

**New York State Department of Health Bureau of Immunization  
Certified Pharmacist Immunizer Survey Report: 2008 – 2011 Reporting Period  
December 2011**

## EXECUTIVE SUMMARY

### Overview

On December 3, 2008 amendments to the New York State Education Law went into effect, allowing pharmacists to immunize those 18 years of age and older against influenza and pneumococcal disease (Chapter 563 of the Laws of 2008). Such immunizations may be provided under a patient specific or non-patient specific order. A pharmacist may not administer immunizations unless he or she has been certified by the New York State Department of Education as having completed training.

Education Law §6801 requires pharmacist immunizers to report the administration of vaccine to the New York State Department of Health (NYSDOH). A survey was developed to track the number of influenza and pneumococcal vaccinations administered by pharmacists in New York State, including New York City. This report is based on findings from both the first and second annual Certified Pharmacist Immunizer Surveys (CPIS). The first CPIS documented the seasonal influenza, H1N1 influenza, and pneumococcal vaccine doses administered during part of the 2008 – 2009 influenza season, beginning with the date the law became effective on December 3, 2008 and ending on March 31, 2010. The second survey documented the seasonal influenza and pneumococcal doses administered between July 1, 2010 and June 30, 2011.

### Methods

The survey was developed by the NYSDOH with feedback from partners at the New York State Board of Pharmacy (NYSBOP) and the Pharmacy Society of the State of New York (PSSNY). Survey questions included the total number of individuals the respondent vaccinated against pneumococcal disease and seasonal influenza, current respondent contact information, sites where vaccine was administered, which type of provider issued the standing orders allowing them to vaccinate, into which immunization information system respondents reported if they vaccinated 18 year olds, and any instances of epinephrine administration to counter adverse reactions among vaccine recipients.

#### 2008 – 2010 Certified Pharmacist Immunizer Survey

On July 13, 2010, a notification about the survey was sent to 3,165 pharmacists via postal mail and/or email. They were informed to report the 2009 H1N1, seasonal influenza and pneumococcal vaccinations they had administered during specific time frames through an online survey. A total of 1,176 of the 3,165 (37%) pharmacists responded to the survey.

#### 2010 – 2011 Certified Pharmacist Immunizer Survey

In August 2011, the 2010 – 2011 Annual CPIS was launched via the NYSDOH Health Commerce System (HCS). All pharmacies (2,185), hospitals (258), and local health departments (58) with HCS accounts were notified that the survey was available for completion. In addition, an email and/or postal notification about the survey reporting requirement was sent to individual pharmacists. A total of 3,615 of the 5,595 (65%) pharmacists certified to immunize as of June 30, 2011, responded to the survey.

## **Findings**

### 2008 – 2010 Certified Pharmacist Immunizer Survey

A total of 227,691 doses of vaccine were administered by certified pharmacist immunizers between December 3, 2008 and March 31, 2010. During this time period, pharmacists reported administering 155,904 doses of seasonal influenza vaccine; between October 1, 2009 and March 31, 2010, pharmacists administered 68,714 doses of H1N1 influenza vaccine; and between December 3, 2008 and March 31, 2009, pharmacists administered 3,073 doses of pneumococcal vaccine.

The source of standing orders for pharmacists to immunize were categorized as follows: 1) private providers; 2) affiliated with a hospital; 3) affiliated with a local health department; or 4) written per a patient specific order. For seasonal influenza vaccinations, 87.5% of pharmacists received their standing orders from private providers, 2.9 % received standing orders from providers affiliated with hospitals, 2.5% received standing orders from providers affiliated with LHDs, and 1.3 % received patient specific orders. Seventy-four percent of pharmacists administering H1N1 vaccine were issued standing orders by private providers; 2.6 % were issued standing orders by providers affiliated with hospitals; 17.0 % were issued orders by providers affiliated with LHDs, and 1.4% received patient specific orders. Nearly ninety-five percent of pharmacists administering pneumococcal vaccine were issued standing orders by private providers; 18.7% were issued standing orders from providers affiliated with hospitals; 1.7% were issued standing orders by providers affiliated with LHDs, and 2.2% received orders per a patient specific order.

### 2010 – 2011 Certified Pharmacist Immunizer Survey

Between July 1, 2010 and June 30, 2011, pharmacists reported administering a total of 429,554 doses of seasonal influenza vaccine, a 53% increase from the 2008 – 2010 reporting period. Forty-seven percent more vaccinations, a total of 6,548, were administered against pneumococcal disease during the same period. While it appears that the number of seasonal influenza vaccines administered by pharmacists has doubled in one year, and the number of pneumococcal vaccine nearly doubled, these increases are likely an artifact of the increased numbers of respondents reporting data for the 2010 – 2011 survey.

Similar to the 2008 – 2010 Survey, the majority of standing orders for pharmacists to administer seasonal influenza vaccine were signed by private providers (51.1%), although the percentage of private providers issuing standing orders was slightly lower than reported during the first CPIS. Thirty-two percent of pharmacists administering seasonal influenza vaccine were issued standing orders by providers affiliated with LHDs, and 15.4% received patient specific orders. Providers affiliated with hospitals signed only 1.2% of seasonal influenza vaccine standing orders. Private providers (49.5%) were also most likely to issue standing orders for pharmacists to administer pneumococcal vaccine; followed by standing orders written per patient specific orders (40.2%); and providers affiliated with local health departments (10.1%). In contrast to the first CPIS findings, providers at hospitals issued only 0.3% of these standing orders.

## 2008 – 2011 Certified Pharmacist Immunizer Impact

Between December 3, 2008 and June 30, 2011, the combined results from the 2010 and 2011 CPIS show that approximately 4,791 pharmacists administered an estimated total of 657,245 doses of seasonal influenza vaccine, and 9,621 doses of pneumococcal vaccine. Including H1N1 vaccinations, pharmacists have vaccinated approximately 663,793 individuals since Chapter 563 of the Laws of 2008 went into effect. There were no adverse reactions reported and thus no instances of epinephrine administration during either reporting period.

The data, as it relates to standing orders, should be interpreted with caution because of under-reporting, especially affecting the 2008 – 2010 CPIS. In the CPIS survey conducted during the 2010-2011 reporting period, it is noted that more providers affiliated with LHDs signed standing orders for pharmacist immunizers, but this finding contradicts results obtained from a separate survey conducted with New York State LHD staff. The survey design does not allow for an assessment of the possible reasons for the apparent shift in the affiliations of physicians signing standing orders for certified pharmacist immunizers.

### **Limitations**

Several caveats need to be considered in the interpretation of these data:

- 1) Accurate contact information for all known pharmacist immunizers was not available. This affected response rates for both survey periods but is most evident in the lower response rates to the 2008 – 2010 Certified Pharmacist Immunizer Survey.
- 2) It was not possible to determine the exact number of certified pharmacist immunizers in New York State who were actively immunizing during the reporting periods for both surveys. The best proxy for this measure is the number of certified pharmacist immunizers at the end of both reporting periods, 3/31/10 and 6/30/11, respectively. This measure is inaccurate because not all pharmacists who are certified to immunize actively immunize, and it is unlikely that all certified immunizers who administered vaccine reported into the survey. The extent to which any of these factors affected the results cannot be determined at this time.
- 3) The data reporting periods changed between the 2008 – 2010 and 2010 – 2011 surveys. The sixteen month reporting period for the 2008 – 2010 survey began on 12/3/08 and ended 3/31/10. The one year reporting period for the 2010 – 2011 survey began on July 1, 2010 and ended on June 30, 2011. Between 4/1/10 and 6/30/10, it is possible that a small number of seasonal influenza or pneumococcal vaccines were administered and not entered since this period was not part of the reporting period.
- 4) For the 2008 – 2010 survey, three pharmacy chains, CVS, Duane Reade and Target, did not complete surveys. Pharmacy chains that did submit data (Price Chopper, Walgreens, Rite Aid and Wegmans), were permitted to report aggregate numbers of immunizations given in each county, not per pharmacist. The number of pharmacists hired as of 2010 at each chain was then used to estimate the number of doses administered per pharmacist. Some of these pharmacists, however, may not have been certified during the reporting periods, and so the assumed number of pharmacists reporting under pharmacy chains is also estimated.

- 5) Other issues specific to pharmacy chains may have resulted in inaccuracies in numbers of doses reported administered during the 2010 – 2011 reporting period.

### **Recommendations**

In the future, it is recommended that newly certified pharmacists receive notification about, and instructions for, reporting the immunizations they administer at the time of certification. NYSDOH will produce guidelines, which will be distributed to newly certified pharmacists upon completion of immunizer training requirements. These guidelines will explain the immunizing pharmacist reporting requirements and provide a link to the HCS, where the survey will be administered from 2011 onwards.

To reduce the burden of data reporting, individual pharmacists and pharmacy chains will also be encouraged to develop systematic ways of recording the number of people who have been vaccinated.

### **Conclusion**

Pharmacists have played a significant role in vaccinating New Yorkers against seasonal influenza, 2009 H1N1 influenza, and pneumococcal disease. As of August 31, 2011, the NYSBOP records show that nearly 6,300 pharmacists have been certified to immunize. The NYSDOH Bureau of Immunization will continue to track the impact of immunizations provided by certified pharmacists in New York State through administration of the annual survey.

## REPORT

### Introduction

Chapter 563 of the Laws of 2008, which became effective December 3, 2008, allows pharmacists to immunize persons aged 18 and older against seasonal influenza and pneumococcal disease.

### Background

On December 3, 2008 amendments to the New York State Education Law went into effect, allowing pharmacists to immunize those 18 years of age and older against influenza and pneumococcal disease (Chapter 563 of the Laws of 2008). Such immunizations may be provided under a patient specific or non-patient specific order issued by a licensed physician or certified nurse practitioner with a practice within the county in which the immunization is administered or, if the immunization is administered in a county with a population of 75,000 or less, by a licensed physician or certified nurse practitioner with a practice site in an adjoining county. A pharmacist may not administer immunizations unless he or she has been certified by the New York State Department of Education as having completed training including, but not limited to, “techniques for screening individuals and obtaining informed consent; techniques of administration; indications, precautions and contraindications in the use of agent or agents; recordkeeping of immunization and information; and handling emergencies, including anaphylaxis and needlesticks.” (Please see Education Law §6801(3); *see also* Education Law §6828; 8 N.Y.C.R.R. §63.9).

Pharmacist immunizers are also subject to two reporting requirements:

- 1) Education Law §6801 requires all pharmacists who administer vaccines report the administration, absent any individually identifiable information, to the New York State Department of Health (NYSDOH) in a manner required by the Commissioner of Health.
- 2) Pursuant to Public Health Law § 2168, pharmacist immunizers located outside of New York City (NYC) must report immunizations given to those 18 years and younger<sup>1</sup> into the New York State Immunization Information System (NYSIIS) and pharmacist immunizers located in NYC must report into the New York City Department of Health and Mental Hygiene’s (NYCDOHMH) City Immunization Registry (CIR).

According to current regulations, patient level data to be recorded by each pharmacist immunizer include:

- 1) Recipient’s name
- 2) Date of vaccine administration
- 3) Address at which vaccine was administered

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<sup>1</sup>In the fall of 2009, a statewide vaccination campaign was mounted against the 2009 H1N1 influenza. As part of the campaign, an executive order signed by Governor Paterson allowed pharmacists to temporarily vaccinate persons less than 18 years of age to assure access to the HINI vaccine. Such vaccinations are required to be reported to the New York State or New York City immunization information systems.

- 4) Administering pharmacist
- 5) Immunizing agent
- 6) Manufacturer and lot number of immunizing agent

## **The 2008 – 2010 and 2010 – 2011 Certified Pharmacist Immunizer Survey (CPIS)**

### **Survey Development**

The 2008 – 2010 and 2010 – 2011 Certified Pharmacist Immunizer Surveys (CPIS) were developed by NYSDOH with feedback from partners at the New York State Board of Pharmacy (NYSBOP) and the Pharmacy Society of the State of New York, (PSSNY). CPIS was developed to assess the influence of the legislation permitting New York State pharmacists to vaccinate by recording the annual number of influenza and pneumococcal vaccinations they administer. The survey was piloted prior to distribution<sup>2</sup>. Survey questions were written to capture the information that Education Law §6801 requires each certified pharmacist to collect. These included:

- 1) Total number of individuals vaccinated against seasonal influenza between 12/3/2008 and 3/31/2009; 4/1/2009 and 3/31/2010; and 7/1/2010 and 6/30/11.
- 2) Total number of individuals vaccinated against 2009 H1N1 influenza between 10/1/2009 and 3/31/2010.
- 3) Total number of individuals vaccinated against pneumococcal disease between 12/3/2008 and 3/31/2009; 4/1/09 and 3/31/2010; and 7/1/2010 and 6/30/2011.
- 4) An estimate of the number of persons vaccinated against 2009 H1N1 influenza by age (18 years old, 19 – 64 years of age, 65 years of age and older).

In addition, on both surveys pharmacists were asked to provide their current work and home contact information, their certified pharmacist license numbers, the dates on which their immunizer certifications were obtained, the sites where they administered vaccine, and the types of providers issuing the standing order allowing them to vaccinate. If it was reported that 18 year olds were vaccinated, pharmacists were asked to indicate into which immunization information system they reported these data. Finally, pharmacists were asked to report instances of epinephrine administration to counter any adverse reactions among vaccine recipients.

### **Sample**

#### **2008 – 2010 Certified Pharmacist Immunizer Survey**

It was difficult to obtain a complete and accurate contact list of all certified immunizers in New York State because the NYSBOP does not require pharmacists to update their personal contact

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<sup>2</sup>Two separate reporting periods are represented in one survey because few pharmacists were certified to immunize immediately after the amendments went into effect to warrant a survey in 2009. Thus, these findings represent pharmacist immunizations in the first two years this requirement has been in effect.

information upon relocation. A list of over 1,630 certified pharmacist immunizers with postal mail addresses was obtained from the NYSBOP and reconciled with a list maintained by PSSNY of 2,196 pharmacists trained as immunizers through the American Pharmacists Association, to eliminate duplicative listings and confirm contact information to the extent possible. On July 13, 2010, notification was sent to 3,165 pharmacists in the state, including New York City, about the survey via postal mail and/or email, depending on the contact information available. Pharmacists were notified to report the 2009 H1N1, seasonal influenza and pneumococcal vaccinations they administered during the time intervals noted above through an internet survey. To increase the response rate: 1) accurate addresses for returned mail were researched; 2) notifications to pharmacists who did not respond to the email notification were mailed; 3) the survey deadline was extended from August 30, 2010 until October 16, 2010; and 4) individual pharmacists were permitted to estimate the number of doses they had administered if they had not recorded this, for the 2008 – 2010 reporting period only. A total of 1,176 (37%) of the 3,165 certified pharmacists contacted responded to the survey.

### **2010 – 2011 Certified Pharmacist Immunizer Survey**

According to the NYSBOP, as of June 30, 2011, there were a total of 5,595 certified pharmacist immunizers in New York State. In August 2011, the 2010 – 2011 CPIS was launched via the NYSDOH Health Commerce System (HCS). All pharmacy chains, hospitals and LHDs with HCS accounts were notified that the survey was available for completion. In addition, an email notification about the survey reporting requirement and instructions to access it was sent to 1,391 individual pharmacists with known email addresses. In October 2011, the same notification and instructions were mailed to 1,504 individual pharmacists with known home addresses to attempt to increase response rates; 1,400 of these notifications were successfully delivered. A total of 3,615 (65%) of the 5,595 known certified pharmacist immunizers in NYS responded to the survey.

### **Findings**

The number of individuals pharmacists reported they vaccinated by vaccine type and the type of providers most frequently reported as having issued standing orders is shown in Tables 1 – 5. There were no adverse reactions reported and thus no instances of epinephrine administration during either reporting period. It is important to note that the data reporting periods changed between the 2008 – 2010 and 2010 – 2011 CPIS surveys. The sixteen month reporting period for the 2008 – 2010 survey began on 12/3/08 and ended 3/31/10. The one year reporting period for the 2010 – 2011 survey began on July 1, 2010 and ended on June 30, 2011. Between 4/1/10 and 6/30/10, it is possible that a small number of seasonal influenza or pneumococcal vaccines were administered and not entered as these three months were not part of the reporting period. Also, the number of individuals reported vaccinated by pharmacists is likely an underestimate due to incomplete response rates.

### **Seasonal Influenza Vaccinations**

Certified immunizer pharmacists reported administering a total of 155,904 doses of seasonal influenza vaccine between December 3, 2008 and March 31, 2010. Between July 1, 2010 and June 30, 2011, certified pharmacist immunizers reported administering a total of 429,554 doses



of seasonal influenza vaccine. Pharmacists administered a total of 585, 458 doses of seasonal influenza vaccine between December 3, 2008 and June 30, 2011.

Table 1

<b>Number of Doses of Seasonal Influenza Vaccine Administered by Pharmacists Between 12/03/08 – 06/30/2011</b>	
Number of doses of seasonal influenza vaccine administered 12/03/08 – 03/31/09	3,506
Number of doses of seasonal influenza vaccine administered 04/01/09 – 03/31/10	152,398
Number of doses of seasonal influenza vaccine administered 07/01/10 – 06/30/11	429,554
<b>Total number of individuals vaccinated against seasonal influenza between 12/03/08 – 06/30/11</b>	
	585,458

**H1N1 Influenza Vaccinations**

Reporting certified immunizer pharmacists administered 68,714 doses of 2009 H1N1 influenza between October 1, 2009 and March 31, 2010, the majority of which were administered to individuals between the ages of 19 and 64.

Table 2

<b>Number of Doses of 2009 H1N1 Influenza Vaccine Administered by Pharmacists Between 10/01/09 – 03/31/10</b>	
Number of doses of 2009 H1N1 influenza vaccine administered to individuals between 6 months – 17 years	881
Number of doses of 2009 H1N1 influenza vaccine administered to 18 year old individuals	293
Number of doses of 2009 H1N1 influenza administered to individuals between 19 – 64 years	42,682
Number of doses of 2009 H1N1 influenza administered to individuals 65 years and older	24,858
<b>Total number of doses of 2009 H1N1 vaccine administered between 10/01/09 – 3/31/10</b>	
	68,714

**Pneumococcal Disease Vaccinations**

Reporting certified immunizer pharmacists administered a total of 3,073 doses of pneumococcal vaccine between December 3, 2008 and June 30, 2010. Between July 1, 2010 and June 30, 2011, pharmacists administered a total of 6,548 pneumococcal vaccine doses. Pharmacists administered 9,621 doses of pneumococcal vaccine between December 3, 2008 and June 30, 2011.

Table 3

<b>Number of Doses of Pneumococcal Vaccine Administered by Pharmacists Between 12/03/08 – 6/30/11</b>	
Number of doses of pneumococcal vaccine administered between 12/03/08 – 03/31/09	11
Number of doses of pneumococcal vaccine administered between 04/01/09 – 03/31/10	3,062
Number of doses of pneumococcal vaccine administered between 07/01/10 – 6/30/11	6,548
Number of doses of pneumococcal vaccine administered between 12/03/08 – 6/30/11	9,621

**Total Number of Individuals Immunized By Pharmacists Between December 3, 2008 and June 30, 2011**

Based on the survey results obtained from certified pharmacist immunizers statewide, a total of 663,793 doses of seasonal influenza, 2009 H1N1 influenza, and/or pneumococcal vaccine were administered in New York State by pharmacists since Chapter 563 of the Laws of 2008 went into effect in December 2008.

Table 4

<b>Total Number of Doses Administered By Pharmacists Between 12/3/2008 – 6/30/2011</b>	
Total number of doses of seasonal influenza vaccine administered between 12/03/08 – 6/30/11	585,458
Total number of doses of 2009 H1N1 influenza vaccine administered between 10/1/09 – 03/31/10	68,714
Total number of doses of pneumococcal vaccine administered between 12/03/08 – 6/30/11	9,621
Total number of doses administered by pharmacists between 12/3/08 – 06/30/11	663,793

**Types of Providers Issuing Standing Orders**

Between December 3, 2008 and March 31, 2010, standing orders were categorized as follows: a) written by private providers; b) written by providers affiliated with local health departments; c) written by providers affiliated with hospitals; or d) written per patient specific orders. Because very few pharmacists or pharmacy chains reported types of providers not falling under any of the above categories, these responses were not included in this analysis.

Table 5 shows that private providers most commonly issued standing orders for pharmacists to administer all three vaccines reported. For seasonal influenza vaccinations, 87.5% of pharmacists received their standing orders from private providers, 2.9 % received standing orders from providers affiliated with hospitals, 2.5% received standing orders from providers affiliated

with LHDs, and 1.3% received patient specific orders. Seventy-four percent of pharmacists administering 2009 H1N1 vaccine were issued standing orders by private providers; 2.6% were issued standing orders by providers affiliated with hospitals; and 17% were issued orders by providers affiliated with LHDs. Slightly more than one percent of pharmacists received patient specific orders. Nearly ninety-five percent of pharmacists administering pneumococcal vaccine were issued standing orders by private providers; 18.7% were issued standing orders from providers affiliated with hospitals; 1.7% were issued standing orders by providers affiliated with LHDs, and 2.2% received patient specific orders.

Table 5

<b>Type of Providers Issuing Standing Orders for Pharmacists by Vaccine Between 12/3/2008 – 03/31/2010</b>			
<b>Seasonal Influenza N = 1176 Pharmacists</b>			
		<b>N</b>	<b>%</b>
Type of Provider Issuing Standing Orders	Private provider	1030	87.5
	Provider @ Hosp	35	2.9
	Provider @ LHD	30	2.5
	Per Patient Specific Order	16	1.3
	No response	65	5.5%
<b>2009 H1N1 Influenza N = 1176 Pharmacists</b>			
Type of Provider Issuing Standing Orders	Private provider	871	74.0
	Provider @ Hosp	31	2.6
	Provider @ LHD	201	17.0
	Per Patient Specific Order	17	1.4
	No response	56	4.7
<b>Pneumococcal Disease N = 1062 Pharmacists†</b>			
Type of Provider Issuing Standing Orders	Private provider	1005	94.6
	Provider @ Hosp	19	18.7
	Provider @ LHD	14	1.7
	Per Patient Specific Order	24	2.2

†Not all pharmacists administered pneumococcal vaccine between 2008 – 2010.

Table 6 shows that private providers most frequently issued standing orders for pharmacists to vaccinate between July 1, 2010 and June 30, 2011. Similar to the 2008 – 2010 Survey, the majority of standing orders for pharmacists to administer seasonal influenza vaccine were signed by private providers (51.1%), although the percentage is slightly less than reported for the first CPIS. In comparison to the first CPIS responses, there appears to be a considerable increase of standing orders written for both seasonal influenza and pneumococcal vaccine signed by providers affiliated with LHDs and patient specific orders. Thirty-two percent of pharmacists administering seasonal influenza vaccine were issued standing orders by providers affiliated with LHDs, and 15.4% received patient specific orders. Providers affiliated with hospitals signed only 1.2% of seasonal influenza vaccine standing orders. Private providers (49.5%) were also most likely to issue standing orders for pharmacists to administer pneumococcal vaccine; followed by patient specific orders (40.2%); and providers affiliated with local health

departments (10.1%). In contrast to the first CPIS findings, providers at hospitals issued only 0.3% of these standing orders.

Table 6

<b>Type of Providers Issuing Standing Orders to Pharmacists by Vaccine Between 7/01/2010 – 6/30/2011</b>			
Seasonal Influenza N = 3614 Pharmacists			
		N	%
Type of Provider Issuing Standing Orders	Private provider	1847	51.1
	Provider @ Hosp	44	1.2
	Provider @ LHD	1161	32.1
	Per Patient Specific Order	557	15.4
	Other	5	.1
Pneumococcal Disease N = 1368 Pharmacists			
Type of Provider Issuing Standing Orders	Private provider	678	49.5
	Provider @ Hosp	1	.3
	Provider @ LHD	139	10.1
	Per Patient Specific Order	550	40.2

The data, as it relates to standing orders, should be interpreted with caution because of under-reporting, especially affecting the 2008 – 2010 CPIS. In the CPIS survey conducted during the 2010-2011 reporting period, it is noted that more providers affiliated with LHDs signed standing orders for pharmacist immunizers, but this finding contradicts results obtained from a separate survey conducted with New York State LHD staff. The survey design does not allow for an assessment of the possible reasons for the apparent shift in the affiliations of physicians signing standing orders for certified pharmacist immunizers.

## LIMITATIONS

Several caveats need to be considered in the interpretation of these data:

- 1) Accurate contact information for all known pharmacist immunizers was not available. This affected response rates for both survey periods but is most evident in the lower response rates to the 2008 – 2010 CPIS.
- 2) It was not possible to determine the exact number of certified pharmacist immunizers in New York State who were actively immunizing during the reporting periods for both surveys. The best proxy for this measure is the number of certified pharmacist immunizers at the end of both reporting periods, 3/31/10 and 6/30/11, respectively. This measure is not accurate because not all pharmacists who are certified to immunize actively immunize, and it is unlikely that all certified immunizers who administered vaccine reported into the survey. The extent to which any of these factors affected the results cannot be determined at this time.

- 3) The data reporting periods changed between the 2008 – 2010 and 2010 – 2011 surveys. The sixteen month reporting period for the 2008 – 2010 survey began on 12/3/08 and ended 3/31/10. The one year reporting period for the 2010 – 2011 survey began on July 1, 2010 and ended on June 30, 2011. Between 4/1/10 and 6/30/10, it is possible that a small number of seasonal influenza or pneumococcal vaccines were administered and not entered since this period was not part of the reporting period.
- 4) For the 2008 – 2010 survey, three pharmacy chains, CVS, Duane Reade and Target, did not complete surveys. Pharmacy chains that did submit data (Price Chopper, Walgreens, Rite Aid and Wegmans), were permitted to report aggregate numbers of immunizations given in each county, not per pharmacist. The number of pharmacists hired as of 2010 at each chain, was then used to estimate the number of doses administered per pharmacist. Some of these pharmacists, however, may not have been certified during the reporting periods, and so the assumed number of pharmacists reporting under pharmacy chains is also estimated.
- 5) Issues specific to pharmacy chains may have resulted in inaccuracies in numbers of doses reported administered during the 2010 – 2011 reporting period.
  - The acquisition of Duane Reade by Walgreens became effective during the summer of 2011, so any records that were maintained by Duane Reade are not accessible for data analysis.
  - Walgreens does not currently utilize a centralized electronic registry system, and therefore is only able to track sold vaccine. They are unable to distinguish between vaccine which was administered and vaccine which was dispensed to be given outside the pharmacy setting. Walgreens' representatives estimate that less than one percent of the vaccine they sell is dispensed, so their reported numbers of doses administered are assumed to be a slight over-estimate of vaccine doses administered.
  - For the 2010 – 2011 survey, CVS and Walgreens were unable to submit their data in the required format, so reports of doses administered are best estimates.

## **Recommendations**

In the future, it is recommended that newly certified pharmacist immunizers receive notification about, and instructions for, reporting the vaccines they administer as part of the certification process. NYSDOH will produce guidelines, which can be distributed to newly certified pharmacists upon training completion, explaining the reporting requirements and providing a link to the HCS, where the survey will be administered in 2011 and onwards.

To reduce the burden of data reporting, individual pharmacists and pharmacy chains will also be encouraged to develop systematized methods of recording the number of people who have been vaccinated.

## **Conclusion**

Immunizing pharmacists play a significant role in vaccination efforts in New York State. Advantages of pharmacists immunizing include greater scheduling flexibility and accessibility than some private providers can offer. Pharmacies serve clients of varying socioeconomic status as well as racial and ethnically diverse backgrounds. In some cases, pharmacists provide the only health care accessed by adults.

Despite the limitations of this survey, it is clear that pharmacists have already played a significant role in immunizing New Yorkers against influenza and pneumococcal disease. As of July 1, 2011, the NYSBOP reported that 5,595 pharmacists have been certified to immunize. The number of doses administered between December 3, 2008, and June 30, 2011 by pharmacists in the state of New York is expected to increase from the current estimate of 663,783. The probable increased awareness among pharmacists about both New York State's reporting requirements for certified pharmacists and the availability of a survey for these reporting purposes will also likely result in increased reporting rates for the 2011 – 2012 reporting period. The New York State Department of Health Bureau of Immunization will continue to track the impact of immunizations provided by certified pharmacists in New York State.

## **References**

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