



NATIONAL VACCINATION PROGRAM FOR ADULTS AND RISK GROUPS, MINISTRY OF HEALTH, CYPRUS, 2023

1. Flu vaccine

- A. Administration of one dose for people > 65 years old, annually.
- B. Adults who with one or more factor or chronic condition that showed below:
- Asthma or chronic diseases of the respiratory system¹
 - Heart disease² with severe hemodynamic disturbances
 - Diabetes mellitus or other chronic metabolic disease
 - Chronic kidney or liver disease
 - Neurological or neuromuscular diseases³
 - Sick cell anemia and other serious hemoglobinopathies
 - Immunosuppression (hereditary or acquired due to disease or immunosuppressive/immunomodulatory treatment)
 - Organ transplant or primordial hematopoietic cells
 - Pathogenic Obesity (metabolic syndrome) with a Body Mass Index (BMI)>40 kg/m²
- C. Pregnant women regardless of pregnancy age, lechoids, breastfeeding women
- D. For preclusive and Public Health reasons, the following must be vaccinated:
- People who are close contact with children < 6 months or care of people who belong to a high-risk group.
 - Closed populations (staff and interval school students, military and police schools, inmates and institutional stuff, recruits in the armed forces especially those enlisting during the winter months, etc).

¹ Chronic lung disease (COPD (Chronic Obstructive Pulmonary Disease) - Chronic Pulmonary or Cystic Fibrosis)

² Congenital heart diseases, valvular diseases, congestive heart failure, coronary or/and hypertensive heart disease, arrhythmias

³ Diseases of the brain and the Spine, cerebral palsy, epilepsy (convulsions), cerebral vascular accident, intellectual disability, moderate to severe developmental delay, muscular dystrophy, severe spinal cord injury

- Staff in health care units (medical, nursing staff and other personnel) and in accommodation centers for refugees – immigrants.
- Vets as well as professionals in the field of animal production and especially: poultry farmer, pig farmers, breeders, butchers and generally people who come on a regular basis contact with poultry.

2. Tetanus vaccine – diphtheria and acellular pertussis (Td/Tdap BOOSTRIX)

- Adults with unknown or incomplete vaccination, or who are being vaccinated for the first time, should receive the first two doses at least 4 weeks apart and the third dose 6-12 months after the second. In this regimen at least one vaccine should be Tdap (Boostrix) preferably the first in the series and then a Td (or Tdap) every 10 years.
- Incompletely vaccinated adults (less than 3 doses) should complete the remaining doses and then with Td (or Tdap) every 10 years
- Tdap can be given regardless of how long it has been since a previous Td vaccination
- One dose of Tdap vaccine is given in each pregnancy, preferably from the 27th to 36th week of pregnancy, as well as to unvaccinated lechoids, regardless of the interval between previous vaccination with Td or Tdap.

3. Measles – Mumps – Rubella vaccine (MMR)

- A. Adults without proof of vaccination (2 doses) or laboratory confirmed immunity. The clinical diagnosis of patients (measles, rubella, mumps) is not a confirmation of immunity.
- B. The high-risk groups are the bellow:
 - Staff in health care units
 - University students, tertiary education students
 - Adults who are going to travel abroad
 - Family members of immunosuppressed individuals
 - Patient with HIV infection and CD4>200/μL for at least 6 months.
 - Women of reproductive age
 - Immunity to rubella should be assessed by measuring antibodies in women of reproductive age, regardless of their year of birth. If there is no documented immunity, women should be vaccinated before pregnancy, while after vaccination they should avoid pregnancy for one (1) month.
 - Checking for possible pregnancy (pregnancy test) before vaccination is not recommended, and vaccination during pregnancy is not a reason to terminate the pregnancy.

- Pregnant women who do not have immunity, should be vaccinated with MMR immediately after completion of pregnancy or termination of pregnancy and before discharge from the maternity ward.
- The vaccine is contraindicated in pregnancy and in people with severe immunosuppression.

4. Varicella vaccine (VAR)

A. Adults without proof of immunity to varicella (previous illness or vaccination), should be vaccinated with 2 doses, unless there is a contraindication.

Confirmation of immunity to varicella in adults is done by:

- Certification of 2 doses of varicella vaccine with a minimum interval of 4 weeks.
- A doctors-certified illness from varicella or shingles.
- Laboratory confirmation of immunity.

B. All sick people (without proof of immunity), regardless of age, who belong to the following categories should be vaccinated:

- People in immediate family, also health personnel who are in close contact with people who present an increased risk of serious illness from the varicella virus, e.g. people with immunodeficiency or immunosuppression.
- People who have increased risk of exposure and transmission of the virus, educators, kindergarten teachers, institutional inmates, students living in dormitories, soldiers, teenagers, and international travelers.
- Women of reproductive age who are about to give birth (after vaccination they should avoid pregnancy for one (1) month). Checking for possible pregnancy (pregnancy test) before vaccination is not recommended and any vaccination during pregnancy is not a reason to terminate the pregnancy.
- The vaccine is contraindicated in pregnancy and in people with severe immunosuppression.

5. Hepatitis A vaccine (HepA)

It is recommended (2 doses) to people who belong to the following high-risk groups:

- Men who have sexual intercourse with men.
- Drug users (IV or other)
- People who involved with experimental animals (primates)
- People who work in food processing or food handling.

- Patients with chronic liver disease, or patients receiving coagulation factors, as well as people from their inner circle.
- Travelers to regions with endemicity of the disease.
- People who will have the care of an adopted child from a country with high endemicity, during the first 60 days from the child's arrival in the host country. The first of 2 doses of the vaccine recommendable to be done ≥ 2 weeks before the child's arrival.
- Healthy adults aged ≤ 40 years old, who recently exposed to hepatitis A virus.
- Adults who want to be vaccinated.
- Professionals who are working in the collection and dealing of waste and sewage.

Two doses of vaccine (HepA) are given 0 and 6 to 12 months apart.

6. Hepatitis B vaccine (HepB)

Vaccination against hepatitis B (3 doses) is recommended for all uninfected adults who have not been vaccinated in childhood and belong to high-risk groups:

- People with sexual activity with more than one sexual partner during the last six months.
 - Men who have sexual intercourse with men
 - Drug users
 - People with sexually transmitted disease
 - People who may be exposed to blood or contaminated biological materials, e.g. health professionals, workers in penitentiary institutions, employees of security forces, to cleaning services, in institutions with mentally retarded inmates, etc
 - Travelers to regions with medium and high hepatitis B endemicity
 - People who suffering from end stage kidney failure (If it possible, before starting hemodialysis)
 - Patients with chronic kidney failure who are on hemodialysis or immunosuppressed patients should be vaccinated with an increased dose of antigen (40 $\mu\text{g}/\text{ml}$) per dose and with 3 doses (0, 1 and 6 months) or 4 doses (0, 1, 2 and 6 months), depending on the vaccine's manufacturer's instructions company.
 - People with chronic liver disease.
 - People with Diabetes Mellitus.
 - People who have in their inner circle people with chronic infection with hepatitis B virus.
 - People with HIV infection.

- Adults who want to be vaccinated.

Unvaccinated or incompletely vaccinated adults should be given or have been given a total of 3 doses at 0, 1 and 6 months.

7. Meningococcal tetravalent vaccine, conjugated (MenACWY)

The tetravalent meningococcal conjugate vaccine, regardless of previous vaccination with the polysaccharide vaccine, is recommended in the following cases:

- A. One dose of vaccine and repeat it in 5 years (if the risk remains) in:
 - Unvaccinated new recruits' soldiers and to permanent military personnel.
 - People who live or will travel to hyperendemic areas (Meningitis zone – sub-Saharan Africa) or where there is an epidemic in progress and especially if there is going to be prolonged contact with the inhabitants of the area
 - Pilgrims' travelers to Mecca during the annual Hajj
 - In laboratory staff who may be exposed to meningococcus
 - People who are at risk of getting sick during epidemic outbreaks, according to the respective instructions
- B. Two doses of vaccine 8 weeks apart and repeat it in 5 years:
 - In people with anatomic or functional asplenia or deficiency of the terminal complement components
 - In cases of planned splenectomy, vaccination against MenACWY is recommended to be completed 14 or more days before surgery
 - People with HIV infection
 - People receiving treatment with the monoclonal antibody Eculizumab

8. Group B meningococcal vaccine, protein (MenB-4C ȳ MenB-FHbp)

Two doses of MenB-4C vaccine at least 1 month apart or 3 doses of MenB-FHbp vaccine 0,1-2 and 6 months apart are given to people in groups at increased risk for meningococcal disease such as:

- In people with anatomic or functional asplenia or deficiency of terminal complement fractions.
- People who treat with the monoclonal antibody Eculizumab.
- To laboratory workers who may be exposed to meningococcus.

- People who are at risk of getting sick during epidemic outbreaks, according to the respective instructions.
- The two meningococcal protein vaccines are not interchangeable.
- They can be given at the same time as the meningococcal conjugate vaccine, but at a different site in the body.

9. Haemophilus influenzae type b conjugated vaccine (Hib)

It is recommended to be administered to high-risk groups:

- People with anatomic or functional asplenia or in individuals scheduled to undergo splenectomy.
 - In cases of planned splenectomy, vaccination against Hib is recommended 14 or more days before surgery.
- In people who have undergone a solid organ or hematopoietic stem cell transplant, who should be vaccinated with 3 doses, 6-12 months after a successful transplant, regardless of whether they were previously vaccinated. The interval between doses should be at least 4 weeks.

10. Human papillomavirus vaccine (HPV)

The vaccine is recommended for women and men aged 18-26 if they belong to high-risk groups (e.g. MSM) or have immunodeficiency (including HIV infection). The discussion with the specialist is recommended on case-by-case basis.

HPV vaccines are not recommended for pregnant, however it is not necessary to take a pregnancy test before starting vaccination. If a woman is found to be pregnant after administration of the vaccine, termination of pregnancy is not recommended, but the remaining doses are completed after the pregnancy is completed.

11. Herpes zoster vaccine

Adults aged ≥ 60 , independent of whether a previous episode of herpes zoster is reported.

- People aged 18 years and older who are at increased risk of developing shingles (applies to severely immunosuppressed and rheumatic patients treated with biological agents)
- Patients who are going to receive immunosuppressive treatment, must be vaccinated at least one month before the start of the treatment.

The vaccination program against herpes zoster depending on the vaccine, may include 2 doses, which are administered 2 months apart. If there is a need, the second dose can be given later, but within 6 months of the first dose.

12. Pneumococcal vaccine (PCV13, PPSV23)

See the table with explanations below.

Pneumococcal vaccine (PCV13, PPSV23)						
Indicator	Risk Factor	PCV13 for ≥ 19 until <65 yrs	PPSV23 for ≥ 19 until <65 yrs		PCV13 at age ≥ 65 yrs	PPSV23 at age ≥ 65 yrs
		Recommended	Recommended	Επαναληπτική δόση	Recommended	Recommended *
None	None of the Below				Yes	Yes, after 1 (one) year from PCV13
People with chronic diseases	Chronic respiratory system diseases	Yes, if it has not been done before	Yes, after 1 (one) year from PCV13		Yes, if it has not been done before	Yes, after 1 (one) year from PCV13, after 5 (five) years after any dose PCV23 at age <65 yrs
	Chronic cardiovascular disease (except arterial hypertension)					
	Diabetes mellitus					
	Chronic liver disease					
	Alcoholism					
	Cochlear implant	Yes	Yes, after 8 (eight) weeks from PCV13	Yes, after 5 years after the first dose PPSV23	Yes, if it has not been done before	Yes, after 8 (eight) weeks from PCV13 if it has not been done before and after 5 years after any dose PPSV23 at age <65 yrs
	Leakage of cerebrospinal fluid					
People with Anatomical or Functional Asplenia	Congenital or acquired asplenia	Yes	Yes, after 8 (eight) weeks from PCV13	Yes, after 5 years after the first dose PPSV23	Yes, if it has not been done before	Yes, after 8 (eight) weeks from PCV13 if it has not been done before and after 5 years after any dose PPSV23 at age <65 yrs
	Sickle cell disease or other hemoglobinopathies					
Immunocompromised individuals	Iatrogenic immunosuppression (pharmaceutical/radiotherapy)					
	Blood malignancies (Lymphoma, Leukemia, Multiple myeloma)					
	Congenital or acquired immunodeficiencies					
	Malignant tumors					
	Hodgkin disease					
	Chronic renal failure					
	Nephrotic syndrome					
	Solid Organ Transplantation					
	Transplantation of primitive hematopoietic cells					

* In persons at aged ≥65 yrs who have had prior PPSV23, then PCV13 should be done 1 (one) year after PPSV23 administration.

* Recommended to precede PCV13 vaccine and one year later PPSV23, after last dose of PPSV23

Only for the groups with anatomical or functional asplenia, immunodeficiency and HIV infection the maximum number of doses of PPSV23 can be 3, with intervals of at least 5 years between the first and second doses and >65 years for the third dose.

National Immunization Scheme for High-Risk Adults										
VACCINE	PREGNANCY	IMMUNOSUPPRESSION (NOT HIV)	HIV INFECTION CD4 LYMPHOCYTE		RENAL FAILURE OR HEMODIALYSIS	CARDIOVASCULAR & RESPIRATORY CHRONIC DISEASES & DIABETES MELLITUS, ALCOHOLISM	ASPLENIA, COMPLEMEN T DEFECIENCY	CHRONIC LIVER DISEASE	HEALTH PERSONNEL	MEN WHO HAVE SEX WITH MEN
Seasonal influenza	1 dose annually									
Tdap ᅇ Td	1 dose Tdap each pregnancy	1 dose Tdap and then Td booster every 10 yrs								
MMR	Contraindicated			1 ᅇ 2 doses depending the indication						
VAR	Contraindicated			2 doses						
Herpes Zoster	ZVL is Contraindicated*				2 dose ≥ 60 yrs					
HPV		3 doses through age 26 yrs								3 doses up to age 26 yrs
PCV13		1 dose							1 dose	
PPSV23		1, 2 ᅇ 3 doses depending the indication							1, 2 ᅇ 3 doses depending the indication	
MenACWY	1 ᅇ 2 doses, depending the indication, repeat dose in 5 years, if indicated		2 doses and repeat dose in 5 years, if indicated		1 ᅇ 2 doses, depending the indication, repeat dose in 5 years, if indicated		2 doses and repeat dose in 5 years, if indicated	1 ᅇ 2doses, depending the indication, repeat dose in 5 years, if indicated		
HepA	2 doses							2 doses	2 doses	2 doses
HepB	3 doses		3 doses			3 doses		3 doses		
Hib		3 doses – hematopoietic stem cell transplant	1 dose					1 dose		
MenB		2 ᅇ 3 doses depending the vaccine					2 ᅇ 3 doses depending the vaccine	2 ᅇ 3 doses depending the vaccine		

*Not the vaccine Shingrix for immunocompromising conditions

Vaccination schedule for adults, Ministry of Health (2020)			
Vaccine	19-64 years old	60-64 years old	>65 years old
Flu	1 dose per year		1 dose per year
Td or Tdap	1 dose Tdap (If anyone has never been received) and then 1 dose Td every 10 years Without proof of vaccination (2 doses) or immunity		
MMR			
Var	Without proof of vaccination (2 doses) or immunity		
Herpes Zoster			
PCV13	High risk group		1 dose
PPSV23	High risk group		1 dose (1 year after PCV13)
Hepatitis A	High risk group and if anyone want to be vaccinated, 2 doses		
Hepatitis B	High risk group and if anyone want to be vaccinated, 3 doses		
MenACWY	High risk group (1 or 2 doses and repeated vaccination according to the indications)		
MenB	High risk group (2 or 3 doses according to the type of vaccine)		
Hib	High risk group (1-3 doses)		

	Recommended for adults who meet the age criteria and do not have proof of previous vaccination or illness
	Recommended for adults belonging to special groups (high risk or other indications)
	Not recommended