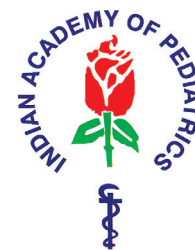


Indian Academy of Pediatrics (IAP)



## GUIDELINES FOR PARENTS

# Recommendations for Vaccination

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### 10 FAQs on RECOMMENDATIONS FOR VACCINATION

- 1A. What are vaccines and why do I need to vaccinate my child?
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2. When to take my child for vaccination? What immunization schedules are available in India?
3. At what age should vaccination start for a child? Which are the vaccines that are advocated in the current immunization schedule being followed in NIS and the one recommended by IAP?
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5. Do vaccines confer lifelong protection? Why do children need so many doses of some vaccines?
6. What are the things which I need to remember before, during, and after a vaccination visit?
7. What should I do when there is a delay in getting vaccinated or if I miss a vaccine? Is it possible to get a disease, even after getting complete vaccination?
8. If a child has the vaccine preventable disease in the past, should the child still be vaccinated?
9. We are really worried about the serious side effects being linked with various vaccines. What about Polio drops causing impotence, and Measle vaccine resulting in autism? Are there any facts in these beliefs or just rumours?
10. My child has received all vaccines as per schedule, should he/she still get vaccinated during a mass campaign? I am really concerned about saturating immune system of my child with so many vaccines. Doctor, what are your thoughts about this?

### Under the Auspices of the IAP Action Plan 2020–2021

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# Recommendations for Vaccination

## IMPACT OF VACCINES

Vaccines are among the top 20 discoveries in the history of science. We could successfully eradicate smallpox from the world; eliminated polio from all but two countries in the world; expect to eliminate measles in the next 5 years; and reduce infection and death to a negligible number from diseases such as diphtheria, tetanus, rabies, whooping cough, hepatitis B, typhoid, chickenpox, etc.

### Q1A

#### What are vaccines and why do I need to vaccinate my child?

Vaccines are probably the most useful and cost-effective public health tools known to mankind for preventing diseases. Vaccines are complex biologic agents which give you immunity against a particular disease without you getting sick first. They contain either the weakened disease-causing germs, which are either killed, attenuated, or a part of this disease-causing germ. Apart from the *antigen*, vaccines also contain some other components such as *adjuvants* which increase the potency of a vaccine, *stabilizers* which increase the stability of a vaccine and *additives* which are added during the manufacturing process.

Remember that investing money in vaccination is a much wiser decision than spending money on readymade baby foods. Once a child suffers from an infection, parents not only have to spend a huge amount in treatment, there is also loss on a number of school days, abstinence in work by parents and other social issues. And due to the emergence of antimicrobial resistance and other cause, we cannot guarantee successful treatment too for all infections.

## Q1B

### How do vaccines work?

Whenever any disease-causing germ enters our body for the first time, three steps happen:

1. Our body recognizes the germ as a foreign invader.
2. Our body's immune system gets activated, which by producing antibodies tries to kill or inactivate the germ. These protective mechanisms help us in recovering from the disease (sickness) caused by these germs.
3. Once our body recognizes the germ as a foreign invader, it remembers this information. Hence, when the same germ tries to invade our body for the second time, our body starts producing antibodies immediately and prevents us from becoming sick. This is called as "*immune memory*".

During vaccination, the first step is replaced by the vaccine instead of the germ and immune memory follows. Vaccines make our body competent enough to produce immunity (antibodies) against germs without causing a disease (sickness) in them. This immunity helps us from getting the disease when we are exposed to the disease-causing germ.

## Q2

### When to take my child for vaccination? What immunization schedules are available in India?

There are vaccination schedules available in every country depending upon the need and timing of various vaccines for that population. This depends on the disease burden, availability of safe and effective vaccines, and the cost and logistics. The "schedule" tells you agewise, which vaccines you need to give to your child. Lot of efforts are put in preparing these immunization schedules, considering various factors including the earliest age at which a particular vaccine is safe and effective. Often, in an Immunization schedule multiple vaccines are administered together to reduce the number of pricks and number of visits. Lot of experts put their minds regularly to update these schedules.

## National Immunization Schedule

In India, currently two kinds of immunization schedules are available. One, which is called as *National Immunization Schedule (NIS)*, given by the Government, free of cost, all over the country. This includes the bare minimum vaccines which every child in India must receive, keeping public health as a focus. National Technical Advisory Group of Experts on Immunization (NITAG) advises government about use of available vaccines in NIS. While preparing an immunization schedule for such a large country, they consider various factors such as cost involved, delivery chain feasibility, availability of vaccines, etc.

## Indian Academy of Pediatrics Immunization Schedule

Second one is recommended by *Indian Academy of Pediatrics (IAP) Immunization Schedule*. This also include many additional vaccines too, which are needed and are available in the country, but not yet a part of NIS. Advisory Committee of Experts on Vaccines and Immunization Practices (ACVIP) is the highest body of IAP for preparing and regularly updating this schedule. IAP immunization schedule is currently the best possible immunization schedule available in India for keeping an individual child as focus, irrespective of cost involved. Information about these two immunization schedules (which is being regularly updated) can be obtained from their respective websites, which are being regularly updated ([www.mohfw.gov.in](http://www.mohfw.gov.in); [www.acvip.com](http://www.acvip.com)). As a parent, you are expected to know about these immunization schedules, so that you could take the best possible decision for your child immunization. Timely vaccination will go a long way in protecting your child from various deadly diseases existing in community. You are expected to follow your country specific immunization schedule, wherever you live.

### Q3

**At what age should vaccination start for a child? Which are the vaccines that are advocated in the current immunization schedule being followed in NIS and the one recommended by IAP?**

Vaccines are given in such way that the vaccination precedes the age at which a disease occurs. Vaccination being an essential need for every child, must be started immediately after birth.

The current immunization schedules, both National Immunization Schedule (NIS) and IAP Immunization Schedules, have been summarized in **Tables 1 and 2**, respectively.

**TABLE 1:** Current National Immunization Schedule.

Age	Vaccines
Birth	BCG, Hepatitis B, OPV0
6 weeks	Pentavalent-1 (DTwP + Hib + Hepatitis B), OPV1, Rotavirus-1, PCV-1*, fIPV-1
10 weeks	Pentavalent-2 (DTwP + Hib + Hepatitis B), OPV2, Rotavirus-2,
14 weeks	Pentavalent-3 (DTwP + Hib + Hepatitis B), OPV3, Rotavirus-3, PCV-2*, fIPV-1
9–12 months	MR-1**, JE-1*** PCV-3*
16–24 months	MR-2**, JE-2*** OPV4
5–6 years	DTwP
10 and 15 years	dT

(BCG: bacillus Calmette–Guérin; dT: diphtheria and tetanus toxoids; DTwP: diphtheria, tetanus, whole cell pertussis; fIPV: fractional-dose inactivated poliovirus vaccine; Hib: *Haemophilus influenzae* type b; JE: Japanese encephalitis; MR: measles and rubella vaccine; OPV: oral polio vaccine; PCV: pneumococcal conjugate vaccine)

Notes:

\*PCV is being introduced in phased manner, currently only in few states.

\*\*Measles is being replaced with MR vaccine in phased manner, currently being given in most states except few.

\*\*\*JE vaccine is given only in identified endemic districts of the country.

**TABLE 2: Current Indian Academy of Pediatrics (IAP) immunization schedule.**

Age	Vaccines
Birth	BCG, hepatitis B, OPV0
6 weeks	DTwP/DTaP + Hib + Hepatitis B + IPV-1, Rotavirus-1*, PCV-1
10 weeks	DTwP/DTaP + Hib + Hepatitis B + IPV-2, Rotavirus-2*, PCV-2
14 weeks	DTwP/DTaP + Hib + Hepatitis B + IPV-3, Rotavirus-3*, PCV-3
6 months	Typhoid conjugate vaccine (TCV), Influenza-1
7 months	Influenza-2
9 months	MMR-1
12 months	Hepatitis-A 1**
15 months	MMR-2, Varicella-1
16–18 months	DTwP/DTaP + Hib + IPV-4, PCV-4 Varicella-2, Hepatitis-A 2**
2 years	Influenza***
3 years	Influenza***
4 years	Influenza***
5 years	MMR 3, DTwP/DTaP + IPV5
10 years	Tdap/ Td****, HPV-1****
10½ years	HPV-2****

(BCG: bacillus Calmette–Guérin; DTwP: diphtheria, tetanus, whole cell pertussis; DTaP: fractional-dose inactivated poliovirus vaccine; Hib: *Haemophilus influenzae* type b; HPV: human papilloma virus vaccine; JE: Japanese encephalitis; MMR: measles, mumps, and rubella vaccine; OPV: oral polio vaccine; PCV: pneumococcal conjugate vaccine; Td: tetanus, reduced dose diphtheria toxoid; Tdap: tetanus and diphtheria toxoids and a cellular pertussis vaccine)

**Notes:**

- OPV should be given to all children till 5 years of age during every pulse polio immunization day.
- JE vaccine (12 and 13 months), cholera (12 and 13 months) and meningococcal (9 and 12 months) are advised in high-risk situations.
- For meningococcal, menectra (9–24 months = 2 doses; >2 years = 1 dose and menveo (>2 years = 1 dose) are options

\*Third dose “Rotavirus” vaccine not necessary for RV-1

\*\*Hepatitis A, live vaccine only 1 dose, while killed vaccine 2 doses

\*\*\*For annual influenza best time in India is April (premonsoon); but can be given any time of year with most recent available influenza vaccine

\*\*\*\*HPV only for females; for 9–14 years only 2 dose, if started  $\geq$ 15 years need 3 doses

\*\*\*\*\*Td to be repeated every 10 yearly after that.

**Q4**

**My child is afraid of injections and there are so many vaccines. Does vaccination always mean an injection? I am afraid that you will make a pin-cushion out of my child.**

Most of the vaccines are given by injection, but not all. There are some like polio, cholera, and rotavirus vaccines which are given as oral drops. Some vaccines such as influenza vaccines are given as a nasal spray. Though there are vaccinations for almost 20 diseases, it does not mean giving 20 times. Many vaccines are given as combination vaccines. Vaccines against diphtheria, tetanus, whooping cough, hepatitis, *H. influenza*, and polio come as a single injection. Currently, a lot of researches are being focused on improving delivery methods of vaccines and minimizing pain caused by injections.

### Q5

#### **Do vaccines confer lifelong protection? Why do children need so many doses of some vaccines?**

There are certain vaccines, which have capability to provide lifelong protection. But the decisions about giving number of doses of a particular vaccine depend on many factors such as type of vaccine used, specific disease epidemiology in a country, etc. Repeated doses are often required in cases of inactivated vaccines, where immunity builds in phases and each dose mounts a more powerful immune response from the previous.

- Hence, for most inactivated vaccines, multiple doses are necessary to confer long-lasting protection.
- In contrast, live vaccines produce a strong immune response even with one dose, but in a few live vaccines a second dose is given as some children may not take up the first dose (poor uptake).

### Q6

#### **What are the things which I need to remember before, during, and after a vaccination visit?**

- Please take your babies vaccination record along with you.
- Inform the doctor whether he had any problems after vaccination, in past.
- Inform the doctor whether your child has any allergies.
- If your child has any prolonged illness, inform the doctor about it.
- Ask the doctor whether your child could have some discomfort or fever after this vaccination.
- Vaccine visits are usually well baby visits; please voice your concerns regarding your baby's nutrition or growth.
- Your doctor may ask you to wait for 30 minutes after vaccination. This is to observe the child for any immediate reactions.
- Do not use the doctor's visit or discipline a child. Make efforts to make the visit as comfortable as possible.
- Local reactions such as redness at injection site, mild fever and pain at injection site can occur which is usually short lasting.
- You can continue to breastfeed or give complementary feeds even after vaccination.
- Please contact the doctor if your child has:
  - High fever after vaccination.
  - If your baby turns unresponsive or limp. This is rare.
  - If your baby continuously cries for >3 hours and is inconsolable.
  - If your baby has convulsions.

**Q7**

**What should I do when there is a delay in getting vaccinated or if I miss a vaccine? Is it possible to get a disease, even after getting complete vaccination?**

It is important that you get your child vaccinated at the specified time. The schedule is based on the risk of getting the disease. This means that in case you miss or delay the vaccine your child is exposed to the risk of the disease during that time. But, in case you miss the date, then get it done as soon as possible. Please remember that it is not necessary to start the schedule again. Get your child vaccinated and complete the rest of the schedule.

Vaccinations are the best ways to prevent a disease. No vaccine is 100% protective; rarely disease can occur even after vaccination. Even if the disease occurs in the vaccinated children, the severity of the disease is significantly milder in a child who had the vaccine.

**Q8**

**If a child has the vaccine preventable disease in the past, should the child still be vaccinated?**

There are many diseases such as typhoid, diphtheria, pertussis, Hib pneumonia, and flu, which often result in providing only a short-term protection even after full-blown illness. Therefore, the child would require all immunizations as per the immunization schedule after the illness subsides.



**Q9**

**We are really worried about the serious side effects being linked with various vaccines. What about Polio drops causing impotence, and Measle vaccine resulting in autism? Are there any facts in these beliefs or just rumours?**

Most currently available vaccines pass through a very stringent process of manufacturing and quality control. They are approved for use in humans only after years of research work which include animal studies and various stages of human trials. These vaccines are being used in humans only after getting approval from the highest licensing and recommended bodies (national and international) once they have been found useful and safe. No scientific evidence has ever proved any association of impotence with use of OPV or autism with measles containing vaccines. *These are purely myths and not facts.*

**Q10**

**My child has received all vaccines as per schedule, should he/she still get vaccinated during a mass campaign? I am really concerned about saturating immune system of my child with so many vaccines. Doctor, what are your thoughts about this?**

Yes, even if your child has received all routine immunization, you should still get him/her vaccinated during a mass campaign like the ones for polio and MR. The aim of vaccination during campaign is to control transmission of a disease for eliminating them by using same vaccine in a large population, whereas in routine immunization it is to protect the individual child from the disease. The whole purpose and efforts put in a mass campaign will be wasted if you do not vaccinate your child during that time. This should be considered as an additional dose of vaccine, which will be useful not only for a society but also for an individual child in improving his/her immunity against that disease.

We actually need to be thankful to the nature for providing us such a unique immune system, which could identify millions of antigens separately at a time, and mount protective specific immunity against each and every antigen given in the form of vaccines. Compared to enormous potential our immune system has, we are only given few (~20). Therefore, irrespective of counting the vaccines, we need to count the number of diseases, against whom we can protect our child, by using vaccines.