EXAMPLE NITAG

RECOMMENDED ADULT VACCINES IN THE CZCEH NIP

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HEALTH BURDEN ESTIMATES
OUTLINE

1. CZ Adult Vaccination – introduction
2. Health burden estimates and vaccination examples
   a) Tick borne encephalitis
   b) Pertussis – whoopin cough
   c) Pneumococcal/meningococccal diseases
   d) Herpes zoster- shingles
3. Role of NIP for adults and vaccination strategy

Czechia – **one of the first 5 countries in the world** with own polio vaccine – assoc.prof. Dimitrij Slonim (1925-2017) – *the production of polio vaccine then had to be handed over to Moscow*

**First in the world** in polio vaccination (1959) and elimination (1961)

Czech virologists (led by Slonim) prepared the world's third most effective smallpox vaccine (1965), Institute of Serums and Vaccines - rabies vaccine and measles and mumps vaccine

Post-communist era (early 1990s) - under privatisation, the Institute of Vaccine and Immunisation (IAVI) disappeared and we lost vaccine production

**The only country in the world** to introduce reimbursement for meningococcal vaccination in adolescents (menB) into the NIP
ADULT VACCINATION

- 2005 – establishment of the Czech Vaccinological Society – key driver
- 2009 - Vaccination calendar versus NIP
- 2010 – CZ National Immunisation Commission (NITAG)
- General practitioners – main vaccination provider
- Support of Health Insurance Companies persists low
VACCINATION SYSTEM IN CZECHIA

• **Mandatory or voluntary** vaccination

• Mandatory = fully reimbursed & voluntary = some reimbursed, some not

• Mandatory mainly for children (against 6 VPIs: DTaP-IPV-Hib-HBV + MMR)

• Mandatory for adults - only for specific risk group (HBV, HAV, MMR, IPD)
FULLY REIMBURSED VACCINATION - NIP

CHILDREN
1. BCG vaccine (only for high risk infants)
2. Hexavaccine
3. MMR vaccine
4. Tdap (in 5-6 yoa)
5. Tdap-IPV vaccine (in 10-11 yoa)
6. Pneumococcal vaccine (fully only PCV10)
7. HPV vaccine (fully any in 13 yoa)
8. Men B vaccine (up to 12 months and in 14-15 yoa)
9. ACWY vaccine (in 1-2 yoa and in 14-15 yoa)
10. Rabies vaccine
11. Covid-19 vaccine

ADULTS
1. Tetanus vaccine
2. TBE vaccine (for 50+ yoa)
3. Flu vaccine (for 65+ yoa, risk patient and HCWs)
4. Pneumococcal vaccine (for 65+ yoa, risk patient)
5. MMR vaccine (selected HCWs)
6. Men B a ACWY vaccines (risk patients)
7. Hib vaccine (risk patients)
8. Rabies vaccine
9. HBV vaccine (HCWs, injury, hemodialysis)
10. Covid-19 vaccine
TBE, NUMBER OF CASES IN 1971-2020, CZECHIA

TICK BORNE ENCEPHALITIS, CZ, CASES BY DISTRICT IN 2000 AND 2020

2000 (23 years before)

2020 (3 years before)
CURRENT VACCINATION COVERAGE IN EACH AGE GROUP, CZECHIA, 2022

TBE, Czech Republic, 2017-2020, incidence by age group per 100 000 population

Recommended for all ages 2022 – reimbursement for 50+

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celkem</td>
<td>38.1%</td>
</tr>
<tr>
<td>0-3</td>
<td>20.6%</td>
</tr>
<tr>
<td>4-6</td>
<td>37.5%</td>
</tr>
<tr>
<td>7-10</td>
<td>41.0%</td>
</tr>
<tr>
<td>11-14</td>
<td>44.0%</td>
</tr>
<tr>
<td>15-17</td>
<td>47.8%</td>
</tr>
<tr>
<td>18-24</td>
<td>50.0%</td>
</tr>
<tr>
<td>25-34</td>
<td>33.5%</td>
</tr>
<tr>
<td>35-44</td>
<td>33.4%</td>
</tr>
<tr>
<td>45-54</td>
<td>32.4%</td>
</tr>
<tr>
<td>55-64</td>
<td>35.5%</td>
</tr>
<tr>
<td>65+</td>
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</tbody>
</table>

TICK BORNE ENCEPHALITIS
TBE Vaccination Rate and Adherence to the Vaccination Schedule, Czechia, 2022

Just under half of those vaccinated completed the basic schedule, only 27% receiving the first booster.

38% respondents received at least 1 dose of the TBE vaccine.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2nd Dose</th>
<th>3rd Dose</th>
<th>Booster 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15 years</td>
<td>65%</td>
<td>42%</td>
<td>26%</td>
</tr>
<tr>
<td>16-59 years</td>
<td>71%</td>
<td>44%</td>
<td>25%</td>
</tr>
<tr>
<td>60+ years</td>
<td>70%</td>
<td>58%</td>
<td>46%</td>
</tr>
</tbody>
</table>

2021: 33.2%
2020: 32.6%
2019: 29.0%
2018: 25.0%

EPIDEMIOLOGY OF PERTUSSIS IN CZECHIA

Pre-vaccine era
• 30–40 thousand cases/year
• 80 deaths/year
• 1956 highest morbidity: 520.5/100,000

Vaccine era
• 1958 Start of vaccination (wP)
• 1980 Incidence 0.1–0.3/100,000
• 1993 Beginning of upward trend in incidence
• 2005 The first death case for 35 years
• 2009 Highest incidence for 43 years (9.1/100,000); 2014 (24.0/100,000)
• 2009 1 booster dose for 11 years old children

Age shift after year 2014
2021: 90.2% cases in adults (20+) and 98% hospitalization for pertussis in adults
INCIDENCE AND NUMBER OF CASES OF PERTUSSIS IN CZ, 1993–2022

1970: Last death case
2005: First death case in new pertussis history (in newborn)
2007: Girl 4 months of age
2009: Girl 2 months of age

Morbidity/100,000

Source: CEM NIPH
UPDATE OF RECOMMENDATION

• Update on vaccination recommendation against pertussis for pregnant women, 2021 (from 27\textsuperscript{th} GW)
• NIKO (NIC) – 1 booster dose (dtap) once per adults life
PNEUMOCOCCAL DISEASES

The highest incidence of invasive pneumococcal disease (IPD) is seen in children under 1 year of age and elderly over 65 years of age.

Updated recommendation 2022:
- Elderly 65+
- 18+ with comorbidities
- PCV20 or PCV15+PPSV23
Between 2011 and 2021, more than half of IMD cases in adolescents (aged 15-19 years) were caused by serogroup B

**Updated recommendation 2023:**
- Adolescent 14-19 yoa
- High risk adults
- HCWs
- Travellers
- MenB + MenACWY

*Graph processed according to data: National Reference Laboratory for Meningococcal Infections, State Health Institute in Prague. IMO cumulative surveillance data, period 2013-2021. https://www.vakcinace.eu/data/files/downloads/doporuceniockovaniprotiimofinal_6_3_2023.pdf*
HERPES ZOSTER, CZ

- HZ occurs all year round, no seasonality
- HZ occurs at any age, more often in women (62.22 vs 46.44/100,000, 2010-2022)
- Highest risk in 55+
- Number of cases in 50+ is 2 times higher than in younger
- The number of hospitalizations for HZ increases with age and is highest in those 65+
- **74,759 cases** in the last 10 years (67% in people 50+)
MANY FACTORS HAVE INFLUENCED IMPLEMENTATION OF VACCINATION IN NIP IN THE CZECH REPUBLIC

- Necessary change in the law
- Less common than in children

Discussion of experts in parliament and with payers (Insurance company)

Local epi data

Adult reimbursement

Existing adult reimbursement

Medical Community support (HCPs)

Public awareness

Disease severity and consequences

- National passive and active surveillance system
- Recommendation of the Czech Vaccinology Society
- Czech Medical Association
- National Immunization Committee
- HCPs education

Less common than in children
THANK YOU FOR YOUR ATTENTION