
About the Guideline

- The Institute for Safe Medication Practices (ISMP) is a 25-year-old nonprofit organization solely dedicated to preventing medical errors.
- The goal of this guideline is to make hospitals aware of medication errors that have caused harm and even death and to promote the implementation of recommended medication safety best practices to avoid such occurrences.
- Although the guideline’s focus is hospital-based sites, these best practices can also be implemented in other types of health care organizations.
- The ISMP encourages health care organizations nationally to review and implement these best practices within a 2-year timeline.
- These best practices are reviewed by an outside expert advisory panel and then accepted by the ISMP board of trustees.

Key Clinical Considerations

Become familiar with the recommendations and best-practice statements provided in this guideline, especially if you work in an acute care setting.

Best Practice 1

- VinCRISTine and other vinca alkaloids should **not** be supplied in a syringe; use a minibag and dilute with a compatible solution.
  - Helps ensure it is delivered intravenously and not intrathecally, due to the risk of neurological effects, which can be fatal

Best Practice 2

- When electronic order entry for oral methotrexate is used, a weekly dosing schedule should be the default selection.
- All daily oral methotrexate orders should necessitate a “hard stop” for an applicable oncologic diagnosis.
  - In manual systems and those electronic systems that cannot offer a hard stop, all daily methotrexate orders should require clarification if an oncologic indication is not documented.
  - Hospitals, software vendors, and information technology departments need to work collaboratively to make hard stops an integral part of electronic order entry systems.
- Upon discharge on oral methotrexate, detailed patient or family (as appropriate) education should be provided.
  - All printed discharge oral methotrexate orders should be double checked before being given to the patient or family.
  - The oral methotrexate dosing schedule should be written clearly and reviewed verbally. Emphasize that the medication should not be taken as needed and educate about the risk of taking additional doses.
Best Practice 3
- The patient’s weight should be an actual, measured weight. Do not use a previously documented, verbal, or estimated weight. At each encounter (for example, at admission, in the emergency room, or as an outpatient, if not an emergency), the patient’s weight should be measured as soon as possible.
  - Metric scales should be placed in all areas where patients are received, and the metric weight documented in the medical record.
- Metric units should be the standard and only measurement system used to measure a patient’s weight:
  - Disable the setting for weight in pounds so that it is unavailable on scales that give readings in both kilograms and pounds.
  - If the patient or family asks for the weight in pounds, have a conversion chart available near the scale.
  - Ensure that all devices (for example, infusion pumps and places for documentation, such as medical records, order forms, and instructions) activate a prompt for weight in kilograms only.

Best Practice 4
- Oral liquid medications should be delivered in unit-dose packaging whenever possible, or distributed in an oral or enteral syringe by a pharmacy that meets the International Organization for Standardization (ISO) 80369 standard:
  - Bulk oral liquid medications should not be available on patient care floors or departments.
  - Use only oral syringes labeled “Oral Use Only.”
  - Even when using ISO 80369 syringes, always add a label or highlight that they are for oral use only.
- Ensure that parenteral tubing is not compatible with oral or enteral syringes within the organization. (Exception: Some pharmacies may only use oral liquid medications in unit-dose cups and bottles. In these cases, patient care floors or departments should be supplied with ISO 80369 syringes for patients who are not able to swallow from a cup or bottle).

Best Practice 5
- The metric unit should be labeled on oral liquid dosing devices (cups, bottles, syringes).
  - Upon discharge, teach patients who use oral liquid-dosing devices to ensure that the devices use measurements in milliliters (mL) only.

Best Practice 6 (Archived)
- Glacial acetic acid should not be available in any area of the hospital.
  - Replace it with vinegar (5% solution) or commercially available, diluted acetic acid 0.25% (for irrigation) or 2% (for ear use).
Best Practice 7

- Neuromuscular blocking agents (NMBs) should be isolated from all other medications in all areas where they are stored.
  - If NMBs are not used regularly in an area, they should not be available in that area.
  - In areas where NMBs are used regularly, they should be stored in a sealed case, if possible, in a rapid sequence intubation (RSI) box.
  - In limited areas, such as critical care, labor and delivery, perioperative area, and the emergency department, NMBs may be made available in automated dispensing cabinets (ADCs), preferably in pockets or drawers within a locked ADC or RSI box.
  - Labels must be added to NMB cases wherever they are available in the hospital. They should note the following: “WARNING: Causes respiratory arrest — patient must be ventilated” or “WARNING: Paralyzing agent — causes respiratory arrest” or “WARNING: Causes respiratory paralysis — patient must be ventilated” to clearly convey that respiratory arrest can occur and that, in cases of respiratory arrest, ventilator assistance will be needed.

Best Practice 8

- Programmable infusion pumps with dose error reduction systems:
  - Should be used for medication infusions.
  - Maintain 95% or greater compliance for use.
  - Determine the compliance rate for use monthly.
  - When programming allows and a loading dose is a portion of the continuous infusion, limits should be programmed for each dose separately.
  - Maintenance, updating, and testing should be performed regularly, and resources made available as required.
  - Confirm compatibility between the smart pump drug library and the drug data with details in the electronic medical record.
  - Plan to use bi-directional smart infusion pumps that interface with the electronic medical record (automatic programming and documentation).

Best Practice 9

- Ensure that antidotes, reversal agents, and rescue medications are immediately accessible. These medications should be provided with standardized protocols or order sets. Instructions for use should be made available in clinical areas that use high-risk medications.
  - Determine which antidotes, reversal agents, and rescue medications can be given without delay to prevent injury in an emergency setting.
  - After determining the list, develop standardized protocols or order sets for their appropriate use.

Best Practice 10

- Remove all 1,000-ml (1-L) bags of sterile water from any area outside of the pharmacy.
  - Create a different process for making sterile water available in clinical areas that require it for irrigation, inhalation, or injection, such as 2,000-ml (2-L) bags, or bottles or vials of sterile water.
  - Create a policy that states that only the pharmacy can order 1,000-ml (1-L) bags of sterile water.
Collaboration should occur between the pharmacy and appropriate clinical areas or departments, such as respiratory therapy, to develop procedures for safe patient care when large volumes of sterile water are required.

**Best Practice 11**

- Independent verification should occur when compounding a sterile preparation before adding it to its final container.
  - Do not use an indirect or retrospective method; that is, do not check the label and not the individual elements being combined as preparation is taking place. (Note: Indirect methods may be used in an emergency; otherwise, implement an independent verification process in all patient care areas where sterile compound preparations are done.)
  - Enhance the manual process by using technology to assist with verification (for example, using barcodes, IV workflow software, or robotics).

**Best Practice 12 (Incorporated into New Best Practice 15)**

- FentaNYL patches should not be ordered for patients with acute pain or for opioid-naïve patients
  - Regular documentation in the medical record or order sets should indicate the type of pain (acute versus chronic) and the patient’s opioid status (naïve versus tolerant).
  - Create a process to ensure that FentaNYL patches cannot be ordered for acute pain and opioid-naïve patients and that their use requires verification (hard stops, electronic alerts).
  - In clinical areas or departments that mostly treat patients with acute pain (for example, the emergency department or postanesthesia care units), stock FentaNYL patches or make them available in an ADC.

**Best Practice 13**

- Promethazine injectable should be eliminated from the formulary.
  - Eliminate injectable promethazine from within the organization, including the pharmacy.
  - All clinical personnel should be aware that promethazine is a nonstocked, nonformulary medication.
  - Medical staff should create and approve a policy to automatically convert to a different antiemetic as a therapeutic alternative, when promethazine is ordered.
  - Promethazine should not be available for ordering on protocols, order sets, or medication order screens.
  - Because an intramuscular injection (IM) of promethazine can inadvertently go intraarterial and potentially cause tissue damage, this best practice also applies to IM injections.

**Best Practice 14**

- Staff should learn about medication risks and errors that have occurred outside of their organization, and create practices that identify vulnerability within the organization and develop procedures that can prevent similar incidences.
Best Practice 15

- Prior to ordering and distributing extended-release and long-acting opioids, determine and document the type of pain (acute versus chronic) and the patient's opioid status (naïve versus tolerant).
  - When ordering extended-release and long-acting opioids, create a method in the order entry system to ensure it will default initially to the lowest dose and frequency.
  - Practitioners should be alerted that due to age, kidney and liver impairment, or other narcotics ordered, dose modification may be needed for extended-release and long-acting opioids.

Best Practice 16

- The override function on an ADC should be limited to a small number of medications.
- A medication order (either verbal, written, via phone, or electronic) should be required prior to removing any medication, including an override on an ADC.
- Override medications should be monitored to determine the appropriateness of the medication, that the order exists, and that the medication was dispensed and documented correctly.
- Override medications should be assessed for appropriateness intermittently.
- Limit medications that can be obtained on override for emergencies (as defined by the organization) such as antidotes, lifesaving medications, reversal agents, and comfort measures (for intractable nausea and vomiting or acute pain).

Reference