

Quebec, March 15, 2013

ATTENDING PHYSICIAN OR VACCINATOR

SUBJECT: ***Cochlear implants***

In June 2002 a warning was issued about a possible association between cochlear implants and an increased risk of meningitis. At that time, a potentially higher-risk implant was withdrawn from the market, and all implant wearers were vaccinated against the main types of bacteria causing meningitis, i.e. pneumococcus, *Haemophilus influenzae* and meningococcus.

Since that time, epidemiological studies have confirmed the increased risk of meningitis in cochlear implant wearers, a risk which is shown to be higher with a type of implant now withdrawn from the market. Post-surgery, this risk decreases over time. The majority of identified cases are associated with pneumococcus, and to a lesser extent with *Haemophilus influenzae*. *Meningococcus* is noticeably absent, which probably reflects its hematogenous pathogenesis, while pneumococcus and *Haemophilus influenzae* are more commonly transmitted through ENT pathways.

This is why, in compliance with the recommendations of the Public Health authorities of Quebec and Canada, we recommend that all implant recipients receive age-appropriate vaccinations against pneumococcus and *Haemophilus influenzae*.

Accordingly, in compliance with the *Protocole d'Immunisation du Québec (PIQ)*:

- ***Haemophilus influenzae* type B vaccination** :
  - **For  $\leq$  age 5:** *Haemophilus influenzae* included in vaccines against diphtheria, whooping cough, tetanus and poliomyelitis (eg: Pediacel, Infanrix/Hib). It may also be combined with Hepatitis B vaccine (Infanrix-hexa)
  - **For  $>$  age 5, including adults** : A conjugate monovalent, Act-HIB or Hiberix
- **Pneumococcal vaccination:**
  - **For  $\leq$  age 2:** conjugate vaccines with only 13 serotypes, but more immunogenic in children (Pevnar 13)

- **For ages 2-17:** The 13-valent conjugate vaccine (Pevnar 13) is more immunogenic, but this age group responds adequately to the 23-valent polysaccharide, Pneumovax. This is why the conjugate (Pevnar 13) should be started first, followed by the 23-valent Pneumovax 8 weeks later.
- Children who received a cochlear implant before age 2, vaccinated with conjugate (Pevnar) must subsequently receive the 23-valent after age 2.
- **For adults:** one dose of the polysaccharidic 23-valent vaccine, Pneumovax

These recommendations apply to all those who comply with the regular vaccination schedule, with a number of doses according to the age for the conjugate vaccine. You are invited to refer to the PIQ for those precisions and for late/modified vaccination schedules.

All of the Quebec population under age 20 has received or will receive the **meningococcal C** conjugate vaccine. It goes without saying that this recommendation encompasses cochlear implant wearers under age 20.

We therefore propose these recommendations based on data in the literature and in compliance with the public health authority's recommendations.

The vaccination should be completed at least 10 to 14 days prior to the surgery.

We thank you for your precious collaboration,

Richard Bussi eres, M.D., FRCSC  
Director of the *Centre qu ebecois  
d'expertise en implant cochl eaire*

Claude Tremblay, M.D., FRCPC  
Microbiologist-infectious disease specialist  
For the Department of Microbiology/Infectious  
Diseases

References:

Reefhuis, J. & al. *Risk of bacterial meningitis in children with cochlear implants.* N.E.J.M., 2003; 349:435-446.

Gates, G.A. and Miyamoto, R.T. *Cochlear implants.* N.E.J.M., 2003; 349:421-423.

Canada Communicable Disease Report. *Immunization recommendations for cochlear implant recipients.* 2003; 29:1-4.

Comité sur l'immunisation du Québec. *Avis sur les risques de méningite chez les personnes ayant reçu un implant cochléaire.* March 31, 2003, pages 1-12.

*Protocole d'immunisation du Québec,* Ministère de la Santé et des Services sociaux.

- Mise à jour sur *l'Haemophilus influenzae*, Novembre 2012.
- Mise à jour sur le pneumocoque Avril 2012
- Mise à jour sur le méningocoque, Mai 2011