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Special Report: Formulations, Recommendations, and Resources
JULY 2021

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As COVID-19 vaccination efforts continue, it is more important than ever for pharmacists to be equipped with the knowledge and resources to bust the myths surrounding vaccinations, particularly in preparation for the upcoming influenza season, which is expected to occur from October 2021 to May 2022. Infection can be caused by both A and B strains of the influenza virus. Annual flu vaccines protect against the A and B strains that research has predicted to be the most prevalent in the upcoming season. However, much like the COVID-19 vaccines, not all influenza vaccines are created equal. Understanding the key differences between the available flu vaccinations can help pharmacists make the most appropriate vaccine recommendations for their patients.

**TRIVALENT VS QUADRIVALENT VACCINES**

One key difference among vaccine products is determined by the number of viral strains included in the preparation. For example, trivalent vaccines contain 3 strains, including 2 influenza A and 1 influenza B. Quadrivalent vaccines contain 4 strains, including double coverage for both A and B strains. Each year, the CDC and the World Health Organization publish recommendations on the composition of strains to be included in the vaccine based on expected widespread presence. The recommended composition of strains for both trivalent and quadrivalent vaccines for the upcoming 2021-2022 season is listed in [TABLE 1](#).

**ADJUVANTED VACCINES**

Both trivalent and quadrivalent flu vaccines are available with an adjuvant, which is an ingredient included to create a more robust immune response. MF59 is an adjuvant that has been included in the vaccines since 2016, and it enhances antigen uptake, increasing migration and activation of immune cells. The adjuvanted formulations are approved for individuals 65 years and older.

**EGG-CONTAINING VS “EGG-FREE” VACCINES**

Many of the influenza vaccines currently available are produced using egg-based manufacturing. However, newer methods of production have been developed and provide advantages over the traditional method. Currently, there are 3 methods used to produce the different formulations of the influenza vaccine: egg-based manufacturing, cell-based manufacturing, and recombinant technology.

Most influenza vaccines are produced using egg-based manufacturing. This method can be used to produce live or inactivated influenza vaccines. The egg-based process starts with candidate vaccine...
viruses (CVVs), which are grown in chicken eggs and provided by the CDC or a partner organization. The CVVs are inserted into fertilized chicken eggs and allowed to replicate for multiple days. After this time, the viral material is collected, killed (if being used for an inactivated vaccine), and purified to produce the viral antigens for the vaccine. Although egg-based manufacturing is the most widely used method, these vaccines often cannot be used in people with egg allergies and can take longer to produce compared with other methods. Vaccines grown in eggs are also prone to undergoing egg-adapted changes, which can lead to a less effective vaccine being produced. 

As of 2012, the FDA approved the cell-based manufacturing process to be used to produce inactivated influenza vaccines. This process is fairly similar to the egg-based method; however, the CVVs are grown in cells (instead of eggs) and then inserted into cultured mammalian cells to replicate. The viral material is then extracted, killed, and purified for use in the influenza vaccine. Although this method might seem similar to the egg-based method, growing the vaccine in cells allows for faster production of the vaccine material and is not a concern in patients with egg allergies. In addition, the cell-based method also avoids the risk of egg-adapted changes.

The final method of influenza vaccine production involves the use of recombinant technology and was approved for use in 2013. CVVs are not used in this type of production. Instead, the manufacturer utilizes viral DNA to produce hemagglutinin (HA), which is a surface receptor of the influenza virus that functions as an antigen to elicit an immune response. The DNA is then incorporated into a baculovirus (a nonpathogenic virus) to create a recombinant virus. The recombinant virus is then combined with an FDA-approved cell line, where it provides instructions for the cells to produce HA. Once produced, the HA is then purified and used to produce the recombinant influenza vaccine. This method of vaccine production is the fastest currently available and does not require the use of eggs in any part of the process. Additionally, since the vaccine material is not grown in eggs, egg-adapted changes are not a concern when utilizing the recombinant method.

### STANDARD VS HIGH-DOSE VACCINES

Most influenza formulations are available as a standard dose. However, as of 2009, a more concentrated formulation has been developed as a high-dose option for patients at increased risk of infection (eg, those who are 65 and older). The high-dose formulation contains 4 times the amount of antigen as the standard-dose preparations. The high-dose influenza vaccine is only available as a quadrivalent formulation. All currently available influenza vaccine formulations can be found in Table 2.

### ADVERSE EFFECTS AND CONTRAINDICATIONS FOR FLU VACCINES

People who refrained from receiving the COVID-19 vaccine because of evolving safety data might express the same hesitancy toward the upcoming flu vaccines. Therefore, it is important to reestablish the safety of vaccinations within the public eye. Adverse effects (AEs) to the annual flu vaccine are typically mild and resolve quickly. Mutual AEs observed in the inactivated and recombinant vaccines, including soreness, redness, and pain at the injection site, as well as muscle aches, nausea, fever, and headaches. According to the results of several studies, injection site pain was found to be more common in quadrivalent doses, which can be attributed to the body’s response to an additional antigen. Furthermore, differences in systemic effects have been established between children and adults. Both groups reported headache and malaise; however, children more frequently experienced irritability, whereas fatigue was more common in adults.

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### Table 1. Northern Hemisphere Recommended Composition for 2021-2022 Influenza Vaccine

<table>
<thead>
<tr>
<th>Vaccine types</th>
<th>2021-2022 strains</th>
</tr>
</thead>
</table>
| Egg-based quadrivalent vaccine | • A/Victoria/2570/2019 (H1N1)pdm09-like virus  
• A/Cambodia/e082636/20/020 (H3N2)-like virus  
• B/Washington/02/2019 (B/Victoria lineage)-like virus  
• B/Phuket/307/2013 (B/Yamagata lineage)-like virus |
| Cell/recombinant-based quadrivalent vaccine | • A/Wisconsin/58/2019 (H1N1)pdm09-like virus  
• A/Cambodia/e082636/20/020 (H3N2)-like virus  
• B/Washington/02/2019 (B/Victoria lineage)-like virus  
• B/Phuket/307/2013 (B/Yamagata lineage)-like virus |
| Egg-based trivalent vaccine | • A/Victoria/2570/2019 (H1N1)pdm09-like virus  
• A/Cambodia/e082636/20/020 (H3N2)-like virus  
• B/Washington/02/2019 (B/Victoria lineage)-like virus |
| Cell/recombinant-based trivalent vaccine | • A/Wisconsin/58/2019 (H1N1)pdm09-like virus  
• A/Cambodia/e082636/20/020 (H3N2)-like virus  
• B/Washington/02/2019 (B/Victoria lineage)-like virus |
Although live vaccines are associated with more pronounced AEs, a surveillance report of the live attenuated influenza vaccine (LAIV) quadrivalent dose more commonly identified nonserious AEs such as fever, cough, and headache.\textsuperscript{15} One vaccine, FluMist (AstraZeneca), elicits an immune response by replicating in the epithelial, mucosal cells of the nasopharynx.\textsuperscript{16} As a result, nasal congestion, rhinorrhea, and sore throat are more commonly reported in people receiving FluMist compared with those getting the inactivated and recombinant vaccines.\textsuperscript{16}

Advisory Committee on Immunization Practices recommendations suggest the LAIV requires greater surveillance of patient characteristics; however, the contraindications of all vaccines should be carefully considered before the administration of any dose.\textsuperscript{17} All the available vaccines are contraindicated in people with a history of allergic reactions to any component of the vaccine due to the risk of anaphylaxis. Most notably, people with egg allergies should avoid any of the egg-based vaccines listed in Table 2. The LAIV preparation is contraindicated in children aged 2 to 4 years with asthma or wheezing within the past 12 months, concomitant aspirin- or salicylate-containing therapy, immunocompromised for any cause, pregnancy, persons with cochlear implants, and those who have received influenza antiviral medications within the past 48 hours.\textsuperscript{17}

### RECOMMENDING A FLU VACCINE

The intent of receiving a flu vaccine each year is to prevent severe, life-threatening complications, hospitalizations, and death from the virus.\textsuperscript{18} Each flu vaccine contains different components and is manufactured in different ways, allowing pharmacists and patients to work together to determine the right vaccine to receive. Two factors to consider when recommending a vaccine for a patient are patient-specific characteristics (eg, age and comorbid conditions) and accuracy of the vaccine with the circulating flu viruses in the community.\textsuperscript{14} In patients older than 65 or who have weakened immune systems, high-dose or adjuvanted quadrivalent vaccines have demonstrated higher efficacy over standard-dose trivalent vaccines.\textsuperscript{18} In children, flu vaccine effectiveness has shown to be higher in those who received 2 doses in their first flu season compared with children who received 1 dose.\textsuperscript{18} Ultimately, receiving a flu vaccine protects the recipient and members of the community, especially more vulnerable populations, from effects of the virus, cardiac events, and worsening of chronic lung disease, and it also reduces hospitalizations in patients with diabetes and chronic lung disease.\textsuperscript{18}

### REFERENCES


<table>
<thead>
<tr>
<th>Available vaccines</th>
<th>Vaccine type</th>
<th>Ages of recommended recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afluria</td>
<td>Inactivated egg-based quadrivalent</td>
<td>6 months and older</td>
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<tr>
<td>Fluarix</td>
<td>Inactivated egg-based quadrivalent</td>
<td>6 months and older</td>
</tr>
<tr>
<td>Flulaval</td>
<td>Inactivated egg-based quadrivalent</td>
<td>6 months and older</td>
</tr>
<tr>
<td>Fluzone Quad</td>
<td>Inactivated egg-based quadrivalent</td>
<td>6 months and older</td>
</tr>
<tr>
<td>FluMist</td>
<td>Intranasal live attenuated egg-based quadrivalent</td>
<td>2-49 years</td>
</tr>
<tr>
<td>Flucelvax</td>
<td>Inactivated cell-based quadrivalent</td>
<td>2-49 years</td>
</tr>
<tr>
<td>Flublok\textsuperscript{a}</td>
<td>Recombinant quadrivalent</td>
<td>18-64 years</td>
</tr>
<tr>
<td>Fluad</td>
<td>Inactivated egg-based trivalent (with MF59 adjuvant)</td>
<td>65 years and older</td>
</tr>
<tr>
<td>Fluad Quad</td>
<td>Inactivated egg-based quadrivalent (with MF59 adjuvant)</td>
<td>65 years and older</td>
</tr>
<tr>
<td>Fluzone HD</td>
<td>Inactivated egg-based quadrivalent</td>
<td>65 years and older</td>
</tr>
</tbody>
</table>

HD, high-dose.

\textsuperscript{a}Does not contain any adaptation/growth of the influenza virus.
SPECIAL REPORT: INFLUENZA

WHERE DID INFLUENZA GO THIS YEAR?
Ask the average person whether it feels like we are starting to get out of the woods on COVID-19 and most everyone would respond in the affirmative, despite some worrying trends in vaccine hesitancy and hospitalizations of young adults. It sure feels like we’ve been hunkered down for quite a long time now. Remember the flu? It’s practically nonexistent this year. The latest data show substantially fewer than 1000 lab-confirmed cases, with only 1 pediatric death nationwide directly coded to the flu for the 2020-2021 season.1 The CDC has chosen to track Pneumonia-Influenza-COVID-19 (PIC) as a bundle of coded conditions for death and will likely continue to do so. From the January 1, 2021, through June 12, 2021, there have been 256,915 PIC deaths.1 In a normal year, between 6% and 8% of all deaths are from influenza-or pneumonia-coded illness; at our peak earlier this year, PIC produced more than 25% of our nation’s deaths.1

SEASONAL AND INFECTIOUS, BUT ONLY ONE REMAINS ELUSIVE (FOR NOW)
I quite enjoyed not getting any symptoms or sickness from the flu this year, and I’d like to keep it that way. Unlike for COVID-19, we don’t get nearly perfect coverage and effectiveness rates in the 90%-plus range for the influenza vaccine.2 Rather, we are generally quite happy with rates between 40% and 60%.3 Assuming we get to a manageable, steady state, or a low rate of COVID-19 with booster management, will influenza roar back? Or has COVID-19 changed our therapeutic prowess and social behaviors?

THE MORE POWERFUL INFLUENCE: LESSONS LEARNED OR VACCINE FATIGUE?
Habits are a powerful influence. We are more than 14 months now into handwashing, wearing masks, avoiding the other person walking down the aisle at the grocery store, and holding our breath. (Admit it. You’ve done it in an elevator.) These habits and front-of-mind awareness will persist. Will I wear a mask everywhere I go? Will I avoid live concerts? Doubtful. Will I get an influenza vaccination? Of course. But what’s the view from the non–health care professional? We still regularly fail to hit 50% of adults vaccinated against the flu most years.4 Will that rate go up or down? It’s so hard to predict: Will COVID-19 mitigation and behavior continue after case rates drop, and will flu again become the principal threat each fall?
Will COVID-19 mitigation and behavior continue after case rates drop, and will flu again become the principal threat each fall?

BRAZIL, INDIA, AND THE REALIZATION THAT COVID-19 ISN’T GOING AWAY
Then there is the worldview. While we begin to have an embarrassment of abundance of vaccine supplies, much of the world is still struggling with COVID-19. India can’t keep up with cremations, while Brazil is still in denial. If the world’s rate of COVID-19 infections doesn’t come down, herd immunity will get harder as trade and international travel scream to move on. The cruise industry and the CDC are locked in a bitter battle, and airline CEOs are grappling with how to treat international travel differently than domestic travel as our own “bubble” now eclipses 60% vaccinated with at least 1 dose.

WILL TESTING TAKE A FRONT SEAT?
What if a basal rate of COVID-19 infections persists, despite widespread vaccine availability with near 100% effectiveness against severe disease and death, especially in the face of an opening up of society that lets us experience a typical flu season? Well, lots of testing would result, one might surmise. Unlike spring allergies, where the differential between COVID-19 and sneezing is more distinct, flu and COVID-19 are remarkably similar in their presentation, although not necessarily in their treatment—especially in light of oral agents for influenza versus some of the emerging treatment options for patients with COVID-19, with early but potentially progressive infections. Testing for influenza with COVID-19 ruled out may become the new normal, for the sake of both patients and surveillance.

2022 COULD BE WATERSHED YEAR IF WE ARE PREPARED, KEEP PUBLIC TRUST
It’s entirely possible for us to vaccinate most Americans against COVID-19; continue testing efforts; and sustain noninfringing, nonimposing, and easy-to-implement behavior change—and still have influenza vaccination rates above 50% this fall. With nearly half a million PIC deaths this year—and the 3 prior years producing roughly 100,000, 80,000, and 80,000 PIC deaths, respectively, inclusive of baseline pneumonia (and the earlier 2 having no COVID-19 deaths)—might we end up with far fewer overall PIC deaths next year and set a new baseline with our new behaviors and vaccine technologies? Or will we slide back into complacency? Much of that has to do with pharmacist-led preparedness, patient counseling, public communication, and action. Oh, and by the way, maybe now we’ll be better about promoting and administering pneumonia vaccines as well.

REFERENCES
More than ever, vaccinations are a hot topic in health care. As the world continues to settle into the “new normal,” one thing remains unchanged: the public’s trust in their neighborhood pharmacist, who is an accessible health care professional, knowledgeable and ready to discuss vaccine options with their patients.

Urgent efforts to reduce the transmission of COVID-19 have resulted in a decrease in routine preventive medical services—including immunizations. As the focus has necessarily shifted to vaccinations against COVID-19, other vaccines have taken a back seat. According to the CDC, more than 53% of the total US population has received at least 1 dose of a COVID-19 vaccine, and 45.6% are fully vaccinated. As such, the CDC has revised guidelines for vaccinated individuals, and workplaces, schools, and social gatherings are roaring back to life.

Although the world shutdown and ongoing restrictions related to the COVID-19 pandemic may have led to an uncommonly mild 2020-2021 influenza season, influenza remains a serious respiratory illness. Between 2010 and 2020, flu infections led to between 9 million and 45 million illnesses, 140,000 to 810,000 hospitalizations, and 12,000 to 61,000 deaths annually in the United States. While the US population prepares to leave the COVID-19 pandemic behind and resume normal life, pharmacists remain on the front lines of ensuring patient safety through efforts that include reinitiating and administering essential vaccines, such as the influenza vaccine.

To guarantee that pharmacy staff—and patients—are ready to follow the latest guidelines and to ensure appropriate implementation of vaccinations during the upcoming flu season, this article reexamines recommendations around the most popular players in the inoculation game: influenza vaccines.

**ANNUAL INFLUENZA VACCINE TIMING CONSIDERATIONS**

Influenza viruses circulate in the environment year-round, with December through March being the months of highest activity. In the United States, cases of influenza infection begin to rise by October and can remain elevated through May. A CDC study of respiratory specimens testing positive for the virus over 36 flu seasons found that the month of February had the highest number of cases in 15 of the 36 seasons studied. This information is noteworthy considering that the timing of annual flu vaccines can create confusion among the population. Frequently asked questions (FAQs) from patients on this topic can be specific—“Is July too early to get my flu shot?”—or more general—“When should I get my flu vaccine?”

Annual flu vaccines become available at neighborhood pharmacies as early as July; however, according to the CDC, adult patients should “make plans to get vaccinated in early fall, before flu season begins.” September and October are ideal months to get vaccinated against influenza. Getting vaccinated in July or August is likely to be associated with reduced protection against influenza later in the season, particularly among patients 65 years or older.

Early availability of influenza vaccines is important for children who are receiving their first flu vaccine. The CDC recommends that children aged 6 months through 8 years
receive 2 doses of a flu vaccine: the first dose to “prime” the immune system and the second for optimal protection. It is recommended that children receive the first dose as soon as influenza vaccines become available, since the doses must be spaced at least 4 weeks apart. Antibodies from the vaccine will start to decline over time and so will the protection the flu vaccine provides, resulting in the need for annual vaccination for all persons 6 months or older.

ANSWERING PATIENTS’ FAQS

What if I miss the recommended vaccination window?
Patients who did not receive an annual flu shot in the recommended months of September and October are still advised to be immunized later in the season, since flu viruses circulate year-round; cases of infection are reported through May.

Can I be immunized and still get the flu?
When answering this question, it is important to keep 3 key factors in mind: (1) the time it takes for an individual to achieve full immunity after being vaccinated against flu, (2) individual response to the vaccine, and (3) the viral strains that are circulating during that season.

First, educate the patient on the time it takes to develop the protective antibodies against the viruses present in the flu vaccine they received. It can take an average of 2 weeks for the vaccine to be considered protective. Therefore, advise the patient to practice extra vigilance during the first 14 days post vaccine administration, as infection may still occur.

Second, keep in mind that the annual flu vaccines provide coverage against viral strains that are indicated to be circulating during that season, so a patient still has a chance of becoming infected with a strain of the influenza virus that was not included in the annual vaccines. Additionally, vaccine efficacy can vary due to patient health status and age as well as the match between the targeted virus and the vaccine. During seasons in which the correlations between the targeted viruses and the available vaccines were largely correct, vaccines provided a 40% to 60% reduction in the risk of having to go to the doctor with flu. For these reasons, it is crucial to ensure that patients do not defer getting an annual flu shot. Not only contraction of the flu, but also hospitalizations and severity of illness in the event flu is contracted, are reduced in immunized patients.

Lastly, point out to patients that their symptoms may not have been caused by the influenza virus at all. A common example is a viral cold that has several symptoms resembling the flu, such as a sore throat and stuffy nose.

Should I get a flu shot if I just got a COVID-19 vaccine?
Patients who have recently been vaccinated for COVID-19 may be concerned about receiving a flu vaccine within a month or 2 of a COVID-19 vaccine. Although COVID-19 vaccines themselves should be administered alone, other vaccines, including a flu vaccine, can be safely administered 14 days post COVID-19 vaccination. However, a COVID-19 vaccine, and other vaccines, can be administered within a shorter period if the benefits (such as avoiding tetanus, or measles during an outbreak) outweigh the potential unknown risks of vaccine coadministration. (Please see the TABLE to use as a guide for clinical decision-making on the simultaneous administration of influenza and COVID-19 vaccinations.)

At what age should my child begin to receive vaccinations against influenza?
The CDC recommends flu vaccinations for all children 6 months and older. As of 2020, pharmacists are able to order and administer vaccines to children aged 3 through 18 years in all 50 states.

SCHEDULING VACCINATION APPOINTMENTS
Missed vaccination opportunities have a negative effect on your patients’ health—and they are missed opportunities for patient education. Patient care time spent during the vaccination process enables more intimate connections and allows you to assess how patients can benefit from other clinical services your pharmacy offers, possibly increasing revenue while improving health outcomes. As pharmacy software solutions have become more robust, pharmacies can begin to trust in technology to identify gaps in care more effectively. One platform, Tabula Rasa HealthCare’s PrescribeWellness, uses a cloud-based technology to send prescription reminders and offer comprehensive vaccination plans, among many other benefits, that help streamline operations and improve patient adherence.

During the flu vaccination visit, pharmacy staff should be ready to make time for a discussion with patients to:
• assess routine vaccination eligibility,
• identify which recommended vaccines are available for administration simultaneously during the current visit, and
• schedule vaccinations that must be administered at a later date.
Since the rollout of the appointment-based model in the community pharmacy and in light of workflow adjustments that were made to accommodate COVID-19 vaccines—such as contact-free prescreening and vaccination appointments—outpatient pharmacies are beginning to implement a more structured approach by scheduling appointments for a variety of services and vaccinations. If, at the time of influenza vaccine administration, a need is identified for another vaccine to be given at a future date, that is an ideal time to schedule the appointment. Pharmacy technology solutions can provide clinical calendar options as well as appointment reminder outreach. Nonclinical software options are also available; however, patient data must be encrypted for regulatory purposes.

For pharmacists, vaccine administration is not only a good time to make upcoming appointments but also an ideal time to schedule patient follow-up for any questions or adverse events (AEs) that occur post administration. A time-saving idea that cultivates personal connection with patients is scheduling custom automated messages to deploy a few days after the appointment. Some technologies will even allow pharmacists to record custom outreach campaigns using their own voices—a personal touch that goes a long way.

**MANAGING ADVERSE EVENTS**

One of the biggest misconceptions patients have about influenza vaccines is that they cause the flu. Reassure patients that postvaccination symptoms may resemble an infection but are, instead, common AEs of the vaccine. Mostly relatively mild and short-lived, these common AEs present as headache, muscle aches, nausea, fatigue, and even fever. After assessing for appropriateness, pharmacists can offer over-the-counter medications, such as acetaminophen or ibuprofen, for mild symptom relief.

More serious AEs that can occur following administration of an influenza vaccine include fainting, allergic reactions (including anaphylaxis), and Guillain-Barré syndrome (GBS).7,15

- **Fainting** is a result of reduced blood flow to the brain, often due to anxiety or pain associated with vaccine administration; it is more common in

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### Table. Simultaneous Vaccine Administration Guide

<table>
<thead>
<tr>
<th>Inactivated or recombinant influenza vaccines</th>
<th>Other inactivated vaccines</th>
<th>Other live vaccines</th>
<th>COVID-19 vaccine: Pfizer</th>
<th>COVID-19 vaccine: Moderna</th>
<th>COVID-19 vaccine: Janssen</th>
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<td>Both vaccines can be administered during the same visit.</td>
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<tr>
<td>Live attenuated influenza vaccines</td>
<td>Both vaccines can be administered during the same visit.</td>
<td>Both vaccines can be administered during the same visit.</td>
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<td>No spacing is required between these vaccines if one was administered recently.</td>
<td>Separate administration of these vaccines by ≥ 4 weeks (28 days).</td>
<td>Separate administration of these vaccines by ≥ 14 days.</td>
<td>Separate administration of these vaccines by ≥ 14 days.</td>
<td>Separate administration of these vaccines by ≥ 14 days.</td>
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</table>

*Clinical pearl: When administered simultaneously, vaccines should be given at separate anatomic sites.*11.
adolescents. To avoid serious injury from falls, the CDC recommends administering vaccines while the patient is in a sitting or lying position and having them maintain this position for 15 minutes post administration. If fainting occurs, observe the patient until the episode resolves.\textsuperscript{16}

- Patients who experience \textit{hives} after receiving a vaccine—accompanied by no upper or lower airway obstruction, hypertension, or shock—may receive H\textsubscript{1} antihistamines, such as diphenhydramine, for relief. These should be administered orally at 1 mg/kg to 2 mg/kg every 4 to 6 hours, with a maximum single dose of 100 mg.\textsuperscript{17}

- The results of a 2016 CDC study found that the rate of \textit{anaphylaxis} from all vaccines is 1.31 per 1 million vaccine doses given.\textsuperscript{18,19} Symptoms of a severe allergic reaction include swelling and hives, difficulty breathing, weakness, and paleness.\textsuperscript{15} Although anaphylaxis is unlikely to occur, pharmacists (and pharmacy techs) who immunize patients must be prepared to handle this severe, life-threatening allergic reaction. Patients should be monitored closely if itching and swelling develop at the injection site. For treatment of generalized anaphylaxis symptoms, instruct your staff to call 911, and use epinephrine in a 1.0 mg/mL aqueous solution (1:1000 dilution). Administer a 0.3-mg dose intramuscularly using a premeasured or prefilled syringe or an autoinjector in the mid-outer thigh. The dose may be repeated 2 times, at intervals of 5 minutes to 15 minutes, while waiting for emergency personnel to arrive.\textsuperscript{17}

- Some studies have found a small (1 or 2 cases per 1 million) possible association between \textit{GBS} and injectable flu vaccine; others have found no association. \textit{GBS} following flu illness is rare, and it is even less common following flu vaccination.\textsuperscript{15}

- It is safe for patients with egg allergies to receive any appropriate flu vaccine; however, 2 ovalbumin-free vaccines (a quadrivalent recombinant vaccine and a quadrivalent cell-based vaccine) are available. Patients who experience hives after being exposed to eggs can still get any flu vaccine appropriate for their age and health.\textsuperscript{18} Patients whose egg-allergy reaction goes beyond experiencing hives should be vaccinated in a health care facility where potentially severe AEs can be properly managed.\textsuperscript{7}

Health care providers are encouraged to report any AE observed after administering a vaccine to the Vaccine Adverse Event Reporting System (VAERS). Serious AEs, such as GBS, events described in manufacturer’s package insert as contraindications to additional doses of vaccine, and death are required by law to be reported to VAERS.\textsuperscript{20}

\textbf{CONSIDERATIONS FOR IMMUNIZING SPECIAL POPULATIONS}

Special considerations should be made for older adults and individuals with comorbidities to protect them against vaccine-preventable diseases. When it comes to influenza infection, some of the prominent comorbidities that increase patients’ risk for complications are immunosuppression; morbid obesity; and chronic pulmonary, cardiovascular, renal, hepatic, neurologic, hematologic, and metabolic disorders. When caring for these populations, extra steps should be taken to ensure their safety. Special considerations are discussed below.

\textbf{What can a pharmacist do to better protect older adult patients from flu?}

Adults 65 years and older should be on your priority influenza vaccination list, as they are susceptible to severe complications from the flu.\textsuperscript{21} The results of a systematic review and meta-analysis of test-negative design case-control studies from 2010 to 2011 and 2014 to 2015 found that flu vaccines reduced the risk of flu-associated hospitalizations among older adults by about 41%.\textsuperscript{22}

Because immune system function declines over time, older adults can have declining postvaccination antibody concentration as well as reduced vaccination longevity.\textsuperscript{23} As a result, there are currently 2 types of vaccines designed specifically for patients who are 65 years and older:\textsuperscript{21}

- \textbf{High-dose flu vaccine}. The Fluzone High-Dose Quadrivalent vaccine contains 4 times the amount of antigen to produce a stronger immune response in patients 65 years or older.
- \textbf{Adjuvanted flu vaccine}. The Fluad and Fluad Quadrivalent vaccines contain an adjuvant that helps achieve a stronger immune response.

With both vaccines, patients may experience a higher rate of AEs than with other influenza vaccines, including injection site reactions, headache, and muscle aches.\textsuperscript{21} Patients 65 years and older can receive a standard dose or nonadjuvanted influenza vaccine if the above options are unavailable. (Keep in mind that live influenza vaccines are contraindicated in patients 50 years and older.\textsuperscript{24})
Should pharmacists wait until later in the year to administer flu vaccines to older adults or patients who are medically frail?

According to the CDC, flu vaccine timing recommendations are equally applicable to adult, older adult, and medically frail populations. Patients should be vaccinated by the end of October, with the optimal time to receive the vaccine being September to early October. Receiving the vaccine as early as July or August may result in waned immunity toward the tail end of the influenza season.2

Should pharmacists consider administering more than 1 dose of the flu vaccine to patients who are considered to be at high risk?

Older adult patients and those with chronic conditions such as asthma, heart disease, diabetes, and chronic kidney disease are considered to be at high risk of complications from the flu3; however, only 1 dose of an influenza vaccine is recommended for these patients.4 According to the CDC, study results have not shown a benefit from getting more than 1 dose of vaccine during the same influenza season, even among older adults with weakened immune systems.5

CONCLUSIONS

Although COVID-19 vaccines continue to be a focus, pharmacists can leverage this attention to fully assess patients’ immunization needs. As pharmacies gear up to receive the upcoming flu season’s vaccines, it is a great time to plan on effectively immunizing the patient population and ensure that pharmacy staff are trained on patient FAQs. Remember to assess the need for additional routine vaccines when administering an influenza vaccine, and consider whether the pharmacy is well equipped with the technology available to enhance the pharmacy workflow and increase patient loyalty.

REFERENCES


About the Author
Darya Inocencio, PharmD, RPh, is a pharmacy training manager and residency program director at PrescribeWellness, a Tabula Rasa HealthCare Solution in Irvine, California.
Pharmacy-based immunizations have become standard over the past 2 decades in the United States, a service that has positively affected every community. More than 280,000 pharmacists have been trained to administer vaccines in the United States since 1996, and since 2016, more than 25% of adults have received influenza vaccinations in pharmacies.

As immunization advocates who educate the public on vaccine-preventable diseases and champion all patients remaining healthy, pharmacists also work with other health care providers to facilitate the administration of vaccines. As frontline health care workers often serving their communities as a point of reference for health issues, pharmacists play a fundamental role in health education programs and disease prevention schemes, with the ability to tailor information according to their community and, where necessary, provide special training to their staff.

Immunization administration requires many elements, including vaccine vials, needles, syringes, and adhesive bandages. The COVID-19 pandemic has led to increased vigilance over the proper disposal of these materials as well as the necessity of using protective personal equipment (PPE).

It is important to know the regulations for the proper disposal of items used during immunizations. For example, there must be a safe method to dispose of used needles and syringes, so sharps disposal containers should be present at all times during the immunization process. Different requirements for the disposal of empty or partially empty vaccine vials, as well as of PPE, which can be disposed of either as medical waste or in the regular trash depending on certain guidelines, are explained further in this article. Safe and compliant disposal is required and regulated by state and federal agencies.

The regulatory requirements section of this article provides an overview of the relevant training and conditions.

**VACCINE VIALS**

Disposal requirements for empty vaccine vials are dependent upon the state in which the waste is generated. Some states allow disposal via trash, and others require sharps containers. If allowed, unused vials may be returned to the manufacturer, otherwise disposal options depend on the vaccine formulation. Full or partially used vials containing preservatives such as thimerosal (usually found in multidose vials) must be managed as a federally hazardous waste when the concentration of mercury is equal to or greater than 0.2 mg/L. Vials containing residual, preservative-free (ie, non–Resource Conservation and Recovery Act regulated [nonhazardous]), live attenuated formulations should be disposed of as biohazardous waste. Disposal of preservative-free non–live attenuated vaccines depends on state requirements.

**SHARPS**

The safe use and disposal of sharps under the Occupational Safety and Health Administration (OSHA) Bloodborne Pathogens (BBP) Standard, as well as individual state rules on medical waste management, applies to immunizers working within the pharmacy and at off-site clinics. These rules require the immediate...
disposal of sharps waste into sharps disposal containers (see Table) that are placed in visible locations and within easy horizontal reach.5,10 Once sharps disposal containers are filled to the premarked three-quarters line, the lids must be securely fastened prior to removing the container from the workspace.6 Some states require the maintenance of a medical waste management plan, which may require specified storage or labeling of sharps disposal container locations throughout a facility.11

Pharmacists who administer vaccinations at off-site immunization clinics where sharps disposal containers may travel between locations must comply with the Materials of Trade regulations of the Department of Transportation (DOT).12 These allow the transport of sharps in disposal containers as a part of doing business without having to register with the state as a medical waste transporter as long as the disposal container is closed, secured against movement during transport, and protected from damage.12 If using a mail-back system for sharps collection, the shipping box can serve as the outer packaging.12 Following proper protocol for sharps waste greatly reduces the risk of accidental needlesticks and facilitates the quick, safe replenishment of containers throughout the vaccination season.

PERSONAL PROTECTIVE EQUIPMENT

Many pharmacies and pharmacy clinics have incorporated PPE as a standard precautions tool to reduce the risk of disease transmission. The CDC recommends that pharmacy staff who interact with the public, while either immunizing or performing diagnostic tests, should use respirators or medical face masks as opposed to cloth face coverings.13 Such single-use PPE should be carefully removed and properly discarded after use.14 OSHA’s BBP Standard requires that items contaminated with blood or other potentially infectious materials be disposed of via a red biohazard bag or container,11 whereas some disposable PPE items, such as gowns, that are not deemed to be contaminated may be disposed of in the regular trash.14

REGULATORY REQUIREMENTS

OSHA’s BBP Standard (29 CFR § 1910.1030) was first issued in 1991 to protect employees from occupational hazards posed by exposure to microorganisms present in human blood that can cause disease in humans.15 Employers must assess employee exposure to such contaminants using an exposure determination based on which job classifications entail specific duties and procedures with a reasonable expectation for exposure. They also must identify which waste streams in their workplace pose exposure risks. Depending upon the tasks their staff perform, pharmacies should have documentation of training on BBP and sharps safety, as well as medical waste management plan training if required by their respective state and/or organization.15,16 Compliant management of medical waste is not limited only to OSHA oversight but to other federal entities, including the DOT and Environmental Protection Agency. Health care facilities that have direct pickup of regulated medical waste (ie, sharps disposal containers and used health care materials) must ensure that employees involved in the packaging of that waste also have DOT hazmat training.17

CONCLUSIONS

As pharmacists continue to administer immunizations and educate their communities, disposal of medical waste continues to be regulated to ensure the safety of these communities. The results of a study published in 2018 found that people see their pharmacist up to 10 times as often as their primary care doctor.18 With the number of pharmacists growing every year and vaccinations remaining among the Healthy People 2030 goals, communities will keep benefiting from pharmacist-administered immunizations.19

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Table. Segregating Common Medical Wastes in Pharmacy Settings

<table>
<thead>
<tr>
<th>Regular trash</th>
<th>Sharps container</th>
<th>Red bag</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cotton balls, alcohol prep pads, band aids (not soaked/caked with blood)</td>
<td>• Syringes with needles attached</td>
<td>• Materials saturated/caked with blood or other potentially infectious materials</td>
</tr>
<tr>
<td>• Gloves and other PPE (not soaked/caked with blood OR contaminated with hazardous or chemotherapeutic products)</td>
<td>• Blood-contaminated syringes</td>
<td></td>
</tr>
<tr>
<td>• Live vaccine vials</td>
<td>• No more than 50 ccs of total liquid permitted in a sharps container.</td>
<td>• Biohazardous spill cleanup materials</td>
</tr>
</tbody>
</table>

PPE, personal protective equipment.

Repurposed with permission from Sharps Compliance, Inc.
Since the advent of the global COVID-19 pandemic, the health care community has experienced an increased demand on services. In the United States, the health care system continues to be pushed to its breaking point with rising workload demands on health care providers. These demands include preparing for the implementation of pandemic-related services and delivering those services (eg, point-of-care testing, vaccinations, increased inpatient census, triaging of care).1

As essential businesses on the front lines, pharmacies have continued to demonstrate their value during the pandemic by remaining open to the community for vital prescription services, evolving into COVID-19 point-of-care testing sites, and becoming COVID-19 vaccine administration sites. Pharmacies are essential in achieving the end goal of herd immunity² in the global battle against SARS-CoV-2, the virus that causes COVID-19.

Now pharmacies will have the opportunity to take the lessons learned during the COVID-19 vaccination rollout to prepare for the 2021-2022 influenza season.³ On February 26, 2021, the World Health Organization released the recommendations for the 2021-2022 Northern Hemisphere seasonal influenza vaccine.⁴ (Also see EQUAL BUT NOT THE SAME—2021 UPDATE ON INFLUENZA VACCINES on page 6).

With many people remaining to be vaccinated against COVID-19 and everyone 6 months and older needing an annual influenza vaccine for the 2021-2022 season, many pharmacies are turning to pharmacy technicians to assist in the process.⁵ ⁶

FEDERAL VS STATE REGULATION: ADVANCES IN THE PHARMACY TECHNICIAN’S ABILITY TO VACCINATE

Historically, the role of pharmacy technicians in administering vaccinations has been primarily administrative, devoted to tasks such as billing and documentation.⁷ Due to state-specific scope-of-practice rules and regulations, the technicians’ role has traditionally been limited to assisting pharmacists, rather than physically administering vaccines. However, this changed in 2017, when Idaho became the first state to allow pharmacy technicians to administer vaccinations as part of a statewide initiative toward “relieving the burden that pharmacists typically carry.” Since that time, pharmacy technicians have administered over 25,000 vaccinations in Idaho. Michigan, Washington, Rhode Island, Utah, and Nevada have since followed suit and have granted approval for pharmacy technicians to administer vaccinations.⁸

On August 19, 2020, the Department of Health and Human Services issued an amendment to the Public Readiness and Emergency Preparedness (PREP) Act, allowing pharmacy technicians to administer immunizations in all US states, regardless of state-specific rules, as long as specific requirements are met (see TABLE 1).⁹

Technicians interested in learning how to administer immunizations can access an accredited technician-specific training from the National Healthcareer Association,¹⁰ the American Pharmacists Association (APhA),¹¹ the American Society of Health-System Pharmacists,¹² or the Coalition for the Advancement of Pharmacy Technician
Practice.13 They can also peruse the Pharmacy Technician Certification Board directory for training programs on immunization administration from other organizations.14 Additionally, information on advanced accreditation for pharmacists and pharmacy technicians in the PREP Act, which states where laws allow for the vaccination of children as young as 3 years, is also available from APhA.15

The federal government, states, territories, and 21 national pharmacy partners and independent pharmacy networks also are coming together to form the Federal Retail Pharmacy Program for COVID-19 Vaccination. This program will increase patients’ access to the vaccines through pharmacists as the most trained and accessible health care providers.

### ADDITIONAL WAYS PHARMACY TECHNICIANS WILL ASSIST IN VACCINATION EFFORTS

Pharmacy technicians are critical team members who facilitate a variety of pharmacy services. Just as they perform many roles in the medication-dispensing workflow process, they will assume multiple roles in the delivery of clinical services such as immunizations.

Whereas clinical service delivery roles include actual delivery of a service (eg, administering vaccinations), clinical support roles include helping with a clinical service (eg, documentation and billing) but do not include performing the service itself. Technician involvement in clinical service delivery and support roles are vital elements for the sustainability of the services.

The results of a 2011 scoping review article identified the following clinical service support roles for pharmacy-based vaccination programs:7

- Documentation
- Billing
- Reporting adverse events
- Facilitating communication
- Obtaining training and certification

Since that time, pharmacy technicians also have become increasingly involved in screening for vaccine eligibility, making vaccination recommendations, and administering vaccinations under the supervision of a pharmacist.17,18 Which role and to what extent it is served will vary from pharmacy to pharmacy. An open dialogue between the

### Table 1. Requirements to Enable Pharmacy Technicians to Perform Immunizations

<table>
<thead>
<tr>
<th>Category</th>
<th>PREP Act requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacist requirements</td>
<td>• Vaccination must be ordered by supervising qualified pharmacist</td>
</tr>
<tr>
<td></td>
<td>• Supervising qualified pharmacist must be readily available for immunizing qualified pharmacy technicians.</td>
</tr>
<tr>
<td>Vaccine requirements</td>
<td>• Vaccine must be FDA authorized or FDA licensed.</td>
</tr>
<tr>
<td></td>
<td>• For COVID-19 vaccines, vaccination must be ordered and administered according to ACIP’s COVID-19 vaccine recommendation(s).</td>
</tr>
<tr>
<td></td>
<td>• For childhood vaccines, vaccination must be ordered and administered according to ACIP’s standard immunization schedule.</td>
</tr>
<tr>
<td>Technician requirements</td>
<td>• Qualified pharmacy technician/state-authorized pharmacy intern must complete a practical training program approved by ACPE. Program must include a hands-on injection technique and recognition and treatment of emergency reactions to vaccines</td>
</tr>
<tr>
<td></td>
<td>• Qualified pharmacy technician/state-authorized pharmacy intern must have a current certificate in basic cardiopulmonary resuscitation</td>
</tr>
<tr>
<td></td>
<td>• Qualified pharmacy technician must complete a minimum of 2 hours of ACPE-approved, immunization-related continuing pharmacy education during relevant state licensing period(s)</td>
</tr>
<tr>
<td>Requirements for reporting,</td>
<td>• Supervising pharmacist must comply with record-keeping and reporting requirements of jurisdiction in which they administer vaccines, including informing patient's primary care provider when available and submitting required immunization information to state/local immunization information system (vaccine registry)</td>
</tr>
<tr>
<td>record keeping, and referral</td>
<td>• Supervising pharmacist is responsible for complying with requirements related to reporting adverse events. Pharmacist must review vaccine registry or other vaccination records prior to ordering vaccination to be administered by qualified pharmacy technician/state-authorized pharmacy intern</td>
</tr>
<tr>
<td></td>
<td>• Qualified pharmacy technician and state-authorized pharmacy intern must, if patient is &lt; 18 years of age, inform patient and adult caregiver accompanying patient of importance of a well-child visit with a pediatrician or other licensed primary care provider and refer patients as appropriate</td>
</tr>
<tr>
<td></td>
<td>• Supervising qualified pharmacist must comply with any applicable requirements (or conditions of use) as set forth in CDC’s COVID-19 vaccination provider agreement and any other federal requirements that apply to administration of COVID-19 vaccine(s)</td>
</tr>
</tbody>
</table>

ACIP, Advisory Committee on Immunization Practices; ACPE, Accreditation Council for Pharmacy Education; PREP, Public Readiness and Emergency Preparedness.
entire pharmacy team surrounding each of these roles will be key to successful vaccine implementation. (A sample vaccination role checklist is provided in Table 2.)

Questions a pharmacy team should consider when contemplating expanding the role of pharmacy technicians include the following:

• What roles will technicians serve at this pharmacy? 19
• Which technicians will serve those roles?
• What training or credentials will they need to serve in this role? 19
• How often and when will technicians serve in these roles?
• Will they be dedicated to this role or flex (move in and out of the role) within normal pharmacy workflow?

It is also critical to gauge technicians’ willingness to expand their role within a pharmacy as comfortability with advanced pharmacy technician roles varies. 20 Notably, comfortability increases with increased training and experience. Therefore, if a technician is motivated to serve in one of these new roles but feels uncomfortable, a pharmacy may find that providing additional training, shadowing, and hands-on experience may improve technician willingness to take on additional responsibilities beyond their comfort zone. 19-21

CONCLUSIONS

Overall, the COVID-19 pandemic has taken a major toll on the US health care system by significantly increasing the workload demands on health care providers. These heightened demands include preparation for pandemic-related services and the resultant delivery of those services. Although many individuals have been asked to remain at home for their health and the health of their community, essential health care workers such as pharmacists and pharmacy technicians have remained on the front lines from the pandemic’s outset.

In addition, they were asked to expand public health efforts initially with COVID-19 testing, which was followed by the nationwide COVID-19 vaccine rollout and further opportunities to administer other vaccines, such as the influenza vaccine. Pharmacy technicians are critical to the increasing role pharmacies play in patient care, whether administering the vaccine themselves or supporting the workflow for other pharmacy team members involved in administration. Notably, on February 2, 2021, APhA asked the Biden administration to “include recently retired pharmacists and pharmacy technicians in its campaign to vaccinate 100 million Americans against COVID-19 during the administration’s first 100 days.” 22 Following Biden’s inauguration, 100 million Americans had been vaccinated by day 58. 23 The Biden administration’s latest goal is 70% of American’s vaccinated with at least 1 dose by July 4th. 24 Sixteen states have already hit that goal, and as of June 24, 2021, 65.7% of US adults have received at least 1 dose of a COVID-19 vaccine. 24, 25

During this unprecedented time, the message is still the same: Pharmacy technician heroes work here.

Table 2. Sample Vaccination Role Checklist

<table>
<thead>
<tr>
<th>Role</th>
<th>Technician involved</th>
<th>When technician will be involved</th>
<th>Dedicated or flex role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which technician team members will be involved in the role?</td>
<td></td>
<td>Is this a daily role?</td>
<td></td>
</tr>
<tr>
<td>Which technician will serve those roles?</td>
<td></td>
<td>Will there be only certain days and times of the week?</td>
<td></td>
</tr>
<tr>
<td>What training or credentials will they need to serve in this role?</td>
<td></td>
<td>Will technicians rotate in and out of the role during the day and, if so, how long will they serve in that role?</td>
<td></td>
</tr>
<tr>
<td>How often and when will technicians serve in these roles?</td>
<td></td>
<td>Will the technician be dedicated to this role outside of workflow or will they “flex” into this role within normal pharmacy workflow?</td>
<td></td>
</tr>
<tr>
<td>Will they be dedicated to this role or flex (move in and out of the role) within normal pharmacy workflow?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Documentation
Billing
Reporting adverse events
Facilitating communication
Screening patients
Making recommendations
Administering vaccinations
Obtaining additional training and credentials (one-time role)
REFERENCES


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The beginning of the 2020-2021 influenza season brought much anticipation about how the cocirculation of influenza and SARS-CoV-2 might affect the health care system. Social distancing measures and mask wearing were likely to lower the influenza rates, as was seen at the start of the SARS-CoV-2 pandemic, but it was unclear by how much. Ensuring individuals were up-to-date on vaccine-preventable illnesses was a CDC priority that could help preserve the health care system’s capacity and prevent influenza-related visits. Throughout the 2020-2021 season, influenza rates were noticeably low, and at the end of the season, rates were at an historic low. Between September 27, 2020, and June 19, 2021, the proportion of patient visits for influenza-like-illness remained between 0.8% and 1.6%, which is well below the national baseline of 2.6%. This is compared with 38 million cases of influenza during the 2019-2020 influenza season with percentages around 6%—which had been described as being moderately severe. The low influenza rate in the 2020-2021 season was likely attributable to social distancing measures and mask wearing.

Since the start of the pandemic, politicization and misinformation campaigns have led to vaccine hesitancy about the COVID-19 vaccine. However, vaccine hesitancy is not a new behavior. For example, there is still a substantial amount of vaccine hesitancy surrounding the influenza vaccine, though it was developed in the 1940s. During the 2018-2019 influenza season, just 45.3% of adults aged 18 and older in the United States received a seasonal influenza vaccine. The Strategic Advisory Group of Experts (SAGE) established the SAGE Working Group on Vaccine Hesitancy in March 2012 because of concerns about hesitancy and the effect it can have on vaccine uptake rates and national immunization programs. The decision was based on declining immunization rates among individuals from developing and developed countries. The working group defined vaccine hesitancy as a “...delay in acceptance or refusal of vaccines despite availability of vaccine services....It is influenced by factors such as complacency, convenience, and confidence.”

Vaccine hesitancy is a global issue, despite considerable evidence that vaccines are safe and effective. In 2019, the World Health Organization (WHO) stated that vaccine hesitancy was a global health threat, and in the United States there has been an uptick in vaccine-preventable diseases, such as measles, along with growing vaccine hesitancy. The COVID-19 pandemic has been associated with vaccine skepticism. The results of a recent survey on COVID-19 and vaccine hesitancy in the United States found that during the first 6 months of the pandemic there was an increase in vaccine hesitancy and a decrease in the intention to get the anticipated COVID-19 vaccination and the seasonal influenza vaccine.

On December 11, 2020, the FDA authorized the use of the first COVID-19 vaccine, from Pfizer-BioNTech, under an emergency use authorization (EUA). Since that time, the FDA has also granted EUAs to the Moderna and Johnson & Johnson COVID-19 vaccines. As of June 30, 2021, 179 million individuals (54.2%) in the United States have received at least 1 dose of a COVID-19 vaccine and 154 million (46.4%) are fully vaccinated.
vaccinated.13 As adult COVID-19 vaccination rates continue to increase and with the recent FDA authorization of the Pfizer COVID-19 vaccine for emergency use in children aged 12 to 15 years, there likely will be continued easing of social distancing and mask-wearing restrictions.12,13 Therefore, for the 2021-2022 season, influenza vaccinations will remain a priority.

**REDUCING INFLUENZA BURDEN THROUGH VACCINATIONS**

Throughout the pandemic, pharmacists have stood out as frontline vaccinators. Going into the 2021-2022 influenza season, pharmacists will likely encounter patients with some degree of vaccine hesitancy or vaccine fatigue. Pharmacists should encourage patients to get not only a COVID-19 vaccine but also an annual influenza vaccine.

Influenza can cause significant morbidity and mortality and is associated with an economic burden from lost work productivity.14 To reduce the burden of influenza-related illness, the Advisory Committee on Immunization Practices recommends an annual influenza vaccine for individuals 6 months or older without medical contraindications.15 Vaccination is especially important in individuals at increased risk for medical complications from influenza, including individuals 50 years or older, children aged 6 months to 8 years, pregnant women, and those with underlying health conditions.15 An influenza vaccine can reduce the risk of illness, hospitalization, and death.16 Vaccine efficacy varies yearly and is dependent on patient-specific factors such as age and immune status, the type of vaccine administered, and how well matched the vaccine is between circulating viruses and those in the vaccine. Nonetheless, vaccination protects against influenza and reduces the severity of illness in vaccinated individuals who become infected.17

**VACCINE ACCESS IN HEALTH CARE, PHARMACY DESERTS**

Health care providers cite patient deliberation about the pros and cons of vaccinations and distrust of the health care system as reasons individuals of racial minorities may choose not to be vaccinated.18 However, limited access to vaccines also can lead to lower vaccination rates. Vaccines need to be available not only at clinics but also in pharmacies and other locations in more isolated communities, with more flexibility of hours for those who have to work during business hours.19-21

Influenza vaccination is offered at most community pharmacies nationwide. Because pharmacists are accessible, individuals may feel comfortable talking with them about vaccine-related fears. As described in a recent Pharmacy Times article, many individuals live in health care deserts where access to care is limited22 and pharmacies are the closest locations to access vaccines. Nine out of 10 Americans live within 5 miles of a pharmacy, with the average distance being 1.6 miles for those living in a region based around an urban center and 5.6 miles for those not near an urban center.22-24 Even then, if a patient lives in this health care desert or a rural area outside of urban centers, it might be difficult for them to travel every year for the vaccine. Those who live in cities also may not be able to easily access a pharmacy or clinic. Areas where the average distance to a pharmacy is 1 mile or more have been classified as pharmacy deserts, and in low-income neighborhoods where 100 households or more have no vehicle, the distance to be classified as a pharmacy desert is 0.5 miles.25 Studies evaluating the proximity of individuals to pharmacies have shown that these distances and circumstances can be challenging, particularly if the individual is elderly or relies on walking or public transportation.25 Getting to the bus or directly walking to a pharmacy may be nearly impossible.

CVS corporate leaders discussed the role of pharmacies in equitable vaccine distribution and announced in February 2021 that they will be working with nonprofits, such as the YMCA, to increase vaccine access. They also will partner with the ride-sharing company Lyft to help those in lower-income areas with free rides or discounts.26 This initiative will increase access to vaccines for those who may have difficulty getting to their regular clinic.

**OVERCOMING VACCINE HESITANCY**

It is important to distinguish between vaccine hesitancy and refusal, as the approach to each is different. Patients who are hesitant may only need questions answered before choosing to vaccinate, whereas it may be more challenging to persuade someone who outright refuses vaccines.27 There is no one-size-fits-all way to overcome vaccine hesitancy, as the reasons behind each individual’s fears and concerns are different. Health care providers need to listen to their patients and address their unique concerns rather than simply trying to explain the science behind vaccines.

An article published in the American Journal of Pharmaceutical Education in 2018 discussed vaccine hesitancy and how to prepare pharmacy students for vaccinating patients and providing information about vaccines. Student pharmacists and doctors were evaluated on how they spoke with multiple “standardized patients” and were assessed
on rhetoric, communication skills, and social-emotional competence. Studies evaluating parents’ acceptance of influenza vaccines for their children have noted that it works well when pharmacists use presumptive phrasing such as “Today we are going to give your child the recommended vaccines to keep your child healthy.”

Displaying empathy toward patient concerns while dispelling myths and describing benefits of vaccination also has been shown to be effective. For example, if a patient argues that it is still possible to become infected with influenza after receiving a vaccine, providers can explain that, yes, this is true, but the symptoms are milder and outcomes are better after receiving a vaccine. Scientists and physicians estimate the prevalent influenza strains each year to the best of their ability, but it is not possible to know which strains will be the most common. A universal influenza vaccine, one that can protect against multiple subtypes of influenza, is being investigated by National Institute of Allergy and Infectious Diseases’ influenza research program. This vaccine would protect more individuals against influenza without the need to investigate and predict which strains will be most common each year.

The SAGE working group suggests a communication plan for health care providers to use when addressing patients who are vaccine hesitant. The plan includes:

- anticipating antivaccine remarks or behaviors and planning responses in advance,
- understanding the population and considering determinants of vaccine hesitancy to deliver a tailored and persuasive message,
- providing knowledge but also identifying underlying issues and taking action based on those issues, and
- using a variety of methods to deliver information.

Marketing and social media campaigns have been effective in improving vaccine uptake in some places, but using multiple delivery methods focusing on the population in question is ideal.

Although using a script may sound insincere to patients, having a few notes to use as a guide for fielding patient concerns is reasonable. Providers should consider addressing concerns that cannot be answered with statistics. For example, sometimes patients need time to process information, so expecting them to receive a vaccine at that moment may not be logical. Offering the patient options to come back and receive a vaccine may allow them to feel more in control of their health. Conversely, if it would be difficult for a patient to return, the vaccine should be provided at that visit.

### Table. Strategies for Addressing Patients’ Concerns Surrounding Vaccines

<table>
<thead>
<tr>
<th>Patient concerns</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insensitive delivery of information</td>
<td>Understanding history, context, and population specific hesitancies and addressing them individually</td>
</tr>
<tr>
<td>Upsetting parents with multiple vaccinations at once</td>
<td>Listen to concerns and address them without judgment; explain that the CDC vaccine schedule for children is the only accepted one</td>
</tr>
<tr>
<td>Time constraints</td>
<td>Offer vaccine clinics outside of business hours</td>
</tr>
<tr>
<td>Poor access to vaccine</td>
<td>Set up mobile clinics or clinics where pharmacies or clinics are not currently accessible</td>
</tr>
<tr>
<td>Inadequate/inaccurate/incomplete information</td>
<td>Provide information that matches the patient’s health literacy level and primary language</td>
</tr>
<tr>
<td>Long wait times</td>
<td>Offer more frequent clinics or provide more vaccinators at each clinic</td>
</tr>
<tr>
<td>Limited availability of health workers</td>
<td>Send vaccinators to rural areas or offer mobile (door-to-door) vaccines during flu season</td>
</tr>
</tbody>
</table>

### ADDRESSING PATIENT CONCERNS

The WHO puts vaccine hesitancy into 3 categories: complacency, confidence, convenience. Many factors can affect each of these, including misinformation spread on social media or through word of mouth. If the perceived risk is lower than the perceived benefit, patients become complacent. Effective and safe vaccines, reliable and competent health services delivering the vaccines, and policy-making motivations affect patient confidence. Convenience is measured by physical availability, affordability, willingness to pay, accessibility, ability to understand, and appeal of immunization services.

However, access to vaccines and vaccine affordability remain a challenge. For patients without insurance, vaccines may be cost prohibitive. For others, travel to a health care facility may not be an option. In addition, patients may not be confident about the vaccine or health care providers in general, based on prior experiences with the health care system.

It is important for health care providers to be prepared to address patient concerns. Examples of common concerns are stated next and in the Table.
“I am getting too many shots.”
For patients who think they receive too many shots, it is important to empathize with their concern, be understanding if they are more fearful of pain or adverse effects from vaccines, and reiterate that administering multiple vaccines at once is safe and effective.17

“How will a flu shot interact with the COVID-19 vaccination?”
Initially, there were limited data regarding the interaction of an influenza vaccine with a COVID-19 vaccine, and the CDC recommended a 14-day interval between any vaccinations (see BACK TO BASICS: INFLUENZA VACCINE SCHEDULING AND ADMINISTRATION on page 14). However, with more data becoming available, the CDC now says that COVID-19 vaccines can be administered simultaneously with other vaccines, such as the influenza vaccine, and coadministration within 14 days is also permissible. There have been no reported interactions between the COVID-19 and influenza vaccines.8

CONCLUSIONS
With the development of COVID-19 vaccines, there has been an increase in hesitancy and fatigue surrounding vaccines. Hesitancy surrounding a COVID-19 vaccine also seems to have increased hesitancy toward influenza vaccines. As the 2021-2022 influenza season approaches, health care providers should prepare to overcome vaccine hesitancy and fatigue. Science alone is often not enough to alleviate patients’ fears and concerns, and there are many cultural and societal inequities that influence patients’ beliefs. All of these factors should be taken into consideration when addressing vaccine hesitancy and fatigue. ■

REFERENCES

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Recently, an editor from Pharmacy Times® sat down with Kevin Day, PharmD, president of Day’s Miami Heights Pharmacy in Cincinnati, Ohio, to discuss how his independent pharmacy is gearing up for influenza season while continuing to deliver COVID-19 vaccines safely.

**PHARMACY TIMES®**: How have pharmacy staff helped to streamline the immunization programs at your pharmacy?

**DAY**: In our pharmacy we have a clerk who works at the front register, right inside the door when someone walks in. That person is responsible for starting the process and identifying that a customer is there for a vaccine, whether they have an appointment or just walk in. There is a notification process for us in the pharmacy to know there’s a vaccine appointment or a vaccine walk-in ready for us. Then we generally use either a technician or a pharmacy intern to check in the person and complete any required paperwork or documentation, which varies by vaccine. With COVID-19 vaccines, the process is online; with most of the other vaccines, it's still a paper process.

[With this process,] all the paperwork is completed by a team member; the pharmacist goes into the vaccine room exclusively to answer any questions and to administer the vaccine. This helps keep the pharmacist in workflow and allows customers to build relationships with other staff members.

**PHARMACY TIMES®**: How do you disseminate information to both patients and pharmacy staff about the available vaccination options?

**DAY**: At my store, the pharmacist is the one who provides information to the patient. We have a de facto system where the pharmacist counsels every patient. Ninety-plus percent of the time, the pharmacists are the ones handing the medication to the patient at the counter and dispensing, and we use that opportunity to talk with the patient, [not only when there’s a] dedicated campaign.

When there is a campaign—for example, [when] we were promoting the shingles vaccines—we identified everyone over the age of 50 and asked them if they had received a shingles vaccine. We’re in that same mode now, in early May, about the COVID-19 vaccines; we are checking to ensure that the people who are standing in front of us have been vaccinated. Then we are able to answer [any] questions because we have the licensure and the training to do so. It’s just part of a natural flow for us as pharmacists.

For staff training, the advantage we have as a small team is that we can meet regularly and [use] team emails to talk about what is going on and what’s available. We communicated a lot about the COVID-19 vaccines because information was updated week after week.
PHARMACY TIMES®: Do you have a designated education champion or someone who is providing the information to the patient services advocates?

DAY: That is one difference between a small pharmacy vs a big one: I am the pharmacist in charge of providing education to the team. My pharmacy has 14 or 15 different names on payroll—that includes the patient services advocates, delivery drivers, everyone. A large, busy chain pharmacy location may have 30 to 50 people, so they may need more infrastructure around what the education model looks like, in addition to making sure everyone is on the same page.

I was at my pharmacy earlier today, on an off day, to see a few people whom I do not generally interact with on my team and ensure that they are on the same page as far as what we are doing for COVID-19 vaccines for this week and next. On Thursdays, when I am scheduled [to work] as a pharmacist, that just becomes part of my process: to ensure that the people who are around me are on the same page. If I were in a much bigger location, I would be doing this with a combination of online communication, such as an email or a message board, and a team huddle, such as a 5-minute discussion on where we are right now. Especially with COVID-19-specific learning, it makes sense [to have this type of training] when information changes on a weekly basis. People on your team need to have the most up-to-date information, particularly now that we are moving into flu season, too.

I love those 5-minute huddle models. They can feel forced early on, but oftentimes, once you get a couple weeks into it, they become a useful and usual part of the process, to get that quick check-in to see what’s going on.

PHARMACY TIMES®: How have the responsibilities or time management of pharmacy staff shifted to accommodate the new tasks?

DAY: Not much has changed for the patient services advocates. Welcoming the person who walks in the door and helping them find what they need or pointing them in the right direction has always been a part of their responsibilities. In this case, they are identifying that the person walked in the door for a vaccine. We have 3 waiting areas for social distancing purposes, so they can run that process pretty easily. If a person walks in and drops off a few prescriptions and wants to wait for them, the time management shifts a little bit. Filling those prescriptions takes priority over whatever else has to be done in the pharmacy over the next hour. If the person who walks in has a vaccine appointment or someone walks in for a vaccine without an appointment, then they are next in line. It takes about the same amount of time to check a few scripts as it does to give a vaccine, especially if you have a process in place [and] someone else is helping take care of the paperwork.

The process is similar if we have pharmacy technicians or pharmacy interns and others on the team. If the data entry technician is typing out of an autofill queue, they are going to stop that process and take over to type for the vaccinator; that becomes top priority. Similarly, if the tech is the one who is responsible in that moment to check in that vaccine, they are going to stop what they’re doing and check in that person for the vaccine. The process fits fairly naturally into that workflow that exists in most pharmacies, in my experience.

PHARMACY TIMES®: You talked about spacing needs for social distancing requirements. What spacing and equipment needs must a pharmacy take into account to ensure the safe storage and delivery of vaccines?

DAY: Social distancing definitely made the process more difficult. We took down almost 20 ft of shelving units in the pharmacy to create new areas where patients can wait and to add tables and chairs. Many pharmacies have waiting areas already: that was part of how they were built. However, ours was not built that way. That’s a feature of being a small pharmacy that tends not to have a lot of people waiting around very often, [but with] social distancing that has to be a consideration.

It can be simple: if there are 3 chairs in a waiting area, take out the middle one and move the other 2 chairs 6 ft apart. We use a lot of signage to help keep people separated. For the vaccine administration itself, it was really important that we had a private space to do that and so we built it ourselves. It is not terribly hard to put up a few walls, and I promise you that you have someone in your life who owns a nail gun, or you can rent one and learn how to use it. Two-by-fours are still fairly cheap, and drywall is relatively easy and cheap. You can manage this if you want to. For a few hundred dollars we were able to create a private space with a door that patients feel comfortable in.

PHARMACY TIMES®: As a pharmacy, you have commitments to suppliers and the signage required for some products. How did you decide to remove some to create more space?”

DAY: That is another advantage to owning my own pharmacy: I didn’t have to ask for permission from anyone about what I was doing. It was about making smart choices, though. If there is no inventory on the shelves, you cannot
sell as much. However, in every pharmacy there is inventory that never sells. Learning what that is, running reports to identify it, and making decisions can be challenging. ... We used to have almost 200 running feet—or 20 linear feet—of shelving of greeting cards and 45 running feet of school and office supplies. We only have about 500 to 600 running feet of total shelf space. For a long time, about 30% to 40% of our pharmacy housed school and office supplies and greeting cards. When I bought the store, I made a conscious choice that I wanted it to be a health care destination and not an “everything store.” I had the ability to make that choice.

Obviously, though, there are many environments [in which] people do not have the ability to make the choice themselves. However, I would challenge any of them to look into it. As pharmacies get bigger, they also get better data from sales and inventory management. I would challenge them to run those reports and identify the 4-ft, 8-ft, 12- and 16-ft sections that aren’t making any money. If they’re not paying the rent, then you should push [them] out. If you think about the pharmacy or a retail space as an apartment complex, you have penthouse suite locations: Some of the products just move quickly. Those 4-ft sections are paying rents double or triple what the going “rent” might be. Conversely, there are also [locations] that haven’t paid rent in 25 years....Put on your landlord hat and kick those [products] out! You have better things to do with [that space], including either putting out new products that can pay rent or, in our case, taking the shelves down to create more space where everyone is more comfortable.

It also makes the store feel bigger. We have had an incredible response to it. Do people sometimes ask for a hot glue gun? Absolutely. But if you sell hot glue guns twice in a 2-year period and make $1 each time, [it doesn’t come close to] your inventory costs.

**PHARMACY TIMES®**: Could this model theoretically be utilized in either a parking lot–extended pharmacy or an off-site vaccination clinic? How would that look?

**DAY**: We’ve done quite a few vaccine clinics off site. I know pharmacies have been doing that for a long time. If the pharmacy is located in a part of the country [where it’s] doable, with ample parking spaces outside, great! There is an opportunity to administer many vaccines in a short period of time if you do leave the 4 walls of the pharmacy. An off-site model can be designed around the flow you need for vaccines, whereas inside the pharmacy you must adapt to the space you have.

Some pharmacies have a board requirement that prohibits leaving the pharmacy with vaccines. For example, some of the COVID-19 vaccines are in that [category]. There are also some logistical aspects, [such as] items that are easy to access inside the pharmacy that might not be easily accessible outside. These items include things as simple as trash cans and sharps containers, as well as more complex aspects such as what to do with documentation and tasks that are normally done in real time, electronically. If you’re taking computers [off site], consider how they are going to be powered and how you are ensuring HIPAA [Health Insurance Portability and Accountability Act] and HITECH [Health Information Technology for Economic and Clinical Health Act] protections. In addition, we almost exclusively offer a single [type of] vaccine, such as influenza vaccines, pneumonia, or COVID-19; we do not take multiple vaccine [types].

Generally, when we go off site, we have a “check-in” person and multiple vaccinators. The check-in process off site is different from in the pharmacy. We already know this person has come to receive a vaccine. The off-site process is to ensure we have the right information on the person, such as their demographic information, allergies, and insurance.

For COVID-19 vaccines, we also take a person who will monitor patients for 15 minutes after they have been vaccinated, which occurs after any vaccination. The monitoring person helps direct traffic to go from the check-in to the vaccinator.

The vaccinator is responsible for any screening questions and answering any questions the patient might have and then administering the vaccine and giving instructions about follow-up, if there are any. All that happens at the point of vaccination, and the patient moves from that spot. That’s really important from a flow perspective, to keep them moving somewhere else. That’s where gyms, churches, and parking lots are helpful.

**PHARMACY TIMES®**: How do you keep track of the patients? Is it done on paper or through a web portal?

**DAY**: If you were to have asked me that question a year and a half ago, I would have said it was all paper. Sometimes we had the information in advance from the patients and had profiles built the morning of, say, an afternoon vaccine clinic. Then we brought the paper back to the pharmacy and performed the data entry at that point. That task does not have to be completed immediately. It might take several days to get all the information uploaded, which can work, as long as all the forms are dated on the day the vaccine was administered, in addition to the billing date, and ensuring that the origin code dates are all the same for the date the vaccine was administered.

At our pharmacy, we do not yet take enough technology
with us to be able to bill or document on-site; however, for COVID-19 vaccines, our state has a system for scheduling first and second doses. Thus, all the documentation goes into that site.

**PHARMACY TIMES**: How does a pharmacy account for the cost of vaccination supplies and inventory?

**DAY**: That is going to be pharmacy specific. At our pharmacy, we have a store-use document to track all the things we use in the store, from supplies for reconstitutions to paper towels, Lysol wipes, and hand sanitizer. We try to [do the same for] vaccine supplies. For my business, we performed a projection model: For example, for every 100 vaccines there are the associated costs, such as a Band-Aid for each one, which equals a box of Band-Aids, and then alcohol swabs, etc. There’s a syringe, and for shingles vaccines, for example, there are 2 different needles as we change needles in between. From there you calculate that out to say, “For every 100 vaccines, this is what the cost is to the pharmacy side.” We know if we make on a revenue perspective or on gross profit perspective, X number of dollars on 100 vaccines, that the hard costs associated with that are a certain number.

**PHARMACY TIMES**: In terms of billing, what channels are available to pharmacists regarding vaccination reimbursement and insurance coverage?

**DAY**: For most small pharmacies and community pharmacies, it is likely either an all-pharmacy benefit model or potential cash pay. The cash pay model for vaccines is fairly small because most vaccines are fairly expensive, other than maybe flu shots. You’re not likely to convince someone to pay out of pocket for a shingles vaccine at about $400 for a 2-shot series. For my pharmacy, and many pharmacies like mine, we do not have access to medical billing outside of Medicare Part B; we’re exclusively billing on the pharmacy side of the benefit, which makes it easy because it’s the exact same way that you bill everything else. Overall it just becomes very routine.

There are many pharmacies that do have medical billing contracts; some are built into the pharmacy dispensing system. It’s fairly similar to typing a regular prescription, but adjudication is going somewhere else. Diagnosis codes are needed, but those are often built into the system. Medicare tends to [pay for] flu vaccines, pneumonia vaccines, and COVID-19 vaccines under Medicare Part B; however, the pharmacy needs to have an accreditation for that. Again, most [chain] pharmacies have that already within the system. Independent pharmacies likely have one too; whether they use it or not, it’s likely assigned to them. They need to make sure they know what this is and that it’s built into their system. However, Medicare Advantage plans, third-party insurance plans for commercial insurance, and Medicaid plans for the most part all [pay for vaccines as] a normal prescription, and it is fairly simple to take advantage of that.

The cash pay model is competitive. It’s less about how to do it and more about how to set the pricing. For example, travel vaccines, which regularly are not covered by insurance, may be cash pay. If a person is going to go spend a month in South America, they might need 5 or 6 different vaccines and they may be willing to pay directly for that as part of their travel expenses. The competitor for those vaccines is unlikely to be the pharmacy across the street. The real competitor is a travel-specific company, which may offer those vaccines at a higher cost compared with the acquisition costs of vaccines. If you are in a position where you can choose how much you bill for a vaccine, especially for travel, then those are the places to compare with.

**PHARMACY TIMES**: How can pharmacies review their location demographics to determine which vaccines to stock?

**DAY**: That’s a great question. The pharmacy is embedded in the community it’s located in. To me, every pharmacy across the country can succeed with flu, pneumonia, shingles, and tetanus vaccines. If the pharmacy offers anything beyond that, it is going to get a bit subjective as to what you’re interested in, who your relationships are with, and the providers in your area as well as within the community itself.

For example, our pharmacy did well offering hepatitis A vaccines about a year and a half ago because there was a hepatitis A outbreak in our neighborhood. It was [therefore] easy to articulate the value of the vaccine. If you don’t have hepatitis A in your county, then you’re never going to get someone to agree to pay for a vaccine to reduce their very small risk.

For me the decision stems from relationships. The pediatricians on my side of town are incredible. They take really good care of the community. I don’t want to step on their toes, so we’ll work collaboratively with them in building a plan for pediatric vaccines so that we’re helpful for their practices and the families.

The same goes for meningitis if you are located in a town with a private college, for example. [That provider visit] at 17 years of age may be the last time a student sees a health care provider until they turn 30. You don’t want to take away that last doctor’s visit. We have to recognize
the ways we can bring value in addition to what others may bring to the team.

At this point in 2021, pharmacies have been giving vaccines broadly for almost 15 years. Providers in the area are going to expect pharmacies to give vaccines. If you do not have a relationship with a doctor, you’re possibly stepping out of line. Don’t step on toes that you don’t need to step on.

PHARMACY TIMES®: How do you reach all the members of a certain age group for a given vaccine? Are you doing phone calls, text alerts, emails?

DAY: A program we did for shingles vaccination was very successful: We would place little paper flags on prescriptions for pickup with a patient over 50, and that would transition at various times [to talking about] a vaccine. We do have programs to send text messages or to send automated voice calls as well; however, our business model is built on personal relationships, and an automated phone call does not fit into the brand that we live and breathe. Thus, we have conversations at the point of dispensing and on the phone. And we encourage patients to tell their friends, particularly after every COVID-19 vaccination.

Pharmacists are masters at building a good rapport. Asking patients to tell their friends is important for encouraging vaccine-hesitant individuals. We want people to be vocal about it and say, ’Yes, I got my vaccine today. It was a great experience, it was super easy, and it didn’t even hurt!’ That is wonderful, because the person who they said that to might be on the fence about getting a vaccination. [Hearing something positive from their friend] might be the trigger that gets them to change their mind. That worked at our pharmacy with shingles vaccines. The friends came from all over; no amount of text messages or phone call campaigns would ever have found those people.

PHARMACY TIMES®: How are you handling vaccine fatigue, both for patients and pharmacy staff?

DAY: [Vaccine fatigue] has the potential to be a fairly big problem coming into this fall, and a lot of it’s going to have to do with what happens around the success of the COVID-19 vaccines and the durable immune response to them. A situation [in which] a person is trying to get a flu shot while also thinking about getting a COVID-19 booster can be difficult. We are going to learn how to approach this from experience and talking to patients and seeing what resonates and what doesn’t. Many patients likely will try to skip flu shots this fall if they have to get a COVID-19 booster. From the pharmacy and pharmacy team’s perspective, if we get instruction that we need to use COVID-19 vaccine boosters in a November to February time frame, it’s going to be really hard to get through the flu shot frenzy of September and October and directly into COVID-19 and organizing the two. That’s a challenge we don’t have the answer to yet.

PHARMACY TIMES®: What else should pharmacies be thinking about going forward?

DAY: If you look across all the vaccines and vaccine percentages, pneumonia vaccine percentages are pretty dismal across the country, and they have not really changed for a while. A program to improve that makes sense. Similarly, HPV [human papillomavirus] is estimated to cause more than 40,000 cancer cases a year.1 It’s not a small cancer, yet only about half of teens have been fully vaccinated against HPV.2 The first step… is getting you and your team educated about the vaccine and the virus that can cause it so you can speak eloquently about the benefits of vaccination. To have it in stock, to know what the schedules are, to be able to speak about the benefits, and then to build relationships with providers about how to target those populations, that makes a ton of sense. There’s so much opportunity in that regard from a public health perspective.

REFERENCES