RESEARCH ARTICLES

Impact of the American Pharmacists Association’s (APhA) Immunization Training Certification Program

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Objectives. To survey a random sample of pharmacist participants in the American Pharmacists Association’s (APhA) Immunization Training Certification Program to determine: (1) their opinions and perceived benefits from the training program; (2) current involvement and nature of involvement in immunization-related activities, particularly administering; and (3) perceived barriers to implementing pharmacy-based immunization services.

Methods. A questionnaire was mailed to 600 pharmacists who were randomly selected from 3,233 pharmacists who participated in APhA’s training program as of August 2001.

Results. Four mailings yielded a response rate of 38.8%. Pharmacists were overwhelmingly satisfied with the training they had received with 92.3% indicating that they would recommend the training to other pharmacists. A majority (56.6%) of pharmacists trained by APhA to provide immunizations were providing immunization-related services. Over half (65.4%) of the practicing pharmacists reported administering adult vaccines, but only 3.1% reported administering childhood vaccines. In states that allow pharmacists to administer vaccines, both those administering and those not administering vaccines perceived availability of time as the primary barrier.

Conclusion. Pharmacists who had participated in APhA’s Immunization Training Certificate program were satisfied with the training that they had received. About half of those trained are administering adult immunizations. Pharmacists who were not administering vaccines generally rated the barriers to immunization as more severe than those administering.

Keywords: immunization, certification, pharmacist

INTRODUCTION

Immunizations are an essential component of preventive health care. Through Healthy People 2010, national vaccination goals, have been set to increase immunization rates and decrease the incidence of vaccine-preventable disease.1 Despite the availability of effective vaccines, programs like the government-funded Vaccine For Children (VFC) program providing free childhood vaccines for uninsured or underinsured children, and Medicare coverage for influenza and pneumococcal polysaccharide vaccines, the prevalence of vaccine-preventable disease remains alarmingly high.2,3 Several studies have explored reasons for continued prevalence of vaccine-preventable disease.4,5 Reasons include patient-related barriers such as a lack of knowledge about the safety and efficacy of vaccines, inadequate access of rural patients to preventive services, and lack of health insurance coverage. Provider-related barriers include missed opportunities to immunize, while clinic-related obstacles include distant location, inadequate staffing, and inconvenient service hours. Additionally, many immunization initiatives are not successful because they are not tailored to any specific target audience, or they simply fail to identify high-risk populations.6

One approach to improving access to immunizations is to increase the number of sites where patients can be immunized. Immunizations have always been offered at traditional sites like physician offices, hospitals, or public health clinics. However, in recent years
there has been an increasing emphasis on involving nontraditional sites like pharmacies, churches, grocery stores, and shopping malls to increase immunization rates.7

Pharmacists play an important role in promoting immunizations, as immunization facilitators by hosting nurses at pharmacies to administer immunizations and also as counselors by educating and motivating patients to obtain timely immunizations.4 Changes in pharmacy practice laws now allow pharmacists to administer vaccines following set medical protocols in 36 states.8 While, the emphasis is largely on adult vaccines in many of these states, pharmacists are also providing hepatitis A and B, Lyme disease, and chicken pox vaccines.9 Over 5 million doses of influenza vaccine per year are administered in pharmacies.10 Grabenstein and Bonasso reported that 50% to 94% of the people who received a pharmacist’s recommendation to be immunized accepted that recommendation.11 There is an increased willingness on the part of patients to be immunized in a pharmacy by pharmacists. These patients no longer have to make special physician office or clinic appointments to receive immunizations.12 In return, pharmacists are satisfied with increased contacts with vaccine seekers and with the compensation received from patients and/or health insurance companies.9

With the evolving and changing practice roles of pharmacists, pharmacy schools are placing more emphasis on vaccine preventable diseases and training in the administration of immunizations. Additionally, pharmacy organizations offer immunization-training programs to practicing pharmacists.13 The American Society of Health-System Pharmacist (ASHP) Technical Assistance Bulletin describes the role of pharmacists in promoting immunizations through formulary management, history taking, screening patients for immunization needs, counseling, documentation of immunization records, and public education.14 The National Community Pharmacists Association (NCPA) offers a certificate program that provides information on setting up community-based immunization programs.15 The American Pharmacists Association (APhA) provides a 20-hour Centers for Disease Control and Prevention (CDC) endorsed “Pharmacy-Based Immunization Delivery” certificate program that trains pharmacists to provide immunization services.8 Thus, pharmacists are gradually moving into a domain traditionally dominated by nurses, nurse practitioners, physicians, and pediatricians. In the state of Washington, collaborative drug therapy management has been implemented which integrates pharmacists’ activities with those of other health care providers.16 The collaboration among health care professionals and the growing support for pharmacist-administered immunizations have served to improve patient care.

APhA’s Pharmacy-based Immunization Delivery Certificate Program

The American Pharmacists Association has adopted guidelines for pharmacy-based immunizations through a national certificate training program for pharmacists. The goals of the program are to: (1) provide comprehensive immunization education and training; (2) provide pharmacists with the skills, resources, and materials necessary to establish and promote a successful immunization service; (3) train pharmacists to identify high-risk patient population needing immunizations; and (4) train pharmacists to maintain necessary immunization records.8

The pharmacy-based immunization training consists of 2 parts: a self-study and an active learning experience. The self-study part is designed to ensure that all participants have a good understanding of the role of pharmacists as vaccine advocates. The active learning experience portion of the training reinforces and expands on the self-study component. Included in this part are sessions on immunization needs assessment, legal and regulatory considerations, marketing, patient care strategies, billing, reimbursement, documentation, and record keeping.8

About 3,500 pharmacists have been directly trained by APhA. However, very little information exists on the experiences of pharmacists who underwent immunization training and to what extent they are involved in administering immunizations in their practice. Thus, it is important to determine the extent to which trained pharmacists are involved in immunization activities and the nature of such activities, and to identify barriers that prevent those not involved from getting involved.

The objectives of the study were to survey a random sample of pharmacist participants of APhA’s Immunization Training Certification Program to determine:

1. their opinions and perceived benefits from the training program;
2. current involvement and nature of involvement in immunization-related activities, particularly administering; and
3. perceived barriers to implementing pharmacy-based immunization services.

METHODS

The study objectives were accomplished by conducting a mail survey of pharmacists who had participated in APhA’s Immunization Certificate Training
Six hundred pharmacists were randomly sampled from 3,233 pharmacists in a list provided by APhA in August 2001. The survey instrument was developed based on the one used in an earlier study, appropriately modified to assess additional information from the APhA trainees. Cover letters for the survey instrument were signed by APhA Executive Director John Gans and by John Grabenstein, PhD, Chair of the APhA Immunization Advisory Committee. The questionnaire and the cover letters were approved by the Institutional Review Board of West Virginia University. After 3 mailings of the questionnaire and about 12 weeks after the first mailing, a 1-page nonresponse questionnaire was mailed to about 150 randomly selected nonresponding pharmacists to assess nonresponse bias. The nonresponse survey assessed a few critical demographics and immunization-related information and also elicited reasons for nonparticipation in the study.

The first section of the mail questionnaire gathered information about pharmacists’ current involvement and willingness to provide immunization services, and whether their state allowed them to administer immunizations. Pharmacists were asked to check the following immunization-related activities in which they were currently involved: counseling, hosting a nurse who administers immunizations, administering immunizations themselves, or promoting immunizations. Their willingness to provide immunization services, regardless of whether they currently provided immunization services, was measured using a 7-point Likert scale on which 1 indicated they were “least willing to provide the immunization-related activity” and 7 indicated they were “most willing to provide the immunization-related activity.”

The second and third sections of the questionnaire measured pharmacists’ perceived barriers to the provision of immunization services and perceived customer barriers to pharmacy service utilization. Pharmacists, regardless of their current involvement in immunization services, were asked to rate on a 7-point Likert scale (1 = no problem, 7 = major problem) the extent to which each of 14 factors were problematic in terms of the provision of immunization services. Factors included lack of reimbursement, availability of time, space, staff and physician support, state laws, and legal liability. Also, pharmacists rated on a 7-point Likert scale (1 = no problem, 7 = major problem) the extent to which selected factors were problematic in terms of patients’ use of pharmacy-based immunization services. Factors included insurance coverage, distance traveled to pharmacy, waiting time, cost, safety and effectiveness of vaccines.

The fourth section of the questionnaire collected information on the characteristics of pharmacist-administered immunization services, such as number and doses of vaccines administered, personnel time spent on immunizations, adverse reactions noted, type of compensation received, insurance liability purchased, number of support staff, start-up and maintenance costs, sources of vaccine supply, and perceived impact of service on practice.

The fifth section of the questionnaire ascertained respondents’ beliefs about the APhA Immunization Training Certification Program. Respondents reported the extent to which they felt confident about carrying out different immunization-related activities using a 5-point Likert scale (1 = not at all confident, 5 = very confident). Additionally, information was collected on how motivated they felt after receiving the training, whether they were providing immunization services in their pharmacy, and whether they would recommend the training program to fellow pharmacists. Finally, respondents’ demographic information such as age, gender, years in practice, education, and practice-related information such as job title, practice site, staff strength, prescription volume, and hours per week pharmacy is open was also obtained.

Frequency distributions were determined for practice characteristics of the respondents. Descriptive statistics such as means and standard deviations (SDs), medians, and modes were used to report the data and independent t-tests assessed differences in perceived barriers to the provision of immunization services. All statistical analyses were performed using SPSS® statistical software for Windows, Version 10.1 (SPSS Inc., Chicago). An a priori ‘alpha’ value of equal to or less than 0.05 was adopted as statistically significant for all statistical tests.

RESULTS

Response Rate

Out of 600 mailings, 100 questionnaires were returned due to incorrect addresses. Thus, 500 APhA immunization trainee pharmacists were presumably reached by the mailings. A total of 194 completed, usable questionnaires were returned after 4 mailings for a response rate of 38.8%.

Program “Pharmacy-based Immunization Delivery” since its inception.
Nonrespondent Characteristics

Since the number of nonrespondents who responded to the non-response survey was very low, (8, 5.33%) no tests of significant differences were done to compare respondents and non-respondents. The following reasons were cited by pharmacists for nonparticipation: “lack of time,” “missed the survey,” “survey was cumbersome,” and “don’t normally respond to surveys.”

Respondent Characteristics

Of the 194 respondents, 50.5% were women and 49.5% were men. The average age was 39.8±11.5 years and the average number of years in pharmacy practice was 14.4 ± 1.5. A majority (56.6%) reported that they were currently providing immunization services, with 5.8% reporting that they started and then discontinued it, 24.4% never provided it, and 13.2% reported that they were not yet in practice because they were still enrolled in school. Figure 1 shows the distribution of responding pharmacists with respect to job title, education level, and primary practice site.

Pharmacists other than students who responded about whether their state allowed pharmacists to administer immunizations, 91.6% correctly answered the question, 5.6% were incorrect in their responses, and 2.8% said that they did not know whether their state allowed pharmacists to administer immunizations. Of the students who responded to this question, 70% of them correctly answered the question, 6.6% were incorrect in their responses, and 23.4% said that they did not know whether their state allowed pharmacists to administer immunizations. Since the study assessed practicing pharmacists’ current involvement in immunization-related activities, particularly administering; and the perceived barriers to implementing pharmacy-based immunization services, students were excluded from all subsequent analysis.

Opinions and Perceived Benefits of APhA’s Immunization Training Program

As a result of the training program, 55.4% of the respondents were highly motivated and 40.8% some-
Figure 2. Pharmacists’ Perceived Self-Confidence After APhA Immunization Training Program (Measured on a 5-point scale where 1 = not confident at all and 5 = very confident; n = 130)

what motivated to provide immunization services. A majority of respondents (92.3%) said that they would recommend the APhA Immunization Training Certificate program to fellow pharmacists. Overall, pharmacists reported mean self-confidence scores of about 4 or above (5-point scale) indicating confidence in their ability to promote immunizations, identify high-risk patients, maintain immunization records, and meet legal requirements for immunization due to the APhA training program (see Figure 2).

The perceived impact of providing immunization services was measured on a 4-point Likert scale where 1 = no impact and 4 = major impact. Pharmacists perceived the greatest impact of providing immunization services would be on the public image of their pharmacy (Mean = 3.5±1.7), followed by professional satisfaction (Mean = 3.3±2.1), improved market share and patient demand for pharmacy services (Mean = 3.3±1.9), and financial impact (Mean = 2.9±2.0).

Pharmacist Involvement in Immunizations

Figure 3 shows practicing pharmacists’ current involvement in immunizations. One hundred and sixty-eight (93%) pharmacists were identified from the states that allowed pharmacists to administer immunizations. Out of this sample, 63 pharmacists reported that they were currently administering immunizations and another 13 reported that both pharmacists and other health care providers were currently administering immunizations. These were combined to form a group of pharmacists who were administering immunizations after having attended the APhA training program. The nature of involvement in immunization-related activities reported is based on the responses of these 76 pharmacists.
Influenza and pneumococcal vaccines were the most popular types of vaccines provided by reporting pharmacists. Respondents reported administering a median of 275 doses (range: 0 to 1000 doses) of influenza vaccines and a median of about 20 doses (range: 0 to 300 doses) of pneumococcal polysaccharide vaccines in the year 2001. In addition, respondents reported administering tetanus/diphtheria, hepatitis B and A, meningococcal, and Lyme disease vaccines. Respondents reported mean numbers of 1.9±1.2 pharmacists, 2.4±1.3 technicians, and 1.6±1.0 non-pharmacy staff present when pharmacists were administering immunizations. Twenty (26.3%) pharmacists reported observing adverse events following immunizations in their pharmacies. The most common local reactions to immunizations reported were redness, swelling, and/or rash, while systemic reactions reported were fever, muscle aches, headaches, nausea/vomiting, and/or fainting. No anaphylactic reactions were reported by any of the respondents. Respondents reported more than one primary source of vaccines with 66.7% of the respondents reporting wholesalers and 53.3% reporting manufacturers as their primary sources of vaccines. Similarly, responders reported multiple sources of compensation for vaccines with 88% reporting cash payments, 72% reporting Medicare reimbursements, and 24% reporting private insurance plans as sources of compensation.
Table 1. Pharmacists’ Perceptions of Factors Problematic to the Provision of Immunization Services

<table>
<thead>
<tr>
<th>Problem Factors</th>
<th>Pharmacists Providing Immunizations (n=75)</th>
<th>Pharmacists Not Providing Immunizations (n=20)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal liability concerns</td>
<td>3.25 (1.5)</td>
<td>4.21 (2.1)</td>
<td>0.078</td>
</tr>
<tr>
<td>Level of reimbursement</td>
<td>4.13 (1.7)</td>
<td>4.45 (1.5)</td>
<td>0.452</td>
</tr>
<tr>
<td>Availability of time</td>
<td>4.42 (1.9)</td>
<td>4.50 (2.0)</td>
<td>0.878</td>
</tr>
<tr>
<td>Staff support</td>
<td>3.29 (1.9)</td>
<td>3.72 (2.2)</td>
<td>0.413</td>
</tr>
<tr>
<td>Owner/top management support</td>
<td>1.87 (1.3)</td>
<td>3.60 (2.1)</td>
<td>0.002*</td>
</tr>
<tr>
<td>Support of neighbor physicians</td>
<td>3.08 (1.8)</td>
<td>4.42 (1.9)</td>
<td>0.003*</td>
</tr>
<tr>
<td>RPH’s level of knowledge</td>
<td>2.17 (1.4)</td>
<td>2.40 (1.6)</td>
<td>0.532</td>
</tr>
<tr>
<td>RPH’s level of training</td>
<td>1.80 (1.3)</td>
<td>2.55 (1.9)</td>
<td>0.109</td>
</tr>
<tr>
<td>Current state legislation</td>
<td>2.35 (1.6)</td>
<td>2.30 (1.6)</td>
<td>0.900</td>
</tr>
<tr>
<td>Area availability in pharmacy</td>
<td>2.97 (2.0)</td>
<td>4.16 (2.0)</td>
<td>0.026*</td>
</tr>
<tr>
<td>Level of customer interest</td>
<td>2.11 (1.2)</td>
<td>3.26 (1.6)</td>
<td>0.007*</td>
</tr>
<tr>
<td>Availability of physician</td>
<td>2.67 (1.9)</td>
<td>4.55 (2.1)</td>
<td>0.000*</td>
</tr>
<tr>
<td>Criticism from other providers</td>
<td>2.47 (1.6)</td>
<td>3.30 (1.9)</td>
<td>0.045*</td>
</tr>
<tr>
<td>State’s technical requirements</td>
<td>2.65 (1.8)</td>
<td>3.25 (1.6)</td>
<td>0.173</td>
</tr>
</tbody>
</table>

Scale: 1 = no problem and 7 = major problem
*Significant at P ≤ 0.05
Independent Samples T-Test (two-tailed test)

Table 2. Pharmacists’ Perceptions of Factors Problematic to Customers Using Immunization Services

<table>
<thead>
<tr>
<th>Problem Factor</th>
<th>Pharmacists Providing Immunizations (n=75)</th>
<th>Pharmacists Not Providing Immunizations (n=20)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance coverage</td>
<td>4.38 (1.7)</td>
<td>3.55 (1.6)</td>
<td>0.051</td>
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<tr>
<td>Distance traveled to pharmacy</td>
<td>1.99 (1.1)</td>
<td>1.95 (0.9)</td>
<td>0.885</td>
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<tr>
<td>Average waiting time</td>
<td>2.57 (1.5)</td>
<td>3.00 (1.6)</td>
<td>0.258</td>
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<tr>
<td>Professional image of pharmacy</td>
<td>1.71 (1.1)</td>
<td>1.89 (0.9)</td>
<td>0.487</td>
</tr>
<tr>
<td>Patients’ confidence in RPH’s abilities</td>
<td>1.75 (0.9)</td>
<td>2.50 (1.7)</td>
<td>0.064</td>
</tr>
<tr>
<td>Availability of information</td>
<td>2.07 (1.2)</td>
<td>2.55 (1.4)</td>
<td>0.131</td>
</tr>
<tr>
<td>Out-of-pocket cost</td>
<td>3.21 (1.6)</td>
<td>4.00 (1.5)</td>
<td>0.055</td>
</tr>
<tr>
<td>Hours during which pharmacy is open</td>
<td>2.05 (1.1)</td>
<td>2.11 (1.1)</td>
<td>0.864</td>
</tr>
<tr>
<td>Safety of vaccines</td>
<td>2.04 (1.2)</td>
<td>2.05 (0.9)</td>
<td>0.974</td>
</tr>
<tr>
<td>Effectiveness of immunizations</td>
<td>2.75 (1.3)</td>
<td>3.05 (1.4)</td>
<td>0.382</td>
</tr>
</tbody>
</table>

Scale: 1 = No problem and 7 = major problem
* Significant at P ≤ 0.05
Independent Samples T-Test (two-tailed test)

A large majority (82.7%) of pharmacists reported that their existing liability insurance policy was sufficient to provide coverage for the immunization service. When additional liability insurance was purchased, pharmacists incurred an additional average annual premium of about $23. Respondents reported a mean total cost of $506.60±368.20 to initiate a pharmacist-administered immunization service and $139.40±158.90 per month to maintain it. Information on total revenue or profits generated on a pharmacist-administered immunization service was not ascertained.

Perceived Barriers to Immunizations

Tables 1 and 2 provide information about pharmacist-perceived barriers to providing immunization services and consumer utilization of pharmacy-based immunization services. The immunization-providing group consisted of the 76 pharmacists identified as described
earlier. This group was compared to 22 respondents from states that allowed pharmacists to administer who reported that they never administered immunizations, even though they had attended the APhA immunization training program.

Pharmacists who administered vaccines perceived availability of time and level of reimbursement, ie, 2 of a possible 14 factors as being slightly problematic (greater than 4.0 mean scores on a 1 to 7 scale). In contrast, pharmacists who did not administer perceived 6 of 14 factors listed as problematic (greater than 4.0 on a 1 to 7 scale). However, similar to the immunizing group, ‘availability of time’ was considered to be the greatest barrier with a mean score of 4.4±1.9 by those who were not involved in immunizations.

Pharmacists who were not administering immunizations perceived the following barriers as being significantly more problematic to the provision of immunization services as compared to pharmacists who administered immunizations: owner or top management support, support of physicians in the neighborhood, availability of area within pharmacy to provide immunizations, level of customer interest in pharmacy-based immunization services, availability of a physician who would agree or cooperate to give standing orders, and criticism from other providers (Table 1).

Pharmacists were also asked to rate the factors that would be problematic to utilization of pharmacy-based immunization services from a patient perspective (Table 2). Pharmacists providing immunizations perceived only insurance coverage as being mildly problematic (Mean score = 4.38±1.7). Pharmacists who were not providing immunizations did not perceive any of the listed factors as problematic with all the perceived mean scores being 4.0 or less. No significant differences were noted between pharmacists who were administering immunizations and those who were not administering immunizations on any of the factors perceived as problematic to customer utilization of pharmacy-based immunization services.

**DISCUSSION**

The study focuses on pharmacist participants in APhA’s Immunization Training Certificate Program and determines their perceived benefits from the program, nature of involvement in immunization-related activities, and perceived barriers to implementing pharmacy-based immunization services. The study also compares trained pharmacists who were administering with those not administering immunizations on the basis of their perceptions of barriers to immunization.

Pharmacists who participated in APhA’s Immunization Training Certificate program were satisfied with the training they received. More than half of the respondents reported involvement in providing immunization services. Most of them indicated that they would recommend the program to other pharmacists. Pharmacists indicated being confident in their ability to promote immunizations, identify high-risk patients, maintain immunization records, and meet legal requirements for immunization. Madhavan and colleagues reported similar findings with pharmacists who had attended immunization-related educational programs. Pharmacists who voluntarily attended the training program did so because of their interest in getting involved in immunizations. Thus, the training provided by APhA may help pharmacists understand their roles as vaccine advocates and reinforces important issues like legal requirements, how to identify high-risk patients, billing procedures, documentation, and record keeping. The training may also help to resolve any pharmacist misconceptions and further enhance their positive attitude towards providing immunization services.

It is not surprising that a much greater percent of APhA trained pharmacists were actively involved in administering adult (65.4%) and childhood (3.1%) vaccines than those reported for the general pharmacist population (2.2% and 0.9%, respectively) in an earlier national study and in a more recent study (6.8% and 1.3%, respectively). This may be because the respondents to these earlier studies were from a general national sample of pharmacists and included pharmacists from states that allow pharmacists to administer and those that do not. The respondents of the present study come from a sample consisting only of those pharmacists who were trained by APhA to provide immunizations. The latter sample is different because only those pharmacists with a strong interest in providing immunization services would seek training, and they are very likely to be from states that allow pharmacists to administer immunizations under appropriate protocols.

As with the earlier studies, the present study results indicate that pharmacists were more involved in adult immunizations than in childhood immunizations, although the training offered by APhA covers both adult and childhood immunizations. APhA emphasizes that pharmacists start with administering adult immunizations since physician’s acceptance of pharmacists administering vaccines to this population is a little higher than that for administering immunizations to children. Bergus and colleagues reported that physicians indicated support for nonphysician participation in immu-
nization, although they had concerns about record keeping and the safety of out-of-office immunization programs. There is also a greater patient acceptance of nontraditional immunizers for adults than for children. Childhood vaccination schedules are complex and need careful monitoring. The bulk of childhood immunizations have continued to be delivered by pediatricians as part of well-baby check-ups. In the last decade, many immunization programs on the local, state, and federal levels have focused on childhood immunizations and these initiatives have led to dramatic increases in childhood immunization rates in the country. For these reasons, pharmacists have not been very involved in childhood immunizations and in many instances limit their role only to providing information.

Pharmacy-based immunizations, just like other non-dispensing services (diabetes care, blood pressure clinics, etc.), have to be integrated in the pharmacy workflow. Pharmacists have to work collaboratively with their patients and their physicians. In addition to counseling patients and assisting other providers such as nurses to administer immunizations, pharmacists are themselves administering a broad range of vaccines including influenza, pneumococcal polysaccharide, hepatitis A and B, tetanus and diphtheria. The management of adverse events following immunizations is an important part of administering immunizations. Since more and more pharmacists are becoming involved in administering immunizations, it is important to understand that they can be key players in the surveillance of adverse events following immunizations.

Due to the expanded role of the pharmacists, many state boards of pharmacy require pharmacies to have adequate staffing to assist pharmacists in providing immunization services. On average, the presence of at least 1 other pharmacist and 2 technicians during times when immunizations are provided suggests the availability of adequate staffing. The study results suggest that, in most instances, existing liability insurance is sufficient to provide coverage for immunization services, and when necessary, premium for additional liability insurance is not very high. Also, the start-up cost and average monthly cost to maintain pharmacist-administered immunizations appear to be nominal suggesting that financial barriers alone should not be a deterrence to pharmacists providing immunization services.

When state laws are not an issue, pharmacists who are trained to administer immunizations but are not administering immunizations appear to perceive the same barriers as more severe than those pharmacists providing immunization services. Several of the obstacles are consistent with those reported in earlier studies as barriers to provision of immunization services. These pharmacists indicated the following as barriers to the provision of immunization services: owner/management support, support of physicians in the neighborhood, availability of an area within the pharmacy in which to provide immunizations, level of customer interest in pharmacy-based immunization services, availability of a physician who would agree to give or cooperate in giving standing orders, and criticism from other providers.

The study has all the limitations associated with cross-sectional survey design methodology. Variations in regional, attitudinal, and practice characteristics may also explain some of the differences noted above. In many instances, because of small respondent numbers, there is considerable variation in numbers that have been reported. These variations become larger when smaller sub groups are analyzed.

The mailings of the surveys coincided with the aftermath of the September 11, 2001, terrorist attack in New York and the anthrax postal service scares. An inordinate number of pharmacists called to say that they had not received an earlier mailing of the survey, and in general, the responses were considerably delayed. The authors suspect that the response rate was to some extent due to the prevailing circumstances. Caution should therefore be exercised while reporting and extrapolating the findings of the survey.

CONCLUSION

Pharmacist respondents were satisfied with the training they received from attending APhA’s Immunization Training Certification program. They were confident in their ability to promote immunizations, identify high-risk patients, maintain appropriate records, and deal with legal issues. Pharmacist respondents were likely to be involved in administering adult immunizations. Pharmacist respondents not involved in administering vaccines perceived the same barriers as being greater problems to providing immunization services than those who were providing immunization services.

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