STANDARDS-RELATED DOCUMENT

SRD-7 TO AJMedP-4

VACCINATIONS CATALOGUE WITHIN THE NATO & PfP FORCES

EDITION A VERSION 4

APRIL 2026

NORTH ATLANTIC TREATY ORGANIZATION

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

10 April 2026

1. The enclosed standards-related document, SRD-7 to AJMedP-4, Edition A, Version 4, VACCINATIONS CATALOGUE WITHIN THE NATO & PfP FORCES, which has been approved in conjunction with AJMedP-4 by the nations in the MILITARY COMMITTEE MEDICAL STANDARDIZATION BOARD, is promulgated herewith.

2. SRD-7 to AJMedP-4, Edition A, Version 4 is effective upon receipt and supersedes SRD-7 to AJMedP-4, Edition A, Version 3, which shall be destroyed in accordance with the local procedure for the destruction of documents.

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4. This publication shall be handled in accordance with C-M(2002)60.

Thierry POULETTE
Major General, FRA (A)
Director, NATO Standardization Office

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Content

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Chapter 1 - Introduction

Aim

This catalogue of vaccination policies provides a snapshot of the vaccination practices, regulations and policies in the NATO & PfP Forces. Within this document, the term “vaccination” is used to describe the use of biological preparations to improve the immunity of individuals against a particular infectious disease. Other terms in common parlance that may refer to this process include “immunisation”, and “inoculation”.

Ownership of the risk and the responsibility for vaccination policy rests with the nations, and is not a matter for standardisation within the Alliance. Notwithstanding, knowledge of the similarities and differences between the policies of nations sending personnel to multinational operations is useful to medical staffs. It may also be of interest to nations in the process of reviewing their current policies.

Therefore, to better reflect the role of the catalogue, it is now maintained as a Standards Related Document in support of AJMedP-4. It will be updated annually and replaces STANAG 2037 AMedP-23, which has been cancelled.

Disclaimer

The catalogue is not an authoritative statement of current vaccination policies; nor does it provide evidence to support recommendations for specific vaccination policy. The annual update cycle means that the information may not reflect changes in policy since the catalogue update.

For authoritative information about current policy, or where there is still uncertainty, please refer to the national point of contact.

Data Collection Method

The information contained within the catalogue is obtained via a standardized survey of nominated points of contact for each nation. The survey is issued in January for completion by March of the same year. The update is normally published in April each year.

Custodian

The custodian of the catalogue is the Force Health Protection Branch of NATO MILMED COE. Please email your comments and/or suggestions to **info.fhpb@coemed.org**

Classification

The information contained within the catalogue is Unclassified. It has been reproduced here with the kind permission of the nations.

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Chapter 2: Vaccinations Practices in NATO & PfP Forces

		AUT	BEL	BGR	CAN	CHE
Updated Data Catalogue		2025	2025	2021	2025	2023
Adenovirus VIS		–	–	–	–	–
Anthrax		–	–	–	–	–
Chikungunya		T	–	–	–	–
Cholera		T	–	–	S,T	M,S,T,R
Dengue		T	–	–	–	–
Diphtheria		A,M,S	A	A,M,S,T	A	A
Hepatitis A		M,S	M,S,T	M,S,T	A	M,S,T,R
Hepatitis B		M,S	A	A,M,S,T	A	A
HPV		A,M,S	–	R	R	A
Influenza Seasonal		A,M,S	M,S,T,R,O	R	A	A
Japanese Encephalitis		T	T	–	S,T	M,S,T,R
Measles		A,M,S	A	A	A	A
Meningococcal Disease	A,C	–	–	–	–	–
	B	M,S	–	–	R	–
	C	–	–	–	–	–
	A,C,Y,W-135	M,S	M,S,T	M	A	A
Mumps		A,M,S	A	A	A	A
Pertussis		A,M,S	A	A	A	A
Pneumococcal Disesase		A	R	A	R	–
Polio	live	–	–	–	–	–
	inactived	A,M,S	M,S,T	A	A	A
Rabies		M,S	M,S,T	R	S,T,O	M,S,T,R
Rubella		A,M,S	A	A	A	A
SARS-Cov-2		M,S	R	–	A	A
Smallpox		–	–	–	–	O
Tetanus		A,M,S	A	A,M,S,T	A	A
Tickborne Encephalitis		A,M,S	S,T	–	S,T,O	A
Tuberculosis		–	–	A	–	–
Typhoid	live	–	–	–	–	M,S,T,R
	inactived	T	S,T	M	S,T	–
Varicella		O	–	–	A	A
Yellow Fever		T	S,T	T	S,T	M,S,T,R

Codes:

A= **All** Personnel

M= All Deployable Personnel (personnel susceptible to be deployed on a (planned) **Mission**)

S= Alert Forces (**Stand-by** with NTM < 2 months e.g. EUBG, NRF,...)

T= Personnel in areas at risk (e.g. **Travellers**,...)

R= **Recommended** / voluntary

O= **Occupations** at risk (e.g. Nurses,...)

		CZE	DEU	DNK	ESP	EST
Updated Data Catalogue		2025	2025	2025	2025	2019
Adenovirus VIS		–	–	–	–	–
Anthrax		–	O	–	–	–
Chikungunya		–	T	–	–	–
Cholera		T	M,T	T	T,R	T
Dengue		T	T	–	T,R	–
Diphtheria		M,S,T,R	A	A	A,T,R	A,M,S
Hepatitis A		M,S,T,R	A	A	A,T,R,O	M,S,T
Hepatitis B		M,T,O	A	A	A,T,R,O	M,S,O
HPV		–	R	–	–	–
Influenza Seasonal		M,S,T,R,O	A	–	M,S,R,O	A
Japanese Encephalitis		R	M,S,T	T	T,R	–
Measles		M,S,T,R,O	A	A	A	–
Meningococcal Disease	A,C	–	–	–	–	M,T
	B	M,T	–	T	–	–
	C	–	–	–	–	–
	A,C,Y,W-135	M,T	M,S,T,R	T	S,T,R	S,T
Mumps		M,S,T,R,O	A	A	A	–
Pertussis		M,S,T,R	A	A	A	–
Pneumococcal Disesase		R	R	–	–	–
Polio	live	–	–	–	–	–
	inactived	M,T	A	A	S,T,R	M,S,T
Rabies		M,T	M,S,T	T	T,R,O	M,S,T
Rubella		M,S,T,R,O	A	A	A	–
SARS-Cov-2		R	R,O	T	R,O	–
Smallpox		–	R,O	–	–	–
Tetanus		A	A	A	A	A,M,S,T
Tickborne Encephalitis		M,S,T,R	A	T	T,R	A
Tuberculosis		–	–	–	–	–
Typhoid	live	–	M,S,T	–	–	–
	inactived	M,T	M,S,T	T	T,R	M,S,T
Varicella		T,R	R	–	–	–
Yellow Fever		M,T	M,S,T	T	S,T,R	M,S,T

Codes:

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		FRA	FIN	GBR	GRC	HUN
Updated Data Catalogue		2025	2025	2025	No data	2025
Adenovirus VIS		–	–	–		–
Anthrax		–	–	S,R		–
Chikungunya		–	–	–		–
Cholera		T	T	T,R		M,S,T
Dengue		–	–	–		–
Diphtheria		A	R	A,R		A,M,S,O
Hepatitis A		M,O	T	A,R		M,S,O
Hepatitis B		A	T	A,R		M,S,O
HPV		R	–	A,R		–
Influenza Seasonal		S,T,O	R	T,R,O		T,R,O
Japanese Encephalitis		T	–	T,R		–
Measles		A	R	A,R		A,M,S
Meningococcal Disease	A,C	–	–	–		–
	B	–	–	–		–
	C	–	–	–		–
	A,C,Y,W-135	M	R	A,R		A,M,S,O
Mumps		A	R	A,R		A,M,S
Pertussis		A	R	A,R		A,M,S
Pneumococcal Disesase		–	O	R,O		–
Polio	live	–	–	–		–
	inactived	A	T	A,R		M,S
Rabies		O	T	S,T,R		M,S,T,O
Rubella		A	R	A		A,M,S
SARS-Cov-2		M	R	S,T,R		–
Smallpox		–	R	–		–
Tetanus		A	R	A,R		A,M,S,O
Tickborne Encephalitis		M	T	S,T,R		S,T,O
Tuberculosis		R	–	R,O		–
Typhoid	live	–	T	–		–
	inactived	M	T	T,R		M,S,O
Varicella		R	–	–		T
Yellow Fever		M	T	A,R		S,T

Codes:

A= **All** Personnel

M= All Deployable Personnel (personnel susceptible to be deployed on a (planned) **Mission**)

S= Alert Forces (**Stand-by** with NTM < 2 months e.g. EUBG, NRF,...)

T= Personnel in areas at risk (e.g. **Travellers**,...)

R= **Recommended** / voluntary

O= **Occupations** at risk (e.g. Nurses,...)

		IRL	ISL	ITA	LTU	LUX
Updated Data Catalogue		2025	No data	2025	2025	2025
Adenovirus VIS		–		–	–	–
Anthrax		–		–	–	–
Chikungunya		–		–	–	–
Cholera		T		T	–	T
Dengue		T		T	–	–
Diphtheria		A		A	A	A
Hepatitis A		A		A	M,S	A
Hepatitis B		A		A	M,S,O	A
HPV		–		–	–	R
Influenza Seasonal		T,O		R	A	M
Japanese Encephalitis		T		T	–	T
Measles		A		A	A	A
Meningococcal Disease	A,C	–		–	–	–
	B	A		–	A	–
	C	A		–	–	–
	A,C,Y,W-135	A,T		A	A	M
Mumps		A		A	A	A
Pertussis		A		A	–	A
Pneumococcal Disesase		A		A	–	T,R
Polio	live	–		–	–	–
	inactived	A,M		A	M,S	A
Rabies		T		–	M,S	M
Rubella		A		A	A	A
SARS-Cov-2		R		A	–	M
Smallpox		–		–	–	–
Tetanus		A,M,T		A	A	A
Tickborne Encephalitis		T		O	A	A
Tuberculosis		–		–	–	–
Typhoid	live	–		–	–	–
	inactived	T		A	M,S	M
Varicella		R		A	–	A,R
Yellow Fever		T		T	M	M

Codes:

Personnel — **T**= Personnel in areas at risk (e.g. **Travellers**,...)

Deployable Personnel (personnel susceptible to be deployed on a (planned) **Mission**) — **R**= **Recommended** / voluntary

t Forces (**Stand-by** with NTM < 2 months e.g. EUBG, NRF,...) — **O**= **Occupations** at risk (e.g. Nurses,...)

		LVA	NLD	NOR	POL	PRT
Updated Data Catalogue		2025	2025	2025	2025	2025
Adenovirus VIS		–	–	–	–	–
Anthrax		–	–	–	–	O
Chikungunya		–	–	–	–	–
Cholera		M	T	S,T	M,S,T,R,O	S,T
Dengue		–	T,R	–	–	R
Diphtheria		A	A	A	M,S,T,R,O	A
Hepatitis A		M,S	A	M,S,T,O	M,S,T,R,O	M,S,T,O
Hepatitis B		M,S,O	A	M,S,T,O	M,S,T,R,O	A
HPV		–	R	–	–	A
Influenza Seasonal		R,O	S,T,R	M,S,T,R,O	M,S,T,R,O	T,O
Japanese Encephalitis		–	S,T	T	M,S,T,R	T
Measles		–	A	A	M,S,T,R,O	A
Meningococcal Disease	A,C	–	–	–	–	–
	B	–	R	M,S,T	M,S,T,R,O	A
	C	–	–	–	–	A
	A,C,Y,W-135	M,S	S,T	M,S,T	M,S,T,R,O	S,T,R
Mumps		–	A	A	M,S,T,R,O	A
Pertussis		–	S,T	A	M,S,T,R,O	A
Pneumococcal Disesase		–	T,R	–	M,S,T,R,O	A,R
Polio	live	–	–	–	–	A
	inactived	M,S	A	A	M,S,T,R,O	S,T
Rabies		M,S,O	S,T	S,T	M,S,T,R,O	S,T
Rubella		–	A	A	M,S,T,R,O	A
SARS-Cov-2		–	S,T,R	R	M,S,T,R,O	R,O
Smallpox		–	–	–	–	O
Tetanus		A	A	A	M,S,T,R,O	A
Tickborne Encephalitis		A	S,T	S,T	M,S,T,R,O	S,T
Tuberculosis		–	–	S,T	–	R
Typhoid	live	–	S,T	–	–	–
	inactived	M,S	–	S,T	M,S,T,R,O	S,T
Varicella		–	–	–	M,S,T,R,O	R
Yellow Fever		M,S	S,T	S,T	M,S,T,R	S,T

Codes:

A= **All** Personnel

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S= Alert Forces (**Stand-by** with NTM < 2 months e.g. EUBG, NRF,...)

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R= **Recommended** / voluntary

O= **Occupations** at risk (e.g. Nurses,...)

		ROU	SVK	SVN	SWE	TUR
Updated Data Catalogue		No data	2025	No data	2025	2021
Adenovirus VIS			–		–	–
Anthrax			–		–	–
Chikungunya			–		T	–
Cholera			M,T		T	T
Dengue			–		T	–
Diphtheria			A,M,S,T		A	A
Hepatitis A			A,M,S,T,O		M	A
Hepatitis B			A,M,S,T,O		M	A
HPV			–		–	–
Influenza Seasonal			A,M,S		M,O	M,S,T,O
Japanese Encephalitis			–		T	T
Measles			A,M,S,T		A,M	A
Meningococcal Disease	A,C		–		–	–
	B		A,M,S,T		T	–
	C		–		–	–
	A,C,Y,W-135		A,M,S,T		T	A
Mumps			A,M,S,T		A	A
Pertussis			A,M,S,T		A	A
Pneumococcal Disesase			–		–	O
Polio	live		–		–	–
	inactived		M,S,T		A,T	A
Rabies			M,S,T		S,T,O	T
Rubella			A,M,S,T		A	A
SARS-Cov-2			M,S		–	–
Smallpox			–		–	–
Tetanus			A,M,S,T		A	A
Tickborne Encephalitis			A,M,S,T,O		S,T,O	–
Tuberculosis			–		–	–
Typhoid	live		M		T	–
	inactived		M,S,T		T	T
Varicella			–		–	A
Yellow Fever			T		T	T

		USA				
Updated Data Catalogue		2023				
Adenovirus VIS		T				
Anthrax		T				
Chikungunya		–				
Cholera		T				
Dengue		–				
Diphtheria		A,M,S,T,O				
Hepatitis A		A,M,S,T,O				
Hepatitis B		A,M,S,T,O				
HPV		R				
Influenza Seasonal		A,M,S,T,O				
Japanese Encephalitis		T				
Measles		A,M,S,T,O				
Meningococcal Disease	A,C	–				
	B	R,O				
	C	–				
	A,C,Y,W-135	A,M,S,T,O				
Mumps		A,M,S,T,O				
Pertussis		A,M,S,T,O				
Pneumococcal Disesase		R				
Polio	live	–				
	inactived	A,M,S,T,O				
Rabies		O				
Rubella		A,M,S,T,O				
SARS-Cov-2		R				
Smallpox		T				
Tetanus		A,M,S,T,O				
Tickborne Encephalitis		T				
Tuberculosis		–				
Typhoid	live	–				
	inactived	M,S,T,O				
Varicella		A,M,S,T,O				
Yellow Fever		T				

Codes:

A= **All** Personnel

M= All Deployable Personnel (personnel susceptible to be deployed on a (planned) **Mission**)

S= Alert Forces (**Stand-by** with NTM < 2 months e.g. EUBG, NRF,...)

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Nations Comments		
AUT	2025	Vaccinations are in Austria not mandatory, only recommended. Requirement exists only at deployment. Vaccinations for "Pneumococcal Disease" is recommended and provided only for people older than 50 years. Additionally, we provide also - starting with 2025 - Herpes Zoster vaccination (SHINGRIX) as a free offer for military and civilian army personnel older than 50 years.
BEL	2025	No additional comment
BGR	2021	Order of the Minister of the Republic of Bulgaria N 724 / National immunization schedule.
CAN	2025	All vaccines in the CAF are currently voluntary for eligible personnel.
CHE	2023	According to the national law, all vaccinations are voluntary in CHE. In this context "A" means: Recommended to all military personnel! Smallpox includes Monkeypox too.
CZE	2025	For DiTePe and MMR only combined vaccines available.
DEU	2025	No additional comment
DNK	2025	No additional comment
ESP	2025	Under Spanish legislation, vaccination is voluntary and requires the patient's prior, free, and informed consent as a general rule. This is valid even for military personnel that take part in operations overseas. It is the commander´s decision to authorize the deployment of personnel who refuse any vaccination. The person who refuses any recommended vaccine must sign a "refusal of vaccination" document. Polio vaccine offered following current IHR requirements. Vaccines for Areas at Risk are chosen based on MedIntel risk assessment, information related to and from AO and duration of deployment.
EST	2019	Vaccination against HPV, measles, mumps, pertussis, rubella and tuberculosis belongs to Estonian national routine immunization program and therefore is not reflected in the current catalogue.
FIN	2025	All vaccinations are voluntary. Some missions may require certain vaccinations. Vaccinations are recommended for both personnel and conscripts. Conscripts without spleen are offered additionally pneumococcal and Haemophilus influenzae vaccinations. Typhoid: live OR inactived for personnel in areas at risk (T).
FRA	2025	No additional comment
GBR	2025	The vaccination guidance is taken from UK Defence medical policy on the Immunological Protection of Entitled Individuals. Mandatory vaccination in the UK is not legal for any individual or group, including military personnel. All vaccinations therefore require informed consent and as a result are listed as R (recommended) in addition to a further category e.g. All, Travel, Occupation etc.
GRC	-	No data
HUN	2025	The protocol is under revision.
IRL	2025	For A we expect all personnel to have these on entry military. On some occasions, eg. polio. We will boost for deployment on tetanus. Varicella is recommended for females of childbearing age.
ISL	-	No data
ITA	2025	The ruling of the Italian Constitutional Court has made it illegal to impose vaccinations in the absence of legislative measures. At this moment, there is a legislative gap.
LTU	2025	A: During the time of epidemiological situation changes all personnel get vaccination against Covid-19 vaccine, Pandemic Influenza, Anthrax, Smallpox, etc. T: Soldiers, officers and foreign soldiers in active military service under the conditions provided for in international agreements who have been bitten, stung or salivated by rabid or suspected rabid animals post-exposure vaccination against rabies continues in the medical support units of the Military Medical Service of Lithuanian Armed Forces, after providing necessary medical assistance at a personal health care institution of the Lithuanian national health system, after prescribing post-exposure vaccination against rabies. M: Deployable personnel vaccination depends on region of mission. O: Medical personnel are vaccinated against viral Hepatitis A, Varicella during an outbreak of these infections, when they have direct contact with infected or sick (in the contagious period).

Nations Comments		
LUX	2025	No additional comment
LVA	2025	Vaccination against tuberculosis, pertussis, poliomyelitis, measles, rubella, epidemic parotitis, varicella is included into the Latvian national childhood vaccination schedule. Therefore, necessity of booster vaccination of deployable personnel is evaluated IAW actual epidemiological situation in the deployment region. Diphtheria, tetanus is included into the national immunization program and is compulsory for all military personnel of the Latvian National Armed Forces. Vaccination against tick-borne encephalitis is compulsory for all military personnel. Vaccination against Hepatitis B is required to the personnel of certain professions, for instance, medical practitioners - occupations at risk. Vaccination against Hepatitis A and Hepatitis B (if Hep B has not been received within childhood vaccination schedule), is performed to all deployable personnel as well as personnel of alert forces. Rabies vaccine is provided to all deployable personnel as well as personnel of alert forces. Cholera vaccination is carried out to the military personnel shortly prior deployment to the risk area.
NLD	2025	No additional comment
NOR	2025	SARC-Cov-2: recommended if operative consequences deemed serious. Influenza: R nationality, M abroad
POL	2025	1.Diphtheria, Hepatitis B, Haemophilus influenzae type b, Measles, Mumps, Pertussis, Pneumococcal Disease, Polio inactivated, Rotavirus, Rubella, Tetanus, Tuberculosis: vaccination is mandatory for children and adolescents under the Protective Vaccination Program, published in the form of an Announcement by the Chief Sanitary Inspector for a given year. 2.EVD: vaccine for All deployable personnel, Alert forces, personnel in areas at risk and recommended/voluntary. 3.Live vaccine against Typhoid is used alternatively. 4.According to the Act of December 5,2008 on the Prevention and Control of Infections and Infectious Diseases in Humans, and the Announcement by the Chief Sanitary Inspector of October 31,2025 regarding the 2026 Protective Vaccination Program, post-exposure vaccinations against: Diphtheria, Tetanus, Rabies are mandatory, and post-exposure vaccinations against: Measles, Chickenpox, HAV, HBV are recommended.
PRT	2025	Since 2015 the national vaccination schedule (NVS) stopped including the anti-tuberculosis vaccine for all newborns but only for selected at risk population. Since 2020 the national NVS includes vaccinations for all boys and girls for Human Papiloma Virus. Since 2020 the NVS includes anti-pneumococcal vaccination and Men B vaccine. The answer given for column A are based in the current version of the NVS, for this reason, at this time most militaries on duty were vaccinated for tuberculosis in childhood but in the near future this will change. For the same reason, at this moment most militaries are not vaccinated against Streptococcus pneumoniae and are not vaccinated with Men B vaccine.
ROU	-	No data
SVK	2025	No additional comment
SVN	-	No data
SWE	2025	HPV is given to children in grade 5 in school. There is no supplementary vaccination scheme for those who may have missed it in school. Rabies vaccine for personnel in area at risk and where no immediate PEP is available.
TUR	2021	According to the Directive on Combating Infectious Diseases and Epidemics of the MoD, pneumococcal vaccine is administered to personnel, flying personnel, personnel working in closed areas (submarine, etc.) as well as personnel working in occupations at risks (nurses,…) who are in the risk group due to the underlying disease.
USA	2023	The Joint Regulation on the Immunizations and Chemoprophylaxis for the Prevention of Infectious Diseases is undergoing revision. Additional updates to vaccination requirements and recommendations have occurred since Oct 2013 IAW ACIP recommendations.

National Guidelines References		
AUT	2025	Austrian Armed Forces Vaccination Guideline 2025
BEL	2024	CMED-GID-DOCMED-MSSQ-001 E001 R002
BGR	2008	Order of the Minister of the Republic of Bulgaria N 724 / National immunization schedule.
CAN	2019 2025	Immunization Standard, Immunization Schedules, Health Protection Recommendations Disease specific policies (e.g., Japanese encephalitis, Influenza)
CHE	2023	Vaccination Guidelines of the Swiss Federal Office of Public Health FOPH.
CZE	-	National directives
DEU	2021	A1-840/8-4000
DNK	2025	Danish Armed Defence Vaccination Policy
ESP	2021	Technical Guidelines 02/21, 5 February 2021, from Surgeon General Office on "Immunizations in the Armed Forces"
EST	2013	Chief of Defence guidance # 227
FIN	2025	No additional data
FRA	2025	Directive regarding the vaccination schedule and vaccination updates for the armed forces and affiliated formations for the year 2025
GBR	-	Joint Service Publication 950 Vol 7 Ch 1 Pt 1
GRC	-	No data
HUN	2022	Hungarian Military Vaccination Protocol
IRL	2021	1.N°52.Vaccinations &other preparations for overseas-Amdt N°3 2.National guidelines from NITAG (www.HIQA.ie/areas-we-work/national-immunisation-advisory-committee/immunisation-guidelines-ireland) 3.National Immunisation Guidelines
ISL	-	No data
ITA	2018	Inter-ministerial decree of the Ministries of Defense – health: vaccination directive.
LTU	2021	Order of the Minister of National Defense
LUX	2021	Army Regulation
LVA	2025	Latvian NAF vaccination regulations and internal orders, based on LVA Cabinet Regulation No. 330 Vaccination Regulations, CIV immunization recommendations and guidelines as well as deployment region risk assessment results.
NLD	-	I-MGA035 and RIM (Under Revision).
NOR	2022	NOR regulation on vaccine and medical prophylaxis and FSAN FM57
POL	2012 2021 2021 2023	1.Regulation of the Council of Ministers on the list of types of professional activities and recommended protective vaccinations required for employees, officers, soldiers, or subordinates taking up employment, employed, or assigned to perform these activities 2.Announcement No. 1/MON of the Minister of National Defense of Feb 12, 2021, on the recommendations of the Chief Sanitary Inspector of the Polish Army regarding protective vaccinations against the SARS-CoV-2 virus 3.Announcement No. 2/MON of the Minister of National Defense of Jun 14, 2021, on the recommendations of the Chief Sanitary Inspector of the Polish Army regarding protective vaccinations against the EBOLA virus 4.Regulation of the Minister of National Defense on the protective vaccination program for professional soldiers
PRT	2019	Despacho n° 12434/2019, Diario da Republica 2a Série
ROU	-	No data
SVK	2023	National Vaccination Strategy for Military Personnel
SVN	-	No data
SWE	-	No additional data
TUR	2021	Directive on Combating Infectious Diseases and Epidemics of MoD
USA	2013	Immunizations and Chemoprophymaxis for the Prevention of Infectious Diseases (Joint Service Regulation)

Diseases Description and Vaccines

Updated: **SEP 2025**
Sources: http://www.who.int/immunization/en/ - https://www.cdc.gov/ - http://www.phac-aspc.gc.ca

Adenovirus

Adenoviruses are medium-sized (90-100 nm), non-enveloped icosohedral viruses with double-stranded DNA. More than 50 types of immunologically distinct adenoviruses can cause infections in humans. Adenoviruses are relatively resistant to common disinfectants and can be detected on surfaces, such as doorknobs, objects, and water of swimming pools and small lakes. Adenoviruses most commonly cause respiratory illness. The illnesses can range from the common cold to pneumonia, croup, and bronchitis. Depending on the type, adenoviruses can cause other illnesses such as gastroenteritis, conjunctivitis, cystitis, and, less commonly, neurological disease. People with weakened immune systems (including from medications they are taking or from heart or lung diseases) are at higher risk for developing severe adenovirus infection. Some people infected with adenoviruses, especially those who have weakened immune systems, can have ongoing infections in their tonsils, adenoids, and intestines that do not cause symptoms. They can shed the virus for weeks or longer.

Currently, there is no adenovirus vaccine available for the general public. A live, oral vaccine against adenovirus types 4 and 7 is approved by the U.S. Food and Drug Administration only for U.S. military personnel ages 17 through 50 years who may be at higher risk for infection from these two adenovirus types. The vaccine is recommended by the U.S. Department of Defense for military recruits entering basic training in order to prevent acute respiratory disease. It may also be recommended for other military personnel at high risk for adenovirus infection.

Anthrax

Anthrax is a serious disease usually caused by Bacillus anthracis bacteria. The bacteria are found naturally in soil around the world and commonly affect livestock and wild animals. People usually get sick with anthrax if they come in contact with infected animals or contaminated animal products. Anthrax is **not** contagious, which means you can't catch it from another person like the cold or flu. People get infected with anthrax when spores get into the body. When anthrax spores get inside the body, they can be "activated." The bacteria can then multiply, spread out in the body, produce toxins, and cause severe illness. This can happen when people breathe in spores, eat food or drink water contaminated with spores, or get spores in a cut or scrape in the skin. It is very uncommon for people in the United States to get infected with anthrax.

Anthrax is rare, and most people will never be exposed to it. There is a vaccine licensed to prevent anthrax, but it is only recommended for routine use in certain groups of at-risk adults (for example, some members of the military and laboratory workers). People could also be exposed to anthrax during a bioterrorism attack.

Chikungunya

Chikungunya is a mosquito-borne viral disease that causes fever and severe joint pain. It is caused by a ribonucleic acid (RNA) virus that belongs to the alphavirus genus of the family Togaviridae. The name "chikungunya" derives from a word in the Kimakonde language of southern Tanzania, meaning "that which bends up" and describes the

stooped appearance of infected people with severe joint pain (arthralgia). Chikungunya virus (CHIKV) is transmitted to humans by the bites of infected female mosquitoes, most commonly Aedes aegypti and Aedes albopictus mosquitoes. These two species can also transmit other viruses, including dengue and Zika viruses. The disease, which is rarely fatal, causes fever and debilitating joint pain, muscle pain, joint swelling, headache, nausea, fatigue and rash. In some patients, the chronic joint pain and other symptoms can persist for months or years. There is currently no approved vaccine or specific treatment for chikungunya viral infections. CHIKV was first identified in the United Republic of Tanzania in 1952 and subsequently in other countries in Africa and Asia. Urban outbreaks were first recorded in Asia in the 1970s, but since 2004, outbreaks of CHIKV have become more frequent and widespread. The first local, mosquito-transmitted chikungunya cases in the Americas were reported in late 2013, after which large outbreaks occurred affecting most of the countries in the region. Chikungunya has now been reported in >110 countries in Asia, Africa, the Americas and Europe.

There are currently two chikungunya vaccines that have received regulatory approvals and/or have been recommended for use in populations at risk in several countries, but the vaccines are not yet widely available nor in widespread use. WHO and external expert advisors are reviewing vaccine trial and post-marketing data in the context of global chikungunya epidemiology to inform possible recommendations for use.

Cholera

Cholera is an acute diarrhoeal infection caused by eating or drinking food or water that is contaminated with the bacterium Vibrio cholerae. Cholera remains a global threat to public health and is an indicator of inequity and lack of social development. Researchers have estimated that every year, there are 1.3 to 4.0 million cases of cholera, and 21 000 to 143 000 deaths worldwide due to the infection. Cholera is an extremely serious disease that can cause severe acute watery diarrhoea with severe dehydration. It takes between 12 hours and 5 days for a person to show symptoms after consuming contaminated food or water. Cholera affects both children and adults and can kill within hours if untreated. Most people infected with Vibrio cholerae do not develop any symptoms, although the bacteria are present in their faeces for 1-10 days after infection. This means the bacteria are shed back into the environment, potentially infecting other people. Cholera is often predictable and preventable. It can ultimately be eliminated where access to clean water and sanitation facilities, as well as good hygiene practices, are ensured and sustained for the whole population.

Currently there are three WHO pre-qualified oral cholera vaccines (OCV): Dukoral®, Shanchol™, and Euvichol®. All three vaccines require two doses for full protection. Dukoral® is administered with a buffer solution that, for adults, requires 150 ml of clean water. Dukoral can be given to all individuals over the age of 2 years. There must be a minimum of 7 days, and no more than 6 weeks, delay between each dose. Children aged 2-5 require a third dose. Dukoral® is mainly used for travellers. Two doses of Dukoral® provide protection against cholera for 2 years. Shanchol™ and Euvichol® are essentially the same vaccine produced by two different manufacturers. They do not require a buffer solution for administration. They are given to all individuals over the age of one year. There must be a minimum of two weeks delay between each dose of these vaccines. Two doses of Shanchol™ and Euvichol® provide protection against cholera for 3 years, while a single dose provides short term protection. Shanchol™ and Euvichol® are the vaccines currently available for mass vaccination campaigns through the Global OCV

Stockpile, which is supported by Gavi, the Vaccine Alliance. More than 20 million doses of OCVs have been used in mass vaccination campaigns. The campaigns have been implemented in areas experiencing an outbreak, in areas at heightened vulnerability during humanitarian crises, and among populations living in highly endemic areas, known as “hotspots”. A mix of live, killed and conjugated vaccines are in development that have the potential of providing longer term protection with an easier-to-administer schedules.

Dengue

Dengue is a mosquito-borne viral infection that is common in warm, tropical climates. Infection is caused by any one of four closely related dengue viruses (called serotypes) and these can lead to a wide spectrum of symptoms, including some which are extremely mild (unnoticeable) to those that may require medical intervention and hospitalization. In severe cases, fatalities can occur. There is no treatment for the infection itself but the symptoms that a patient experiences can be managed. In 2023, WHO graded dengue as a Grade 3 emergency after outbreaks increased in several countries. Dengue epidemics tend to have seasonal patterns, with transmission often peaking during and after rainy seasons. Several factors contribute to this increase, including high mosquito population levels, susceptibility to circulating serotypes, favourable air temperatures, precipitation and humidity, all of which affect the reproduction and feeding patterns of mosquito populations, as well as the dengue virus incubation period. Unplanned urbanization and climatic factors such as heat waves and high temperatures have increased the intensity, frequency, duration and distribution of dengue in recent years. Lack of sustained surveillance and control interventions as well as staff are some of the other challenges. Absence of an integrated programmatic approach continues to affect countries.

A new vaccine for dengue received prequalification from the World Health Organization on 10 May 2024. Developed by Takeda, it is a live-attenuated vaccine containing weakened versions of the four serotypes of the virus that cause dengue. WHO recommends the use of TAK-003 in children aged 6–16 years in settings with high dengue burden and transmission intensity. The vaccine should be administered in a 2-dose schedule with a 3-month interval between doses. To determine the extent of dengue transmission intensity, countries should consider data on age-specific seroprevalence and/or age-specific dengue hospital admissions. Threshold cut-offs for minimal seroprevalence to initiate vaccination should be decided by countries; typically, a dengue seroprevalence of >60% by the age of 9 years could be considered an indicator of high dengue transmission. Vaccination against dengue should be viewed as part of an integrated strategy to control the disease, including vector control, proper case management, community education, and community engagement. TAK-003 does not prevent all cases of dengue. Vaccine introduction should be accompanied by a well-designed communication strategy and community engagement.

Diphtheria

Diphtheria is a serious infection caused by strains of the bacteria called Corynebacterium diphtheriae which makes a toxin. The toxin attaches itself most commonly to tissues in the respiratory system and causes disease by killing healthy tissue. Typical symptoms of the infection include a sore throat, fever, swollen neck glands and weakness. Within 2–3 days from infection, the dead tissue forms a thick, grey coating that can cover tissues in the nose, tonsils and throat, making it hard to breathe and swallow. More rarely, the toxin gets into the blood stream and causes damage to the heart, kidneys and nerves. Diphtheria bacteria spread from person to person, usually through respiratory droplets,

like from coughing or sneezing. People can also get sick from touching infected open sores or ulcers. Those at increased risk of getting sick include household contacts, those exposed to secretions from the patient and those with frequent and close contact with the infected person.

Vaccination against diphtheria has reduced the mortality and morbidity of diphtheria dramatically, however diphtheria is still a significant child health problem in countries with poor routine childhood immunization coverage. In countries endemic for diphtheria, the disease occurs mostly as sporadic cases or in small outbreaks. Diphtheria is fatal in 5 - 10% of cases, with a higher mortality rate in young children. Treatment involves administering diphtheria antitoxin to neutralize the effects of the toxin, as well as antibiotics to kill the bacteria. Diphtheria vaccine is a bacterial toxoid, ie. a toxin whose toxicity has been inactivated. The vaccine is normally given in combination with other vaccines, including tetanus and pertussis (e.g. DTwP/DTaP, pentavalent vaccine). For adolescents and adults the diphtheria toxoid is frequently combined with tetanus toxoid in lower concentration (Td vaccine). WHO recommends a 3-dose primary vaccination series with diphtheria containing vaccine followed by 3 booster doses. The primary series should begin as early as 6-week of age with subsequent doses given with a minimum interval of 4 weeks between doses. The 3 booster doses should preferably be given during the second year of life (12-23 months), at 4-7 years and at 9-15 years of age. Ideally, there should be at least 4 years between booster doses.

Hepatitis A

Hepatitis A is an inflammation of the liver caused by the hepatitis A virus (HAV). The virus is primarily spread when an uninfected (and unvaccinated) person ingests food or water that is contaminated with the faeces of an infected person. The disease is closely associated with unsafe water or food, inadequate sanitation, poor personal hygiene and oral-anal sex. Unlike hepatitis B and C, hepatitis A does not cause chronic liver disease but it can cause mild to severe symptoms and rarely fulminant hepatitis (acute liver failure), which is often fatal. WHO estimates that in 2016, 7134 persons died from hepatitis A worldwide (accounting for 0.5% of the mortality due to viral hepatitis). Hepatitis A occurs sporadically and in epidemics worldwide, with a tendency for cyclic recurrences. Epidemics related to contaminated food or water can erupt explosively, such as the epidemic in Shanghai in 1988 that affected about 300 000 people (1). They can also be prolonged, affecting communities for months through person-to-person transmission. Hepatitis A viruses persist in the environment and can withstand food production processes routinely used to inactivate or control bacterial pathogens.Vaccination against hepatitis A should be part of a comprehensive plan for the prevention and control of viral hepatitis, including measures to improve safe drinking-water, sanitation and hygiene (such as hand washing) and measures for outbreak control.

WHO recommends that vaccination against hepatitis A virus be introduced into national immunization schedules for individuals aged ≥12 months, if indicated on the basis of:

i) an increasing trend over time of acute hepatitis A disease, including severe disease, among older children, adolescents or adults;
ii) changes in the endemicity from high to intermediate; and
iii) considerations of cost–effectiveness.

For children, inactivated hepatitis A vaccines can be given as a single- or two-dose (off-label) schedule, and administered intramuscularly. With a two-dose schedule, the first dose should be given starting from age ≥12 months. In highly endemic countries, most

individuals are asymptomatically infected with HAV in childhood, which prevents clinical hepatitis A in adolescence and adulthood. In these countries, large-scale hepatitis A vaccination programmes are not routinely recommended, because they carry a risk of a paradoxical increase in disease incidence in unvaccinated people. Countries with improving socioeconomic status may rapidly move from high to intermediate hepatitis A endemicity, rendering a larger proportion of the adolescent and/or young adult population susceptible to HAV infection. In such countries, large-scale hepatitis A vaccination in early childhood is likely to be cost–effective and is therefore recommended.

Hepatitis B

Hepatitis B is an infection of the liver caused by the hepatitis B virus. The infection can be acute (short and severe) or chronic (long term). Hepatitis B can cause a chronic infection and puts people at high risk of death from cirrhosis and liver cancer. It can spread through contact with infected body fluids like blood, saliva, vaginal fluids and semen. It can also be passed from a mother to her baby. Hepatitis B is a major global health problem. The burden of infection is highest in the WHO Western Pacific Region and the WHO African Region, where 97 million and 65 million people, respectively, are chronically infected. Sixty-one million people are infected in the WHO South-East Asia Region, 15 million in the WHO Eastern Mediterranean Region, 11 million in the WHO in the WHO European Region and 5 million in the WHO Region of the Americas. Hepatitis B can be prevented with a safe and effective vaccine. The vaccine is usually given soon after birth with boosters a few weeks later. It offers nearly 100% protection against the virus.

Several hepatitis B vaccines are available internationally. Both monovalent and products with multiple antigens are highly immunogenic and vaccination in a series of three doses will generate long-lasting, possibly life-long, protection against hepatitis B. Vaccination against hepatitis B should be part of a comprehensive plan for the prevention and control of viral hepatitis, including measures for blood safety. WHO recommends that all infants should receive their first dose of Hepatitis B vaccine as soon as possible after birth, preferably within 24 hours. The birth dose should be followed by 2 or 3 doses to complete the primary series. WHO also recommends that all health care workers receive this vaccine to prevent the risk of Hepatitis B in health care settings.

Human Papillomavirus (HPV)

HPV is the fourth most common cancer in women, with around 660 000 new cases in 2022. In the same year, about 94% of the 350 000 deaths caused by cervical cancer occurred in low- and middle-income countries. The highest rates of cervical cancer incidence and mortality are in sub-Saharan Africa (SSA), Central America and South-East Asia. Regional differences in the cervical cancer burden are related to inequalities in access to vaccination, screening and treatment services, risk factors including HIV prevalence, and social and economic determinants such as sex, gender biases and poverty. Women living with HIV are 6 times more likely to develop cervical cancer compared to the general population, and an estimated 5% of all cervical cancer cases are attributable to HIV. Cervical cancer disproportionately affects younger women, and as a result, 20% of children who lose their mother to cancer do so due to cervical cancer. The HPV vaccine is not used to treat HPV infections or diseases caused by HPV, but instead to prevent the development of cancers.
Currently there are six licensed HPV vaccines: three bivalent, two quadrivalent, and one nonavalent vaccine. Those that have been prequalified are being marketed in countries throughout the world. All vaccines are highly efficacious in preventing infection with virus

types 16 and 18, which are together responsible for approximately 70% of cervical cancer cases globally. The vaccines are also highly efficacious in preventing precancerous cervical lesions caused by these virus types. The quadrivalent vaccine is also highly efficacious in preventing anogenital warts, a common genital disease which is virtually always caused by infection with HPV types 6 and 11. The nonavalent provides additional protection against HPV types 31, 33, 45, 52 and 58. Data from clinical trials and initial post-marketing surveillance conducted in several continents show HPV vaccines to be safe. The primary target group in most of the countries recommending HPV vaccination is young adolescent girls, aged 9-14. For all vaccines, the vaccination schedule depends on the age of the vaccine recipient. As per the December 2022 WHO Position on HPV vaccines, WHO recommends the following schedule:

- A one or two-dose schedule for girls aged 9-14
- A one or two-dose schedule for girls and women aged 15-20
- Two doses with a 6-month interval for women older than 21

A minimum of 2 doses and when feasible 3-doses remain necessary for those known to be immunocompromised and/or HIV-infected. Some countries have started to vaccinate boys as the vaccination prevents HPV related cancers in males as well as. HPV vaccination does not replace cervical cancer screening. In countries where HPV vaccine is introduced, screening programmes population-based screening programmes are needed to identify and treat cervical pre-cancer and cancer to reduce cervical cancer incidence and deaths.

Influenza (Seasonal)

Seasonal influenza is an acute respiratory infection caused by influenza viruses which circulate in all parts of the world. There are 4 types of influenza viruses, types A, B, C and D. Influenza A and B viruses circulate and cause seasonal epidemics of disease.

- Influenza A viruses are further classified into subtypes according to the combinations of the hemagglutinin (HA) and the neuraminidase (NA), the proteins on the surface of the virus. Currently circulating in humans are subtype A(H1N1) and A(H3N2) influenza viruses. The A(H1N1) is also written as A(H1N1)pdm09 as it caused the pandemic in 2009 and subsequently replaced the seasonal influenza A(H1N1) virus which had circulated prior to 2009. Only influenza type A viruses are known to have caused pandemics.
- Influenza B viruses are not classified into subtypes, but can be broken down into lineages. Currently circulating influenza type B viruses belong to either B/Yamagata or B/Victoria lineage.
- Influenza C virus is detected less frequently and usually causes mild infections, thus does not present public health importance.
- Influenza D viruses primarily affect cattle and are not known to infect or cause illness in people.

The constantly evolving nature of influenza viruses requires continuous global monitoring and frequent reformulation of influenza vaccines. The World Health Organization (WHO) convenes technical consultations in February and September each year to recommend viruses for inclusion in seasonal influenza vaccines for the northern and southern hemispheres, respectively. These recommendations are based on information provided by the WHO Global Influenza Surveillance Network (GISN), now the WHO Global Influenza Surveillance and Response System. Since 2004, influenza A(H5N1), A(H9N2) and other subtypes of influenza viruses have also been taken into consideration by GISRS for pandemic preparedness purposes. The development of high yield candidate

vaccine viruses is a complex process, involving collaboration of laboratories involved in developing reassortants and WHO Collaborating Centres (CCs). Two technologies are currently being used: classical reassortment (available since 1971) and reverse genetics, a patent technology. Once developed, these candidate reassortants are sent to WHO CCs for characterization of their antigenic and genetic properties before being released to interested institutions on request. Reference reagents are subsequently developed and standardized by Essential Regulatory Laboratories (ERLs), in collaboration with vaccine manufacturers and made available to manufacturers worldwide upon request.

Japanese Encephalitis

Japanese encephalitis virus JEV is the most important cause of viral encephalitis in Asia. It is a mosquito-borne flavivirus, and belongs to the same genus as dengue, Zika, yellow fever and West Nile viruses. The first case of Japanese encephalitis viral disease (JE) was documented in 1871 in Japan. The annual incidence of clinical disease varies both across and within endemic countries, ranging from <1 to >10 per 100 000 population or higher during outbreaks. A literature review and modelling study estimates about 100 000 clinical cases (95% CI: 61 720–157 522) of JE globally each year, with approximately 25 000 deaths (95% CI: 14 550–46 031). JE primarily affects children. Most adults in endemic countries have natural immunity after childhood infection, but individuals of any age may be affected.

Currently, there are three types of Japanese Encephalitis (JE) vaccines: live attenuated vaccines, live recombinant vaccines, and inactivated cell-based vaccines. Several WHO pre-qualified vaccines are available. WHO recommends the following dosing schedules and age of administration for JE vaccines:

- Live attenuated vaccine: A single dose administered at ≥8 months of age
- Live recombinant vaccine: A single dose administered at ≥9 months of age
- Inactivated Vero cell-derived vaccine: The primary series should follow the manufacturer's guidance, typically involving two doses four weeks apart, with the first dose starting at ≥6 months of age in endemic areas.

The need for a booster dose in endemic areas has not yet been clearly established for these vaccines. JE vaccination should be integrated into national immunization schedules in all areas where JE is recognized as a public health priority. The most effective immunization strategy in JE endemic areas involves a one-time campaign targeting the primary at-risk population, as defined by local epidemiology (typically children aged < 15 years of age). This should be followed by incorporation of JE vaccination into the routine childhood immunization programme.

Mealses (Rubeola)

Measles is a highly contagious viral disease. It remains an important cause of death among young children globally, despite the availability of a safe and effective vaccine. While vaccination has prevented an estimated 60 million deaths between 2000–2023, measles is still common in many developing countries, particularly in parts of Africa and Asia. An estimated 107 500 people died from measles in 2023. The overwhelming majority (more than 95%) of measles deaths occur in countries with low per capita incomes and weak health infrastructures.

Routine measles vaccination for children, combined with mass immunization campaigns in countries with low routine coverage, are key public health strategies to reduce global measles deaths. The measles vaccine has been in use since the 1960s. It is safe,

effective and inexpensive. WHO recommends immunization for all susceptible children and adults for whom measles vaccination is not contraindicated. Reaching all children with 2 doses of measles vaccine, either alone, or in a measles-rubella (MR), measles-mumps-rubella (MMR), or measles-mumps-rubella-varicella (MMRV) combination, should be the standard for all national immunization programmes.

Meningococcal Disease

Meningococcal meningitis and septicaemia are caused by various serogroups of Neisseria meningitidis (meningococcus) which is an aerobic Gram-negative encapsulated bacteria. At least 12 serotypes of meningococcus have been characterized by differences in the polysaccharide capsule, of which groups A, B and C account for about 90% of meningococcal disease. Recent outbreaks of group Y and W135 strains suggest that these serotypes are gaining in importance. N. meningitidis is one of the most common causes of bacterial meningitis in the world and the only bacterium capable of generating large epidemics of meningitis. Explosive epidemics with incidence rates of up to 1000 cases per 100,000 inhabitants have been reported, particularly in the meningitis belt, an area of sub-Saharan Africa, which stretches from Senegal in the west to Ethiopia in the east.. Meningococcus is transmitted by aerosol or direct contact with respiratory secretions of patients or healthy human carriers. N. meningitidis can cause a variety of diseases. Invasive meningococcal disease (IMD) refers to the range of invasive diseases caused by N. meningitidis, including septicemia, arthritis and meningitis. Similarly, S. pneumoniae causes other invasive diseases including otitis and pneumonia.

Meningococcal vaccines containing unconjugated purified capsular polysaccharides (A, C, Y and W) have been available since the 1970s and are still used to immunise travellers and at risk individuals. Conjugated vaccine containing polysaccharide chemically conjugated to a protein carrier such as the non-toxic diphtheria toxin CRM 197 or tetanus toxoid are also now available. Vaccines can be formulated as bivalent (groups A and C) or tetravalent (groups A, C, Y, and W135). Meningitis B vaccines have been developed to combat strains endemic in certain areas, such as the disease outbreaks in New Zealand. Efforts involving joint collaborations between WHO, PATH, and other organizations are under way to develop group A conjugate vaccines to control epidemics of meningitis in sub-Saharan Africa. Protection is usually group-specific, and for groups A, C, Y and W135 protection appears largely to be due to anti-polysaccharide antibodies. disease.

Mumps

Mumps is an acute infectious disease caused by a paramyxovirus. Although the disease is usually mild, up to 10% of patients can develop aseptic meningitis; a less common but more serious complication is encephalitis, which can result in death or disability. Permanent deafness, orchitis, and pancreatitis are other untoward effects of mumps. Based on data reported to WHO up to April 1998, mumps vaccine is routinely used by national immunization programmes in 82 countries/areas: 23 (92%) of 25 developed countries, 19 (86%) of 22 countries with economies in transition (mainly the Newly Independent States of the former Soviet Union), and 40 (24%) of 168 developing countries. Countries that have achieved high coverage have shown a rapid decline in mumps morbidity. Furthermore, in many of these countries, mumps-associated encephalitis and deafness have nearly vanished. This review considers the disease burden due to mumps; summarizes studies on the immunogenicity, efficacy, and safety of different strains of mumps vaccine; and highlights lessons learned about implementing

mumps immunization in different countries. Countries already using mumps vaccine should monitor immunization coverage and establish routine mumps surveillance with investigation of outbreaks. Where mumps is targeted for elimination, countries need to add a second dose of mumps vaccine for children, keeping in mind that the disease may still occur in susceptible adults.

Safe and effective vaccines against mumps have been available since the 1960s. The vaccine is most often incorporated into national immunization programmes in a combined measles-mumps-rubella (MMR) vaccine. In countries where large-scale immunization against mumps has been implemented, the incidence of the disease has dropped dramatically. WHO recommends integrating strategies to control mumps with existing high priority goals of measles and rubella control or elimination. Once the decision has been made to include mumps vaccine, the use of combined MMR vaccine is strongly encouraged.

Pertussis

Pertussis, also known as whooping cough, is a highly contagious respiratory infection caused by the bacterium Bordetella pertussis. In 2018, there were more than 151 000 cases of pertussis globally. Pertussis spreads easily from person to person mainly through droplets produced by coughing or sneezing. The disease is most dangerous in infants, and is a significant cause of disease and death in this age group. The first symptoms generally appear 7 to 10 days after infection. They include a mild fever, runny nose and cough, which in typical cases gradually develops into a hacking cough followed by whooping (hence the common name of whooping cough). Pneumonia is a relatively common complication, and seizures and brain disease occur rarely. People with pertussis are most contagious up to about 3 weeks after the cough begins, and many children who contract the infection have coughing spells that last 4 to 8 weeks. Antibiotics are used to treat the infection.

The best way to prevent pertussis is through immunization. The three-dose primary series diphtheria-tetanus-pertussis (DTP3) (- containing) vaccines decrease the risk of severe pertussis in infancy. In 2018, 86% of the global target population had received the recommended three doses of DTP-containing vaccine during infancy. WHO recommends the first dose be administered as early as 6 weeks of age; with subsequent doses given 4-8 weeks apart, at age 10-14 weeks and 14-18 weeks. A booster dose is recommended, preferably during the second year of life. Based on local epidemiology, further booster doses may be warranted later in life. Vaccination of pregnant women is effective in preventing disease in infants too young to be vaccinated. National programmes may consider vaccination of pregnant women with pertussis-containing vaccine as a strategy additional to routine primary infant pertussis vaccination in countries or settings with high or increasing infant morbidity/mortality from pertussis.

Pneumococcal Disease

Streptococcus pneumoniae is a bacterium that is the cause of a number of common diseases, ranging from serious diseases such as meningitis, septicaemia and pneumonia to milder but commoner infections such as sinusitis and otitis media. Pneumococcal diseases are a common cause of morbidity and mortality worldwide, though rates of disease and death are higher in developing countries than in industrialized country settings, with the majority of deaths occurring in sub-Saharan Africa and Asia. Disease is most common at the extremes of age, i.e, in young children and among the elderly. The organism is transmitted mainly through respiratory droplets and colonizes the back of the

nose (nasopharynx). Infection of other parts of the body, resulting in disease, occur through direct spread or through invasion of the blood stream.

Out of over 90 serotypes, only a small minority cause most disease. There are 3 available pneumococcal conjugate vaccines (PCV) that target either 10 or 13 of the most prevalent serotypes. Currently available PCVs are safe and efficacious. WHO recommends the inclusion of PCVs in childhood immunization programmes worldwide. In particular, countries with high childhood mortality (i.e. under 5 mortality rate of >50 deaths/1000 births) should make the introduction of these multicomponent PCVs a high priority. In many countries, the routine use of pneumococcal conjugate vaccines has dramatically reduced the incidence of serious diseases due to the organism with virtual disappearance of disease due to serotypes of the organism in the vaccines used.

Poliomyelitis

Poliomyelitis (polio) is a highly infectious viral disease that largely affects children under 5 years of age. The virus is transmitted by person-to-person spread mainly through the faecal-oral route or, less frequently, by a common vehicle (e.g. contaminated water or food) and multiplies in the intestine, from where it can invade the nervous system and cause paralysis. In 1988, the World Health Assembly adopted a resolution for the worldwide eradication of polio, marking the launch of the Global Polio Eradication Initiative, spearheaded by national governments, WHO, Rotary International, the US Centers for Disease Control and Prevention (CDC), UNICEF, and later joined by the Bill & Melinda Gates Foundation and Gavi, the Vaccine Alliance. Wild poliovirus cases have decreased by over 99% since 1988, from an estimated 350 000 cases in more than 125 endemic countries to 6 reported cases in 2021. Of the 3 strains of wild poliovirus (type 1, type 2 and type 3), wild poliovirus type 2 was eradicated in 1999 and wild poliovirus type 3 was eradicated in 2020. As at 2022, endemic wild poliovirus type 1 remains in two countries: Pakistan and Afghanistan.

Polio can be prevented through immunization. Polio vaccine, given multiple times, almost always protects a child for life. The development of effective vaccines to prevent paralytic polio was one of the major medical breakthroughs of the 20th century.There are six different vaccines to stop polio transmission:

- Inactivated polio vaccine (IPV) – protects against poliovirus types 1, 2, and 3
- Trivalent oral polio vaccine (tOPV) – protects against poliovirus types 1, 2, and 3 - following the "OPV Switch" in April 2016, tOPV is no longer in use
- Bivalent oral polio vaccine (bOPV) – protects against poliovirus types 1, and 3
- Monovalent oral polio vaccines (mOPV1, mOPV2 and mOPV3) – protect against each individual type of poliovirus, respectively

If enough people in a community are immunized, the virus will be deprived of susceptible hosts and will die out. High levels of vaccination coverage must be maintained to stop transmission and prevent outbreaks occurring.

Rabies

Rabies is a viral zoonotic disease that causes progressive and fatal inflammation of the brain and spinal cord. Clinically, it has two forms:

1. Furious rabies – characterized by hyperactivity and hallucinations.
2. Paralytic rabies – characterized by paralysis and coma.

Although fatal once clinical signs appear, rabies is entirely avoidable; vaccines, medicines and technologies have long been available to prevent death from rabies. Nevertheless,

rabies still kills tens of thousands of people each year. Of these cases, approximately 99% are acquired from the bite of an infected dog. Dog-mediated human rabies can be eliminated by tackling the disease at its source: infected dogs. Making people aware of how to avoid the bites of rabid dogs, to seek treatment when bitten and to vaccinate animals can successfully disrupt the rabies transmission cycle. Rabies is estimated to cause 59 000 human deaths annually in over 150 countries, with 95% of cases occurring in Africa and Asia. Due to underreporting and uncertain estimates, this number is likely a gross underestimate. The burden of disease is disproportionally borne by rural poor populations, with approximately half of cases attributable to children under 15 years of age.

Two types of vaccines to protect against rabies in humans exist - nerve tissue and cell culture vaccines. WHO recommends replacement of nerve tissue vaccines with the more efficacious, safer vaccines developed through cell culture as soon as possible. Cell culture vaccines which are more affordable and require less vaccine have been developed in recent years. Intradermal immunization using cell-culture-based rabies vaccines is an acceptable alternative to standard intramuscular administration. Intradermal vaccination has been shown to be as safe and immunogenic as intramuscular vaccination, yet requires less vaccine, for both pre- and post-exposure prophylaxis, leading to lower direct costs. This alternative should thus be considered in settings constrained by cost and/or supply issues. Pre-exposure prophylaxis is recommended for anyone at continual, frequent or increased risk of exposure to rabies virus, either by nature of their residence or occupation. Periodic booster injections are recommended as an extra precaution only for people whose occupation puts them at continual or frequent risk of exposure. If available, antibody monitoring of personnel at risk is preferred to the administration of routine boosters. Recommendations for post-exposure depend on the type of contact with the suspected rabid animal. For category I exposure (touching or feeding animals, licks on intact skin), no prophylaxis is required; for category II (nibbling of uncovered skin, minor scratches or abrasions without bleeding), immediate vaccination; and for category III (single or multiple transdermal bites or scratches, contamination of mucous membrane with saliva from licks, licks on broken skin, exposures to bats), immediate vaccination and administration of rabies immunoglobulin are recommended.

Rubella

Transmitted in airborne droplets when infected people sneeze or cough, rubella is an acute, usually mild viral disease traditionally affecting susceptible children and young adults worldwide. Rubella infection just before conception and in early pregnancy may result in miscarriage, fetal death or congenital defects known as congenital rubella syndrome (CRS). The highest risk of CRS is found in countries with high rates of susceptibility to rubella among women of childbearing age.

Rubella vaccines are commonly given in a combination vaccine with measles (MR), measles and mumps (MMR), or measles, mumps and varicella (MMRV). Large-scale rubella vaccination during the last decade has drastically reduced or practically eliminated rubella and CRS in many developed and in some developing countries. Indeed, the western hemisphere and several European countries have eliminated rubella and CRS.
WHO recommends that all countries that have not yet introduced rubella vaccine, and are providing two doses of measles vaccine using routine immunization and/or

supplementary immunization activities should consider the inclusion of RCV in their immunization programme.

SARS-Cov-2

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, some will become seriously ill and require medical attention. Older people and those with underlying medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, or cancer are more likely to develop serious illness. Anyone can get sick with COVID-19 and become seriously ill or die at any age. The best way to prevent and slow down transmission is to be well informed about the disease and how the virus spreads. Protect yourself and others from infection by staying at least 1 metre apart from others, wearing a properly fitted mask, and washing your hands or using an alcohol-based rub frequently. Get vaccinated when it's your turn and follow local guidance. The virus can spread from an infected person's mouth or nose in small liquid particles when they cough, sneeze, speak, sing or breathe. These particles range from larger respiratory droplets to smaller aerosols. It is important to practice respiratory etiquette, for example by coughing into a flexed elbow, and to stay home and self-isolate until you recover if you feel unwell.

There are several COVID-19 vaccines approved for use by WHO (given Emergency Use Listing) and from other stringent regulatory agencies (SRAs). The first mass vaccination programme started in early December 2020 and the number of vaccination doses administered globally is updated regularly on the WHO COVID-19 dashboard.
Different types of vaccines against COVID-19 have been developed, including:

- inactivated or weakened virus vaccines (i.e., Sinovac-Coronavac, Sinopharm, Bharat, Valneva), which use a form of the virus that has been inactivated or weakened so that it doesn't cause disease but still generates an immune response;
- protein-based vaccines (i.e., Novavax / Serum Institute of India), which use harmless fragments of proteins or protein shells that mimic the COVID-19 virus to safely generate an immune response;
- viral vector vaccines (i.e., AstraZeneca/Oxford, Janssen, CanSino), which use a safe virus that cannot cause disease but serves as a platform to produce coronavirus proteins to generate an immune response; and
- mRNA and DNA vaccines (i.e., Pfizer/ BioNTech, Moderna), which use genetically engineered RNA or DNA to generate a protein that itself safely prompts an immune response.

For the latest information on vaccines, please visit the COVID-19 vaccines page:

- https://www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-19-vaccines

Smallpox

Smallpox is an acute contagious disease caused by the variola virus, a member of the orthopoxvirus family. It was one of the most devastating diseases known to humanity and caused millions of deaths before it was eradicated. It is believed to have existed for at least 3000 years. The smallpox vaccine, created by Edward Jenner in 1796, was the first successful vaccine to be developed. He observed that milkmaids who previously had caught cowpox did not catch smallpox and showed that a similar inoculation could be

used to prevent smallpox in other people. The World Health Organization launched an intensified plan to eradicate smallpox in 1967. Widespread immunization and surveillance were conducted around the world for several years. The last known natural case was in Somalia in 1977. In 1980 WHO declared smallpox eradicated – the only infectious disease to achieve this distinction. This remains among the most notable and profound public health successes in history. On 14 August 2024, the WHO Director-General declared the upsurge of mpox in the Democratic Republic of the Congo and other countries in Africa a Public Health Emergency of International Concern (PHEIC).

There are two licensed vaccines available for use in response to the current mpox outbreak: MVA-BN and LC16m8. WHO published a position paper in August 2024 providing policy recommendations for their use, followed by interim guidance outlining operational considerations for MVA-BN and LC16m8 vaccines. MVA-BN is a non-replicating smallpox and mpox vaccine that has been prequalified by WHO in September 2024 (with age extension in October 2024). LC16m8 is a minimally replicating smallpox and mpox vaccine, which was granted WHO Emergency Use Listing (EUL) in November 2024.

Tetanus

Tetanus is a serious illness contracted through exposure to the spores of the bacterium, Clostridium tetani, which live in soil, saliva, dust and manure. The bacteria can enter the body through a deep cuts, wounds or burns affecting the nervous system. The infection leads to painful muscle contractions, particularly of the jaw and neck muscle, and is commonly known as “lockjaw”. People of all ages can get tetanus but the disease is particularly common and serious in newborn babies and their mothers when the mother is unprotected from tetanus by the vaccine, tetanus toxoid. Tetanus occurring during pregnancy or within 6 weeks of the end of pregnancy is called maternal tetanus, while tetanus occurring within the first 28 days of life is called neonatal tetanus. The disease remains an important public health problem in many parts of the world, but especially in low-income countries or districts, where immunization coverage is low and unclean birth practices are common. WHO estimates that in 2018 (the latest year for which estimates are available), 25 000 newborns died from neonatal tetanus, 88% reduction from the situation in 2000.

Tetanus can be prevented through immunization with tetanus-toxoid-containing vaccines (TTCV), which are included in routine immunization programmes globally and administered during antenatal care contacts. To be protected throughout life, WHO recommends that an individual receives 6 doses (3 primary plus 3 booster doses) of TTCV. The 3-dose primary series should begin as early as 6 weeks of age, with subsequent doses given with a minimum interval of 4 weeks between doses.
The 3 booster doses should preferably be given during the second year of life (12–23 months), at 4–7 years of age, and at 9–15 years of age. Ideally, there should be at least 4 years between booster doses.
There are many kinds of vaccines used to protect against tetanus:

- diphtheria and tetanus (DT) vaccines
- diphtheria, tetanus, and pertussis (whooping cough) (DTaP) vaccines
- tetanus and diphtheria (Td) vaccines
- tetanus, diphtheria, and pertussis (Tdap) vaccines.

Neonatal tetanus can be prevented by immunizing women of reproductive age with TTCV, either during pregnancy or outside of pregnancy. Additionally, robust medical practices

can also prevent tetanus disease including clean delivery and cord care during childbirth, and proper wound care for surgical and dental procedures.

Tick-borne Encephalitis

Tick-borne encephalitis (TBE) is an important cause of viral infections of the central nervous system in eastern, central, northern and increasingly western European countries, and in northern China, Mongolia, and the Russian Federation. Tick-borne encephalitis virus is a member of the family Flaviviridae. Approximately 10 000–12 000 clinical cases of tick-borne encephalitis are reported each year, but this figure is believed to be significantly lower than the actual total number of clinical cases. The vast majority of infections with the virus result from infected ticks, which often remain firmly attached to the skin for days. On rare occasions, infection can result from consumption of unpasteurized milk from infect goats, sheep or cows. People come in contact with the ticks during outdoor activities in forested areas up to an altitude of about 2000 meters. There is no direct person-to-person transmission.

People can protect themselves from ticks by wearing appropriate clothing, including long trousers and closed footwear, when hiking or camping in countries or areas at risk. The whole body should be inspected daily and attached ticks removed as soon as possible. The consumption of unpasteurized dairy products should also be avoided in those areas. Immunization offers the most effective protection. Currently, there are 4 widely used vaccines of assured quality: FSME-Immun and Encepur, manufactured in Austria and Germany respectively, and based on European strains of the virus; and TBE-Moscow and EnceVir, manufactured in the Russian Federation and based on Far-Eastern strains. The 4 vaccines are considered to be safe and effective. In areas where the disease is highly endemic, WHO recommends that vaccination be offered to all age groups, including children. Ticks also transmit Borreliosis (Lyme disease), which is a bacterial infection. TBE vaccination is not effective against this disease, which however is treatable with antimicrobials.

BCG (Tuberculosis)

TB is caused by bacteria (Mycobacterium tuberculosis) and it most often affects the lungs. TB is spread through the air when people with lung TB cough, sneeze or spit. A person needs to inhale only a few germs to become infected. Every year, 10 million people fall ill with tuberculosis (TB). Although it is a preventable and curable disease, 1.5 million people die from tuberculosis each year. This makes this disease the deadliest contagious disease in the world. TB is the leading cause of death of people with HIV and also a major contributor to antimicrobial resistance. Most of the people who fall ill with TB live in low- and middle-income countries, but TB is present all over the world. About half of all people with TB can be found in 8 countries: Bangladesh, China, India, Indonesia, Nigeria, Pakistan, Philippines and South Africa. About a quarter of the global population is estimated to have been infected with TB bacteria, but most people will not go on to develop TB disease and some will clear the infection. Those who are infected but not (yet) ill with the disease cannot transmit it. People infected with TB bacteria have a 5–10% lifetime risk of falling ill with TB. Those with compromised immune systems, such as people living with HIV, malnutrition or diabetes, or people who use tobacco, have a higher risk of falling ill.

The bacille Calmette-Guérin (BCG) vaccine has existed for 80 years and is one of the most widely used of all current vaccines, reading >80%of neonates and infants in

countries where it is part of the national childhood immunization programme. BCG vaccine has a documented protective effect against meningitis and disseminated TB in children. It does not prevent primary infection and, more importantly, does not prevent reactivation of latent pulmonary infection, the principal source of bacillary spread in the community. The impact of BCG vaccination on transmission of Mtb is therefore limited.
The biological interaction between Mtb and the human host is complex and only partially understood. Recent advances in areas such as mycobacterial immunology and genomics have stimulated research on numerous new experimental vaccines, but it is unlikely that any of these urgently need vaccines will be available for routine use within the next few years. In the meantime, optimal utilization of BCG is encouraged.

Typhoid

Typhoid fever is a life-threatening systemic infection caused by the bacterium Salmonella enterica serovar Typhi (commonly known as Salmonella Typhi). Typhoid is usually spread through the ingestion of contaminated food or water. Typhoid occurs predominantly in association with poor sanitation and lack of clean drinking water, in both urban and rural settings. However, urbanization, with associated overcrowded populations and inadequate water and sanitation systems, as well as climate change have the potential to further increase the global burden of typhoid. In addition, increasing antibiotic resistance is making it easier for typhoid to spread and more difficult to be treated. An estimated 9 million people get sick from typhoid and 110 000 people die from it worldwide every year (2019 figures). Children and populations lacking access to safe drinking water and adequate sanitation are at highest risk. Travellers are at risk of developing typhoid fever in many typhoid endemic countries, particularly in Asia and sub-Saharan Africa. Elsewhere, travellers are usually at risk when exposed to low standards of personal hygiene or food hygiene and poor water quality. Even vaccinated travellers should take care to avoid consumption of potentially contaminated food and water as vaccination does not confer 100% protection.

Access to safe water and adequate sanitation, health education, appropriate hygiene among food handlers, and typhoid vaccination are all effective strategies for prevention and control of typhoid.There are three recommended typhoid vaccines :

- an injectable typhoid conjugate vaccine (TCV), consisting of Vi polysaccharide antigen linked to a carrier protein licensed for children from 6 months of age and adults up to 45 years or 65 years of age (depending on the specific vaccine);
- an injectable unconjugated polysaccharide vaccine based on the purified Vi antigen (known as Vi-PS vaccine) for persons aged two years and above; and
- an oral live attenuated Ty21a vaccine in capsule formulation for those over six years of age.

Typhoid conjugate vaccine has been recommended for routine use as a single dose in childhood immunization programmes since October 2017. The latter two vaccines have been used for many years in older children and adults at risk of typhoid, including travellers; they do not provide long-lasting immunity and require multiple doses to maintain protection. Since December 2017, WHO has prequalified two typhoid conjugate vaccines, which are prioritized for introduction in endemic countries with high burden of typhoid or high levels of antimicrobial resistance. Widespread use of the conjugate vaccine in priority countries is expected to help reduce the frequent use of antibiotics for typhoid treatment and slow the increase in antibiotic resistance in Salmonella Typhi.

Varicella-Zoster (Chickenpox)

Varicella-zoster virus (VZV) causes both varicella (chickenpox) by primary infection and herpes zoster (HZ or shingles) by endogenous reactivation from latency. VZV circulates worldwide. Acquisition of infection tends to be at a younger age in temperate countries (> 90% infected by adolescence in absence of vaccination programme), compared to an older distribution in tropical countries. Varicella shows a winter/spring or cool/dry month predominance, and can occur in large outbreaks every 2–5 years. VZV is highly contagious with secondary attack rates from varicella cases ranging from 61–100%. The virus spreads person-to-person primarily by inhalation of aerosols from vesicular fluid of skin lesions, by direct contact with rash and possibly by infected respiratory tract secretions. Without vaccination, almost everyone in the population acquires wild-type varicella infection by adulthood.

Varicella can be prevented by immunization and multiple vaccine formulations of the live attenuated vaccine, based on the Oka VZV strain, have been available since 1974. Varicella vaccines are available as a single antigen and in combination with measles, mumps and rubella vaccine.

Yellow Fever

Yellow fever is an epidemic-prone mosquito-borne vaccine preventable disease that is transmitted to humans by the bites of infected mosquitoes. Yellow fever is caused by an arbovirus (a virus transmitted by vectors such mosquitoes, ticks or other arthropods) transmitted to humans by the bites of infected Aedes and Haemagogus mosquitoes. These day-biting mosquitoes breed around houses (domestic), in forests or jungles (sylvatic), or in both habitats (semi-domestic). Yellow fever is a high-impact high-threat disease, with risk of international spread, which represents a potential threat to global health security.Occasionally, infected travellers have exported cases to countries that are free of yellow fever. However, the disease can only spread easily to a new country if there are mosquito species able to transmit it, specific climatic conditions, and the animal reservoir needed to maintain it. There is no specific anti-viral drug for yellow fever. As of 2023, 34 countries in Africa and 13 countries in Central and South America are either endemic for, or have regions that are endemic for, yellow fever.

Yellow fever is prevented by a vaccine, which is safe and affordable. A single dose of yellow fever vaccine is sufficient to grant life-long protection. The yellow fever vaccine provides immunity within one week in 95% of people vaccinated. A booster dose is not needed. All currently available yellow fever vaccines are live and attenuated formulations. In accordance with the International Health Regulations (IHR), countries have the right to require travellers to provide a certificate of yellow fever vaccination. If there are medical grounds for not getting vaccinated, this must be certified by the appropriate authorities.

- https://www.who.int/publications/m/item/countries-with-risk-of-yellow-fever-transmission-and-countries-requiring-yellow-fever-vaccination-(november-2022)

- https://www.who.int/publications/m/item/vaccination-requirements-and-recommendations-for-international-travellers-and-malaria-situation-per-country-2022-edition

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