

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



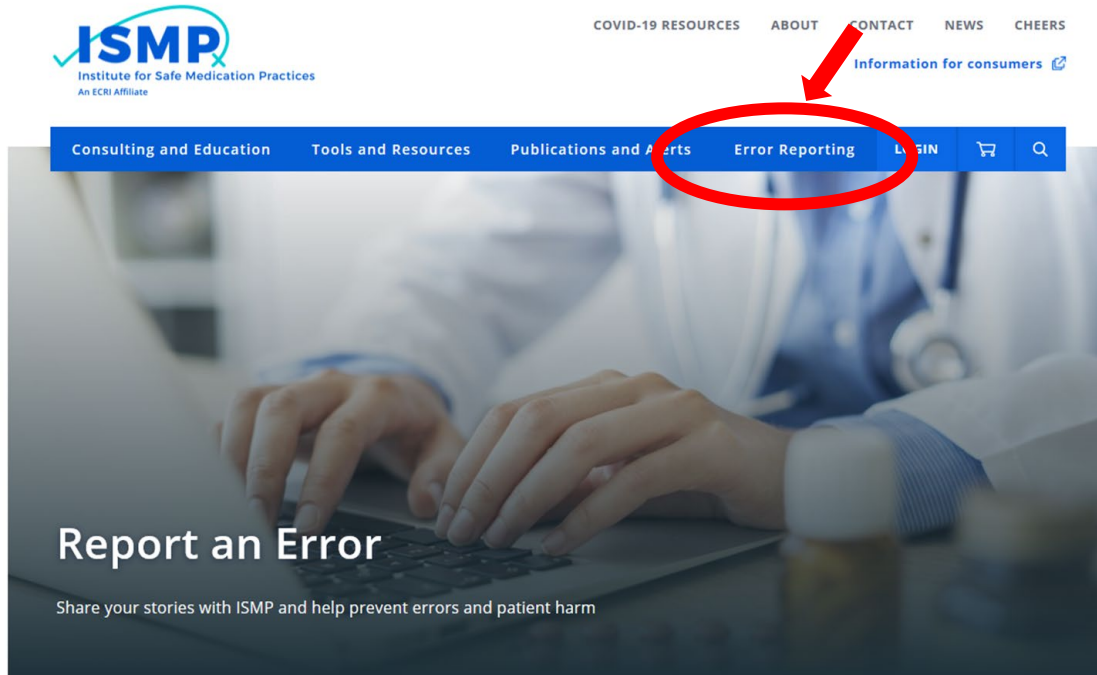
ISMP Mission

How does ISMP accomplish its mission?

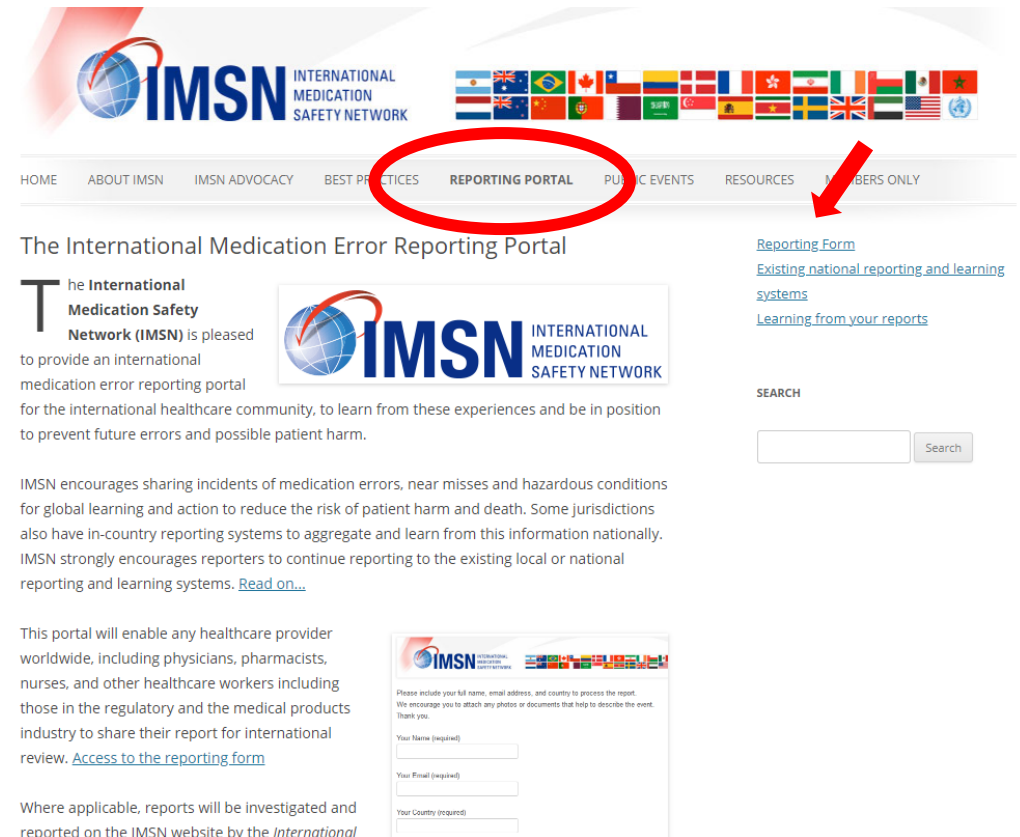
Collect and Analyze	reports of medication-related errors and hazardous conditions
Disseminate	timely medication safety information
Educate	the healthcare community and consumers
Collaborate	with other organizations
Advocate	for the adoption of safe medication standards
Conduct Research	to provide evidence-based safe medication practices

Reporting Errors to ISMP

ISMP National Medication Errors Reporting Program



International Medication Safety Network Error Reporting Portal



<https://ismp.org/report-medication-errorr>
<https://www.intmedsafe.net/the-international-medication-error-reporting-portal//>

ISMP Medication Safety Alert!® Newsletters

January/February 2020 • Volume 8 Issue 1

Long-Term Care AdviseERR™

Educating the Healthcare Community About Safe Medication Practices

January 2020 • Volume 18 Issue 1

Nurse AdviseERR™

Educating the Healthcare Community About Safe Medication Practices

A lot happens when you report ISMP—there's no "black hole" here!

In 2019, ISMP celebrated its 25th anniversary as the nation's first organization devoted entirely to medication error prevention. Accomplishments over the years, we recognize to our successes because you have reported medication hazards bringing attention to significant medication safety issues. Ever since we were founded, we want to assure you that the reports you submit never fall into a "black hole," irretrievably lost and never to be seen again. To demonstrate this, we want to share with you all that happens when you report a hazard or error to ISMP (summarized in Figure 1), whether it is face-to-face, via email or a phone call, or through one of our three error-reporting programs—the ISMP National Medication Errors Reporting Program (ISMP-MERP), the ISMP National Vaccine Errors Reporting Program (ISMP-VERP), and the ISMP Consumer Medication Errors Reporting Program (ISMP-C-MERP).

Initial Review of Reports

When ISMP receives a hazard or error report, it is entered into one of our databases and initially reviewed by a nurse or pharmacy technician analyst. Since most reports submitted to ISMP include the reporter's email address, ISMP sends an email to the reporter to confirm receipt of the report and to thank him or her for reporting.

After redacting any identifying patient, resident, facility information, our nurse or analyst distributes reports and any accompanying pictures or attachments through a secure portal to all ISMP interdisciplinary professional staff. The professional staff review each report and often share comments on the topic with each other through the portal; identify similar hazards, errors, or related resources; suggest questions to ask the reporter to better understand the report; and make recommendations for mitigating the risk. Many reports include contact information for the reporter, so we can all understand the reported risks and underlying causes.

Depending on the level of detail provided in the report, our nurse or analyst (or another ISMP professional) sends specific questions to the reporter so we can learn as much as possible about the event and its causes. In addition, each report is shared with the US Food and Drug Administration (FDA) and the manufacturer(s).

continued on page 2 — No "black hole" here!

Supported by educational grants from Novartis and Fresenius Kabi

January 2020 • Volume 19 Issue 1

Community/Ambulatory Care ISMP Medication Safety Alert!®

Educating the Healthcare Community About Safe Medication Practices

January/February 2020 • Volume 18 Issue 1

SAFE Medicine®

Protect Yourself from Medication Errors

January 30, 2020 • Volume 25 Issue 2

Acute Care ISMP Medication Safety Alert!®

Educating the Healthcare Community About Safe Medication Practices

Medical abbreviations that have contradictory or ambiguous meanings

ISMP would like to thank Nell M. Davis, PharmD, MS, FASHP, for authoring this article. The author can be reached at: nell@medabbrev.com for any comments or questions.

Introduction

Abbreviations are a convenience, a time saver, and a way of fitting a word or phrase into a restricted space or avoiding the possibility of misspelling words. However, a high price can be paid for their use. Abbreviations are sometimes not understood, misread, or interpreted incorrectly. Their use lengthens the time needed to train healthcare professionals; wastes time tracking down their meaning; sometimes delays the patient's care; and occasionally results in patient harm.

I published my first book of medical abbreviations, *Medical Abbreviations: 1,700 Conventions at the Expense of Communication and Safety*, in 1983. To expand the list of abbreviations, I contacted hospitals and requested lists of abbreviations that were used at their facility, searched the literature, and solicited readers to send me abbreviations. Since then, I have published 16 editions of the book, which now contains 55,000 abbreviations. A web version of the book is updated with more than 30 new entries per week.²

One of the problems I noticed was that one abbreviation could have two or more contradictory or ambiguous meanings, which can create dangerous communications. I collected these meanings, and a partial list of medical abbreviations with contradictory or ambiguous meanings is shown in Table 1 (pages 3-5). It is obvious from an examination of this list that these abbreviations should not be used, as they fail to communicate with any certainty their intended meaning and present possible dangers to the health of patients.

The Joint Commission directs medical facilities to publish a Do Not Use List³ of abbreviations that must not be used (see ISMP's list at www.ismp.org/node/8). This list is a very important step in the right direction but does not solve the systemic problem of an abbreviation with contradictory or ambiguous meanings.⁴ The Joint Commission standards also state, if multiple abbreviations exist for the same term, the organization must identify which one will be used to eliminate ambiguity. This step is extremely difficult to achieve.

Two Possible Solutions That May Not Be Feasible

1. **Create a national list of standard abbreviations.** A simplistic approach to this problem is to create a national list of approved abbreviations, with each abbreviation having only one meaning. The problem with this approach is that all medical specialties, allied health professionals, health-related organizations, and government agencies would have to agree on one meaning for each abbreviation.

A recognized health-related organization, such as USP, the American Medical Association, the Council of Science Editors, ISMP or ECRI Institute, would have to be funded to take responsibility for creating and maintaining such a list. The organization would have to reach out to all the health-related organizations to suggest abbreviations that should be on this list. Then, arbitration would be required between organizations if there is conflict with a suggested abbreviation that has more than one submitted meaning, such as PT.

continued on page 2 — Abbreviations

SAFETY briefs

Waste and error risk tied to Stivarga packaging. The oral kinase inhibitor STIVARGA (regorafenib) is approved for treatment of metastatic colorectal cancer, metastatic gastrointestinal stromal tumor, and hepatocellular carcinoma. The drug, which is available through specialty pharmacies, is formulated as 40 mg tablets and supplied in a carton containing three 28-count bottles, totaling 84 tablets (Figure 1). Current labeling states, "Store tablets in the original bottle," and "Discard any unused tablets 7 weeks after opening the bottle." The recommended dose is 160 mg daily (4 x 40 mg tablets) for the first 21 days of each 28-day cycle, which totals 84 tablets per cycle. Treatment is continued until disease progression or unacceptable toxicity.

Product labeling mentions various drug-related toxicities that require reduced continued on page 2 — SAFETY briefs

Figure 1. Stivarga carton holds three 28-tablet bottles.

Become an ISMP Fellow

ISMP fellowships can help you grow in your career and make major contributions to medication safety worldwide. ISMP is now accepting applications for three unique programs that begin this summer/fall—the ISMP Safe Medication Management Fellowship, the ISMP International Medication Safety Management Fellowship, and the FDA/US Food and Drug Administration/ISMP Safe Medication Management Fellowship. The deadline for applications is March 31, 2020. For information, program descriptions, and application, visit: www.ismp.org/node/871.

January 2020 • Volume 19 Issue 1

Community/Ambulatory Care ISMP Medication Safety Alert!®

Educating the Healthcare Community About Safe Medication Practices

SAFETY briefs

1. **Mix-ups between Aimovig strengths and packaging.** Outpatient and community pharmacies should be aware that the US Food and Drug Administration (FDA) has received several reports of dispensing errors and patient administration errors with AIMOVIG (erenumab-choor) injection. Aimovig is a monoclonal antibody indicated for adult migraine prophylaxis. The recommended dose is 70 mg or 140 mg injected subcutaneously once monthly. Aimovig is supplied in single-dose prefilled autoinjectors intended for patient self-administration.

Figure 1. Aimovig 70 mg/mL (top) and 140 mg/mL (bottom) autoinjectors.

When Aimovig was approved in May 2018, it was available in cartons containing either one 70 mg/mL autoinjector (for the 70 mg monthly dose) or two 70 mg/mL autoinjectors (for the 140 mg monthly dose). To enable patients to administer just one injection for a 140 mg dose, the manufacturer developed a 140 mg/mL autoinjector, which was approved in March 2019 (Figure 1). However, until the supply of the carton containing two 70 mg/mL autoinjectors is depleted, there are three different packages on the market: a carton containing one 140 mg

continued on page 2 — SAFETY briefs

60 SAFETY TIPS

■ **Up & Away cold and flu rally.** Between nose-wiping, temperature-taking, and appropriately dosing and storing of medicines, parents and caretakers have a lot to manage. With all that chaos, slip-ups can happen, and medicines can be left out, leading to an emergency. In one case, a mom left the room for just a moment, but that was all it took for her toddler to accidentally take another dose of medicine (see a video of the error at: <http://bit.ly/2JnG7>). This is not the only family with a close call—60,000 young children go to the emergency department each year because they accidentally swallow medicines left within reach (Figure 1).

Figure 1. Tissues? Check. Plenty of liquids? Check. Medicines stored safely? Make sure that putting medicines up and away and out of sight is on your cold and flu season checklist, too!

② **Here's what you can do:** As this year's cold and flu season gains momentum, the Up & Away campaign, in collaboration with the Centers for Disease Control and Prevention (CDC) and its PROTECT Initiative (www.ismp.org/343), is reminding parents and other caregivers to store all medicines up and away—out of sight and reach of young children—after every dose.

continued on page 2 — SAFETY TIPS


nic medicines appear in red


Managing Medication Safety During COVID-19

Once a Week

March 26, 2020 ■ Volume 25 Issue 6

SPECIAL EDITION
COVID-19





An ECRI Affiliate

Acute Care

ISMP Medication Safety Alert!®

Educating the Healthcare Community About Safe Medication Practices

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/node/838). At that time, common canister policies were being utilized by respiratory therapists and nurses who disinfected the MDI after 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

SPECIAL EDITION: COVID-19

Dear colleagues,

Has it really been only a few weeks since our world was turned upside down by COVID-19? It feels like a lifetime ago, as the entire world continues to respond to this global pandemic that demands strong leadership and every person's commitment to, and cooperation in, containment and mitigation. Our hearts and thoughts go out to all the people who have been affected by this unprecedented event. We especially want to recognize the hard work and dedication of all healthcare workers who are selflessly serving on the front lines of this public health emergency. We know that healthcare workers are often taking on additional risks to their own safety, and that of their families, given widespread shortages of personal protective equipment (PPE) and COVID-19 tests, as well as looming shortages of staff and hospital beds. We are also grateful for our colleagues in federal agencies, including the US Food and Drug Administration (FDA) and the Centers for Disease Control and Prevention (CDC); they are all-hands-on-deck in this war against COVID-19. From all of us at ISMP, we sincerely thank every one of you for all that you do.

Managing Medication Safety During COVID-19



MEMBERSHIP ABOUT CONTACT NEWS SUPPORT

[Information for consumers](#)

Consulting and Education

Tools and Resources

Publications and Alerts

Error Reporting



COVID-19 Resources


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




Has your facility experienced a medication error related to COVID-19?

[REPORT AN ERROR](#)



Medication Safety Officers Society (MSOS)

 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/>

Learning from COVID-19 Medication Errors

For Clinical Trial Use Only

Remdesivir (GS-5734) for Injection, 100 mg

Contents: Each Vial Contains Lyophilized Powder for Intravenous use.

Store below 30 °C (86 °F).

Directions: See Clinical study protocol for dosage and Administration.

Keep out of reach of children.

Caution: New Drug - Limited by Federal (USA) law to investigational use.

Sponsor: Gilead Sciences, Inc., 333 Lakeside Drive, Foster City, CA 94404, USA. Tel: +1 800 445 3235

Protocol: _____

Patient ID: _____

Investigator: _____

Site No.: _____

Lot: EW1802A1-A

GS16023 90219401 FP-13642

For Clinical Trial Use Only

Remdesivir (GS-5734™) Injection, 5 mg/mL

Contents: 21.2 mL

Store under refrigeration, 2 – 8 °C (36 – 46 °F)

For intravenous use. See clinical study protocol for dosage and administration.

Keep out of reach of children.

Caution: New Drug - Limited by Federal (USA) law to investigational use.

Sponsor: Gilead Sciences, Inc., 333 Lakeside Dr., Foster City, CA 94404, USA. Tel: +1 800 445 3235.

Protocol: _____

Patient ID: _____

Investigator: _____

Site No.: _____

Lot: 20985-A

GS16182 01 FP-13791

46 °F

GILEAD



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



Acute Care ISMP Medication Safety Alert!®

Educating the Healthcare Community About Safe Medication Practices

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 (VERP), the ISMP National Consumer Medication Errors Reporting Program (C-MERP), and via email correspondence from professional colleagues. (See the last recommendation on [page 5](#) regarding a mandatory requirement to report all COVID-19 vaccine errors and adverse reactions to the Vaccine Adverse Event Reporting System (<https://vaers.hhs.gov>). The following highlights a few of the missteps happening across the nation and internationally, from vaccine dilution errors to look-alike product mix-ups. There is much to be gleaned 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 0.45 mL, which must be diluted using 1.8 mL of preservative-free (not bacteriostatic) 0.9% sodium chloride injection. Once properly diluted, each vial contains 6, perhaps even 7, doses when using low dead-volume syringes/needles to extract each 0.3 mL (30 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 invoke 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 vials). 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 60-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. Clinic staff called a Pfizer 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 1.8 mL of 0.9% 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 patient's response to the overdose.

In the last case, which happened internationally, eight healthcare workers in a long-term care (LTC) facility received the entire 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](#) >

SAFETY briefs



Bamlanivimab confused with belimumab. Four residents at a long-term care (LTC) facility received 700 mg of belimumab (BENLYSTA) instead of the intended bamlanivimab intravenously (IV). Belimumab is indicated for patients with active systemic lupus erythematosus or active lupus nephritis who are also taking other lupus medications. Bamlanivimab was granted emergency use authorization (EUA) for the treatment of mild to moderate coronavirus disease 2019 (COVID-19) in adults and children 12 years and older (weighing at least 40 kg) who are at high risk for progressing to severe COVID-19 and/or hospitalization. This event began when a nurse at the LTC facility called the offsite pharmacy with orders but either mispronounced or misread bamlanivimab. The pharmacist heard belimumab, which he prepared and dispensed. The preparations were infused over 60 minutes, but no adverse reactions were reported for any of the residents.

There are several elements in common with belimumab and bamlanivimab. Each drug is added to a 250 mL intravenous (IV) bag of 0.9% sodium chloride injection. Other diluents may also be used with belimumab, but 0.9% sodium chloride injection is one of the recommended base solutions. Also, the dosages can overlap. The pharmacist did not question the dose of 700 mg for belimumab because it aligned with the patients' weights and it fell within a safe dosing range. Both are infused IV over 60 minutes. Bamlanivimab is available in 700 mg vials, while belimumab comes in 120 mg and 400 mg vials for IV use, and in a prefilled syringe or autoinjector for subcutaneous injection. In this case, the pharmacist processing the order was not familiar with either drug. Apparently, the preparations, labeled as belimumab, did not raise a red flag at the LTC facility, either. The incident occurred just as bamlanivimab use was increasing for patients with early

continued on page 3 — [SAFETY briefs](#) >

Managing Medication Safety with COVID-19 Vaccines

Managing COVID-19 Vaccine Safety Internationally

International Medication Safety Network



The screenshot displays the homepage of the International Medication Safety Network (IMSN). At the top, the IMSN logo is accompanied by a row of flags from various countries. Below this is a navigation menu with links: HOME, ABOUT IMSN, IMSN ADVOCACY, BEST PRACTICES, REPORTING PORTAL, PUBLIC EVENTS, RESOURCES, and MEMBERS ONLY. The main content area is titled "IMSN Covid-19 Vaccine Safety Interest Group (CVSIG)". It features a large banner with the IMSN and CVSIG logos. To the right of the banner is a list of links: [Press releases](#), [Positions and statements](#), [IMSN Advocacy for vaccine safety](#), [2015 - IMSN Position Statement on Safer Design of Vaccines Packaging and Labelling](#), [2020 - IMSN aiming at preventing errors related to 2-component vaccines](#), [2021 - The IMSN Covid-19 Vaccine Safety initiative](#), [IMSN Covid-19 Vaccine Safety Interest Group \(CVSIG\)](#), and [Covid-19 Vaccine safety resources](#). Below the banner, a section titled "Click on the titles to access the content" lists five items, each with a plus icon: [IMSN CVSIG Charter](#), [IMSN CVSIG List of participants](#), [February 11, 2021 CVSIG meeting](#), [March 11, 2021 CVSIG meeting](#), and [April 8, 2021 CVSIG meeting](#). At the bottom right, there is a search bar with the label "SEARCH" and a "Search" button.

IMSN Covid-19 Vaccine Safety Interest Group (CVSIG) | International Medication Safety Network (intmedsafe.net))

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 2nd 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 2nd dose
- Look-alike vials (vaccine-monooclonal 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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