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# Store, Handle, and Administer Vaccines Safely to Prevent Errors

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## Pharmacists Should Stay Abreast of Changes in Formulations and Recommendations, Foster Communication With Their Staff, and Plan Proactively

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**COVID-19 VACCINE–RELATED ERRORS** have demonstrated the importance of ensuring a safe medication-use process.[1]

Insufficient training, multiple manufacturers, and noninterchangeable products increase the risk of vaccine-related errors. Increasing the complexity are the addition of boosters with different doses, personnel new to the vaccine administration process, changes in dosing, easily misidentified labeling or products, vaccines given together, and the interchanging of booster products.[2,3] As a result, there is an increased need to be alert in safety efforts with vaccine administration and storage. Pharmacy staff members must work together to improve safety and prevent vaccine-related errors.

### Supply Chain

As staff members dispense and administer more vaccines, the probability that a mix-up can occur increases. Pharmacy staff members should proactively assess areas in the pharmacy where vaccines have been handled and stored and develop a safety plan. Signing up for CDC and drug manufacturer newsletters to stay abreast of safety warnings can help. Staff members should

**TABLE.** WHAT PHARMACISTS SHOULD CONSIDER[5]

| ITEM OF CONCERN | CONSIDERATION |
|---|---|
| Adult and pediatric formulations (not interchangeable): COVID-19 vaccine | Pfizer-BioNTech adult and pediatric formulations are different and cannot be interchanged. Consider separating and color coding bins and products.<br>• Adult formulation (aged ≥ 12 years): (purple cap)<br>• Pediatric formulation (aged 5-11 years): (orange cap) |
| Predrawn syringes not labeled | • Label syringes if drawn up and not administered with product name, dose, and purpose.<br>• Double check by keeping the empty vial with syringe when possible. |
| Maximum punctures for Moderna vial: 20 | Note each dose with a and each booster with an X to track punctures and calculate waste. |
| Orange-capped Pfizer-BioNTech vials for pediatric patients aged 5-11 years: expiration date mix-up | Train staff; label with manufacture date |
| Mix-ups between influenza vaccine and COVID-19 vaccines | • Have patient read syringe label and vial back, if possible, prior to administration.<br>• Limit vaccines taken to administration area to only those being given to prevent a mix-up. |

label and segregate high-risk inventory to prevent errors. Many experts recommend using baskets and/or color coding on refrigerators and shelves based on whether the vaccines are used for adults or children.[4] Prepackaging and labeling kits for high-risk vaccines can distinguish among booster, pediatric, or standard doses. All pediatric vaccines should be stored in a separate area of the pharmacy and administration areas away from the adult doses.

Implementing safety recommendations into the pharmacy's workflow decreases risk. Mix-ups have recently occurred, and the TABLE[4,5] highlights items that pharmacy personnel should consider when assessing the system and training staff members.

## Preparation

During dose preparation, pharmacy staff members should get into the habit of using charts, checklists, guides, and other tools to ensure that there is a multiple check process.[4] Do not rely solely on the cap color when drawing up products, as these often get separated from vials.[6] Best practices include instituting a double or triple check of the label and dose when drawing up a product, immediately labeling syringes not administered, and training team members to not rely on memory. For example, the Moderna COVID-19 vaccine is 0.5 mL for a series dose and 0.25 mL for the booster dose. Recommendations include labeling predrawn syringes for the purpose they are intended, such as an adult series or booster or pediatric dose. In addition, designating a staff member specifically to make updates to workflow documents and communicate changes to staff members immediately upon release is crucial to ensure a safer process.

## Patient Administration

Setting up a designated area for administration can minimize distractions.[1,3] Verify the product the patient will receive as a third check prior to administration, showing a patient the vaccine vial and syringe.[1] Engaging the patient is a final critical step in the process.

## Reporting

If a vaccine error is identified, follow policies and procedures for documenting and reporting the error. Report administration errors and serious adverse events to the Vaccine Adverse Event Reporting System (VAERS). To file an electronic report, visit the VAERS website (https://vaers.hhs.gov/reportevent.html).[3] The Institute for Safe Medication Practices (ISMP) also requests that providers report vaccine errors to the ISMP National Vaccine Errors Reporting Program (www.ismp.org/report-medication-error).[1,6]

## Conclusion

It is essential to stay abreast of changes in vaccine formulations and recommendations. Communicating with all staff members and being proactive in planning helps ensure that risk in the pharmacy is reduced. When situations do arise, develop a plan to prevent future mix-ups and adverse events.[3] ■

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