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NATIONAL COMMUNITY PHARMACISTS ASSOCIATION

The Community Pharmacy Guide to Providing Vaccines During Pregnancy

SUPPORTED BY Pfizer

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Table of contents

Introduction

Imagine a world where every pregnant person has access to the resources, including vaccines, they need to protect themselves and their baby. Now, consider the reality. Many people receiving prenatal care face significant barriers to accessing and receiving recommended vaccines.

This is where community pharmacies like yours can make a difference.

31% of pregnant individuals received a COVID-19 vaccine	33% reported receipt of an RSV vaccine
47% reported receiving the flu vaccine	60% reported receiving Tdap vaccine

According to 2023-2024 data from the Centers for Disease Control and Prevention (CDC)

Obstetricians and gynecologists (OB/GYNs) may not have the time or resources to address all patient needs, especially in areas with provider shortages or where patients must travel long distances for care. So, one should not assume that other providers have discussed all details regarding vaccines and other key prenatal care recommendations with patients.

For many, you are the most accessible point of contact with the healthcare system. Pharmacy closures reduce vaccination access for all patients, so your commitment is essential. You are uniquely positioned to ensure that no opportunity for vaccination is missed. Patients may seek prenatal care from multiple providers; however, your pharmacy can be a consistent and credible source for vaccine information and additional prenatal care services.

Expanding your vaccination services to specialize in prenatal care requires investing time in training and patient education. Staying up to date with the latest vaccine recommendations enables you to provide evidence-based, quality care for each patient who walks through your door.

In addition to vaccines, there are opportunities to conduct health risk assessments, identify potentially teratogenic medications, and provide disease state management – through patient education, medication management, and point-of-care services such as blood sugar and blood pressure monitoring. Your actions can increase collaboration with other healthcare providers and community groups leading to better health outcomes overall. Each time you initiate a conversation about vaccines important during pregnancy, you are protecting two lives – the pregnant person and their unborn child.

In this guide, we explore the medical significance of vaccinations during pregnancy and the unique opportunities this service expansion presents for forward-thinking pharmacy teams. We use inclusive language applicable to everyone who may experience pregnancy, regardless of gender identity, sexual orientation, age, cultural background, or socioeconomic status.

THE IMPORTANCE OF VACCINATION DURING PREGNANCY

Routine vaccination has been proven to significantly reduce morbidity and mortality associated with pregnancy, childbirth, and early infancy. Therefore, global and national health organizations strongly advocate for vaccinations during pregnancy.

The World Health Organization (WHO) recommends vaccines protecting against several diseases, including influenza (inactivated), pertussis, and tetanus. In the United States, the Advisory Committee on Immunization Practices (ACIP) and CDC recommend routine vaccinations for influenza, pertussis, COVID-19, and respiratory syncytial virus (RSV).

Key reasons for prioritizing vaccines during pregnancy include:

- Prevention of pertussis (whooping cough) and RSV infection in infants, which can be potentially life-threatening.
- Reduced risk of influenza-related complications and hospitalization for both pregnant individuals and newborns.
- Protection against COVID-19, which can cause more severe illness during pregnancy and lead to problems such as premature birth.

Vaccination during pregnancy is critical because it helps protect newborns during the first- months of life when they are most vulnerable to infections. This protection is especially important for diseases like pertussis, where infants face the highest risk of severe complications and cannot receive their own vaccination until months after birth (CDC, 2024).

For those who are at increased risk (e.g., international travel, people with HIV), additional vaccines may be needed to provide protection from pneumococcal, meningococcal, and hepatitis infections, which can cause severe morbidity.

BUSINESS OPPORTUNITIES FOR PHARMACIES

CDC reported approximately 3.6 million births in the United States in 2023. Additionally, the CDC's concept of a "respiratory disease season" presents an opportunity for pharmacy teams to address several preventive measures in a single visit.

Benefits For Your Pharmacy

Expanding your vaccination program to address the needs of pregnant patients offers numerous benefits that extend beyond revenue from vaccine administration.

By ensuring patients receive recommended vaccines during pregnancy, you can:

1. Address public health gaps and reduce vaccine hesitancy
2. Support OB/GYNs who may not stock certain vaccines (e.g., RSV)
3. Grow your business in a specialized niche and attract new patients

As you begin offering these specialized services, you will likely notice an increase in foot traffic as people spread the word to their other healthcare providers, family, and community. Pregnant patients coming in for their vaccine appointments may browse your aisles, leading to purchases of prenatal vitamins, OTC medications safe for pregnancy, or other health and wellness products.

Many pharmacies do not provide specialized services for pregnant patients due to the perceived complexity and potential risks involved. However, being able to serve this population, and the next generation, will give your pharmacy a competitive edge, attracting a unique clientele of loyal customers.

Most importantly, expanding vaccine services to confidently provide care for pregnant patients enhances your pharmacy's role in the healthcare ecosystem, as a comprehensive healthcare destination capable of providing preventive care to vulnerable and underserved populations.

Research and Market Analysis

Before expanding your vaccination program, thoroughly assess:

1. Target demographic (e.g., reproductive-aged patients in your area)
2. Availability and cost of vaccines
3. Attitudes towards vaccines in general, especially during pregnancy
4. Common concerns about vaccine safety for developing fetuses and reproductive health
5. Willingness to receive vaccines in a pharmacy setting
6. Local healthcare providers' stance on pharmacy-administered vaccines
7. State scope of practice and regulations (e.g., statewide protocols, etc.)

This information will guide your service launch strategy, vaccine inventory management, and potential collaboration with other healthcare providers.

Business Analysis

Like every new venture in your pharmacy, you will want to develop a business plan for your vaccine service expansion. Table 1 includes a list of considerations.

Table 1: Vaccine Business Plan Considerations		
SWOT (strengths, weaknesses, opportunities & threats) analysis	Patient forecasting	Launch timeline and checklist
Licensing and regulatory requirements	Training and education	Internal program development: policies, procedures, protocols, workflow, intake forms, etc.
Financial modeling: revenue cycle management	Collaboration(s) and strategic engagements	Vaccine and equipment purchasing and inventory management
Marketing and communications	Appointment and billing technology solutions; travel health software	Reporting and recordkeeping

ROUTINE VACCINE RECOMMENDATIONS FOR PREGNANT INDIVIDUALS

ACIP has established comprehensive guidelines for vaccines recommended during pregnancy. As with all medical interventions, the potential benefits of these vaccines must be carefully weighed against any theoretical risks, always prioritizing the health and safety of both the pregnant patient and the developing fetus.

Influenza Vaccine (Inactivated)

ACIP and the American College of Obstetricians and Gynecologists (ACOG) advise that all pregnant individuals receive the inactivated flu vaccine during flu season, regardless of trimester since there is a higher risk of severe complications from the flu during pregnancy. Additionally, infants cannot receive the flu vaccine until they are 6 months old, so vaccination during pregnancy also provides the infant with protection during this vulnerable time.

Pregnant patients should only receive inactivated versions of vaccine products. Live vaccines, such as the nasal spray formulation of the flu vaccine, should be avoided, as they may cause fetal viremia/bacteremia.

If not given during pregnancy, the influenza vaccine should be administered as soon as possible if delivery occurs during flu season. The influenza vaccine is safe for those who are nursing and helps prevent severe illness from the flu postpartum.

Tdap Vaccine

ACIP and ACOG recommend the Tetanus, Diphtheria, and Pertussis (Tdap) vaccine be given during **every** pregnancy, between 27 - 36 weeks of gestation, even if the person has received it before. This timing allows for the maximum transfer of protective antibodies to the fetus, to protect newborns from pertussis, or whooping cough, in their first months of life. Getting the Tdap vaccine during pregnancy lowers the risk of whooping cough in babies younger than 2 months old by 78% (CDC, 2024).

If needed, Tdap can be administered earlier in pregnancy, however it is not optimal. If the vaccine is indicated for wound care or community pertussis outbreak, then it can be given at any time during pregnancy. If Tdap is administered earlier than 27 weeks' gestation, it should not be repeated in the third trimester, as the CDC recommends only one dose during each pregnancy.

If the Tdap vaccine isn't administered during pregnancy, it should be given immediately postpartum. This vaccine is safe for individuals who are nursing and particularly important as it helps protect the newborn from whooping cough, which can be life-threatening.

COVID-19 Vaccine

ACIP and ACOG recommend COVID-19 vaccination at any point during pregnancy. This recommendation is based on extensive data showing that the vaccine does not increase the risk of miscarriage or pose harm to the developing fetus. Instead, it offers vital protection against severe COVID-19 illness, which can be particularly dangerous during pregnancy. COVID-19 disease during pregnancy can increase the risk of eclampsia and cesarean birth for the pregnant person, and also raises the risk of preterm birth for the infant (ACOG, 2023).

Respiratory Syncytial Virus (RSV) Vaccine

A recent addition to routine vaccinations recommended during pregnancy is the RSV vaccine. According to the CDC, RSV is the leading cause of infant hospitalization in the US (CDC, 2024).

ACIP recommends administering one dose of Pfizer's Abrysvo® vaccine to protect against RSV between 32- and 36-weeks' gestation. This timing helps ensure that newborns receive passive immunity against RSV. Those who are **more** than 36 weeks and 6 days pregnant should not receive the RSV vaccine due to the likelihood of there not being enough time for antibodies to develop, cross the placenta, and protect the infant before birth.

If already vaccinated against RSV during a previous pregnancy, CDC does not recommend RSV vaccination during subsequent pregnancies. For cases where RSV vaccination during pregnancy isn't possible or does not occur, the RSV monoclonal antibody (nirsevimab) is recommended for infants up to 8 months old who are born during or are entering their first RSV season.

Table 2: Summary of Routine Vaccination Recommendations During Pregnancy

Vaccine	Timing	Notes
Influenza (Inactivated)	Any trimester	Inactivated form only, given during flu season
Tdap	27-36 weeks' gestation	Given during every pregnancy
COVID-19	Any trimester	mRNA vaccines may be most effective (Nature, 2022), however all available COVID-19 vaccines are safe and recommended during pregnancy
RSV	32-36 weeks' gestation	Give A**br**ysvo® brand only, during RSV season, September – January

OTHER VACCINES THAT MAY BE INDICATED DURING PREGNANCY

Depending on individual circumstances, additional vaccines may be recommended, based on specific risk factors, local disease prevalence, or travel plans.

Hepatitis A Vaccine

Individuals at risk for being infected with Hepatitis A during pregnancy should receive the Hep A vaccine. Risk factors include:

- International travelers
- Injection drug use or use illegal drugs
- Occupational risk for infection (e.g., hospital workers, daycare providers)
- Close personal contact with an international adoptee
- Persons experiencing homelessness

Hepatitis B Vaccine

If not already vaccinated against Hepatitis B, individuals should receive the Hep B vaccine during pregnancy for their protection and to reduce the risk of vertical transmission to the baby.

Engerix-B, Heplisav-B®, Recombivax HB®, and Twinrix® are Hep B vaccine products considered safe during pregnancy.

Recommended/safe

Meningococcal Vaccine

Meningococcal vaccination may be necessary during pregnancy for those at increased risk. This includes:

- People with certain immune deficiencies (e.g., HIV, history of splenectomy)
- Travelers to areas where meningococcal disease is hyperendemic or epidemic
- First-year college students living in dormitories
- Military recruits

There are two different types of meningococcal vaccines, MenACWY and MenB, and the choice depends on specific risk factors. While there is limited information about the risks of the MenACWY vaccine during pregnancy, no safety concerns have been identified. For MenB, no randomized controlled clinical trials have evaluated its use in pregnancy or nursing, therefore CDC recommends that vaccination with MenB should be deferred during pregnancy unless there is increased risk and after consultation with their primary care provider.

Travel Vaccines

For individuals planning international travel, a range of vaccines may be necessary depending on the destination. Each travel vaccine requires careful consideration of the specific risks and benefits during pregnancy. Regularly refer to the ***CDC's travel guidelines*** for specific destinations as recommendations can change based on current disease outbreaks or other factors.

- The yellow fever vaccine is generally avoided during pregnancy unless travel to an endemic area is unavoidable and the risk of disease outweighs vaccine risks.
- For typhoid protection, the inactive vaccine injection is preferred for pregnant travelers going to endemic countries where water quality and sanitation are poor. The oral formulation is a live attenuated version and contraindicated in pregnancy.
- The inactivated Japanese encephalitis vaccine may be considered for long-term travel to endemic areas.
- Since rabies is associated with a 100% fatality risk once clinical symptoms appear, pre-exposure rabies vaccination should be recommended for travel to high-risk areas.

Vaccines to protect against the following pathogens should be avoided up to 30 days before conception and during pregnancy.

- Human papillomavirus (HPV)
- Influenza (live, attenuated)
- Measles, mumps, and rubella (MMR)
- Varicella (chickenpox)

Table 3: Summary of vaccines that should be given or avoided during pregnancy

Should it be given during pregnancy?	Vaccine Product
Yes, during **each** pregnancy	• Tdap • COVID-19, if not up to date • Influenza (inactivated), during flu season
Yes, but **not** with each pregnancy	• RSV (Abrysvo®), September – January
Maybe, based on medical history, and certain risk factors	• Pneumococcal • Hepatitis A • Hepatitis B (Engerix-B ®, Heplisav-B® Recombivax HB®, Twinrix®) • Meningococcal
No, avoid unless benefit outweighs risk	• HPV
No, contraindicated during pregnancy	• Influenza (Live attenuated) • MMR (Live attenuated) • Varicella (Live attenuated)

IMMUNIZATIONS FOR FAMILY MEMBERS AND CAREGIVERS

Anyone in regular, close contact with someone who is pregnant, including parents, other children, and caregivers, should be up to date on all routine vaccines at least two weeks before contact with newborns since it takes about two weeks to develop antibodies.

When one person in the household has a respiratory illness, others are at risk too. This concept of "cocooning" means vaccinating family members in close contact with newborns and young infants at a time when they are highly vulnerable to diseases that can have severe consequences.

If not up to date, family members and caregivers should receive all recommended routine vaccinations, with priority given to the ones listed below.

- Flu
- COVID-19
- Tdap
- MMR
- Varicella

Table 4: Summary of vaccines recommended for family members and caregivers

Vaccine	Rationale
Flu and COVID-19	Babies younger than 6 months are at high risk of severe complications from flu and COVID-19 since they are not old enough to receive the flu vaccine.
Tdap	Individuals who have not received the Tdap vaccine in the last 10 years should get a booster to protect the newborn against whooping cough.
MMR	Measles is highly contagious and can be fatal. If someone has measles, up to 90% of the people around them, who are not immune, will also become infected (CDC, 2024).
Varicella	Chickenpox can be serious, even life-threatening, especially for babies and individuals experiencing pregnancy.

Vaccinations After Childbirth

If a recommended vaccine is not received during pregnancy, the postpartum period is an opportunity to catch up. This also provides indirect protection to the newborn through antibodies passed through breast/chest milk. Vaccines to protect against MMR and chickenpox are also recommended postpartum if indicated.

Key Takeaways

- **Four vaccines are routinely recommended during pregnancy: Inactivated influenza, Tdap, COVID-19, and RSV. Additional vaccines may be recommended based on risk factors or travel plans.**
- **The Pfizer Abrysvo® Vaccine is the only RSV Vaccine indicated for pregnant individuals.**
- **Do not administer the Hep B vaccine products Heplisav-B or PreHevbrio during pregnancy due to a lack of safety data.**
- **Avoid MMR, Varicella, and live attenuated influenza vaccines during pregnancy and up to 30 days before conception.**
- **Recommend routine vaccines for close contacts of the newborn, ideally at least 2 weeks before contact.**

Operational Considerations

Consistently review and update staff training and resources on CDC, ACIP, and other recognized vaccination guidelines to ensure proper administration and technique. To identify areas of improvement, consider methods for regularly soliciting feedback from patients and staff.

VACCINE STOCKING AND MANAGEMENT

Proper vaccine stocking and management involves ensuring an adequate supply of vaccines you expect to give, maintaining efficacy through proper storage, and implementing systems to prevent errors.

Implementing Systems to Prevent Errors

The CDC has reported numerous errors in administering RSV vaccines to pregnant patients. There are currently three available RSV vaccines: Abrysvo® (Pfizer), Arexvy (GSK), and mResvia® (Moderna). Abrysvo® is the only RSV vaccine indicated during pregnancy.

> ***Always ensure that Abrysvo® is the ONLY RSV vaccine given to pregnant patients.***
>
> ***ABrysvo® - Think B for baby.***

Consider storing similar vaccines in different locations or using color-coding systems (e.g., blue for Abrysvo®, yellow for Arexvy) to differentiate them visually.

As mentioned earlier, out of the currently available Hepatitis B vaccines, the only ones safe to administer during pregnancy are Engerix-B, Recombivax HB, or Twinrix.

Adverse Event Monitoring and Reporting

Effective counseling on the possibility of fever or pain should be conducted prior to vaccination. Especially during pregnancy, knowing what to expect can help avoid unnecessary worry or fear.

> ***Acetaminophen is recommended as needed during pregnancy for fever or other post-vaccination side effects, such as pain or headache.***

Be sure to have protocols that outline the appropriate immediate response to reported serious adverse events and establish a standardized process for monitoring and reporting adverse events to the **Vaccine Adverse Event Reporting System (VAERS)**.

The National Vaccine Injury Compensation Program (VICP) is a federal program established in the 1980s as a no-fault system for resolving vaccine injury claims. Its creation was prompted by concerns that lawsuits against vaccine manufacturers and healthcare providers were threatening vaccine supplies and potentially reducing vaccination rates. VICP covers most vaccines routinely administered in the United States.

V-safe is part of the U.S. vaccine safety system that monitors the safety of vaccines. It was originally created to monitor the safety of COVID-19 vaccines and has expanded to include RSV vaccines. V-Safe does not inherently indicate a higher risk of adverse effects or risks associated with vaccines. Instead, it helps collect data on how people feel after getting vaccinated, which can include reporting any side effects they experience.

Share Success Stories

Regularly discuss positive experiences and outcomes from vaccination encounters to boost staff morale and reinforce the importance of the service expansion. Set aside time during team meetings to share success stories and use internal communication channels to highlight successes in real time. Use these stories as opportunities to discuss what went well and how to replicate positive experiences.

APPOINTMENT SCHEDULING, ASSESSMENT, AND PATIENT EXPERIENCE

If currently prioritizing an appointment-based model, consider a blended model that improves accessibility by allowing some flexibility for walk-in patients. Utilizing templates in your Pharmacy Management System (PMS) for data entry can help improve efficiencies in workflow to accommodate walk-ins.

To further improve efficiencies and reduce interruptions to workflow, consider implementing a HIPAA-compliant online scheduling form and ensure the scheduling link is prominently displayed on your pharmacy website for easy access. Some forms have conditional settings, where recommended vaccines are displayed once the patient enters their demographics.

Appointment Reminders

Implement a HIPAA compliant automatic reminder system for scheduled appointments, preferably with notifications sent 1-3 days prior. If your pharmacy has SMS capabilities for sending text messages to patients, consider also using this feature to send appointment reminders. Some appointment scheduling tools have automated SMS and email reminder features built in.

Proactive Missed Appointment Management

Implement an automated escalation process for missed appointments, beginning with immediate notifications, and progressing to personalized follow-ups. Train staff on effective communication strategies for re-engaging patients who miss appointments.

Table 5: Comparison of Scheduling Approaches

Model	Description	Considerations
Appointment-based	Patients schedule appointments online or over the phone. May also allow for pre-appointment screening, payment, and reminders.	Allows for better workflow management and vaccine stock planning. May exclude patients without internet or phone access.
Walk-in	Accommodates patients without appointments.	Increases accessibility and ensures flexibility and convenience for patients with unpredictable schedules. Less predictable workflow may lead to longer wait times.
Blended	Combines scheduled appointments with some walk-in availability. Allocates specific times for each type of service.	May require more complex operational considerations, like special hours for walk-in availability.

Patient Experience

Allocate approximately 10-15 minutes per vaccine encounter. This time allows for:

- Patient screening and education
- Gestational age calculation
- Vaccine preparation and administration
- Post-vaccination counseling, monitoring, and documentation

Streamlined Check-In & Screening

Ensure all screening questions align with current ACIP guidelines so you can conduct a thorough screening upon check-in, including underlying conditions, allergies, and prior reactions to vaccines.

Develop a streamlined check-in process utilizing pre-filled information from online forms or PMS templates to minimize data entry time and maximize patient interaction. Utilize barcode scanning for vaccine vials to minimize data entry errors and ensure accuracy.

Always confirm pregnancy status and gestational age and use your region's immunization registry, or Immunization Information System (IIS), to identify any gaps in vaccination history.

Calculating Gestational Age

Gestational age is the approximate length of pregnancy, in weeks, measured after the first day of the last menstrual cycle. This is about 3-4 weeks before conception, when the egg that was fertilized was released. If the date of the last menstrual period (LMP) is known, gestational age can be calculated by taking the difference between the current date and the date of the LMP.

On average, the estimated gestational age at childbirth is 280 days (40 weeks). So, if only the due date is known, you can subtract 280 days from the expected due date, to find the date of the LMP. Then subtract the LMP from the current date to get the current gestational age.

Estimated due date – 280 days = **date of LMP**
Current date – **date of LMP** = gestational age

There are several ***online tools*** available for calculating gestational age.

Since Tdap is recommended at 27-36 weeks (189-252 days) of gestation and RSV at 32-36 (224-252 days) weeks gestation, quick access to a gestational age calculator may improve accuracy and efficiency during your intake process. Once determined, gestational age should be documented on the vaccine consent or patient intake form.

Calculating RSV Vaccination Window

The Pfizer Maternal RSV Vaccine Planner is a free online tool that determines the vaccination window, or date range, for when a pregnant person should receive the Abrysvo® RSV vaccine. Using this tool can help ensure all RSV vaccines are administered at the right time.

Simply enter the patient's estimated due date and it will generate the vaccination window. Once the window is determined, the tool allows you to set up a reminder for the patient by entering their name and email address. You can access the Pfizer Maternal RSV Vaccine Planner ***here***.

Patient Education
Provide education on the importance of vaccination during pregnancy, review all ACIP-recommended vaccines, and discuss eligibility for additional vaccines that may be considered based on specific risk factors.

Share detailed, patient-friendly vaccine records that include administered vaccines, future recommendations, potential side effects, and when to seek medical attention, ensuring easy access to vaccination history and instructions for care.

Lastly, discuss the importance of creating a protected environment for the newborn and offer to coordinate additional vaccine appointments for family members, caregivers, and other close contacts.

Future Planning
For vaccines not yet due, schedule future appointments immediately. Utilize your PMS future fill dates and refill scheduling features or assist patients in booking their next appointment online before they leave the pharmacy.

DOCUMENTATION AND FOLLOW-UP

Your pharmacy should maintain accurate records of care documentation, vaccine confirmation, and a review of all ACIP-recommended vaccines for which the patient may be eligible. Record all vaccine details in patient records, including lot numbers and expiration dates for traceability. Documentation of vaccine recommendations, even if they are not accepted, will allow for follow-up conversations during future encounters.

Commit to sharing documentation of administered vaccines with local OB/GYN offices to ensure continuity of care and position your pharmacy as a true partner. Use a form that lists every vaccine offered at your pharmacy and check off which ones are administered. This allows the provider to see the entire spectrum of vaccines you provide, which can lead to increased referrals.

Immunization Information System (IIS)
Ensure all administered and scheduled vaccines are properly documented not only in your PMS, and also in your region's immunization registry, which may be mandated by state law. IISs are state, city, or territory-wide databases of patient vaccination records. Your PMS may have capabilities to automatically report this information on your behalf.

IISs can also be queried to look up a patient's vaccination history to determine which vaccines they are eligible to receive and identify any gaps. The CDC has a comprehensive list of each state's IIS on its ***website***. Contact your local IIS or board of pharmacy to determine reporting requirements.

Advanced Recall and Reminder System
To ensure timely administration, consider developing a HIPAA compliant multi-channel reminder system that leverages text messages, emails, and/or phone calls to alert patients about upcoming appointments. Consider patient histories to identify who may be at risk of missing appointments so you can tailor reminder frequency and content.

Quality Assurance and Continuous Improvement
Regularly audit vaccine records for completeness and accuracy to maintain high standards of care and accuracy. Analyze documentation and follow-up encounters to identify areas for improvement.

Key Takeaways

- **Use color coding or separate storage for similar vaccines to prevent vaccine errors.**
- **A blended model of appointments and walk-ins can improve accessibility.**
- **Implement a multi-channel reminder system for follow-ups and future vaccinations.**
- **Online tools are available to help calculate gestational age.**

Increasing Patient Awareness

It is not necessary to pay someone to market this service for you to get started, although outsourcing marketing support is something to consider. Everyone on your team can help to increase patient awareness, and it is essential to have a champion who is diligent about getting the message out and closing loops with patients.

Raising awareness can start small and at low cost. Use the tools available to you—SMS messaging, Interactive Voice Response (IVR) messaging, front window signs, your pharmacy counter, website, and social media. Most people have no idea how many vaccines you offer, so begin by simply listing what you offer on your website or in-store using patient-friendly signage with inclusive language and imagery.

IN-STORE AWARENESS

Use caution and tact when initiating conversations about pregnancy with patients in your pharmacy. Instead of directly asking someone if they are pregnant, use cues like purchases of prenatal vitamins or other baby-oriented OTC products to identify eligible patients. Instruct your staff to alert the pharmacy team when patients purchase these items so you can prioritize conversations about vaccination status.

To avoid potential issues with approaching patients whose pregnancy status is not clear, you can run reports in your PMS and use bag tags to identify individuals picking up prescription prenatal vitamins. Let them know that you can be an essential part of their prenatal care team by ensuring they get the vaccines they need.

Consider placing signage near OTC items typically purchased during pregnancy with messaging like:

a. *"Pregnant or thinking about it? Ask us how to protect yourself and your baby"*
b. *"Did you know? We can provide you with important vaccines, safe for you and your baby."*

Once you have confirmation of pregnancy, start the conversation by asking questions about their care team. If they have an OB/GYN, ask what vaccines they have discussed and how you can help. If they do not have an OB/GYN, discuss vaccine eligibility and consider a referral to an OB/GYN in your network. If an OB/GYN is not available in your area or to the patient, a referral to another clinician type providing care during pregnancy should be made. This approach prioritizes respecting, rather than competing with existing provider relationships.

DIGITAL MARKETING

Social media can be a powerful tool for sharing information about vaccines that are important during pregnancy. By prioritizing education over advertising, you can connect with your audience, provide value, and attract new customers.

Including diverse and representative images of pregnant patients receiving vaccines in marketing materials, year-round also helps to ensure all patients feel welcome and included. For example, when posting online about flu shot availability, incorporate images of expectant parents receiving vaccines in addition to images of the general public. Even more effective would be using real images of pregnant patients getting vaccines at your pharmacy, upon consent to be photographed. Including their story or reason they chose to be vaccinated can be a powerful tool to help others feel more comfortable with vaccinations during pregnancy.

To help close the loop with posting on social media, be sure to include complete information about your vaccination services on your pharmacy website. This helps drive traffic and ensures that when people search for vaccine providers in their area, they can find your pharmacy. Vaccines.gov is an official CDC website that helps people locate pharmacies offering vaccination services near them.

Consider using search engine optimization (SEO) techniques and linking to your vaccine page in email blasts (if applicable) to increase visibility. Including keywords on your website like “vaccines safe in pregnancy in [insert City]” can help improve your website’s ranking on search engines when patients search for these terms.

Whichever strategy is selected, it is important to prioritize educating your audience, so they feel empowered to make the right decision. Be mindful of potential backlash from bringing awareness to your vaccination services online. There are misinformation campaigns online and in-person targeted at creating fear around receiving recommended vaccines during pregnancy.

COMMUNITY OUTREACH

Joining or partnering with parent support groups online and in your community can provide a platform to share accurate information and combat misinformation that often spreads in these spaces.

Collaborating with relevant community organizations for referrals for immunization services. Building trust in your community can help you reach people who might not otherwise be aware of your pharmacy services. By partnering with maternal health organizations, childbirth educators, and lactation consultants, you can reach more people and their families.

Table 2: Vaccine "Seasons"

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Year-round)	*	*	*	*	*	*	*	*	*	*	*	*
Travel			Spring Break *	*	*	*	*			*	Holidays *	*
Respiratory disease season							*	*	*	*	*	*

*Indicates when to employ marketing efforts

> ***Many vaccines are available year-round, but consider having a marketing emphasis that follows a predetermined plan by month or quarter.***

COLLABORATION OPPORTUNITIES

Establishing referral systems with local providers by communicating which vaccines your pharmacy offers and your availability to offer them, expands your network of care.

Partnering with Other Prenatal Care Providers

OB/GYNs are primary care providers during pregnancy, so it's important to consider their established relationships when reaching out to make them aware of your vaccine services. Many OB/GYNs do not stock **all** recommended vaccines, especially RSV, so frame your messaging as offering assistance rather than trying to compete.

For example:

> *"Hi Dr. Ross, we keep the Abrysvo RSV vaccine in stock at our pharmacy along with other CDC-recommended vaccines for pregnant patients. If you run out of any inventory or need assistance with providing vaccines outside of normal clinic hours, we would be happy to help serve your patients and fax documentation detailing which vaccines were provided. Our pharmacy is available for appointments and walk-ins Monday-Saturday from 9am - 7pm."*

Some OB/GYNs may be hesitant about referring patients for vaccines outside their practice, so it's important to be thoughtful in your approach so as not to repel them and address any concerns through your communications. Share your credentials and commitment to specific training in vaccinating pregnant patients, emphasize your commitment to maintaining continuity in care through vaccine record sharing for mutual patients, and be clear that your role is to support, not replace, the care they provide.

Partnering with Local Public Health Departments

Health departments often serve as central hubs and key partners for community health services. This can work in several ways:

1. Health departments can refer pregnant patients to your pharmacy for vaccines.
2. Pharmacies may be able provide vaccines to uninsured patients by partnering with health departments to access vaccine inventory through the Section 317 Immunization Program (where available).
3. Pharmacies can refer uninsured or underinsured patients to local health departments for Section 317 vaccines and additional services.

The Section 317 Immunization Program is a limited federal program that provides vaccines to underinsured and uninsured adults. By partnering with health departments, you can gain access to this vaccine inventory, allowing you to offer vaccines to pregnant patients who might not be able to afford them. Participating pharmacies need to maintain separate inventory for these vaccines, as they are provided specifically for eligible patients.

Reach out to your local health department, introduce your pharmacy, and express your interest in collaborating on health initiatives to close gaps in care. Inquire about requirements to participate in programs, like Section 317, and consider sharing data and outcomes from your vaccination services. Health departments value partners who can contribute to their understanding of community health needs and outcomes.

Example messaging:

> *"Dear [Health Department Contact], Kings Pharmacy is expanding our vaccination program so we can better serve our community. We are interested in partnering with the health department to access the Section 317 Immunization Program for uninsured patients so we can better serve our community. Could we schedule a meeting to discuss how we might collaborate to improve vaccination rates?"*

Table 7: Summary of Collaboration Opportunities for Prenatal Healthcare

Provider Type	Collaboration Opportunity	Communication Method
OB/GYNs	Offer to stock vaccines they don't carry	Phone call, fax
Family Practices	Provide after-hours vaccination services	Phone call, fax
Health Departments	Access to 317 program and vaccine inventory for uninsured patients	In-person visits, email
Community Organizations	Provide education at community events, referrals for pregnant patients	Phone call, email community events, in-person visits

Key Takeaways

- **Use shelf signage and bag tags to alert patients picking up prescription prenatal vitamins.**
- **Partner with local parenting groups and childbirth educators for referrals.**
- **Offer to stock vaccines that OB/GYNs might not carry, such as RSV.**
- **Explore the Section 317 Immunization Program for uninsured patients with local health departments.**
- **Develop a clear, concise method of introducing your vaccine services to other providers.**

Training and Confidence

Training your pharmacy team and building their confidence is the best way to mitigate potential fears about providing vaccines to patients who are pregnant, including the possibility for adverse effects, giving the wrong vaccine, or harming the baby. Clinical competency and confidence will improve with proper education, training, and experience.

STAFF EDUCATION

Ensure all team members involved in vaccination services at your pharmacy are familiar with the most recent, up-to-date recommendations for all populations, with special attention to considerations during pregnancy. Being well-versed in ACIP recommendations also helps to overcome stigma about pharmacists' knowledge compared to other providers.

Vaccination Technique

Ensure all staff understand that there's no special technique needed for vaccinating patients who are pregnant – good general technique for vaccine administration is sufficient.

Quick Reference Guides

Regularly updated quick reference guides or charts that your staff can access during patient encounters can help ensure accuracy and consistency in vaccine education, administration, and billing. Consider creating flowcharts to guide staff through the decision-making process based on patient medical history, gestational age, time of year, and health insurance status.

To help support patient education, prepare concise, evidence-based responses to common patient questions and concerns. These might include addressing safety concerns, explaining the benefits of vaccination during pregnancy, and dispelling common myths.

PATIENT EDUCATION

While you understand the importance of vaccines, it's essential to approach patient concerns with sensitivity and understanding. Effective conversations begin with a compassionate and patient-centered approach.

Data shows that pregnant women are more likely to take health advice if they think it's beneficial for their baby. Therefore, focus on communicating the benefits to both parties. For example, explain why it's important to avoid contracting COVID-19 during pregnancy and the benefits to the baby when they are born. Incorporate credible, evidence-based resources into your dialogue, such as references to ACIP recommendations for pregnancy vaccinations.

It can be impactful to highlight the fact that many healthcare providers choose to receive these vaccines during their own pregnancies, as this can help normalize the practice. The goal is to provide education that respects autonomy while empowering patients to make informed decisions. Use effective motivational interviewing techniques and ask permission before providing information.

Addressing Vaccine Hesitancy

Due to the innate desire to protect their babies, people may have elevated concerns about what they are putting into their bodies during pregnancy. They may be afraid of getting vaccines, worrying about potential harm to the baby or the impact on them progressing to full-term.

It's important to avoid making patients feel wrong or unreasonable as it relates to their concerns and fears because they are also coming from a place of protection. Effective communication acknowledges concerns while gently guiding patients toward evidence-based information.

Do not assume patients are less knowledgeable and do not invalidate fears when providing education. Instead, promote trust and informed decision-making by using language that shows you understand their fears and concerns. For example:

- *"Would it be okay if I tell you what concerns me if you don't get the RSV vaccine to protect your baby?"*
- *"A few other people have expressed that concern to me too. Is it okay if I show you the evidence on that topic?"*

There is evidence that when multiple providers make the same recommendation to a patient, there's a greater likelihood that they will be more open to accepting the recommendation. So even when patients decline, there is still benefit to having the conversation. Consider role-playing with your staff to see how they would address common scenarios and encourage them to remind patients that the choice is theirs to make.

To further reinforce vaccine safety and efficacy, provide access to additional authoritative sources, including direct links and numbers to vaccine manufacturers' medical information departments for product-specific questions that you are not able to answer. To emphasize safety, it is important to acknowledge that all medical treatments can have risks and to discuss those risks honestly. Risks of the disease to the pregnant person and the developing baby should also be discussed and a patient-centered discussion of weighing risks and benefits can ensure the patient is a part of the decision.

For information and resources on how to combat misinformation, almost every state has an immunization coalition that can provide information and training for healthcare professionals and patients on vaccine disinformation.

Table 8: Strategies for Addressing Vaccine Hesitancy

Concern	Key Points to Address	Resources to Offer
Safety for baby	Explain passive immunity	CDC fact sheets
Vaccine ingredients	Discuss safety of ingredients	Vaccine ingredient list
Autism concerns	No scientific link to vaccines	Recent studies
Natural immunity	Risks of diseases vs. vaccine	Disease complication stats
Too many vaccines	Explain importance of timing	Vaccine schedule visual

Key Takeaways

- **Create flowcharts to guide decision-making based on patient history and gestational age.**
- **Use quick reference guides to ensure accurate reimbursement procedures.**
- **Regularly update staff on the latest ACIP recommendations.**
- **Practice motivational interviewing techniques for addressing hesitancy.**

Billing and Reimbursement

There are a few reimbursement pathways for vaccine services - the medical benefit, the prescription benefit, and cash-pay should you choose not to bill a patient's insurance. The prescription benefit administered via the Pharmacy Benefit Manager (PBM) utilizes the traditional prescription billing method through the PMS. The medical benefit most often requires the use of a third-party vendor such as a medical billing intermediary or clearinghouse in combination with an existing pharmacy management system.

Bill for Both the Vaccine and Administration

When billing for vaccines, you need to consider three distinct components. The first is the vaccine product, identified by the National Drug Code (NDC), a unique three-segment number assigned by the FDA to human drugs in the United States. The second is the administration fee, which encompasses the time, skill, and resources used in administering the vaccine. The third is the counseling time taken to evaluate, educate, address vaccine hesitancy, and address safety issues regarding receipt of a vaccine.

To bill correctly, you should educate your pharmacy team on how to input appropriate information for each component. If you are only getting paid a small margin and you are inputting fees for administration, you need to reach out to your Pharmacy Services Administrative Organization (PSAO) to complete a vaccine addendum in order to get access to the administration fee.

Medicaid

CMS works in partnership with state governments to administer Medicaid. While each state operates differently, it is common to bill vaccines through the prescription benefit for patients with Medicaid coverage. Check with your state's Medicaid program, as some may have unique billing options, especially if you are considered a provider in your state.

THE VACCINES FOR CHILDREN (VFC) PROGRAM

VFC is a federally funded program that allows providers to be reimbursed for administering vaccines at no cost to children who might not otherwise be vaccinated due to inability to pay. In the context of this Guide, the VFC program is relevant for pregnant teens up to 18 years and 364 days old. In areas with a high population of children and teens, VFC participation can significantly impact public health.

Approval as a VFC provider requires a standard enrollment process due to strict requirements for separate vaccine storage, handling, and administration. Additionally, vaccines given under VFC are billed through the medical benefit, and providers can only bill for the administration, and not the vaccine product itself.

While VFC compliance can be seen as a benchmark for overall service quality in your vaccination program, it is important to weigh the potential benefits against the costs of participation, including potentially lower reimbursement rates. Also, note that not all states allow pharmacies to participate in their VFC program.

Every child in America is eligible for no-cost vaccinations up to 18 years and 364 days, so if you are not a VFC provider, be prepared to refer eligible patients to a VFC site to access recommended vaccines.

MEDICAL BILLING FOR VACCINES

Exploring medical billing options, including the potential for billing office visits in some states, can improve the financial sustainability of the vaccine program. This may require additional training and technology and can provide a valuable revenue stream to support your service.

Table 9 provides a high-level comparison of prescription and medical benefit billing.

Table 9: Billing considerations for vaccinations

Prescription benefit	Medical benefit
Product/dispensing	Service/product
Works with existing contracts	May require contract/credentialing with individual plans
Potentially lower reimbursement	Potentially higher reimbursement
Possibly subject to DIR fees	Not subject to DIR fees
Real time adjudication	No real time adjudication

Staying informed about annual updates to CPT codes and changes in billing practices is essential. Vaccine codes can change frequently as new vaccines are developed and approved. Regular training sessions for staff involved in billing can help ensure everyone is up to date on current practices.

When billing medical claims, the code for the ***vaccine product*** and the code for ***administration*** must be on separate lines to receive remittance for both. For the vaccine product, billing the medical benefit involves using the correct Current Procedural Terminology (CPT) code or Healthcare Common Procedure Coding System (HCPCS) code, along with including the NDC of the vaccine product on the claim form.

For the administration service, relevant CPT codes should be used, and may vary based on factors such as the method of administration and whether it's part of a series of vaccinations.

Table 10 lists common vaccines recommended during pregnancy along with the product and administration codes.

Table 10: Common HCPCS/CPT and ICD-10 Codes for Vaccines

Vaccine	HCPCS/CPT for Vaccine	HCPCS/CPT for Administration	ICD-10
Tdap	90715	90471	Z23
Influenza	Codes depend on product and patient age	90471, G0008*	Z23
RSV	90678 (Abrysvo)	90471	Z23
COVID-19	Codes depend on product and patient age		
Hep B	90746	90471	Z23

*Note G0008 is the HCPCS code for the preventative administration of an influenza vaccine that is used when billing Medicare only. Other payers may accept the use of HCPCS G0008; check with your payer for preferred administration code.

The ICD-10 code for immunization safety counseling is **Z71.85**. This code became effective October 1, 2023, and can be used when a patient or caregiver is counseled about the safety of a vaccine often in response to vaccine hesitancy. It should not be used when counseling for general information regarding risks and potential side effects during routine encounters of vaccine administration. It can be used as the primary reason for an encounter or as a secondary reason. It can also be used in addition to other codes for problems addressed during the visit, such as diabetes.

Medical Billing Considerations for Administering RSV Vaccine During Pregnancy
In addition to the CPT codes for the Abrysvo® vaccine and administration, an ICD-10 code indicating the gestational age may be required as well. The ICD-10 codes for gestational age follow the pattern Z3A.[XX], where XX = Weeks gestation of pregnancy. Always be sure to confirm specific billing and coding requirements with your payers.

You can view more information about medical billing for vaccines ***here***.

Key Takeaways

- **Bill for both the vaccine product and administration.**
- **Stay up to date with annual changes to CPT codes and billing requirements**

Conclusion

We encourage you to take the information and strategies provided in this guide and apply them to your practice.

Whether it's updating your vaccine inventory management, reaching out to local OB/GYNs, or training your staff to address vaccine hesitancy, each step you take brings you closer to making a greater impact.

Thank you for your commitment to public health and for considering the expansion of your vaccination services to include pregnant people and their families.

Patient Case 1

ADDRESSING CULTURAL COMPETENCY, GAPS IN CARE, AND MISCONCEPTIONS REGARDING RECEIVING VACCINATIONS DURING PREGNANCY

Background

Fatima, a 28-year-old Muslim woman, enters the pharmacy to pick up prenatal vitamins. She's visibly pregnant and appears to be in her second trimester. You notice she seems hesitant to approach the pharmacy counter.

Initial Interaction

As Fatima approaches, you smile warmly and say, "Welcome to our pharmacy. How can I assist you today?" She quietly asks for her prenatal vitamin prescription. While processing her prescription, you notice that Fatima hasn't received any vaccines during this pregnancy according to your state's Immunization Information System (IIS).

Addressing Cultural Competency

Remembering the importance of cultural sensitivity, you ask Fatima if she would like to speak with a female staff member about her health needs. Fatima nods appreciatively, and you introduce her to the pharmacist, Aisha, who also happens to speak Arabic.

Identifying Gaps in Care

Aisha gently inquires about Fatima's prenatal care, asking, "What vaccines have you discussed with your obstetrician?" Fatima reveals that she doesn't have an OB/GYN and has been relying on a midwife from her community for prenatal care.

Addressing Misinformation

Fatima expresses concern about vaccines during pregnancy, saying, "I've heard that vaccines can harm my baby. My family says it's better to build natural immunity."

Patient Case 1 – continued on following page

Aisha, recalling the training on motivational interviewing, responds, "I understand your concerns for your baby's health. Would it be okay if I share some information about how vaccines can provide better protection for both you and your baby?" With Fatima's permission, Aisha explains:

- The safety of recommended vaccines during pregnancy
- How vaccination provides antibodies to the baby
- The risks of vaccine-preventable diseases to mother and child
- The importance of vaccinations for other family members

Closing the Loop

To close the loop on Fatima's conversation with Aisha, you provide Fatima with culturally appropriate, easy-to-understand handouts about recommended vaccines in both English and Arabic, you provide her with information about an OB/GYN who will be sensitive to her cultural needs, and you schedule her appointment to receive the Tdap vaccine next week.

Outcome

Fatima receives her Tdap vaccine and accepts a referral to an OB/GYN who works with the local Muslim community.

Key Takeaways

This case demonstrates:

- Cultural competency in patient interactions
- Identifying and addressing gaps in prenatal care
- Using motivational interviewing to address vaccine misconceptions
- Providing language-appropriate resources
- Offering comprehensive care beyond vaccination
- Following up to ensure continuity of care

Patient Case 2

PROVIDER COLLABORATION AND ADDRESSING MISINFORMATION IN PRENATAL VACCINATION

Background

Emily, a 32-year-old first-time expectant parent, enters your pharmacy at 28 weeks' gestation. She's here to pick up her prenatal vitamins and mentions she has an upcoming appointment with her OB/GYN next week.

Initial Interaction

While processing Emily's prescription, you notice she hasn't received any vaccines during this pregnancy according to your state's Immunization Information System (IIS). You ask if she's discussed vaccinations with her OB/GYN.

Emily responds, "Yes, however I'm really hesitant. I've been reading a lot online about vaccine risks during pregnancy. A mom group I'm in on Facebook says vaccines can cause autism and miscarriages. I'm scared to take any chances."

Addressing Misinformation

Recognizing the impact of misinformation, you use motivational interviewing techniques:

"I understand your concerns about protecting your baby. It's natural to be cautious. Would it be okay if I share some more information about vaccine safety during pregnancy?"

With Emily's permission, you explain:

- The rigorous safety testing of vaccines recommended during pregnancy
- The protection vaccines provide to both the pregnant individual and the baby
- The lack of scientific evidence linking vaccines to autism or increased miscarriage risk

You offer Emily some fact sheets from reputable sources like the CDC and ACOG, addressing common misconceptions about prenatal vaccines.

Patient Case 2 – continued on following page

Collaboration with OB/GYN

You ask Emily if she would be comfortable with you contacting her OB/GYN, Dr. Martinez, to discuss her concerns and ensure a coordinated approach to her care. Emily agrees. You call Emily's Dr. Martinez's office to explain the situation. Together, you develop a plan:

- Dr. Martinez will address vaccine safety in detail during Emily's next appointment.
- You will provide Emily with a vaccine information packet to review before her appointment.
- If Emily decides to proceed with vaccination, she can receive the vaccines at your pharmacy for convenience, and you'll update Dr. Martinez's office.

Follow-up and Outcome

Two weeks later, you call Emily to follow-up and she says, "I discussed everything with Dr. Martinez and read through the materials you gave me. I feel much more informed now. I'd like to get the recommended vaccines."

You make an appointment for the next day to administer the Tdap vaccine and schedule her flu shot later during flu season. You also discuss the upcoming RSV vaccine recommendation and schedule a reminder for when she reaches 32 weeks' gestation.

After vaccinating Emily, you:

- Update the state IIS with her vaccination record
- Send a fax to Dr. Martinez's office confirming the administered vaccine
- Provide Emily with patient education materials

Key Takeaways

This case demonstrates:

- The importance of proactively addressing vaccine hesitancy and misinformation
- Effective collaboration between pharmacists and OB/GYNs in prenatal care
- The role of pharmacists in providing evidence-based information to combat online misinformation
- The value of a coordinated approach to patient education and care
- The pharmacist's ability to improve vaccine accessibility and convenience for pregnant patients

Quick Tools and Resources

TRAINING

Administering Vaccines: Dose, Route, Site, and Needle Size (Immunize.org, 2024)
National Vaccine Injury Compensation Program Fact Sheet (HRSA, 2023)
Vaccine Fears Overturned by Facts (Immunize Kansas Coalition, 2023)

PATIENT SCREENING

Vaccinations Needed During Pregnancy (ACOG, 2023)
Prenatal Care and Routinely Recommended Vaccinations (CDC, 2024)
Abrysvo Maternal Vaccine Planner (Pfizer)
IIS Contact Information (CDC, 2024)
CDCs Destination Pages for Travel Vaccines (CDC)

PATIENT RESOURCES

You Can Start Protecting Your Baby From Whooping Cough Before Birth (CDC, 2019)
Tdap and Flu Vaccines During Pregnancy (Oregon Health Authority, 2019)
Pregnant People are at Increased Risk of Complications from the Flu (CDC)
Getting Your Whooping Cough Vaccine in Your 3rd Trimester (CDC, 2015)
What Vaccines to Expect When You're Expecting (CDC)
MotherToBaby

References

Flu, Tdap, and COVID-19 Vaccination Coverage Among Pregnant Women (CDC, 2024)

Maternal Respiratory Syncytial Virus Vaccination and Receipt of Respiratory Syncytial Virus Antibody (Nirsevimab) by Infants Aged <8 Months (CDC, 2024)

Guidelines for Vaccinating Pregnant Persons (CDC, 2024)

Vaccine Recommendations Before, During, and After Pregnancy (CDC, 2024)

Vaccines for Family and Caregivers (CDC, 2024)

Maternal Immunization (ACOG, 2018)

Update on Immunization and Pregnancy: Tetanus, Diphtheria, and Pertussis Vaccination (ACOG, 2017)

Vaccine Recommendations and Guidelines of the ACIP - Special Situations (CDC)

COVID-19 Vaccination for Pregnant/Breastfeeding (CDC, 2024)

COVID-19, Pregnancy, Childbirth, and Breastfeeding: Answers From Ob-Gyns (ACOG, 2023)

Maternal immune response and placental antibody transfer after COVID-19 vaccination across trimester and platforms (NATURE, 2022)

Pregnant Travelers (CDC Yellow Book, 2024)

Call Information for COCA Conference on August 10, 2023 (CDC, 2023)

CDC Guidelines on Maternal RSV Vaccine and Latest FDA Approvals (American Medical Association, 2023)

Pharmacists' Expanding Role in Immunization Practices (US Pharmacist, 2023)

Pharmacists and vaccination in pregnancy (Canadian Pharmacists Journal, 2019)

Pharmacists' Role in Vaccination Programs (PMC, 2012)

Gestational Age (Encyclopaedia Britannica, 2024)

CDC Warns Some People Have Received Wrong RSV Vaccine: What to Know (Healthline, 2024)

My primary purpose is to protect the unborn child': Understanding pregnant women's perceptions of maternal vaccination and vaccine trials in Europe (ScienceDirect, 2021)

What is the Difference Between Medicare & Medicaid? (HHS.gov, 2024)

Vaccines for Children Program (CDC, 2024)

Mass Vaccine Confidence Project Resources (Mass Vaccine Confidence Project, 2023)

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