

Introduction

- The Advisory Committee on Immunization Practices (ACIP) provides immunization recommendations for patients based on patient-specific information
- Community pharmacists are the most accessible health care professionals, and it is now common practice that community pharmacies offer an immunization service
- This gives community pharmacists the opportunity to lead the way in immunization screening, education, and administration as the immunization experts
- The purpose of this research was to assess and describe the accuracy of community pharmacists' immunization recommendations

Methods

- The study was an anonymous, online survey and was distributed through email lists and professional contacts
- The only criteria for inclusion was a status as a community pharmacist at the time of completion of the survey
- Survey collection began on October 3, 2019 and ended earlier than planned on November 22, 2019 when the ACIP recommendation for pneumococcal immunization was updated to allow for shared clinical decision-making for the use of PCV13 in adults ≥65 years old
- Before being given the survey questions, participants received the following notice:

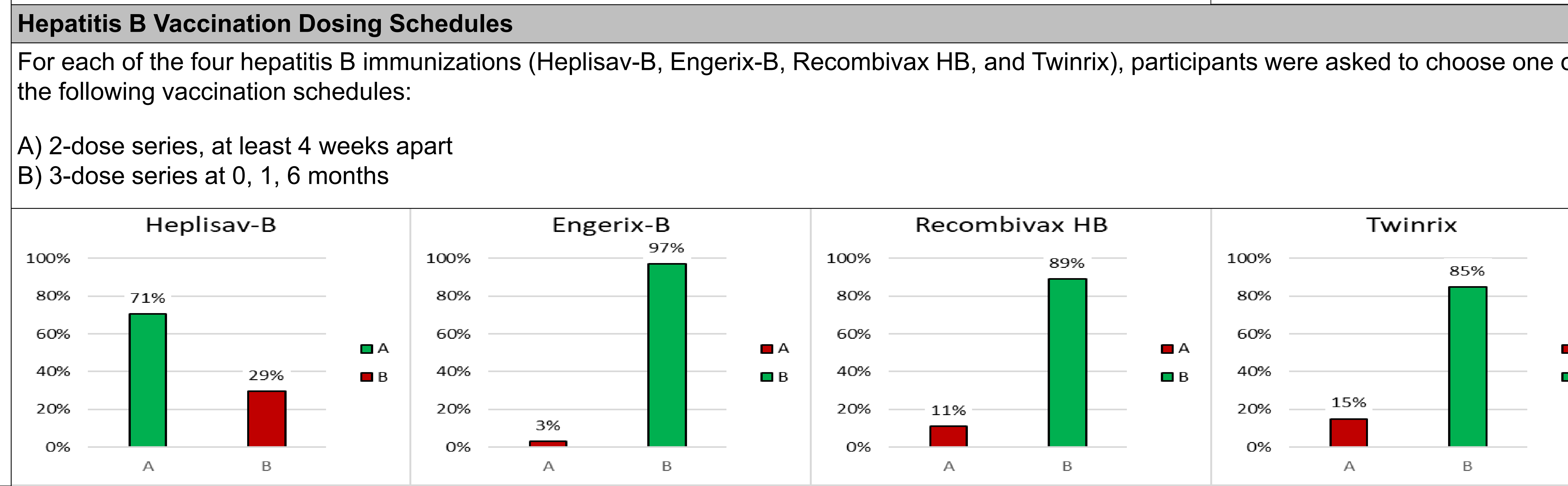
"During the following survey, please feel free to use any and all resources available to you at your place of employment. However, use only the amount of time you would normally have in practice to answer the questions as accurately as possible. Your answers to the following questions will be assessed for accuracy according to the Advisory Committee on Immunization Practices (ACIP) immunization recommendations."
- The survey contained questions to collect participant demographics, four case-based multiple-choice questions, and four multiple-choice questions on hepatitis B immunization schedules
- The outcomes measured included overall percentage of correct responses selected for each participant and the percentage of each answer choice selected for each question
- Descriptive statistics were used to analyze demographics and responses to multiple-choice questions

Demographics

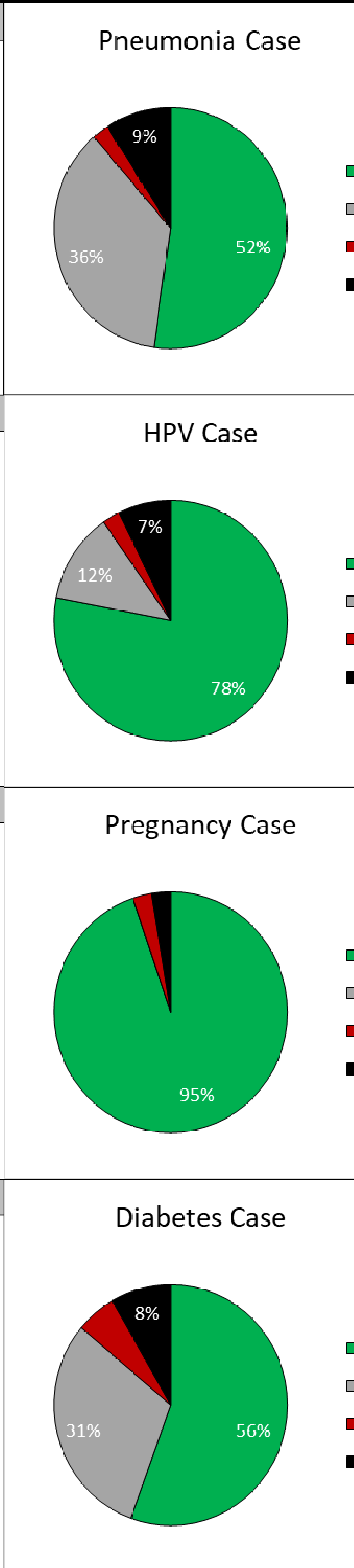
| | |
|--|----------|
| Average time as a community pharmacist: | 15 years |
| Do you work as a community pharmacist regularly or PRN? | |
| Regularly | 95% |
| PRN | 5% |
| Do you work at an independent or a chain pharmacy? | |
| Independent | 5% |
| Chain | 95% |
| Does your pharmacy offer an immunization service? | |
| Yes | 89% |
| No | 11% |
| Hospital pharmacy experience: | |
| None | 86% |
| Previous | 11% |
| Current | 2% |

Questions

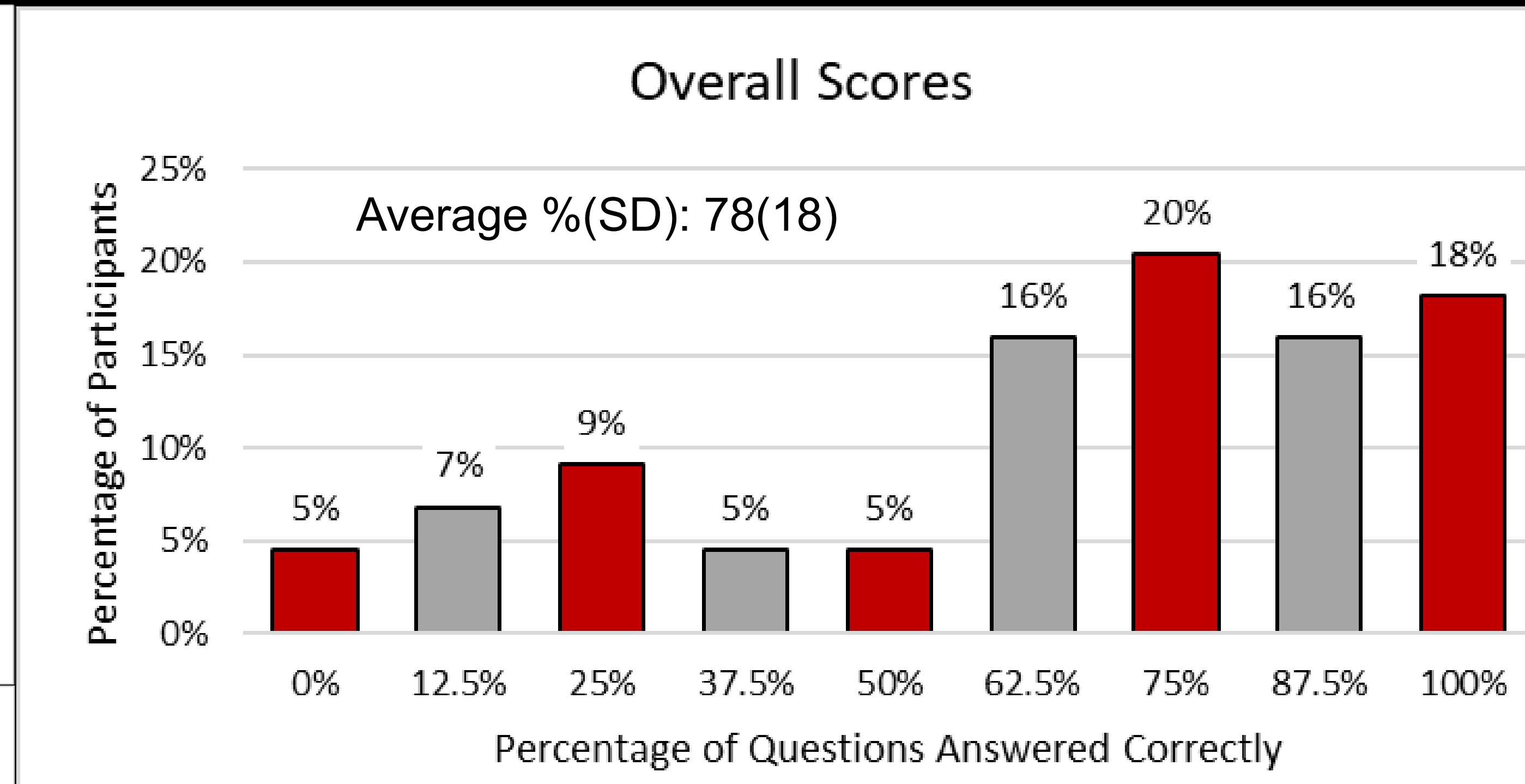
| Pneumonia Case |
|--|
| A 66-year-old male with HTN, COPD, and hypothyroidism has previously received PPSV23 at age 63 and wants your recommendation on the pneumococcal vaccination schedule. |
| A) 1 dose of PCV13 now, followed by 1 dose of PPSV23 in 2 years B) 1 dose of PCV13 now, followed by 1 dose of PPSV23 in 1 year C) 1 dose of PCV13 now, followed by 1 dose of PPSV23 in at least 8 weeks, then another dose PPSV23 at least 5 years after previous PPSV23 D) 1 dose of PCV13 now, followed by 1 dose of PPSV23 every 5 years |
| HPV Case |
| A 23-year-old female with hypothyroidism has not received any doses of the HPV vaccine and wants your recommendation on the HPV vaccination schedule. |
| A) 3-dose series HPV vaccine at 0, 1–2, and 6 months B) 2-dose series HPV vaccine at 0 and 6 months C) 1 dose of HPV vaccine now D) The HPV vaccine is not recommended due to the patient's age |
| Pregnancy Case |
| A 28-year-old pregnant female comes to your community pharmacy requesting an immunization screening. Childhood immunizations up to date except VAR (never diagnosed with varicella or herpes zoster), annual influenza, MMR at age 18, Td at age 24 |
| A) Annual influenza; 1 dose of Tdap now; 1 dose of VAR after pregnancy, then another dose of VAR 4-8 weeks after previous VAR B) Annual influenza; 1 dose of MMR now; 1 dose of Tdap now; 1 dose of VAR now, then another dose of VAR 4-8 weeks after previous VAR C) Annual influenza; 1 dose of MMR after pregnancy; 1 dose of Tdap after pregnancy; 1 dose of VAR after pregnancy, then another dose of VAR 4-8 weeks after previous VAR D) Annual influenza; 1 dose of Tdap after pregnancy; 1 dose of VAR now, then another dose of VAR 4-8 weeks after previous VAR |
| Diabetes Case |
| A 52-year-old male with HTN, T2DM, hyperlipidemia has previously received annual influenza, Td at age 40, and 2 doses of RZV at age 51 requests an immunization screening. |
| A) Annual influenza; 2- or 3-dose series of HepB (depending on type of HepB vaccine); 1 dose of PPSV23 now, followed by 1 dose of PCV13 at age 65, then another dose of PPSV23 1 year after PCV13 B) Annual influenza; 1 dose of PPSV23 now, followed by 1 dose of PCV13 at age 65, then another dose of PPSV23 1 year after PCV13 C) Annual influenza; 2- or 3-dose series of HepB (depending on type of HepB vaccine); 1 dose of PCV13 now, followed by 1 dose of PPSV23 in at least 8 weeks, then another dose PPSV23 at least 5 years after previous PPSV23 D) Annual influenza; 1 dose of PCV13 now, followed by 1 dose of PPSV23 in at least 8 weeks, then another dose PPSV23 at least 5 years after previous PPSV23 |
| Hepatitis B Vaccination Dosing Schedules |
| For each of the four hepatitis B immunizations (HepB, Engerix-B, Recombivax HB, and Twinrix), participants were asked to choose one of the following vaccination schedules: |
| A) 2-dose series, at least 4 weeks apart B) 3-dose series at 0, 1, 6 months |



Results



Results



Discussion

- The average overall percentage of correct responses selected for each participant that completed the survey in its entirety was 78%
- The most difficult cases of the four were the pneumonia case and the diabetes case
- The most prevalent incorrect response for the pneumonia case was Choice B which was incorrect because PPSV23 would be due in two years, not one. The patient in this case had received a dose of PPSV23 three years ago, and ACIP recommends waiting at least five years between two doses of PPSV23.
- The most prevalent incorrect response for the diabetes case was Choice B which was incorrect because it left out an appropriate hepatitis B immunization recommendation that was available in Choice A. Patients with diabetes younger than 60 years old are recommended to receive a series of hepatitis B-containing immunization

Strengths

- The diversity of the survey question content allowed for the assessment community pharmacists' immunization recommendations and knowledge of a range of immunizations and patient-specific information
- The notice that the participants were able to use whatever resources are available to them at their place of practice and the time that they would normally have available to them in practice allowed the survey to more closely reflect a real-world environment and generate responses that are close to recommendations given in practice

Limitations

- The lack of responses due to an earlier than expected survey collection end date with the updated ACIP pneumococcal immunization recommendation
- The survey format of the study failing to create a real-world environment
- The possibility that participants did not have access to resources available to them at their place of practice at the time of survey completion

Conclusion

- The purpose of this research was to assess and describe the accuracy of community pharmacists' immunization recommendations
- While there are limitations to this study, results indicate that further education is needed to improve community pharmacists' knowledge of the ACIP immunization recommendations, especially regarding pneumococcal immunizations and immunizations for people with diabetes