Intravenous Medication Administration in Critical Care Areas

Site Applicability

PHC Critical Care Units

Practice Level

Specialized - Registered Nurses working in the Critical Care areas

Need to Know

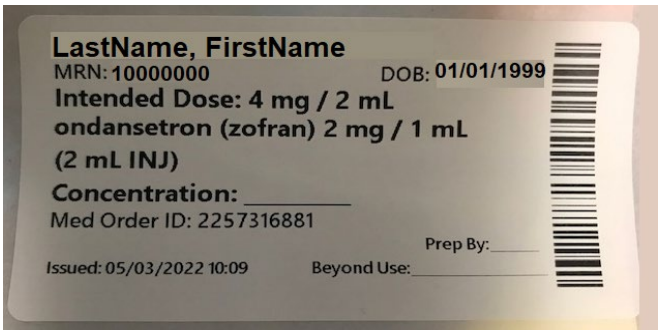
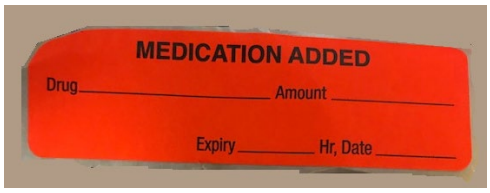
- There are many different types of medications that are administered as intermittent or continuous intravenous (IV) infusions in the critical care areas. Such medications include (but are not limited to) vasoactive, inotropic, antiarrhythmic, sedative, analgesic, antibiotic and antidiabetic agents.
- Certain premixed IV medications require refrigeration. This is indicated on the label of the bag by pharmacy.
- All premixed IV medications must be discarded 24hours after being spiked or before the expiry.
- Some medications commonly used in critical care areas (e.g., heparin, insulin, etc.) are potent medications that can cause significant harm and are considered High Alert medications and require an independent double check when starting a medication, making rate changes, administering boluses, or changing medication bags. Refer to the Independent Double Check and Double Check of Medication Guideline for more information.
- Nurses must adhere to the "**seven rights**" of medication administration
    - Right client
    - Right medication
    - Right dose
    - Right time
    - Right route
    - Right reason
    - Right documentation

Protocol

Assessment and Interventions

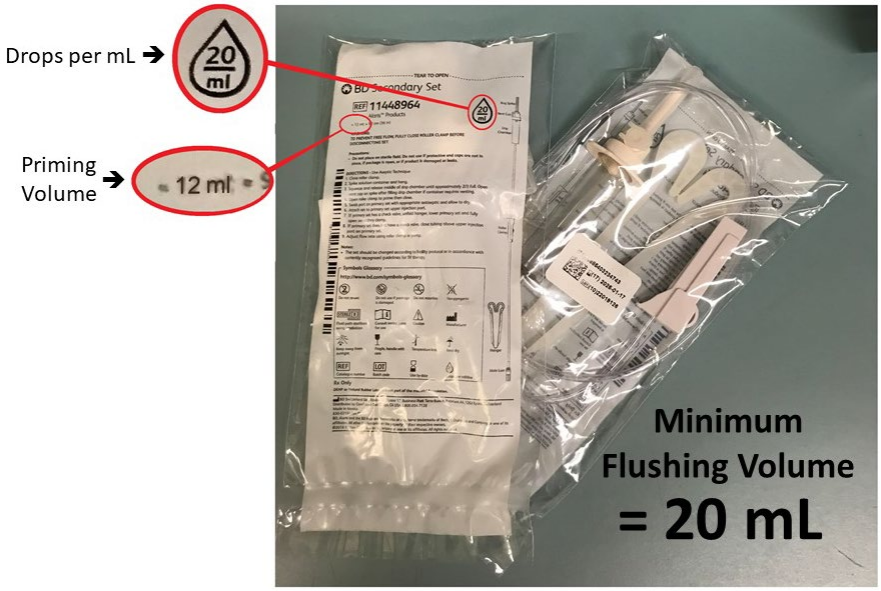
1. All infusions should be programmed into the pump when at all possible. When using the Alaris®PC CareFusion Edition Infusion Pump with Guardrails, if a medication or IV fluid cannot be found in the drug library, then basic infusion mode can be used. Notify Clinical Pharmacist and Nurse Educator to request addition to the pump library.

2. All lines and bags need to be labelled with the date and time they were hung.
3. Hang premixed IV replacement bags behind existing bag on IV pole when received from pharmacy unless immediate refrigeration is required. Additional bags are stored in the refrigerator unless otherwise specified. Narcotics must be signed into and stored in the temporary narcotic bin in the automated dispensing cabinet (Omnicell®) until needed.
4. If the existing bag of medication is near completion (or near expiry), replace that bag before reporting off to the covering/break relief nurse or prior to shift change.
5. When possible, use pre-mixed bags and/or unit standard concentrations of medications.
6. If manual mixing of medications is needed, ensure that the following minimum information is clearly written on the medication bag label (used to program smart pumps):
    - Patient name
    - Drug name
    - Total medication dose in the total volume (i.e., Norepinephrine, 8mg in 250mL)
    - Date and time medication bag was prepared (nurse prepared bags are considered expired after 24 hours)
    - RN signature (who prepared the bag)

Omnicell® Generated Label (preferred)	**Handwritten Medication Labels**
 Omnicell® generated label is preferred because it includes all the information needed, and has a barcode of the medication for scanning the medications using the Medication Administration Wizard.	 Red label is eye-catching however does not include all the information needed such as the patient's name and RN signature. The red label can be used as a flag with the Omnicell® generated label to highlight that this bag has had a medication added.

7. If any changes occur to the drug concentration on a medication already infusing, highlight the new concentration on the bag with a colored marker. Mark changes in concentration immediately after receiving the bag from pharmacy. The IV tubing will need to be replaced when the drug concentration is changed.
8. At shift change the on-coming and off-going nurses must review the programming of drug dosage, infusion rate, and concentration of all infusions at the IV pump during shift change. This includes checking the expiry date and time of medications and tubing.
9. The nurse will independently check a new infusion bag before hanging using the 'seven rights'. Some medications will require an independent double check.

10. Intermittent medications (delivered via secondary lines) of 50 to 100 mL volumes will be flushed with 20 mL of NS (by hanging a 50 mL bag of NS and programming 20 mL as an "IV Line Flush" to be administered) to ensure no residual medication remains in the IV tubing. Secondary lines may be used for up to 24 hours before needing to be replaced.



11. For fluid restricted patients where total fluid intake is a concern, consider using microbore-tubing as the secondary line. Microbore-tubing holds a smaller volume and thus needs less volume (i.e., 5 mL) to flush residual medication from the line.

BD Secondary IV Administration Set (#10015501): Syringe Adapter Microbore Pinch Clamp(s) 2-piece Male Luer Lock with Hanger Syringe Holder. DEHP is not a part of the material formulation. Length: 28 in (71 cm)

Priming volume is 1.75 mL. Minimum Flush Volume is 5 mL.

NOTE: Micobore secondary tubing is a special order item.

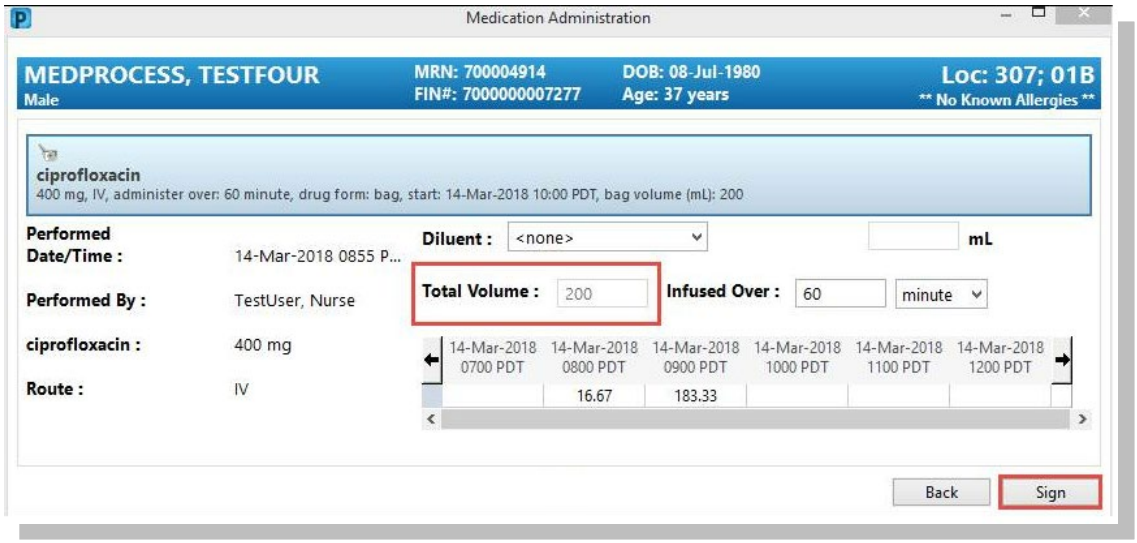
12. Waste medication must be discarded in a designated pharmaceutical waste receptacle. Wastage of narcotics and controlled substances requires a witness and documentation of the waste at the ADC.

Documentation

- Write the date, time, and your initials on the medication bag when hanging a new medication bag.
- Review the order details on the Medication Administration Record (MAR) in the electronic health record (EHR).
- When hanging new medication bags either for intermittent or continuous or infusions, use the Medication Administration Wizard (MAW) to scan the patient's wristband barcode and the medication barcode.
- When the medication requires an independent double check, document who witnessed the medication on the MAR as well.
- For Continuous Infusions, new bags should be documented in MAR, however rate changes can be documented in the MAR or in the "Continuous Medication Infusions" section of Interactive View and I&O (IView)

For intermittent IV medications document:

- the medication name, dose and time it was initiated (MAR);
- the diluent and total volume of medication mixed in (MAR);
- the period of time it was infused over (MAR);
- flush volume administered (in IView post infusion);

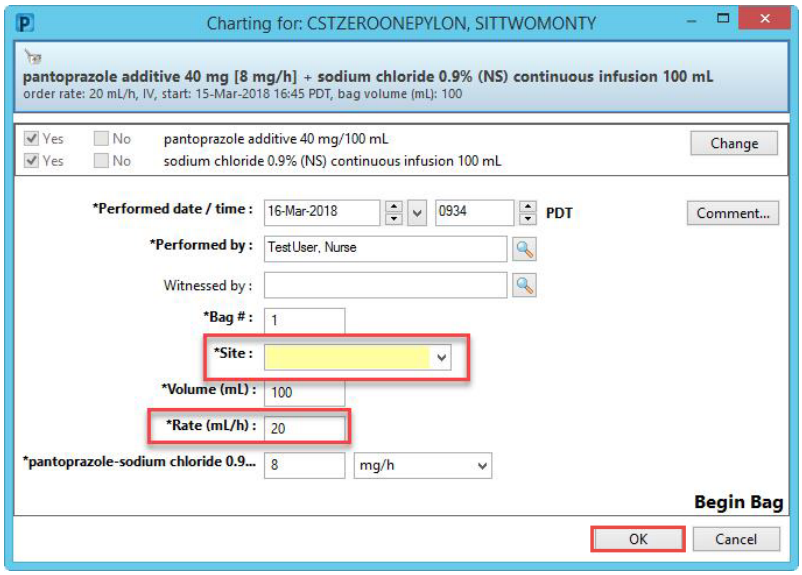


For continuous infusions, document:

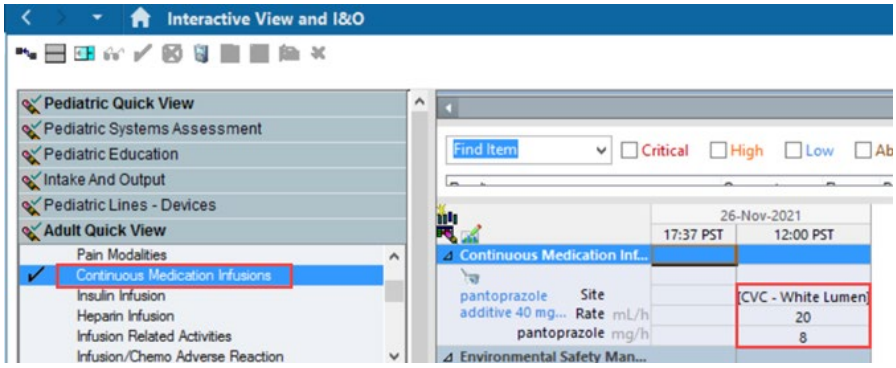
- medication name, concentration, diluent type, total bag volume, initial rate and site it was infusing into (in MAR);
- infusion rates at least hourly (in MAR or IView);
- when any rate changes are made, including the rationale for the rate change (i.e., responding to a change in physiologic parameter) as needed (in MAR or IView);

- when new bags are hung (in MAR);
- when any concentration changes are made (in MAR); and
- when infusions are discontinued, including rationale for discontinuation (in MAR or IView).

Documentation in MAR



Documentation in the "Continuous Infusions Section" of IView



Related Documents

1. BD-00-11-40028 - High Alert Medications Policy
2. B-00-07-40034 - Independent Double Check and Double Check of Medication
3. B-00-07-10061 – Automated Dispensing Cabinet (ADC): Omnicell ®
4. B-00-12-10007 – Alaris®PC CareFusion Edition Infusion Pump with Guardrails
5. Parenteral Drug Therapy Manual

References

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3. CST Cerner Help (2022). Administering Intermittent IV. Retrieved from URL: http://cstcernerhelp.healthcarebc.ca/#t=Patient_Chart%2FMedication_Administration%2FIVs%2FAdminister_Intermittent_IV.htm&rhsearch=IV%20medication&rhhlterm=IV%20medication&rhsyns=%20
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5. Harding, M., Stefka, S., Bailey, M., Morgan, D., & Anderson, A. (2020) Best Practice for Delivering Small Volume Intermittent Intravenous Infusions. *Journal of Infusion Nursing. 43*(1), 47-52. doi: 10.1097/NAN.0000000000000355
6. Institute for Safe Medication Practices (2021). Additional Strategies to Improve Complete Delivery of Small-Volume Intermittent Infusions. Retrieved from URL: https://www.ismp.org/resources/additional-strategies-improve-complete-delivery-small-volume-intermittent-infusions
7. Institute for Safe Medication Practices (2020). Hidden Medication Loss When Using a Primary Administration Set for Small Volume Intermittent Infusions. Retrieved from URL: https://www.ismp.org/resources/hidden-medication-loss-when-using-primary-administration-set-small-volume-intermittent
8. Parenteral Drug Therapy Manual-Providence Health Care. (2021) Retrieved from URL: http://pdtm.vch.ca/monograph-information/monographs

Persons/Groups Consulted:

Nurse Educator Emergency Department SPH

Nurse Educator Emergency Department MSJ

Clinical Nurse Leader Emergency Department

Nurse Educator CSICU

Nurse Educator CICU

Nurse Educator Cardiac Interventional Areas, CSSU

Nurse Educator ICU

Nurse Educator ICU

Nurse Educator RN PACU SPH

Nurse Educator PACU SPH

Nurse Educator Surgery MSJ

Nurse Educator High Acuity Unit MSJ

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