Infusion Pump Guideline

PLEASE NOTE:

Interim Guideline for Vancouver Acute to support Alaris Pump implementation.

Any questions, please contact:
Practice Initiatives Lead, Professional Practice Nursing, Vancouver Acute

Site Applicability

Vancouver Acute – Interim guideline

[All VCH sites – pending Final Approval (currently in 2nd Read)]

Practice Level

Basic Skills for the following professions (within their respective scope of practice):

- NP, RN, RPN, LPN
- Nuclear Medicine Technician
- Anesthesia Assistant

NOTE: All staff must complete a competency review every 2 years (or after an extended leave of absence) for the medication administration pumps they use in their clinical area.
See Infusions Pumps reference site for more information.

Policy Statement

- Where infusions are administered in duration greater than an hour, the pump system is checked for correct functioning q1h.
- For the Alaris System with Guardrails infusion pump:
  - It is a joint responsibility to ensure the pump is in the correct drug library profile. The sending nurse is to ensure the profile is changed to the profile used in the receiving unit prior to transfer. It is the receiving nurse's responsibility to ensure the pump is in the correct profile upon receiving the patient as part of the safety check process.
    Exception: Emergency Department will change drug profile when possible
  - Example: If the pump was in the Critical Care profile in PACU, the PACU nurse needs to change the pump over to the Adult General profile before transferring to T8.
  - "Basic Infusion Mode" is only selected when the medication is not listed in the library (ex. clinical trial or investigation drug), for some emergency situations, or as clinically indicated as per Appendix B.
  - Guardrails feature must be programmed and used at the earliest opportunity.

Need to Know

Infusion pumps administer fluids and medications over a specified period of time. Intravenous (IV) infusion pumps are recommended for administration of all IV fluids and medications. Gravity flow-based medication administration is not recommended and should be avoided due to the risks of medication error and patient safety. (Elsevier, 2017. Fraser Health 2016).

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In circumstances when patient requirements necessitate fluid be administered at rate beyond the infusion pump's ability (i.e. greater than 999mL/ hour), the fluid should be administered via gravity.

Infusion pumps that have Dose Error Reduction Technology (DERS) are often referred to as "Smart Pumps" (see Appendix A for definitions). DERS technology allows for specific parameters or limits on how medications and fluids can be administered.

For the Alaris System with Guardrails:

- The roller clamp on the IV line is to be closed before the IV line is removed from the pump.
- The pump has a "lockout" feature on the back of the device that may be used at the discretion of the clinician.
- If a soft or hard limit is reach during pump programming, the pump will alert the user. See Appendix B for overriding Soft Limits. Hard limits cannot be overridden.
- Appropriate tubing type and/or filter size must be considered when selecting the tubing for the intended purpose. See medication specific information in the Parenteral Drug Therapy Manual (PDTM).
- When the pump profile is changed, the volume infused totals need to be recorded in the fluid balance record before changing the profile as this information will not be available after the profile is changed.
- The pump is equipped with wireless connectivity that allows pumps to be updated remotely with drug information.
- The patient's MRN will be entered for patient identification upon initial pump set up.

Equipment & Supplies

- Infusion Pump approved for specified use
- IV pole (if required)
- Prescribed IV solution or medication
- Labels for solution container and IV tubing
- Administration set (appropriate to type of solution and rate of administration)
- Tubing filter if required (refer to PDTM and Guidelines for direction)
- Extension tubing if required
- Alcohol swabs (if required)

For information on how to use the Alaris System with Guardrails and the CADD Solis infusion pumps see:

- VCH: Equipment and Supplies: Infusions Pumps on the Professional Practice site.

Protocol

Patient/IV Infusion Pump Transfer Protocol

1. When a patient is transferred for admission between two sites, the sending facility will transfer the patient using their IV pumps.
2. Upon arrival at the receiving facility, the patient will be switched to the receiving facility's IV pumps.
3. Prior to transfer, the IV fluids and medications a patient has in infusing will be communicated by the sending facility to the receiving facility in the transfer report and related documentation to ensure the receiving site can prepare IV fluid, medication, tubing, and pumps.

Pumps Requiring Repair

If pump is malfunctioning in any way, remove pump from inventory, submit an online Biomedical Engineering Service Request Form. See Biomedical Engineering-Online BME Service Request site for more information.

Note: This is a **controlled** document for VCH internal use. Any documents appearing in paper form should always be checked against the electronic version prior to use. The electronic version is always the current version.

Cleaning

- Only clean pump with Swipes Wipes
- Dedicated cleaning staff or unit staff will provide terminal clean for Alaris modules as per organizational guidelines/Vendor direction

Expected Patient Outcomes

Patient will receive safe parenteral medication and fluid administration.

Patient Education

- Explain procedure and reason for treatment.
- Inform patient of the purpose of the Infusion pump.
- Inform patient to notify the nurse if the pump alarms.
- Inform patient and family not to change any settings on the pump.

Documentation

All medications are to be documented in the Medication Administration Record (MAR), flowsheets as appropriate (e.g. critical care flowsheet), and fluid totals of parenteral medications and fluids are recorded in the balance record (in & out).

Related Documents

- VCH Equipment and Supplies: Infusions Pumps on the Professional Practice site.
- Alaris Pump Cleaning document
- Alaris Pump Cleaning products
- VCH Master Equipment Cleaning List
- 24 Hour Fluid Balance Record: Guidelines for Use (Vancouver Acute, Vancouver Mental Health and Vancouver Community: Residential)

Evaluation

Drug Library usage will be monitored by analyzing Alaris IV Pump Continuous Quality Improvement (CQI) data.

References

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Developed by

CPD Developer Lead:
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Endorsed by *(Pending)*

VCH: *(Regional SharePoint 2nd Reading)*
Health Authority Profession Specific Advisory Council Chairs (HAPSAC)
Health Authority & Area Specific Interprofessional Advisory Council Chairs (HAIAC)
Operations Directors
Professional Practice Directors

Final Sign-off & Approval for Posting by *(Pending – will add once approved)*

VCH

Date of Approval/Review/Revision

Approved: pending
Posted: *Draft posted March 5, 2018*

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Appendix A: Definitions

Infusion Pump –
A programmable device powered by electricity or battery and used to regulate infusion dose, rate, and volume. These devices may deliver medications or solutions via a variety of routes (e.g. intravenous, intraperitoneal, intraspinal, subcutaneous, etc.) (Infusion Nurses Society, 2011). Ensure you select the correct infusion pump for the prescribed treatment and route of delivery (e.g. feeding pump, large volume IV pump, syringe pump, patient controlled analgesia pump, etc.).

Point of Care Unit (PCU, also known as the "Brain") –
The part of the Alaris® Medley medication safety system that contains drug data sets. The PCU controls all the solutions and medications delivered through the pump modules. The PCU cannot deliver any medication without a pump module. Each PCU has the ability to control four pump modules.

Pump Module –
For the Alaris System with Guardrails pump, the attachable/detachable device is a module that allows the PCU to delivery intravenous fluids or medications. One infusion module is required for each IV line used.

Drug Data Set Library (drug library) –
The master list of drugs contained in the guardrails software. Programming via the drug data set library automates programming steps, including drug name, drug amount, diluents volume, and represents established best practice.

Profile –
Represents a specific patient population/area that uses similar infusions and requires similar safety parameters. Each profile contains drugs or IV fluids that are appropriate for that patient care area.

Dose Error Reduction System (DERS) –
Software on "Smart" pumps which include hospital-defined Drug Libraries with soft and hard dosing limits and other clinical advisories integrated into the system. Soft limits notify the user that the dose selected is out of the anticipated range for the particular medication; however, soft limits can be overridden by the user. Hard limits notify the user that the chosen medication dose is out of the health authority determined safe range and will not allow the infusion to be delivered unless the IV pump is reprogrammed with an acceptable dose range. (Institute for Safe Medication Practices, 2009)

Soft Limit guardrails –
Allows the operator of the infusion system to adjust the rate or dose of drug delivery above or below the limit. When a soft limit is reached, the operator will be asked to review and approve the infusion rate to assure that an error has not been made before overriding the guardrails limit.

Hard Limit guardrails –
Does not allow the operator of the infusion system to adjust the rate or dose of drug delivery above or below the limit. The clinician must reprogram the medication and choose settings within the limits.

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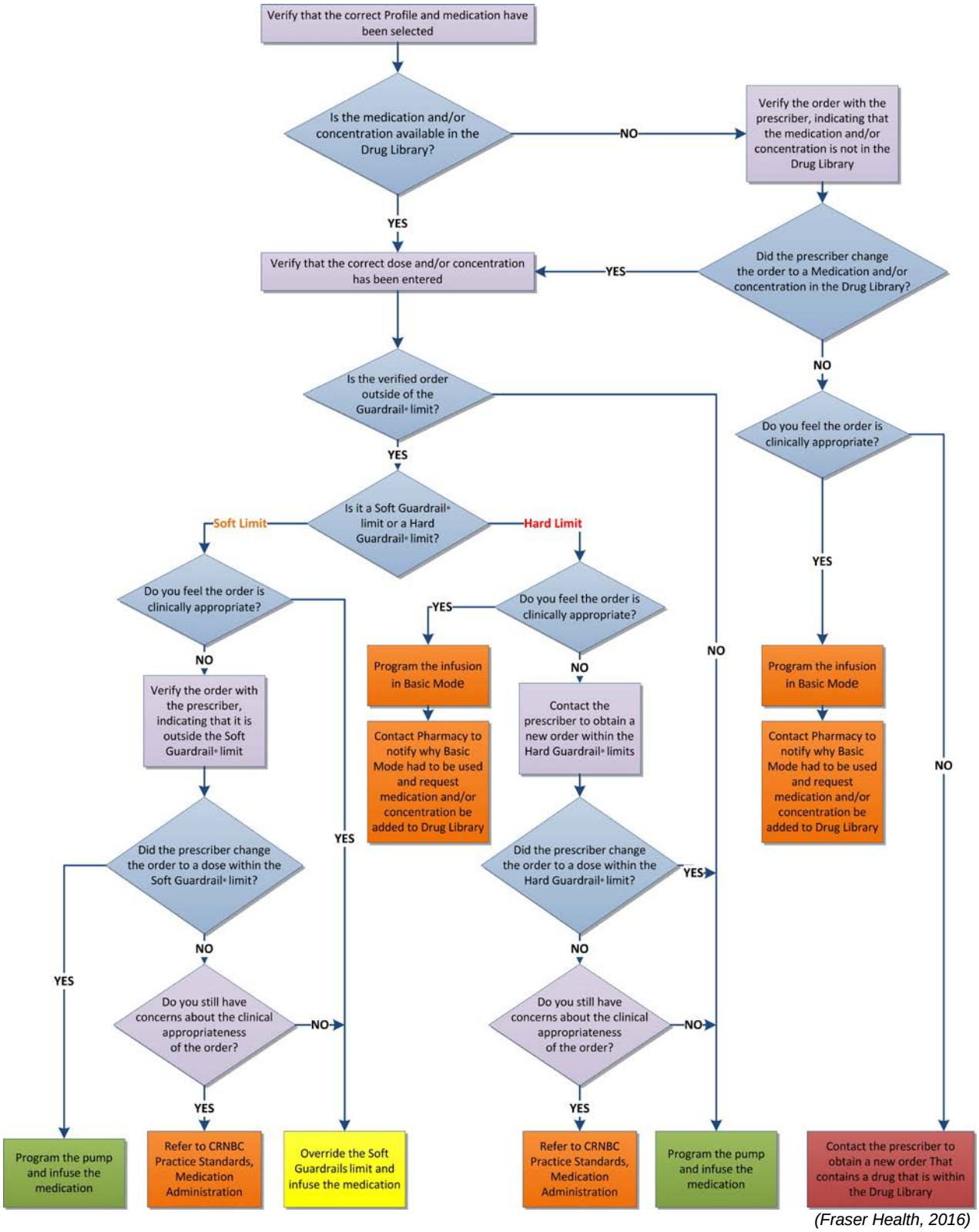
Appendix B: Steps to take when Soft or Hard Limits are reached



(Fraser Health, 2016)