

## Safe Injection Practices Analysis

The Institute for Safe Medication Practices (ISMP) developed and initiated a Gap Analysis Tool (GAT) in January of this year to assess intravenous (IV) push medication systems and practices. The instrument includes 50 elements focused on evaluating clinician preparation techniques (i.e. aseptic technique and labeling), administration, drug information resources, competency assessment, and error reporting. The GAT was provided to hospitals, long-term care facilities, and outpatient centers across the country at no cost. Organizations were enrolled and were allowed to submit their data anonymously. Each center was then given access to the aggregate data and could compare their results with facilities of a similar size and demographic. The results of the assessment are summarized below.

- Over 240 healthcare facilities participated, the majority were inpatient and primarily hospitals
- Facilities were scored on each best practice element and given a “report card”
- Maximum score for the GAT was 250, the mean score was 196 (78%)
  - The following types of facilities scored higher on the GAT
    - Facilities that were a part of a larger health system
    - Facilities with more than 25 licensed beds
    - Facilities located in urban areas
    - For-profit facilities
    - Facilities with a pharmacist present on site, around the clock
- Key data points assessed: (mean percentage score is represented in parentheses)
  1. **Acquisition and distribution:**
    - Utilize commercially available pharmacy-prepared prefilled syringes for flushing vascular access devices (94%)
    - Dispense adult IV push medications in a ready-to-administer form to decrease product relabeling outside the pharmacy (61%)
  2. **Aseptic technique:**
    - Vial disinfection procedures followed (81%)
    - Use a new syringe (and needle when necessary) for every IV push injection (95%)
    - Hand hygiene prior to (78%) and after (84%) drug preparation and administration
  3. **Practitioner preparation:**
    - Using a filter needle or straw to withdraw IV push medications from a glass ampule when appropriate (93%)
    - Diluting or reconstituting IV push medications immediately prior to use if a drug must be prepared outside the pharmacy (88%)
    - Using sterile equipment or supplies (91%)
    - Ensuring drug information is available (89%)
    - Never using IV solutions in bags as a common source container outside the pharmacy sterile compounding area (89%)
    - Never diluting IV push meds by drawing up the contents into a commercially available, prefilled flush syringe (31%)

### References

1. Institute for Safe Medication Practices. (2018). *Nurse Advise-ERR*. Retrieved from Institute for Safe Medication Practices: <http://www.ismp.org/newsletters/nursing/issues/NurseAdviseERR201909pdf>

- Using a clean, uncluttered, separate location to dilute and reconstitute drugs (34%)
  - Diluting IV push medications only when recommended by the manufacturer, as outlined in the evidence-based literature or per approved facility guidelines (48%)
  - Never withdrawing IV push medications from commercially available, cartridge type syringes into another syringe for administration of medications prepared outside of the pharmacy (58%)
4. **Labeling:**
- Ban on pre-labeling of empty syringes in anticipation of use (87%)
  - Immediately discarding unattended, unlabeled syringes containing any type of solution (86%)
  - Blank or preprinted labels provided to clinical units to support safe labeling practices (71%)
  - Preparing and labeling just one syringe at a time when several medications or solutions are prepared away from the bedside (73%)
5. **Practitioner administration:**
- Barcode scanning of IV push *flush* solutions (57%)
  - Barcode scanning of IV push *medications* (78%)
  - Directions in protocols and/or order sets that allow emergency administration of rescue agents (67%)
  - Antidotes and rescue agents readily available where IV push medications are administered (85%)
  - IV push medications and flush solutions administered at the correct rate based on manufacturer recommendation, as outlined in the evidence-based literature, or per approved facility guidelines (58%)
  - Conducting clinical and vascular access site assessment *prior* to IV push medication administration (88%)
  - Clinical and vascular access site assessment performed *after* administration of IV push medications (78%)
6. **Drug information resources:**
- Defined “IV bolus” and “IV push” terms in policies (50%)
  - Availability of facility-approved IV push medication resources (85%)
  - Resources do not contain error-prone abbreviations and dose expressions (91%)
7. **Competency assessment:**
- Defining which practitioners can prepare (75%) and administer (87%) IV push medications
  - Competency assessment for IV push medication preparation and administration at the time of hire (59%)
  - Ongoing competency assessment (44%)
  - Provide practitioners with ongoing information about risks and errors that have occurred internally and externally and strategies to mitigate these risks (42%)
8. **Error reporting:**

#### References

1. Institute for Safe Medication Practices. (2018). *Nurse Advise-ERR*. Retrieved from Institute for Safe Medication Practices: <http://www.ismp.org/newsletters/nursing/issues/NurseAdviseERR201909pdf>

- Adverse events, close calls, and dangerous conditions related to IV push medications are reported *within* the facility (88%)
- Reporting to *external* safety organizations (60%)
- **Best practice recommendations:** The following practices scored low on the GAT and should be areas for improvement in all healthcare organizations.
  1. Purchase or utilize IV push medications in ready-to-administer packaging whenever possible.
  2. Dilute IV push medications only when recommended by the manufacturer, in evidence-based literature or as outlined in facility guidelines.
  3. Don't dilute or reconstitute an IV push medication by drawing the drug into a commercially available prefilled flush syringe of 0.9% sodium chloride.
  4. Don't withdraw IV push medications from commercially available, cartridge-type syringes into another syringe for administration.
  5. Barcode scan all IV push flush solutions prior to administration to prevent look-alike prefilled syringes from being accidentally administered.
  6. Ensure protocols and/or order sets allow the emergency administration of rescue agents.
  7. Administer all IV push medications and flush solutions at the rate recommended by the manufacturer, as outlined in the evidence-based literature, or per approved facility guidelines.
  8. Assess clinician competency for IV push medication preparation and administration when hiring and on an ongoing basis.
  9. Provide staff with current information regarding associated risks (internal and external) with IV push medications as well as strategies to mitigate these risks.
  10. Report errors, close calls, and hazardous conditions associate with IV push medications to external safety organizations.

While the national assessment conducted by ISMP was completed in April, the Gap Analysis Tool (GAT) for Safe IV Push Medication Practices will be available on the ISMP website ([www.ismp.org/node/1188](http://www.ismp.org/node/1188)) for facilities to assess areas needing improvement.

#### References

1. Institute for Safe Medication Practices. (2018). *Nurse Advise-ERR*. Retrieved from Institute for Safe Medication Practices: <http://www.ismp.org/newsletters/nursing/issues/NurseAdviseERR201909pdf>