

Vaccinations and their Role in Promoting Children's Health in the Third Millennium

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SUMMARY

Immunization saves up to 3 million children each year. Vaccines keep children alive and healthy by protecting them against disease. Immunization is especially important for the hardest to reach families as it can also be a bridge to other life-saving care for mothers and children. Immunization is one of the most successful and cost-effective public health investments Ministry of Health and Population can make for future generations.

Vaccines are protecting more children than ever before. But, in 2015, nearly one in five infants –19.4 million children – missed out on the basic vaccines they need to stay healthy. Low immunization levels compromise gains in all other areas of health for mothers and children. The poorest, most vulnerable children who need immunization the most continue to be the least likely to get it.

Almost one third of deaths among children under 5 are preventable by vaccine. UNICEF and its partners are working to change these numbers and ensure that the lives of all

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children are successfully protected with vaccines. But, if immunization is not prioritized, the most marginalized children will not get vaccines, which could mean the difference between life and death.

A contraindication to vaccination is a rare condition in a recipient that increases the risk for a serious adverse reaction. Ignoring contraindications can lead to avoidable vaccine reactions. Most contraindications are temporary, and the vaccination can be administered later.

The only contraindication applicable to all vaccines is a history of a severe allergic reaction after a prior dose of vaccine or to a vaccine constituent. Precautions are not contraindications, but are events or conditions to be considered in determining if the benefits of the vaccine outweigh the risks. Precautions stated in product labeling can sometimes be inappropriately used as absolute contraindications, resulting in missed opportunities to vaccinate.

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INTRODUCTION

As a health care provider, we want the best for our children. That means keeping them happy, safe, and most of all, healthy. Keeping a child healthy means more than just feeding him right and dressing him warmly – it also includes ensuring that he gets regular medical care. Regular medical care means more than just routine check-ups and taking child to the doctor when he's sick. It also means ensuring that he or she gets the vaccinations needed on time.

What are vaccines and why are they important?

Vaccines protect children against life-threatening infectious diseases. A vaccine is a substance that stimulates a child's immune system to recognize and defend the body against a virus or bacteria that can cause a disease. The vaccine stimulates the immune system to produce "memory cells" to the virus or bacteria. If the child is later exposed to this virus or bacteria, these memory cells are activated and attack the virus or bacteria very quickly, thus preventing the child from getting sick.

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What vaccines should the child have?

See below for required compulsory vaccines in Egypt. Parents should always keep a record of their child's vaccinations, starting from birth.

Explanation of abbreviations:

- * **BCG** = vaccine against tuberculosis
- * **DPT** = diphtheria, pertussis (whooping cough), tetanus
- * **OPV (Sabin)** = oral polio vaccine
- * **Hib** = vaccine against haemophilus influenza type b
- * **MMR** = measles, mumps, rubella

Age of Child Vaccination:

At birth: 1- OPV (Sabin), 2- BCG, 3- Hepatitis B

2 months: 1- OPV (Sabin), 2- DPT, 3- Hepatitis B, 4- Hib* (first dose)

4 months: 1- OPV(Sabin), 2-DPT, 3-Hepatitis B, 4- Hib (second dose)

6 months: 1- OPV (Sabin), 2- DPT, 3- Hepatitis B, 4- Hib (third dose)

9 months: 1- OPV (Sabin), 2- Vitamin A Capsule

12 months: 1- OPV (Sabin), 2- MMR*

18 months: 1- OPV* (Sabin), 2- DPT, 3- MMR, 4- Vitamin A Capsule

***Note:** After the age of four, a third dose of MMR is recommended (but not obligatory) and booster shots of DPT and OPV (Sabin) are given.

Arabic translation of immunizations :

تطعيم ضد التهاب الكبدى الوبائى أ أو ب	Hepatitis A or B
دفتيريا وسعال ديكى وتيتانوس – التطعيم الثلاثى	DPT
تطعيم ضد شلل الأطفال عن طريق الفم	OPV (Sabin)
تطعيم ضد الحصبة	Measles
تطعيم ضد التهاب الغدة النكفية	Mumps
تطعيم ضد الحصبة الالمانى	Rubella
تطعيم الدرن	BCG
تطعيم ضد الأنفلونزا البكتيرية (هيموفليس أنفلونزا) وهى من مسببات الالتهاب السحائى	Hib
تطعيم ضد الالتهاب السحائى (الحمى الشوكية)	Meningitis
تطعيم ضد الجدبرى المائى	Varicella
تطعيم ضد الانفلونزا	Flu vaccine
تطعيم ضد المكور الرئوى الاكتياحى	Pneumococcal vaccine
تطعيم فيروس الروتا	Rota virus vaccine

There are several vaccines which are not obligatory, but which many medical care specialists recommend. The mother can ask the pediatrician about the following vaccinations and the ages at which they are given:

- **Hepatitis A vaccine:** usually within the second year of life preferably given before the child goes to nursery.

- **Meningitis vaccine:** starting at the age of 2-3 years and to be repeated every 2 years when indicated.
- **IPV (Salk) – inactivated poliovirus:** to be given for immune-compromised children who cannot receive the live attenuated oral polio vaccine (OPV).
- **Varicella (chickenpox):** at 12-15 months and recently a second booster dose is recommended at 4-6 years.
- **Rota virus vaccine:** 2 doses to be given within the first 6 months of life usually first dose at age 6 weeks to 3 months and second dose 6-8 weeks later.
- **Pneumococcal vaccine:** at 2, 4, 6 months and a booster dose between the age of 13-18 months.
- **Flu vaccine:** recommended to be given every year to all children during the fall season and highly recommended for asthmatic and chronically-ill children.
- **Typhoid Fever vaccine**
- **Td (adult tetanus and diphtheria):** recommended at the age of 5 years and every 10 years thereafter throughout life.

What should the mother tell her child before a vaccination?

When the child is due for a scheduled vaccination, prepare him a few days in advance since kids don't like surprises. Tell him something like, "We have to go to the doctor in order not to get sick. She/he will give you some

medication and you will take a little shot, so that you grow up healthy.” If the mother can find a children’s book about going to the doctor, she has to read it with her child before the visit. Children who are prepared may not even cry at the physician’s office. The should be instructed to never use ‘a shot at the doctor’s office’ as a threat to her child when he or she misbehaves as this may keep the child constantly stressed about going to the doctor, and may even lead to him mistrusting both adults involved in this scenario, parent and pediatrician. The mother can reassure your child while the shot is given, when she talks to him gently.

Do vaccines cause side effects?

Side effects are mild and temporary: a slight fever, irritability, and pain, soreness or swelling at the injection site. Many children experience no side effects, and the side effects that do occur are far less serious than the complications of the actual illness. In rare cases, a child may be allergic to the vaccine itself. This may manifest itself as a skin rash, inconsolable crying, etc. If this is the case, the pediatrician will check which vaccine caused the allergy, and it should not be administered again.

Serious reactions to vaccines are extremely rare, but if you feel that your child is having a severe reaction, such as a seizure or very high fever, see a doctor immediately, and get second and third opinion if you are not satisfied with the care provided.

Are there any reasons not to vaccinate my child?

There are certain valid reasons for not vaccinating a child:

- If a child is seriously ill or has any sort of fever, he should not be vaccinated until he gets well. However, if your child has a mild illness without fever, like a cold or cough, he can be vaccinated according to the schedule.
- If a child had an allergic reaction to a previous vaccination. There are different brands of most vaccines, so if one brand has caused an allergy, the doctor needs to decide if it is possible to use another brand of the same vaccine in the future.
- If a child has seizures or a serious neurological disease.
- If a child has documented poor immunity.

If any child falls into one of the above categories, discuss his or her case with the doctor to decide whether or not to vaccinate.

Guide to Contraindications and Precautions to Commonly Used Vaccines:

1- Vaccine: Hepatitis B (HepB)

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.

Precautions:

- Moderate or severe acute illness with or without fever
- Infant weighing less than 2000 grams

2- Rotavirus:

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component
- Severe combined immunodeficiency (SCID)
- History of intussusception

Precautions:

- Moderate or severe acute illness with or without fever
- Altered immune-competence other than SCID
- Chronic gastrointestinal disease
- Spina bifida or bladder exstrophy

3-Diphtheria, tetanus, pertussis (DtaP)/ Tetanus, diphtheria, pertussis (Tdap)/ Tetanus, diphtheria (DT, Td)

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component
- For pertussis-containing vaccines: encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures) not attributable to another identifiable cause within 7 days of administration of a previous dose of

DTP or DTaP (for DTaP); or of previous dose of DTP, DTaP, or Tdap (for Tdap)

Precautions:

- Moderate or severe acute illness with or without fever
- Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid-containing vaccine
- History of hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid containing vaccine
- For pertussis-containing vaccines: progressive or unstable neurologic disorder (including infantile spasms for DTaP), uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized

For DTaP only:

- Temperature of 40.5° C or higher within 48 hours after vaccination with a previous dose of DTP/DTaP
- Collapse or shock-like state (i.e., hypotonic hyporesponsive episode) within 48 hours after receiving a previous dose of DTP/DTaP
- Seizure within 3 days after receiving a previous dose of DTP/DTaP

- Persistent, inconsolable crying lasting 3 or more hours within 48 hours after receiving a previous dose of DTP/DTaP

4- Haemophilus influenzae type b (Hib)

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component
- Age younger than 6 weeks

Precautions:

- Moderate or severe acute illness with or without fever

5- Inactivated poliovirus vaccine (IPV)

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component

Precautions:

- Moderate or severe acute illness with or without fever
- Pregnancy

6- Pneumococcal

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose

Precautions:

- Moderate or severe acute illness with or without fever

7- Measles, mumps, rubella (MMR)

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component
- Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or patients with human immunodeficiency virus [HIV] infection who are severely immunocompromised)
- Pregnancy

Precautions:

- Moderate or severe acute illness with or without fever
- Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)
- History of thrombocytopenia or thrombocytopenic purpura
- Need for tuberculin skin testing

8- Varicella

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component

- Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, primary or acquired immunodeficiency, or long-term immunosuppressive therapy or patients with HIV infection who are severely immune-compromised)
- Pregnancy

Precautions:

- Moderate or severe acute illness with or without fever
- Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)
- Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination.

9- Hepatitis A (HepA)

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component

Precautions:

- Moderate or severe acute illness with or without fever

Tips for Parents:

As a parent, you make informed choices about your child's health and safety every day. You research which car

seat has the highest safety ratings, you read food labels to find the best nutrition for your child, and you consult friends and experts about which sleep options keep baby healthy, happy, and secure. Your choice to immunize is no different. Making an informed choice about immunization is critical to protecting your child's health.

Parents choose vaccination for a variety of reasons:

- Because vaccinating prevents unnecessary illness and suffering for your child.
- Because vaccinating protects loved ones and your community from disease, including the vulnerable members of their community.
- Because experts agree it's the best thing you can do to keep your child healthy and protected against vaccine-preventable diseases.
- Because vaccinating extends beyond your community to help eliminate disease worldwide.
- Because the facts speak for themselves.

On the other hands, only a very small percentage of parents choose not to vaccinate their children for medical, religious, or philosophical reasons. This decision carries serious health consequences for their child and the community.

Risks of not vaccinating include :

- Increased risk for infectious disease - A study of children found that children who were not immunized

were 6 times more likely to be infected with pertussis (whooping cough) and 22 times more likely to be infected with measles than their immunized peers.

- Exclusion from school or child-care in case of outbreak
 - Children with exemptions will not be allowed to attend school or care settings and quarantined if a public health emergency due to epidemic disease is declared.
- Limits to travel - Some vaccines are required for travel to other countries (such as the meningitis vaccine) and are strongly recommended for areas where vaccine preventable diseases are still present (such as polio in parts of Asia and Africa).

While parents may have concerns about the safety of immunizations, the Centers for Disease Control and Prevention (CDC) carefully tests the ingredients and immunization schedule to ensure the safest product for your child. Years of research, hundreds to thousands of volunteers, and decades of surveillance ensure that the shot the doctor gives your child will protect them from disease as safely as possible.

The reality is we'll never be able to vaccinate 100 percent of kids. Some children cannot be vaccinated for medical reasons. This fact makes it even more important for parents of healthy children to make the decision to vaccinate. The more children who are protected, the less likely we are to see vaccine-preventable disease in our communities.