



DEPARTMENT OF HEALTH AND HUMAN SERVICES

## OFFICE OF INSPECTOR GENERAL

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**TO:** Marilyn Tavenner  
Administrator  
Centers for Medicare & Medicaid Services

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**FROM:** Stuart Wright  
Deputy Inspector General  
for Evaluation and Inspections

**SUBJECT:** Memorandum Report: *Repeat Pneumococcal Vaccinations for Medicare Beneficiaries*, OEI-07-13-00310

This memorandum report determines the number of Medicare beneficiaries aged 65 years or older who received multiple pneumococcal vaccinations during a 5-year period (between 2007–2011) and the Medicare payments associated with those vaccinations.

Current vaccination recommendations state that individuals without immunocompromising medical conditions should receive a single pneumococcal vaccination at the age of 65 years or older and individuals with immunocompromising conditions should receive a second vaccination 5 years after their first. Medicare instructs providers to administer a pneumococcal vaccination if a beneficiary is uncertain of his or her vaccination history in the past 5 years. Vaccination is intended to reduce the risk of contracting serious disease, but vaccination is not without risk. In 2012, the Vaccine Adverse Event Reporting System (VAERS), a national vaccine surveillance program, reported more than 1,000 adverse events associated with the 4.6 million pneumococcal vaccinations for Medicare beneficiaries between 2007 and 2011. Using claims data, we reviewed the frequency of pneumococcal vaccinations for beneficiaries age 65 and older without immunocompromising medical conditions to detect beneficiaries receiving vaccinations more frequently than recommended.

### SUMMARY

The Advisory Committee on Immunization Practices (ACIP) makes recommendations on the frequency of vaccinations.<sup>1</sup> According to ACIP, individuals 65 years of age or older

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<sup>1</sup> ACIP is a group of medical and public health experts that develops recommendations on vaccines use to control diseases in the United States. The recommendations stand as public health advice. ACIP was established under Section 222 of the Public Health Service Act (42 U.S.C. § 217(a)). Accessed at <http://www.cdc.gov/vaccines/acip/about.html> on April 10, 2013.

should receive a pneumococcal vaccination to prevent pneumonia. For individuals other than those with certain immunocompromising medical conditions, one vaccination should be sufficient to confer immunity for a lifetime. However, ACIP states that if more than one vaccination is given, they should be at least 5 years apart. We found that 122,498 beneficiaries received more than one pneumococcal vaccination of the same type within the 5-year period 2007–2011. For beneficiaries who received repeat pneumococcal vaccinations of the same type, 43 percent received a repeat vaccination from the same provider who gave the first vaccination.

## BACKGROUND

Pneumococcal disease is caused by the *Streptococcus pneumoniae* bacteria. It is a leading cause of vaccine-preventable illness and death in the United States. Pneumococcal pneumonia kills about 4,000 people annually in the United States.<sup>2</sup> Although anyone can contract pneumococcal disease, some people are at greater risk of contracting the disease than others, such as people 65 years and older, the very young, people with weakened immune systems, and people with certain health conditions.<sup>3</sup>

Pneumococcal infections can often be treated with antibiotics; however, some strains of the disease have become resistant, which makes prevention through vaccination even more important.<sup>4</sup> Table 1 describes (1) the three vaccines that are used to prevent pneumococcal infections, (2) the Healthcare Common Procedure Coding System (HCPCS)<sup>5</sup> codes for these vaccines, and (3) the HCPCS code associated with pneumococcal vaccine administration.

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<sup>2</sup> “Use of 13-Valent Pneumococcal Conjugate Vaccine and 23-Valent Pneumococcal Polysaccharide Vaccine for Adults with Immunocompromising Conditions: Recommendations of the Advisory Committee on Immunization Practices (ACIP),” *Morbidity and Mortality Weekly Report (MMWR)* 61(40); 816-819, October 12, 2012. Accessed at <http://www.cdc.gov/mmwr/> on March 13, 2013.

<sup>3</sup> U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, “Pneumococcal Polysaccharide Vaccine Information Statement,” October 6, 2009.

<sup>4</sup> *Ibid.*

<sup>5</sup> HCPCS Level 1 numerical codes (e.g., 70405) are identical to CPT codes and are used by CMS when services and procedures involve Medicare beneficiaries. **The five character codes and descriptions included in this report are obtained from Current Procedural Terminology (CPT®), copyright 2011 by the American Medical Association (AMA). CPT is developed by the AMA as a listing of descriptive terms and five character identifying codes and modifiers for reporting medical services and procedures. Any use of CPT outside of this report should refer to the most current version of the Current Procedural Terminology available from AMA. Applicable FARS/DFARS apply.**

**Table 1: Types of Pneumococcal Vaccines and Their Administration**

HCPCS Code	Description
90669	Pneumococcal conjugate vaccine, 7 valent (PCV7), for intramuscular use
90670	Pneumococcal conjugate vaccine, 13 valent (PCV13), for intramuscular use
90732	Pneumococcal polysaccharide vaccine, 23 valent (PPSV23), adult or immunosuppressed patient dosage, when administered to individuals 2 years or older, for subcutaneous or intramuscular use
G0009	Administration of the pneumococcal vaccine

Source: Centers for Medicare and Medicaid Services. *Medicare Learning Network, Quick Reference Information: Medicare Immunization Billing (Seasonal Influenza Virus, Pneumococcal, and Hepatitis B)*, ICN 006799. August 2012.

### Vaccine Recommendations

PCV7. PCV7 has been in use since 2000, and its use has resulted in significantly less pneumococcal disease from the seven strains against which the vaccine protects.

PCV13. PCV13 includes the seven serotypes in PCV7 plus six additional serotypes, including serotype 19A, which has become the most common pneumococcal serotype and is often resistant to antibiotics.<sup>6</sup> In June 2012, ACIP recommended routine use of PCV13 for adults aged 19 years or older with immunocompromising conditions and certain other medical conditions that increase the risk of infections.<sup>7</sup>

PPSV23. PPSV23 includes 12 of the serotypes included in PCV13, plus 11 additional serotypes. PPSV23 is recommended for all adults aged 65 or older and for those between the ages of 19 years and 64 years if they fall within a high-risk group.<sup>8</sup> For immunocompromised persons, a one-time revaccination dose of PPSV23 is recommended 5 years after the first dose.<sup>9</sup> All adults are eligible for a dose of PPSV23 starting at age 65, regardless of previous PPSV23 vaccination, but at least 5 years should pass between doses of PPSV23.<sup>10</sup> The CDC’s “Pink Book”—its guide on vaccine-preventable diseases—states that because of the lack of evidence of improved protection with multiple doses of pneumococcal vaccine, routine revaccination of

<sup>6</sup> Centers for Disease Control and Prevention (CDC), *PCV13 (Pneumococcal Conjugate) Vaccine for Parents*. Accessed at <http://www.cdc.gov/vaccines/vpd-vac/pneumo/vac-faqs.htm> on March 13, 2013.

<sup>7</sup> “Use of 13-Valent Pneumococcal Conjugate Vaccine and 23-Valent Pneumococcal Polysaccharide Vaccine for Adults with Immunocompromising Conditions: Recommendations of the Advisory Committee on Immunization Practices (ACIP),” *MMWR* 61(40); 816-819, October 12, 2012. Accessed at <http://www.cdc.gov/mmwr/> on April 10, 2013.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

immunocompetent persons previously vaccinated with the PPSCV23 vaccine is not recommended.<sup>11</sup>

### **Vaccination Risks**

Vaccination is intended to reduce the risk of contracting serious disease, but vaccination is not without risk. The VAERS is a national vaccine surveillance program that contains information about adverse events that occur after administration of vaccines.<sup>12</sup> A review of data from VAERS for 2012 shows 1,191 adverse events associated with the 4.6 million pneumococcal vaccinations for individuals aged 65 years or older that took place between 2007 and 2011. There were 391 emergency department visits, of which 42 resulted in hospitalization. Twelve events were reported as life threatening.<sup>13</sup>

### **Medicare Payment**

Medicare generally covers one pneumococcal vaccination for a beneficiary age 65 or older; however, Medicare instructs providers to administer a pneumococcal vaccination if a beneficiary is uncertain of his or her vaccination history in the past 5 years. If a beneficiary is certain that more than 5 years have passed since his or her vaccination, revaccination is not appropriate unless the beneficiary is at highest risk.<sup>14</sup> Medicare also pays for the administration of vaccinations. Medicare allowed \$234 million for pneumococcal vaccinations and their administration between 2007–2011.

### **National Initiatives**

Care coordination was one of the six priority areas in the U.S. Department of Health and Human Services' *2012 Annual Progress Report to Congress: National Strategy for Quality Improvement in Health Care*.<sup>15</sup> The report states that care coordination is a conscious effort to ensure that all key information needed to make clinical decisions is available to patients and their providers.<sup>16</sup> Patients commonly receive medical services, treatments, and advice from multiple providers in many different care settings.<sup>17</sup> To assist in communicating medical information, HHS has distributed more than \$4.5 billion in incentive payments to nearly 1,700 hospitals and approximately 74,000 physicians and other health professionals who are using certified electronic health record systems that improve patient safety and coordination of care.<sup>18</sup>

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<sup>11</sup> CDC, "Pneumococcal Disease," *Epidemiology and Prevention of Vaccine-Preventable Diseases* (The "Pink Book"), May 2012. Accessed at <http://www.cdc.gov/vaccines/pubs/pinkbook/pneumo.html> on April 10, 2013.

<sup>12</sup> Accessed at <http://vaers.hhs.gov/index> on April 4, 2013.

<sup>13</sup> Ibid.

<sup>14</sup> Centers for Medicare & Medicaid Services. *Medicare Learning Network, Quick Reference Information: Medicare Immunization Billing (Seasonal Influenza Virus, Pneumococcal, and Hepatitis B)*. ICN 006799. August 2012.

<sup>15</sup> U.S. Department of Health and Human Services. *2012 Annual Progress Report to Congress: National Strategy for Quality Improvement in Health Care*. August 2012. Accessed at <http://www.ahrq.gov/workingforquality/nqs/nqs2012annlrpt.pdf> on April 15, 2013.

<sup>16</sup> Ibid.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

## METHODOLOGY

### Data Collection and Analysis

We obtained all Medicare Part B claims from the National Claims History File for the period 2007–2011 for HCPCS codes 90669, 90670, 90732, and G0009. We then limited our review to claims with:

- a Medicare Status Code of 10—indicates that age was the qualifier for Medicare eligibility, and
- a diagnosis code of V03.82 or V06.6—(i.e., diagnosis codes indicating vaccination against *Streptococcus pneumoniae*).

We limited the period of review to 5 years (i.e., the period for which even immunocompromised beneficiaries should not be revaccinated) and allowed for one vaccination per type—90669 (PCV7), 90670 (PCV13), and 90732 (PPSV23)—per beneficiary. Our calculations as to whether a given vaccination constituted a second (or greater) vaccination of the same type were based on the order of occurrence for each vaccination. Finally, all claims reviewed were for beneficiaries aged 65 years or older.

### Limitations

We did not determine the immunocompetence of beneficiaries; however, even for immunocompromised beneficiaries, revaccination is recommended no sooner than 5 years after the first vaccination. Of the 8,713,178 claims reviewed, a total of 662,085 claims—650,842 claims from 2007 and 11,243 claims from 2008—did not have a National Provider Identifier. Thus, 8 percent of claims could not be used to determine whether the corresponding vaccinations contributed to multiple vaccinations from the same provider. We could not determine whether the adverse events reported in VAERS resulted from first pneumococcal vaccinations or subsequent ones.

### Standards

This study was conducted in accordance with the *Quality Standards for Inspection and Evaluation* issued by the Council of the Inspectors General on Integrity and Efficiency.

## RESULTS

### From 2007–2011, Medicare allowed multiple pneumococcal vaccinations for more than 122,000 beneficiaries in outpatient settings

Of the 4.6 million beneficiaries receiving a pneumococcal vaccination from 2007–2011, we identified 122,498 beneficiaries who received multiple pneumococcal vaccinations of the same type. Medicare allowed a total of \$234 million for pneumococcal vaccinations in outpatient settings, of which nearly \$5 million was for two or more pneumococcal vaccinations of the same type for the same beneficiary within the 5-year period and more than \$2 million was for administration of these vaccinations. See Table 2.

**Table 2: Allowed Pneumococcal Vaccinations for Two or More Vaccinations of the Same Type for the Same Beneficiary for the Period 2007–2011**

HCPCS Code	Number of Repeat Vaccinations	Allowed Amount
90669 (PCV7)	33	\$3,030
90732 (PPSV23)	125,822	\$4,738,104
G0009	113,840	\$2,239,386
<b>Total</b>	<b>239,695</b>	<b>\$6,980,520</b>

Source: OIG analysis of claims data, 2013. There were no repeat vaccinations for HCPCS code 90670 (PCV13).

**For beneficiaries who received repeat vaccinations of the same type for the period 2007–2011, 43 percent received repeat vaccinations from the same providers that gave the first vaccinations**

For HCPCS code 90669 (PCV7), 32 beneficiaries received 33 repeat vaccinations. (One beneficiary received three vaccinations, while all others received two.). Only two beneficiaries received repeat vaccinations from different providers. Each of the remaining 30 beneficiaries received repeat vaccinations from the same provider. Twenty-six beneficiaries received repeat vaccinations from the same North Palm Beach, Florida provider. That same provider also provided one of two vaccinations for the two beneficiaries receiving vaccinations from multiple providers. See Table 3.

For HCPCS code 90732 (PPSV23), 122,474 beneficiaries received 125,822 repeat vaccinations, ranging from 2 to 14 vaccinations. Less than half (52,255) of the beneficiaries received repeat vaccinations from the same provider. The 24,983 providers we identified who gave repeat vaccinations gave between 1 and 754 beneficiaries repeat vaccinations. The previously mentioned Florida provider gave 41 beneficiaries repeat vaccinations. The provider responsible for the 754 beneficiaries was a home health provider located in Columbia, Maryland. See Table 3.

In total, for beneficiaries who received repeat pneumococcal vaccinations of the same type, 43 percent received repeat vaccinations from the same providers that gave the first vaccinations.

**Table 3: Individual Provider Ranking of Repeat Pneumococcal Vaccinations by Number of Beneficiaries Served for the Period 2007–2011**

HCPCS Code	Number of Beneficiaries	Type of Provider	Location of Provider
90669 (PCV7)	30	Allergy and Immunology	North Palm Beach, FL
90732** (PPSV23)	754	Home Health*	Columbia, MD
	431	Immunization Clinic*	Scottsdale, AZ
	214	Community Health	Sarasota, FL
	211	Community Health	Opelika, AL
	185	Private Company	Opelika, AL
	171	Internal Medicine	Teaticket, MA
	145	County Health Department	Leonardtown, MD
	129	Family Medicine	Orlando, FL
	79	Internal Medicine	Garden Grove, CA
	57	Family Medicine	Mount Vernon, IN

\* This provider had multiple NPIs within the top 10 providers; results were combined.

\*\* Only the top 10 providers were listed for 90732 (PPSV23).

Source: OIG analysis of claims data, 2013.

## CONCLUSION

The results of our analysis indicate that some providers are providing repeat pneumococcal vaccinations to Medicare beneficiaries aged 65 years and older and that Medicare is paying for vaccinations more often than recommended by CDC/ACIP. We support CMS and CDC/ACIP in their vaccination goals and efforts, but the data suggest a need to educate certain providers about repeat vaccinations. The data also suggest that 43 percent of the unnecessary vaccination could be reduced through providers reviewing the medical histories of established patients. Tools, such as electronic medical records, may assist in this effort.

This report is being issued directly in final form because it contains no recommendations. If you have comments or questions about this report, please provide them within 60 days. Please refer to report number OEI-07-13-00310 in all correspondence.