Ministero della Salute

Società Italiana di Pediatria

SIN Società Italiana di Neonatologia

Your Child... Protect him/her also through vaccines!

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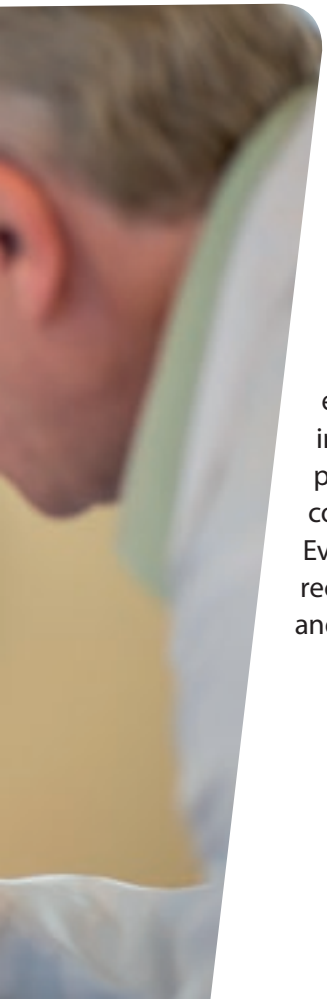
It's never too soon

Dear Parents,

vaccines represent an instrument of crucial importance for the health of the world's entire population.

Thanks to vaccines, a very large number of persons were given the possibility of protecting themselves against the contagion of terrible infectious diseases.

It is essential to recall that those who get vaccinated not only protect themselves but also those who cannot exploit this protection opportunity, either because they are not of the age to be vaccinated or because they suffer from disorders or clinical conditions in which vaccines could prove to be inadvisable.



Parents who conscientiously decide to vaccinate their child according to the schedules and procedures laid down in the current National Plan for Vaccine Prevention, do nothing more than profitably invest in their children's health, offering them the best possible protection against specific and terrible infectious diseases.

Being aware that fair, correct and exhaustive information is the basis for an informed choice and to dissipate possible doubts or perplexities on the effectiveness, safety and importance of vaccines, we invite you to consult your Pediatrician of reference, the personnel at the Vaccine Center of your jurisdiction, or consult the Institutional Internet Websites. Only through Everybody's commitment will vaccines receive the recognition they deserve as a sign of Progress, Civilization and of Protecting Public Health!

May your vaccines be successful!

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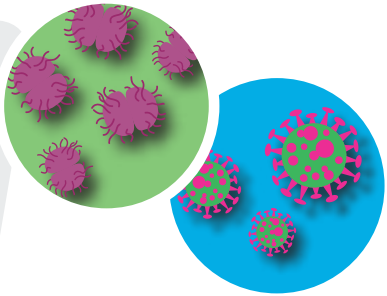
Vaccination Schedule

Dear Parents, the following vaccines are scheduled in the following age group **from birth to 13-15 months** as follows:

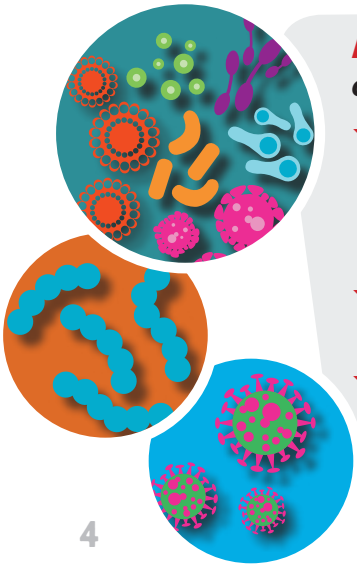
At the beginning of the 3rd month of life *(from the 61st day of life)*

- First oral administration of the **Rotavirus vaccine**.
- First **Hexavalent vaccine** (Diphtheria, Tetanus, Pertussis, Poliomyelitis, Hemophilus influenza type B and Hepatitis B) via intramuscular injection.
- First **Pneumococcal vaccine** via intramuscular injection.



After 30 days *(from the 91st day of life)*

- First **Meningococcal B vaccine** via intramuscular injection.
- Second oral administration of the **Rotavirus vaccine**.

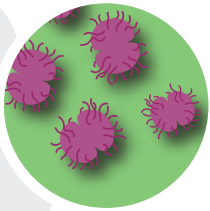


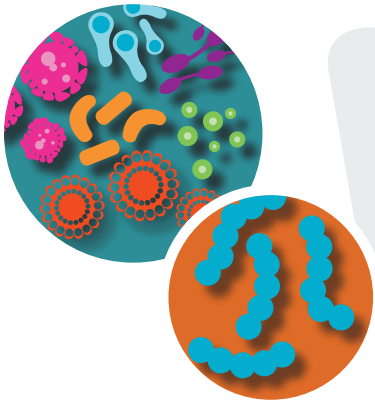
After 30 days *(at the beginning of the 5th month or 121st day of life)*

- Second **Hexavalent vaccine** (Diphtheria, Tetanus, Pertussis, Poliomyelitis, Hemophilus influenza type B and Hepatitis B) via intramuscular injection.
- Second **Pneumococcal vaccine** via intramuscular injection.
- Third oral administration of the **Rotavirus vaccine** (which envisages three doses).

After 30 days *(at the beginning of the 6th month or 151st day of life)*

- Second **Meningococcal B vaccine** via intramuscular injection.



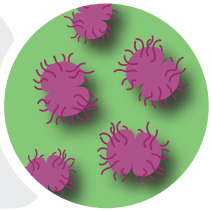


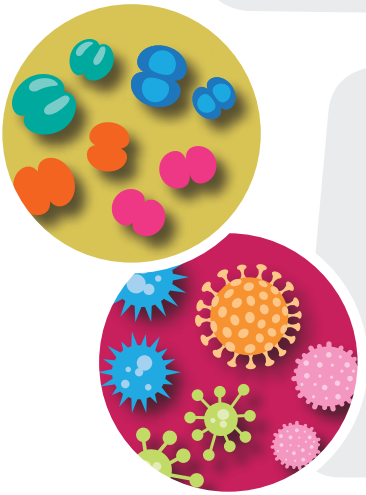
At 11 months of age

- Third **Hexavalent vaccine** (Diphtheria, Tetanus, Pertussis, Poliomyelitis, Hemophilus influenza type B and Hepatitis B) via intramuscular injection.
- Third **Pneumococcal vaccine** via intramuscular injection.

At 12 months of age

- Third **Meningococcal B vaccine** via intramuscular injection.





After 13 months of age

- First dose of the **Meningococcal ACWY vaccine**.
- First dose of the **MPRV vaccine**.

It is possible to administer an intramuscular injection of MPR or MPRV and Meningococcal ACWY vaccines on different parts of the body in the same immunization session.

Vaccine-Preventable Infectious Diseases

Dear Parents, some information on vaccine-preventable infectious diseases affecting children **from birth to 13-15 months** of age will enable you to avoid your child catching:

Rotavirus infection

It generally starts with fever and vomiting followed by a watery diarrhea after 24-48 hours.
The symptoms usually persist for 3-8 days. In the most serious cases, mainly represented by small babies, the patient should be hospitalized because of dehydration and the excessive loss of liquids through vomiting, diarrhea and the impossibility to take in liquids orally because of the vomiting. There is no specific therapy for this condition.
To fight dehydration, liquids must be administered intravenously or orally where possible.
The oral administration of the Rotavirus vaccine consisting of 2 or 3 doses (depending on the vaccine used) is universally recommended for all children starting from their 6th week of life.

Diphtheria infection

It becomes manifest through rhinopharyngitis or obstructive laryngotracheitis.
Severe life-threatening complications are represented by a swollen (bull) neck and airway obstruction produced by membrane formation, and heart failure. The severe form of the disease often affects people not vaccinated or not fully immunized.
Immunization with the diphtheria toxoid is the only effective countermeasure.
The Diphtheria vaccine consists of an anti-diphtheria anatoxin, which is the harmless inactivated diphtheria toxin capable of stimulating the organism to defend itself against the disease.

Tetanus infection

It is caused by a bacterium (*Clostridium tetani*) that is mainly found in soil, manure, asphalt and in the digestive tract of some animals (cattle, horses, sheep) which eliminate it through their feces.
The Tetanus bacterium can survive over long periods of time in unfavorable conditions because it thrives in the form of "spores", meaning that it is wrapped in a very resistant protective shell.
The *Clostridium tetani* bacterium may enter the human body even through a common injury and produce a substance (toxin) that strikes the nervous system, causing strong muscle contractions and even death in case respiratory muscles are affected (respiratory failure).

Pertussis (Whooping Cough) infection

It is caused by a bacterium (*Bordetella pertussis*) and it is one of the most contagious diseases known. The course of this infection is particularly severe if it is contracted in the first year of life, as the continuous and prolonged fits of coughing can cause choking. Moreover, at this age, babies can frequently suffer serious complications in their nervous system (encephalopathy), possibly entailing permanent damage caused both by poor blood oxygenation during paroxysmal fits of coughing and by the direct effect of a toxic substance produced by the pertussis bacterium. In some cases, the encephalopathy could even lead to the child's death.

Poliomyelitis infection

Poliomyelitis (in short, Polio) is a very serious disease caused by a virus (*Poliovirus*).
The disease occurs naturally only in humans through the three known types of *Poliovirus* (serotypes 1, 2 and 3). Serotype 1 is the major cause of paralysis and is the one most frequently responsible for epidemics.
The virus is transmitted from person to person through hand contact or contaminated objects, or through food and water, from which it can reach the nervous system, thus causing very severe forms of the disease.
Small children run a greater risk of contracting the infection.
Improved hygiene conditions in our Country have contributed to reducing the spread of many infectious diseases, including Poliomyelitis, but this is not sufficient because it is only by vaccinating everybody that we can be sure of protecting people against certain diseases and succeed in completely eliminating epidemics.

Hepatitis B infection

This infection is caused by a virus that prevalently affects the liver by producing an “inflammation”.
The infection is not only transmitted through the blood but also: through punctures or wounds with objects contaminated with infected blood (syringes or also other commonly used instruments such as nail scissors, razor blades, toothbrushes, etc.) or through contact with blood or other body fluids (sperm and vaginal discharge).
Moreover, in pregnancy or delivery, an infected mother can transmit the virus to her child (vertical transmission).

Haemophilus influenzae type b infection

It is caused by a bacterium, which must not be confused with the viruses that cause the common flu.
This germ is very often present in the nose or throat of “healthy carriers”, namely subjects that carry the germ but do not present any symptom of the disease that they themselves cause.
This “b” strain is a very contagious bacterium which, instead of remaining in the nose or throat, can reach the bloodstream and spread to other organs or body parts such as the brain, lungs, bones, etc.
Many of these pathologies require hospitalization and, in children, can cause permanent damage such as: convulsions, deafness, blindness, more or less severe forms of motor paralysis, mental retardation and, in some particularly serious cases, can also lead to death.

Pneumococcal infection

It is caused by a bacterium (the *Streptococcus pneumoniae*) that is very widespread in nature and whose "family" counts more than 90 components (serotypes), all of which bear the same family name (*Streptococcus pneumoniae*) but whose names are differentiated with a number from 1 to 90. This bacterium is very often present in the nose or throat of "healthy carriers", namely subjects that carry the germ but do not present any symptom of the disease that they themselves cause.

Among the current 90 pneumococcal serotypes, only a few are capable of provoking serious disease in humans such as bacterial meningitis (inflammation of the membranes that surround the brain), pneumonia or infections that spread throughout the body (sepsis).

Meningococcal B and ACWY infection

This type of Meningococcal bacteria records a high incidence of severe complications, which can even lead to death.
To date, thirteen types (serogroups) of these Meningococcal bacteria have been identified and labelled with different letters of the alphabet, of which five letter-types A, B, C, Y, and W135, are to blame for the largest number of cases worldwide. Serogroups B and C are those most frequently in circulation in Italy despite the fact that there is a persistently high number of infections reported (approximately 30%) of which it is not possible to know the specific serogroup they belong to.
There are two vaccines that prevent this type of infection: one is specific for the Meningococcal B strain infection and another vaccine is specific for the Meningococcal ACWY strain infection.

Measles infection

It is caused by a virus and is highly contagious.
The disease is transmitted through direct contact with infected respiratory droplets and, less frequently, through airborne transmission.
The incubation period is generally between 8-12 days from exposure to the onset of the symptoms which are characterized by: high fever, cough, conjunctivitis and the characteristic skin rash that starts in the face and spreads throughout the whole body (exanthema).
Measles can have serious complications, especially in younger children: otitis, bronchopneumonia, laryngotracheitis and diarrhea.
In approximately one case out of 1000, the disease affects the nervous system, causing the inflammation of the brain (encephalitis) and provoking permanent damage (deafness, mental retardation) in 40% of the survivors, and can be a cause of death in 3-15% of the cases.
At present there is no effective medical therapy to treat the measles, thus making prevention through vaccination the best available instrument of protection.

Parotitis infection

It is caused by a virus that is transmitted through nose and throat discharge. After coming into contact with an infected subject, the disease's incubation period usually lasts between 16 and 18 days.
A subject affected by epidemic Parotitis (mumps) is usually already contagious 1-2 days before the onset of the swelling of the parotid gland and up to five days following it.
This infectious disease usually manifests itself with the swelling of the cheek caused by the tumefaction of the parotid gland and with a mild fever. The swelling can involve both cheeks simultaneously, one cheek only or one cheek first and then the other.
Parotitis can be the cause of meningitis in 1 case out of 200. In addition, 20-30% of the males affected by Parotitis after puberty develop an inflammation of the testicles (orchitis) which may even cause sterility.

Rubella infection

After birth, it is caused by a virus that can be transmitted through nasopharyngeal discharge.
The incubation period of postnatal Rubella goes from 14 to 23 days, with an average of 16-18 days.
The period of maximum contagion appears to fall between a few days prior to the appearance of the skin rash to seven days following it.
In 25-50% of the cases, the infection is asymptomatic and in the rest of the cases it manifests itself with mild symptoms characterized by a mild fever, generalized swelling of the lymph nodes (especially in the neck) and of the posterior cervical lymph nodes, with a short-lived skin rash.
The highest risk that Rubella entails is that of being contracted for the first time by a pregnant woman not immune to the disease. In fact, the virus is extremely dangerous for the fetus and can cause both miscarriage and the birth of a child with serious malformations of the heart, eyes, hearing organs and the brain.
There is no known specific therapy against Rubella.

Varicella infection

It is caused by the Varicella-zoster (VZV) virus, which is transmitted from an infected person to a healthy person through respiratory droplets or through contact with the blisters on the skin.
Varicella is generally a mild disease but it can also be serious and rarely even deadly, especially if it affects very small children or adults.
The disease usually manifests itself with fever, cough, headache and a general malaise, with the onset of a typically itchy skin rash over the whole body, starting from the face and head and spreading to the trunk and the rest of the body.
The skin rash is initially characterized by papules that subsequently transform into blisters (with a liquid content), pustules (containing pus) and scabs. A child could present between 300 and 500 skin lesions throughout the infection.
Varicella can cause pneumonia (in 23 out of 10,000 cases), a bacterial superinfection of the pustules, scarring, arthritis, brain damage (more than 1 case out of 10,000), thrombocytopenia and an inflammation of the cerebellum capable of causing poor motor coordination (cerebellar ataxia).
Complications are most frequent in new-born babies, in adults and in persons with immunodeficiencies.

National Plan for Vaccine Prevention

Vaccine	0-30 days	3rd month	4th month	5th month	6th month	7th month	11th month	13th month	15th month
DTPa**		DTPa		DTPa			DTPa		
IPV		IPV		IPV			IPV		
Hepatitis B	Ep B-Ep B*	Ep B		Ep B			Ep B		
Hib		Hib		Hib			Hib		
Pneumococcal^^		PCV		PCV			PCV		
MPRV								MPRV	
MPR								or MPR+V	
Varicella^									
Meningococcal C								Men C§	
Meningococcal B*^		Men B	Men B		Men B			Men B	
HPV									
Influenza°°									
Herpes Zoster									
Rotavirus		Rotavirus## (2 o 3 doses depending on the type of vaccine)							
Hepatitis A									

IPV: Inactivated Polio Vaccine

Ep B: vaccine against the Hepatitis B virus

Hib: vaccine against the invasive infections of Haemophilus influenzae type b

DTPa: vaccine against Diphtheria-Tetanus-acellular Pertussis

dTpa: vaccine against Diphtheria-Tetanus-acellular Pertussis, adult formula

dTpa-IPV: vaccine against Diphtheria-Tetanus-acellular Pertussis-Polio, adult formula

MPRV: tetravalent vaccine for Measles-Mumps-Rubella-Varicella

MPR: trivalent vaccine for Measles-Mumps-Rubella

V: vaccine against Varicella

PCV: Pneumococcal conjugate vaccine

PPSV: Pneumococcal polysaccharide vaccine

Men C: conjugate vaccine against the Meningococcal C disease

Men B: vaccine against the Meningococcal B disease

HPV: vaccine against the Papillomavirus

Influenza: vaccine against seasonal Influenza

Rotavirus: vaccine against the Rotavirus

Ep A: vaccine against the Hepatitis A virus

PNPV 2017-2019

6th year	12th-16th year	19-49 years	50-64 years	>64 years	Subjects more at risk
DTPa***	dTpa-IPV	1 dose dTpa**** every 10 years			(1)
IPV					
					(2)
					(3)
				PCV+ PPSV	(4)
MPRV					(6)
or MPR+V					(5)
					(6)
	Men ACWY conjugate				(7)
	HPV°: 2-3 doses (depending on age and vaccine)				(8)
				1 dose a year	(9)
				1 dose#	(10)
					(11)

Coadminister in the same session

Administer in a separate session

Vaccines for categories at risk

Vaccines for high-risk patients (for the details, reference should be made to the dedicated sections in the National Vaccine Plan 2017-2019)

(1) dTpa: the number of doses depends on whether they are administered in the regular vaccine schedule or as a booster; for women: during the third trimester of every pregnancy (ideally in the 28th week).

(2) Hepatitis B: 3 Doses, Pre-Exposure (at 0, 1, 6 months) 4 Doses: Post-Exposure (at 0, 2, 6 weeks + booster after 1 year) or Pre-imminent Exposure (at 0, 1, 2, 12).

(3) Hib: for high-risk unvaccinated patients of any age – number of doses in compliance with the vaccination schedule according to age.

(4) PCV: up to 5 years of age and then the PCV/PPSV vaccine.

(5) MPR: 2 doses, at least 4 weeks apart; depending on the age and the immune status against Varicella, it is also possible to co-administer the MPR trivalent vaccine with the monovalent vaccine against Varicella or use the MPRV quadrivalent vaccine.

(6) Varicella: 2 doses, at least 4 weeks apart; depending on the age and the immune status against the measles, mumps and rubella, it is also possible to co-administer the monovalent vaccine against Varicella with the MPR trivalent vaccine or use the MPRV quadrivalent vaccine.

(7) Offer high-risk patients Meningococcal ACYW and Meningococcal B vaccine – number of doses according to age on the vaccination schedule.

(8) HPV: for all ages, as per vaccination schedule – number of doses according to age on the vaccination schedule.

(9) Influenza: for all ages, as per vaccination schedule – number of doses according to age on the vaccination schedule.

(10) Herpes zoster: 50 years old and over.

(11) Ep A: number of doses according to the vaccination schedule.

Notes:

* In the case of a HBsAg positive mother, administer the children the 1st dose of the vaccine within the first 12-24 hours of life simultaneously with specific immunoglobulins. The schedule must be completed with a 2nd dose 4 weeks after the first; starting from the 3rd dose – which must be administered as of the 61st day of life – follow the schedule of the hexavalent combination vaccine.

*^ It is considered useful to suggest a plan to introduce an anti-Meningococcal B vaccine, leaving it up to local decision-makers to ultimately evaluate the best schedule according to the local supply of vaccines and the scheduling.

** The 3rd dose should be administered at least 6 months after the second.

*** The 4th dose, the last of the primary series, should be administered in the 5th-6th year of age. For 4-year-olds and over, it is also possible to use the dTpa adult formula provided the parents are adequately informed of the importance of administering a booster in adolescence and that high levels of vaccination coverage in adolescence are guaranteed.

**** Subsequent boosters should be administered every 10 years.

^ Subjects anamnestically negative for Varicella. Administer two doses ≥1 month apart.

^^ Children starting to be vaccinated in the course of their second year of life must be administered two doses; if they begin their vaccination in their 3rd year of life, a single dose is sufficient. It is strongly recommended to administer a dose of higher-valency PCV to unvaccinated children or to children who have completed the PCV7 vaccination schedule. It is recommended to administer two doses to high-risk children.

§ Single dose. The anti-Meningococcal C vaccine is administered to cohorts in the 13th-15th month of life. It is recommended that the second cohort of 12-14 years of age, both unvaccinated and already vaccinated with Men C or with Men ACWY in childhood, receive a dose of Men ACWY conjugate vaccine. In subjects at risk, the anti-Meningococcal C vaccine can be administered in a total of 3 doses starting from the 3rd month of life, the last of which the 12th month of age (some regional vaccine schedules for the 13–15-month cohort envisage a dose of Men ACWY conjugate vaccine instead of the anti-Meningococcal C vaccine).

° Administer two doses at 0 and 6 months (a bivalent vaccine between 9 and 14 years of age; a quadrivalent vaccine between 9 and 13 years of age); three doses at 0, 1, 6 months (bivalent) or at 0, 2, 6 months (quadrivalent) to 14-year-olds and over.

°° Vaccinate the subjects at risk according to the Ministerial Circular Letter with the seasonal vaccine.

The administration is recommended for a cohort of 65-year-old subjects.

Universally recommended, it can be co-administered with all the other vaccines prescribed for the first years of life.

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