

Očkování zdravotníků (preexpoziční profylaxe)

IXX. HRADECKÉ VAKCINOLOGICKÉ DNY, 3.-5. ŘÍJNA 2024, Kongresové centrum Aldis, Hradec Králové



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DD ordinace s.r.o.

Dětské oddělení Nemocnice Jindřichův Hradec

Klinika infekčních nemocí a cestovní medicíny 2. LF UK a FN Motol



ČESKÁ VAKCINOLOGICKÁ
SPOLEČNOST ČLS JEP



Zdravotníci:

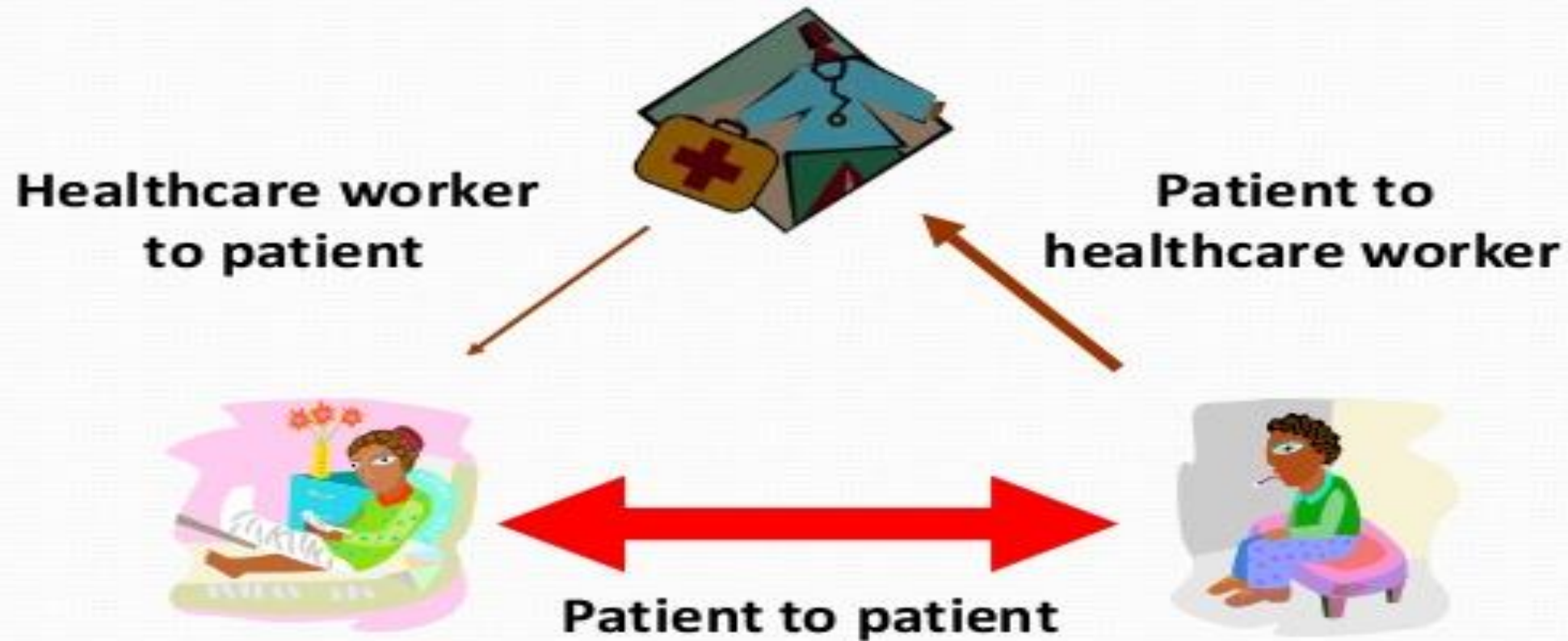
- zvýšené riziko získání infekcí
- vyšší riziko komplikací v dospělosti (rubella, varicella, hepatitis B)
- zvýšené riziko přenosu na vysoce rizikové pacienty (imunokompromitovaní, těhotné, chronicky nemocní, ...)



Očkování:

- ochrana vlastní osoby (a své rodiny)
- **ochrana pacientů**

Transmission of Healthcare-associated Infections



Guidelines



USA:

- Centers for Disease Control and Prevention (CDC)
- Advisory Committee on Immunization Practices (ACIP)
- American Academy of Pediatrics (AAP)
- Association for Professionals in Infection Control and Epidemiology

Austrálie:

- THE AUSTRALIAN IMMUNISATION HANDBOOK 10TH EDITION

Kanada:

- Canadian Immunization Guide: Part 3 - Vaccination of Specific Populations

WHO:

- Implementation guide for vaccination of health workers (75 stránek)

Table 2 Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2024

Always use this table in conjunction with Table 1 and the Notes that follow. Medical conditions or indications are often not mutually exclusive. If multiple medical conditions or indications are present, refer to guidance in all relevant columns. See Notes for medical conditions or indications not listed.

VACCINE	Pregnancy	Immunocompromised (excluding HIV infection)	HIV infection CD4 percentage and count		Men who have sex with men	Asplenia, complement deficiency	Heart or lung disease	Kidney failure, End-stage renal disease or on dialysis	Chronic liver disease; alcoholism ^a	Diabetes	Healthcare Personnel ^b	
			<15% or <200mm ³	≥15% and ≥200mm ³								
COVID-19	See Notes											
IIV4 or RIV4	1 dose annually											
LAIV4					1 dose annually if age 19–49 years	1 dose annually if age 19–49 years						
RSV	Seasonal administration. See Notes	See Notes								See Notes		
Tdap or Td	Tdap: 1 dose each pregnancy	1 dose Tdap, then Td or Tdap booster every 10 years										
MMR	*											
VAR	*	See Notes										
RZV		See Notes										
HPV	*	3 dose series if indicated										
Pneumococcal												
HepA												
Hep B	See Notes										Age ≥ 60 years	
MenACWY												
MenB												
Hib		HSCT: 3 doses ^c				Asplenia: 1 dose						
Mpox	See Notes				See Notes							See Notes

 Recommended for all adults who lack documentation of vaccination, **OR** lack evidence of immunity
 Not recommended for all adults, but recommended for some adults based on either age **OR** increased risk for or severe outcomes from disease
 Recommended based on shared clinical decision-making
 Recommended for all adults, and additional doses may be necessary based on medical condition or other indications. See Notes.
 Precaution: Might be indicated if benefit of protection outweighs risk of adverse reaction
 Contraindicated or not recommended ^aVaccinate after pregnancy, if indicated
 No Guidance/ Not Applicable

a. Precaution for LAIV4 does not apply to alcoholism.
 b. See notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations.
c. Hematopoietic stem cell transplant.

Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2024

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
COVID-19	1 or more doses of updated (2023–2024 Formula) vaccine (See Notes)			
Influenza inactivated (IIV4) or Influenza recombinant (RIV4)	1 dose annually			
Influenza live, attenuated (LAIV4)	1 dose annually		or	
Respiratory Syncytial Virus (RSV)	Seasonal administration during pregnancy. See Notes.			≥60 years
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			
Measles, mumps, rubella (MMR)	1 or 2 doses depending on indication (if born in 1957 or later)			For healthcare personnel, see notes
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	
Zoster recombinant (RZV)	2 doses for immunocompromising conditions (see notes)		2 doses	
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal (PCV15, PCV20, PPSV23)				See Notes
				See Notes
Hepatitis A (HepA)	2, 3, or 4 doses depending on vaccine			
Hepatitis B (HepB)	2, 3, or 4 doses depending on vaccine or condition			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication, see notes for booster recommendations			
Meningococcal B (MenB)	19 through 23 years	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations		
Haemophilus influenzae type b (Hib)	1 or 3 doses depending on indication			
Mpox				

Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of immunity

Recommended vaccination for adults with an additional risk factor or another indication

Recommended vaccination based on shared clinical decision-making

No recommendation/ Not applicable

Table 4: Summary of WHO Position Papers – Immunization of Health Care Workers^A

The information below is provided to assist countries to develop national policies for the vaccination of health care workers (HCWs). It is expected that HCWs are fully vaccinated per the national vaccination schedule in use in their country.

Antigen	Vaccination of Health Care Workers Recommended
BCG¹	BCG vaccination is recommended for unvaccinated TST- or IGRA-negative persons at risk of occupational exposure in low and high TB incidence areas (e.g. health-care workers, laboratory workers, medical students, prison workers, other individuals with occupational exposure).
Hepatitis B²	Immunization is suggested for groups at risk of acquiring infection who have not been vaccinated previously (for example HCWs who may be exposed to blood and blood products at work).
Polio³	All HCWs should have completed a full course of primary vaccination against polio.
Diphtheria⁴	HCWs who may have occupational exposure to <i>C. diphtheriae</i> . All health-care workers should up to date with immunization as recommended in their national immunization schedules.
Measles⁵	All HCWs should be immune to measles and proof/documentation of immunity or immunization should be required as a condition of enrollment into training and employment.
Rubella⁶	If rubella vaccine has been introduced into the national programme, all HCWs should be immune to rubella and proof/documentation of immunity or immunization should be required as a condition of enrollment into training and employment.
Meningococcal⁷	One booster dose 3-5 years after the primary dose may be given to persons considered to be at continued risk of exposure, including HCWs.
Influenza⁸	HCWs are an important group for influenza vaccination. Annual immunization with a single dose is recommended.
Varicella⁹	Countries should consider vaccination of potentially susceptible health-care workers (i.e. unvaccinated and with no history of varicella) with 2 doses of varicella vaccine.
Pertussis¹⁰	HCWs should be prioritized as a group to receive pertussis vaccine.
Antigen	No current recommendation for vaccination of Health Care Workers
Tetanus¹¹	There is currently no recommendation regarding HCWs.
Haemophilus influenzae type b¹²	The main burden of disease lies in infants under 5 years of age. Work in a health care setting is not indicated as a factor for increased risk. There is currently no recommendation regarding HCWs.
Pneumococcal¹³	The main burden of disease lies in infants under 5 years of age. Immunocompetent adults are not at increased risk for serious pneumococcal disease. HCWs are not indicated as a group at increased risk of pneumococcal disease.
Rotavirus¹⁴	Children are the target group for rotavirus vaccination as they have the greatest burden of disease. Adults including HCWs are not at increased risk of severe disease.
HPV¹⁵	HCWs are not at increased risk of HPV. The primary target group for vaccination is girls aged 9-14.
Japanese Encephalitis¹⁶	Health-care workers are generally not at special risk of contracting JE. Workers at high-risk in endemic areas, such as those involved in vector control, should be vaccinated.
Yellow Fever¹⁷	Individuals in endemic countries and travelers to these countries should receive a single dose of yellow fever vaccine. Work in a health care setting is not indicated as a factor for increased risk. There is currently no recommendation regarding HCWs.
Tick-borne Encephalitis¹⁸	Health-care workers are generally not at special risk of contracting JE. Workers at high-risk in endemic areas, such as those involved in vector control, should be vaccinated.
Typhoid¹⁹	Typhoid vaccines should be employed as part of comprehensive control strategies in areas where the disease is endemic. Work in a health care setting is not indicated as a factor for increased risk. There is currently no recommendation regarding HCWs.
Cholera²⁰	Cholera vaccines may be employed as part of comprehensive control strategies in areas where the disease is endemic as well as to prevent and respond to cholera outbreaks ⁵ . There is currently no recommendation regarding HCWs.
Hepatitis A²¹	Hepatitis A is transmitted through contaminated food and water or direct contact with an infectious person. HCWs are not indicated as a group at increased risk of hepatitis A infection.
Rabies²²	PrEP may be considered for medical professionals who regularly provide care to persons with rabies.
Mumps²³	Health workers are generally not at special risk of mumps. All health-care workers should be up-to-date with immunization as recommended in their national immunization schedule.
Dengue (CYD-TDV)²⁴	HCWs are not at increased risk of dengue.
Malaria (RTS,S)²⁵	Vaccine not recommended for adults. HCWs are not at increased risk of malaria.

Zarděnky, spalničky, příušnice (MMR)

- Evidence immunity:
 - dokumentované 2 dávky vakcíny (pro zarděnky stačí 1 dávka)
 - laboratorní evidence immunity
 - laboratorní potvrzení nemoci
 - narození před rokem 1957 (USA)
 - pro zdravotníky zvažovat očkování
 - při epidemii očkování
 - AAP ročník narození pro zarděnky neuznává (očkovat), pro spalničky a příušnice „should consider recommending two doses“
 - Při epidemii příušnic možnost zvážení 3. dávky
- V ČR očkovány ročníky (není evidence immunity)
 - Spalničky 1968
 - Zarděnky ženy 1970, muži 1985
 - Příušnice 1985
- Očkování všech dospělých, kteří nemají evidenci immunity

	Mumps	Measles	Rubella
Austria	R	R	R
Belgium	R	R	R
Bulgaria	-	-	-
Cyprus	R	R	R
Czech Republic			
Denmark			
Estonia			
Finland	-	-	-
France		R	R
Germany	R	R	R
Greece			
Hungary	-	-	-
Iceland	-	-	-
Ireland	R	R	R
Italy	R	R	R
Latvia			
Lithuania	R	R	R
Luxembourg	-	-	-
Malta	R	R	R
Netherlands			
Norway			M
Poland			
Portugal	R	R	R
Romania			R
Slovakia	-	-	-
Slovenia	M	M	M
Spain	R	R	R
Sweden			
Switzerland	R	R	R
United Kingdom	R	R	R
USA		R	
Austrálie		R	

Varicella

- Vysoce infekční
- Komplikace v dospělosti, hospitalizace (1-2% dospělých)
- Těhotné ženy – kongenitální varicelový syndrom
- Perinatální přenos – neonatální varicela (vysoká smrtnost)
- Těžké komplikace a úmrtí u imunokompromitovaných



Varicella

- Evidence immunity:
 - 2 dávky vakcíny
 - serologický průkaz imunity (protilátky) nebo lab. potvrzená nemoc
 - lékařem dg. varicella nebo herpes zoster (nebo lékařem potvrzená anamnéza)
 - (anamnéza varicely od pacienta nebo jeho rodiče) v USA neplatí, nemůže platit pro zdravotníky
 - (v nejasných – mírných - případech epidemiologická anamnéza - v kontextu epidemie nebo kontakt v předcházejících 3 týdnech) - neplatí pro zdravotníky
 - ročník narození není pro zdravotníky uznáván jako evidence imunity

	Varicella
Austria	R
Belgium	R
Bulgaria	-
Cyprus	
Czech Republic	
Denmark	
Estonia	R
Finland	-
France	R
Germany	R
Greece	
Hungary	-
Iceland	-
Ireland	R
Italy	R
Latvia	
Lithuania	R
Luxembourg	-
Malta	R
Netherlands	R
Norway	M
Poland	
Portugal	
Romania	
Slovakia	-
Slovenia	R
Spain	R
Sweden	R
Switzerland	R
United Kingdom	R

USA	R
Austrálie	R

Doporučení České vakcinologické společnosti ČLS JEP pro očkování proti planým neštovicím (varicele). Aktualizace 1.3. 2024 (1. verze z 13. prosince 2023)

Za vnímavé jsou považovány všechny osoby, které nemají tzv. evidenci imunity. Za evidenci imunity se považuje jedno nebo více z uvedených údajů:

- Anamnestický údaj o prodělání planých neštovic nebo pásového oparu v minulosti. Za pozitivní anamnestický údaj se uznává i údaj od pacienta, resp. rodiče/zákonného zástupce, pokud ho lékař považuje za dostatečně věrohodný. V případech se spornou a nejistou anamnézou se osoba za imunní nepovažuje. U imunokompromitovaných osob se za evidenci imunity považují pouze dokumentované plané neštovice diagnostikované lékařem.
- Dokumentované očkování 2 dávkami vakcíny proti varicele v intervalu nejméně 28 dní mezi dávkami.
- Pozitivita protilátek anti-VZV IgG.
- Věk 40 let a více. Toto věkové kritérium neplatí u žen, které jsou těhotné nebo do budoucna plánují těhotenství, u imunokompromitovaných osob a u zdravotníků, kteří mají zvýšené riziko expozice varicele. U těchto osob se doporučuje provést vyšetření protilátek anti-VZV IgG.

Pertuse

- Preexpoziční profylaxe: všichni (nejen zdravotníci) 1 dávka Tdap (Boostrix)
- Opakovat každých 10 let (vakcína neposkytuje ochranu na celých 10 let)
- Neexistuje „evidence imunity“, všichni mají být očkováni
- Nevyšetřovat protilátky (není korelát protekce)

	Pertussis
Austria	R
Belgium	R
Bulgaria	-
Cyprus	
Czech Republic	
Denmark	
Estonia	
Finland	-
France	R
Germany	R
Greece	
Hungary	-
Iceland	-
Ireland	
Italy	R
Latvia	
Lithuania	R
Luxembourg	-
Malta	
Netherlands	R
Norway	
Poland	
Portugal	
Romania	
Slovakia	-
Slovenia	M
Spain	R
Sweden	
Switzerland	
United Kingdom	R
USA	R
Austrálie	R

Pertussis¹⁰

HWCs should be prioritized as a group to receive pertussis vaccine.

Závěr



Všichni zdravotníci mají být imunní nebo se očkovat (ochrana vlastní a bezpečnost pacientů)

- Parotitis (příušnice)
- Morbilli (spalničky)
- Rubella (zarděnky)
- Varicella (plané neštovice)
- Pertussis (černý kašel)
- Influenza (očkování každý rok)
- Covid-19 (očkování každý rok)
- Hepatitis B



- Všichni by měli být očkováni dalšími vakcínami indikovanými na základě věku a dalších faktorů