IREDELL HEALTH SYSTEM

Infusion Pump Management	
Approved by: Stephen Pringle, PharmD, Informatics Manager Becky Wagner, RN, VPN Randi Raynor, PharmD, Director of Pharmacy	Last Revised/Reviewed Date:
Medication Safety Taskforce Professional Practice Council P&T Committee	Date: 01/2025 Date: 01/2025 Date: 02/2025
Summary of Revisions: N/A	

Purpose:
Provide guidelines for the management of smart infusion pumps throughout Iredell Health System.

Policy:
Smart infusion pumps with dose error reduction systems (DERS) are used through Iredell Health System for the administration of medications, intravenous fluids, and blood.

Team members using smart infusion pumps shall receive training on pump management and expectations of use.

The infusion pump medication library provides a list of medications, fluids and concentrations and is routinely evaluated and updated. The use of medication or concentration outside of the library is discouraged. Intravenous infusions are ordered and prepared in the concentrations listed in the infusion pump library to promote standardization and medication safety.

Infusion pump use is evaluated and monitored to promote medication and patient safety.

Procedure:

A. Training and Competency

1. All team members using smart infusion pumps shall receive initial training with annual competency.
2. Initial training and annual competency include, but is not limited to, the following:
    a. Drug library access
    b. Basic infusions
    c. DERS (e.g. guardrails)
    d. Alarm management
    e. Line tracing and labeling - See *Peripheral Intravenous Therapy* policy
    f. Cleaning

B. Infusion Pumps

1. Pump Procurement and Set Up
    a. Upon receipt of a new (or borrowed/rented) pump, consult with the Biomedical Department and the Pharmacy Informatics Manager for the following:
        1. Establish and verify server connectivity
        2. Name and label pump
        3. Ensure wireless connectivity is appropriate for infusion pump use
    b. Maintenance of infusion pumps shall be managed per the Biomedical Department protocols.
2. Storage and Security
    a. Infusion pumps not in use shall be stored in designated areas.

b. Any passcodes to infusion pumps are to be kept secure.

3. When patients are transported to an alternate facility, infusion pumps shall be discontinued and transitioned to transport team's pump. Exceptions include Obstetrics patients, of which shall be returned with IMH Birthplace staff.

C. Medication Library
   1. The library uses a standardized nomenclature for the medication name (e.g. tall man lettering), applicable dose/dosing units and applicable dose/rate.
   2. Configurations are created and approved for all specialized uses (e.g. pump/syringe, PCA, Epidural). Any changes or updates to the configurations shall be approved by the P&T Committee.
   3. Library Build
      a. The smart infusion pump library utilizes DERS, which includes clinical alerts, soft limits, and hard limits.
         1. Medication concentrations are built in the library based on formulary status and order set contents. They shall align with concentrations available in the EMR.
         2. Different drug library entries may be used when certain medication concentrations are not available in the library (e.g. weight-based medications)
         3. Bolus from bag functionality may only be used if available in the infusion pump library for medication approved by the Pharmacy & Therapeutics Committee.
      b. Library profiles contain configurations and guidelines for medication administration for a specific patient population, infusion type and module type.
         1. The smart infusion pump library has adult, neonatal and pediatric.
         2. Each profile has medication category options for continuous/bolus, intermittent, fluids, and patient controlled analgesia (PCA), as applicable.
      c. Library Requests for updates should be completed within the Request for Infusion Pump Drug Library Updates form seen in **Appendix A**. Requests shall be reviewed for appropriateness and approved by clinical content experts as well as the Pharmacy & Therapeutics Committee.
      d. Library Updates
         1. Designated pharmacy information systems team member updates the infusion pump library.
         2. Library updates shall be independently double-checked verifying evaluation of dosing, infusion rate, dose/volume/concentration, administration requirements and other criteria as necessary.
         3. After required duplicate verification, the library shall be uploaded and activated. Library updates shall be communicated to team members, as appropriate.
         4. Urgent requests may require uploads and go-lives outside of the standard schedule. Additional education shall be provided for these updates.

D. Infusion Pump Use and Programming
   1. Medications on the pump shall be labeled appropriately and per policy. If labels are obstructing necessary components or causing difficulty in placing syringes on pumps, pharmacy should be contacted to re-label product.
   2. Medications shall be verified prior to set up on pump as consistent to provider order.
   3. Before programming a pump for patient use, verify the most current infusion pump library is loaded on the pump. If not, update to the most current infusion pump library per manufacturer instructions.
   4. DERS (e.g. guardrails) shall be used for medication administration when available.
   5. Gravity infusion should ONLY be used when the ordered rate exceeds 999 mL/hr.
   6. Infusion pumps in use shall be plugged into emergency power outlets.

7. If programming a medication not in the library (i.e. basic infusion), perform appropriate drug calculations. NOTE: DERS is unavailable for any medication not in the library.
    a. A **second independent verification is required** for medication programmed outside of the drug library.
    b. When administering investigational products, basic infusion may be used.
    c. Report formulary medications not in the library to pharmacy.

E. Cybersecurity
1. Smart infusion pumps at Iredell Health System are part of the internal Cybersecurity program. The smart infusion pumps are scanned with Armis for Vulnerabilities and monitored for breaches continuously using a SIEM through our SOC at Fortified Health Security. Escope also monitors Iredell Health System's Firewall and IDS/IPS continuously for any external intruders.
2. Pumps with significant cybersecurity vulnerabilities that cannot be patched by Iredell Health System's Biomedical Department will be removed from use.

F. Downtime/Recalls
1. Wireless Internet downtime, infusion pumps shall be programmed manually.
2. Pump recalls shall be reviewed, evaluated, and escalated as appropriate.
3. For malfunctioning pumps or troubleshooting, contact the Biomedical Department.

G. Continuous Quality Improvement Data
1. The following are monitored at a minimum of quarterly:
    a. Event reports related to smart infusion pumps
    b. Medication product (concentration) changes
2. The Library Build shall be reviewed on a 3 year review cycle.

Definitions:
DERS – Dose Error Reduction System, within a drug library that provides alerts and infusion guardrails

Soft Limits – limits that can be overridden; a drug specific limit that advise the user that the specified drug is about to be infused at a dose/rate that is not common/typical.

Hard Limits – limits that cannot be overridden; a drug specific forcing function that ensures the drug cannot be given at a dose/rate that is outside the limits established by the institution to minimize toxicity.

INITIAL EFFECTIVE DATE: 03/2025
DATES REVISIONS EFFECTIVE:
DATES REVIEWED (no changes):

Appendix A:

Request for Infusion Pump Drug Library Updates

Date of Request: _____

Change Requested by _____

Approval granted by Chairman of Departmental Committee: _____
Approval Date: _____

Summary of Change(s)_____

Change Requested due to:

___ Change in Evidence Based Practice
___ Change in our Clinical Practice
___ Change required for Patient Safety
___ Change in Regulatory Practice

Care Area: _____ Drug Name: _____

Type of Request: ☐ Addition ☐ Deletion ☐ Change

Issue/Concern: _____

Current Setting: _____

Requested Change: _____

Rationale: _____

Priority of Request: ☐ High ☐ Low

Please complete the above information and send to the designated individual for development and maintenance of Infusion Pump Drug Library.

Notes: *(to be completed by Pharmacy Information Systems)*
Date Request Received: _____; Date of Committee approvals: _____