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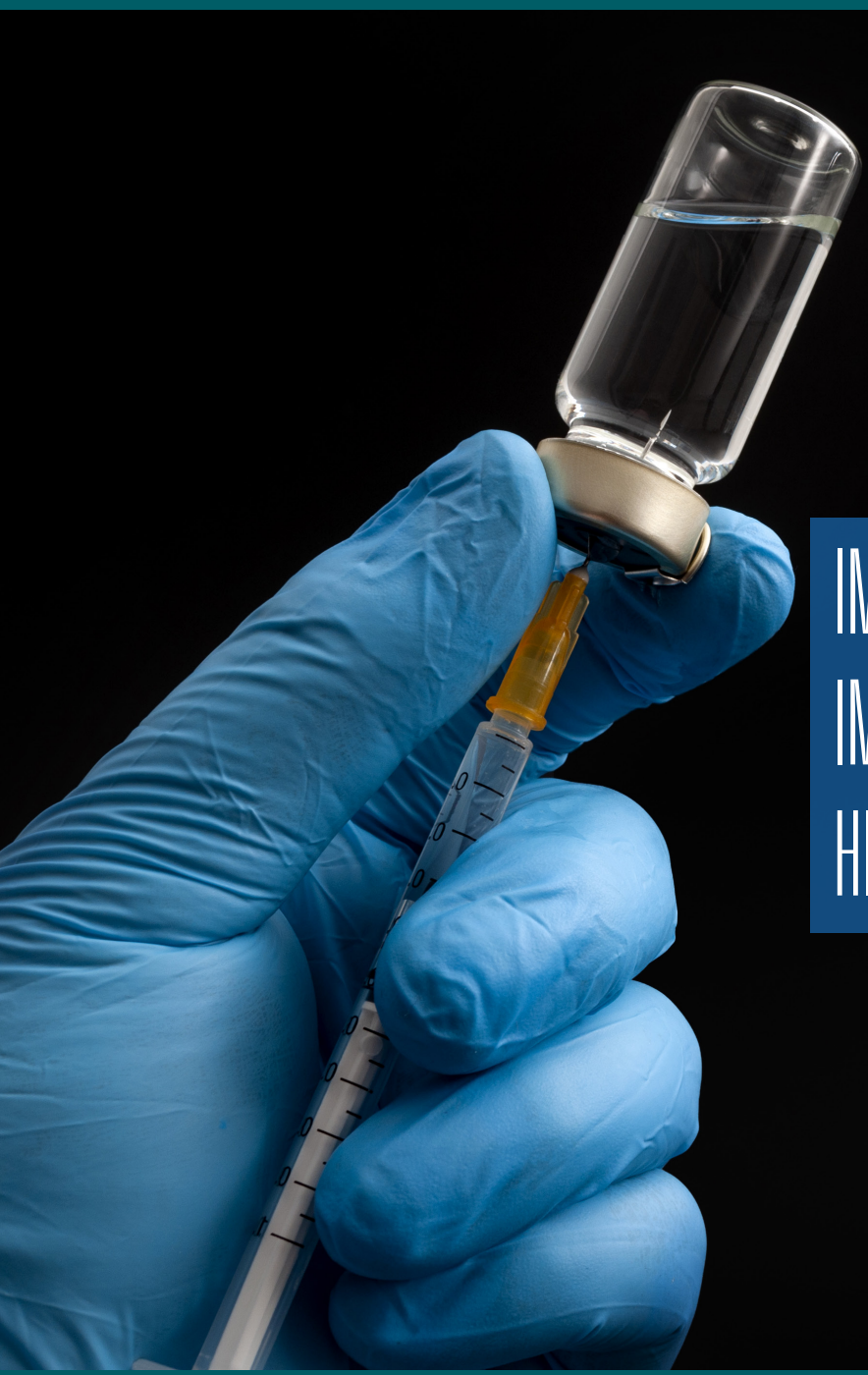

IMPROVING IMMUNIZATION RATES IN HIGH-RISK POPULATIONS

DEVELOPED BY THE AMERICAN PHARMACISTS ASSOCIATION

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Contents

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Introduction

Improving Immunization Rates in High-Risk Populations provides an overview of the value of pharmacy-based immunization advocacy and service delivery, and it highlights key elements of successful implementation. World-renowned speakers provided a review of the unmet vaccine needs for high-risk populations, detailed targeted approaches to improving immunization rates in high-risk populations, shared insights on developing collaborations, and outlined strategies for developing partnerships and overcoming challenges. As attendees came from countries with and without pharmacist authority to immunize—including those working to gain pharmacist authority—the pharmacist's roles as educator, advocate, facilitator, and immunizer were emphasized, and successful approaches were shared by presenters and meeting participants from countries where pharmacists have gained the authority to immunize.

The American Pharmacists Association (APhA) and the International Pharmaceutical Federation (FIP) partnered to conduct a two-part program in Abu Dhabi during September 2019 that included pharmacist educational programming and an expert panel discussion and roundtable on pharmacy-based immunizations. The program's purpose was to foster the global expansion of pharmacy-based immunization practice by equipping participants with the knowledge, skills, and resources needed to establish a successful immunization practice. The program had a special emphasis on approaches to improving immunization rates in high-risk populations.

APhA Pharmacy-Based Immunization Delivery Certificate Training Program

Twenty participants registered in advance and participated in the APhA Pharmacy-Based Immunization Delivery Certificate Training Program as part of the pre-conference programming. The certificate training program included a 12-hour self-study learning activity that participants completed in advance of attending the 8-hour live seminar in Abu Dhabi. The self-study ensured that all participants had a solid understanding of the information required to implement a pharmacy-based immunization service. The modules included in-depth information on clinical and practical considerations of vaccine administration, such as immunology, vaccine-preventable diseases, vaccines and schedules, and conducting a pharmacy-based immunization service. The live seminar, which focused on patient care considerations and pharmacy practice implementation, was guided by practitioners experienced in immunization advocacy and administration. The training seminar reinforced and expanded on the self-study modules and addressed immunization needs, operational issues, and injection-technique training. Participants practiced the approach to giving both intramuscular and subcutaneous injections and were ultimately assessed on their competency in administering vaccines via these routes.

Representatives of ten countries—including Burkina Faso, Jamaica, Jordan, Lebanon, Nigeria, Poland, South Africa, South Korea, Syria, and United Arab Emirates—participated in the live portion of the training program. The participants were actively engaged in the full-day program and provided highly positive feedback on the program's value.

Panel Discussion and Roundtable: Improving Immunization Rates in High-Risk Populations

As part of the 79th FIP World Congress, Mitchel C. Rothholz, RPh, MBA, APhA Chief Strategy Officer, and globally recognized expert on pharmacy-based immunizations, facilitated an international panel discussion and roundtable on improving immunization rates in high-risk populations. Over 125 participants engaged in this portion of the program. Panelists for this session included:

- Michael D. Hogue, PharmD, FAPhA, FNAP, Dean and Professor of Pharmacy Practice at Loma Linda University School of Pharmacy, United States of America
- Olivier Rozaire, President of the French Coalition of Pharmacists Trade Union (USPO) and President of the Regional Union of Pharmaceutical Health Professionals (URPS) of the Auvergne-Rhône-Alpes Region, France
- Sarah Turkistani, PharmD, MBA, Senior Department Head of Health and Wellness Category Marketing and Services, Nahdi Medical Company, Saudi Arabia

Jean-Venable "Kelly" R. Goode, PharmD, BCPS, FAPhA, FCCP, Professor and Director of the Community Pharmacy Practice Program at Virginia Commonwealth University School of Pharmacy, and Parisa Vatanka, PharmD, CTTS, APhA Senior Director of Corporate Alliances, also served as program facilitators.

The program began with presentations by each panelist. Then the audience engaged the panelists through an extensive question and answer session, which created a valuable learning experience; the audience's country-specific situations were considered, and guidance and expert perspectives were provided. The program culminated in a roundtable session that provided participants the opportunity to interact with each other and exchange ideas from their experiences and perspectives on implementing pharmacy-based immunization services.

Overview of Pre-Program Survey Results

An online survey was fielded in advance of the conference to gain insights into current immunization practices and provide direction to APhA to tailor the program to the audience's specific needs and interests. Survey respondents represented a variety of practice settings, including:

- Community-based practice (chain): 31%
- Community-based practice (independent): 28%
- Pharmacy association/regulatory: 21%
- Hospital/institutional: 7%
- Academia: 3%
- Other: 9%

Almost all respondents (n=39) were engaged in providing some type of immunization service. These services included:

- Provide public education: 52%
- Have other providers come into the practice to administer vaccines: 44%
- Administer vaccines: 40%
- Seventy-eight percent of respondents in practice were currently involved in administering immunizations. Participants (n=41) indicated a variety of motivations for attending the program, including:
- I need guidance on dealing with challenges in implementing or growing our immunization services: 48%
- I am contemplating offering an immunization service at my pharmacy: 35%
- I am looking for ways to expand my immunization services: 35%
- I want to get a refresher course on immunization delivery: 22%
- I received support from my organization to attend the program: 22%
- The program was recommended by a colleague or employer: 13%

Survey participants also indicated that they plan to engage in various activities to improve their immunization services after attending the panel presentation and roundtable sessions. These activities included:

- Work with my pharmacy professional association/society to advocate for pharmacist authority to administer vaccines: 68%
- Meet with legislators/decision makers regarding obtaining recognition, authority, and compensation of pharmacists providing immunization services: 50%
- Continue to stay up to date with the immunization schedules and vaccine recommendations: 41%
- Consider the steps I would need to take in order to set up a pharmacy-based immunization service: 36%
- Contact employer groups and other health care providers to inform them of my new immunization delivery service: 32%
- Educate other pharmacy staff and management about the benefits of offering immunizations to patients: 32%
- Assess the vaccine needs of my patients and educate them regarding the importance of immunizations: 27%
- Implement a pharmacy-based immunization service at my practice site: 27%
- Conduct targeted immunization outreach to high-risk patients, such as those with diabetes, heart disease, asthma, or other high-risk groups: 18%
- Involve students and residents in the design and delivery of a pharmacy-based immunization service: 14%

More than half (55%) of the survey respondents are from countries where pharmacists do not currently have the authority to administer vaccines. Of those with vaccine authority (n=9), 78% currently administer vaccines. Respondents indicated that they could provide the following vaccines:

- Influenza (seasonal): 100%
- Pneumococcal: 71%
- Meningococcal: 57%
- Human papillomavirus: 57%
- Hepatitis A: 57%
- Hepatitis B: 57%
- Tdap/Td: 29%
- Travel vaccines: 29%
- Pediatric vaccines: 14%
- Herpes zoster: 14%

Respondents who answered the question (n=7) were asked to share their primary challenge with implementing immunization services in their countries. These challenges included:

- Limitations on which antigens or patient ages I can administer vaccines to: 29%
- Being recognized by payers as an immunization provider: 29%
- Being recognized by other health care providers as an immunization provider: 14%
- Gaining access to patient medical and/or immunization records: 14%
- Increasing patient demand for immunizations provided by pharmacists: 14%

Sixty-three percent of respondents (n=8) indicated that they were limited by immunization authority or their employer regarding which vaccinations could be provided. For pharmacists who did not have the authority to immunize (n=11), the following challenges to gaining immunization authority were identified:

- Lack of recognition/support from legislators and the public for pharmacists doing immunizations: 73%
- Difficulty in gaining physician and other health care provider support: 18%
- Not a priority of organized pharmacy in my country: 9%

Only 33% of respondents (n=6) currently assess the immunization status and administer needed vaccines to patients in the high-risk category for complications from vaccine-preventable diseases (e.g., diabetes, heart disease, asthma). This result demonstrates the need for expanded programming on how pharmacists can best support patients at high-risk with their vaccination needs.

Improving Immunization Rates in High-Risk Populations

The goal of the session was to increase understanding of the pharmacist's role in improving worldwide immunization rates in high-risk populations (e.g., patients with diabetes or cardiovascular disease) to protect communities from vaccine-preventable disease. This session included expert presentations, a facilitated panel discussion, and roundtable discussion groups. The expert panel discussion fostered conversation and sharing of key insights and experiences from countries with success in implementing immunization services. The roundtable stimulated dialogue among attendees and encouraged the active exchange of ideas and experiences to understand perspectives and approaches to advance the pharmacist's role in immunization advocacy and services. More than 125 individuals participated in the roundtable from diverse global perspectives.

Focus on High-Risk Populations

Influenza can result in serious illness, hospitalization, and death, particularly among older adults, very young children, pregnant women, and persons with certain chronic medical conditions. Vaccination to prevent influenza is particularly important for these groups at increased risk for severe illness. For example, the U.S. Centers for Disease Control and Prevention (CDC) recommends vaccination for populations at higher risk of medical complications attributable to severe influenza, including the following:[1]

- All children aged 6 months through 59 months.
- All persons aged 50 years or older.
- Adults and children who have chronic pulmonary (including asthma), cardiovascular (excluding isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic (including diabetes mellitus) disorders.
- Persons who are immunocompromised due to any cause (including, but not limited to, immunosuppression caused by medications or HIV infection).
- Women who are or will be pregnant during the influenza season.
- Children and adolescents (aged 6 months through 18 years) who are receiving aspirin- or salicylate-containing medications and who might be at risk for experiencing Reye syndrome after influenza virus infection.
- Residents of nursing homes and other long-term care facilities.
- American Indians/Alaska Natives.
- Persons who are extremely obese (body mass index of 40 or greater for adults).

Studies have shown an increase in vaccine coverage when pharmacists were involved in the immunization process, regardless of role (i.e., educator, facilitator, or administrator) or the type of vaccine administered, when compared with vaccine provision by traditional providers without pharmacist involvement.[2] Pharmacists have access to at-risk patients and are successful at identifying those patients in need of vaccination thus providing opportunities to help address the unmet need for vaccinating higher-risk individuals.

Pharmacy-Based Immunizations: Leveraging the U.S. Experience to Global Opportunities

Immunizations protect millions of people around the world from serious, sometimes fatal diseases. 2020 marks the 24th anniversary of the immunization program that supports the important role of pharmacists caring for patients across the lifespan. The *APhA Pharmacy-Based Immunization Delivery Certificate Training Program* provides pharmacists the knowledge and skills to implement immunization services as valued members of the public health community.

Community-based pharmacy plays a particularly influential role in improving awareness about the importance of vaccination and increasing immunization rates. Pharmacists are the most accessible health care provider and are often the first point of contact for many patients, whether they are coming in to get a prescription filled or asking advice about a health concern for themselves or a family member. Pharmacists' knowledge and accessibility create a unique relationship between the pharmacist, patients, and their communities, and positions the pharmacist to play a vital role as a member of the patient's health care team.

Across the United States, there are currently more than 360,000 trained pharmacists authorized to administer vaccines. According to the CDC, pharmacists now

administer approximately 25% of all influenza vaccinations.[3] This expanded role of pharmacists has changed patient perceptions about what pharmacists have to offer in delivering direct patient care. Pharmacists' authority to administer all vaccines recommended by the CDC is expanding as well, making the work of pharmacy-based immunizations a year-round activity. Having pharmacists as partners to protect the public against vaccine-preventable diseases has increased access, improved immunization rates, and provided a springboard for other patient care services.

As pharmacist-based immunization delivery broadens across the world, there are opportunities to leverage the experiences of countries that have successfully implemented immunization practices while adapting services to focus on the unique needs of specific countries and patient populations. Here are several key questions for countries considering immunization expansion that should be thoughtfully considered during the planning process for immunization implementation:

- What is the community public health need that will be served?
- How can pharmacists impact the identified health need in terms of immunization rates and patient access?
- What are the diseases burdening communities that pharmacists could help public health officials and communities address?
- How can pharmacists increase access to these important vaccinations in specific communities?
- What are the needs of other stakeholders—such as the physician, nursing, and public health communities—that pharmacists could help address?

For countries looking to initiate immunization services, it is essential to define how pharmacists can be a solution for the identified issues and increase vaccination rates within communities facing vaccine-preventable diseases across the lifespan. Reinforcing the value of patient access to community-based pharmacies, because of convenient locations and hours of operation, can help lend support. Unlike other health care professionals, pharmacists can often reach large populations of patients in need of specific vaccinations through message targeting, marketing, and advertising campaigns from their pharmacies. In some countries, pharmacists may support physicians and hospitals to meet quality standards established by both government and private entities. Pharmacist-provided vaccinations can also ease some of the workload from physician offices, allowing physicians to care for patients with other medical needs.

According to Mr. Rothholz, "Building relationships with other health care professionals and coalitions can help support the development and implementation of immunization services, including aspects such as reporting, communication, and documentation." These partners can help outline standards and guidelines and ensure pharmacist training is equivalent to, or better than, immunization training for other health care professionals. Proactively engaging with regulatory or government agencies can provide support for the authorization of pharmacist-based immunization within a specific country.

Burden of Vaccine-Preventable Disease Among U.S. Adults

Pharmacists in the United States have continued to widen the scope of vaccine services, often because the data on the burden of vaccine-preventable disease is so high. In 2015, there were an estimated 29,500 total cases of invasive pneumococcal disease (IPD) and 3,350 total deaths from IPD in the United States; 91% of IPD cases and nearly all IPD deaths were among adults.[4] Influenza causes 3,000 to 49,000 total related deaths per year in the United States, with approximately 90% among adults 65 years and older.[5] There were 20,762 total pertussis cases in 2015, with 4,650 among adults 20 years of age and older.[6] For hepatitis B, there were 2,791 acute cases reported in 2014 with 18,100 estimated new infections.[7] There are also approximately 1 million cases of herpes zoster (shingles) annually in the United States.[8] Tremendous financial costs are associated with vaccine-preventable illnesses. The estimated U.S. spending is $26.5 billion annually for treating four major vaccine-preventable diseases among adults aged 50 years and older. These costs include $16 billion for influenza, $5.1 billion for pneumococcal, $5 billion for shingles, and $397 million for pertussis [9]

Impact of Pharmacy-Based Immunizations

Because infectious diseases remain a major cause of illness, disability, and death, U.S. immunization recommendations currently target 17 vaccine-preventable diseases across the lifespan.[10] Pharmacist-based immunizations can help countries close the gap in vaccine delivery. Even with highly established immunization services within pharmacies, coverage gaps remain. Table 1 provides an overview of specific opportunities for pharmacist delivery of immunizations among some CDC-recommended vaccines. Many countries use similar goals to focus efforts and measure progress. Coverage gaps and goals are effective ways to demonstrate areas of need and where pharmacists can make an impact.

Table 1. U.S. Healthy People 2020 Coverage and Goals

Vaccine	Age Stratification	Coverage Rate in 2014[11]	Healthy People 2020 Goal[10]
Influenza	≥65 years	66.7%	70%
Influenza	≥18 years	43.6%	70%
Tdap	≥65 years	61.3%	90%
Tdap	≥19 years	20.1%	Not set
Hepatitis A	≥19 years	9.0%	Not set
Hepatitis B	≥19 years	24.5%	Not set
Herpes zoster	≥60 years	27.9%	30%
HPV, females	19–26 years	40.2%	80%
HPV, males	19–26 years	8.2%	80%

Healthy People 2020 is the federal government's prevention agenda for building a healthier nation. It is a statement of national health objectives designed to identify the most significant preventable threats to health and to establish national goals to reduce these threats.

The Pharmaceutical Group of the European Union (PGEU) reports that in 40% of European Union countries, vaccination for seasonal influenza is available in a community pharmacy. In 23% of countries, the influenza vaccination is administered by pharmacists, whereas in the remaining countries, it is administered by other health care professionals in the pharmacy. In 17% of countries, other vaccinations (e.g., travel vaccines, pneumococcal, shingles, human papillomavirus) are administered by the pharmacist and in 20% of countries by health care professionals other than pharmacists in the pharmacy.[12]

FIP provides an overview of pharmacy's current impact on immunizations in its 2016 global report.[13] Details on pharmacist advocacy for vaccination, vaccination in pharmacies, and vaccination by pharmacists are detailed in Table 2.

Table 2. Current Impact of Pharmacy on Immunizations Around the World[13]

WHO Region	All WHO Member States	In this report (n)	Advocacy for vaccination	Vaccination in pharmacies	Vaccination by pharmacists	Training required	Access to records
Africa	23.7% (46)	11.1% (5)	11.1% (5)	4.4% (2)	2.2% (1)	8.9% (4)	4.4% (2)
Eastern Mediterranean	11.3% (22)	11.1% (5)	6.7% (3)	4.4% (2)	0% (0)	0% (0)	2.2% (1)
Europe	27.3% (53)	42.2% (19)	28.9 (13)	17.8% (8)	11.1% (5)	13.3% (6)	20.0% (9)
South East Asia	18.0% (35)	2.2%	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
The Americas	5.7% (11)	20.0% (9)	13.3% (6)	11.1% (5)	8.9% (4)	8.9% (4)	8.9% (4)
Western Pacific	13.9% (27)	13.3% (6)	11.1% (5)	6.7% (3)	6.7% (3)	6.7% (3)	2.2% (1)

Advocacy for vaccination – Shows percentage of FIP member countries engaged in support and advocacy activities connected with immunization service provision

Vaccination in pharmacies – Shows percentage of FIP member countries that permit administration of vaccines in pharmacies

Vaccination by pharmacists – Shows percentage of FIP member countries that permit pharmacist administration of vaccines

Training required – Shows percentage of FIP member countries that require individual training for pharmacists where vaccine administration is permissible

Access to records – Shows percentage of FIP member countries that have access to vaccination records and immunization data for patients

Global Shortage of Health Care Professionals: Opportunities for Pharmacists

According to the World Health Organization (WHO), there is currently a global shortage of more than 7 million health workers, and that number could rise to nearly 13 million by 2035, thus providing opportunities for pharmacists to increase engagement in patient care services. In response, WHO has outlined a Global Strategy on Human Resources for Health: Workforce 2030, which recommends that all countries make progress toward halving inequalities in access to a health worker, including pharmacists, by 2030.[14] A contributing factor to the shortage of health care professionals includes an aging population with increased health care needs and increased incidences of chronic disease. The health care workforce itself is also aging, and education programs cannot produce the numbers of health care workers needed.[15] Decreases in the number of global health care workers reduce the availability of basic health services to patients, including vaccinations, resulting in morbidity and mortality from preventable health conditions.

Panelist Insights

The facilitated panelist discussion ensured that each speaker had the opportunity to share experiences, insights, and perspectives on the gaps in immunization coverage, the value of improving access to immunizations through interprofessional collaboration, approaches to overcoming challenges, steps toward effective implementation of pharmacy-based immunizations, and approaches to improving immunization rates in high-risk populations. Panelists generously shared their passion for protecting communities from vaccine-preventable illness and inspired the attendees to do the same. Representing three countries, the panelists were able to provide the attendees with insights into the range of approaches to expanding pharmacy-based immunizations. They instilled confidence that there is a viable path for implementing pharmacy-based immunizations as a standard of practice worldwide.

Case Study: France

In 2016, only 46% of the at-risk population in France were vaccinated against influenza, significantly below the WHO's 75% recommendation.[12] In 2017, Olivier Rozaire, a pharmacist in the village of Saint-Bonnet-le-Château, was asked by the French Ministry of Health to implement a vaccination experiment by pharmacists. The program builds on existing evidence of improved vaccination coverage in other European countries where immunization services are available from pharmacies. With vaccine-preventable diseases on the rise in France and around the world, the French Minister of Solidarity and Health has prioritized this issue.[III]

Physicians also welcomed that this pharmacist service relieved pressure on their practices during the cold and flu season, allowing them to focus on treating more acutely ill patients.

—Olivier Rozaire, Pharmacist

In the Nouvelle-Aquitaine and Auvergne-Rhône-Alpes regions, 2,813 pharmacies took part in the pilot, corresponding to 58.8% of all pharmacies in these regions. While the goal for pilot implementation was 30,000 immunizations, participating pharmacists provided over 100,000 influenza vaccines. Pharmacists in

the pilot program were paid the same fee as physicians for vaccine administration. Physicians also welcomed that this pharmacist service relieved pressure on their practices during the cold and flu season, allowing them to focus on treating more acutely ill patients. Following the pilot program, immunization rates had increased 10.6% in these regions.

Community pharmacists participating in the pilot followed an approved education and training course. They were supported by the French Chamber of Pharmacists via a dedicated online platform, which also served as a data collection point for the service. From September 2017 to February 2018, 5,073 trained community pharmacists delivered 154,740 vaccinations.[12] Owing to the program's proven success, it was expanded nationwide in October 2019, with all appropriately

trained pharmacists in France authorized to vaccinate against influenza. Pharmacists are now working to expand authority to other vaccine-preventable illnesses, such as meningococcal C infection. Pharmacists also support implementing an electronic vaccine booklet to better monitor patients for vaccine status and to enable health authorities to collect valuable data on the state of vaccination in France.

Case Study: Saudi Arabia

Sarah Turkistani, PharmD, is a pharmacist with a master's degree in business and marketing; she works for Nahdi Medical Company, a major community pharmacy corporation in Saudi Arabia. She has been instrumental in implementing immunization, diabetes, and other patient care services. Community pharmacists are highly accessible health care professionals with convenient locations and extended working hours. As a result, the organization has been a clear "lever of change" in increasing access to pharmacist-provided immunizations in the country. There is an identified patient need for vaccinations in Saudi Arabia and a clear goal to increase the vaccination rates from the current 14% to 50% by 2030. This 2030 vision is led by His Royal Highness Prince Mohammed Bin Salman Bin Abdulaziz, who aims to improve wellness and focus on prevention instead of treatment. Nahdi Medical Company's participation in this campaign is part of its overall contribution to improving public health care services by protecting people at risk of influenza and other viruses and who need support and assistance.

Since 2013, pharmacists in Saudi Arabia have demonstrated their value through 50 diabetes clinics, which paved the way for the Ministry of Health (MOH) to provide authorization for vaccinations with a goal to reach more than 16,000 patients in 2018. Dr. Turkistani has found that a very successful way to gain buy-in and support of new clinical programs, including immunizations, is through conducting a pilot program. For the country's national immunization campaign, the MOH monitors the program, and the Ministry's involvement has increased the comfort level of these government decision makers. Now, these health care leaders feel confident in the services that pharmacists are providing. Patients also feel confident about pharmacists' services; these clinical services are improving patient loyalty, enhancing results of patient satisfaction surveys, and increasing store traffic and purchases during service offerings.

Pharmacists initially faced some challenges in engaging in immunization services. Some pharmacists felt that continuous professional education and training on immunizations were important to prepare pharmacists and ensure their interest in providing immunization services.[17] The chain pharmacy also had to proactively address physicians' concerns; this was accomplished by inviting health care leaders to a meeting to discuss how pharmacists could help improve immunization rates and to learn how the process could be most effective for physician colleagues and their patients. In a study published in 2020, patients expressed their need for immunization services and acceptance of immunizations performed by community pharmacists, with the expectation that it would improve their immunization uptake and community health in general. Some participants expressed concerns about pharmacists' current level of ability and skill in providing immunizations, the lack of a private area for conducting the service, the lack of female community pharmacists, and the immunization service cost.[18]

"A very successful way to gain buy-in and support of new clinical programs, including immunizations, is through conducting a pilot."

—Sarah Turkistani, Pharmacist

Case Study: United States

Michael D. Hogue, PharmD, FAPhA, FNAP, reflected on the impact on the profession of more than 25 years of pharmacists having immunization authority in the United States. He shared, "I believe we will look back on history and say that pharmacists gaining the authority to immunize patients was the seminal moment in our profession that changed both our profession itself and the external perception of our profession, from one of a pharmacist as a product distributor to a direct patient care provider." This early immunization work has led to pharmacists leveraging the Pharmacists' Patient Care Process, including ensuring a complete patient immunization record.[19]

Dr. Hogue emphasized the importance of identifying one's local community needs when looking to start an immunization service. Pharmacists need to be able to pinpoint specific shortfalls, particularly in adult immunizations. With their knowledge and training in the principles of immunology along with proper training to administer vaccines and supply additional providers, often in rural

and underserved areas, pharmacists are well positioned to help meet this public health need. Since 1996, the U.S. standard is that pharmacists complete an intensive training program that covers a recap of immunology, immunization technique, prevention of adverse effects, and how to identify patients in need of vaccination.

One critical factor for success is to engage and work closely with local health authorities to determine how pharmacist-provided immunizations may be of most value in the local community. These partnerships build trust and collaboration and help decrease potential opposition to program implementation. By becoming knowledgeable about and involved with the existing immunization provider network, pharmacists can find ways to enhance the community's immunization offerings without duplicating efforts. For example, if a pharmacist determines that pediatricians in the local community are successful at recommending and giving the first dose of the human papillomavirus vaccine, but have less success with patients returning to the office to complete the series, then the pharmacist could partner with those health care providers to manage and provide the follow-up doses. Dr. Hogue emphatically called attention to the value of pharmacists establishing relationships with physicians in their local communities. These relationships can help foster immunization services and are the foundation for optimal patient care. Nurturing these trusted professional relationships also allows for enhanced collaboration and strengthens the covenant to provide care for patients.

For countries without a vaccine infrastructure, Dr. Hogue recommended advocating for the pharmacist's role in immunization provision directly to government health authorities. Highlighting a pharmacist's education, training, and skills may help authorities to be more open to leveraging pharmacists as vaccine providers. When the United States initially developed training on immunization provision, the focus was on more than simply teaching pharmacists how to insert a needle into a patient's arm. In many ways, the mechanics of providing an immunization may have been the easiest part of the training. Supported by the transition to doctoral-level training (i.e., the PharmD) for all U.S. pharmacists, the country has seen tremendous training advancements over the last 24 years, particularly in immunology. When looking to establish key elements of

immunization training in other countries, Dr. Hogue recommended evaluating the baseline knowledge that pharmacists have acquired in their degree training. Supplemental training may needed in immunology, evaluating precautions and contraindications, adverse event management, standards for documentation, and implementing recommendations for spacing and timing of vaccinations. Furthermore, training on payment and compensation processes for vaccines and vaccine administration may also be necessary to provide an expected, consistent level of service across society.

Roles of Pharmacists in Immunizations

Ensuring patients get the vaccinations that they need requires the cooperation of many stakeholders within communities. This concept is called the "immunization neighborhood."

"I believe we will look back on history and say that pharmacists gaining the authority to immunize patients was the seminal moment in our profession that changed both our profession itself and the external perception of our profession, from one of a pharmacist as a product distributor to a direct patient care provider."

—Michael Hogue, Pharmacist

The immunization neighborhood can best be described as the three C's: collaboration, coordination, and communication among immunization stakeholders dedicated to serving their patients' immunization needs and protecting their communities from vaccine-preventable diseases. This concept is accepted within the U.S. public health community, and other health care professionals are also embracing the idea. The ultimate vision is that pharmacists are accessible, valued, and recognized members of the immunization neighborhood who are authorized and compensated for providing immunization services.

Pharmacists play three key roles in immunization advocacy:

advocate, facilitator, and immunizer. Pharmacists who serve as advocates focus on educating and motivating patients to receive needed vaccinations. Facilitators engage with other vaccine providers and host those providers to allow increased access and convenience for patients who need vaccines. Others serve as immunizers, giving needed vaccinations to patients across the lifespan. The role of immunizer may allow pharmacists to engage most effectively with patients at high risk, identifying needs, and providing necessary vaccines. Central to all of these roles is communication and documentation among the patient's health care team, including immunization registries if available.

Opportunities for Pharmacists: WHO Global Influenza Strategy

Each year, across the globe, there are an estimated 1 billion influenza cases, of which 3 million to 5 million are severe cases and result in and 290,000 to 650,000 influenza-related respiratory deaths.[20] In 2019, the WHO announced a new global influenza strategy, which will continue through 2030; the organization aims to "call for all countries and partners to prioritize the implementation of influenza programs." The substantial morbidity and mortality due to influenza—well-recognized during a pandemic—is often underappreciated in the context of year-round seasonal influenza. Seasonal influenza viruses evolve continuously and cause severe disease annually, particularly in at-risk populations such as older adults, children, pregnant women, and people with underlying chronic conditions.[21]

Influenza can result in serious complications for individuals living with chronic health conditions (e.g., heart disease, lung disease, diabetes) even when the chronic conditions are well-controlled. Studies have shown that respiratory viral infections, including those due to the influenza virus, increase the risk of heart attack and stroke in the 3 days following infection and frequently exacerbate chronic obstructive pulmonary disease.[22,23]

There are specific opportunities for pharmacists within the WHO Global Influenza Strategy. By supporting more robust capacities for immunization delivery in their country, pharmacists can:

- Strengthen global influenza surveillance, monitoring, and data utilization.
- Support the development of effective influenza communication strategies across multiple sectors and between stakeholders.
- Expand seasonal influenza prevention and control policies and programs to protect vulnerable individuals.
- Design and implement evidence-based immunization policies and programs to reduce transmission and disease severity.
- Design and implement evidence-based treatment policies and programs to reduce morbidity and mortality.
- Strengthen pandemic preparedness and response for influenza to make the world safer.

Collaboration With the Medical Community

When pharmacists first participated in immunization delivery, the medical community raised concerns about the potential disruption of the medical home. By engaging appropriate partners within medicine and public health, the resistance from other providers was reduced, leading to consensus that patients and their prevention needs were at the center of immunization activities. As a community of health care providers, the focus turned toward improving the public health within communities, minimizing professional conflicts, and emphasizing collaboration, coordination, and communication.

Pharmacists also collaborate with the medical community to implement immunization protocols or standing orders. These agreements:

- Identify an individual health provider who has delegated immunization activity.
- Identify who is authorized to administer vaccines.
- State the types of vaccines a practitioner is authorized to administer.
- Define procedures, decision criteria, or a plan that a provider should follow, including when to refer the patient.
- Identify procedures for emergencies.
- Outline record keeping and documentation procedures.

Providers within the immunization neighborhood also ensure that vaccine administration information is entered into the immunization information system and the patient's medical record, if one exists, to ensure tracking toward vaccine series completion and message reinforcement.

Developing Solutions for Barriers to Pharmacy-Based Immunization

The roundtable discussion was an engaging and highly informative session that allowed participants to interact with each other and exchange ideas from their experiences and perspectives on implementing pharmacy-based immunization services. Participants were assigned to roundtables

and given a topic for small group discussions. Topics included how to:

- Gain pharmacist authority to immunize.
- Increase immunization rates in high-risk patient populations.
- Overcome vaccine hesitancy of the pharmacy's patients, especially high-risk patient populations.
- Improve public awareness of the importance of influenza vaccination in high-risk populations.
- Establish oneself and other pharmacists in the country as valued members of the immunization neighborhood.

Participants discussed opportunities and challenges and they explored and shared approaches to overcoming the identified challenges. Each table assigned one person to record their group's responses on a discussion summary form and one person to be the spokesperson for their table to share their key insights in the larger group discussion. When challenges were identified and the group did not have a solution, the facilitator and panelists offered solutions, and others in the audience provided additional perspectives.

Gain Pharmacist Authority to Immunize

One of the biggest challenges for pharmacist initiation of immunization services worldwide is gaining authority to provide immunizations. Countries must take several steps to achieve immunization authority. These steps include, but are not limited to:

- Confirm willingness by the profession.
- Identify coalitions and community need.
- Engage health care professions and the health care team.
- Establish guidelines, standards, and protocols.
- Promulgate legislation and regulation.
- Develop education and training.
- Establish documentation and health information technology infrastructure.
- Confirm payment for services or a sustainable business model.
- Publish and disseminate practice experiences and best practices.

APhA has outlined a typical immunization service pathway to help support expanded authority for pharmacist immunizations (Figure 1). The process relies on recommendations from the Advisory Committee on Immunization Practices, which is the advisory group to the CDC that develops recommendations on how to use vaccines to control disease in the United States.[24] This pathway may also be useful to pharmacists across the world facing their own barriers to immunization authority. Group members and panelists discussed the challenges in their respective countries to achieve authority to provide immunizations. Examples of challenges and potential solutions are shown in Table 3.

Figure 1. Immunization Services Pathway in the United States

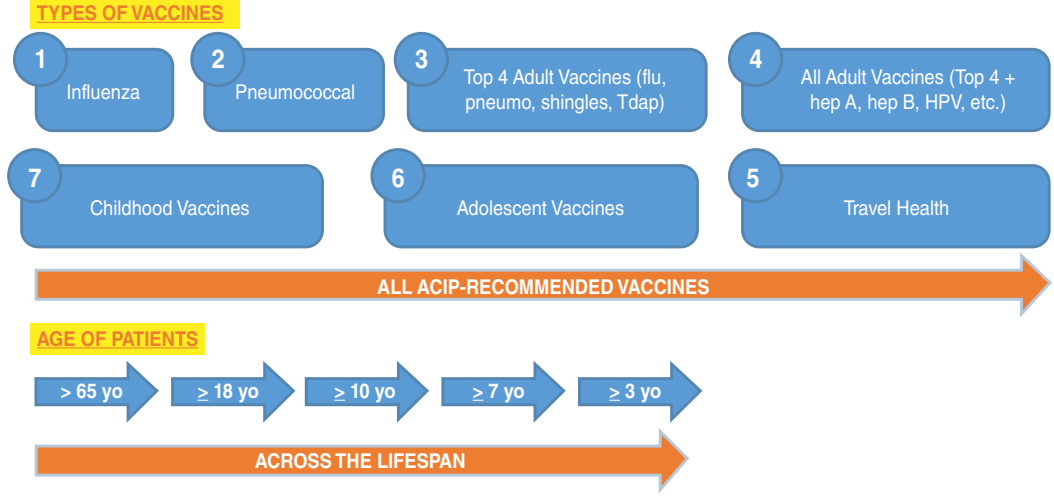

Table 3. Challenges and Potential Solutions for Pharmacist Authority to Immunize

Immunization Challenge	Potential Solution
Training and motivation to provide immunization services	• Provide pharmacist training to inspire confidence to engage in a new service area • Work to implement similar training with the pharmacy school curriculum
Combatting perceptions of pharmacists not being competent to provide immunizations among patients and other health care professionals	• Establish training and credentialing programs to demonstrate competence • Collaborate with motivated and supportive members of other health professions
Obtaining pharmacist recognition from health authorities to provide this professional service	• Develop and submit a pilot project to the authorities for evaluation
Establishing pharmacists as a part of the immunization team	• Engage in dialogue and communication with physicians, nurses, dentists, and other health care team members affected by pharmacist delivery of vaccines
Gaining accessibility to patient records	• Empower pharmacists with technology and supportive regulations/ guidance for pharmacist access and reporting to immunization registries and medical records
Managing physician resistance	• Lobby for change in legislation to define/redefine the role of the pharmacist • Engage in dialogue with physician leaders about how to delegate responsibility to the pharmacist in order to help them with workload and meeting quality measures • Engage in multidisciplinary coalitions
Advocating for authority	• Outline the data showing the gaps in immunization coverage, particularly for patients at high risk • Propose the implementation of a pilot program • Engage with national pharmacist associations and other coalition partners to provide input and support

Increase Immunization Rates for High-Risk Patient Populations

According to the International Federation on Ageing, a re-orientation of global immunization policies for many vaccine-preventable diseases must ensure that safe and effective vaccines are available in a manner that leaves no one behind, regardless of age or socioeconomic background.[25] Particularly for elderly patients, vaccine-preventable diseases, such as influenza, pneumonia, and shingles, can result in severe complications and even mortality, particularly for individuals with comorbid chronic diseases such as diabetes, cardiovascular disease, and dementia.[26]

Group members and panelists discussed the challenges in their respective countries to increase immunization rates in high-risk populations. Examples of challenges and potential solutions are shown in Table 4.

Table 4. Challenges and Potential Solutions for Increasing Immunization Rates for High-Risk Populations

Immunization Challenge	Potential Solution
Increasing awareness of the value of immunizations to high-risk populations	• Leverage promotion and marketing channels used to reach pharmacy patients and communities
Leveraging pharmacist access to high-risk patients who access the pharmacy frequently	• Use this opportunity to talk to patients about the benefits of pharmacist-provided immunization to patient access and protecting individuals and communities from vaccine-preventable diseases • Utilize pharmacy database to identify patients at risk of complications from vaccine-preventable diseases to target patients for immunizations

Overcome Vaccine Hesitancy for High-Risk Patient Populations

Vaccination in high-risk groups, including older people and people with cardiovascular disease, cancer, diabetes, and chronic lung disease, is an important focus for immunization efforts. Improved vaccination rates can potentially mitigate higher rates of morbidity and mortality in at-risk populations and enable those who are vulnerable to age in better health.

Group members and panelists discussed their respective countries' challenges to overcome vaccine hesitancy, especially within high-risk populations. Examples of challenges and potential solutions are shown in Table 5.

Table 5. Challenges and Potential Solutions for Overcoming Vaccine Hesitancy

Immunization Challenge	Potential Solution
Managing potential economic challenges for patients in high-risk populations	• Evaluate options for government subsidies, funding from insurance, or employee benefit programs • Look at model for how other providers are paid for providing immunization services
Providing access to health care for high-risk populations	• Coordinate with government, social, or refugee organizations to provide educational materials and vaccine supply
Ensuring access to medical records in pharmacies	• Use patients' prescriptions for chronic disease medications as a source of information about medical history to recommend needed vaccinations
Tackling the lack of education and inaccuracy of information on vaccination in the media, particularly social media	• Utilize messaging from government and professional organizations to increase patient awareness of targeted programs with credible and evidence-based information delivery by health care professionals
Educating patients about the benefit of immunizations	• Educate high-risk patient populations about how immunizations can decrease their health risks • Coordinate immunization messaging to complement and reinforce messages released by government and other entities
Reinforcing the cost/benefit of vaccinations for high-risk patients	• Explain the consequences of disease in high-risk patients, particularly how expensive and risky preventable illness might be
Advocating for reimbursement for vaccinations	• Present data that demonstrate the positive pharmacoeconomics of vaccinations to gain government support • Utilize models from other health care professions as baseline comparison for approach
Minimizing patient fear of adverse effects	• Counsel on the incidence of adverse effects and how they are managed if they occur • Share messages issued by government and other entities regarding safety of vaccines • Use evidence-based sources for guidance
Tackling low health literacy	• Collaborate with public health departments and interdisciplinary coalitions to organize campaigns targeted at high-risk populations

Improve Public Awareness of the Importance of Influenza Vaccination in High-Risk Populations

Vaccination to prevent influenza is particularly important for people who are at high risk of developing serious complications. With awareness among adults about needed vaccinations lacking, pharmacists are well positioned to both recommend and administer vaccinations, particularly as scope of practice continues to expand around the world. In their interactions with patients, pharmacists can provide up-to-date information about the importance of the influenza vaccines and which formulation is recommended. In addition, pharmacists can recommend and administer other needed vaccines (if authority is provided) to increase public health protections for the communities served.

Group members and panelists discussed the challenges in their respective countries to improve public awareness of the importance of influenza vaccination in high-risk populations. Examples of challenges and potential solutions are shown in Table 6.

Table 6. Challenges and Potential Solutions for Improving Public Awareness of Influenza Vaccination

Immunization Challenge	Potential Solution
Improving public awareness	• Engage in a national vaccination campaign focused on both the public and health care workers to increase awareness of the need for influenza vaccination in high-risk populations
Correcting perceptions that vaccines have eradicated diseases and are no longer needed	• Engage the media to deliver evidence-based information campaigns leveraging existing statistics of people getting diseases that had been eradicated or significantly reduced (e.g., polio, measles, mumps)
Improving community understanding of benefits of vaccination and encouraging uptake	• Leverage pharmacy software pop-ups and prompts to identify patients in need of influenza and other vaccinations
Differentiating between influenza and the common cold	• Educate patients directly • Work to provide education to patients through local and national media • Utilize existing public education materials to support education efforts

Establish Pharmacists as Valued Members of the Immunization Neighborhood

The implementation and delivery of immunization services within pharmacy practices is strengthened when the pharmacist's role as a valued member of the immunization neighborhood is recognized. Group members and panelists discussed the challenges in their respective countries to establish pharmacists as valued members of the immunization neighborhood. Examples of challenges and potential solutions are shown in Table 7.

Table 7. Challenges and Potential Solutions for Establishing Pharmacists as Valued Members of the Immunization Neighborhood

Immunization Challenge	Potential Solution
Increasing awareness of pharmacists' potential in providing and advocating for immunization	• Collaborate with public health departments and work proactively in immunization campaigns • Reach out to media outlets and social media to tell the story about ways pharmacists can help address immunization rates in the community
Improving documentation of previous immunizations	• Implement electronic document management systems • Provide immunization record cards to patients
Developing personal relationships between health professions at a local and national level	• Engage in routine communication focused on complementing patient care services (not competing for patients) • Establish or join existing interprofessional immunization coalitions

COVID-19: Optimizing Emerging Opportunities

COVID-19 provides a stark reminder of the devastating consequences of infectious diseases in a globally connected world; the pandemic raises questions about the imminent, overwhelming demand for a coronavirus vaccine and the essential need for routine vaccinations against influenza, pneumococcal pneumonia, and other vaccine-preventable diseases during and after the pandemic. COVID-19 has brought many unprecedented challenges, particularly regarding older people and those with underlying conditions (e.g., diabetes, heart disease, respiratory conditions) rendering them at a higher risk of serious outcomes if they contract the SARS-CoV-2 virus. Considering the extraordinary budgetary challenges that will face all countries post-pandemic, advocating for significantly greater investment into preventive interventions is particularly important.[25]

Vaccine development for COVID-19 is underway, with numerous vaccine candidates being studied in clinical trials. In many countries, pharmacists are on the front line in response to COVID-19 (i.e., mitigation, tracing, testing, and continuity of care) and will likely play a key role in administering vaccinations against the SARS-CoV-2 virus when a vaccine becomes available. Amid the backdrop of the COVID-19 pandemic, the safety of pharmacists, pharmacy staff, and patients is a top priority in the provision of all vaccines. Before administering any vaccinations, pharmacists need to be familiar with current recommendations and best practices to optimize patient care delivery during the COVID-19 pandemic and to comply with best practices and institutional, local, and state policies and regulations.[27] Prior to the availability of COVID-19 vaccine, pharmacists should focus on the reintroduction and enhancement of immunization and other patient care services in their practices so that the system and patients will be comfortable with vaccinations being administered within pharmacy settings. Pharmacists can focus their outreach on individuals at high risk of complications from COVID-19 and other vaccine-preventable diseases.

Summary

Pharmacy-based immunization services are provided by pharmacists educated in the practice of immunization delivery and provide a convenient and accessible option for patients to receive immunizations. Gaps in immunization coverage for high-risk patients, such as those with diabetes and cardiovascular disease, are well documented, and pharmacists are uniquely positioned to help provide needed vaccines. The significant role vaccines play in protecting individuals and communities from vaccine-preventable diseases has been heightened over the past few years. Pharmacists, because of their knowledge, skills, and access to the public, can positively impact vaccination rates, especially in individuals and communities identified as high risk. By maintaining the patient-centric focus within the immunization neighborhood, all health care providers can make a difference in the health of the people in their communities.

Resources

- An Overview of Current Pharmacy Impact on Immunisation: A Global Report 2016—This report from the International Pharmaceutical Federation details survey results from 137 of its member organizations, outlining the current role of pharmacists in immunizations across the world and the impact of these activities.
- Applying the Pharmacists' Patient Care Process to Immunization Services: A Resource Guide for Pharmacists—This resource from the American Pharmacists Association focuses on applying the Pharmacists' Patient Care Process of the Joint Commission of Pharmacy Practitioners to the provision of pharmacy-based immunization services.
- Global Influenza Strategy 2019–2030—This strategy from the World Health Organization outlines a global call for all countries and partners to prioritize the implementation of influenza programs as an investment for greater health system strengthening and pandemic preparedness.
- Global Strategy on Human Resources for Health: Workforce 2030—This report by the World Health Organization outlines policy options and makes recommendations for stakeholders on how to optimize the health workforce, understand and prepare for future needs of health systems, build institutional capacity to implement this agenda, and strengthen data for monitoring and ensuring accountability of implementation of both national strategies and the Global Strategy.
- Guidelines for Pharmacy-Based Immunization Advocacy—These guidelines, developed by American Pharmacists Association, provide guidance on the implementation of immunization services in the areas of prevention, partnership, quality, documentation, and empowerment.
- Prevention and Control of Seasonal Influenza With Vaccines: Recommendations of the Advisory Committee on Immunization Practices—United States, 2019–20 Influenza Season—This report updates the 2018–19 recommendations of the Advisory Committee on Immunization Practices regarding the use of seasonal influenza vaccines in the United States.

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