Immunizations for Patients with Diabetes

Amy V. Groom, MPH
IHS Immunization Program Manager
Routine Adult Immunization Recommendations

- Human Papillomavirus Vaccine (HPV)
  - Females 19-26 years
  - Males 19-21 years
- TD
  - Booster every 10 years
- Tdap
  - 1 dose
- Zoster
  - 60 years
- Influenza
  - Annually

- Pneumococcal polysaccharide, 23-valent (PPSV23, Pneumo-PS, or Pneumovax®)
  - 65 years
  - May start earlier for certain high risk populations – e.g., AI/AN in certain geographic regions
- Pneumococcal conjugate vaccine, 13-valent (PCV13 or Prevnar13®)
  - 65 years

Adult Vaccine Schedule: [http://www.cdc.gov/vaccines/schedules/easy-to-read/adult.html](http://www.cdc.gov/vaccines/schedules/easy-to-read/adult.html)
2016 Recommended Immunizations for Adults

Immunizations for those with Diabetes

• Universally recommended, but particularly important:
  • Influenza

• Recommended specifically because of diabetes:
  • Pneumococcal Polysaccharide, 23-valent (PPSV23)
  • Hepatitis B
Pneumonia and Influenza

• American Indian and Alaska Native people are almost 2 times more likely to die from pneumonia and influenza than non-Hispanic whites
  - Significant variation by region and age group

• During the 2009 H1N1 influenza pandemic, AI/AN people were 4 times more likely to die from influenza-related complications than other race groups

• Reasons for this disparity include a higher rate of chronic medical conditions, including DIABETES

   http://ajph.aphapublications.org/action/showMultipleAbstracts?mailPageTitle=Advanced+Search&href=%2Faction%2FdoSearch%3FAllField%3Damy%2Bgroom&AllField=amy+groom&target=default&startPage=0&doi=10.2105%2FAJPH.2013.301740

2. Deaths Related to 2009 Pandemic Influenza A (H1N1) Among American Indian/Alaska Natives --- 12 States, 2009 
   http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5848a1.htm
Influenza Vaccine recommendations

- Influenza – annual influenza vaccine for everyone 6 months and older

Influenza Vaccine Recommendations: [http://www.cdc.gov/mmwr/volumes/65/rr/rr6505a1.htm](http://www.cdc.gov/mmwr/volumes/65/rr/rr6505a1.htm)
Posters: [http://nptec.gptchb.org/public-health-resources/national-vaccination-project/](http://nptec.gptchb.org/public-health-resources/national-vaccination-project/)
Pneumococcal Vaccines

• Pneumococcal Polysaccharide, 23-valent
  • PPSV23, Pneumo-PS, or Pneumovax®

• Pneumococcal Conjugate, 13-valent
  • PCV13 or Prevnar13®

Pneumococcal Vaccine Recommendations:
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5934a3.htm
PCV13 for Adults

• PCV13 is recommended for all adults 65 years and older (New in 2014)

• The interval between PCV13 and PPSV23 is 1 year

PCV13 recommendations for adults: 
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6434a4.htm
Recommended Intervals for Sequential Use of PC13 and PPSV23

Excerpt from PCV13 recommendations for adults:
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6434a4.htm
PCV13 for Adults < 65 years

- PCV13 is recommended for adults < 65 years with immune-compromising conditions
- These include:
  - Cerebrospinal fluid leak
  - Cochlear implant
  - Sickle cell disease/other hemoglobinopathy
  - Congenital or acquired asplenia
  - Congenital or acquired immunodeficiency
  - HIV
  - Chronic renal failure
  - Nephrotic Syndrome
  - Leukemia
  - Lymphoma
  - Hodgkin's Disease
  - Generalized malignancy
  - Iatrogenic immunosuppression
  - Solid organ transplant
  - Multiple myeloma

- Diabetes is NOT considered an immune-compromising condition for this vaccine

PCV13 recommendations for adults: [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6434a4.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6434a4.htm)
PPSV23 for Adults

• Routine: One dose at 65 years and older
  • PCV13 should be received first
• High Risk: < 65 years with high risk conditions
  • Includes diabetes
  • PPSV23 should be administered at time of diagnosis
• Patients who receive PPSV23 before 65 years of age should receive one booster dose at 65 years of age, at least 5 years after last dose

Pneumococcal Vaccine Recommendations:
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5934a3.htm
<table>
<thead>
<tr>
<th>Condition</th>
<th>ICD9</th>
<th>ICD10</th>
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<tbody>
<tr>
<td>HIV Infection</td>
<td>042, 042.0-043.9 (old codes), 044.9 (old code), 079.53, V08</td>
<td>B20, B52, B97.35, Z21</td>
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<td>Diabetes</td>
<td>250.00-250.93</td>
<td>E08.2*, E09.2*, E10.<em>-E13.</em></td>
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<td>Chronic alcoholism</td>
<td>303.90, 303.91</td>
<td>F10.20, F10.220-F10.29)</td>
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<td>Congestive Heart Failure</td>
<td>428.0-428.9, 429.2</td>
<td>I50.1, I50.20, I50.22-I50.30, I50.32-I50.40, I50.42-I50.9</td>
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<td>Emphysema</td>
<td>492.0-492.8</td>
<td>J43.*</td>
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<td>Asthma</td>
<td>493.00-493.91</td>
<td>J45.21-J45.902</td>
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<td>Bronchiectasis, CLD, COPD</td>
<td>494.-496.</td>
<td>J44.<em>, J47.</em>)</td>
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<td>Pneumoconioses</td>
<td>501.-505.</td>
<td>J60-J64, J66.8-J67.6, J67.8-J67.9</td>
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<td>Chronic Liver Disease</td>
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<td>K70.11-K70.41, K73.0-K74.5, K74.69, K75.81</td>
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<td>Renal Failure</td>
<td>585.6, 585.9</td>
<td>N18.6-N19</td>
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<td>Injury to spleen</td>
<td>865.00-865.19</td>
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<td>Transplant</td>
<td>996.80-996.89</td>
<td>T86.00-T86.819, T86.83*, T86.850-T86.899, Z48.21-Z48.280, Z48.290, Z94.0-Z94.4, Z94.6, Z94.81-Z94.84, Z95.3, Z95.4</td>
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<td>Kidney Transplant</td>
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<td>Chemotherapy</td>
<td>V58.1</td>
<td>Z51.11, Z51.12</td>
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<td>Chemotherapy follow-up</td>
<td>V67.2</td>
<td>Z08</td>
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PCV13 for Children

• Routine: All children < 5 years of age
  • 4 doses: 2, 4, 6, 12-15 months
  • Number of doses depends on age of receipt
  • Healthy children 2-5 years months with no PCV13 receive 1 dose
  • High risk* children 2-5 years who receive incomplete PCV13 series need 1 or 2 doses depending on prior doses

* chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure); chronic lung disease (including asthma if treated with high-dose oral corticosteroid therapy); diabetes mellitus; cerebrospinal fluid leak; cochlear implant; sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; HIV infection; chronic renal failure; nephrotic syndrome; diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, and Hodgkin disease; solid organ transplantation; or congenital immunodeficiency:

• PCV13 for children 6-18 years for highest risk only
  • Anatomic asplenia
  • Immuno-compromising conditions (e.g. HIV)
  • Cochlear implant
  • CSF Leak

PPSV23 for Children

• No routine use of PPSV23 in children
• High risk* children 2 years and older should receive a dose of PPSV23
  *Sickle cell, asplenia, chronic cardiac, pulmonary or renal disease, diabetes, CSF leaks, HIV, immunosuppression, transplant, cochlear implant
• PPSV23 should be given after all recommended pneumococcal conjugate 13-valent (PCV13) recommended doses
• Give PPSV23 at least 8 weeks after last dose of PCV13
• No re-vaccination for children with diabetes
  • Receive additional dose at 65 years of age

Hepatitis B in Patients with Diabetes

• Hepatitis B virus (HBV) causes acute and chronic infection of the liver
• Outbreaks in long term care facilities related to adults with diabetes receiving assistance with glucose monitoring
• Risk of acute hepatitis b infection 2.1 times higher among adults with diabetes vs. those without
• Higher seroprevalence of antibody to hepatitis B core antigen (indicative of past or present HBV infection) among adults with diabetes compared with those without diabetes

Hepatitis B recommendations for people with diabetes: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6050a4.htm
Hepatitis B Vaccine Recommendation (2011)

• Hepatitis B vaccination should be administered to unvaccinated adults with diabetes mellitus aged 19 through 59 years
• Hepatitis B vaccination may be administered at the discretion of the treating clinician to unvaccinated adults with diabetes mellitus who are aged ≥60 years

Hepatitis B recommendations for people with diabetes: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6050a4.htm
2014 Vaccine Coverage

U.S. Data: CDC MMWR. [http://www.cdc.gov/mmwr/volumes/65/ss/ss6501a1.htm](http://www.cdc.gov/mmwr/volumes/65/ss/ss6501a1.htm)

IHS Data: Immunization Coverage reports. [https://www.ihs.gov/epi/index.cfm?module=epi_vaccine_reports](https://www.ihs.gov/epi/index.cfm?module=epi_vaccine_reports)

Data sources may not be directly comparable
Immunizations
1997-2016

Source: IHS Diabetes Care and Outcomes Audit
Td/Tdap in Past 10 Years
1998-2016

Source: IHS Diabetes Care and Outcomes Audit
Hepatitis B Vaccine
2012-2016

Source: IHS Diabetes Care and Outcomes Audit
SO WHAT CAN WE DO TO MAKE SURE OUR PATIENTS' ARE VACCINATED?
EHR/RPMS Tools

• Clinical Decision Support for Immunizations
  • Shows which vaccines patients are due for
    • Takes into account minimum intervals and ages
    • All routine, AGE-BASED recommendations
  • Optional Reminders – Must be turned on
    • PPSV23 for high risk
    • *Hepatitis B for adults 19-59 years with Diabetes*
RPMS Immunization Package

• Lists and Letters in the RPMS Immunization package
  • Only available in the roll and scroll environment (NOT EHR)
  • Can be used to generate lists of patients who received or are due for specific vaccines for reminder/recall efforts
  • Can be used in conjunction with QMAN
Summary of Tools and Resources

• Clinical Decision Support/Reminders in EHR
  • PPSV23 and Hep B for patients with diabetes – must be turned on in the Immunization Package

• RPMS Immunization package
  • List and Letters to identify patients due for vaccines
  • Send reminder letters

• QMAN
  • Develop a template to identify patients with diabetes
  • Can use in the Immunization Package to identify vaccine needs for patients with diabetes
Resources

• CDC vaccine recommendations
  • [http://www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/index.html)

• IHS RPMS Immunization Package Resources

• IHS Immunization Program
  • [Amy.Groom@ihs.gov](mailto:Amy.Groom@ihs.gov)