

Executive Summary

ASTHO helped state health agencies to build collaborative relationships with pharmacies nationwide in an effort to vaccinate the public against H1N1. As follow-up to these efforts, ASTHO evaluated pharmacy and public health agency engagements using two surveys: one directed at pharmacy representatives and pharmacists in 15 states¹, and the second directed at state and local public health agency representatives in those same 15 states. The focus of the evaluation was to compare responses within this set of states from pharmacies and public health personnel.

A brief synopsis of the major findings follows.

In reviewing the findings, it is important to keep in mind that 1) participating states were selected because they demonstrated interest in pharmacy vaccination during the H1N1 vaccination campaign and thus are not representative of all states, and 2) responding pharmacies represent a convenience sample of pharmacies in participating states and may not be representative of all pharmacies in those states. Therefore, results cannot be considered to be nationally representative.

Pre-H1N1

Prior to H1N1, many pharmacies did not have partnerships with public health agencies, primarily because they were not asked to do so. However, public health respondents indicated that there were no partnerships opportunities prior to H1N1. Furthermore, many public health respondents felt that pharmacies would not be able to adhere to prioritization recommendations established by public health entities.

During H1N1

Pharmacies indicated that their reason for joining with public health was to “do our part to help protect the population.” Public health respondents recognized the reach to the larger population which would be available via pharmacies. The most frequently selected response for public health respondents when asked about the importance of engaging pharmacies was, “we wanted the vaccine to be available wherever possible.”

Despite the best of intentions, there remained barriers for pharmacies wanting to participate in the H1N1 response. For example, limited pharmacist authority in states and reporting issues were the top two barriers to provision of the H1N1 vaccine, according to pharmacists. Additionally, a great proportion of pharmacists said establishing or implementing reimbursement and compensation procedures for those who do provide these services would enhance pharmacy involvement. Regarding data and reporting, many pharmacists said agreements with corporate offices to consolidate and report data were helpful. However, this is not an option for independent pharmacies because they do not have a corporate office to which they report. Public health representatives said agreeing upon minimum data reporting requirements with pharmacies up front facilitated reporting.

After H1N1

Now that the H1N1 pandemic has subsided, pharmacists and public health representatives were asked whether or not they were likely to collaborate with each other in the future. Half of the pharmacists said they would, particularly by providing adult vaccinations; a larger proportion of public health representatives indicated they will.

¹ The states targeted for this evaluation included: Arkansas, Florida, Georgia, Hawaii, Idaho, Kansas, Louisiana, Massachusetts, Maine, Michigan, Minnesota, Puerto Rico, Rhode Island, Virginia, Wisconsin, and West Virginia.

Improving Collaborations

There remain steps which can be taken to improve the collaboration between pharmacies and public health in the event of another pandemic or emergency. According to responding pharmacists, issues around communication, supply management, and information sharing and reporting can be improved. Public health representatives indicated the need to establish and build those partnerships prior to the emergency, to increase information sharing and to address state regulations and insurance reimbursement.

Discussion

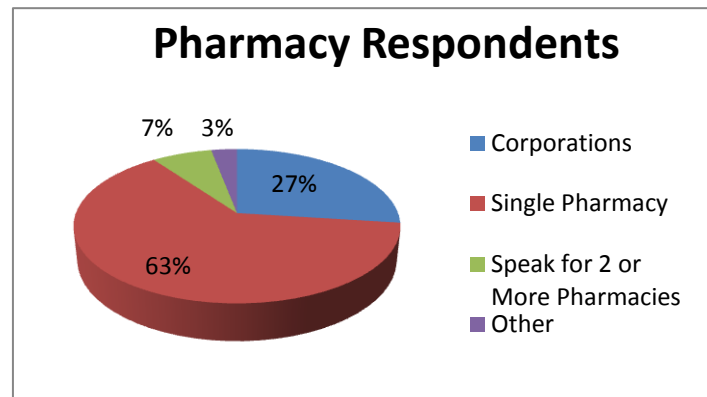
Survey results demonstrate the novelty of pharmacy–public health collaboration. Many of the pharmacies indicating previous collaborations with public health had been doing so for 10 years or less. Given the relative youth of these collaborations, it is a fitting time to reflect on successes and challenges experienced by both pharmacies and public health agencies during the H1N1 vaccination experience. Overall, both entities were motivated to collaborate to serve the greater good. A majority of pharmacists, pharmacy representatives, and state and local public health agency representatives would engage in future collaborations. These collaborations will be strengthened with increased communication and appreciation for the roles played by either party. Furthermore, there remain barriers such as reimbursement concerns.

The H1N1 vaccination campaign was implemented in the form of a public private partnership. Vaccine was purchased by the federal government and allocated to states in proportion to population size. States were to enroll vaccine providers and determine where vaccine would be shipped. States engagement with pharmacies for the H1N1 vaccination campaign varied, both in terms of how much vaccine would be provided, and when it would be shipped to pharmacies. By late December 2009, as the amount of vaccine available for ordering increased due to decreasing public demand and increased production, a federal program was implemented to direct vaccine directly to participating chain pharmacies to distribute among their stores as they determined. Two separate surveys were conducted to describe pharmacy involvement in the H1N1 pandemic vaccination campaign and their collaborations with public health: one survey of pharmacists and pharmacy representatives, the other of public health representatives. This report details the survey findings.

Survey Methods

The states and one U.S. Territory targeted for this evaluation were known to have established pharmacy–public health collaborations and were geographically representative of the United States. They were Arkansas, Florida, Georgia, Hawaii, Idaho, Kansas, Louisiana, Massachusetts, Maine,

Michigan, Minnesota, Puerto Rico, Rhode Island, Virginia, Wisconsin and West Virginia. ASTHO worked with staff at the American Pharmacists Association, the National Association of Chain Drug Stores, and the National Alliance of State Pharmacy Associations to distribute the pharmacy survey to pharmacists in the 15 states (no respondents indicated they represented pharmacies in Puerto Rico). A total of 2096 pharmacists or pharmacy representatives were targeted, in an initial



deployment of the survey through the American Pharmacists Association and National Association of Chain Drug Stores. Because the response rate was only 7 percent, ASTHO worked with the National Alliance of State Pharmacy Associations to disseminate the survey a second time to their membership lists for the 15 target states. Because many members of the American Pharmacists Association and the National Association of Chain Drug Stores are also members of their state pharmacy associations, it is not possible to determine the number of individuals who received the survey, and thus a response rate cannot be calculated.

The public health survey targeted 332 public health representatives via ASTHO and NACCHO networks in the same 15 states and Puerto Rico. A total of 332 public health representatives were targeted in those states. A total of 136 or 41percent of them responded. In reviewing the findings, it is important to keep in mind that 1) participating states were selected because they demonstrated interest in pharmacy vaccination during the H1N1 vaccination campaign and thus are not representative of all states, and 2) responding pharmacies represent a convenience sample of pharmacies in participating states and may not be representative of all pharmacies in those states. Results therefore cannot be considered as nationally representative, but the focus of the evaluation was to compare responses within this set of states from pharmacies and public health personnel.

Survey Results²

ASTHO received a total of 355 responses to the pharmacy-targeted survey. As noted above, a response rate could not be calculated. Of the respondents: 29 percent were staff pharmacists; 42 percent were pharmacy managers; 10 percent were corporate; 10 percent were pharmacy owners; 7 percent were other, including clinical pharmacists, pharmacy directors and pharmacy operations managers; and 3 percent were district managers. Regarding the types of pharmacies where these individuals worked, 30 percent spoke on behalf of retail pharmacies (e.g. Walgreens), 20 percent were grocery store (e.g. Safeway) representatives, 20 percent represented independent pharmacies, 12 percent were mass merchant employees (e.g. Target), and 13 percent were regional pharmacy chain representatives (e.g. Kerr). Another 6 percent were considered *other* and included franchise pharmacies and chain pharmacies located in out-patient clinics. These proportions are slightly different from those found in the 2009 National Association of Chain Drug Stores Community Pharmacy Report which identified 37 percent as traditional chains, 15 percent supermarkets, 13 percent mass merchants, and 34 percent independents.³

ASTHO received a total of 136 responses to the public health personnel-targeted survey, for a response rate of 41 percent. Of those responding to the survey, 28 percent were representatives of state public health and 72 percent were representatives of local public health agencies. Specifically, of the respondents identifying their role in public health agencies 44 percent are health officials, 14 percent are preparedness directors, 15 percent represent immunization programs and 27 percent identify as other (e.g. medical director, pharmacy director, Strategic National Stockpile coordinator, epidemiologist, etc).

In addition, respondents were asked to describe other roles they filled during the H1N1 response. Some of the roles identified are: incident response coordinator, county H1N1 coordinator, deputy director of emergency preparedness; and one person self-identified as the health department director, preparedness coordinator, and clinic nurse—demonstrating the multiple roles many health agency staff assume due to a waning public health workforce.

Before H1N1 Pandemic

Key Findings:

- 47 percent of responding pharmacy representatives indicated they had partnered with public health prior to H1N1.
- 50 percent of public health/pharmacy partnerships began in the last 10 years, according to those who knew when they began.
- 44 percent of pharmacy respondents who had not partnered with public health indicated it was because they “weren’t asked”.
- 27 percent of public health respondents who had not partnered with pharmacies said it was because the opportunity had not come up before H1N1.
- 41 percent of public health respondents did not think pharmacies would be able to adhere to prioritization recommendations for vaccine administration.

² In instances in which percentages do not add up to 100, respondents had the opportunity to select all that apply.

³ NACDS. 2009 Community Pharmacy Results. Accessed May 25, 2011: <http://nacds.org/user-assets/pdfs/2010/publications/2009Results.pdf>

Pharmacies

- Of responding pharmacy representatives, 47 percent indicated they had partnered with public health prior to H1N1; 53 percent of pharmacy representatives indicated they had not partnered with public health prior to H1N1.
- Most frequently cited collaborations in place prior to H1N1 involved at least one of the following: pandemic planning activities (13 percent), state/local immunization coalitions (21 percent), the distribution of state/local stockpiles of medication (17 percent), and input of vaccines administered into a health department's registry (15 percent). Eight percent indicated they did not know how they collaborated with public health.
- The majority of pharmacies that *did* partner with state or local health departments prior to H1N1 began their partnerships in the last 10 years (the earliest partnership started in 1998).
- Of the pharmacies that *did not* partner with public health agencies, 44 percent answered they were not asked to. Others responded that they had not considered it (32 percent), attempted to partner but were not able to (4 percent), did not know how to reach the right person (7 percent), or listed other reasons (16 percent) such as "the county was not interested," "corporations acted too slowly," it was "against company policy," or the "department did not feel there was a need."
- Pharmacies that provided routine vaccinations (e.g. influenza, zoster, etc.) prior to the H1N1 vaccination campaigns (76 percent) did so in the following ways: as a part of routine services (57 percent), in the form of a clinic within the pharmacy (18 percent), or via assistance in clinics outside of the pharmacy (2 percent).

Public Health

- Among state health departments, 67 percent responded that they had partnered with pharmacies prior to H1N1. Among local health departments, this proportion was considerably smaller at 28 percent.
- Those that did not (approximately 54 percent of those responding) indicated that the opportunity did not arise (27 percent), they had not considered it (10 percent), did not want to (2 percent), did not know how to reach the right person (1 percent) or preferred to work with other partners (1 percent).
- Health departments that collaborated previously with pharmacies indicated that pharmacies were either included in pandemic planning activities (17 percent), involved in the state/local immunization coalition (7 percent), had agreements for distributing state stockpiles of medication (7 percent), helped to input vaccines administered into registries or other databases (4 percent), or were Vaccine for Children providers (4 percent). Of responses listed in the *other* category (8 percent) stated (as a text response) that pharmacies were either enrolled in their state-supplied vaccine program for adult vaccines, were allowed to administer vaccinations, were active partners in Flu Advisory Board or state advisory committees on immunization, ordered vaccines for patients which the public health agencies administered, and aided in communicable disease prevention assistance with post-exposure prophylaxis medications.
- Prior to the 2009 H1N1 pandemic, 41 percent of public health agencies surveyed were uncertain that pharmacists would be able to adhere to prioritization recommendations for vaccine administration (i.e. Advisory Committee on Immunization Practices recommended target groups for limited vaccine). Reasons why (text response) include the following:
 1. Recommendations are not mandates, and it is unlikely that pharmacists will be able to turn away clients or not fill a physician order.

2. Pharmacists would be concerned about jeopardizing relationship with patrons turned away; it is possible that individuals not in priority groups could cause disruption within pharmacies.
3. Screening process would be costly and even after implemented, public health was unsure that pharmacies would be able to identify which patients were considered high risk (example given: pregnancy status is unknown to pharmacists unless she had prenatal vitamins prescription on file).
4. Pharmacies are not able to give vaccines to children under 18 years of age.
5. “Big Box Pharmacies” had not adhered to targeted populations in the past when there was a shortage of flu vaccine, so public health agencies had no trust that they would adhere this time.
6. Pharmacists had provided vaccines outside of targeted groups previously and also did not adhere to the guidelines for the administration of FluMist and vaccine to specific age groups.

During H1N1 Pandemic

Key Findings:

- “We wanted to do our part to help protect the population” was the number one reason for pharmacy participation.
- “We wanted the vaccine to be available wherever possible” was the number one reason for public health collaboration with pharmacies.
- “Limited pharmacist authority in state (e.g. age/prescription restrictions) was the number one barrier to pharmacy involvement in providing H1N1 vaccinations.

Pharmacies

- Among survey respondents, nearly 80 percent of the pharmacy representatives participated in the national H1N1 vaccination campaign, of which 50 percent registered and received vaccine from their state or local health department. Smaller numbers of pharmacies either received vaccine directly from the federal government (15 percent), pre-registered/registered but did not receive vaccine (10 percent), or received vaccine from corporate offices (26 percent) (which may have come from either state or federal sources).
- Reasons to establish partnerships with public health agencies to administer H1N1 vaccinations, in order of perceived benefit as rated by respondents:

	Very Beneficial	Somewhat Beneficial	Not Beneficial	N/A
We wanted to do our part to help protect the population.	79%	12%	2%	7%
Served as a trusted resource to deliver messages and administer vaccines.	75%	15%	3%	8%
Expanded our reach in the community.	74%	16%	3%	7%
Allowed us to demonstrate that we can be a part of our community’s emergency response.	73%	15%	4%	9%
The public could access vaccine on nights, weekends and holidays.	72%	14%	2%	12%
Made good business sense.	69%	20%	5%	7%
Pharmacies were able to advertise/market the	63%	25%	4%	9%

program to promote awareness.				
Relationships are now established for future work.	63%	25%	3%	9%
We wanted to be a part of a historic program.	40%	30%	15%	15%
We could offer one ship-to site that served multiple locations.	39%	39%	17%	5%

Pharmacies as H1N1 Vaccine Providers:

- Pharmacies' decision to participate in the program as an H1N1 vaccine provider were based upon the following (in order of rated importance):

	Very Important	Somewhat Important	Not Important	N/A	Don't Know
It was an opportunity to provide a valuable customer service.	92%	4%	1%	3%	0%
We were an accessible location for the public to get vaccinated.	87%	8%	2%	4%	0%
We are a trusted resource in the community.	87%	9%	1%	3%	0%
This is what we do; we were prepared to administer vaccine to the public.	77%	16%	2%	4%	1%
We wanted to have a presence in the community.	74%	18%	3%	4%	1%
Customers inquired about the vaccine.	70%	19%	4%	5%	3%
Corporate office designated our pharmacy as a provider.	55%	15%	8%	19%	2%
It was an opportunity to drive foot traffic.	53%	32%	9%	6%	<1%
The health department reached out to us.	27%	21%	7%	21%	24%

Public Health

- Reasons that affected the decision of public health agencies to establish partnerships with pharmacies to administer the H1N1 vaccine, by order of decreasing importance as indicated by respondents:

	Very Important	Somewhat Important	Not Important	N/A
We wanted the vaccine to be available wherever possible.	64%	15%	3%	18%
Pharmacies could help us reach the general population (anyone who wanted the vaccine).	64%	13%	5%	18%
They helped to expand our reach in the community.	58%	21%	2%	19%
Pharmacies serve as an accessible location for the public to get vaccinated (open nights, weekends and holidays).	57%	23%	3%	17%

Pharmacies could help us reach targeted populations.	37%	25%	13%	24%
This was an opportunity to build relationships.	37%	36%	9%	18%
Pharmacies were able to advertise/market the program to promote awareness.	34%	36%	10%	19%
They provide a trusted resource to deliver our messages and administer vaccines.	32%	37%	12%	19%
Pharmacies had the resources and staff to vaccinate many people, reducing the burden on public health.	31%	30%	15%	24%
Pharmacies were able to use their distribution centers as one “ship-to” site, but put vaccine in multiple locations.	21%	18%	22%	40%

- Public health agencies’ decisions to direct H1N1 vaccine to pharmacies at the time it did depended on the following:

	Important	Somewhat Important	Not Important	N/A
We had ample vaccine.	72%	5%	2%	22%
Vaccine priority groups were opened up to the general population.	72%	3%	2%	23%
CDC began to direct-ship to pharmacies.	37%	10%	16%	37%

- More than 50 percent of public health agencies did not send the H1N1 vaccine to targeted areas; instead respondents were more concerned with getting the vaccine to the largest number of people possible.
- Pharmacies began receiving vaccine from the health department allocation in October 2009 (16 percent), November 2009 (14 percent), December 2009 (28 percent), January 2010 (7 percent) or February 2010 (3 percent).
- Barriers to pharmacy involvement in providing H1N1 vaccinations, by order of decreasing importance as indicated by public health respondents:

	Big Barrier	Somewhat of a Barrier	Not a Barrier	N/A
Limited pharmacist authority in state (e.g. age/Rx restrictions).	35%	34%	31%	31%
Needing to work through corporate offices.	18%	33%	21%	28%
Insufficient training on reporting system.	12%	27%	32%	30%
Reporting issues.	10%	36%	26%	28%
Lack of support from medical community.	10%	18%	47%	26%
Did not have a relationship in place already.	5%	20%	40%	35%
Insufficient training on administration.	5%	16%	46%	33%
Needed emergency authorization for them to administer the vaccine.	3%	16%	43%	38%
Pharmacy concern about billing issues.	3%	28%	38%	31%

- During H1N1, public health agencies anticipated that pharmacies could help to reach the following groups at any point in the campaign (by order of decreasing potential):
 1. Persons aged 25 to 64 years with health conditions associated with higher risk of complications from influenza (27 percent).
 2. Household contacts and caregivers for children younger than 6 months of age (21 percent).
 3. Pregnant women (15 percent).
 4. The uninsured and underinsured (9 percent).
 5. People from 6 months through 24 years of age (10 percent).
 6. Health care and emergency medical services personnel (9 percent).
 7. Specific racial/ethnic groups (2%)
- Doubts about pharmacies being able to reach the aforementioned priority groups were expressed by public health agencies,⁴ with the following reasoning submitted via text response:
 - Data analysis has not been conducted to determine if doses administered by pharmacies were more or less likely to be given to recommended populations than those given by other providers.
 - Eligibility screening of patients increases pharmacists' overhead costs associated with vaccination, especially since it is difficult for them to reject patrons previously served.
 - Pharmacies do not want to take on the responsibility of being enforcers of the Department of Health's policies.
 - Certain pharmacies advertised to all individuals for the H1N1 vaccine before states decided to expand the target population.
 - The public can be difficult to handle.

Registration, Order Information, and Distribution of H1N1 Vaccine:

- The percentage of public health agencies' allocation (total, to date) sent to pharmacies widely differed, with a range of less than 1 percent to about 50 percent. About 69 percent of responding public health agencies (83 percent of state and 41 percent of local health agencies) allocated less than 10 percent of their total to pharmacies. Only two public health agencies (one state and one local) indicated they directed 41 percent or more of their vaccine to pharmacies.
- Of the pharmacies surveyed, only 23 percent ordered the H1N1 FluMist vaccine. Pharmacies chose not to order the H1N1 FluMist vaccine because of the following reasons (in order of importance):
 1. Lack of customer demand (37 percent).
 2. Predominant customer base not eligible (34 percent).
 3. Not as familiar with it (12 percent).
 4. Too difficult to store (came in bulkier packages) (13 percent).
- Of the pharmacy representatives surveyed, 51 percent used federal supplies of needles and syringes. Among the 49 percent who used their own supplies of needles and syringes, they reported the following reasons why: the quality of federal supplies was not up to our standards (22 percent), there were not enough of the federal supplies (14 percent), or we were not familiar with the federal supplies provided (28 percent).

⁴ Thirty-six percent of respondents replied with "maybe" and 20 percent responded "no" when asked if they felt that pharmacies could reach the target priority groups post-H1N1.

- Of the surveyed pharmacies, 44percent had to develop new systems or procedures in order to participate in the H1N1 vaccine campaign (such as data recording, reporting, billing, etc). New systems or procedures implemented did at least one the following (all are text responses):
 1. Create scheduling tools and ways to let the public know when vaccine would be available.
 2. Data entry into multiple reporting systems (which were often in multiple formats that greatly differed from one another).
 3. Report doses.
 4. Register each patient receiving the H1N1 vaccine on an online vaccine registration site.
 5. Use extra time to fax notification letters or store information on a profile.
 6. Set up ways to bill insurance for H1N1; set up a cash register.
 7. Train techs to answer calls regarding vaccine availability, age restrictions, billing and documentation, etc.
 8. Develop unique standing orders, which required reporting to state and local health departments; updating store processes, including order and return procedures; reporting to oversight physicians; and developing contracts with and setting up new distributors to handle the H1N1 vaccine. These changes caused delays due to a lack of standardization at the state and local level.
 9. Increase frequency of reporting to the state registries to weekly reporting; in some cases, county health departments asked for additional information to be tracked manually by pharmacists.

Barriers for Pharmacies

Key Findings:

- Limited pharmacist authority in state and reporting issues were the top two barriers to participation in providing H1N1 vaccine according to responding pharmacists.
- Reimbursement issues and differing protocols on compounding pediatric doses were the top two barriers to involvement in providing SNS/state supplies of antivirals.
- Seventy-six percent of pharmacists said establishing reimbursement and compensation procedures for pharmacists who provide these products and services would enhance pharmacy involvement in providing SNS/state supplies of antivirals.

- Barriers to pharmacy involvement in providing H1N1 vaccinations (other than vaccine availability), by order of decreasing severity and according to respondents:

	A Barrier	Somewhat of a Barrier	Not a Barrier	N/A
Limited pharmacist authority in state (e.g. age/Rx restrictions).	23%	32%	38%	7%
Reporting issues.	20%	30%	42%	8%
Billing issues.	18%	46%	29%	7%
Vaccine delivery processes (e.g. unpredictable delivery times, packages in different sizes and shapes than normally managed, etc.).	18%	24%	54%	4%
Lack of public interest in the vaccine.	16%	37%	47%	4%
Did not have a relationship with public health already established.	15%	23%	47%	15%

Insufficient training on reporting system.	13%	23%	53%	11%
Needed emergency authorization to administer vaccine.	12%	16%	50%	22%
Obtaining information from the health department (e.g. answers to questions on vaccine formulas, etc.).	11%	24%	52%	13%
Adhering to priority/target group recommendations.	11%	23%	64%	3%
Needing to work through corporate offices.	11%	15%	56%	19%
Push-back from medical community.	8%	21%	62%	10%
Insufficient training on administration.	8%	9%	73%	10%
Storage capacity.	4%	16%	77%	4%

After the H1N1 Pandemic:

Key Findings:

- Fifty percent of pharmacists said they will partner with health departments in the future.
- Sixty percent of public health representatives said they will partner with pharmacies in the future.
- Seventy-eight percent of pharmacists said they would be willing to provide routine adult vaccinations versus 6 percent saying they would be willing to provide vaccinations for children.

Collaborating with Public Health after the H1N1 Pandemic:

- Half of responding pharmacies stated that they will collaborate with health departments post-H1N1; 44 percent are “not sure”. Among those pharmacies indicating they will continue to partner with public health and 35 percent had collaborated prior to H1N1. Among those pharmacies indicating they were not sure if they would continue their collaboration, 54 percent began their partnerships in 2009.
- Of the pharmacies surveyed, 84 percent of respondents indicated they will provide routine vaccinations after H1N1. However, most pharmacies expressed their preference for providing adult vaccinations over child immunization in the survey (78 percent indicated they would provide for adults and 6 percent would provide it for children).
- Pharmacies that *would team up* with state/local health departments following H1N1 stated they would collaborate⁵ in the following ways, in order of decreasing preference:
 1. Providing seasonal flu vaccine (87 percent).
 2. Providing other routine vaccinations for adults, (partnering as needed or appropriate (65 percent).
 3. Emergency planning (50 percent).
 4. Communication and education on health topics (59 percent).
 5. Strategic National Stockpile or state-supplied medication dispensing such as antivirals or antibiotics (55 percent).
 6. Providing other routine vaccinations for children, (partnering as needed or appropriate (22 percent).

Others indicated that their “pharmacy’s involvement will be directed by clinic administration.”

⁵ It is unclear from the responses to this question if respondents were indicating those areas in which they would like to partner or those areas in which they had established ongoing partnerships with public health.

- Pharmacies that *would not partner* or were not sure if they would partner with state/local health departments following H1N1 expressed the following reasons why not:
 - They do not see the added benefit (23 percent).
 - They do not have staffing resources to maintain partnership (23 percent).
 - It was too difficult to report required vaccination data (6 percent).
 - It was too cumbersome a process, at least in reference to handling antivirals (5 percent).
 - Others indicated that they were not the decision-maker in the process, giving the following reasons: “up to corporate,” or “corporate barriers” (40 percent).

Collaborating with Pharmacies after the H1N1 Pandemic:

- More than half of public health respondents agree they will partner with pharmacies in the future.⁶ Of those public health respondents who indicated they had partnered with pharmacies prior to H1N1, 94 percent said they would continue those partnerships, 3 percent said they would not, and 3 percent were not sure. Of those public health respondents who indicated they had not partnered with pharmacies in the past, 33 percent said they will do so in the future, 15 percent said they would not, and 52 percent were unsure.
- Those that indicated they will partner with pharmacies in the future disclosed that they would do so in the following areas, in order of decreasing preference (based on total respondents):
 1. State or Strategic National Stockpile-supplied medication dispensing such as antivirals or antibiotics (39 percent).
 2. Emergency planning (40 percent).
 3. Communication and education on health topics (32 percent).
 4. Providing seasonal flu vaccine (21 percent).
 5. Providing other routine vaccines for adults (7 percent).
 6. Providing other routine vaccines for children (2 percent).
- Those that indicated they will not partner with pharmacies in the future felt that way because they did not have the staffing resources to maintain such a partnership (50 percent), the process was too cumbersome (13 percent), it would be too difficult to maintain communications (13 percent), pharmacies could not provide required data (13 percent), or there were no added benefits (17 percent).

Administration Issues

Key Findings:

- Seventy-five percent of responding pharmacists said they would support a pharmacist authority protocol.
- Forty-four percent of public health respondents said they would support local, state, or either local or state pharmacist authority protocols.
- Thirty-nine percent of pharmacies recouped costs associated with H1N1 vaccination by billing Medicare.

Standing Orders

The need to revise or develop standing orders (or collaborative agreements) with physicians in order to participate was split between “yes” (38 percent), “no” (43 percent), and “not sure” (19 percent). The

⁶ 30% indicated maybe they would partner with pharmacies in the future while 10% indicated no, they would not.

following reasons were given for having to develop standing orders: state regulations, changed legislation, and existing standing orders did not cover H1N1. Of the respondents, 81 percent stated the health department did not assist pharmacies in obtaining standing orders/collaborative agreements with physicians in order to obtain authorization to vaccinate. Emergency declarations to expand vaccination authority that included pharmacists (e.g. lowering age restrictions, removing the need for a prescription, etc.) were issued and affected 38 percent of those surveyed. Another 24 percent were unsure if their state had issued any emergency declarations, and 38 percent said their state had not). For pharmacies in states where emergency declarations were present, the impact was felt most in the following areas (by level of importance):

	Big Impact	Somewhat of an Impact	No Impact	NA	Don't Know
Subsequently prompted my pharmacy to register to be a provider.	37%	23%	18%	21%	4%
Removed the need for patients to have a prescription.	37%	17%	24%	20%	2%
Enabled my pharmacy to vaccinate younger people.	31%	36%	16%	16%	2%
Pharmacies underwent new training and certification to vaccinate.	23%	21%	38%	18%	0%

Pharmacist Authority Protocol

- Of the pharmacy respondents, 75 percent would support a pharmacist authority protocol in which either local or state medical officers authorize pharmacists. Of this group, 6 percent support authorization made by local health department medical officers for pharmacists within its jurisdiction, 16 percent support authorization made by state health department medical officers for all pharmacists in the state, and 53 percent would support either. Meanwhile, 3 percent already have such pharmacist authority protocols in place. Four percent would support neither, and 19 percent remain “not sure.”
- Of the participants in support of pharmacist authority protocols: 5 percent would support a protocol that allowed for local health department medical officers to authorize pharmacists within its jurisdiction, and 15 percent would support state health department medical officers authorizing all pharmacists in the state. Approximately 30 percent remained unsure whether or not they would support a pharmacist protocol, while 3 percent stated they would support neither.
- Reasons for why pharmacists would not support a pharmacist authority protocol, as outlined above, are as follows (submitted via text response):
 - Do not see benefit of partnering with state health department.
 - I would support it; however, local and state physicians and prescribers may not (turf issues).
- Of the public health agencies that participated in the survey, 7 percent indicated they already had pharmacist authority protocols in place regarding adult flu administration, immunization of persons 18 years of age or older, or standing orders (as specified in text response).

Billing/Charging Methods

- Billing/charging methods pharmacies used to recover costs associated with administering the H1N1 vaccine included: billing Medicare (39 percent), billing private insurance if in network (34 percent), charging a cash fee (29 percent), or billing Medicaid (21 percent).
- Additional comments on challenges and lessons learned associated with billing/charging practices for H1N1 vaccine administration were submitted via text response:
 1. Medicaid in some states was uncooperative with pharmacies in providing immunization services to their recipients; in other states, if a patient's insurance did not cover the vaccination, they paid the cash price.
 2. There needs to be a clean way for pharmacies to determine health plan eligibility and submit claims, preferably electronically.
- When asked to list any policies their pharmacy had related to providing vaccine for the uninsured/underinsured, responses fell primarily into one of three categories:
 1. No one was turned away regardless of ability to pay.
 2. No policies in place.
 3. Told patients that could not pay for service fee to go to the local health agency or advised them of health department days of vaccination.

Data and Reporting Issues:

Key Findings:

- Sixty-six percent of responding public health representatives said they required pharmacies to report doses administered.
- Sixty-four percent of pharmacists said agreements with pharmacy corporate offices to consolidate data and input to the system facilitated data reporting.
- Eighty-seven percent of public health representatives said an agreed-upon minimum data set, rather than public health and pharmacies having their own requirements, facilitated data reporting.

Data Reporting to the Health Department:

- Aspects that facilitated data reporting to the health department during a pandemic (in order of most helpful) include:

	Very Helpful	Somewhat Helpful	Not Helpful	N/A
Agreements with pharmacy corporate offices to consolidate data and input to the system.	64%	10%	2%	24%
An agreed-upon minimum data set, rather than each entity having their own requirements.	53%	19%	6%	22%
Having pharmacists trained on the data points needed and the state immunization registry (or other database system).	52%	21%	7%	20%
Mutually agreed-upon time limits for reporting data.	44%	22%	10%	24%

- Problems related to providing data on H1N1 vaccine doses administered to the public health agencies:

	Big Problem	Somewhat of a Problem	Not a Problem	N/A

Frequency of reporting.	12%	16%	45%	28%
Different counties/states required different data sets.	11%	15%	36%	38%
Pharmacy database and public health database/registry were incompatible.	10%	23%	41%	26%
Health department required different data sets than we normally collect.	10%	20%	44%	26%
Pharmacists were not trained on the system used to report data to the health department.	10%	13%	46%	31%
Pharmacy did not have Internet access to report doses to the health department's registry/system.	4%	11%	54%	31%

Others indicated that there was a "lack of standardization" and that there were "different expectations from state versus local health departments from a data perspective" via text responses.

Data Collection by the Health Department:

- Of those surveyed, 66 percent of respondents indicated they required pharmacies to report doses administered to the health department; 43 percent required pharmacies to report doses administered to the state/local registry; 21 percent used specified systems which were either built specifically for H1N1 provider enrollment, ordering and reporting, or Web-based for weekly reporting of doses administered; and 2 percent reported however best they were able to do so. About 27 percent did not require doses administered be reported to the health department.
- Challenges in obtaining doses administered data from pharmacies to meet health department requirements:

	Big Problem	Somewhat of a Problem	Not a Problem	N/A
Public health reporting system and pharmacy database were incompatible.	18%	23%	35%	25%
Pharmacies did not report in a timely manner.	14%	43%	30%	14%
Pharmacists were not trained on the registry/other specified reporting system.	13%	28%	44%	15%
Additional resources required for follow-up to obtain data.	11%	24%	42%	24%
Incomplete data collected (e.g. vaccine lot numbers).	5%	32%	42%	21%
Pharmacy did not have Internet access to report doses administered to the health department's reporting system.	3%	13%	67%	18%

Other problems included: some pharmacies reporting aggregated doses to their local county health department and through the state immunization registry, creating the potential for double counting; and having to work with each pharmacy organization to devise flat files they could populate and then export to the state registry.

- Aspects that helped to facilitate data reporting to the health department during a pandemic:

	Very Helpful	Somewhat Helpful	Not Helpful	N/A
An agreed-upon minimum data set, rather	87%	3%	5%	5%

than public health and pharmacies having their own requirements.				
Mutually agreed-upon time limits for reporting data.	76%	13%	5%	5%
Having pharmacists trained on the data points needed and the state immunization registry system (or other required system).	73%	10%	3%	15%
Agreements with pharmacy corporate offices in which they would consolidate data and input into the system.	67%	13%	5%	15%

Top Three Needs for Improving Partnerships between Pharmacies and Public Health

Key Findings:

- Responding pharmacists indicated communication, supply management issues, information sharing and reporting, and reimbursement issues need to be addressed to improve partnerships with public health.
- Responding public health personnel indicated the fostering of partnerships, information sharing and reimbursement issues need to be addressed to improve partnerships with pharmacies.

Pharmacy Respondents (submitted via text response)

- Administering vaccine during a future pandemic or emergency: responses fell primarily into five categories.
 1. Communication: provide a point of contact early on so that action can be taken more quickly; allow pharmacists to take part in information sharing, access and planning; be clear about regulations/restrictions, especially related to reimbursement.
 2. Supply Management: establish predictability in receiving and shipping vaccines, investigate capacity, and ensure available supply meets demand.
 3. Information Sharing and Reporting: work towards increasing capacity, streamlining, ensure efficiency (since there is currently too much paperwork), ensure timely and actionable information sharing and transparency in decision processes.
 4. Reimbursement: understanding of reimbursement if any; reimbursement for our time (i.e. compounding, administering, dispensing, counseling); more equitable payment system to cover cost of managing, diagnosing and administering to patients; ease of billing.
 5. Other Areas of Concern: standardization of procedures and processes; cooperative planning of strategy implementation, related to distribution; assistance in storing mass quantities of refrigerated product for public health needs; support for education and awareness; ensure adequate staffing; formulate clear and concise rules and regulations/protections; standardize processes; support proper training by CDC to respond to outbreaks and include pharmacists and other immunizers in this training.

Public Health Respondents (as submitted via text response):

- Administering vaccine in a future pandemic or other emergency: responses fell primarily into four categories.

1. Establish and Foster Partnerships: maintain greater contact with pharmacies; research why larger retail pharmacy corporations such as CVS, Walgreens and Rite-Aid remain reluctant to participate in antiviral distribution at the national level, especially since state/regional efforts to develop partnerships were accepted, though these efforts were met with resistance once sent to corporate; underline need for earlier communication and integration of vaccination efforts.
2. Increase Information Sharing: reinforce the need to receive a timely response from regional and corporate leaders so that information can be dispersed to the community regarding availability of vaccines; promote the need for Internet access among pharmacies to ensure they can access the state immunization registry; need an up-to-date database of contacts (email, listserv, etc.) at both the office and corporate levels; possibly implement live Web-based trainings.
3. Changes in State (or Federal) Regulations and Insurance Reimbursement: need for change in state regulations to allow pharmacists to administer all recommended vaccines to adults and flu vaccine to people of any age, inclusion of pharmacists in the state liability protection umbrella, need for better insurance reimbursement, enforcement of definitive state protocols that include standing contacts with privately owned pharmacies and national chains.
4. Other Expressed Concerns: economic feasibility, more training and education on vaccination, need for explicit definition of reporting requirements, continue current engagements and find better means to train.

Pharmacy Provisions of Antiviral Medications:

- Barriers to pharmacy involvement in providing Strategic National Stockpile and/or state supplies of antiviral medications, by order of decreasing severity and according to respondents:

	A Barrier	Somewhat of a Barrier	Not a Barrier	N/A
Reimbursement issues.	17%	38%	29%	17%
Differing protocols on compounding pediatric doses.	14%	24%	25%	36%
Requirement to maintain separate inventories of private stock and state stock.	12%	24%	41%	23%
Relationship not in place with health department.	10%	27%	41%	22%
Problems with inventory management.	10%	28%	45%	17%

- Features that would enhance pharmacy involvement in providing Strategic National Stockpile or state supplies of antiviral medications, by order of decreasing benefit according to respondents:

	Beneficial	Somewhat Beneficial	Not Beneficial	N/A
Establishing reimbursement and compensation procedures for pharmacists who provide these products/services.	76%	13%	2%	9%
Establish relationship.	74%	12%	7%	7%
Involving pharmacy representatives earlier in the process.	70%	18%	3%	10%
Explicit procedures on reimbursement.	73%	14%	5%	9%
More education about the purpose of the SNS.	53%	32%	6%	9%
Better inventory management/control systems.	47%	31%	10%	13%

Others indicated via text response that “the largest barrier for dispensing in pharmacy was that the medication was supplied at no charge from SNS, but the pharmacy was not paid for professional service; a fee for professional services would have been very beneficial.” The preparation, handling and delivery of medication to a patient (labeling medication to particular patient, documentation and checking for interactions, etc), and any counseling of the patient or caregiver regarding the use of the medication takes time and involves human and other resources. These costs, in some situations were not reimbursed or inadequately covered. In addition, when medications need to be compounded, as we saw with antiviral medications, another layer of service is added.

Discussion

Survey results demonstrate the novelty of pharmacy/public health collaboration. Many of the pharmacies indicating previous collaborations with public health had been doing so for 10 years or less. Furthermore, many public health agency representatives surveyed had not considered partnering with pharmacies before. Given the relative youth of these collaborations, it is a fitting time to reflect on successes and challenges experienced by both pharmacies and public health agencies during the H1N1 vaccination experience.

As with most surveys, there are some limitations to the power of the findings here. For example, we are not able to compute the response rate for the pharmacy survey as it went out to two networks of pharmacies and pharmacists where there was undoubtedly some duplication of membership. Further, it is difficult to say how representative the surveys are of overall distribution of pharmacy types and of the states from which public health participants came. An analysis of IP addresses associated with public health respondents determined that there was at least one respondent from each of the 15 states; however we do not know if one state had more respondents than others, thus potentially skewing results of the findings. Regardless of the limitations, there is consistency across the two surveys demonstrating the reality reflected in the findings.

Overall, both pharmacies and public health agencies were motivated to work together because the potential outcomes from collaboration would serve the greater good. Public health agency representatives, prior to H1N1, expressed skepticism that pharmacies would be able to adhere to prioritizations of vaccinations due to the impression of pharmacies being driven by customers and customer-stated preferences.

There remain barriers to be addressed, particularly reimbursement concerns. It bodes well for future collaborations that both public health and pharmacy representatives recognize reimbursement concerns must be addressed. These collaborations will be strengthened with increased communication and mutual appreciation for the roles played by either party. Both entities recognize that improved and ongoing transparent communication will enhance the collaborative relationship. Despite challenges, a majority of surveyed pharmacists, pharmacy representatives, and state and local public health agency representatives would engage in future collaborations.