Managing Medication Safety During the COVID-19 Pandemic and Learning from Errors

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World Health Organization
Global Patient Safety Network Webinar
Medication Safety: Implementing the Challenge
## ISMP Mission

How does ISMP accomplish its mission?

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<th>How ISMP Accomplishes Its Mission</th>
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<td>Collect and Analyze</td>
<td>reports of medication-related errors and hazardous conditions</td>
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<td>Disseminate</td>
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<td>Educate</td>
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<td>Collaborate</td>
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<td>Advocate</td>
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<td>Conduct Research</td>
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https://ismp.org/about/mission
Reporting Errors to ISMP

ISMP National Medication Errors Reporting Program

International Medication Safety Network Error Reporting Portal

https://ismp.org/report-medication-error
https://www.intmedsafe.net/the-international-medication-error-reporting-portal//
A lot happens when you report an adverse event. So we're not talking about an "adverse event" here.

In 2019, ISMP published its 10th edition of its 10-year, evidence-based program to identify and prevent preventable medication errors. We recognize that this is a complex and challenging problem. And we know that you're busy. And we need to assure you that the reports you send us matter. They matter a lot. They matter a lot.

So what do we mean by an adverse event? We mean any unintended or unexpected event in a patient's clinical record that results in or may lead to patient harm. And we use the term "adverse event" to include any unintended or unexpected event that results in or may lead to patient harm.

We know that reports of adverse events are critical to improving patient safety. And we know that no amount of training or education can replace the power of patient safety. And we know that no amount of training or education can replace the power of patient safety. And we know that no amount of training or education can replace the power of patient safety. And we know that no amount of training or education can replace the power of patient safety. And we know that no amount of training or education can replace the power of patient safety. And we know that no amount of training or education can replace the power of patient safety. And we know that no amount of training or education can replace the power of patient safety.

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Managing Medication Safety During COVID-19

Acute Care ISMP Medication Safety Alert!

Revisiting the need for MDI common canister protocols during the COVID-19 pandemic

Patients infected with the coronavirus (COVID-19) virus often require inhaled bronchodilator medications (e.g., albuterol, levalbuterol). Because nebulizer therapy with bronchodilators for presumptive or confirmed COVID-19 patients may not be safe due to the generation of aerosols, which increases the risk that respiratory droplets will remain in the air and spread the virus, delivery of these drugs via metered-dose inhalers (MDIs) is preferred. As a result, use of these inhalers has skyrocketed during the pandemic and there is concern about inhaler drug shortages. Supply chain disruptions are already being experienced in some areas, leaving some hospitals with just a few days supply. MDI canisters usually contain enough medication to last 2-4 weeks, while patients are often hospitalized for shorter periods, frequently leading to drug waste. As a result, hospitals are considering the best way to conserve MDI supplies.

Some organizations are asking patients to bring in a prescribed MDI to use throughout their hospitalization. Or, when the pharmacy dispenses an MDI for a specific patient, they are immediately labeling it for home use so the MDI can be sent home with the patient at discharge. Others are considering, or have implemented, a common MDI canister protocol as another way to address possible shortages. ISMP has been asked about our position on the latter topic.

In 2009, we published an article about the risks and benefits of using a common MDI canister, a patient-specific spacer, and a disinfection procedure between patients to administer doses from the same MDI to multiple patients (www.ismp.org/200901). At that time, common canister policies were being utilized by respiratory therapists and nurses who disinfected the MDI before administering each dose, and then reused it for a different patient’s dose, primarily as a cost savings measure, not for conserving inhalers to help alleviate drug shortages. The common canister protocols called for disinfecting the mouthpiece with an alcohol prep pad before inserting it into a patient-specific spacer with a one-way valve (Figure 1, page 2), administering the medication, and then disinfecting the mouthpiece after use. In our 2009 newsletter article, we cited studies that

Once a Week
Managing Medication Safety During COVID-19

COVID-19 Resources
ISMP's list of information and tools to help frontline healthcare workers during the COVID-19 (Coronavirus) pandemic.

As we are all working to better understand and react to the impacts of COVID-19 around the world, please know that ISMP is here for you. We appreciate all of the selfless dedication of healthcare professionals during this unprecedented event, and our first priority is to help them with the resources that they need to keep themselves and their patients safe. Below are links to medication safety information that may be useful for COVID-19 response efforts.

https://www.ismp.org/covid-19-resources
https://www.medsafetyofficer.org/

Medication Safety Officers Society (MSOS)
Learning from COVID-19 Medication Errors
Managing Medication Safety During COVID-19

- Many hospitals positioned infusion pumps outside of COVID-19 patients’ rooms to conserve personal protective equipment (PPE) and reduce staff exposure
Managing Medication Safety with COVID-19 Vaccines

Learning from errors with the new COVID-19 vaccines

**Problem:** In mid-December, the US Food and Drug Administration (FDA) granted emergency use authorization (EUA) to both the Pfizer-BioNTech and Moderna coronavirus disease 2019 (COVID-19) vaccines. Since then, ISMP has received numerous voluntary reports of COVID-19 vaccine errors or hazards through the ISMP National Vaccine Errors Reporting Program (N-VERP), and via small consortia from professional organizations. (See the last recommendation on page 6 regarding a mandatory requirement to report all COVID-19 vaccine errors and adverse reactions to the Vaccine Adverse Event Reporting System (VAERS) as soon as possible.) The following highlights a few of the incidents happening across the nation and internationally, from vaccine dilution errors to look-alike product mixups. There is much to be learned from these reports, as the same types of errors are likely happening globally, and similar risks exist in most settings. We conclude with safe practice recommendations to help prevent these types of errors in your practice setting.

**Dilution Errors**

Four dilution errors were reported with the Pfizer-BioNTech COVID-19 vaccine, which was granted EUA for immunization to prevent COVID-19 in individuals 16 years and older. After thawing, each Pfizer-BioNTech multiple-dose vaccine vial contains 0.5 mL, which must be diluted using 1 mL of preservative-free (0.5%) sodium chloride injection. Once properly diluted, each vial contains 0.25 mL, which equals 1 dose when using low-dose-volume syringes to extract 0.5 mL (10 mcg) dose. The vaccine is administered intramuscularly (IM) as a series of 2 doses 3 weeks apart.

Dilution errors result in administering too much or too little vaccine. If you add too much diluent, doses may be ineffective; if you add too little diluent, doses may evoke stronger adverse effects (if one happens). In one reported case, mixing the vaccine with too little diluent was suspected when only 0.25 mL remained in the multiple-dose vial when attempting to access the fifth dose. As instructed in the Fact Sheet, the 0.25 mL of remaining vaccine was discarded (rather than pooled with excess vaccine from other visits). The previous four doses may represent overdoses.

According to a second report, an inadequate volume of diluent (approximately 1 mL) was added to the vaccine vial. Before the error was discovered, a 65-year-old patient received a nearly 2-fold overdose during his first vaccine dose. The patient had no initial reaction to the overdose and was discharged after an hour, with follow-up calls planned for the next 48 hours. Clinical staff called a pharmacist representative to determine if the patient’s second vaccine dose should be altered, but no immediate guidance was offered.

The third dilution error was similar to the previous error in that only 1 mL (instead of 10 mL) of 0.5% sodium chloride injection was used to dilute the vaccine. Again, only one clinic patient received the nearly 2-fold overdose before the error was caught. No details were provided regarding the patients’ response to the overdose.

In the last case, which happened internationally, eight healthcare workers in a long-term care (LTC) facility read the antigen vial contents (0.45 mL) without dilution, for their first dose of the Pfizer-BioNTech vaccine. Four of the eight workers were hospitalized as a continued on page 2 — Vaccine errors —
Managing COVID-19 Vaccine Safety Internationally

International Medication Safety Network
Learning from COVID-19 Vaccine Errors

- Dilution errors leading to under- or overdose of vaccine
- Air injected into vial instead of diluent; air injected into patient
- Storage issues (unsegregated vaccine brands in refrigerator)
- Wrong vaccine given for 2\textsuperscript{nd} dose (not checking/documenting in immunization information system)
- Administration outside of age indications
- Waste of vaccine; not taking advantage of over-fill in vaccine vials
- Errors in scheduling 2\textsuperscript{nd} dose
- Look-alike vials (vaccine-monoclonal antibody mix-up)
- Shoulder injury related to vaccine administration (SIRVA)
Preventing Errors with COVID-19 Vaccines

- Verify competency of preparers and vaccinators (many are volunteers)
- Dispense pharmacy prepared and labeled syringes when possible, or one person prepares and administers
- For mass vaccination, utilize a standard, organized process with independent double checks
- Maximize doses withdrawn from vials
- Separate vaccines in storage
- Plan for leftover vaccine
- Be prepared for allergic reactions
- Report vaccine errors and adverse reactions (in-country reporting systems); additional reporting to ISMP is voluntary
- Utilize immunization information systems
Thank You!

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