

Recommended vaccination scheme (RVS) for personnel assigned to coordinated operational activities of the European Border and Coast Guard Agency (First Edition)

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Acronyms

EEA	European Economic Area (Iceland, Liechtenstein and Norway)
EU	European Union
HCW	Healthcare Worker
OSH	Occupational Safety and Health
RVS	Recommended Vaccination Scheme
SPC	Summary of Product Characteristics
WHO	World Health Organisation

Introduction and rationale

Infectious diseases are among the risks faced by officers deployed in the Agency's operational activities. Highly effective and safe vaccines are available against many infectious diseases that cause serious illnesses, long-term disability and even death. Though these diseases were more frequent in the past, many of them can still be sources of outbreaks. Routine vaccination of children is a cornerstone of the fight against infectious diseases in the EU, and all countries in the EU/EEA have developed comprehensive childhood vaccination programmes. Attention toward the vaccination of adults against some infectious diseases has also increased. This may be due to the need to maintain the effect of childhood vaccinations throughout adulthood, or to certain diseases being more likely to occur or to cause severe conditions in adults, or to certain groups' higher risk of the diseases covered by vaccinations.

The importance of vaccination is also recognised at a political level; the Council of the European Union published its conclusions on vaccination as an effective tool in public health in 2014 ¹.

The Council of the European Union also published, in November 2018 ², a recommendation on strengthened cooperation against vaccine-preventable diseases. This document underlines that while vaccination programmes are the responsibility of each Member State, the cross-border nature of vaccine-preventable diseases and the common challenges faced by national immunisation programmes argue for more coordinated EU action and approaches to prevent or limit the spreading of epidemics and diseases with a cross-border dimension. In this recommendation the Council welcomes the Commission's intention to strengthen, in close cooperation with Member States, the effective application of Union rules on the protection of workers from risks related to exposure to biological agents at work, as laid down in Directive 2000/54/EC and Council Directive 2010/32/EU, taking into account national competences. In particular, the Council supports the continuing education of healthcare workers, monitoring their immunisation status and actively offering vaccination where necessary, to ensure adequate levels of patient and healthcare-worker safety. Furthermore, the Council welcomes the Commission's intention, in close cooperation with the Member States, to examine the feasibility of establishing, by 2020, guidelines for a core EU vaccination schedule considering WHO recommendations for routine immunisation, aiming to improve the compatibility of national schedules.

- 1 COUNCIL OF THE EUROPEAN UNION. Council conclusions on vaccinations as an effective tool in public health (2014/C 438/04) (OJ C 438, 6.12.2014, p. 3) 2014. Available from: [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XG1206\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XG1206(01)&from=EN)
- 2 COUNCIL OF THE EUROPEAN UNION. Council Recommendation of 7 December 2018 on strengthened cooperation against vaccine-preventable diseases (ST/14152/2018/REV/1) (OJ C 466, 28.12.2018, p. 1-7) 2018. Available from: [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018H1228\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018H1228(01))

The European Border and Coast Guard Agency shall implement, in line with the recommendations of the Council, and as part of a larger project focusing on operational Occupational Safety and Health (OSH) issues across the working environment of the personnel deployed to Frontex operational activities, a mechanism to assess and oversee the vaccination/immunisation status of all participants in the Agency's operational activities (Decision of the Executive Director R-ED-2018-1).

In 2018, Frontex organised a short survey to explore existing recommendations and/or requirements for vaccinations for deployed resources assigned by the national partner authorities (Member States and Schengen Associated Countries) to Frontex coordinated activities ³.

Twenty-three National Frontex Contact Points from 32 Member States provided the requested information, showing a good response rate (70%) in a highly heterogeneous group of participating institutions. This result is encouraging, showing that National Frontex Contact Points are interested in the topic of vaccination in occupational health.

Overall, the most evident result is variability among procedures, participating institutions, attitudes to vaccination for adults, and the existence of procedures for missions abroad.

This variability suggests that the personnel participating in Frontex coordinated activities are likely to have different vaccination statuses, and could be exposed to the risk of transmitting or contracting preventable diseases during their assignments, even though Frontex generally funds the immunisation of all deployed personnel.

A recommendation scheme for the vaccination of police officers and Frontex Staff involved in Frontex coordinated activities needs to be prepared and adopted in all Member States and for Frontex staff, to reduce the risk of communicable diseases that could affect the health of deployed personnel and of the assisted migrants, and could compromise Frontex's missions.

Vaccination is a topic of increasing interest for OSH, and has already been mentioned in several Frontex documents:

- Flexible Operation Activities in Return 2019
- Field visit to selected border crossing point in Albania on 9-10 April 2019
- Occupational Health and Safety - Deployment information (draft under development)
- Frontex Activity Plan - Annex - Flexible operational activities in return 2019

In order to keep recommendations consistent, a standard vaccination scheme should be defined, which could also be adapted and updated based on epidemiological changes, new knowledge and availability of new vaccines or their indications.

3 D'Ancona F. National vaccination schemes and applicable strategies in the framework of participation in Frontex coordinated activities. Luxembourg: Frontex; 2019. Available from: https://frontex.europa.eu/assets/Publications/General/Vaccination_publication_2019.pdf

Recommended vaccination scheme (RVS) and methodology used for its development

The objective of the RVS is to provide a list of recommended vaccinations as a prevention measure for specific communicable diseases, specifically designed for the individual and community protection of personnel assigned to coordinated operational activities of the European Border and Coast Guard Agency.

As even within Europe, vaccination schemes and national immunisation programmes for adults and workers vary widely, no single document exists that could be taken as reference for a basic immunisation scheme. This heterogeneity is described in the Frontex “Report on National vaccination schemes and applicable strategies in the framework of participation in Frontex coordinated activities”⁴.

This RVS was developed based on the following principles:

- the RVS is not intended to replace the national recommendations for vaccinations, but aims at establishing a common approach to vaccination among the personnel assigned to coordinated operational activities of the European Border and Coast Guard Agency;
- the need for vaccination in each individual should be based on their immunological status as a result of previous vaccinations or natural diseases, and personal risk levels due to clinical conditions or work exposure, and this document does not provide vaccine catch-up guidance for partially immunized individuals;
- the vaccination scheme only includes recommended vaccinations, and vaccinations are not intended to be mandatory;
- the RVS indicates only the type of vaccine (i.e. antigens or preventable diseases) without specifying any brand or specific product;
- the recommendations only include vaccines that are already authorised in the EU, with centralised or national marketing authorisation; all information reported in this document is in line with the Summary Product Characteristic (SPC) of the vaccines or the leaflet included in the package by the manufacturer, and off-label use is not considered;
- the RVS focuses on missions in a European context, though some vaccinations mentioned within this document can be considered for Return Missions outside Europe (including return operations), deployments to Third Countries (e.g. Western Balkans) and for Frontex Headquarters staff on temporarily missions in Third Countries (e.g. Libya, Niger, Turkey etc.);

⁴ D’Ancona F. National vaccination schemes and applicable strategies in the framework of participation in Frontex coordinated activities. Luxembourg: Frontex; 2019. Available from: https://frontex.europa.eu/assets/Publications/General/Vaccination_publication_2019.pdf

- the RVS takes into consideration the characteristics of the missions and the type of task, and some individuals may also belong to a risk group due to individual circumstances (e.g. long-term health conditions), thus requiring further vaccinations;
- the epidemiology of each vaccine-preventable disease was taken into account in the development of the RVS, along with the safety and effectiveness of the vaccine, the length of the protection and need for boosters, using as a source of information international recommendations and other public scientific evidence, the World Health Organisation (WHO) position paper, SPCs and the manufacturers' package inserts;
- the document provides a general overview of the existing variability (including posology and method of administration) among various vaccines against the same diseases, underlining, where possible, the main differences, while considering that it is required to refer to the SPC available in each country or to the manufacturer's package inserts;
- the absence of precautions or contraindications to vaccination should be assessed by a healthcare professional through anamnesis; a blood test for previous immunisation can also be evaluated, but as a general rule, vaccinating already immune/immunised subjects does not increase the risk of serious adverse events;
- the RVS does not include other important aspects of the vaccination process, such as vaccine selection, procurement, registration, storage, administration and funding, financial sustainability, identification of the target population, registration and monitoring of adverse events, information and communication to the target population to increase the uptake, vaccine impact assessment, and monitoring of coverage, while it is recommended to take into consideration all these aspects in the implementation phase at both the Frontex and the national level;
- the potential for vaccine failure should always be taken into account, as no vaccines exist with 100% efficacy; therefore, when appropriate, other behavioural preventive measures should be added to vaccination in order to maximise protection against vaccine preventable diseases; however, these preventive measures are not the subject of this recommendation;
- the present RVS can be updated based on an evaluation of its implementation, comments, further ongoing risk assessments, new available scientific knowledge and availability of new vaccines or new indications for vaccination;
- Protection doesn't start immediately after vaccine administration. The level of antibodies increases progressively over the 15 days following the first dose. Optimal protection is obtained when all doses are given (after about 15 days if there is only one dose).

This RVS is structured in two parts:

- a) basic scheme for all personnel;
- b) vaccination for personnel assigned to missions outside Europe and/or in special epidemiological conditions. In this case, no standard immunisation schedule exists that suits all destinations and epidemiological situations. Different countries have different vaccination requirements specific to each epidemiological situation, and different risk levels. The recommended vaccines depend on several factors, including age, current or planned pregnancy, underlying medical conditions, vaccination history, immunisation status, work task, location and season of travel. For these reasons, only general principles and opportunities for vaccination are listed, leaving the final assessment before an assignment out of Europe to the competent office/institution/service for health travel advice.

This RVS was developed using the information from the Frontex report ⁵ and the institutional web sites listed in Annex 1, and the Red Book from the American Academy of Pediatrics ⁶.

In order to reduce the risk of contracting or transmitting vaccine preventable diseases, all personnel assigned to coordinated operational activities of the European Border and Coast Guard Agency should be adequately immunised or naturally immune to diseases listed in the basic scheme reported in Table 1. Some of these vaccinations require boosters, as reported in Table 2, which increase immunity against the specific antigen, raising it back to protective levels, after the body's memory of that antigen has declined over time. Therefore, it is important that personnel keep records of their own vaccinations and are up to date with the recommended vaccinations.

Table 1: Recommended vaccination schemes

Basic scheme for all personnel assigned to coordinated operational activities of the European Border and Coast Guard Agency
Poliomyelitis
Diphtheria
Tetanus
Pertussis
Hepatitis A
Hepatitis B
Influenza
Measles
Mumps
Rubella
Varicella
Neisseria meningitis ACWY

5 D'Ancona F. National vaccination schemes and applicable strategies in the framework of participation in Frontex coordinated activities. Luxembourg: Frontex; 2019. Available from: https://frontex.europa.eu/assets/Publications/General/Vaccination_publication_2019.pdf

6 American Academy of Pediatrics. Red Book 2018-2021: Report of the Committee on Infectious Diseases. 31st edition ed. Elk Grove Village: American Academy of Pediatrics; 2018

Table 2: Vaccinations to be considered for personnel assigned to missions outside Europe and/or in special epidemiological condition

Vaccination	Notes
Cholera	Vaccination against cholera is not routinely needed for most travellers. However, in some cases vaccination may be recommended for aid workers and people likely to have limited access to medical services and safe water, such as those working in refugee camps or after natural disasters in epidemic/endemic areas.
Japanese encephalitis	Assessing the risk of contracting this disease in the destination country is recommended. Vaccination is usually recommended for long stays (usually at least a month) in a country where the disease is endemic, especially in rural areas.
Neisseria meningitis B	Assessing the risk of contracting this disease is recommended in specific groups of subjects at increased risk for serogroup B meningococcal disease (e.g. splenectomised subjects or persons with immunodeficiency disorders) and during outbreaks of serogroup B meningococcal disease.
Rabies	Vaccination against rabies is advised for travel to an area where it is possible to contract rabies, particularly a) when staying for a month or more, b) if unlikely to have quick access to appropriate medical care, c) if performing activities with increased risk of exposure to rabies. (i.e. contact with potentially infected animals).
Tick borne encephalitis (TBE)	Vaccination against tick-borne encephalitis (TBE) is usually recommended for anyone who plans to live or work in a high-risk area during late spring or summer with exposure to ticks.
Tuberculosis	Vaccination is recommended only in cases of an increased risk of contact with TB cases.
Typhoid	Vaccination is recommended for long travel to countries where the condition is common, in particular in cases of frequent or prolonged exposure to conditions where sanitation and food hygiene are likely to be poor or while staying/working with local people.
Yellow fever	Assessing the risk of contracting this disease in the destination country is recommended. Some countries require proof of having received a yellow fever vaccination before allowing visitors to enter the country. Other countries may require vaccination against yellow fever in the case of visitors that have passed through areas at risk of yellow fever.

Table 3 reports the main characteristics of the vaccines under consideration. The purpose of this table is to provide general indications on the requirements in terms of doses for non-vaccinated subjects or for subjects without natural immunity. As maintaining long-lasting immunity with inactivated viral or bacterial vaccines and toxoid vaccines may require periodic administration of booster doses, the table includes an indication of the length of protection. The table is not exhaustive, and some products may be not included or may be available with different modes of use (included posology and method of administration). Therefore, referring to the schedule indicated in the SPC of the product authorised in each specific country, or to the leaflet included in the package by the manufacturer, is recommended.

The evaluation of immunisation status and the required number of doses and schedule should be carried out by a competent office/institution/service/health care worker.

This table does not replace the need for health travel advice to assess all potential risks and precaution/contraindication to vaccination before any assignment out of Europe from a competent office/institution/service/health care worker.

Table 3: Synoptic table with main vaccine characteristics for adults.
Adapted from WHO ⁷

Vaccine	Number of doses and time between doses	Need for a booster/ estimated length of protection	Notes
Cholera	2 (0-1/6w)	2 Years	A single booster dose is recommended within two years. The course should be repeated in adults who have not been given a booster within two years. ⁸
Flu	1	1 seasonal flu (1 year)	The vaccine should be repeated each year, changing the formulation.
Hepatitis A (Inactivated HAV vaccine)	2 (0-6m/12m)	No need for booster	The first dose is protective after about 15 days; the second dose extends the length of protection. The second dose can be administered within 60 months
Hepatitis B	3 (0-1m-6m)	No need for booster.	Some vaccines have a two-doses- schedule. An accelerated schedule may be used in case of a high risk of exposure. In this case, 3 doses (0-7d-21d) should be administered, followed by a booster after one year ⁹ . In case of high risk (e.g. HCW) serologic testing to verify acquired immunity could be required.
Japanese encephalitis §	2 (0-28d)	For adults, a booster dose may be administered 12-24 months after the primary series, if ongoing exposure or re-exposure is expected. A second booster dose 10 years after the first booster.	It is recommended that individuals who receive the first dose should receive both doses. The second dose should be given at least one week before potential exposure to the virus. Adults can also receive a rapid vaccination course, where the second dose is given seven days after the first dose. Primary series could vary, according to manufacturer's recommendation.
Measles Mumps Rubella (MMR)	2 (0-1m depending on the manufacturer)	No need for booster	The first dose is protective; the second dose increases the effectiveness of the measles component.
Meningitis ACWY	1	5 -7 years	
Polio IPV	3 (0-1m-6m/1y)	Previously vaccinated subjects may need a one-time booster shot if traveling to a country where the risk of contracting polio is high.	

⁷ World Health Organization. WHO recommendations for routine immunization - summary tables 2019 April [updated April 2019]. Available from: https://www.who.int/immunization/policy/immunization_tables/en/

⁸ European Medicine Medicines Agency. European public assessment report (EPAR) for Dukoral. [updated 16/08/2019]. Available from: <https://www.ema.europa.eu/en/medicines/human/EPAR/dukoral>

⁹ World Health Organization. Hepatitis B vaccines: WHO position paper - July 2017. Weekly epidemiological record; 2017;27(92):369-92

Vaccine	Number of doses and time between doses	Need for a booster/ estimated length of protection	Notes
Rabies (pre exposure)	3 (0-7d-21d/28d)	Undefined. For exposed deployed personnel, a booster dose should be administered if serum titre is lower than the threshold, or after 2 years.	Deployed personnel who are at a continuous or frequent risk of exposure through their activities should receive regular (6 months /2 years) serological monitoring.
Tdap (tetanus diphtheria, acellular pertussis)	3 (0-1m-6m)	10 years	
Tick borne encephalitis (TBE) §§	3 (an interval of 1-3 months is recommended between the first 2 doses, and 5-12 months between the second and third doses.)	3 years after completion of the primary series, and subsequent boosters at intervals of 5 years (or 3-year intervals for individuals aged >50 or >60 years depending on the vaccine);	When rapid protection is required, the interval between the first 2 doses may be reduced to 2 weeks
Typhoid Currently 3 types of typhoid vaccine are licensed for use: (i) typhoid conjugate vaccine (TCV) currently not licensed in EU; (ii) unconjugated Vi polysaccharide (ViPS) (IV); and (iii) live attenuated Ty21a vaccines (Oral)	ViPS: 1 Ty21a: 3 (0-2d-4d)	ViPS: 2-3 years Ty21a: 3-5 years	ViPS: vaccination should be administered at least 2 weeks prior to potential exposure to infection with <i>Salmonella typhi</i> Ty21a: protection against typhoid fever starts approximately seven to ten days after ingesting the third dose of vaccine.
Varicella	2 (0-1/3m depending by the manufacturer)	No need for booster	The first dose is protective after about 15 days. The second dose extends the length of the protection and increases the effectiveness.
Yellow fever	1	No need for booster	The yellow fever vaccination certificate is valid for life, starting 10 days after vaccination

§ Inactivated Vero cell-derived vaccine.

§§ vaccines manufactured in Europe

All vaccinations should be recorded following the procedures currently valid in each place where they were administered, and each vaccinated person should receive an appropriate certificate of the received vaccination. This certificate/card should be used to update the appropriate files where all personal vaccinations are recorded (at a national level or however appropriate in each context). Providing all personnel assigned to coordinated operational activities of the European Border and Coast Guard Agency with an updated certificate/card with his/her immunisation status for vaccine preventable diseases is highly desirable, as the availability of such a document can facilitate the identification of susceptible persons and avoid unnecessary vaccinations.

Sources of information on vaccination and travel health

This list is not exhaustive, but provides information on the most important, reliable and consistently updated sources of information available online in English on vaccinations and travel health.

List of institutional websites in English on immunisation; use, safety and efficacy of vaccination; and on travel advice related to vaccination.

- WHO - Immunisation
<https://www.who.int/topics/immunization/en/>
- WHO European Regional Office. Vaccine and immunisation
<http://www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization>
- WHO International Travel and Health
<https://www.who.int/ith/en/>
- WHO International Travel and health Vaccines
<https://www.who.int/ith/vaccines/en/>
- ECDC - Immunisation and vaccines:
<https://ecdc.europa.eu/en/immunisation-and-vaccines>
- ECDC - Vaccine schedules in all countries of the European Union
<https://vaccine-schedule.ecdc.europa.eu/>
- CDC 2020 Yellow Book Health Information for International Travel
<https://wwwnc.cdc.gov/travel/yellowbook/2020/table-of-contents>
- CDC Pink Book Epidemiology and Prevention of Vaccine-Preventable Diseases
<https://www.cdc.gov/vaccines/pubs/pinkbook/index.html>
- CDC - Travel Health - Travel Advice by destination
<https://wwwnc.cdc.gov/travel/destinations/list>
- CDC - Travel Health
<https://wwwnc.cdc.gov/travel/>

- GOV.UK The Green Book - Immunisation against infectious disease
<https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book#the-green-book>
- GOV.UK Travel Advice from UK Government
<https://www.gov.uk/foreign-travel-advice>
- UK National Travel Health Network and Centre (NaTHNaC) Travel Health Pro
<https://travelhealthpro.org.uk/countries>
- NHS-Scotland - Fit for travel
<https://www.fitfortravel.nhs.uk/destinations>
- NHS-Scotland Travel Vaccination
<https://www.nhs.uk/conditions/travel-vaccinations/>
- Government of Canada - Travel advice and advisories
<https://travel.gc.ca/travelling/advisories>
- Government of Canada - Travel vaccinations
<https://travel.gc.ca/travelling/health-safety/vaccines>



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