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**Dostupnost do:** Na LF UP v Olomouci do 02/2010  
**Kategorie:** Znalostní databáze přístupná na základě **předplatného**. Pacientské informace jsou zdarma.  
**Přístup z:** Počítačové sítě LF UP v Olomouci a FN Olomouc.  
**Obory:** **Medicína, ošetrovatelství, zubní lékařství, zdravotnictví a preklinické obory.**

**Popis:**

Databáze UpToDate patří ke špičkovým informačním zdrojům pro lékařskou praxi založenou na důkazu. Vyznačuje se syntetickým zpracováním jednotlivých témat na základě interpretace publikované literatury.

Vyhledávání je intuitivní, do příkazového řádku vepíšeme řetězec slov, který vystihuje hledanou problematiku. Získáme seznam témat, seřazený podle frekvence výskytu klíčových slov. Je možno uplatnit prioritu pro dětské lékařství záložkou „**Prioritize pediatric topic**“ a získat pacientské informace (**For Patients**) zdarma. Máme-li zájem o vlastní podrobné studium použité literatury, přes hypertextové odkazy je možno prověřit záznamy v databázi MEDLINE, ovšem ne v prostředí PubMed.

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**Jazyk zdroje:** Angličtina

**Připojené soubory:**

Příklad vyhledání tématu „Prevence opakovaných akutních zánětů středního ucha u dětí“

- Do příkazového řádku vepíšeme termíny, jejichž výskyt definuje požadované téma: *otitis media prevention vaccines* a stiskneme tlačítko **Go**.
- Výsledkem vyhledání je několik dokumentů přehledového typu; první v pořadí relevance je „*Acute otitis media in children. Prevention of recurrence*“. Zpracované téma vyhovuje našemu zadání.
- Na základě obsahu, zobrazeného v levé části dokumentu, můžeme sledovat jednotlivá témata, která jsou zpracována v rámci prevence.
  - Jsou zahrnuty i pasáže o **vakcínách**.

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• Pacifiers — The use of pacifiers after 6 months of age increases the risk of recurrent AOM [12].

**VACCINES** — The routine administration of [pneumococcal conjugate vaccine](#) and [influenza vaccine](#) during infancy provides a modest reduction in the frequency of AOM, but appears to decrease the need for placement of tympanostomy tubes as discussed below.

**Pneumococcal conjugate vaccine** — Immunization of infants and young children with the seven-valent [pneumococcal conjugate vaccine](#) (PCV7) is now routine practice in the United States. In addition, PCV7 and/or the 23-valent [pneumococcal polysaccharide vaccine](#) (PPSV23) may be administered to older children with recurrent or severe AOM [13,14]. Although AOM due to vaccine serotypes may decline in children immunized beginning at 2 months of age, no overall reduction in AOM is observed when immunization is initiated after the development of recurrent otitis media [13,14].

**In infants** — Two randomized trials have demonstrated a decrease in AOM in children vaccinated beginning at age 2 months, although the overall benefit has been modest (6 to 8 percent reduction) [15,16]. Follow-up of these groups has demonstrated a reduction of tympanostomy tube placement among vaccine recipients [17,18]. The major findings of these studies are described below.

In a prelicensure study of the PCV7 vaccine, 37,868 children in Northern California were randomly assigned to receive PCV7 or meningococcal type C conjugate vaccine at 2, 4, 6, and 12 to 15 months of age [15]. Children were followed for up to 3.5 years [17]. The overall efficacy in prevention of AOM episodes varied between 7 and 8 percent (95% CI approximately 5 to 10), depending on the number of doses received [17]. The efficacy in prevention of culture-confirmed pneumococcal AOM with a vaccine serotype was 65 percent [15]. In addition, PCV7 reduced the risk of ≥3 visits for AOM by 10 percent (95% CI 7 to 13 percent) and the risk of ≥10 visits for AOM by 14 percent (95% CI 7 to 21 percent). Fewer children in the PCV7 group than in the [meningococcal vaccine](#) group had tympanostomy tubes placed by 3.5 years (3.8 versus 2.9 percent, relative risk reduction of 23.2 percent [95% CI 11.3 to 33.5]).

In the smaller trial, which included 1662 Finnish infants, administration of PCV7 or [hepatitis B vaccine](#) at 2, 4, and 6 months of age with a booster dose at 12 to 15 months was associated with an overall 6 percent reduction (95% CI -4 to 16) in the incidence of AOM, a 34 percent reduction in culture-confirmed pneumococcal AOM, and a 57 percent reduction in culture-confirmed pneumococcal AOM caused by a vaccine serotype [16]. Administration of PCV7 reduced tympanostomy tube placement before 2 years of age by only 4 percent [16]. However, by 4 to 5 years, administration of PCV7 was associated with a 39 to 44 percent reduction in tympanostomy tube placement [18].

The Finnish trial noted a 33 percent increase in episodes of AOM caused by pneumococcal serotypes not included in the vaccine. Such replacement with nonvaccine serotypes has been noted in other reports [19,20].

After the introduction of PCV7 to the routine childhood immunization schedule in the United States, outpatient visits for acute otitis media among children younger than two years declined by 20 to 40 percent compared to the prevaccine era [21,22]. In addition, the frequency of recurrent AOM and tympanostomy tube insertion by age 2 years declined by roughly the same amount in cohorts of children born before and after routine use of PCV7 in the United States [23].

**In older children** — Immunization with PCV7 is recommended for all children younger than five years. Children aged two to five years with severe and recurrent episodes of otitis media in the years before immunization or a history of tympanostomy tube placement also are candidates for vaccination with PPSV23 [13]. (See "[Pneumococcal \(Streptococcus pneumoniae\) conjugate vaccines in children](#)".)

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- Některé odkazují na příbuzná témata v rámci databáze UpToDate
- Jiné (označené číslicemi – např. 17,18)) zobrazují použité zdroje při zpracování přehledu.

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A systematic review of randomized controlled trials evaluating pneumococcal vaccination for AOM in children younger than 12 years found a moderate effect of [pneumococcal polysaccharide vaccine](#) in the prevention of AOM in children older than 24 months who had documented AOM before vaccination (relative risk 0.74, 95% CI 0.62 to 0.90) [24].

A Dutch trial in which 383 children (age 1 to 7 years) with a history of  $\geq 2$  episodes of AOM in the previous year were randomly assigned to PCV7 followed by PPSV23 or hepatitis A or B vaccination, demonstrated no effect of pneumococcal immunization on incidence or further recurrences of AOM in 18 months of follow-up [25]. However, the children were not immunized until they had experienced severe and recurrent episodes of AOM. None of the children received PCV7 in the first year of life as was the case in the studies from the United States and Finland described above [17,18].

The lack of benefit in the Dutch trial probably resulted from changes in nasopharyngeal carriage [25,26]. The overall rates of pneumococcal nasopharyngeal carriage did not decline in either group two years after vaccination, remaining at approximately 50 percent [26]. However, children who received two doses of PCV7 before PPSV23 (ie, those who were 1 to 2 years of age) had a pronounced shift in nasopharyngeal carriage from vaccine serotypes to nonvaccine serotypes. Serotype carriage was not affected in older children who received PCV7 only once before the PPSV23 booster.

The above studies fail to demonstrate a clinical benefit for PCV7 followed in four to six weeks by the 23-valent polysaccharide vaccine in children who already have established recurrent otitis media between one and five years of age (who did not receive PCV7 in infancy). Although PCV7 was immunogenic in these children and reduced disease due to one of the seven pneumococcal serotypes within the vaccine, the overall number of episodes was not reduced over a minimum of one year follow-up. The effect on severity of episodes was not assessed.

Nonetheless, we suggest that children between two and five years of age who have recurrent AOM and did not receive PCV7 in infancy receive one dose of PCV7, followed four to six weeks later by a dose of PPSV23 (the seven serotypes in PCV7 become less important causes of AOM in older children). We make this suggestion because PCV7 is already recommended for children through age five years, PPSV23 broadens protection to include an additional 16 serotypes, and this strategy may decrease the severity of episodes of AOM (if not the number).

**Influenza vaccine** — Intranasal or parenteral administration of influenza virus vaccines may be helpful in the prevention of AOM. In a meta-analysis of randomized studies, the efficacy of influenza vaccination against acute otitis media in healthy children younger than 18 years was 51 percent (95% CI 21–70 percent) [27].

It is not surprising that [influenza vaccine](#) has only a modest impact on AOM episodes, since infection with other respiratory viruses such as respiratory syncytial virus, parainfluenzae, and human metapneumovirus appear to have a much greater association with AOM. (See "[Acute otitis media in children: Epidemiology, pathogenesis, clinical manifestations, and complications](#)".)

A study conducted during 2004–2005 among children 6 to 59 months of age compared the live attenuated [influenza vaccine](#) (LAIV) with the inactivated parenteral vaccine (TIV) [28]. There were fewer cases of acute otitis media with culture confirmed influenza among the children who received LAIV (attack rate of 0.7 percent versus 1.4 percent, a relative efficacy of 50.6). LAIV is licensed for use in children older than two

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Po kliknutí na číselné odkazy **17,18** získáme přehled o literatuře, použité ke zpracování konkrétní sekce přehledného dokumentu.

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  - V případě hlubšího zájmu o daný článek si můžeme obstarat plný text a prostudovat



Medline ® Abstracts for References 17,18  
of 'Acute otitis media in children: Prevention of recurrence'

**17**

TI Impact of the pneumococcal conjugate vaccine on otitis media.  
AU Fireman B; Black SB; Shinefield HR; Lee J; Lewis E; Ray P  
SO *Pediatr Infect Dis J* 2003 Jan;22(1): 10-6.

CONTEXT: The heptavalent pneumococcal conjugate vaccine (PCV) is recommended for infants to protect against invasive disease, but its impact on otitis might also have public health importance. OBJECTIVE: To examine the impact of PCV on the incidence of otitis media, frequent otitis media and tympanostomy tube procedures and to assess whether the effectiveness of the vaccine wanes after age 24 months and varies by race, sex or season. DESIGN, SETTING AND PATIENTS: From 1995 to 1998, 37 868 children at Kaiser Permanente in Northern California were randomized to receive PCV or a control vaccine in a double blind trial and were followed through April 1999. INTERVENTIONS: Children received a primary series at 2, 4 and 6 months of age and a booster at 12 to 15 months. MAIN OUTCOME MEASURES: Visits for otitis and tympanostomy tube procedures. Otitis was ascertained from diagnosis checklists routinely marked by physicians. RESULTS: Control children averaged 1.8 otitis visits per year. Children given PCV had fewer otitis visits than control children in every age group, sex, race and season examined. Intention-to-treat analysis permitted rejection of the null hypothesis that PCV is ineffective against otitis media ( $P < 0.0001$ ). In children who completed the primary series per protocol, PCV reduced otitis visits by 7.8% [95% confidence interval (CI), 5.4 to 10.2%] and antibiotic prescriptions by 5.7% (CI 4.2 to 7.2%). Frequent otitis was reduced by amounts that increased with otitis frequency, from a 10% reduction in the risk of 3 visits to a 26% reduction in the risk of 10 visits within a 6-month period. Tube placements were reduced by 24% (CI 12 to 35%). CONCLUSION: In children followed up to 3.5 years, PCV provided a moderate amount of protection against ear infections while reducing frequent otitis media and tube procedures by greater amounts.

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PMID 12544402

**18**

TI The seven-valent pneumococcal conjugate vaccine reduces tympanostomy tube placement in children.  
AU Palmu AA; Verho J; Jokinen J; Karma P; Kilpi TM  
SO *Pediatr Infect Dis J* 2004 Aug;23(8):732-8.

BACKGROUND: The novel pneumococcal conjugate vaccine, PncCRM, has been shown to prevent acute otitis media caused by vaccine serotypes and to reduce otitis surgery. Our aim was to assess long term efficacy of the vaccine on tympanostomy tube placements. METHODS: Children with complete follow-up in the Finnish Otitis Media Vaccine Trial up to 24 months of age and still living in the study area (1490 of 1662 randomized at 2 months of age) were invited to a single visit at 4-5 years of age. The children had been vaccinated at 2, 4, 6 and 12 months of age with PncCRM or hepatitis B vaccine (control). Tympanostomy tube placements reported by parents at the visit were verified from hospital and private medical center records. Additionally, tympanostomy tube placements of all children were verified from the hospital discharge registry. Vaccine efficacy (VE) was estimated by comparing all events of tympanostomy tube placement between vaccine groups. RESULTS: During the vaccine trial (2-24 months of age), VE (95% confidence interval) in preventing tympanostomy tube placement was only 4% (-19-23%). Altogether 756 children were enrolled for the follow-up study. After 24 months of age, the rate of surgery was 3.5 per 100 person-years in the PncCRM and 5.7 per 100 person-years in the control children, giving VE of 39% (4-61%). In the hospital-based data of all children (N = 1490), VE of 44% was obtained (19-62%). CONCLUSIONS: Receipt of PncCRM vaccine at infancy was associated with a reduction in tympanostomy tube placement from 2 to 4-5 years of age.

AD National Public Health Institute, Helsinki, Finland.  
PMID 15295223