To: Cochlear Implant Candidate or Recipient  
Subject: Updated 2012-Vaccination Recommendations

We would like to take a moment to introduce you to the Cochlear Implant nurses at Boys town National Research Hospital. Kristie Bittner, RN works with Dr. Rodney Lusk and Mallory Auch, RN works with Dr. Richard Kang. They are working with us to ensure that you or your child’s vaccinations are up to date.

Some patients and/or caregivers are unaware that these vaccinations need to be done in a timely manner to reduce the risk of bacterial meningitis (infection around the brain). Cochlear implant recipients are at increased risk of meningitis because the cochlear implant electrode is placed in the inner ear. Also, some patients have inner ear anatomy that increases the risk for meningitis.

We would like each patient and/or caregiver to complete the attached form. Please fax this form along with the current “vaccination record” to 402-778-6874. If you have not received the appropriate vaccination(s), you can schedule these with your primary care provider. If you have questions please contact Kristie or Mallory at 402-498-6540 and they will contact your provider and fax them the appropriate vaccination(s) orders. Attached are the current CDC (Centers for Disease and Control Prevention) 2012 recommendations. These recommendations are subject to change at any time. If this happens, we will notify you.

Vaccination schedules can be very overwhelming but Kristie and Mallory are here to help. Thank you for your time and please call with any questions or concerns.

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Co-director Cochlear Implant Program  
Boys Town National Research Hospital

D. Richard Kang MD  
Co-director Cochlear Implant Program  
Boys Town National Research Hospital

Kristie Bittner RN, BSN, CORLN  
Mallory Auch RN

Cochlear Implant Immunization Letter:

This document contains important vaccination information for children and adults who are candidates for, or recipients of a Cochlear Implant. The vaccination guidelines were established by the CDC-Advisory Committee of Immunization Practices (ACIP). Note that the guidelines refer to children and adult recipients. Included are user friendly versions of the CDC’s recommendations. More specific vaccine information along with the CDC’s Question and Answer info.

All immunizations must be up to date AT LEAST two weeks prior to surgery.

Age Specific Vaccine Templates:

*COCHLEAR IMPLANT CANDIDATE VACCINE GUIDE (Birth to 2 yrs)

To ensure that the recommended vaccinations have been administered, please have your vaccination records faxed to 402-778-6874, Attention: Cochlear Implant Nurse Coordinator.

If you have any questions regarding the content of this letter, please contact Kristie or Mallory at 402-498-6540.

Children with cochlear implants are more likely to get bacterial meningitis than children without cochlear implants. In addition, some children who are candidates for cochlear implants have anatomic factors which may increase their risk for meningitis.

Because children with cochlear implants are at increased risk for meningitis, CDC recommends that children with cochlear implants follow recommendations for pneumococcal vaccinations that also apply to other groups at increased risk.

Recommendations for the timing and type of pneumococcal vaccination vary with age and vaccination history and should be discussed with a healthcare provider.

Pneumococcal vaccination recommendations for people with cochlear implants include the following:

- Children who have cochlear implants or are candidates for cochlear implants who have not received any previous doses of a pneumococcal conjugate vaccine (PCV7 or PCV13), should receive PCV13 as it is recommended routinely for all infants and children. Children with cochlear implants aged 24 through 71 months:
  - who have not received any doses of PCV7 or PCV13 previously should receive 2 doses of PCV13.
  - who have received any incomplete schedule of <3 doses of PCV (PCV7 or PCV13) before age 24 months should receive 2 doses of PCV13.
  - who have received 3 doses of PCV (PCV7 or PCV13) should receive a single dose of PCV13.

- Children up through 71 months of age who have already completed the 4-dose PCV7 series should receive one dose of PCV13.

- Children 6 through 18 years of age with cochlear implants may receive a single dose of PCV13 regardless of whether they have previously received PCV7 or the pneumococcal polysaccharide vaccine (PPSV) (Pneumovax®).

- In addition to receiving PCV13, children with cochlear implants should receive one dose of PPSV at age 2 years or older after completing all recommended doses of PCV13.

### Recommendations for Adults with No Previous Pneumococcal Vaccinations

The Advisory Committee on Immunization Practices (ACIP) recommends that adults 19 years of age or older with cochlear implants, and who have not previously received PCV13 or PPSV23, should receive a dose of PCV13 first followed by a dose of PPSV23 at least 8 weeks later. Specifically, a second PPSV23 dose is recommended 5 years after the first PPSV23 dose for persons aged 19 through 64 years with cochlear implants. Additionally, those who received one or more doses of PPSV23 before age 65 years for any indication should receive another dose of the vaccine at age 65 years or older if at least 5 years have elapsed since their previous PPSV23 dose. If a dose of PPSV23 was received at age 65 years or later, no additional doses of PPSV23 are recommended.

### Recommendations for Adults with Previous Pneumococcal Polysaccharide Vaccinations (PPSV23)

Adults 19 years of age or older with cochlear implants who have previously received one or more doses of PPSV23 should be given a dose of PCV13 one or more years after the last PPSV23 dose was received. For those who require additional doses of PPSV23, the first such dose should be given no sooner than 8 weeks after PCV13 and at least 5 years since the most recent dose of PPSV23. Is receive the pneumococcal vaccines (PCV13, PPSV23)?
When should persons with cochlear implants receive the pneumococcal vaccines (PCV13, PPSV23)?

Two pneumococcal vaccines are available to protect children with cochlear implants against meningitis. The pneumococcal conjugate vaccine (PCV13) should be given within the first two years of life according to current childhood vaccination guidelines. The pneumococcal polysaccharide vaccine (PPSV23) is also recommended for cochlear implant recipients and those awaiting placement of a cochlear implant. These individuals should receive one dose of PPSV23 after they reach 2 years of age, and at least 2 months after the last dose of PCV13.

When should people planning to receive a cochlear implant be vaccinated against meningitis?

Persons scheduled to receive cochlear implants should make sure they are up-to-date on pneumococcal vaccinations at least two weeks before surgery to provide maximum protection both during and after surgery. Meningococcal vaccine is usually not needed before or after cochlear implant surgery.

What side effects occur with vaccines that prevent meningitis?

The vaccines used to protect against meningitis are safe. When side effects occur, they are usually mild. Local reactions, such as a sore arm at the site of the injection, are fairly common with some of the vaccines. Mild fever may also occur.

Can vaccines prevent all meningitis in persons with cochlear implants?

Vaccines can't prevent all meningitis in persons with cochlear implants. Although vaccines against meningitis are highly effective, we don't have vaccines for all bacteria that cause meningitis. Pneumococcal vaccines protect against many of the most common strains but not against all strains.

Can PPSV and PCV13 be administered at the same office visit?

No. If PCV13 is indicated, administer it if at least 1 year has passed since the previous dose of PPSV23 or if no doses of PPSV23 have previously been received. Then wait at least 8 weeks to administer PPSV23 if no previous doses of PPSV23 have been received. If a previous dose of PPSV23 has been received and there is an indication for the second PPSV23 dose before age 65, wait 5 years since the previous dose of PPSV23 to administer the next dose of PPSV23. Then administer a third dose of PPSV23 at or after 65 years if it has been 5 years since the previous dose.

If an adult has already gotten one or more doses of PPSV, when should they get PCV13, if indicated?

If indicated, PCV13 should be administered at least 1 year after the previous dose of PPSV23 was received. For those who require additional doses of PPSV23, the first such dose should be given no sooner than 8 weeks after PCV13 and at least 5 years since the most recent dose of PPSV23.

Should the dose of the PCV13 be repeated if given less than 1 year after a dose of PPSV23? If yes, what is the interval between doses?

Yes, the dose of PCV13 should be repeated and given 1 year or later after a dose of PPSV23.

How many dose of PPSV can an adult get in a lifetime? Who/When?

Some adults may be recommended to receive up to 3 doses of PPSV23 in a lifetime. Two doses of PPSV23, given 5 years apart, are indicated for adults with cochlear implants. Those adults should then receive a third dose of PPSV23 at or after 65 years, as long as it’s been at least 5 years since the previous dose.
NEW COCHLEAR IMPLANT CANDIDATE VACCINE GUIDE

Prevnar (PCV13) Pneumococcal Conjugate Vaccine
Pneumovax (PPSV) Pneumococcal Polysaccharide Vaccine
(the BOOSTER is a **NEW** recommendation)

<table>
<thead>
<tr>
<th>INFANT 2 Months Old</th>
<th>INFANT 4 Months Old</th>
<th>INFANT 6 Months Old</th>
<th>TODDLER 12-15 Months Old</th>
<th>CHILDREN 2 Yrs &amp; Older</th>
<th>CHILDREN ADOLESCENTS 2 Yrs &amp; Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevnar (PCV13) ➔</td>
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<td>Prevnar (PCV13) ➔</td>
<td>Pneumovax (PPSV) ➔</td>
<td>Pneumovax (PPSV) 5yr BOOSTER</td>
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*If your child is under the age of 2 they need to have the Prevnar at Vaccine at 2, 4, 6 and 12-15 months years of age.

*After the age of 2yrs they will need the PPSV x1 and then the PPSV BOOSTER 5 yrs later.

VACCINATIONS MUST BE UP TO DATE AT LEAST 2 WEEKS PRIOR TO SURGERY!

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Saving Children, Healing Families

Updated from the CDC Website on 9/28/2012.
http://www.cdc.gov/search.do?q=2012+cochlear+implant+vaccine+recommendations

Kristie Bittner RN, BSN, CORLN 10/2012