INDICATION and IMPORTANT SAFETY INFORMATION

INDICATION AND USAGE
FLUAD® QUADRIVALENT is an inactivated influenza vaccine indicated for active immunization against influenza disease caused by influenza virus subtypes A and types B contained in the vaccine. FLUAD QUADRIVALENT is approved for use in persons 65 years of age and older. This indication is approved under accelerated approval based on the immune response elicited by FLUAD QUADRIVALENT.

IMPORTANT SAFETY INFORMATION

CONTRAINDICATIONS
Do not administer FLUAD QUADRIVALENT to anyone with a history of severe allergic reaction (e.g. anaphylaxis) to any component of the vaccine, including egg protein, or to a previous influenza vaccine.

WARNINGS AND PRECAUTIONS
If Guillain-Barré syndrome (GBS) has occurred within 6 weeks of receipt of prior influenza vaccine, the decision to give FLUAD QUADRIVALENT should be based on careful consideration of the potential benefits and risks.

Appropriate medical treatment and supervision must be available to manage possible anaphylactic reactions following administration of the vaccine.

The immune response to FLUAD QUADRIVALENT in immunocompromised persons, including individuals receiving immunosuppressive therapy, may be lower than in immunocompetent individuals.

Syncope (fainting) may occur in association with administration of injectable vaccines including FLUAD QUADRIVALENT. Ensure procedures are in place to avoid injury from falling associated with syncope.

Vaccination with FLUAD QUADRIVALENT may not protect all vaccine recipients against influenza disease.

ADVERSE REACTIONS

The most common (≥10%) local and systemic reactions in elderly subjects 65 years of age and older include injection site pain (16.3%), headache (10.8%) and fatigue (10.5%).

The immune response to FLUAD QUADRIVALENT in immunocompromised persons, including individuals receiving immunosuppressive therapy, may be lower than in immunocompetent individuals.

ADVERSE REACTIONS

The most common (≥10%) local and systemic reactions in elderly subjects 65 years of age and older include injection site pain (16.3%), headache (10.8%) and fatigue (10.5%).


FLUAD QUADRIVALENT is a registered trademark of Seqirus UK Limited or its affiliates.
INDICATION and IMPORTANT SAFETY INFORMATION

Do not administer FLUAD QUADRIVALENT to anyone with a history of severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine, including egg protein, or to a previous influenza vaccine.

CONTRAINDICATIONS

Guillain-Barré Syndrome: If Guillain-Barré syndrome (GBS) has occurred within 6 weeks of receipt of prior influenza vaccine, the decision to give FLUAD QUADRIVALENT should be based on careful consideration of the potential benefits and risks. The 1976 swine influenza vaccine was associated with an elevated risk of GBS. (see Reference (1)) Evidence for a causal relationship of GBS with other influenza vaccines is inconclusive; if an excess risk exists, it is probably slightly more than 1 additional case per 1 million persons vaccinated.

Concurrent Use With Immunosuppressive Therapies:

Preventing and Managing Allergic Reactions: Appropriate medical treatment and supervision must be available to manage possible anaphylactic reactions following administration of the vaccine.

Attended Immunocompetence: The immune response to FLUAD QUADRIVALENT in immunocompromised persons, including individuals receiving immunosuppressive therapy, may be lower than in immunocompetent individuals.

Syncpe: Syncpe (fainting) may occur in association with administration of injectable vaccines including FLUAD QUADRIVALENT. Ensure procedures are in place to avoid injury from falling associated with syncpe.

Limitations of Vaccine Effectiveness: Vaccination with FLUAD QUADRIVALENT may not protect all vaccine recipients against influenza disease.

ADVERSE REACTIONS

The most common (≥10%) local and systemic reactions in elderly subjects 65 years of age and older were injection site pain (16.3%), headache (10.8%) and fatigue (10.5%).

Clinical Trials Experience: Because clinical trials are conducted under widely varying conditions, the adverse reaction rates observed in the clinical trials of a vaccine cannot be directly compared to rates in the clinical trials of another vaccine and may not reflect rates observed in clinical practice.

The safety of FLUAD QUADRIVALENT was evaluated in two clinical studies in ≥65 elderly subjects 65 years of age and older. Study 1 (NCT02587221) was a multi-center, randomized, observer-blind, non-influenza comparator-controlled efficacy and safety study conducted in 12 countries during the 2016-2017 Northern Hemisphere and 2017 Southern Hemisphere seasons. In this study, 3381 subjects received FLUAD QUADRIVALENT and 3380 subjects received a US-licensed non-influenza comparator vaccine (Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine, Boostrix® (GliaSights™Biologics)).

The mean age of subjects at enrollment who received FLUAD QUADRIVALENT was 72 years. 62% were female, 48% White, 34% Asian, 16% Other, 2% American Indian/Alaska Native, and 18% of Hispanic/Latino ethnicity.

Solicited local and systemic adverse reactions were collected for 7 days after vaccination in a subset of 665 subjects who received FLUAD QUADRIVALENT and 667 subjects who received the comparator vaccine. The percentages of subjects reporting solicited local adverse reactions are presented in Table 1a and systemic adverse reactions are presented in Table 1b. Onset usually occurred within the first 2 days after vaccination. The majority of solicited reactions resolved within 3 days.

Table 1a. Percentages of Subjects Reporting Solicited Local Adverse Reactions in the Solicited Safety Population within 7 Days of Vaccination (Study 1)

<table>
<thead>
<tr>
<th>Local (Injection site) Reactions</th>
<th>FLUAD QUADRIVALENT N=596-659</th>
<th>Non-Influenza Comparator Vaccine N=607-684</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injection site pain</td>
<td>16.3</td>
<td>12.2</td>
</tr>
<tr>
<td>Erythema &gt;25mm</td>
<td>3.8</td>
<td>1.6</td>
</tr>
<tr>
<td>Induration &gt;25mm</td>
<td>4.0</td>
<td>2.6</td>
</tr>
<tr>
<td>Ecchymosis &gt;25mm</td>
<td>0.5</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Table 1b. Percentages of Subjects Reporting Solicited Systemic Adverse Reactions in the Solicited Safety Population within 7 Days of Vaccination (Study 1)

<table>
<thead>
<tr>
<th>Systemic Reactions</th>
<th>FLUAD QUADRIVALENT N=596-659</th>
<th>Non-Influenza Comparator Vaccine N=607-684</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>10.8</td>
<td>8.3</td>
</tr>
<tr>
<td>Fatigue</td>
<td>10.5</td>
<td>8.6</td>
</tr>
<tr>
<td>Myalgia</td>
<td>7.7</td>
<td>6.1</td>
</tr>
<tr>
<td>Arthralgia</td>
<td>7.3</td>
<td>6.6</td>
</tr>
<tr>
<td>Chills</td>
<td>5.0</td>
<td>3.9</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>4.1</td>
<td>3.0</td>
</tr>
<tr>
<td>Nausea</td>
<td>3.8</td>
<td>2.3</td>
</tr>
<tr>
<td>Loss of appetite</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Fever ≥100.4°F (38°C)</td>
<td>1.7</td>
<td>1.2</td>
</tr>
<tr>
<td>Vomiting</td>
<td>0.8</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Study 1: NCT02587221

Abbreviation: N=number of subjects with solicited safety data

Non-Influenza Comparator Vaccine = Combined Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine, Boostrix® (GliaSights™Biologics)

†All solicited local adverse events reported within 7 days of vaccination are included

†Solicited Safety Population: all subjects in the exposed population who received a study vaccine and provided post-vaccination solicited safety data.

Solicited reactions of each type were reported in ≥1.1% or fewer subjects receiving FLUAD QUADRIVALENT; severe reactions of each type were also reported in the comparator group at similar percentages. Severe definitions: Headache, induration (≥1.0 cm in diameter) injection site pain ≥ 50 mm Hg pressure pain, and ≥30 mm Hg pressure pain.

Table 1. Percentages of Subjects Reporting Solicited Systemic Adverse Reactions in the Solicited Safety Population within 7 Days of Vaccination (Study 1)
Musculoskeletal and connective tissue disorders: Muscular weakness
Nervous system disorders: Encephalomyelitis, Guillian-Barre Syndrome, convulsions, neuritis, neuralgia, parasthesia, syncope, presyncope
Skin and subcutaneous tissue disorders: Generalized skin reactions including erythema multiforme, urticaria, pruritus or nonspecific rash
Vascular disorders: Vasculitis, renal vasculitis

**DRUG INTERACTIONS**

**Concomitant Use With Other Vaccines:** No clinical data on concomitant administration of FLUAD QUADRIVALENT with other vaccines is available.

If FLUAD QUADRIVALENT is given at the same time as other injectable vaccine(s), the vaccine(s) should be administered at different injection sites.

Do not mix FLUAD QUADRIVALENT with any other vaccine in the same syringe.

**Concurrent Use With Immunosuppressive Therapies:** Immunosuppressive or corticosteroid therapies may reduce the immune response to FLUAD QUADRIVALENT.

**USE IN SPECIFIC POPULATIONS**

**Pregnancy**

FLUAD QUADRIVALENT is not approved for use in persons < 65 years of age. There are insufficient human data to establish whether there is a vaccine-associated risk with use of FLUAD QUADRIVALENT in pregnancy.

There were no developmental toxicity studies of FLUAD QUADRIVALENT performed in animals. A developmental toxicity study has been performed in female rabbits administered FLUAD (trivalent formulation) prior to mating and during gestation. A 0.5 mL dose was injected on each occasion (a single human dose is 0.5 mL).

**Lactation**

FLUAD QUADRIVALENT is not approved for use in persons < 65 years of age. No human or animal data are available to assess the effects of FLUAD QUADRIVALENT on the breastfeeding infant or on milk production/excretion.

**Pediatric Use**

Safety and effectiveness of FLUAD and FLUAD QUADRIVALENT (same manufacturing process and overlapping composition with FLUAD) were evaluated in clinical trials conducted in children 6 months to <72 months of age. Data from these trials are inconclusive to demonstrate the safety and effectiveness of FLUAD QUADRIVALENT in children 6 months to <72 months of age. The safety and effectiveness of FLUAD QUADRIVALENT in infants less than 6 months of age and in children older than 72 months of age have not been evaluated.

**Geriatric Use**

Safety and immunogenicity of FLUAD QUADRIVALENT have been evaluated in adults 65 years of age and older.

**REFERENCE**


To report SUSPECTED ADVERSE REACTIONS, contact Seqirus at 1-855-368-8966 or VAERS at 1-800-822-7977 or www.vaers.hhs.gov.
Two (Or More) Is Better Than One

As the president and CEO of a life sciences company whose mission is to improve the quality of life through health care communications, education, and research, I thought I would devote this month's letter to the importance of collaboration, both internally and externally, here at MJH Life Sciences.

Years ago, MJH Life Sciences® started, with great success, a Strategic Alliance Partnership (SAP) program to align specific brands, such as Drug Topics®, with partners that would make for good, mutual collaborations. These SAPs are usually nonprofits, charities, or children's hospitals, organizations where we envision a mutual benefit of raising awareness for one another's missions and objectives. These partnerships offer both parties virtually endless opportunities to elevate awareness, whether sharing content, introducing key thought leaders, creating partner webinars, promoting one another's conferences, and much more. Please feel free to visit our SAP page online at https://www.drugtopics.com/sap-partner to see Drug Topics®' current partners.

Finally, the most important partnerships of all begin and end with you: As both readers and contributors to the Drug Topics® print issue and website, you, as pharmacists, help keep us in the know when it comes to caring for our communities.

Thank you for your long-standing partnership with us, and let these beautiful relationships continue to prosper! 

Mike Hennessy Jr
President and CEO
of MJH Life Sciences®
ALIGNED TO CDC RECOMMENDATIONS

A vaccine regimen of VAXNEUVANCE followed by PNEUMOVAX 23 can help protect adults at increased risk against IPD.¹

The regimen of VAXNEUVANCE followed by PNEUMOVAX 23 helps prevent IPD due to key disease-causing serotypes and covers serotypes responsible for about two-thirds of IPD cases in adults at increased risk.²

Indications and Usage for VAXNEUVANCE

VAXNEUVANCE is indicated for active immunization for the prevention of invasive disease caused by Streptococcus pneumoniae serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F, and 33F in individuals 6 weeks of age and older.

Select Safety Information for VAXNEUVANCE

Do not administer VAXNEUVANCE to individuals with a severe allergic reaction (eg, anaphylaxis) to any component of VAXNEUVANCE or to diphtheria toxoid.

Some individuals with altered immunocompetence, including those receiving immunosuppressive therapy, may have a reduced immune response to VAXNEUVANCE.

Select Safety Information for VAXNEUVANCE and PNEUMOVAX 23 continues inside.

Indications and Usage for PNEUMOVAX 23

PNEUMOVAX 23 is a vaccine indicated for active immunization for the prevention of pneumococcal disease caused by the 23 serotypes contained in the vaccine (1, 2, 3, 4, 5, 6B, 7F, 8, 9N, 9V, 10A, 11A, 12F, 14, 15B, 17F, 18C, 19F, 19A, 20, 22F, 23F, and 33F).

PNEUMOVAX 23 is approved for use in persons 50 years of age or older and persons aged ≥2 years who are at increased risk for pneumococcal disease.

PNEUMOVAX 23 will not prevent disease caused by capsular types of pneumococcus other than those contained in the vaccine.

Select Safety Information for PNEUMOVAX 23

Do not administer PNEUMOVAX 23 to individuals with a history of a hypersensitivity reaction to any component of the vaccine.

Defer vaccination with PNEUMOVAX 23 in persons with moderate or severe acute illness.

CDC, Centers for Disease Control and Prevention; IPD, invasive pneumococcal disease.
Proportion of IPD cases attributable to vaccine serotypes, 2017-2019

These figures are based on CDC epidemiologic data and do not reflect the efficacy of the respective vaccines. **Randomized controlled trials assessing the clinical efficacy of VAXNEUVANCE + PNEUMOVAX 23 compared to PCV13, or compared to PCV20, have not been conducted.**

**Select Safety Information for VAXNEUVANCE (continued)**

The most commonly reported solicited adverse reactions in individuals 18 through 49 years of age were: injection-site pain (75.8%), fatigue (34.3%), myalgia (28.8%), headache (26.5%), injection-site swelling (21.7%), injection-site erythema (15.1%), and arthralgia (12.7%).

The most commonly reported solicited adverse reactions in individuals 50 years of age and older were: injection-site pain (66.8%), myalgia (26.9%), fatigue (21.5%), headache (18.9%), injection-site swelling (15.4%), injection-site erythema (10.9%), and arthralgia (7.7%).

Vaccination with VAXNEUVANCE may not protect all vaccine recipients.

References:
Two vaccines, one goal: VAXNEUVANCE followed by PNEUMOVAX 23 to help protect adults at risk for IPD\(^1\)

The CDC recommends a regimen of VAXNEUVANCE followed by PNEUMOVAX 23 as an option for adults who have not previously received a PCV or whose previous vaccination history is unknown, and are\(^1\):

<table>
<thead>
<tr>
<th>≥65 years</th>
<th>19 to 64 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>with certain underlying medical conditions or other risk factors*</td>
<td></td>
</tr>
</tbody>
</table>

\*These include certain chronic medical conditions (eg, diabetes, chronic heart disease, chronic lung disease, or chronic liver disease), certain immunocompromising conditions (eg, HIV); or behavioral risk factors (eg, smoking or alcoholism).\(^1\)

Alternatively, the CDC recommends a dose of 20-valent pneumococcal conjugate vaccine for these patients.\(^1\)

**Help protect your appropriate adult patients at increased risk of IPD\(^1\)**

Select Safety Information for PNEUMOVAX 23 (continued)

Use caution and appropriate care in administering PNEUMOVAX 23 to individuals with severely compromised cardiovascular and/or pulmonary function in whom a systemic reaction would pose a significant risk.

Available human data from clinical trials of PNEUMOVAX 23 in pregnancy have not established the presence or absence of a vaccine-associated risk.

Since elderly individuals may not tolerate medical interventions as well as younger individuals, a higher frequency and/or a greater severity of reactions in some older individuals cannot be ruled out.

Persons who are immunocompromised, including persons receiving immunosuppressive therapy, may have a diminished immune response to PNEUMOVAX 23.

PNEUMOVAX 23 may not be effective in preventing pneumococcal meningitis in patients who have chronic cerebrospinal fluid (CSF) leakage resulting from congenital lesions, skull fractures, or neurosurgical procedures.

The most common adverse reactions, reported in >10% of subjects vaccinated with PNEUMOVAX 23 for the first time in a clinical trial, were: injection-site pain/soreness/tenderness, injection-site swelling/induration, headache, injection-site erythema, asthenia and fatigue, and myalgia.

For subjects aged 65 years or older in a clinical study, systemic adverse reactions which were determined by the investigator to be vaccine-related were higher following revaccination than following initial vaccination.

Vaccination with PNEUMOVAX 23 may not offer 100% protection from pneumococcal infection.

Please read the adjacent Brief Summaries of the Prescribing Information for VAXNEUVANCE and PNEUMOVAX 23.
VAXNEUVANCE™ is indicated for active immunization for the prevention of invasive pneumococcal disease caused by Streptococcus pneumoniae serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F in individuals 6 weeks of age and older.

**DOSE AND ADMINISTRATION**

For intramuscular injection only.

**Dosage:** Each dose of VAXNEUVANCE is 0.5 mL.

**Administration**

Hold the prefilled syringe horizontally and shake vigorously immediately prior to use to obtain an opalescent suspension. Do not use the vaccine if it cannot be resuspended. Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration, whenever solution and container permit. Do not use if particulate matter or discoloration is observed.

**CONTRAINDICATIONS**

Do not administer VAXNEUVANCE to individuals with a severe allergic reaction (e.g., anaphylaxis) to any component of VAXNEUVANCE or to diphtheria toxoid.

**WARNINGS AND PRECAUTIONS**

Management of Allergic Reactions: Appropriate medical treatment to manage allergic reactions must be immediately available in the event an acute anaphylactic reaction occurs following administration of VAXNEUVANCE.

Altered Immunocompetence: Some individuals with altered immunocompetence, including those receiving immunosuppressive therapy, may have a reduced immune response to VAXNEUVANCE.

Apnea in Premature Infants: Apnea following intramuscular vaccination has been observed in some infants born prematurely. A decision about when to administer VAXNEUVANCE to infants born prematurely should be based on consideration of the individual infant’s medical status and the potential benefits and possible risks of vaccination.

**ADVERSE REACTIONS**

**Clinical Trials Experience:** Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a vaccine cannot be directly compared to rates in the clinical trials of another vaccine and may not reflect the rates observed in practice.

* The most commonly reported solicited adverse reactions in children vaccinated with a 4-dose series at 2, 4, 6, and 12 through 15 months of age, provided as a range across the series, were: irritability (57.3% to 63.4%), somnolence (24.2% to 47.5%), injection-site pain (25.9% to 40.3%), fever >38°C (13.3% to 20.4%), decreased appetite (14.1% to 19.0%), injection-site induration (12.2% to 14.4%), injection-site erythema (13.7% to 21.4%) and injection-site swelling (11.3% to 13.4%).

* The most commonly reported solicited adverse reactions in children and adolescents 2 through 17 years of age vaccinated with a single dose were: injection-site pain (54.8%), myalgia (23.7%), injection-site swelling (20.9%), injection-site erythema (19.2%), fatigue (15.8%), headache (11.9%) and injection-site induration (6.8%).

* The most commonly reported solicited adverse reactions in adults 18 through 49 years of age were: injection-site pain (75.8%), fatigue (34.3%), myalgia (23.7%), injection-site swelling (20.9%), injection-site erythema (15.1%) and arthralgia (12.7%).

**Table 2:** Percentage of US Participants with Solicited Local Adverse Reactions in Infants at 2, 4, 6 and 12 through 15 Months of Age After Vaccination (Study B)*

<table>
<thead>
<tr>
<th>Dose</th>
<th>Dose 1</th>
<th>Dose 2</th>
<th>Dose 3</th>
<th>Dose 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAXNEUVANCE (%)</td>
<td>N=598</td>
<td>Prevnar 13 (%)</td>
<td>N=600</td>
<td>VAXNEUVANCE (%)</td>
</tr>
<tr>
<td>Local Reactions†</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>Any</td>
<td>40.3</td>
<td>39.5</td>
<td>32.0</td>
</tr>
<tr>
<td></td>
<td>Mild</td>
<td>24.1</td>
<td>23.2</td>
<td>18.7</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>14.7</td>
<td>15.2</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>1.5</td>
<td>1.2</td>
<td>0.9</td>
</tr>
<tr>
<td>Induration</td>
<td>Any</td>
<td>14.0</td>
<td>12.7</td>
<td>12.7</td>
</tr>
<tr>
<td></td>
<td>&lt;2.5 cm</td>
<td>11.0</td>
<td>10.0</td>
<td>9.1</td>
</tr>
<tr>
<td></td>
<td>2.6-7.6 cm</td>
<td>2.8</td>
<td>5.4</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td>&gt;7.6 cm</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Erythema</td>
<td>Any</td>
<td>13.7</td>
<td>14.7</td>
<td>16.4</td>
</tr>
<tr>
<td></td>
<td>&lt;2.5 cm</td>
<td>11.0</td>
<td>10.8</td>
<td>12.7</td>
</tr>
<tr>
<td></td>
<td>2.6-7.6 cm</td>
<td>2.3</td>
<td>3.5</td>
<td>3.8</td>
</tr>
<tr>
<td></td>
<td>&gt;7.6 cm</td>
<td>0.3</td>
<td>0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Swelling</td>
<td>Any</td>
<td>12.9</td>
<td>12.7</td>
<td>13.2</td>
</tr>
<tr>
<td></td>
<td>&lt;2.5 cm</td>
<td>7.5</td>
<td>7.2</td>
<td>8.2</td>
</tr>
<tr>
<td></td>
<td>2.6-7.6 cm</td>
<td>3.2</td>
<td>5.3</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>&gt;7.6 cm</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*Study 8 (NCT03893448) was a randomized, double-blind, active comparator-controlled clinical study. Safety was monitored using a Vaccination Report Card (VRC) for up to 14 days postvaccination following each dose. The table represents the final assessment by the study investigators upon review of the VRC 15 days postvaccination, to ensure consistency with protocol definitions.

†Solicited on Day 1 through Day 14 postvaccination following each dose.

‡Number of participants vaccinated, including those with missing solicited adverse event data. The percentage of participants with missing solicited adverse event data, provided as a range across the 4-dose series, was 0.8% to 3.9%.
Studies 8-10 (NCT03893448) were randomized, double-blind, active comparator-controlled clinical studies. Licensed pediatric vaccines were administered

Table 4: Percentage of Participants with Fever in Infants at 2, 4, 6 and 12 through 15 Months of Age After Vaccination (Studies 8-10)*

<table>
<thead>
<tr>
<th>Dose</th>
<th>VAXNEUVANCE (% N=398)</th>
<th>Prevnar 13 (% N=600)</th>
<th>VAXNEUVANCE (% N=554)</th>
<th>Prevnar 13 (% N=570)</th>
<th>VAXNEUVANCE (% N=559)</th>
<th>Prevnar 13 (% N=540)</th>
<th>VAXNEUVANCE (% N=532)</th>
<th>Prevnar 13 (% N=507)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever‡</td>
<td>≥38.0°C</td>
<td>18.4</td>
<td>16.4</td>
<td>20.4</td>
<td>21.7</td>
<td>20.0</td>
<td>20.0</td>
<td>13.3</td>
</tr>
<tr>
<td></td>
<td>≥38.0°C to &lt;39.0°C</td>
<td>17.3</td>
<td>15.7</td>
<td>18.5</td>
<td>18.1</td>
<td>17.2</td>
<td>17.2</td>
<td>12.1</td>
</tr>
<tr>
<td></td>
<td>≥39.0°C to &lt;40.0°C</td>
<td>1.0</td>
<td>0.7</td>
<td>1.6</td>
<td>3.4</td>
<td>2.4</td>
<td>2.5</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>≥40.0°C</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*Study 8 (NCT03893448) was a randomized, double-blind, active comparator-controlled clinical study. Safety was monitored using a Vaccination Report Card (VRC) for up to 14 days postvaccination following each dose. The table represents the final assessment by the study investigators upon review of the VRC 15 days postvaccination, to ensure consistency with protocol definitions.

†Solicited on Day 1 through Day 14 postvaccination following each dose.

‡Solicited on Day 1 through Day 7 postvaccination following each dose.

§Solicited on Day 1 through Day 7 postvaccination following each dose.

¶Solicited on Day 1 through Day 7 postvaccination following each dose.

<table>
<thead>
<tr>
<th></th>
<th>VAXNEUVANCE</th>
<th>Prevnar 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=2,995</td>
<td>N=1,458</td>
<td>N=2,902</td>
</tr>
<tr>
<td>≥38.0°C</td>
<td>15.2</td>
<td>12.6</td>
</tr>
<tr>
<td>≥38.0°C to &lt;39.0°C</td>
<td>14.4</td>
<td>11.7</td>
</tr>
<tr>
<td>≥39.0°C to &lt;40.0°C</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>≥40.0°C</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*Studies 8-10 (NCT03893448, NCT03820162 and NCT03692871) were randomized, double-blind, active comparator-controlled clinical studies. Licensed pediatric vaccines were administered concomitantly according to the study design or local recommended schedule.

†Solicited on Day 1 through Day 7 postvaccination following each dose.

Unsolicited Adverse Reactions in Children Receiving a 4-Dose Series

Across Studies 8-11 (excluding participants in Study 9 who received VAXNEUVANCE to complete a pneumococcal conjugate vaccine series initiated with Prevnar 13), injection-site urticaria within 14 days following each dose of VAXNEUVANCE occurred in up to 0.6% of children. Participants in these studies may have received either US-licensed or non-US licensed concomitant vaccines according to the local recommended schedule.

Serious Adverse Events in Children Receiving a 4-Dose Series Among children who received VAXNEUVANCE (% N=3,349) or Prevnar 13 (% N=1,814) across Studies 8-11 (excluding participants in Study 9 who received VAXNEUVANCE to complete a pneumococcal conjugate vaccine series initiated with Prevnar 13), serious adverse events up to 6 months following vaccination with the 4-dose series were reported by 9.6% of VAXNEUVANCE recipients and by 8.9% of Prevnar 13 recipients. Participants in these studies may have received either US-licensed or non-US licensed concomitant vaccines according to the local recommended schedule.

Up to 30 days following completion of Doses 1 through 3, serious adverse events were reported by 4.8% of VAXNEUVANCE recipients and by 5.0% of Prevnar 13 recipients. An adverse reaction of febrile seizure was reported in a 9 week old female (Study 11) one day after receiving VAXNEUVANCE (Dose 1) and recommended infant doses (Study 11) of Prevnar 13, which resolved without sequelae.

There were no notable patterns or numerical imbalances between vaccination groups for specific categories of serious adverse events that would suggest a causal relationship to VAXNEUVANCE.

Safety of VAXNEUVANCE When Used to Complete a 4-Dose Pneumococcal Conjugate Vaccine Series Initiated with Prevnar 13

The safety profile observed when VAXNEUVANCE was used to complete a 4-dose pneumococcal conjugate vaccine series initiated with Prevnar 13 was similar to the safety profile following a complete 4-dose regimen of either VAXNEUVANCE or Prevnar 13.
Safety Assessment in Infants and Children Receiving Catch-Up Vaccination

The safety of VAXNEUVANCE was assessed in a double-blind, multi-regional, clinical study (Study 12, NCT03885934). Participants were randomized to receive 1 to 3 doses of VAXNEUVANCE (N=303) or Prevnar 13 (N=303), depending on age at enrollment. All infants and children less than 2 years of age were pneumococcal vaccine-naïve. Among 352 children 2 through 17 years of age, 42.9% had a history of previous vaccination with a lower valency pneumococcal conjugate vaccine. Among participants 7 through 11 months of age, the median age was 8.0 months, 48.4% were female, 82.8% were Asian, 17.2% were White and none were of Hispanic or Latino ethnicity. Among participants 2 through 23 months of age, the median age was 18.0 months, 54.0% were female, 83.3% were Asian, 16.7% were White and 0.8% were of Hispanic or Latino ethnicity. Among participants 2 through 17 years of age, the median age was 4.0 years, 47.7% were female, 66.8% were White, 33.6% were Asian, and none were of Hispanic or Latino ethnicity. The safety assessment was consistent with that used in Studies 8-11, as described above with the exception that in children 3 years of age and older, oral or axillary temperature measurements were obtained. The duration of the safety follow-up period for serious adverse events following the last dose of vaccine within each age cohort was 6 months.

Safety Assessment in Clinical Studies

The safety of VAXNEUVANCE was assessed in 7 randomized, double-blind clinical studies conducted in the Americas, Europe and Asia Pacific, in which 5,630 adults were enrolled. Of those, 4,622 adults were ≥18 years of age and 1,008 adults were ≥65 years of age. The majority of solicited local and systemic adverse reactions that occurred within 14 days following any dose (VAXNEUVANCE participants vs. Prevnar 13 participants) were: fever (≤38.0°C (98.6% vs. 94.1%), 1.1% vs. 2.6%, injection-site erythema (28.1% vs. 34.4%), somnolence (21.9% vs. 15.6%), injection-site swelling (18.5% vs. 15.6%), injection-site pain (18.8% vs. 7.8%), injection-site induration (17.2% vs. 14.1%), decreased appetite (15.6% vs. 18.8%) and urticaria (1.6% vs. 4.7%).

Solicited Adverse Reactions in Children Receiving Catch-Up Vaccination

Among participants 7 through 11 months of age who received 3 doses of VAXNEUVANCE (N=64) or Prevnar 13 (N=64), the percentage of participants reporting solicited local and systemic adverse reactions that occurred within 14 days following any dose (VAXNEUVANCE participants vs. Prevnar 13 participants) were: pain ≥38.0°C (21.9% vs. 14.1%), irritability (29.4% vs. 43.3%), injection-site erythema (28.1% vs. 34.4%), somnolence (21.9% vs. 15.6%), injection-site swelling (18.5% vs. 15.6%), injection-site pain (18.8% vs. 7.8%), injection-site induration (17.2% vs. 14.1%), decreased appetite (15.6% vs. 18.8%) and urticaria (1.6% vs. 4.7%).

Solicited Adverse Reactions in Infants Receiving Catch-Up Vaccination

Among participants 2 through 23 months of age who received 3 doses of VAXNEUVANCE (N=62) or Prevnar 13 (N=64), the percentage of participants reporting solicited local and systemic adverse reactions that occurred within 14 days following any dose (VAXNEUVANCE participants vs. Prevnar 13 participants) were: pain ≥38.0°C (11.3% vs. 9.4%), irritability (55.5% vs. 21.9%), injection-site pain (33.9% vs. 23.4%), somnolence (24.2% vs. 17.2%), decreased appetite (22.6% vs. 18.4%), injection-site erythema (21.0% vs. 21.9%), injection-site swelling (14.5% vs. 12.5%) and injection-site induration (8.1% vs. 9.4%).

In children 2 through 17 years of age, the percentage of participants with solicited adverse reactions that occurred within 14 days following administration of anadose of VAXNEUVANCE or Prevnar 13 is shown in Table 5.

Table 5: Percentage of Participants with Solicited Local and Systemic Adverse Reactions in Children and Adolescents

| Study 12 (NCT03885934) was a randomized, double-blind, active comparator-controlled clinical study. Safety was monitored using a Vaccination Report Card (VRC) for up to 14 days postvaccination. Among participants 7 through 11 months of age who received 3 doses of VAXNEUVANCE (N=64) or Prevnar 13 (N=64), the percentage of participants reporting solicited local and systemic adverse reactions that occurred within 14 days following any dose (VAXNEUVANCE participants vs. Prevnar 13 participants) were: pain ≥38.0°C (21.9% vs. 14.1%), irritability (29.4% vs. 43.3%), injection-site erythema (28.1% vs. 34.4%), somnolence (21.9% vs. 15.6%), injection-site swelling (18.5% vs. 15.6%), injection-site pain (18.8% vs. 7.8%), injection-site induration (17.2% vs. 14.1%), decreased appetite (15.6% vs. 18.8%) and urticaria (1.6% vs. 4.7%). Among participants 2 through 23 months of age who received 3 doses of VAXNEUVANCE (N=62) or Prevnar 13 (N=64), the percentage of participants reporting solicited local and systemic adverse reactions that occurred within 14 days following any dose (VAXNEUVANCE participants vs. Prevnar 13 participants) were: pain ≥38.0°C (11.3% vs. 9.4%), irritability (55.5% vs. 21.9%), injection-site pain (33.9% vs. 23.4%), somnolence (24.2% vs. 17.2%), decreased appetite (22.6% vs. 18.4%), injection-site erythema (21.0% vs. 21.9%), injection-site swelling (14.5% vs. 12.5%) and injection-site induration (8.1% vs. 9.4%). In children 2 through 17 years of age, the percentage of participants with solicited adverse reactions that occurred within 14 days following administration of a single dose of VAXNEUVANCE or Prevnar 13 is shown in Table 5. |
Table 6: Percentage of Participants with Solicited Local and Systemic Adverse Reactions in Pneumococcal Vaccine-Naive Adults 50 Years of Age and Older (Study 2)*

<table>
<thead>
<tr>
<th></th>
<th>VAXNEUVANCE (%)</th>
<th>Prevnar 13 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=2,103</td>
<td>N=230</td>
</tr>
<tr>
<td>Local Reactions1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>66.8</td>
<td>52.2</td>
</tr>
<tr>
<td>Any</td>
<td>0.9</td>
<td>0.0</td>
</tr>
<tr>
<td>Erythema</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>10.9</td>
<td>9.6</td>
</tr>
<tr>
<td>&gt;10 cm</td>
<td>0.6</td>
<td>0.4</td>
</tr>
<tr>
<td>Swelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>15.4</td>
<td>14.3</td>
</tr>
<tr>
<td>&gt;10 cm</td>
<td>0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Systemic Reactions§</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>21.5</td>
<td>22.2</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>Headache</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>18.9</td>
<td>18.7</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>0.8</td>
<td>0.0</td>
</tr>
<tr>
<td>Myalgia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>26.9</td>
<td>21.7</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>0.4</td>
<td>0.0</td>
</tr>
<tr>
<td>Arthralgia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>7.7</td>
<td>5.7</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>0.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Fever†¶</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥38.0°C and &lt;38.5°C</td>
<td>0.6</td>
<td>0.4</td>
</tr>
<tr>
<td>≥38.5°C and &lt;39.0°C</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>≥39.0°C</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Table 7: Percentage of Participants with Solicited Local and Systemic Adverse Reactions in Pneumococcal Vaccine-Naive Adults 18 to 49 Years of Age With or Without Risk Factors for Pneumococcal Disease (Study 4)*

<table>
<thead>
<tr>
<th></th>
<th>VAXNEUVANCE (%)</th>
<th>Prevnar 13 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=1,134</td>
<td>N=378</td>
</tr>
<tr>
<td>Local Reactions1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>75.8</td>
<td>68.8</td>
</tr>
<tr>
<td>Any</td>
<td>1.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Erythema</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>15.1</td>
<td>14.0</td>
</tr>
<tr>
<td>&gt;10 cm</td>
<td>0.5</td>
<td>0.3</td>
</tr>
<tr>
<td>Swelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>21.7</td>
<td>22.2</td>
</tr>
<tr>
<td>&gt;10 cm</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Systemic Reactions§</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>34.3</td>
<td>36.8</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>1.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Headache</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>26.5</td>
<td>24.9</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>0.8</td>
<td>0.5</td>
</tr>
<tr>
<td>Myalgia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>28.8</td>
<td>26.5</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td>Arthralgia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>12.7</td>
<td>11.6</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>0.4</td>
<td>0.0</td>
</tr>
<tr>
<td>Fever†¶</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥38.0°C and &lt;38.5°C</td>
<td>1.0</td>
<td>0.3</td>
</tr>
<tr>
<td>≥38.5°C and &lt;39.0°C</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>≥39.0°C</td>
<td>0.2</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Table 8: Percentage of Participants with Solicited Local and Systemic Adverse Reactions in Adults 65 Years of Age and Older with Previous Pneumococcal Vaccination (Study 5)*

<table>
<thead>
<tr>
<th></th>
<th>VAXNEUVANCE (%)</th>
<th>Prevnar 13 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=127</td>
<td>N=126</td>
</tr>
<tr>
<td>Local Reactions1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>55.1</td>
<td>44.4</td>
</tr>
<tr>
<td>Any</td>
<td>0.8</td>
<td>0.0</td>
</tr>
<tr>
<td>Erythema</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>7.9</td>
<td>7.1</td>
</tr>
<tr>
<td>&gt;10 cm</td>
<td>0.8</td>
<td>0.0</td>
</tr>
<tr>
<td>Swelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>14.2</td>
<td>6.3</td>
</tr>
<tr>
<td>&gt;10 cm</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Systemic Reactions§</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>18.1</td>
<td>19.0</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Headache</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>13.4</td>
<td>15.9</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Myalgia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>15.7</td>
<td>11.1</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>0.8</td>
<td>0.0</td>
</tr>
<tr>
<td>Arthralgia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>5.5</td>
<td>8.7</td>
</tr>
<tr>
<td>Grade 3‡</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Fever†¶</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥38.0°C and &lt;38.5°C</td>
<td>1.6</td>
<td>0.0</td>
</tr>
<tr>
<td>≥38.5°C and &lt;39.0°C</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>≥39.0°C</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*Study 2 (NCT03950856) was a randomized (9:1), double-blind, active comparator-controlled, lot to lot consistency study. Safety was monitored using a Vaccination Report Card (VRC) for up to 14 days postvaccination. The table represents the final assessment by the study investigators upon review of the VRC 15 days postvaccination, to ensure consistency with protocol definitions.
†Solicited on Day 1 through Day 5 postvaccination.
‡Any use of narcotic pain reliever or prevents daily activity.
§Solicited on Day 1 through Day 14 postvaccination.
¶Percentages are based on the number of participants with temperature data.
N=Number of participants vaccinated.

*Study 4 (NCT03547167) was a randomized (3:1), double-blind, descriptive study. Safety was monitored using a Vaccination Report Card (VRC) for up to 14 days postvaccination. The table represents the final assessment by the study investigators upon review of the VRC 15 days postvaccination, to ensure consistency with protocol definitions.
†Solicited on Day 1 through Day 5 postvaccination.
‡Any use of narcotic pain reliever or prevents daily activity.
§Solicited on Day 1 through Day 14 postvaccination.
¶Percentages are based on the number of participants with temperature data.
N=Number of participants vaccinated.

*Study 5 (NCT02573181) was a randomized (3:1), double-blind, descriptive study. Safety was monitored using a Vaccination Report Card (VRC) for up to 14 days postvaccination. The table represents the final assessment by the study investigators upon review of the VRC 15 days postvaccination, to ensure consistency with protocol definitions.
†Solicited on Day 1 through Day 5 postvaccination.
‡Any use of narcotic pain reliever or prevents daily activity.
§Solicited on Day 1 through Day 14 postvaccination.
¶Percentages are based on the number of participants with temperature data.
N=Number of participants vaccinated.
Brief Summary of the Prescribing Information for VAXNEUVANCE® (Pneumococcal 15-valent Conjugate Vaccine) (continued)

Unsolicited Adverse Reactions
Across all studies, injection-site pruritus was reported to occur in up to 2.8% of adults vaccinated with VAXNEUVANCE.

Serious Adverse Events
Across all studies, among participants 18 years of age and older who received VAXNEUVANCE (excluding those who received QIV concomitantly; N=5,030) or Prevnar 13 (N=1,808), serious adverse events within 30 days postvaccination were reported by 0.4% of VAXNEUVANCE recipients and by 0.7% of Prevnar 13 recipients. In a subset of these studies, among those who received VAXNEUVANCE (N=4,751) and Prevnar 13 (N=1,532), serious adverse events within 6 months postvaccination were reported by 2.5% of VAXNEUVANCE recipients and by 2.4% of Prevnar 13 recipients.

There were no notable patterns or numerical imbalances between vaccination groups for specific categories of serious adverse events that would suggest a causal relationship to VAXNEUVANCE.

Safety with Concomitant Influenza Vaccine Administration
The safety profile was similar when VAXNEUVANCE was administered with or without inactivated influenza vaccine.

USE IN SPECIFIC POPULATIONS

Pregnancy
Risk Summary
All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2 to 4% and 15 to 20%, respectively.

There are no adequate and well-controlled studies of VAXNEUVANCE in pregnant women. Available data on VAXNEUVANCE administered to pregnant women are insufficient to inform vaccine-associated risks in pregnancy.

Developmental toxicity studies have been performed in female rats administered a human dose of VAXNEUVANCE on four occasions; twice prior to mating, once during gestation and once during lactation. These studies revealed no evidence of harm to the fetus due to VAXNEUVANCE (see Animal Data below).

Data
Animal Data
Developmental toxicity studies have been performed in female rats. In these studies, female rats received a human dose of VAXNEUVANCE by intramuscular injection on day 28 and day 7 prior to mating, and on gestation day 6 and on lactation day 7. No vaxneuvance-related fetal malformations or variations were observed. No adverse effect on pup weight up to post-natal day 21 was noted.

Lactation
Risk Summary
Human data are not available to assess the impact of VAXNEUVANCE on milk production, its presence in breast milk, or its effects on the breastfed child. The developmental and health benefits of breastfeeding should be considered along with the mother’s clinical need for VAXNEUVANCE and any potential adverse effects on the breastfed child from VAXNEUVANCE or from the underlying maternal condition. For preventive vaccines, the underlying condition is susceptibility to disease prevented by the vaccine.

Pediatric Use
The safety and effectiveness of VAXNEUVANCE have been established in individuals 6 weeks through 17 years of age. The safety and effectiveness of VAXNEUVANCE in individuals younger than 6 weeks of age have not been established.

Geriatric Use
Of the 4,389 individuals aged 50 years and older who received vaxneuvance, 2,478 (56.5%) were 65 years and older, and 479 (10.9%) were 75 years and older. Overall, there were no clinically meaningful differences in the safety profile or immune responses observed in older individuals (65 to 74 years and 75 years of age and older) when compared to younger individuals.

Unsolicited Adverse Reactions

Children with a history of serious adverse events associated with a previous pneumococcal vaccine are at increased risk for serious adverse events associated with VAXNEUVANCE. The safety of the vaccine should be established in children with a history of serious adverse events associated with previous pneumococcal vaccine before administering VAXNEUVANCE.

Children with Immunodeficiency
Children with severe combined immunodeficiency or other forms of severe human immunodeficiency or other primary immunodeficiency associated with an increased risk of serious infection are at increased risk for serious adverse events associated with VAXNEUVANCE. The safety of VAXNEUVANCE should be established in children with severe combined immunodeficiency or other forms of severe human immunodeficiency or other primary immunodeficiency associated with an increased risk of serious infection before administering VAXNEUVANCE.

Children with HIV Infection
In a double-blind, descriptive study (Study 13, NCT03731182), the safety and immunogenicity of VAXNEUVANCE were evaluated in children 5 through 17 years of age with HIV infection (N=70) or Prevnar 13 (N=34). Immune responses were assessed by serotype-specific IgG GMCs and OPA GMTs at 30 days postvaccination for all 15 serotypes contained in VAXNEUVANCE. For all vaccine serotypes included in VAXNEUVANCE, serotype-specific IgG GMCs and OPA GMTs were higher following vaccination compared to pre-vaccination. IgG GMCs and OPA GMTs were numerically similar between the two vaccination groups for the 13 shared serotypes and higher in VAXNEUVANCE for the 2 unique serotypes (13F). The safety profile of VAXNEUVANCE was similar to the safety profile of Prevnar 13. The effectiveness of VAXNEUVANCE in children with HIV infection has not been established.

Children with Sickle Cell Disease

For more detailed information, please read the Prescribing Information.

For additional information, please visit the VAXNEUVANCE product website at www.vaxneuvance.com.

The trademarks depicted herein are owned by their respective companies.

Copyright © 2022 Merck & Co., Inc., Rahway, N.J., USA and its affiliates. All rights reserved.

US-PVC-07410 10/22
In a randomized, double-blind, placebo-controlled crossover clinical trial, subjects were enrolled in four different cohorts defined by age (50-64 years of age and <65 years of age) and vaccination status (no pneumococcal vaccination or receipt of a pneumococcal polysaccharide vaccine 3-5 years prior to the study). Subjects in each cohort were randomized to receive intramuscular injections of PNEUMOVAX 23 followed by placebo (saline containing 0.25% phenol), or placebo followed by PNEUMOVAX 23, at 30-day (±7 days) intervals. The safety of an initial vaccination (first dose) was compared to revaccination (second dose) with PNEUMOVAX 23 for 14 days following each vaccination. All 1008 subjects (average age 67 years; 49% male and 51% female, 91% Caucasian, 4.7% African-American, 3.5% Hispanic, and 0.8% Other) received placebo injections. Initial vaccination was evaluated in a total of 444 subjects (average age 66 years; 32% male and 68% female; 93% Caucasian, 3.2% African-American, 3.4% Hispanic, and 1.1% Other). Revaccination was evaluated in 584 subjects (average age 69 years; 53% male and 47% female; 90% Caucasian, 3.5% Hispanic, 6.0% African-American, and 0.5% Other).

Revaccination was routine; no routine revaccination was done. The most common adverse reactions reported in >10% of subjects vaccinated with PNEUMOVAX 23 for the first time in a clinical trial, were: injection-site pain/tenderness (60.0%), injection-site swelling/induration (20.3%), headache (17.6%), injection-site erythema (14.4%), and myalgia (11.9%). Clinical Trials Experience: Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a vaccine cannot be directly compared to rates in the clinical trials of another vaccine and may not reflect the rates observed in practice.

Primary Vaccination and Revaccination with PNEUMOVAX 23 in Adults 50 Years of Age or Older

In a randomized, double-blind, placebo-controlled crossover clinical trial, subjects were enrolled in four different cohorts defined by age (50-64 years of age and <65 years of age) and vaccination status (no pneumococcal vaccination or receipt of a pneumococcal polysaccharide vaccine 3-5 years prior to the study). Subjects in each cohort were randomized to receive intramuscular injections of PNEUMOVAX 23 followed by placebo (saline containing 0.25% phenol), or placebo followed by PNEUMOVAX 23, at 30-day (±7 days) intervals. The safety of an initial vaccination (first dose) was compared to revaccination (second dose) with PNEUMOVAX 23 for 14 days following each vaccination. All 1008 subjects (average age 67 years; 49% male and 51% female, 91% Caucasian, 4.7% African-American, 3.5% Hispanic, and 0.8% Other) received placebo injections. Initial vaccination was evaluated in a total of 444 subjects (average age 66 years; 32% male and 68% female; 93% Caucasian, 3.2% African-American, 3.4% Hispanic, and 1.1% Other). Revaccination was evaluated in 584 subjects (average age 69 years; 53% male and 47% female; 90% Caucasian, 3.5% Hispanic, 6.0% African-American, and 0.5% Other).

Revaccination was routine; no routine revaccination was done. The most common adverse reactions reported in >10% of subjects vaccinated with PNEUMOVAX 23 for the first time in a clinical trial, were: injection-site pain/tenderness (60.0%), injection-site swelling/induration (20.3%), headache (17.6%), injection-site erythema (14.4%), and myalgia (11.9%). Clinical Trials Experience: Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a vaccine cannot be directly compared to rates in the clinical trials of another vaccine and may not reflect the rates observed in practice.
PNEUMOVAX®23 (Pneumococcal Vaccine Polyvalent)
Sequential Administration of Prevnar 13 and PNEUMOVAX 23 (continued)
Solicited Adverse Reactions
Solicited injection site adverse reactions that occurred during Days 1 through 5 postvaccination with PNEUMOVAX 23, solicited systemic adverse reactions that occurred during Days 1 through 14, and febrer that occurred during Days 1 through 5 postvaccination with PNEUMOVAX 23 are presented in Table 2. In this study, 81.4% of subjects in Group 1 and 64.0% of subjects in Group 2 reported at least 1 injection site adverse reaction from Days 1 through 5 postvaccination with PNEUMOVAX 23, and 64.9% of subjects in Group 1 and 54.9% of subjects in Group 2 reported at least 1 systemic adverse reaction from Days 1 through 14 postvaccination with PNEUMOVAX 23.

Table 2: Rates (%) of Solicited Injection Site Reactions Occurring on Days 1 to 5 After PNEUMOVAX 23 and Solicited Systemic Adverse Reactions Occurring on Days 1 to 14 After PNEUMOVAX 23

<table>
<thead>
<tr>
<th>Injection Site Adverse Reactions</th>
<th>Group 1* (Prevnar 13 - PNEUMOVAX 23)</th>
<th>Group 2† (Prevnar 13 - Placebo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects in population with follow-up</td>
<td>188</td>
<td>164</td>
</tr>
<tr>
<td>Any injection site reaction</td>
<td>133 (81.4)</td>
<td>105 (64.0)</td>
</tr>
<tr>
<td>Any injection site paina</td>
<td>149 (79.3)</td>
<td>105 (64.0)</td>
</tr>
<tr>
<td>Mild</td>
<td>72 (38.3)</td>
<td>65 (39.6)</td>
</tr>
<tr>
<td>Moderate</td>
<td>65 (34.6)</td>
<td>36 (22.0)</td>
</tr>
<tr>
<td>Severesa</td>
<td>12 (6.4)</td>
<td>4 (2.4)</td>
</tr>
<tr>
<td>Any injection site swelling</td>
<td>95 (50.5)</td>
<td>48 (29.3)</td>
</tr>
<tr>
<td>&gt;1 to &lt;2.5 cm</td>
<td>28 (14.9)</td>
<td>19 (11.6)</td>
</tr>
<tr>
<td>≥2.5 to &lt;5.1 cm</td>
<td>20 (10.6)</td>
<td>9 (5.5)</td>
</tr>
<tr>
<td>≥5.1 to &lt;7.6 cm</td>
<td>20 (10.6)</td>
<td>10 (6.1)</td>
</tr>
<tr>
<td>≥7.6 to &lt;10.2 cm</td>
<td>15 (8.0)</td>
<td>2 (1.2)</td>
</tr>
<tr>
<td>≥10.2 cm³</td>
<td>12 (6.4)</td>
<td>8 (4.9)</td>
</tr>
<tr>
<td>Any injection site erythema</td>
<td>78 (41.5)</td>
<td>48 (29.3)</td>
</tr>
<tr>
<td>0 to &lt;2.5 cm</td>
<td>26 (13.8)</td>
<td>20 (12.2)</td>
</tr>
<tr>
<td>≥2.5 to &lt;5.1 cm</td>
<td>12 (6.4)</td>
<td>13 (7.9)</td>
</tr>
<tr>
<td>≥5.1 to &lt;7.6 cm</td>
<td>12 (6.4)</td>
<td>6 (3.7)</td>
</tr>
<tr>
<td>≥7.6 to &lt;10.2 cm</td>
<td>7 (3.7)</td>
<td>1 (1.8)</td>
</tr>
<tr>
<td>≥10.2 cm</td>
<td>19 (10.1)</td>
<td>6 (3.7)</td>
</tr>
<tr>
<td>Unknown (missing data)</td>
<td>2 (1.1)</td>
<td>0 (0.0)</td>
</tr>
</tbody>
</table>

Systemic Adverse Reactions

<table>
<thead>
<tr>
<th>Subjects in population with follow-up</th>
<th>188</th>
<th>164</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any systemic adverse reaction</td>
<td>122 (64.9)</td>
<td>90 (54.9)</td>
</tr>
<tr>
<td>Myalgia</td>
<td>93 (49.5)</td>
<td>70 (42.7)</td>
</tr>
<tr>
<td>Fatigue</td>
<td>59 (31.4)</td>
<td>45 (27.4)</td>
</tr>
<tr>
<td>Headache</td>
<td>46 (24.5)</td>
<td>30 (18.3)</td>
</tr>
<tr>
<td>Arthralgia</td>
<td>37 (19.7)</td>
<td>25 (15.2)</td>
</tr>
<tr>
<td>Subjects with temperature dataa</td>
<td>185</td>
<td>161</td>
</tr>
<tr>
<td>Temperature ≥ 100.4°F</td>
<td>1 (0.5)</td>
<td>0 (0.0)</td>
</tr>
</tbody>
</table>

Every subject is counted a single time for each applicable row and column. A specific adverse reaction appears in this table only if it occurred in one or more of the columns meets the incidence criterion in the table, after rounding.

* Group 1: 8-week interval between Prevnar 13 and PNEUMOVAX 23.  
† Group 2: 26-week interval between Prevnar 13 and PNEUMOVAX 23.  
a Pain was characterized as mild, moderate or severe. (Risk awareness of sign or symptom, but easily tolerated. Moderate: discomfort enough to cause interference with usual activity. Severe: incapacitating with inability to work or do usual activity.)  
ba One Group 1 subject with severe pain and swelling greater than 10.2 cm after receipt of PNEUMOVAX 23, went to the Emergency Room for medical attention.

Post-Marketing Experience: The following list of adverse reactions includes those identified during post approval use of PNEUMOVAX 23. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or their causal relationship to product exposure.

General disorders and administration site conditions
- Cellulitis
- Malaise
- Fever (>102°F)
- Warmth at the injection site
- Decreased limb mobility
- Peripheral edema in the injected extremity
- Injection-site necrosis

Dyspeptic System
- Nausea
- Vomiting
- Hematologic/Lymphatic
- Lymphadenitis
- Lymphadenopathy
- Thrombocytopenia in patients with stabilized idiopathic thrombocytopenic purpura
- Hemolytic anemia in patients who have had other hematologic disorders
- Leukocytosis

Hypersensitivity reactions including
- Anaphylactoid reactions
- Serum Sickness
- Anaphylactoid edema
- Musculoskeletal System
- Arthralgia
- Arthritis
- Nervous System
- Paresthesia
- Raynaud’s phenomenon
- Guillain-Barré syndrome
- Febrile convulsion
- Skin
- Rash
- Urticaria
- Cellulitis-like reactions
- Erythema multiforme
- Increased serum C-reactive protein

PNEUMOVAX®23 (Pneumococcal Vaccine Polyvalent)

DRTP0922_000_Merck Vaxneuvance.indd   12
8/16/22   8:25 AM
EDITORIAL MISSION: Drug Topics® is the top-ranked pharmacy resource for community and health-system professionals. Since 1857, readers have turned to Drug Topics® for coverage of issues and trends important to the practice of pharmacy, and for a forum in which they can share viewpoints and practical ideas for better pharmacy management and patient care.
Looking to the Future of Independent Pharmacy

Don Arthur, RPh, owner of Black Rock Pharmacy in Buffalo and Brighton Eggert Pharmacy in Tonawanda, New York, discusses what clinical care may look like in the future and the biggest challenges ahead for independent pharmacies.

“Looking to the Future of Independent Pharmacy

Don Arthur, RPh, owner of Black Rock Pharmacy in Buffalo and Brighton Eggert Pharmacy in Tonawanda, New York, discusses what clinical care may look like in the future and the biggest challenges ahead for independent pharmacies.

“It feels amazing. So much energy, so much excitement. What I think about most, I think I feel humble. I feel honored. And I feel inspired because of the customers we have here.”

—BRIAN NIGHTENGALE

President, Community and Specialty Pharmacy and Long-term Care, AmerisourceBergen, on his excitement at being back in-person at ThoughtSpot.

+ READ MORE: https://bit.ly/3wcsf4m
FLEQSUVY is indicated for the treatment of spasticity resulting from multiple sclerosis, particularly for the relief of flexor spasms and concomitant pain, clonus, and muscular rigidity. FLEQSUVY may also be of some value in patients with spinal cord injuries and other spinal cord diseases.

Limitations of Use: FLEQSUVY is not indicated in the treatment of skeletal muscle spasm resulting from rheumatic disorders. FLEQSUVY is a concentrated formulation. Verify the strength and the dose of the product prior to prescribing, dispensing, and administering.

Important Safety Information

CONTRAINDICATIONS:
FLEQSUVY is contraindicated in patients with hypersensitivity to baclofen.

WARNINGS AND PRECAUTIONS:
Adverse Reactions from Abrupt Withdrawal of FLEQSUVY: Abrupt discontinuation of baclofen, regardless of the cause, has resulted in adverse reactions that include hallucinations, seizures, high fever, altered mental status, exaggerated rebound spasticity, and muscle rigidity, that in rare cases has advanced to rhombodysrythmia, multiple organ-system failure, and death. Therefore, reduce the dosage slowly when FLEQSUVY is discontinued, unless the clinical situation justifies a rapid withdrawal.

Neonatal Withdrawal Symptoms: Withdrawal symptoms in neonates whose mothers were treated with oral baclofen throughout pregnancy have been reported starting hours to days after delivery. The symptoms of withdrawal in these infants have included increased muscle tone, tremor, jitteriness, and seizure. If the potential benefit justifies the potential risk to the fetus and FLEQSUVY is continued during pregnancy, gradually reduce the dosage and discontinue FLEQSUVY before delivery. If slow withdrawal is not feasible, advise the patients or caregivers of the exposed neonate of the potential for neonatal withdrawal.

Drowsiness and Sedation: Drowsiness and sedation have been reported in up to 63% of patients taking baclofen, the active ingredient in FLEQSUVY. Patients should avoid operation of automobiles or other dangerous machinery and activities made hazardous by decreased alertness when starting FLEQSUVY or increasing the dose until they know how the drug affects them. Advise patients that the central nervous system depressant effects of FLEQSUVY may be additive to those of alcohol and other CNS depressants.

Poor Tolerability in Stroke Patients: FLEQSUVY should be used with caution in patients who have had a stroke. Baclofen has not significantly benefited patients with stroke. These patients have also shown poor tolerability to the drug.

Exacerbation of Psychotic Disorders, Schizophrenia, or Confusional States: FLEQSUVY should be used with caution in patients suffering from psychotic disorders, schizophrenia, or confusional states. If treated with FLEQSUVY, these patients should be kept under careful surveillance because exacerbations of these conditions have been observed with oral baclofen administration.

Exacerbation of Autonomic Dysreflexia: FLEQSUVY should be used with caution in patients with a history of autonomic dysreflexia. The presence of noxious stimuli or abrupt withdrawal of FLEQSUVY may cause an autonomic dysreflexic episode.

Exacerbation of Epilepsy: FLEQSUVY should be used with caution in patients with epilepsy. Deterioration in seizure control has been reported in patients taking baclofen.

Posture and Balance Effects: FLEQSUVY should be used with caution in patients where spasticity is utilized to sustain upright posture and balance in locomotion or whenever spasticity is utilized to obtain increased function.

Ovarian Cysts: A dose-related increase in incidence of ovarian cysts was observed in female rats treated chronically with oral baclofen. Ovarian cysts have been found by palpation in about 4% of the multiple sclerosis patients who were treated with oral baclofen for up to one year. In most cases, these cysts disappeared spontaneously while patients continued to receive the drug. Ovarian cysts are estimated to occur spontaneously in approximately 1% to 5% of the normal female population.

ADVERSE REACTIONS:
The most common (up to 15% or more) adverse reactions in patients were drowsiness, dizziness, and weakness.

DRUG INTERACTIONS:
CNS Depressants and Alcohol: FLEQSUVY can cause CNS depression, including drowsiness and sedation, which may be additive when used concomitantly with other CNS depressants or alcohol.

USE IN SPECIAL POPULATIONS:
Pregnancy: Based on animal data, may cause fetal harm.

Because baclofen is excreted unchanged through the kidneys it may be necessary to reduce the dosage in patients with impaired renal function.

The Important Safety Information does not include all the information needed to use FLEQSUVY safely and effectively. For additional safety information, please see accompanying full Prescribing Information for FLEQSUVY.

To report SUSPECTED ADVERSE REACTIONS, contact Azurity Pharmaceuticals, Inc. at 1-800-461-7449, or FDA at 1-800-FDA-1088 or www.fda.gov/MedWatch.

PP-FLE-US-0004
Common comorbidities in patients with type 2 diabetes include hypertension, lipid disorders, heart disease, and obesity. As accessible health care professionals, pharmacists are uniquely positioned to counsel and encourage patients with diabetes to manage comorbidities.

Drug Topics® spoke with Angelina Tucker, PharmD, BCGP, CDCES, the managing network facilitator of Community Pharmacy Enhanced Services Network (CPESN) Texas. She is also the clinical pharmacist for Best Value Pharmacies, an independent chain of 13 pharmacies in Texas. Tucker manages the chain’s medication therapy management services and diabetes self-management education classes. She is also a Flip the Pharmacy practice transformation coach.

Tucker noted a shift in the American Diabetes Association guidelines to focus on prescribing medications for diabetes comorbidities rather than just lowering hemoglobin A1c. “Although this has not fully transitioned into clinical practice, it is important for pharmacists to consider comorbidities that the patient is facing—for example, considering a drug with a low risk of hypoglycemia in older adults or considering a sulfonylurea when cost is an issue,” she explained.

The following tips can be implemented by chain and independent pharmacists, and Tucker encouraged all pharmacies to bill for their services. One way to start providing these services is to inquire with the state or local universities about grants to get pharmacies accredited to provide diabetes education.

Tucker offers 10 hours of education—one hour per week for 10 weeks and periodically thereafter—focusing on a different topic each week, such as being more active, healthy coping mechanisms, and taking medications as directed. Her classes are interactive and encourage patients to share stories and tips. Each week, patients are encouraged to devise SMART goals—goals that are specific, measurable, attainable, relevant, and time-based—for the following week.

See the sidebar on the next page for Tucker’s top tips for pharmacists to help patients with diabetes manage comorbid conditions.

Although it can be difficult to provide all these supports in a hectic pharmacy environment, “at the end of the day, your patients come first and so does protecting your license,” Tucker said. Tucker recommended using CPESN’s med sync appointment-based model to achieve med sync with more than 80% of patients, adding that this allows pharmacists to be proactive rather than reactive.

For references, visit drugtopics.com.

Counseling Pearls
Managing Diabetes Comorbidities

Angelina Tucker, PharmD, BCGP, CDCES shared the following:

Sulfonylureas: These drugs (glimepiride, glipizide, glyburide) are more likely to cause hypoglycemia in older adults, possibly leading to a higher risk of falls, fractures, and other complications. Talk to patients about their frequency of low blood sugar, and consider contacting the physician for an alternative medication.

Metformin: The new American Diabetes Association guidelines recommend periodic monitoring of vitamin B12 for patients on long-term metformin. Patients who experience fatigue, drowsiness, and/or weakness should consult their health care provider because these may be signs of B12 deficiency. Tucker also counsels patients about nausea, vomiting, diarrhea, and general stomach upset from metformin and reminds patients to take metformin with food.

SGLT2 inhibitors: Canagliflozin (Invokana) and empagliflozin (Jardiance) are 2 examples of SGLT2 inhibitors, which can cause urinary tract infections. Counsel patients to drink plenty of fluids and be alert to symptoms of a urinary tract infection. Patients should contact their physician if they have symptoms of burning, frequency, and urgency.
Teach patients how to check and monitor their blood pressure.

Assist patients in creating and filling out a log. Encourage patients to bring back the log periodically; if the patient is not at goal, reach out to their physician with suggestions.

Talk about adverse effects. If a patient is experiencing an adverse effect from a hypertension medication, try to determine if it is from a new medication or a dosage increase. Explain to patients that each drug works differently and that it may take some trial and error to find the right medicine. “Most patients respond well to this reassurance,” Tucker noted. “Talking about [adverse] effects is a big part of managing comorbidities.”

Explain that diabetes is progressive and that this medication will help reduce complications because patients who have never used an injectable medication may be apprehensive about injecting themselves.

Encourage patients to consult with their primary health care provider about different options. Although insurance will factor into the decision, some may prefer a once-weekly injection, if available, rather than a daily injection.

Practice with patients when they are first starting out using injectable medications. Incorporate a family member for support and learning. Explain the importance of rotating injection sites, never reusing or sharing needles, and how to dispose of needles.

Hypertension

- Teach patients how to check and monitor their blood pressure.
- Assist patients in creating and filling out a log. Encourage patients to bring back the log periodically; if the patient is not at goal, reach out to their physician with suggestions.
- Talk about adverse effects. If a patient is experiencing an adverse effect from a hypertension medication, try to determine if it is from a new medication or a dosage increase. Explain to patients that each drug works differently and that it may take some trial and error to find the right medicine. “Most patients respond well to this reassurance,” Tucker noted. “Talking about [adverse] effects is a big part of managing comorbidities.”

Lipid Disorders

- Talk to patients about healthy eating. Explain the different types of fats. For example, butter, cheese, and red meat contain saturated (“unhealthy”) fats. On the other hand, eating foods high in unsaturated fats, such as avocados, nuts, and fatty fish, may help lower cholesterol and decrease the risk of heart attacks and strokes.
- Be sure patients with diabetes are on a moderate- or high-intensity statin, depending on risk factors. If the patient is already on a statin, ensure that it is the optimal dose and that the dose is optimized before adding other drugs to the regimen. If a patient is not on a statin, explain why statins are important for lowering the risk of heart disease. Some patients may be concerned about adverse effects, Tucker said, but pharmacists can always “remind patients there are many different statins available and they can switch to a different one if necessary.”
- Encourage patients to follow up with laboratory work and keep all laboratory appointments.

Heart Disease and Obesity

- Customize diets to the individual. “There is not one eating pattern; it depends on cultural and personal preferences,” Tucker emphasized. When helping patients with diet, it is not a one-size-fits-all approach. Diet is customized to the individual.
- Encourage patients to make lifestyle and behavioral changes by being active, eating healthy, and stopping smoking. Tucker recommended that patients learn how to classify foods and follow the MyPlate method, filling half their plate with fruit and vegetables.
- Encourage a healthy eating pattern that is “realistic and sustainable,” Tucker said, and not based on afad diet that is not sustainable.
- Encourage patients to know essential numbers such as weight, blood pressure, cholesterol, and waist circumference.

Health Tips

- Focus on immunizations, and schedule appointments for missing immunizations.
- Pharmacists should familiarize themselves with the new guidelines for pneumonia vaccination.
- Focus on COVID-19 vaccine and boosters, yearly flu vaccine, pneumonia vaccine, hepatitis B vaccine, shingles vaccine, and Tdap vaccine (tetanus, diphtheria, and pertussis; especially important in those with grandchildren).
- Remind patients to make regular appointments with the podiatrist, ophthalmologist, and dentist.

Injectable Medications

- Explain that diabetes is progressive and that this medication will help reduce complications because patients who have never used an injectable medication may be apprehensive about injecting themselves.
- Encourage patients to consult with their primary health care provider about different options. Although insurance will factor into the decision, some may prefer a once-weekly injection, if available, rather than a daily injection.
- Practice with patients when they are first starting out using injectable medications. Incorporate a family member for support and learning. Explain the importance of rotating injection sites, never reusing or sharing needles, and how to dispose of needles.

Continuous Glucose Monitors (CGMs)

- Suggest a CGM. “People who don’t like finger sticks can have great success with a CGM,” Tucker explained. Frequently, patients can do a free trial of each CGM and ask for a coupon. “Anyone who is doing multiple daily injections should get a CGM,” Tucker said. “It provides great insight into what is happening between finger sticks.”
- Talk to patients about hypoglycemia. According to Tucker, patients older than 65 years are prone to low blood sugar, especially if they take a sulfonylurea. Because glyburide and glimepiride are longer acting, Tucker recommended asking the physician about switching to immediate-release glipizide, which is shorter acting and less likely to cause hypoglycemia.
- Collaborate with a physician on a glucagon protocol, which allows the pharmacist to prescribe glucagon to patients who may need it (all patients with type 1 diabetes and certain patients with type 2 diabetes).

Preventive Health

- Focus on COVID-19 vaccine and boosters, yearly flu vaccine, pneumonia vaccine, hepatitis B vaccine, shingles vaccine, and Tdap vaccine (tetanus, diphtheria, and pertussis; especially important in those with grandchildren).
- Remind patients to make regular appointments with the podiatrist, ophthalmologist, and dentist.

Medication Adherence

- Ask the patient how they remember to take their medications. Find out what techniques they are using and what techniques they prefer. Check their profile to see whether they are refillling prescriptions on time. If they’re not, “probe a little more to see what they’re using, who is filling the pill box, [and] who is picking up the prescriptions, especially when there are more than 5 medications,” Tucker said.
- Encourage patients to use compliance packaging when available.
- Enroll patients in a medication synchronization (med sync) program. “Getting all medications simultaneously makes the process more streamlined and is an integral part of patient care and pharmacy efficiency,” Tucker explained.
- If the pharmacy software program has a feature that contacts the physician on the last refill, use this feature to avoid interruptions in therapy.
Emerging Trends Take Pharmacy By Storm

Technological advances have forced rapid changes across the industry. Like other industries, health care has embraced technology and the resulting trends that have emerged. Many of these trends combine elements of our digital and physical worlds, creating highly personalized, relevant experiences for consumers. Interplay between the digital and physical worlds matters in health care, given the importance of effective coordination for a seamless patient experience.

These changes represent a fourth industrial revolution, a phrase coined by economist Klaus Schwab, a professor and founder of the World Economic Forum. This industrial revolution is digital, characterized “by a fusion of technologies that [are] blurring the lines between the physical, digital, and biological spheres.”

“Technology is forcing rapid change,” said Debbie Weitzman, president of pharmacy distribution and The Medicine Shoppe International Inc. at Cardinal Health, based in Dublin, Ohio. “Consumerism and personalization are manifesting themselves in pharmacies, and digital technology is going to be critical for an independent pharmacy’s success.”

Embrace the Metaverse

For example, a turn toward embracing the metaverse has enabled pharmacists to bring care to their patients, wherever those patients are. In its current state, virtual reality (VR)—for which technological capabilities already exist—may be too expensive for practical application in pharmacy. However, as VR gains popularity in other specialties, decreased costs are anticipated.

Opportunities for omnichannel engagement are here to stay. Research shows 75% of patients are engaging in omnichannel activity; it’s up to pharmacists and pharmacy owners to remember that the purpose of omnichannel engagement is to offer options that are convenient in the moment. Orchestrating these options, experiences, and touchpoints can help patients access better, quicker, and more convenient care.

“Patients are applying the same high expectations that exist in other industries to their health care needs,” said Weitzman. “There isn’t much [that] consumers can’t do online if they choose to, and they’re looking for the same level of choice from their pharmacies.”

Cardinal Health is prepared to help their customers meet patients’ expectations and needs. Online ordering through Pharmacy Marketing Advantage PLUS, Cardinal Health’s new enhanced solution offering, empowers patients to easily order both prescriptions and OTC products from the comfort of their own homes. Pharmacies can enhance online shopping capabilities by offering thousands of OTC products that patients can order from a smartphone, tablet, or computer.

Older patients are also embracing this wave of technological innovation in health care spaces. A recent Nielsen study found that 34% of seniors use social media to make purchases and more than 50% of baby boomers are planning to use telehealth services in the future.

Support Aging in Place

One trend amplified by the COVID-19 pandemic is the increase in seniors and older patients choosing to age in place in their homes. This choice has created a new avenue for retail independent pharmacies to own the patient relationship with standout service. Because pharmacists see these patients more than any other provider on their care team, opportunities to provide support to caregivers and patients are many.

Take, for example, Cardinal Health™ NavixRx™ Compliance Packaging. This solution seamlessly integrates with the Pharmacy Management System and puts a dedicated pharmacist team in charge of fulfilling and packaging prescriptions, performing verification checks, and confirming package contents. For older patients who may be taking multiple medications, removing this burden gives pharmacists back the time they need to provide more focused patient care.

Better Business for Better Care

New technologies may help pharmacy owners operate their businesses in more efficient and profitable ways. Cardinal Health recently integrated its Reimbursement Consulting Services solution into its Outcomes platform, creating a comprehensive, unified clinical workflow for pharmacists across the country. The Outcomes platform gives pharmacists opportunities to engage in medication therapy management, comprehensive medication reviews, and targeted intervention programs, all while providing care that supports patients’ desired health outcomes.

“The future is here, and we are only just beginning to see all the possibilities ahead for independent pharmacy,” Weitzman added. “Right now, consumer expectations are for more advanced technology, patient care services, and improved efficiency in the pharmacy.”

For references, visit drugtopics.com.
Could you explain in some detail what caused the delay in allowing children 4 years and younger to be eligible for the COVID-19 vaccine?

William J. Muller, MD, PhD: The Pfizer-BioNTech delay has been related to the second of the 2-dose series not inducing the same level of antibody response in younger children, those between the ages of 2 and 5 years. A lot of the pediatric studies have not been designed to show efficacy against preventing either symptomatic disease or hospitalization in this age group. Everybody is aware by now that children are not as severely affected as adults are by COVID-19. So it was reasonable for all the vaccine studies that I’m aware of in children to be designed to use surrogate end points—basically, how good are the immune responses produced?—and antibody levels are a reasonable surrogate for that. That’s the way that the companies have gone into studying these vaccines in children.

I think Pfizer-BioNTech was not expecting as low of an antibody response in that age group as they measured in later stages of the study. My understanding is they were encouraged by the FDA to ask for an authorization anyway, due to the Omicron surge. There was an expectation that maybe they could show some protection against either infection or some level of severity of disease, but that didn’t really hold up. And it may be that because they had a data cutoff, it was too soon in the Omicron surge for there to be an effect. Or it just may be that it’s very difficult to show protection from infection with any respiratory virus vaccine. This is true for influenza as well. As you know, the goal of most vaccinations is to keep you from getting so sick that you are hospitalized or worse, and because that’s an uncommon end point with children, you would need a huge study to show that there is that benefit.

So, in this case, the Pfizer-BioNTech response—which is appropriate—is that if the level of antibodies is too low, we may need a third dose in the age group of 2 to 5 years. That’s what they’re studying now, and it takes time to do that. They needed to bring all the participants back in for an additional dose, and they needed to get additional consent from the parents because that was not part of the initial study design. There are also concerns in adolescent and young adult males, in particular about possible cardiac effects of the mRNA vaccines, so that will be on their radar throughout the study. That added to the complexity and the amount of time it will take to get through all the data.

That’s for the Pfizer-BioNTech vaccine. We are safe with the Moderna vaccine, which is currently studying 2 doses for children aged 6 months to 12 years. The expectation is that 2 doses will be sufficient to induce an immune response.

As far as COVID-19 variants, going forward, where are we in trying to be proactive?

WJM: The mRNA vaccine platforms are easily adapted to generating new variant vaccines. The technology that goes into putting a piece of mRNA into the lipid nanoparticle that is delivered as part of the vaccine doesn’t change when part of the vaccine doesn’t change when there’s a new variant; only the material that’s put into the vaccine would change. So from that standpoint, it’s not that difficult for a company to make a new vaccine for a variant.

Do the vaccines need to show the same level of efficacy? Probably not; I think they really need to show safety and some level of an immune response. All that said, it seems the existing vaccines now have a 3-dose series in adults; we don’t know necessarily yet for children if 2 or 3 doses will be necessary for all the mRNA vaccines, but there are reasonably good data that the immune responses induced may still provide a level of protection that is reasonable. Whenever there is a new variant, there are basic science laboratories in various parts of the world that are poised to immediately do studies with model systems in which they can put the variants into a virus that is not pathogenic and ask the question “Do the antibodies from some of the recipients of the vaccine provide some level of protection in a laboratory study?”

With the Omicron surge being so big, we were able to get a pretty good idea of whether people who had received the vaccine were...
THE FIRST-AND-ONLY CELL-BASED FLU VACCINE IN THE US APPROVED FOR PATIENTS 6+ MONTHS

Designed to produce an exact match to the WHO-selected strains. • Cell-based flu vaccines avoid egg adaptation that occurs during egg-based vaccine production • Available through Vaccines for Children (VFC) • Reimbursed through Medicare Part B and most major health plans

WHO=World Health Organization
*Confirm availability with your state’s VFC program
*This information does not constitute a guarantee or warranty of coverage benefits or reimbursement.

For more information, please see Important Safety Information below and the Brief Summary on adjacent page.
ADVERSE REACTIONS

In children 6 months through 3 years of age who received FLUCELVAX QUADRIVALENT, the most commonly reported injection-site adverse reactions were tenderness (27.9%), erythema (25.8%), induration (17.3%) and ecchymosis (10.7%). The most common systemic adverse reactions were irritability (27.3%), sleepiness (26.9%), diarrhea (17.9%) and change of eating habits (17.4%). In children 2 through 8 years of age who received FLUCELVAX QUADRIVALENT, the most commonly reported injection-site adverse reactions were tenderness (28.7%), pain (27.9%) and erythema (21.3%), induration (14.9%) and ecchymosis (10.0%). The most common systemic adverse reactions were sleepiness (14.9%), headache (13.8%), fatigue (13.8%), irritability (13.8%) and loss of appetite (10.6%).

In children and adolescents 9 through 17 years of age who received FLUCELVAX QUADRIVALENT, the most commonly reported injection-site adverse reactions were injection site pain (21.7%), erythema (17.2%) and induration (10.5%). The most common systemic adverse reactions were headache (18.1%) and fatigue (17.0%). In adults 18 through 64 years of age who received FLUCELVAX QUADRIVALENT, the most commonly reported injection-site adverse reactions were pain (45.4%), erythema (13.4%) and induration (11.6%). The most common systemic adverse reactions were headache (18.7%), fatigue (17.8%) and myalgia (15.4%).

In adults ≥65 years of age who received FLUCELVAX QUADRIVALENT, the most commonly reported injection-site adverse reactions were pain (21.6%) and erythema (11.9%).

Clinical Trials Experience: Because clinical studies are conducted under widely varying conditions, adverse reaction rates observed in the clinical studies of a vaccine cannot be directly compared to rates in clinical studies of another vaccine and may not reflect rates observed in clinical practice.

Children and Adolescents 6 months through 17 years of age: The safety of FLUCELVAX QUADRIVALENT was evaluated in children and adolescents in two clinical studies: Study 1 and 2. Study 1 was a randomized, observer-blind, multicenter study in children 6 months through 3 years of age. The safety population included a total of 2402 children 6 months through 3 years of age who received FLUCELVAX QUADRIVALENT (N=1597) or a US-licensed quadrivalent influenza vaccine comparator, AFLURIA QUADRIVALENT (N=805). In the safety population, 694 subjects (37.2%) were 6 months through 23 months of age, and 1508 subjects (82.8%) were 24 months through 47 months of age. The solicited safety set consisted of 2348 subjects who received FLUCELVAX QUADRIVALENT (N=1564) or a US-licensed quadrivalent influenza vaccine comparator (N=784). Study subjects received one or two doses (separated by 4 weeks) of FLUCELVAX QUADRIVALENT or the comparator vaccine depending on the subject’s prior influenza vaccination history.

In this study, solicited local injection site and systemic adverse reactions were collected on a symptom diary card for 7 days following vaccination. In children 6 months through 3 years of age, the incidence of local and systemic solicited adverse reactions reported by children who received FLUCELVAX QUADRIVALENT and comparator are summarized in Table 1.

Table 1: Incidence of Solicited Adverse Reactions in the Safety Population (6 months through 3 years of age) Reported Within 7 Days of Any Dose of Vaccination (Study 1)

<table>
<thead>
<tr>
<th></th>
<th>FLUCELVAX QUADRIVALENT</th>
<th>Comparator*</th>
<th>FLUCELVAX QUADRIVALENT</th>
<th>Comparator*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Participants 6 through 23 months</td>
<td>Participants 24 through 47 months</td>
<td>Participants 6 through 23 months</td>
<td>Participants 24 through 47 months</td>
</tr>
<tr>
<td></td>
<td>Any</td>
<td>Gr 3</td>
<td>Any</td>
<td>Gr 3</td>
</tr>
<tr>
<td><strong>Local Adverse Reactions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenderness</td>
<td>25.5</td>
<td>2.1</td>
<td>23.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Erythema</td>
<td>25.3</td>
<td>0</td>
<td>18.2</td>
<td>0</td>
</tr>
<tr>
<td>Induration</td>
<td>16.5</td>
<td>0.5</td>
<td>12.0</td>
<td>0</td>
</tr>
<tr>
<td>Ecchymosis</td>
<td>11.2</td>
<td>0.2</td>
<td>7.5</td>
<td>0</td>
</tr>
<tr>
<td><strong>Systemic Adverse Reactions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irritability</td>
<td>35.1</td>
<td>5.2</td>
<td>35.6</td>
<td>2.1</td>
</tr>
<tr>
<td>Sleepiness</td>
<td>35.5</td>
<td>2.4</td>
<td>30.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>23.2</td>
<td>2.4</td>
<td>20.2</td>
<td>0.7</td>
</tr>
<tr>
<td>Change of eating habits</td>
<td>21.0</td>
<td>1.7</td>
<td>21.9</td>
<td>2.4</td>
</tr>
<tr>
<td>Fever</td>
<td>9.3</td>
<td>0.7</td>
<td>10.3</td>
<td>0</td>
</tr>
<tr>
<td>Vomiting</td>
<td>10.5</td>
<td>0.7</td>
<td>6.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Shivering</td>
<td>3.1</td>
<td>0.2</td>
<td>3.1</td>
<td>0</td>
</tr>
</tbody>
</table>

Abbreviations: Gr 3, Grade 3; N, number of participants in the Safety Population for each study vaccine group.

* Solicited Safety Population: participants who were vaccinated and provided any solicited local or systemic adverse reaction safety data on subject diary cards from day 1 through day 7 after vaccination.

** Proportion of participants reporting each solicited local adverse reaction or systemic adverse event by vaccine study group based on the number of participants contributing any follow up safety information for at least one data value of an individual sign/symptom.

Comparison: US-Licensed Quadrivalent Influenza vaccine

WHO=World Health Organization

Cell-based flu vaccines avoid egg adaptation that occurs during egg-based vaccine production 2

In this study, solicited local injection site and systemic adverse reactions were collected on a symptom diary card for 7 days following vaccination.

In children 2 through 8 and children and adolescents 9 through 17 years of age, the incidence of local and systemic solicited adverse reactions reported by children and adolescents who received FLUCELVAX QUADRIVALENT and comparator are summarized in Table 2.

### Table 2: Incidence of Solicited Adverse Reactions in the Safety Population† (2 through 8 and 9 through 17 years of age) Reported Within 7 Days of Any Dose of Vaccination (Study 2)

<table>
<thead>
<tr>
<th>Local Adverse Reactions</th>
<th>FLUCELVAX QUADRIVALENTComparator²</th>
<th>Any</th>
<th>Gr 3</th>
<th>Any</th>
<th>Gr 3</th>
<th>Any</th>
<th>Gr 3</th>
<th>Any</th>
<th>Gr 3</th>
<th>Any</th>
<th>Gr 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenderness</td>
<td>28.7</td>
<td>1.6</td>
<td>25.4</td>
<td>1.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pain</td>
<td>27.9</td>
<td>1.2</td>
<td>20.3</td>
<td>0.6</td>
<td>21.7</td>
<td>0.5</td>
<td>18.3</td>
<td>1.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Dysesthesia</td>
<td>21.3</td>
<td>0.4</td>
<td>23.7</td>
<td>1.1</td>
<td>17.0</td>
<td>1.7</td>
<td>18.7</td>
<td>0.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Induration</td>
<td>14.9</td>
<td>0.2</td>
<td>15.2</td>
<td>0.4</td>
<td>10.5</td>
<td>0.1</td>
<td>11.0</td>
<td>0.2</td>
<td>17.9</td>
<td>0.3</td>
<td>17.4</td>
</tr>
<tr>
<td>Eczema</td>
<td>10.0</td>
<td>0.0</td>
<td>7.5</td>
<td>0.1</td>
<td>5.0</td>
<td>0.0</td>
<td>5.2</td>
<td>0.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Systemic Adverse Reactions³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headache</td>
<td>13.8</td>
<td>0.9</td>
<td>11.8</td>
<td>0.5</td>
<td>18.1</td>
<td>1.4</td>
<td>17.4</td>
<td>0.6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fatigue</td>
<td>13.8</td>
<td>0.9</td>
<td>12.7</td>
<td>0.7</td>
<td>17.0</td>
<td>1.0</td>
<td>11.2</td>
<td>1.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Irritability</td>
<td>13.8</td>
<td>0.2</td>
<td>10.8</td>
<td>0.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Loss of Appetite</td>
<td>10.6</td>
<td>0.5</td>
<td>8.0</td>
<td>0.5</td>
<td>8.5</td>
<td>0.5</td>
<td>7.5</td>
<td>0.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Change of eating habits</td>
<td>9.9</td>
<td>1.0</td>
<td>10.1</td>
<td>0.7</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fever</td>
<td>7.6</td>
<td>0.5</td>
<td>6.1</td>
<td>0.2</td>
<td>2.8</td>
<td>0.1</td>
<td>3.0</td>
<td>0.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>6.5</td>
<td>0.4</td>
<td>6.8</td>
<td>0.6</td>
<td>7.4</td>
<td>0.5</td>
<td>8.1</td>
<td>0.6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Anorexia</td>
<td>5.2</td>
<td>0.4</td>
<td>6.2</td>
<td>0.3</td>
<td>7.1</td>
<td>0.4</td>
<td>8.4</td>
<td>0.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nausea</td>
<td>5.2</td>
<td>0.0</td>
<td>4.5</td>
<td>0.7</td>
<td>6.0</td>
<td>0.2</td>
<td>6.1</td>
<td>0.6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Vomiting</td>
<td>4.9</td>
<td>0.6</td>
<td>4.1</td>
<td>0.6</td>
<td>3.0</td>
<td>0.3</td>
<td>3.0</td>
<td>0.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shivering/Chills</td>
<td>4.7</td>
<td>0.7</td>
<td>3.9</td>
<td>0.4</td>
<td>7.6</td>
<td>0.4</td>
<td>7.6</td>
<td>0.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Myalgia</td>
<td>2.9</td>
<td>0.2</td>
<td>4.0</td>
<td>0.3</td>
<td>6.1</td>
<td>0.5</td>
<td>5.5</td>
<td>0.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Abbreviations: Gr 3, Grade 3.
N = number of participants in the Safety Population for each study vaccine group.
1 Solicited Safety Population: participants who were vaccinated and provided any solicited local or systemic adverse reaction safety data on subject diary cards from Day 1 through Day 7 after vaccination.
2 Proportion of participants reporting each solicited local adverse reaction or systemic adverse event by study vaccine group based on the number of participants contributing any follow up safety information for at least one data value of an individual sign/symptom
3 Non-influenza comparator: MENVEO, meningococcal (Groups A, C, Y, and W-135) oligosaccharide diphtheria CRM197 conjugate vaccine (Streptococcus pneumoniae type 3 polysaccharide CRM197 conjugate vaccine), comparator assigned to 2 doses received saline placebo as the second dose.

In this study, solicited local injection site and systemic adverse reactions were collected from adults who completed a symptom diary card for 7 days following vaccination. Solicited adverse reactions for FLUCELVAX QUADRIVALENT and comparator are summarized in Table 3.

### Table 3: Incidence of Solicited Adverse Reactions in the Adult Safety Population† Reported Within 7 Days of Vaccination (Study 3)

<table>
<thead>
<tr>
<th>Local Adverse Reactions</th>
<th>FLUCELVAX QUADRIVALENT Comparator²</th>
<th>Any</th>
<th>Gr 3</th>
<th>Any</th>
<th>Gr 3</th>
<th>Any</th>
<th>Gr 3</th>
<th>Any</th>
<th>Gr 3</th>
<th>Any</th>
<th>Gr 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>45.4</td>
<td>0.5</td>
<td>37.0</td>
<td>0.3</td>
<td>40.7</td>
<td>0.0</td>
<td>21.6</td>
<td>0.0</td>
<td>18.6</td>
<td>0.0</td>
<td>16.5</td>
</tr>
<tr>
<td>Dysesthesia</td>
<td>13.4</td>
<td>0.0</td>
<td>13.3</td>
<td>0.0</td>
<td>10.1</td>
<td>0.0</td>
<td>11.9</td>
<td>0.0</td>
<td>10.6</td>
<td>0.0</td>
<td>10.4</td>
</tr>
<tr>
<td>Induration</td>
<td>11.6</td>
<td>0.0</td>
<td>9.7</td>
<td>0.0</td>
<td>10.4</td>
<td>0.0</td>
<td>8.7</td>
<td>0.0</td>
<td>6.8</td>
<td>0.0</td>
<td>7.7</td>
</tr>
<tr>
<td>Eczema</td>
<td>3.8</td>
<td>0.0</td>
<td>3.3</td>
<td>0.0</td>
<td>5.2</td>
<td>0.0</td>
<td>4.7</td>
<td>0.0</td>
<td>4.4</td>
<td>0.0</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Abbreviations: Gr 3, Grade 3.
N = number of participants in the Safety Population for each study vaccine group.
† Safety population: all participants in the exposed population who provided post-vaccination safety data.
‡ Proportion of participants reporting each solicited local adverse reaction or systemic adverse reaction by study vaccine group based on the number of participants contributing any follow up safety information for at least one data value of an individual sign/symptom

### Systemic Adverse Reactions³

- Headache: 18.7 %
- Fatigue: 17.9 %
- Myalgia: 15.4 %
- Nausea: 9.7 %
- Loss of appetite: 8.3 %
- Arthralgia: 8.1 %
- Diarrhea: 7.4 %
- Vomiting: 2.6 %
- Fever: 0.8 %

Abbreviations: Gr 3, Grade 3.

### Risk Summary

**Pregnancy**

**Risk Summary**

All pregnancies have a risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2% to 4% and 15% to 20%, respectively. There are insufficient data for FLUCELVAX QUADRIVALENT in pregnant women to inform vaccine-associated risks in pregnancy.

### USE IN SPECIFIC POPULATIONS

**Pregnancy**

**Risk Summary**

All pregnancies have a risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2% to 4% and 15% to 20%, respectively. There are insufficient data for FLUCELVAX QUADRIVALENT in pregnant women to inform vaccine-associated risks in pregnancy.
There have been no developmental toxicity studies of FLUCELVAX QUADRIVALENT performed in animals. A developmental toxicity study has been performed in female rabbits administered FLUCELVAX (trivalent formulation) prior to mating and during gestation. The dose was 0.5 mL on each occasion (a single human dose is 0.5 mL). This study revealed no evidence of harm to the fetus due to FLUCELVAX (trivalent formulation).

**Lactation**

**Risk Summary**

It is not known whether FLUCELVAX QUADRIVALENT is excreted in human milk. Data are not available to assess the effects of FLUCELVAX QUADRIVALENT on the breastfed infant or on milk production/excretion.

The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for FLUCELVAX QUADRIVALENT and any potential adverse effects on the breastfed child from FLUCELVAX QUADRIVALENT or from the underlying maternal condition. For preventive vaccines, the underlying maternal condition is susceptibility to disease prevented by the vaccine or the effects on milk production.

**Pediatric Use**

Safety and effectiveness have not been established in children less than 6 months of age.

**Geriatric Use**

Of the total number of adults who received one dose of FLUCELVAX QUADRIVALENT in clinical studies and included in the safety population (2493), 26% (660) were 65 years of age and older and 8% (194) were 75 years of age or older.

Antibody responses to FLUCELVAX QUADRIVALENT were lower in the geriatric (adults 65 years and older) population than in younger adults.

**REFERENCES**


---

**COVID-19 AND RSV: A ROUNDED UP OF THE LATEST NEWS ON PEDIATRIC VACCINES FOR THESE VIRUSES**

- Significantly less likely to have significant consequences from infection.
- The answer is that they seem to be much more protected from infection.
- Children aged 5 years and older who have been eligible for vaccination were really protected from hospitalization during the Omicron surge, and even at our hospital [Ann & Robert H. Lurie Children's Hospital of Chicago in Illinois], we have good evidence that the increased number of hospitalizations in children was largely among either the unvaccinated or those who were not eligible for the vaccine.

**Do you foresee a time in the near future when COVID-19 vaccines will be a part of the annual vaccination schedule?**

*WJM*: I think there will be an expectation of a recommended vaccine for children and adults on some scheduled basis. And I think that the unanswered question right now is “Will we need it every year, like we recommend the influenza vaccine every year, or can it be spaced out over a longer time period?” It’s certainly too soon to tell if the current vaccines will offer lifelong protection. I don’t think I would expect that to be true. But, you know, I don’t want to get too far off from what we know now.

**What about vaccines for other infectious diseases in pediatrics—anything of particular interest?**

*WJM*: There certainly has been a lot of discussion recently about another illness, which is of significant importance in pediatrics, notably RSV [respiratory syncytial virus]. Different strategies have been looked at to try to protect babies against severe disease from RSV infection. The first would be maternal vaccination—if the mom was able to get sufficient levels of antibodies, passive immunity could be passed from her to the baby. So far, those study findings have not necessarily shown protection. But as we learn more from the research, other vaccines might be developed to increase the mother’s ability to generate a protective response that doesn’t necessarily require the baby to get a separate immunization. I know that there are some studies as well that involve immunization of the baby, which could be active immunization for RSV—similar to the COVID-19 vaccine, in which the immune response that’s generated against the vaccine is what’s providing protection. And then there is passive immunity: That would provide protection against RSV by getting an antibody into the baby as opposed to inducing the production of antibodies. So, we will have to wait and see.

**William J. Muller, MD, PhD,** is an attending physician of infectious diseases and scientific director of clinical and community trials at the Stanley Manne Children’s Research Institute at Ann & Robert H. Lurie Children’s Hospital of Chicago and an associate professor of pediatrics at Northwestern University Feinberg School of Medicine in Chicago, Illinois.
The 2022-2023 influenza season is almost here, which means that pharmacies across the country are starting to offer annual flu shots to customers. A recent Drug Topics® Around the Practice panel discussion, moderated by Mitch Rothholz, RPh, MBA, addressed what pharmacy brings to the table. The event covered a wide range of topics, including how the COVID-19 vaccine campaign has influenced the public’s perception of vaccines, reintroducing vaccines that fell by the wayside during the initial phase of the pandemic, mandates for influenza vaccines, expectations for influenza vaccine hesitancy, and use of the influenza vaccine in pediatric populations.

The pandemic led to many significant changes, one of which was reasserting the need to get vaccinated. Panelist John Beckner, senior director of strategic initiatives at the National Community Pharmacists Association, said that although people have become more attuned to receiving vaccines, vaccine fatigue along with a lighter than usual influenza season last year may lead people to forgo them this year. Panelist Jeff Goad, PharmD, MPH, associate dean of academic affairs at Chapman University School of Pharmacy, noted that perception of the COVID-19 vaccine was tied to the real-time data on cases, which are not readily available for influenza. He did say the jury was still out on how the politicization of the COVID-19 vaccine may affect other vaccines, such as those for influenza, although he hopes the outcome is positive.

Additionally, the pandemic led people to put off receiving other, necessary vaccines, which means that pharmacies had to come up with new ways to get patients caught up. Panelist Randy McDonough, PharmD, MS, co-owner of Towncrest Pharmacies, Towncrest Compounding Pharmacy, and Innovative Pharmacy Solutions, and a professor at Loma Linda University School of Pharmacy, said that his pharmacies started to make up an appointment-based model that allowed patients to schedule times to get needed vaccines.

The legacy of the COVID-19 pandemic can also be felt through vaccine mandates. McDonough argued that these mandates appear to push people away from getting a vaccine rather than encourage them to receive it. What does he think the solution may be? “…The solution is to make sure that our public, and other health care providers who maybe have some hesitancy as well, are fully educated and informed, …that they have a full understanding and become informed consumers so that they can make a good, healthy decision,” he said.

In recent years, pharmacy started providing vaccines for children. Beckner stated that he believes pharmacists are in an important position to share information on the importance of vaccines with parents, which can encourage pediatric vaccination. Goad added that pharmacy needs to bring pediatricians on board with vaccination, which has been a potential sticking point in that specialty.

A common concern about the influenza vaccine is that it often doesn’t seem to be effective, and individuals may still get influenza regardless of vaccination status. However, Goad emphasized how sophisticated the formulation process is, utilizing the Global Influenza Surveillance and
Response System that is composed of 124 member states of the World Health Organization. Being open to questions and concerns is also important. McDonough noted that he commonly hears people say their friend received the vaccine and still got sick, but he takes the time to discuss how strains are selected and how, even when the strains in the vaccine aren’t a good match, the vaccine can still prevent serious illness. Beckner emphasized that messaging is key and that the issues with the COVID-19 vaccine messaging highlight the importance of accurate expectations for the vaccine.

The Advisory Committee on Immunization Practices (ACIP) recently recommended that patients 65 years and older get either a higher-dose or adjuvanted influenza vaccine. The panelists noted the significance of this recommendation, as ACIP had not previously recommended any one vaccine over another. The recommendation could have 2 positive effects: seniors asking specifically for the vaccine and pharmacies making sure to order stock, which has been problematic for some pharmacies. McDonough, who works in the long-term care sector, said he would be promoting the recent recommendation to other providers in the area to encourage greater uptake of the recommended doses.

Over the past 2 years, confidence in the CDC has taken a tumble, which has led to worry that people may question guidance coming from the agency. Goad acknowledged this potential problem but noted that ACIP is a good example of governmental and nongovernmental collaboration. Fifteen vaccine experts serve as the voting members, bolstered by 30 liaison groups around the country, representing important medical and public health stakeholders.

Another major question is the timing of receiving a vaccine. The generally accepted “sweet spot” for the influenza vaccine is October to November. However, as the weather becomes cooler and more articles about vaccination are published, people may start requesting their shot before the best time. As many pharmacists have been taught that “you shouldn’t let anybody leave the store that comes in and requests a vaccine,” Beckner stated, this can be tricky. If a patient is going to be traveling to a location where the Southern hemisphere influenza season is ongoing or if they’re particularly frail, Goad recommended administering the dose. But other patients should be encouraged to come back when they can get the most out of the protection, he said.

With the possibility of either a fourth COVID-19 booster using the original formulations or a booster that has been created to better address Omicron variants, administering both the booster and an influenza vaccine at the same time may be a reality. In the early days of the COVID-19 vaccine, administering it with other vaccines was not recommended. But that recommendation is no longer current and the 2 vaccines can be received at the same appointment. Goad noted that the only “recommendation” when doing so was to administer them into different arms, but that this wasn’t particularly evidence based.

All 3 panelists emphasized that renormalizing the influenza vaccine was going to be important this year. Beckner said this would require the efforts of the entire pharmacy staff but should lead to good results.

“COVID-19 put more of a public focus on vaccinations because everybody was waiting for that COVID-19 [vaccine]. But I also saw that it amplified some of the misperceptions, misunderstandings, and myths associated with vaccines.”

Randy McDonough, PharmD, MS, BCGP, BCPS, FAPhA
BIG DATA IN INDEPENDENT PHARMACIES

How has the evolution of data changed independent pharmacy?

By Keith Loria
Big data and analytics are everywhere—including in independent pharmacy. But is the collected information being used to help with documentation, care planning, and reimbursement?

Pharmacies have come a long way over the past 3 decades in their use of data analytics, according to Heidi Polek, RPh, a pharmacist and strategic program manager at DrFirst, a provider of innovative technology solutions that works with 67,000 pharmacies nationwide. “We’ve grown from doing our own simple paper-and-pencil calculations to being able to choose from a host of vendors and consultants that offer detailed analytics on things that community pharmacies can have a direct impact on, such as prescription abandonment,” said Polek. “With insights into trends like these, pharmacists can more effectively intervene to improve medication adherence.”

Pharmacy expert Lindsay Dymowski, CEO of Centennial Pharmacy Services in Philadelphia, Pennsylvania, noted that data collection is common in pharmacies, as it is with most health care organizations in the digital age. Pharmacies have always had access to huge volumes of data from various sources, including patient, prescription, insurance, and medication supply chain and pricing data.

“Historically, independent pharmacies haven’t used the data collected to their advantage,” Dymowski said. “Most pharmacy data have been collected by large organizations—PBMs [pharmacy benefit managers], insurance companies, wholesalers, [and so on]—and used to help these organizations make decisions on things like drug pricing and formularies. When pharmacies did look at their data, they mainly looked at prescription volume and reimbursements.”
That is changing, as the COVID-19 pandemic has propelled independent pharmacies into taking a more analytic approach. “Providers collaborated with pharmacists to get patients counseled on disease states and medications to people who were too scared or too sick to visit an office. And when the country needed a resource to quickly administer millions of lifesaving vaccinations, independent community pharmacies were the ones who stepped up,” Dymowski said.

Joe Moose, PharmD, owner of Moose Pharmacy, with 8 locations across North Carolina, said that when he first started working as a pharmacist, computers were just coming into the profession—where they served as nothing more than glorified word processors. Through the years, the pharmacy has evolved to use data to make a greater difference in the lives of customers.

“Over the last 5 years, using data has gone from operations and business-side management to changing patient outcomes,” he said. “We input our data knowing we can mine this information to give the patient a better outcome.”

**Documentation Made Easier**

Through data analytics, pharmacies can identify claims with a high potential for audits and ensure that all requirements are in place to prevent a financial challenge from the payer. They can also analyze postaudit results to identify areas where they were most penalized and put measures in place to avoid penalties in the future. And, Dymowski pointed out, data insights have only served to help prescription and patient documentation as well.

“In robust pharmacy systems in states that allow for electronic record keeping, pharmacists have the ability to receive electronic prescriptions directly from prescribers with patient demographics, clear prescription information, and even notes written by the prescribing team,” she said. “Those prescriptions can then be annotated on the pharmacy level with information such as calculations for ‘days’ supply,’ which helps with pharmacy audits.”

With all prescriptions and prescribing data being kept electronically, pharmacies can easily access information for events such as drug recalls. They also can notify the affected patients quickly.

Aysha Ahmed, PharmD, chief medical director, president, and cofounder of Vasa HealthIV, a mobile infusion therapy company, noted that independent pharmacists utilize medication therapy management. This allows them to see if some patients are regularly picking up their prescribed medications and taking them as they should.

“It also shows if they have multiple disease states and if they are being monitored for drug interactions as well as dose-appropriate alterations,” she said. “This information is sent to insurance companies regularly to ensure that the patient avoids any risk of hospitalization along with providing evidence of much-needed pharmaceutical intervention conducted daily by the pharmacist.”

**Better Care Planning**

Some pharmacies participate in collaborative practice agreements, disease state management, or other clinical programs that require care planning. These pharmacies now have the opportunity to develop and manage care plans through a pharmacy management system in most major health systems.

“With this, pharmacies are able to create customized care plans for patients based on their data: their medications, their disease states, and their demographics are controlling what happens with their health,” Dymowski explained. “Care plans can include quantitative information such as test results, labs, vitals, and prescribing data, or more qualitative data such as observations, questionnaires, counseling [or] coaching notes, and other socioeconomic and environmental factors that can impact patient health.”

Care plans also allow pharmacies to set specific goals. This enables them to identify high-risk patients, then set up these patients for success based on targets they can achieve.

“By measuring this outcome and following along with each patient using metrics, pharmacists can identify patients who are at risk of developing a poor prognosis and get to them before any hospital-related events come up,” Ahmed said. “Putting raw pharmacy data into metrics can help pool patients into certain groups that can be targeted early on and followed...to ensure the best possible health outcome.”

With the growth of direct patient care programs offered by community pharmacies, such as chronic care management and medication therapy management, there are numerous opportunities for data analytics to inform care. Many pharmacy information systems have modules that can provide pharmacies with this type of information.

“For example, pharmacists can use insights into adherence patterns to plan interventions with high-risk and vulnerable patients, such as seniors with multiple chronic health conditions, including diabetes, high blood pressure, high cholesterol, and congestive heart failure,” Polek said. “Findings from) numerous studies have shown how pharmacists can help patients avoid adverse events and hospital readmissions. Now these programs can use data analytics to target interventions for the best results.”
“We’ve grown from doing our own simple paper-and-pencil calculations to being able to choose from a host of vendors and consultants that offer detailed analytics on things that community pharmacies can have a direct impact on, such as prescription abandonment.”

HEIDI POLEK, RPH

Reimbursement Matters
Reimbursement is another key area where pharmacies can benefit from data analytics.

“Pharmacies need to pay particular attention to DIR [direct and indirect remuneration] fee patterns and ensure they take all possible precautions to reduce these drawbacks as much as possible,” Polek explained. “In extreme cases, a pharmacy may choose not to participate with an insurer that has a history of poor reimbursements and high DIR fees. However, with a deep understanding of prescription drug plans and their reimbursement patterns, pharmacists can share coverage and co-pay information to help patients choose a plan that provides the highest level of coverage for their current medications while also fairly reimbursing pharmacies.”

This benefits both patients and pharmacies. Historically, pharmacies have been reimbursed for dispensing medication, which still accounts for the majority of revenue made by independent community pharmacies. But potential exists for reimbursements above and beyond dispensing medication, because the pharmacist is recognized as a holistic health care provider.

“Along with the opportunity for different types of reimbursements, most pharmacy contracts have data-driven goals built in to provide higher reimbursement or some type of alternative or higher payment to pharmacies that achieve greater quality metrics,” Dymowski said. “Pharmacy is no longer about dispensing a prescription; it’s about supporting your patients’ medication regimens and increasing their health outcomes through prescriptions.”

Analytics can improve things for the independent pharmacist in a number of other ways. Data insights can be used across all facets of health care to improve quality of care in the industry, and they can change the way independent pharmacies operate for the better.

For example, data analytics within patient engagement programs can help improve medication adherence and outcomes. “Some patient engagement technology can analyze prescription abandonment trends and send patients pick-up reminders that include tailored information about prescription costs, financial savings, and educational materials, which helps improve adherence,” Polek said.

Dymowski noted that pharmacies can use the information collected to better collaborate with community providers. Additionally, they can use prescribing information to meet specific metrics set out by payers and document via care plans to get different types of reimbursements.

“Pharmacy organizations are increasingly pushing for pharmacists to be given provider status in all 50 states, especially since pharmacies played such a huge role during the vaccine rollout,” she said. “For pharmacists to receive that status, pharmacies need to start incorporating data collection, care planning, and other outcome-related analytics into their daily workflows to prove to the health care community that pharmacists can make positive impacts on patient health.”

Relying on Data
Today’s pharmacists are busier than ever as they care for an aging population that takes more and more prescription medications. Thus, with the avalanche of patient data now available to pharmacists, it makes sense to use fast, efficient data analytics tools to do what would otherwise take hundreds of work-hours—find the patients who need help the most.

“More pharmacists are recognizing the importance of data analytics and becoming experts in its use, including working at—or starting—companies that can help community pharmacies benefit from this technology,” Polek said. “I love the idea of pharmacists building tools to benefit other pharmacists and their patients. That is how health care can and should work.”

Data and analytics, therefore, are the future. Payers are structuring contracts on quality metrics, and integrated health systems are collaborating with community pharmacies that are attending to and bettering those metrics. Further, millions of people went to bed last night knowing how many steps they took.

“As the population wearing technology ages, more providers are going to rely on that technology to better care for their patients,” Dymowski said. “Pharmacists need to be prepared to combine their pharmaceutical and clinical expertise with data-based care plans that increase patient health and have the data to prove it if they want to be seen and respected as a health care provider.”
T was ever thus in pharmacy retail: There are different methods of presenting goods to consumers. As times change, so do those methods—and, of course, what products or category of products are offered. I believe it’s instructive to look back before looking forward to plot out strategies.

Back in the day, many pharmacies had what was known as the “shotgun” look. My great-grandfather’s (then my grandfather’s) pharmacy on South Michigan Avenue in Chicago, Illinois, which opened in 1903, is just one example. Prescriptions were dispensed from the back wall of a narrow room. The shelving along the walls reached clear to the ceiling, with sliding ladders used to retrieve goods located up high. Display cases lined both sides of the store, with products displayed enclosed in glass. Up front, you’d often find a soda fountain on one side, with small tables down the center aisle where customers could enjoy fountain treats.

In this modern era, pharmacies’ front ends are radically different in design. OTC products are now self-serve, displayed on shelving that is accessible—not behind glass. Also missing are the high, unreachable wall shelves. A few pharmacies are still rockin’ soda fountains, bringing in traffic—a real asset in these all-too-modern times (In most modern pharmacies, they’re gone). The nostalgia factor can, however, still be tapped, albeit less dramatically, by stocking up on products familiar to customers.
Trying to time when to jump on fads or trends while they are on their way up can be tricky. Use caution, and walk before you run.

older consumers from their youth. To fill gift needs, nostalgia can fuel the sale of old-fashioned candy in a big way. Although clinic pharmacies have their own issues in retail sales for obvious reasons (think space issues), I contend that with the deft placement of specialty products, they too can work some magic in raising retail sales.

Let’s think about the days of yore, and the products that were big sellers. We can’t forget patent medicines, which made outrageous—and in some cases, criminal—claims of efficacy in combating assorted ills. They were loaded with alcohol or laxatives and counted on either the buzz or a good bowel movement to satisfy a patient’s need for some relief and neglecting to address the malady they claimed to abate. With time and research, we’ve discovered the herbal, vitamin, and natural remedy formulas that have been proven to successfully treat many common maladies. These are great avenues for positive health results, as well as ways to generate positive and legitimate revenue.

Other modern-era fads also include diet products that make grand, over-the-top promises of life-changing weight loss. Commonly, the help they provide is found in the instructions on their labels: “Take these pills” (I call them placebos) “along with a proper diet and exercise.”

In fashion trends, low-end or costume jewelry will sell—in particular, styles that are fun, fanciful, and unique. These products will have a run of sales for a limited time, so don’t become married to them—simply become acquaintances, while making new friends (new styles) periodically. For kids, display items like fidget spinners and Beanie Babies—another trend dipping its toe into nostalgia. Although they have come and gone, cute plush still sells, and small puzzles and toys continue to fill gift needs.

Looking ahead, trying to time when to jump on fads or trends while they are on the way up can be tricky. Use caution, and walk before you run. Sometimes when a fad takes hold, it might already be too late by the time it hits the press! It’s better to count on trusted suppliers for “the buzz.” Also helpful is hearing chatter from customers about what’s going on in schools or in your local neighborhood. Fads tend to start regionally and spread unpredictably at various speeds. If you have a source for these types of products, modestly dip your toes in the water and be prepared to jump ship. Closing out products at a discount isn’t a loss… it’s a win! Remember the old adage, “Pigs get fat, hogs get slaughtered.” All of you “playing” the stock market should be well aware of that wisdom.

Of course, every store has different customers, so the actual movement of various offerings speaks volumes… if you’re listening. There are many established winning categories to tap into: fun edibles, well-displayed, are great. Specialty hand creams—not found in chains—with a tester available, is a tried-and-true formula. They are strong sellers in winter and summer, as are unique lip balms. Lots of us crack our lips while cracking a smile! Reworking these classic categories can be a way to spark your own trends.

Maybe the hottest fad ever, with legs longer than a giraffe, is… (drum roll)… anything to do with cell phones! Every—literally every—customer walking into any store has a cell phone, and they all need charging. People don’t like their cell phones; they love them. All kinds of accoutrements, from ear pods, ways to hold phones, Bluetooth speakers, and more, all retail excellently. But all charging cords are king! Fuel this fire—these are retail gold.

In closing, I’ll turn to 2 nostalgic admonitions:

1. Nothing ventured, nothing gained.
2. You’ll never go broke underestimating the public’s taste.

Subscribe to our newsletters for practical tips and valuable resources
Partnering for Success: How the Good Neighbor Pharmacy Business Coach–Pharmacy Partnership Helped Propel One Independent Pharmacy to Success

The relationship between Bright Plaza Pharmacy and its Good Neighbor Pharmacy business coach has proved to be invaluable during the pandemic—and beyond.

Bright Plaza Pharmacy owner Dana Porter has been in the business for more than 20 years. As a member of the Good Neighbor Pharmacy network, she’s worked with several AmerisourceBergen business coaches through the years, but her relationship with current coach Kelley De La Fuente is probably her most special.

“They’ve all been helpful in reporting and providing information from AmerisourceBergen that can be useful in managing your business,” Porter explained. “Kelley provides those same reports, but what we’ve been able to do is develop a relationship where we can communicate above and beyond those reports. Kelley and I have been able to take it to another level.”

Porter has owned Bright Plaza Pharmacy in Whittier, California, since 2016. The 3500-sq-ft space has a large front end with a section for durable medical equipment, greeting cards, and gifts, all in service of the pharmacy’s dynamic customer population. The 5-story building housing the pharmacy is also home to multiple physicians’ offices and is located next to an urgent care center, positioning the pharmacy as an important resource for this provider community and for Whittier overall.

“We offer a medication synchronization program, we have text refills and mobile refills, and—I think more than anything else—we offer services that are individualized to each patient,” Porter explained. “We know each patient when they come in, we deliver to their homes, we have the products in the front end that are for those patients. We stock the products that our customers asking for and we’re able to help them when they need something.”

Porter credits her relationship with De La Fuente as an integral part of making sure Bright Plaza Pharmacy can deliver the range of services promised, along with regularly thinking outside the box and beyond reporting to “figure out how to actually improve and increase the business.”

When the COVID-19 pandemic began, the relationship between De La Fuente and Porter evolved once more, becoming, De La Fuente explained, even more collaborative.

“She has the knowledge, she has the facts, and she’s a very savvy business owner,” said De La Fuente. “A lot of my role has been to encourage her to take those calculated risks and expand her knowledge. The relationship has evolved from ‘How can I support you?’ to really bouncing ideas off each other, doing the research together, and then coming up with action items and plans to expand what she’s doing.”

Porter described De La Fuente as one of the strongest advocates for the Bright Plaza Pharmacy team—especially in obtaining the Pfizer-BioNTech COVID-19 vaccine.

“We were in an area that was an underserved population, so we were allocated one of the first Pfizer shipments. Kelley offered it to us; it was overwhelming in the quantity and the uncertainty of how to manage and deliver all of those vaccines to the public,” said Porter. “I think her confidence in our ability to serve our patients, and to execute on taking this vaccine,
was indescribable to me. She was more than just a coach; she was a friend, encouraging me, my husband, and our staff to take this vaccine and make a huge impact in our community.”

De La Fuente recognized the ways in which the beginning of the pandemic was clouded by unknowns, requiring savvy strategic thinking and a willingness to stay the course. Before Bright Plaza Pharmacy received any COVID-19 vaccines, De La Fuente and Porter strategized on how they could capitalize on business while serving patients—not only at the store but in the community. When the COVID-19 vaccines became available, De La Fuente encouraged Porter and husband Toby, co-owner of Bright Plaza Pharmacy, to take on the task.

“I called her up because I knew she would be anxious,” said De La Fuente. “But I also knew that she and Toby would be willing to run with it if they had enough support. And sure enough, they did.”

Along with her husband, Porter worked tirelessly to ensure that their pharmacy technicians were able to administer these immunizations and to create a comfortable environment for patients. Outside of the pharmacy, De La Fuente provided support for Porter to create drive-through vaccine clinics and take their work into the community through advertising and recruitment. “I think the vaccine clinics really enhanced her role in the community and showed her how other (individuals) viewed her, from local government to the school district,” De La Fuente added.

De La Fuente connected Porter with other pharmacy owners through her own network of AmerisourceBergen business coaches. This gave Bright Plaza Pharmacy access to pharmacists and pharmacy owners outside the local area who had created vaccine clinics, providing valuable knowledge on execution. “The Pfizer vaccine shipment was so large; the quantity and storage were so overwhelming,” said Porter. “Leveraging Kelley’s network allowed us to talk to other individuals about what the vaccination process would look like, so we could feel more comfortable in coming up with a plan.

“I think we only wasted 5 of the original 1200 vaccines that we received,” Porter added. She credits De La Fuente as an “integral” part of the process of “being able to execute effectively and not having any waste.”

After distributing that first shipment of vaccines, Porter and De La Fuente put their heads together to plan out their next move.

“I remember Dana calling me and saying, ‘Kelley, I’m going to go sit in on this Chamber of Commerce meeting, and I’m going to sit right next to the superintendent of schools.’ And I responded, ‘OK, when we go down there, what are we going to do?’”

As it turns out, they offered their services to the Whittier City School District, which found itself needing to comply with a California mandate requiring teachers not vaccinated against COVID-19 to undergo weekly testing. The school district had 13 sites and more than 100 teachers who would require testing. The school board was considering hiring a large company to travel from site to site and test employees. But Porter had a better idea.

“Using her confidence, Porter was able to open up that conversation,” De La Fuente said. And once the district said yes, the relationship between Porter and De La Fuente evolved again.

“I needed to write a contract, I needed to cover my bases with what supplies I would need to secure and how I would come up with a plan,” said Porter. “And she was once again integral in helping me come up with a contract.” Bright Plaza Pharmacy began testing in October 2021, continuing through the conclusion of summer school in July 2022.

Porter and De La Fuente have continued their conversations around how Bright Plaza Pharmacy can offer more services to their patients and community, including addressing insurance and reimbursement challenges and continuing to capitalize on the momentum of their testing program. No matter what comes next, Porter and De La Fuente are in it together.

“I think with the (relationship) that we have developed in the last 4 years, she trusts me to bring these ideas, and she also trusts me to bring her own ideas that we can work on together,” said De La Fuente.

“What I’ve developed with Kelley,” Porter added, “and what the business coaching program has offered me, is the ability to really grow my small business and to find someone who has contacts in the industry who has knowledge about what’s up and coming, that we can use to think about ways to actually grow and improve our business. Kelley has become a close friend, a confidant, and someone who, in this past year, has really led us to think outside the box. Without Kelley’s help, we wouldn’t have been able to make this happen.”
Drug Testing Challenges Emerge With CBD Product Use

Even “THC-free” cannabidiol products may contain trace amounts of THC.

**S**elling cannabidiol (CBD) products in the pharmacy can be tough, and not just because of misinformation or retail competition. Due to a lack of regulation, undeclared tetrahydrocannabinol (THC) is common in topical and oral CBD products, including products claiming to be THC-free. Pharmacists recognize the potential for positive drug tests for those using CBD products.

“Anybody who has a Commercial Driver License—a truck driver—I basically refuse to sell CBD to them, because they can lose their livelihood from a positive THC test,” said Cory G. Garvin, PharmD, president and owner of Wester Drug in Muscatine, Iowa.

A study published in June 2020 found widespread mislabeling across 105 topical CBD products purchased from brick-and-mortar retail outlets and online. THC was detected in 27 (35%) of the products, including 4 products (11%) labeled as THC-free. Most of the THC-containing products did not reference THC on the label.

“We know from research in my lab that pure CBD products—oral or vaped—do not trigger positive drug tests for cannabis,” explained Tory R. Spindle, PhD, assistant professor of psychiatry and behavioral sciences at Johns Hopkins University School of Medicine Behavioral Pharmacology Research Unit. “However, products that contain even trace amounts of THC, within legal limits to be considered hemp, can produce positive tests, especially with regular use.”

A similar study of oral CBD products found greater mislabeling. Of 80 CBD products purchased from physical and online retailers, 52 (65%) contained THC in amounts ranging from 0.008 mg/mL to 2.071 ng/mL. Of the 21 products labeled THC-free, 5 (23.8%) contained between 0.015 mg/mL and 0.656 mg/mL THC. Epidiolex (cannabidiol), the sole FDA-approved CBD formulation, contained 0.022 ng/mL THC.

“Consumers who are interested in taking CBD are at a complete loss,” said senior author Shanna Babalonis, PhD, assistant professor of behavioral science, University of Kentucky College of Medicine Center on Drug and Alcohol Research. “They don’t know what is in their products, they can’t trust the labels, and they can’t trust certificates of analysis if there is one. If you test positive, there is no way to distinguish this THC contamination from smoking a joint or using any other marijuana product.”

Tim Gregorius, RPh, vice president of operations for PRS Pharmacy Services suggested stocking only THC-free products. PRS and a few other manufacturers use QR codes on product labels to link each container to a certified certificate of analysis. Iowa requires QR codes linking to certificates of analysis on all CBD labels, Garvin said he goes 1 step further and checks each batch to match certificate, batch, expiration, and product analysis.

The problem stems from the federal classification of marijuana, or Cannabis sativa, as a Schedule I controlled substance. The 2018 Farm Bill exempted hemp containing less than 0.3% delta-9 THC by dry weight from the Controlled Substances Act, but that exemption specifies hemp as an agricultural product. Nothing in the Farm Bill defines allowable THC levels in finished hemp products such as salves, oils, tinctures, capsules, gummies, or other edibles after the plant biomass has been removed, Babalonis explained. Regulation is up to individual states, all of which have taken different approaches. The CBD industry uses a 0.3% THC cutoff for convenience and marketing.

Federal regulations assess THC levels in people, not products. The Department of Transportation (DOT) has an initial urine-based testing cutoff of 50 ng/mL for marijuana metabolites and a confirmatory cutoff of 15 ng/mL, Garvin explained. Private employers can set their own cutoff levels.

DOT covers what are known as safety-sensitive employees: pilots, school bus drivers, truck drivers, train engineers, transport vehicle operators, aircraft maintenance personnel, fire-armed transit security personnel, ship captains, and pipeline emergency response personnel, among others. “Since the use of CBD products could lead to a positive drug test result,” the agency cautioned in 2020, “Department of Transportation-regulated safety-sensitive employees should exercise caution when considering whether to use CBD products.”

Enforcement of state DUI laws is another potential hazard. Some field tests are quantitative, Garvin said, and some are qualitative. Some are specific for THC and some test for any cannabinoid. “I spend a lot of time educating my patients to make sure they understand potential testing issues,” Garvin said. “My advice is to talk with their employer or whoever is doing the testing to find out the kind of tests being used, the cutoffs, and whether CBD products are allowed. I try to minimize risks to the patient and in doing so I also minimize my own liability.”

For references, visit drugtopics.com.
Make CBD the most profitable area in your Front End

- 50% Margins
- Merchandising Support
- Clinical & Commercial Coaching
- Money-Back Guarantee

THE LEADERS IN PROFESSIONAL HEMP SINCE 1996

- LEED Platinum Manufacturing Facility
- cGMP Certification for Dietary Supplements
- ISO22716 for Cosmetics
- $40 million invested in Cannabis Research
- First and only Dr. in Cannabinoid Science Dr. Alex Capano

Call us to learn about our 90-day Risk Free Trial in your store 888.388.1119
Although Jenna Carmichael, PharmD, advises each pharmacist to look into the legal implications of selling CBD products in the state where they practice, CBD, or Cannabidiol, is legal on a federal level following the passage of The Agriculture Improvement Act of 2018, or the 2018 Farm Bill. Carmichael is a holistic oncology pharmacist at Clarks Summit, Pennsylvania-based Wobbly Arrow Wellness.

If a product has a maximum of 0.3% tetrahydrocannabinol (THC), it is legal because it’s mostly CBD, and Carmichael suspects that is the reason why CBD products are being sold at gas stations, online, and in local pharmacies. THC is the compound that produces the “high” that’s often associated with marijuana. Just as important as demystifying CBD products for patients is “demythifying” them, said David Kroll, PhD, a professor in the department of pharmaceutical sciences at the University of Colorado Anschutz Medical Campus in Aurora.

One area with a need for education and awareness is around the conditions where CBD is approved by FDA as a treatment. CBD has been approved by FDA to treat children with rare childhood epilepsy syndromes where they may be debilitated by experiencing as many as tens of dozens of seizures each day, said Kroll.

In 2018, Epidiolex (cannabidiol) was approved by FDA for the treatment of seizures associated with two rare and severe forms of epilepsy, Lennox-Gastaut syndrome and Dravet syndrome, in patients 2 years of age and older. With Lennox-Gastaut syndrome, patients can experience tonic seizures where the body stiffens, the eyes gaze upward, the pupils become dilated, and patients experience altered breathing patterns; often, periods of frequent seizures are mixed with relatively seizure-free periods. Seizures are often triggered by high temperatures with Dravet syndrome, where patients may experience loss of motor skills, intellectual disability, speech impairment, and difficulty with movement.
Here’s what pharmacists need to know about 4 different CBD products:

**Topicals**
There is some disagreement among pharmacists and other experts on the effectiveness of topical CBD products. According to Carmichael, topicals can be a great way for patients to “put the relief right where they need it.” They can be used in a similar way as muscle rubs, she added. “The patient will get that local relief, right where they need it, such as on the knee or the hip, but it’s not going to be systemically absorbed.”

Still, as with any other treatment, it’s important to tell patients about potential drug interactions, Carmichael, who’s also an adjunct faculty member at Wilkes University’s Nesbitt School of Pharmacy in Wilkes-Barre, Pennsylvania, advised. For example, warfarin (Coumadin), which can be used to prevent blood clots from forming or growing larger, is one drug that could interact with a topical CBD product.

The hypothesis is that CBD product’s anti-inflammatory effects might be useful for a topical product for knee or back pain, Kroll explained. Still, the concentration of CBD in these products is unlikely to have a biologic effect in joints and through the skin.

Tim Gregorius, RPh, vice president of operations at Latrobe, Pennsylvania–based consulting firm PRS Pharmacy Services, typically advises pharmacists that the FDA hasn’t approved of CBD products to treat most conditions. While he admitted this can be a murky area for pharmacists, a topical cream can be a good place to start.

“If somebody comes in and says, ‘My knees hurt, my elbow hurts, my neck hurts, we can put them on a topical cream immediately. Most of the time, people come back in a day and say, ‘My goodness, I haven’t been pain-free like that for years.’”

**Gummies**
“They’re discrete...and you don’t have to smoke them,” said Carmichael, observing the reason gummies are popular among patients. Still, patients often have the misconception that gummies are a “lighter” version of CBD, she said. “The problem with gummies is there’s a delay. You have to absorb the CBD, and it has to be activated by the liver. That takes time.”

Typically, it can take between 60 and 90 minutes, dependent on a person’s metabolism, for the gummy to kick in and deliver “the relief they’re looking for,” Carmichael noted. Some patients will take a second gummy before feeling the first gummy’s effect, which she counsels against. “Wait at least 2 hours,” Carmichael advised.

Patients who have had gastric bypass surgery have different gastric absorption than most people, said Carmichael; some of these patients say they can take “boatloads of gummies” and they have no effect, while others say gummies can take many hours to kick in. In addition, elderly patients or any patient with an unstable heart condition should be careful, according to Carmichael. The effect of CBD may stretch 6 to 8 hours, which could lead to stress or anxiety; the related anxiety could cause a heart attack, not the CBD, she said.

**Tinctures**
These products are oil extracts, Carmichael explained. It is common to find almond and coconut oils used with CBD. Tinctures are often used with children, she explained.

The ability to individualize the dose with a dropper is a benefit of tinctures, said Carmichael. She typically recommends tincture products to patients who want to be able to escalate or reduce the dose while avoiding the need to return for a new strength of a CBD product.

**Delta-8**
Although delta-8 is similar to delta-9 THC, it is not quite as psychoactive, according to Carmichael, since Delta 8 is derived from hemp and not from medical cannabis. One thing Carmichael has learned about the use of delta 8 is that people will simply take more to get the level of effect expected with delta-9 THC.

“That can be problematic,” she said. “These products are being vaped and these products are easy to conceal, so it’s easy for people to get their hands on them.”

Across all CBD products, Kroll advises pharmacists to conduct due diligence to ensure that the products meet quality standards. “It’s pretty much left to the manufacturers in most states,” he said. “And even at the federal level, the FDA still hasn’t come out with strong guidance with CBD products.”
Counseling Pearls for CBD

Addressing patient concerns about cannabidiol can be the key to patient satisfaction.  By Miranda Hester

The popularity of cannabidiol (CBD) is on the rise, but many patients still have questions and concerns: Is it legal? Will I fail a drug test? What’s the right product for my specific situation? Read on for 10 counseling pearls pharmacists can provide to give patients peace of mind about wading into the CBD waters.

1. **Discuss factors that may lead to a positive drug test.**
Failing a drug test can have widespread consequences. Review with patients whether the product is full spectrum, broad isolate, or isolate, as well as the THC levels—if any—contained in the product. Frequency of use can also impact drug test results, so be sure to review how the product should be dosed.1

2. **Ask about substance and lifestyle use when discussing dosing.**
Use of ibuprofen and other nonsteroidal anti-inflammatory drugs (NSAIDs) can enhance CBD activity.2 Methamphetamines and other ADHD medications of similar pharmacologic quality may require a larger dose, as methamphetamine alters the receptors used for CBD.3

3. **Stay educated.**
Keep up-to-date on the latest CBD research or consider taking a continuing education course.1 Many companies that manufacture CBD products have a variety of educational blogs, videos, and other materials to keep pharmacists and pharmacy staff are knowledgeable.

4. **Create an environment where patients feel comfortable disclosing CBD use.**
Fostering an open environment increases the likelihood of getting an accurate, total medication history from the patient—and reduces the likelihood of negative health outcomes due to the interaction of CBD with other medications or lifestyle factors.4

5. **Discuss expectations.**
Patients who have exceptional results are often the biggest proponents of CBD, but not all patients will experience the exceptional. Although CBD can be used to treat a variety of conditions, the efficacy of CBD isn’t the same for all of them.5

6. **Determine what condition the patient will be using CBD to treat.**
Not all forms of CBD will effectively help with all conditions. Creams and lotions work best for dermatologic concerns, while a tincture might work best for mental health needs.6

7. **Encourage a “start low and go slow” approach to dosing.**
Patients will likely want to maximize effect when starting, but more CBD does not always equal better results. Discuss the concept of optimal dosing and explain that a dose beyond the optimal range for a person will actually lead to reduced efficacy.3

8. **Be knowledgeable about your state’s CBD laws.**
Patients may be concerned about whether their CBD consumption can lead to legal trouble.

9. **Know what products (if any) contain delta 8.**
Delta 8 is a THC-containing substance found in hemp, colloquially referred to as “weed light.”7 Because it’s derived from hemp, delta 8 products exist in a legal gray zone. Certain states, such as Illinois, Kentucky, North Dakota, Oregon, and Vermont, have laws specifically addressing the legality of products with delta 8.

10. **Serve as a knowledge source for parents looking to use CBD for their children.**
CBD use in children isn’t as common as use in adults.8 Some parents may want to turn to CBD to address problems like hyperactivity, anxiety, or sleep problems. But because research on pediatric CBD use remains limited, pharmacists can serve as a valuable source of accurate information on CBD and its pediatric uses.9

For references, visit drugtopics.com.
Special Report

This article originally appeared online in the American Journal of Managed Care (AJMC).

Cannabis Treatment for Sleep Disorders Warrants Further Investigation

Encouraging outcomes in recent studies have researchers calling for more analysis of the effect of cannabinoids on sleep disorders. By Julia Bonavitacola

A review published in *Nature and Science of Sleep* found promising results of cannabinoid medicine on sleep disorders—an indication that further research exploring this relationship would be helpful in this field.

The effect of cannabinoids on sleep quality is mixed, with the largest and most recent study identifying no change in any measure of sleep quality or architecture in 27 young volunteers who took 300 mg cannabidiol (CBD) compared with placebo. No studies that included tetrahydrocannabinol (THC) reported an improvement in time taken to fall asleep (sleep onset latency; SOL), although one reported a reduction in wake time after sleep onset (WASO).

The effect of THC on insomnia has been evaluated in several studies. The earliest published study was a double-blind, randomized controlled study where 9 people were given 10 mg, 20 mg, or 30 mg THC or placebo and self-reported symptoms. SOL decreased when taking THC vs placebo, although there were no differences in number of awakenings or time spent awake. Adverse events occurred more often as dosage of THC increased, and were more frequent in the evening.

There were 2 other randomized controlled trials that studied the effect of synthetic THC (nabilone) on sleep and/or insomnia. Symptoms were significantly improved in 29 patients when taking 0.5 mg to 1 mg of nabilone compared with 10 mg to 20 mg of amitriptyline for 2 weeks. Both nabilone and amitriptyline were beneficial compared with baseline, but sleep quality was not improved. Adverse events were also more frequent in nabilone compared with amitriptyline (91 vs 53).

There is limited evidence that CBD is beneficial for insomnia. A double-blind, randomized, placebo-controlled trial found that participants reported longer sleep duration when taking 160 mg of CBD, but there were no differences in SOL or sleep maintenance.

Mixed cannabinoid formulas were also found to be effective, with a double-blind, randomized, placebo-controlled trial finding that symptoms were significantly reduced while taking ZTL-101, a formulation of THC:cannabidiol:CBD (20:2:1 mg/mL). Subjective measures of SOL, WASO, total sleep time, and sleep quality were also improved; no improvement was noted in polysomnography-derived measures in the 1-night test.

The American Academy of Sleep Medicine advises against routine use of medicinal cannabis for obstructive sleep apnea (OSA) due to limited safety and efficacy data. However, some trials have had promising results. In 2 clinical studies of dronabinol, 1 study demonstrated a mean decrease of 14±17.5 events/hr⁻¹ in the apnea hypopnea index (AHI) following a daily dose of 2.5 mg, 5.0 mg, or 10 mg dronabinol 30 minutes before bedtime.

A second trial with similar methodology found a mean AHI decrease of 10.7±4.4 and 12.9±4.3 events/hr⁻¹ in participants taking 2.5 mg and 10 mg of dronabinol, respectively. No differences in oxygenation were noted, but daytime sleepiness decreased in those taking a higher dose.

Nabilone has been demonstrated as having a beneficial effect on posttraumatic stress disorder–related nightmare disorders. In a case series, 47 patients in a psychiatric clinic took a mean dose of 0.5 mg nightly; 72% of patients experienced reduction (mean 5.2±2.2 vs 0.9±1.8 nights/week) or elimination of nightmare frequency and/or severity. Some patients (9%) were able to end treatment without a return of symptoms.

Limitations of this review were noted. The review only focused on studies where sleep or sleep disorders were the focus, but sleep could also be improved with cannabinoid use for pain. The researchers noted that this group of patients should be assessed in the future.

The researchers concluded that, although there is insufficient evidence for clinical use of cannabinoids as a safe and effective treatment for sleep, encouraging outcomes from recent studies indicate that future studies should be done to determine the potential role of cannabinoids for the treatment of sleep disorders.

For references, visit drugtopics.com.
At best, the regulation of cannabidiol (CBD) in the United States can be described as patchwork. On a federal level, any part or constituent of Cannabis sativa plants, more commonly known as cannabis or marijuana, is a Schedule I controlled substance. Hemp—defined as Cannabis sativa containing less than 0.3% Δ-9-tetrahydrocannabinol (THC) and the basis for CBD product—was exempted from this scheduling by the Agriculture Improvement Act of 2018 (Farm Bill). Enactment of the Farm Bill removed hemp from Schedule I of the Controlled Substances Act and launched a surge in hemp growing and a boom in the production of CBD products derived from now-legal hemp—and created confusion for regulators and pharmacists.

“I checked the landscape legally before I got involved,” said Tim Kotschwar, PharmD, owner of Alliance Community Pharmacy in Alliance, Nebraska. “I talked with the local police chief, the state patrol, our prosecuting attorney, even a local judge. I was basically told it’s not officially legal in Nebraska, but you can buy CBD in Bed, Bath & Beyond or just about any gas station. I was still nervous, so I talked with the state board of pharmacy and the Nebraska Pharmacists Association. They all said it’s not officially legal yet, but it belongs in the pharmacy. That guy in the gas station isn’t going to be able to talk about the long list of CBD-drug interactions or [adverse] effect profiles,” Kotschwar continued. “The FDA says we can’t call OTC CBD a drug, but pharmacists are the people trained to...counsel buyers about the drug-like qualities of CBD.”

Federal Inaction
The text of the Farm Bill set the upper allowable limit of THC in hemp as less than 0.3% by dry weight of plant material but said nothing about THC or other constituents in products derived from hemp products, including CBD. The bill also underlined the authority of the FDA to regulate hemp, said Al Carter, PharmD, MS, RPh, executive director and secretary of the National Association of Boards of Pharmacy. The problem, he explained, is that the FDA is largely avoiding CBD regulation outside the 2018 approval of cannabidiol (Epidiolex) for certain seizures.

The regulation of cannabis has created confusion among pharmacists, who lack reliable information on the legal status of CBD products. For example, the National Community Pharmacists Association has information on CBD science, pharmacy-focused education, and marketing at ncpacbdsource.com, but it provides no regulatory guidance. State pharmacy associations are the most reliable starting points for local regulation and requirements. Some state boards of pharmacy play active roles in CBD regulation while other boards are silent on CBD, leading to inconsistencies between state statutes, board of pharmacy rulings, federal laws or regulations, and local law enforcement priorities.

For More Information
There is no single information source for cannabidiol (CBD) regulation. The Agriculture Improvement Act of 2018 regulates hemp but not finished CBD products, and the FDA has steered clear of nonprescription CBD, leaving regulation to the 50 states and resulting in 50 different approaches. Neither the American Pharmacists Association nor the National Association of Boards of Pharmacy track CBD regulation by state. The National Community Pharmacists Association has information on CBD science, pharmacy-focused education, and marketing at ncpacbdsource.com, but it provides no regulatory guidance. State pharmacy associations are the most reliable starting points for local regulation and requirements. Some state boards of pharmacy play active roles in CBD regulation while other boards are silent on CBD, leading to inconsistencies between state statutes, board of pharmacy rulings, federal laws or regulations, and local law enforcement priorities. The standing joke for years was that you could walk down the street in a certain major state smoking a joint and nobody would blink an eye, but you couldn’t buy CBD in a pharmacy, just in gas stations and grocery stores,” said Tim Gregorius, RPh, vice president of operations for PRS Pharmacy Services in Latrobe, Pennsylvania. Some states may require—or prohibit—specific language such as “Δ-9-tetrahydrocannabinol (THC)-free” or “low THC.” These requirements, however, may not match the diverse terminology used in the description, marketing, and labeling of CBD products as understood by consumers, retail channels, or pharmacy.

Potency, for example, is a measure of biological activity in pharmacy and federal drug regulation but is often used in CBD labeling describe the amount of CBD or some other constituent(s), an attribute pharmacists know as strength. The American Herbal Products Association’s Hemp Lexicon is a useful guide to current industry terminology.
mitigation, treatment, or prevention of any disease, as well as adding CBD to human or animal food products—although use in cosmetics is specifically allowed.3

“CBD was approved as an active pharmaceutical ingredient in a drug product; therefore, it is derived from the definition of a dietary supplement,” Carter explained. “The law similarly does not allow sildenafil or gabapentin to be added to foods or supplements after being marketed as prescription-only drugs. A product can make the regulatory jump from being a food [or] supplement to also becoming a drug, like [omega-3-acid ethyl esters (Lovaza)], but there is no clear path to go the other way from drug to food [or] supplement.”

However, Carter added, the FDA is not entirely silent on CBD. Since 2018, the agency has issued more than 60 warning letters to companies selling CBD in violation of existing prohibitions against medical claims or additions to food or beverage products. But the agency has not acted on requests to reconsider regulations of nonprescription CBD.

A State of Confusion
“States got tired of waiting [for the FDA] and acted on their own,” said Tim Gregorius, RPh, vice president of operations for PRS Pharmacy Services in Latrobe, Pennsylvania. “Two years ago, there were maybe 20 states where CBD was still a bad word and 3 states where it was flat-out illegal. That is no longer the case.”

But individual states have taken different paths toward CBD regulation. Idaho appears to be the most restrictive, Carter said. There, CBD remains a banned, controlled substance unless it contains 0.0% THC and is derived from mature stalks, oil, or cake made from seeds or achene, or sterilized seed.4 Nebraska, like many states, allows up to 0.3% total THC as measured by dry weight of hemp, but it does not address products derived from hemp.5

Most states require retailers to obtain a license or registration to sell CBD products, Gregorius said, but these requirements vary widely. Some states focus on product content, certificates of analysis, and allowing/disallowing products from specific vendors. Other states focus on labeling with batch/lot identification, expiration dates, and QR codes linked to certificates of analysis. Ultimately, selecting and carrying products that meet these requirements are the pharmacist’s responsibility.

An Unclear Future
When—or if—federal regulation of CBD will happen is still unknown. The secretary of the US Department of Health & Human Services has the authority to bypass the usual exclusion of prescription-first products from OTC or dietary supplement regulation and initiate CBD rulemaking, explained Jane

"States got tired of waiting [for the FDA] and acted on their own. Two years ago, there were maybe 20 states where CBD was still a bad word and 3 states where it was flat-out illegal. That is no longer the case."

—Tim Gregorius, RPh

M. Wilson, director of program development for the American Herbal Products Association, but no secretary has acted.

“We see hemp as another botanical with robust regulatory frameworks at the federal level as dietary supplements and foods that can be used as the basis for regulating CBD products,” she said. “We and other industry groups have been advocating with the FDA to consider these CBD products as distinct from the pharmaceutical that has been approved.”

The absence of FDA regulation has helped spur the introduction of at least 5 bills to regulate CBD products in the US House of Representatives and Senate this year, Wilson said. One bill, HR 3617, the Marijuana Opportunity Reinvestment and Expungement Act, passed on a largely party-line vote in April 2022. Wilson and Gregorius agreed that stand-alone federal CBD legislation is unlikely to pass this year.

“We would encourage pharmacists to only stock products that comply with applicable law and recommend products based on their professional judgment,” Carter said. “This analysis should include weighing the risk vs benefits of the therapy, which is somewhat unusual for pharmacists, and needs to factor in the quality of the product and the possibility of undeclared THC or inaccurate labeling.”

REFERENCES
Women and CBD: Increased Interest, but Caution Is Warranted

CBD can be used to treat a myriad of women’s health conditions, but research is still limited. By Aine Cryts

 Cannabidiol (CBD) isn’t new in the pharmacy space, but Lisa Faast, PharmD, describes it as a “nascent category” because of the questions surrounding its legality. Also muddying the waters is its similarity to marijuana, she says.

Cannabis includes 2 compounds: Δ9-tetrahydrocannabinol (THC) and CBD;1 THC produces the high associated with marijuana use.2 And according to the FDA, it is “currently illegal to market CBD by adding it to a food or labeling it as a dietary supplement.”1 If a product has a maximum of 0.3% THC, it’s legal because it is mostly CBD.

Still, Faast expects changes from the FDA, despite the fact that selling CBD products is legal, because of the amount of clinical research that shows these products “benefit patients on a very broad scale.”

Anecdotal Evidence Supports CBD Use

Faast described a conversation she had with a woman who experienced endometriosis severe enough to require multiple surgeries. After using a vaginally-applied CBD product, the woman’s life was, Faast said, changed. “A lot of women have already tried…[nonsteroidal anti-inflammatory drugs], the birth control, the hot compresses; they’ve tried everything, but [they’re] still not having a normal life.”

For vaginal application, there are no major drug interactions a pharmacist needs to worry about. And, frequency of use varies wildly. “It really depends on the woman and her symptoms,” she said. “Some women only have bad cramps rarely; others have bad cramps every month. It’s one of those things where [if you know you have [pain] every month, it’s recommended that you use [one applicator] every day…” Each patient finds their own “rhythm,” but for patients with endometriosis, they’re probably going to want to take it daily.”

If a woman knows she has debilitating cramps 2 days a month, she may consider taking the CBD product 2 days before her period starts, which will prevent the pain, Faast added. And since each woman’s experience is different, Faast typically asks patients about the frequency of their menstrual cramps or endometrium-related pain before making any dosing recommendations.

A Cautionary Tone

Although these products are popular, pharmacists should pay attention to CBD products in the women’s health space. “There’s a growing prevalence of use…but there’s still limited data on safety due to various different reasons,” said Jamie Lo, MD, associate professor of obstetrics and gynecology at Oregon Health and Science University in Portland. These products, she added, can be difficult to study due to the lack of reproducibility, and because they’re not approved by the FDA they are not comparable.

Lo compared CBD product usage to measures of alcohol consumption. “It’s not like you’re saying, ‘I had 4 cans of beer and 2 glasses of wine.’ That’s a lot easier to quantify the contents. [With] CBD, …it’s just not regulated.”

Responding to Women’s Questions

It’s important for pharmacists to be prepared for a variety of questions from women regarding CBD products, and those questions will be determined by the age of the patient, said Lo.

Women are most likely to ask about the impact of CBD products on their fertility and pregnancy, in addition to the ability of CBD products to alleviate menopausal symptoms and menstrual and other types of pain, she explained.

The THC in CBD products can impact women’s menstrual cycles and their ability to get pregnant. In her research about daily THC edible use among female monkeys, Lo and her co-authors found that the monkeys with a 28-day menstrual cycle could see that cycle stretch to 38 days.3

In another article, Lo and colleagues observed that the use of cannabis “has been associated with altered reproductive hormones, menstrual cyclicity, and semen parameters…” In females, cannabis use has been associated with infertility and abnormal embryo implantation and development.4

Other findings from the article: Cannabis use during pregnancy and while breastfeeding can lead to preterm birth or impact an infant’s size at birth, in addition to having neurodevelopmental consequences and sociobehavioral and cognitive development impacts. Lo also found that there isn’t enough information available about the impact of cannabis to understand its potential impact on reproductive health and fetal development.

Her advice? Pharmacists can counsel patients that “there’s a lot of research in this area in the pre-clinical and human studies [showing] that CBD and THC products may be associated with adverse impacts on reproductive health and fertility. As such, you should talk to your healthcare provider if you’re thinking about conceiving in the future before use.”

For references, visit drugtopics.com.
Have you been sitting on the sidelines when it comes to selling cannabidiol (CBD) products in your pharmacy? Or maybe you took action and ordered products that have been really good at collecting dust. No matter where you are in your CBD journey, read on for tips to get your pharmacy ready to sell those products, help patients, and boost profit.

**Sexy Sells**

Patients pay for the items they want. Although it seems logical that they should pay only for things they need, our brains don’t work that way. As a pharmacy owner, your job is to make patients want the products you offer. And you can persuade them a lot more easily when you offer singular or exciting products.

You might be thinking that all CBD products seem the same. So how can you offer something unique? Often, it will be in how you present the products to your patients. Do you have exciting signage or bag stuffers? What about an enthusiastic employee that can draw your customers into a conversation about CBD? These marketing efforts alone can make a big difference.

A high-quality product from a great company is a must. When talking with potential suppliers of CBD products, ask what makes them special. Don’t just accept the typical answers of quality and meeting minimum legal standards. Those features should be a given and are not remarkable. What else do they offer?

Whichever CBD products and companies you choose to carry, make sure they have an exciting, sexy hook that will make it easier to promote it to your patients.

**Focus First**

CBD is a clinically exciting product. It offers promise across many areas of medicine, as well as the potential to help improve patient quality of life. The current and upcoming research is exciting but can become easily overwhelming.

Instead of providing a laundry list of ailments that CBD can address, start by focusing on just 1 area for initial improvement, such as sleep. Poor sleep affects a large portion of the population; this unfortunate fact means that you, the pharmacist, have the opportunity to help a lot of people in your community.

What does this focus look like? Make sure your signage, staff, social media posts, and other marketing focus on the single benefit (eg, improved sleep). When your community and patients see your focus on an issue, it will make them feel more comfortable about coming to you for a solution. People don’t like being sold to, but they do like being educated. Share sleep statistics or healthy sleep habits; showcase how much you know about their problem, then invite them to come in to evaluate the solutions you offer.

Moreover, focusing on 1 issue also draws in parties interested in other issues. If you keep talking about sleep, eventually you will get questions about whether a particular solution can help with pain too. Focusing helps the outside world see you as an expert. Additionally, people will feel comfortable coming to you with other needs.

**Activity Creates Profit**

OTC products don’t fly off the shelves by themselves. To increase CBD sales, your entire staff must be active participants. Have a team motto: “No Opportunity Left Behind.” Work to create a habit, so your employees listen for the right chance to bring up your focused solution.

Instill in your employees the concept of “every patient, every visit.” You should be offering up solutions at every encounter. Someone always needs something. It might be lip balm or it might be that CBD sleep solution. You will never know if you aren’t actively engaging with your customers at every opportunity.

---

Lisa Faast, PharmD, is CEO of DiversifyRx.
Mitigating Costs of Cancer Treatment: The Role of Pharmacists

Cancer care is expensive, but pharmacists can help. By Brandon May

Cancer care is associated with considerable financial toxicities, both in terms of out-of-pocket costs to patients and caregivers as well as burdens placed on the healthcare system at large. Drug Topics® interviewed several experts to discuss the role of pharmacists in mitigating costs associated with cancer care.

The Cost of Cancer Care
According to Daniel Zlott, PharmD, senior vice president at the American Pharmacists Association (APhA), multiple aspects of cancer care can place several financial burdens on patients and their families. “Depending on the type of cancer a patient is being treated for,” he said, “it is not uncommon for patients to require frequent visits with their oncologist, to undergo one or more surgical procedures, and to receive a series of chemotherapy infusions or radiation treatments.”

In addition, Zlott noted that caregivers of patients with cancer also face potential financial burdens associated with their caregiver duties. “Cancer treatment can be just as demanding on caregivers who may also need to take time off from work to support their family member(s) as they go through treatment,” he said.

For patients who are still working, Zlott added, management of their cancer can quickly deplete leave and sick leave balances and may consequently result in loss of pay. “Also, the cancer treatments themselves may cause people to either feel unable to work or, depending on their work responsibilities and the type of treatment the patient is receiving, may make it unsafe for them to work,” he added.

Lisa Holle, PharmD, clinical professor in the School of Pharmacy at University of Connecticut, and member of the Drug Topics® Editorial Advisory Board, echoed these statements and indicated that the largest financial toxicity that patients with cancer face is the costs of anticancer drugs. “Even if they have prescription drug insurance, co-pays or deductibles can result in significant costs,” Holle explained.

According to Holle, the average out-of-pocket costs for nearly all orally administered anticancer drug therapies is approximately $10,000 per month. “Most of our newer therapies that are administered intravenously are multi-thousands of dollars per treatment,” she said. Chimeric antigen receptor T-cell therapy is one of more expensive therapies, Holle added, although the “overall costs of long-term cancer care could be lower if no further treatment is needed.”

Alexandre Chan, PharmD, of the school of pharmacy and pharmaceutical sciences at the University of California, Irvine, said in a phone interview with Drug Topics® that many of the diagnostics used in cancer care also carry significant costs. “Some insurance plans may not even pay for some of those activities,” he explained.

Additionally, Chan noted that the management of certain symptoms, such as neuropathy, can also contribute considerably to the financial impact of cancer care. “We don’t really have a lot of very good medications for managing a lot of the symptoms that patients are experiencing,” he added. Some integrative and complementary approaches to symptom management, like acupuncture, may not be covered by insurance plans, given that the evidence for these approaches is not as strong as the data available for regulated medications.

How Financial Toxicities Impact Patients With Cancer
The financial impact of cancer treatment can be highly varied and is dependent on the individual patient’s circumstances, Zlott explained. “At one end of the spectrum is an individual with excellent insurance and a workplace with policies that are highly supportive of people who are experiencing serious illness,” he said. “At the other end of the spectrum are individuals without insurance, and without work, or who work for an employer that is unable or unwilling to extend support to its employees going through serious illness.”

Direct financial impacts of cancer treatment range from changes in lifestyle, such as reducing spending on recreational activities and vacations, to more severe issues such as inability to pay day-to-day bills due to the costs of cancer care, Zlott added.

Patients who are waiting to see if they can afford their treatment and/or if they meet qualifications for company-sponsored assistance or foundation
financial challenges.” Holle added that pharmacy technicians can also work with pharmacists to assess patients’ financial needs and determine availability of and eligibility for financial assistance programs to cover care or replacement drugs. Pharmacists can also try to minimize time in the infusion room for treatment so patients can get back to their normal routine, which may help with reducing time spent outside of work. Also, she suggested that pharmacists can seek to become more involved in developing pharmacy and therapeutics formulary recommendations and/or clinical pathways that better consider treatment-related financial burdens.

Utilizing biosimilars in addition to generic medications may also help decrease total costs of cancer care, Zlott noted. “Seeking prior authorization from a patient’s insurance company can also have a large impact on the out-of-pocket cost of care for a patient if the prior authorization is approved,” he added. “While these interventions certainly help, they are not enough to help lessen the total cost of cancer care for many patients.”

Many oncology pharmacists can provide first-time chemotherapy counseling and, instead of solely focusing on the costs of drugs, can seek to focus on how best to manage disease- and treatment-related symptoms in a cost-effective way, Chan added. “Focusing on if patients are even telling you that they have financial issues or that they have other distress that they need help with is [also] important. At least we are able to address them as a bigger whole, rather than just focusing on very rudimentary side effects.”

**Multidisciplinary Approaches**

The multidisciplinary care team serves as a coordinated, collaborative source of care that works to ensure all needs of the patient are addressed, including concerns surrounding the costs of and access to treatment. “Pharmacists work with the care team to identify and address the adverse events associated with cancer care as quickly as possible to ensure that patients have the best possible quality of life while undergoing cancer treatment,” Zlott explained.

Given that medications can contribute significantly to the total cost of cancer care, pharmacists are “well positioned to be able to identify options that may be available to help a person with cancer” while communicating any relevant financial concerns to other members on the care team,” Zlott said.

“When a pharmacist is involved in a multidisciplinary team and they are working together in providing care, they can provide guidance and recommendations that are cost-effective and provide reduced financial burden to the patient,” said Holle. “By performing medication reconciliation, they can identify potential medication-related problems and offer solutions with the idea that they will prevent additional healthcare issues and thus cost.”

Pharmacists, she added, along with other clinicians, can ensure financial offers and social workers are involved to help relieve the financial burden that occurs beyond the costs of medications. Improving communication may also be crucial, said Zlott. “I think the most important point for people with cancer is to be open with their care team about the financial impact their cancer care has on them,” he said. “There are many tools and resources that the care team has available to assist patients who are experiencing financial challenges, but the care team can't help if they don't know that the patient is experiencing financial challenges.”
IN MY VIEW / DISPENSED AS WRITTEN

By Peter A. Kreckel, RPh

Waste Problem Shows COVID-19 Vaccines Aren’t Just a Dime a Dozen

When it comes to the COVID-19 vaccine, independent pharmacies are being set up to fail by federal health partners.

This summer, I attended my wife’s 46th high school reunion. As with most things scheduled during the past 2 years, the 45th reunion was moved to this year. Although Denise and I went to pharmacy school together, graduating in 1981, we attended different high schools and I only knew 2 members of her Class of 1976.

At the reunion, I met many people and listened intently to their stories. Some worked abroad, living in Switzerland. Some worked in Pittsburgh, Pennsylvania. Many stayed close to home, doing jobs from driving cement mixers to running a family practice office. Among my wife’s former classmates, one stood out, dressed in impeccable white golf shorts and a designer golf shirt. We found ourselves discussing health insurance, as we are both approaching a Medicare-eligible age. I’ll call him “Greg.”

One of Greg’s classmates joined our conversation. He asked whether Greg was still driving his Porsche, to which Greg responded, “Yes, I am; matter of fact, I just picked up a new 911 a couple of weeks ago.” He told us it was his golfing car, because he is retired and gets to golf most days. I asked him where he puts his clubs, and he responded with a smile. “Well, they don’t fit in that tiny trunk, so I put them in the front seat.”

Greg frequently golfs at a course in Ohio with his buddies. He explained that one of the great advantages of golfing in Ohio vs Pennsylvania is that the gas is cheaper. His new Porsche only gets about 12 miles per gallon. I asked, “Greg, you’re driving a Porsche 911 to a golf course and you’re worried about saving 10 cents a gallon?” He responded, “Hey, I don’t like to waste money.”

COVID-19 vaccines are not free; taxpayers pay for every dose.

As ridiculous as this might sound, Greg has had an extremely successful career, and it is his money he’s spending on a car that costs well over $100,000. It’s his money he uses for his golf equipment and fees, and it’s his money he uses to buy his gas for 10 cents less per gallon.

The federal government has a similar outlook when it comes to health care—the most egregious example being the distribution of COVID-19 vaccines. Many of my colleagues are complaining of being “shut off” by the federal health partners for wasting vaccine. Over 25% of the vaccine has been wasted; 2 big retail chains are leading the way in number of wasted doses, but the smaller guys are wasting a higher percentage. To what can this waste be attributed?

Our federal partner will ship a minimum of 300 doses of adult Pfizer-BioNTech COVID-19 vaccine. I have begged them to send just 60 doses at a time. They responded that they can’t break the boxes open. I pointed out that the doses are shipped in individual boxes, a total of 5 with 60 doses each. But according to our partner, those are the CDC’s rules. I am acutely aware that the government pays Pfizer $20.50 per dose of vaccine. If 5 of the 6 doses in a vial get wasted, Pfizer still gets a check for 6 doses. There is talk of a variant-specific vaccine coming this fall. Many experts see no reason for these “amped up” vaccines, because the original vaccine is doing its job of keeping people out of the hospital and from dying. According to recent reports, Pfizer will be reimbursed $30 for each dose of this variant-specific vaccine. Did anyone else get a 50% raise this year? Pfizer also will be providing some single-dose vials/syringes. Vaccination rates are way down; all manufacturers should be required to provide single-dose syringes to decrease waste. But then, why should they? They get paid whether the vaccine goes into an arm or into a trash can.

Pharmacies are being set up to fail with the vaccine program. It is not a “free vaccine”—taxpayers pay for every dose. Unlike Denise’s classmate Greg, it is our money they are spending on these programs. So, for now, I’ll continue driving my Honda Civic to work so I can afford to pay taxes for the government to waste on its vaccine program.

For references, visit drugtopics.com.

Peter A. Kreckel, RPh, practices community pharmacy in Altoona, Pennsylvania.
FDA Approves Voquezna for *Helicobacter pylori* Infection in Adults

This new treatment option copackages 3 drugs for optimal treatment.

**Efficacy**

Through the PHALCON-HP clinical trial (NCT04167670), investigators demonstrated the safety and efficacy of vonoprazan in combination with amoxicillin and clarithromycin (vonoprazan triple therapy) and vonoprazan in combination with amoxicillin (vonoprazan dual therapy) vs lansoprazole in combination with amoxicillin and clarithromycin (lansoprazole triple therapy). This randomized, multicenter, phase 3 trial initially enrolled 1046 patients; 992 patients with confirmed *H pylori* infection were later randomly assigned into 1 of 3 treatment arms (n = 324, 338, and 330, respectively). The primary end point, infection eradication rate by vonoprazan-containing regimens, was found to be noninferior compared with the lansoprazole triple therapy arm. Investigators used a modified intention-to-treat population and reported *H pylori* eradication rates of 84.7% and 78.5% with vonoprazan triple and dual therapy, respectively, vs 78.8% with lansoprazole triple therapy (P < .0001 and P = .0037, respectively, for noninferiority).

**Safety**

ACV is considered a strong CYP3A4 inhibitor due to the inclusion of clarithromycin. Concomitant use with CYP3A4 substrates may cause elevated concentrations, particularly of concern with rilpivirine-containing products, simvastatin, lovastatin, and colchicine. Additional warnings and adverse effects are predominantly related to amoxicillin and clarithromycin, including gastrointestinal distress, prolongation of the QT interval, and hepatic dysfunction. Use of ACV triple therapy should be avoided in patients with risk factors for macrolide resistance (prior exposure, local clarithromycin resistance rates ≥ 15%, eradication rates with clarithromycin-based regimens ≤ 85%).

**Dosing**

ACV dosing consists of amoxicillin 1 g, clarithromycin 500 mg, and vonoprazan 20 mg administered together orally twice daily for 14 days. Alternatively, ACV is available copackaged with only amoxicillin 1 g three times daily plus vonoprazan 20 mg twice daily for 14 days without the clarithromycin component for use with macrolide-resistant or allergic individuals.
Acknowledging and Preventing Burnout Among Health Care Providers: Taking Steps in the Right Direction

EDUCATIONAL OBJECTIVES

At the completion of this activity, the participant will be able to:
• Review the growing incidence of burnout among health care providers (HCPs), the contributing factors, and the impact on HCPs and patient care
• Discuss ongoing initiatives from various health care organizations aimed at identifying and addressing burnout and stress among HCPs

TARGET AUDIENCE: Pharmacists
ACTIVITY TYPE: Knowledge
RELEASE DATE: September 12, 2022
EXPIRATION DATE: September 12, 2023
ESTIMATED TIME TO COMPLETE ACTIVITY: 2.0 hours
FEE: This lesson is offered for free at www.advancepharmacist.com

Introduction

An expanding body of published literature corroborates the idea that burnout symptoms are prevalent among health care providers (HCPs) and that burnout is correlated with negative outcomes, such as suboptimal patient care and professional inefficiencies.1 The global health crisis that emerged during the COVID-19 pandemic presented HCPs with unprecedented challenges and pressures. The pandemic escalated emotional, mental, and physical challenges for HCPs. Even with these mounting stressors, HCPs were expected to continue to perform their work duties and maintain quality care while adapting to continual changes in the delivery of health care.

The COVID-19 pandemic amplified the challenges and consequences associated with burnout and brought the issue to the forefront. As a result, many health care organizations such as the American Pharmacists Association, American College of Clinical Pharmacy, American Society of Health-System Pharmacists, American Medical Association, American Nurses Association, and the National Academy of Medicine are expanding their efforts to highlight the issue and are continually implementing measures to identify and address HCP burnout and promote well-being.

Various publications have indicated that even before the emergence of the COVID-19 pandemic, many HCPs including physicians, nurse practitioners, nurses, and pharmacists were already dealing with burnout due to staff shortages, long hours, reimbursement issues, and other factors. In 2008, the Triple Aim for health care enhancement was launched, highlighting the overall goals of improvement of population health, enhancement of the care experience, and decreasing health care-related costs. In 2014, to increase the awareness...
about the escalating rates of burnout among HCPs, the Quadruple Aim was introduced with the addition of a fourth element to address health care worker burnout and well-being. Researchers have noted that in order to meet the goals of the Triple Aim, the issue of burnout among clinicians must also be identified and managed, as factors related to burnout and reduced clinician engagement are often directly correlated.

Burnout among HCPs is a growing issue that warrants immediate and ongoing attention due to its profoundly negative impact on HCPs, patients, and the health care system. Unidentified and unmanaged burnout imposes a critical threat on overall well-being, including physical, mental, and behavioral health. This activity will review the risk factors, signs and symptoms, and consequences of unidentified and unmanaged burnout and provide recommended measures to prevent or reduce burnout among HCPs.

Overview and Evaluation of Burnout
Burnout has been reported by HCPs at various stages of their careers and across all spectrums of health care practice. The concept of burnout was introduced in 1974 by clinical psychologist Herbert Freudenberger who, over a period of time, witnessed emotional exhaustion and accompanying psychosomatic symptoms being exhibited by some of the volunteer staff at a free medical clinic. He also noted that due to the demands and impact of professional responsibility and the workplace environment, burnout develops over time in several stages.

Freudenberger defined burnout as exhaustion resulting from “excessive demands on energy, strength, or resources” in the workplace, characterizing it by a set of symptoms including malaise, fatigue, frustration, cynicism, and inefficacy. In addition, Freudenberger noted that burnout often arose in situations that warranted a great deal of personal involvement and empathy, predominantly among “the dedicated and the committed.”

Research continued over the next decade and in 1981, social psychologist Christina Maslach expanded upon Freudenberger’s research. Maslach developed a model to assess burnout, known as the Maslach Burnout Inventory (MBI). The MBI consists of 3 dimensions: emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment.
Did Your Business Receive PPP? Either way, **You Still Qualify for ERC!**

**What is ERC?**

Bottom Line Savings helps business owners receive money back from the Employee Retention Credit (ERC) federal grant. This ERC program differs greatly from the Paycheck Protection Program (PPP) and is much easier to apply for. Bottom Line will submit and collect a few important documents making this program turnkey for our owners.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

**You don’t need a sales reduction to qualify for ERC. Operational impacts to your business will qualify you as well.**

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Your business could be getting up to **$8,000-$26,000** per employee in **Employee Retention Credits (ERC)** even if you received PPP loans.

Our experts at Bottom Line will help you maximize your refund!

As a valued partner, **Bottom Line** will:
- Identify how you qualify for the ERC Program
- Outline your specific ERC calculations to maximize the credit
- Help you claim the credit
- Ensure proper payroll tracking and documentation

Apply today and an ERC Specialist will contact you directly. Please visit [www.tryerc.com](http://www.tryerc.com)

---

**REDUCE YOUR CREDIT CARD PROCESSING FEES**

Rates as low as .05%*

- FREE Credit Card Terminal Placement Wireless/Landline/High-Speed/Dial-Up
- Easy setup (with no setup fees and quick approvals)
- Seamless integration with your current POS
- $295** towards your early termination fee (if you have one) with your current processor
- Access to Payments Hub - our secure, online merchant portal
- Free paper**

**INTEGRATE WITH YOUR POS**

- FREE NFC & EMV-Ready Terminal & Pin Pad or wireless terminal.
- Accept payments in-store, online, or on-the-go.

**OPTIONAL PROGRAMS:**

Make the same profit margin with cash and non-cash payments!
- **Cash Discount**
  - NAB makes it easy to make the same profit from non-cash payments as you do with cash payments with our cash discount program.

- **Curbside Ordering**
- **Point of Sale Systems**
- Recommendations, Solutions & Integrations

GROW YOUR BUSINESS. PARTNER WITH NAB TODAY!

[866.481.4604](tel:+18664814604)

© 2020 North American Bancard, LLC (NAB). All rights reserved. NAB is a registered ISO of BMO Harris Bank N.A., Chicago, IL, Citizens Bank N.A., Providence, RI, The Bank of America, Philadelphia, PA, and First Fresno Bank, Fresno CA. American Express may require separate approval. *Durbin regulated Check Card percentage rate. A per transaction fee will also apply. **Some restrictions apply. This advertisement is sponsored by an ISO of North American Bancard. Apple Pay is a trademark of Apple.
Hayslip Rx Brokers Inc.

Tony Hayslip, ABR/AREP
713-829-7570
Tony@RxBrokerage.com

Need Expert Help
Selling / Buying a Pharmacy?
Approached by a Chain to Sell?
Looking for an Independent Buyer?
Need a Valuation for Your Pharmacy?

MAXIMIZE your value
MINIMIZE your worry

Endorsed by
State Pharmacy Associations

Contact Tony Hayslip
for All Your Answers
RxBrokerage.com 1.800.530.5650

Hayslip Rx Brokers Inc.

Tony Hayslip, ABR/AREP
713-829-7570
Tony@RxBrokerage.com

Need Expert Help
Selling / Buying a Pharmacy?
Approached by a Chain to Sell?
Looking for an Independent Buyer?
Need a Valuation for Your Pharmacy?

MAXIMIZE your value
MINIMIZE your worry

Endorsed by
State Pharmacy Associations

Contact Tony Hayslip
for All Your Answers
RxBrokerage.com 1.800.530.5650

Hayslip Rx Brokers Inc.

Tony Hayslip, ABR/AREP
713-829-7570
Tony@RxBrokerage.com

Need Expert Help
Selling / Buying a Pharmacy?
Approached by a Chain to Sell?
Looking for an Independent Buyer?
Need a Valuation for Your Pharmacy?

MAXIMIZE your value
MINIMIZE your worry

Endorsed by
State Pharmacy Associations

Contact Tony Hayslip
for All Your Answers
RxBrokerage.com 1.800.530.5650
Get Paid for What You Do!

Join the only integrated MTM community pharmacy solution that pays you.

- Expand your role as a provider
- Retain patients and build loyalty
- Grow profitability and proficiency

$2MM in Clinical Revenue Opportunities

Scan to learn more about the only integrated MTM solution that pays you. We make it easy.