaccination

If any dose delayed or missed then reason



**OBSERVATION**

(SUMMARY AND SUGGESTIONS TO EDUCATE THE FAMILY AND COMMUNITY ON IMPORTANCE OF IMMUNIZATION)



### Experiment 3

#### OBJECT

Visit a family in nearby village and collect the data of vaccination/immunization of adult.

#### SOCIO ECONOMIC STATUS

POOR/MIDDLE CLASS/RICH/CATEGORY, ETC.

#### IS ADULT OF THE FAMILY VACCINATED

YES/NO

#### IMMUNIZATION DATA

| Name of adult with age in years | Td with Date | HPV with Date | MMR with Date | Varicella with Date | Influenza with Date | Pneumococcal with Date | Hep. A with Date | Hep. B with Date | Typhod with Date |
|---------------------------------|--------------|---------------|---------------|---------------------|---------------------|------------------------|------------------|------------------|------------------|
|                                 |              |               |               |                     |                     |                        |                  |                  |                  |
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|                                 |              |               |               |                     |                     |                        |                  |                  |                  |

Any other vaccination



If any dose delayed or missed then reason

**OBSERVATION**

(SUMMARY AND SUGGESTIONS TO EDUCATE THE FAMILY AND COMMUNITY ON IMPORTANCE OF IMMUNIZATION)





### VIVA VOCE

- Q1.** What is BCG vaccine?
- Q2.** Name the vaccines given to pregnant women.
- Q3.** What is pentavalent vaccine?
- Q4.** Enlist all vaccines given to adult.
- Q5.** Define vaccine.
- Q6.** What is MMR vaccine?
- Q7.** What is varicella vaccine?
- Q8.** What is IPV vaccine?
- Q9.** What is typhoid conjugate vaccine?
- Q10.** What is Hep. A vaccine?
- Q11.** What are differences between DTwP and DTaP vaccine?
- Q12.** What is rota vaccine?
- Q13.** What is toxoid?

### MCQs

- Q1.** Which of the following is the combined vaccines of diphtheria, tetanus and pertussis?  
 (1) DTwP (2) DTaP (3) Both (4) None
- Q2.** Which vaccine provides immunity against measles, mumps and rubella?  
 (1) MMR (2) MR (3) TD (4) DTaP
- Q3.** Which vaccine is given for tuberculosis?  
 (1) BCG (2) DPT (3) OPV (4) IPV
- Q4.** Pentavalent vaccine is given by:  
 (1) Oral route (3) IM arm  
 (2) Intradermal (4) Anterolateral side of mid-thigh
- Q5.** Which vaccine is given to pregnant woman?  
 (1) DPT (2) Td 1,2,3 (3) IPV (4) Hepatitis
- Q6.** Which vaccine is not included for infants?  
 (1) Hep. A (2) Hep. B (3) IPV (4) BCG
- Q7.** Which vaccine for adult is given by subcutaneous route?  
 (1) Hepatitis A (2) Hepatitis B (3) Influenza (4) MMR



**Q8.** Which vaccine is not included in National Immunization Program?

- (1) Hep. A                      (2) Hep. B                      (3) Typhoid                      (4) Hib 1,2,3

**Q9.** Which vaccine is given by oral route?

- (1) OPV                      (2) RVV                      (3) Vit. A                      (4) All of the above

**Q10.** Which vaccine is given to develop immunity against chickenpox?

- (1) DTwP                      (2) Hib                      (3) MR                      (4) Varicella vaccine

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**Ans**

**Q1.** (3)                      **Q2.** (1)                      **Q3.** (1)                      **Q4.** (4)                      **Q5.** (2)                      **Q6.** (1)                      **Q7.** (4)

**Q8.** (4)                      **Q9.** (4)                      **Q10.** (4)