

# Regular vaccinations in Czech republic

In the Czech Republic, regular vaccination currently covers the following diseases (Decree 299/2010 Coll.):

- diphtheria (diphtheria) – since 1946,
- tetanus – since 1952,
- whooping cough (pertussis) – since 1958,
- transmissible poliomyelitis – since 1958,
- measles (morbilli) – since 1969,
- rubella – since 1982,
- mumps (parotitis epidemica) – since 1985,
- viral hepatitis B – since 2001,
- diseases caused by *Haemophilus influenzae group b* – since 2001.<sup>[1]</sup>

Since 2010, vaccination against tuberculosis (TB) has only been given to children at risk of exposure to TB (details below).

## Vaccination calendar valid as of 1.1.2018

Age	Mandatory vaccinations (since 1.11.2010) <sup>[2]</sup>	Mandatory vaccinations (since 1.1.2018) Decree 355/2017 Coll. <sup>[3]</sup>	Voluntary vaccinations <sup>[4]</sup>
<b>4 days - 6 weeks</b>		tuberculosis (only for children at risk with an indication)	tuberculosis (only in indicated cases)
<b>6 weeks</b>			rotavirus (1st dose)
<b>2 months</b>	hexavaccine (1st dose from 9th week)	hexavaccine (1st dose from 9th week, for children vaccinated against TB – from the 13th week, always after the reaction has healed)	pneumococcus (1st dose) rotavirus (2nd dose – spacing 1 month) meningococcus B (1st dose) meningococcus A, C, W-135 a Y (according to the type of vaccine)
<b>3 months</b>	hexavaccine (2nd dose – spacing 1 month)		pneumococcus (2nd dose – spacing 1 month) rotavirus (3rd dose – spacing one month) meningococcus B (2nd dose – spacing 1-2 months)
<b>4 months</b>	hexavaccine (3rd dose – spacing 1 month)	hexavaccine (2nd dose – spacing 2 months)	pneumococcus (3rd dose – spacing 1 month) meningococcus B (3rd dose – spacing 1-2 months)
<b>10 months</b>	hexavaccine (4th dose – spacing 6 months)		
<b>11-15 months</b>		hexavaccine (3rd dose between 11th and 13th month)	pneumococcus(re-vaccintion) meningococcus B (booster at 12-23 months)
<b>15 mmonths</b>	MMR (1st dose)	MMR (1st dose between 13-18th month)	chickenpox (1st dose)
<b>21-25 months</b>	MMR (2nd dose – spacing 6-10 months)		chickenpox (2nd dose)
<b>5 years</b>	1st re-vaccination: diphteria, tetanus, pertussis (1st re-vaccination)	diphteria, tetanus, pertussis (1st re-vaccination) MMR (2nd dose)	
<b>10 years</b>	diphteria, tetanus, pertussis, polio (2nd re-vaccination)	diphteria, tetanus, pertussis, polio (2nd re-vaccination)	
<b>14 years</b>		tetanus (for unvaccinated at between 11-14 years)	girls and boys: papillomavirus (3 doses)
<b>20-25 years</b>	tetanus (7th dose)		

## Hexavaccine

Since January 2018, there is a change in the hexavaccine schedule from 3+1 to 2+1. The first dose is administered from the 9th week of age, the second one 2 months after the first one, that is approximately in the 4th month and the third one, the booster, between the 11th and 13th month of age. For vaccination of premature infants, the 3+1 scheme applies.

**Diphtheria (D), tetanus (T), whooping cough (P), hepatitis B (HBV), poliomyelitis (IPV), Haemophilus influenzae type B (Hib)** are vaccinated simultaneously with combination vaccines.

**Hexavaccine** (in general Hexacima®, Infarix hexa® only for premature infants, partially vaccinated<sup>[5]</sup>) contains:

- anatoxins of diphtheria and tetanus;
- (acellular) *Bordetella pertussis* antigens: anatoxin, haemagglutinin and pertactin;
- recombinant HBsAg (rDNA Antigenum tegiminis hepatitis B);
- (inactivated) *poliomyelitis virus* (types 1–3);
- adsorbed conjugated polysaccharide vaccine against *Haemophilus influenzae type b*.

Other vaccines contain combinations of fewer components, for example diphtheria, tetanus, pertussis, haemophilus (Infanrix Hib®), diphtheria, tetanus, pertussis only (Infanrix®), a separate HBV vaccine (e.g. Enger x B®), and separate inactivated Poliovirus vaccine (Imovax polio®). **All** vaccines are administered **intramuscularly** (into the anterolateral upper thigh, from 15 months onwards also into the deltoid muscle), polio can be administered subcutaneously.

**Basic vaccination schedule** for hexavaccines, according to Decree No. 299/2010 Coll., consists of **administration of three doses**.

- **First dose** is vaccinated at the time **from the beginning of the 9th week**, ideally in the 3rd month. For children vaccinated against tuberculosis, the basic vaccination with the hexavalent vaccine shall be given from the 13th week after birth, but always after the post-vaccination reaction after tuberculosis vaccination has healed.
- **The second and third doses** are administered **during the first year of the child's life with an interval of 2 months and 6 months between doses**.

Since January 1, 2018, the hexavaccine has been vaccinated again in a 2+1 schedule because the 3+1 schedule did not increase seroprevalence in children aged 1–5, reduced persistence of seroprevalence in older children, and also appears to have contributed to the increase in pertussis in the 1990s and turn of the millennium.<sup>[6]</sup> The original 3+1 scheme remained recommended only for premature babies.<sup>[7]</sup>

## Vaccination against diphtheria, tetanus, whooping cough and polio

**Re-vaccination** against **diphtheria, tetanus and whooping cough** is carried out with a vaccine against these infections (Infanrix®) in the period from the age of 5 to the age of 6, together with the administration of the fifth dose of inactivated **transmissible polio** vaccine from the age of 10 to 11.

*At 12 years of age, children who have not been vaccinated before are vaccinated against **HBV**.*

**Tetanus revaccination** shall be given from the age of 25 years until the age of 26 years, and every 10–15 years thereafter.

## Measles, rubella and mumps vaccination (MMR)

**Measles, rubella, mumps** are vaccinated with a **triple combination** vaccine containing **attenuated viruses** (Priorix®) or a quadruple combination (Priorix-tetra®), which also contains an attenuated **varicella** virus. The vaccine is administered **subcutaneously**.

The basic vaccination is given with a *live vaccine* no earlier than **13th month** (up to 18th month) after the birth of the child. The reason for not vaccinating with this vaccine until after the first year of age is, among other things, the fact that it is adversely affected by the presence of maternal IgG antibodies in the child's serum. These have entered transplacentally and persist for the first 6 months. However, it seems that in some cases they can persist for a year. In this case, the vaccination would be ineffective.

Vaccination schedules are adjusted according to the result of monitoring **vaccination coverage** and **immunity verification** after vaccination in a representative sample of the population.

## Tuberculosis vaccination

Universal vaccination of newborns was carried out in the Czech Republic between 1953 and 2010. Decree No. 299/2010 abolished regular vaccination against tuberculosis as of 1 November 2010. This vaccination is now exclusively for children and adults at increased risk of tuberculosis. For newborn babies, it is indicated by a doctor at the neonatal unit or a general practitioner for children and adolescents on the basis of anamnestic information from the child's legal representative, and the vaccination takes place at vaccination centres.<sup>[8]</sup> The basic vaccination consists of 1 dose of vaccine. Vaccination after 12 months of age does not usually result in protection against tuberculosis, so no vaccination is given at this age.<sup>[9]</sup>

## Indications for vaccination against tuberculosis (Decree No. 537/2006 Coll.):

- One or both of the child's parents or a sibling of the child or a member of the household in which the child lives had/has active tuberculosis.
- The child, one or both of the child's parents or a sibling of the child, or a member of the household in which the child lives, was born or has continuously resided for more than 3 months in a country with a tuberculosis incidence higher than 40 cases per 100 000 population.
- The child has been in contact with a TB patient.
- Investigation for TB has been carried out on persons with whom the child has been in contact.

**Countries with higher TB incidence** (according to the Ministry of Health of the Czech Republic, February 2017): in Europe: Belarus, Lithuania, Latvia, Moldova, Romania, Russia and Ukraine. In Asia: all Asian countries except Bahrain, Iran, Israel, Japan, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, Turkey and the United Arab Emirates. In Africa: all African countries except Egypt, Comoros, Libya, Mauritius, Seychelles and Tunisia. In the Americas: Bolivia, Brazil, Dominican Republic, Ecuador, El Salvador, Guyana, Haiti, Honduras, Nicaragua, Panama, Paraguay and Peru. In Australia and Oceania: Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Palau, Papua New Guinea, Solomon Islands, Tuvalu and Vanuatu.<sup>[10]</sup>

## Vaccination against pneumococcal infections

- conjugated polysaccharide vaccine (Prevenar13®, Synflorix® – 10 serotypes) – voluntary vaccination from 2 months, 3+1 or 2+1 schedule;
- polysaccharide vaccine (Pneumo23®) – from 2 years of age, especially for the elderly.

## Rotavirus vaccination

- live vaccine (Rotarix®, Rotateq®) – voluntary vaccination of infants from 6 weeks to 8 months, orally 2 or 3 doses with an interval of 1–2 months, preferably vaccinated outside the winter months (rotavirus infection season).

## Links

### Related articles

- Active immunization • Passive immunization • Simultaneous mixed immunization
- Specific immunity • Non-specific immunity
- Division of vaccination in Czech republic

### External links

- Site about vaccines in Czechia (<http://www.vakciny.net/>)
- Czech vaccinological society ČLS JEP (in czech) (<http://www.vakcinace.eu/>)
- Vaccination calendar 2018 (in czech) (<http://provolbu.cz/ockovaci-kalendar-2018-interval-y-ockovani/>)

### Reference

1. <http://www.vakciny.net>
2. DECREE (no. 299/2010) from 25th of October 2010 on vaccination against infectious diseases.
3. [http://www.vakciny.net/355\\_2017](http://www.vakciny.net/355_2017)
4. Česká vakcinologická společnost ČLS JEP. *Očkování v ČR* [online]. ©2013. [cit. 2014-02-07]. <[http://www.vakcinace.eu/ockovani-v-cr\\_odb](http://www.vakcinace.eu/ockovani-v-cr_odb)>.
5. Provolbu.cz. *Od nového roku se budou kojenci očkovat pouze vakcínou Hexacima* [online]. [cit. 2018-05-09]. <<http://provolbu.cz/od-noveho-roku-se-budou-kojenci-ockovat-pouze-vakcinou-hexacima/>>.
6. PETRÁŠ, Marek. *Proč se v ČR vůbec změnilo očkování z 2+1 na 3+1?* [online]. The last revision 2016-01, [cit. 2017-11-02]. <[http://www.vakciny.net/AKTUALITY/akt\\_2016\\_01.htm](http://www.vakciny.net/AKTUALITY/akt_2016_01.htm)>.
7. Provolbu.cz. *Očkovací kalendář 2018, intervaly očkování* [online]. [cit. 2018-05-09]. <<http://provolbu.cz/ockovaci-kalendar-2018-interval-y-ockovani/>>.
8. [http://www.mzcr.cz/Verejne/obsah/vyhlasaka-c299/2010-sb-\\_2464\\_5.html](http://www.mzcr.cz/Verejne/obsah/vyhlasaka-c299/2010-sb-_2464_5.html)
9. PETRÁŠ, Marek. *Očkování podle věku* [online]. The last revision 2016-09-24, [cit. 2017-11-02]. <<http://www.vakciny.net/PRUVODCE/13M.htm>>.
10. [https://www.mzcr.cz/dokumenty/seznam-statut-tbc-k-20-2-2017\\_13439\\_2465\\_5.html](https://www.mzcr.cz/dokumenty/seznam-statut-tbc-k-20-2-2017_13439_2465_5.html)

### Source

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