Policy

Policy Title:	Infusion Pump Safety	
Applies To:	IWK Health Care Providers	
Location Applicability:	IWK Health	
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PURPOSE

The purpose of this policy is to support safe use of infusion pumps [large volume, syringe, and computerized ambulatory delivery device (CADD ® pumps)] and have a documented and coordinated approach, which includes training, evaluation of competency, and a process to report problems with the functioning of infusion pumps.

This policy excludes gastric feeding pumps and continuous subcutaneous insulin infusion pumps. See IWK Health policies 1016 and 1165 respectively.

POLICY STATEMENTS

THIS IS A BEYOND ENTRY LEVEL COMPETENCY (BELC) FOR REGISTERED NURSES AND LICENSED PRACTICAL NURSES PRACTICING AT IWK HEALTH AND REQUIRES INITIAL CERTIFICATION AND RE-CERTIFICATION EVERY TWO YEARS

1. All health care providers (HCPs) at IWK Health who provide care for patients on infusion pumps must assess, plan, and provide care consistent with this policy and within their scope of practice.

2. All parenteral infusions, medication (intermittent or continuous), fluids, and nutrition must be administered using an infusion pump with Dose Error Reduction System (DERS), unless there is clear justification for administering without a pump (example: via fluid warmer, rapid infuser, pressure bag, or in emergent situations).

    2.1. As part of the DERS, medications should be run within the soft limits of care areas' drug libraries. If infusing a medication outside the soft limits of the pump, the HCP must follow the process outlined in Policy 1140: Administration of Intravenous Medications. Medications cannot be run outside of the hard limits set in the drug library.

    2.2. If the drug library is bypassed, the DERS will not be in place to prevent a potential error. Engaging in this at-risk behavior reduces the likelihood that an error will be identified as no alerts will be triggered.

3. The HCP must refer to the necessary drug information resources as appropriate when verifying, preparing, and administering medications:

    3.1. IWK Drug Dosing and Administration Guidelines

    3.2. Antimicrobial Stewardship / Firstline

    3.3. Micromedex

4. The HCP must select the appropriate infusion pump drug library for the clinical area, medication, and remain within the correct infusion pump drug library parameters.

    4.1. The medication should **not** be run outside the clinical area's infusion pump drug library, except in the following two circumstances, as outlined in Policy 1140: Administration of Intravenous Medications.

        4.1.1. The drug cannot be found in the infusion pump library for the clinical area and instead the HCP will use another appropriate care area's library.

            4.1.1.1. The HCP will check other appropriate inpatient clinical areas' drug libraries. The MDATU, Ped-OR, or Women's OR drug libraries must not be used outside their designated areas. Note: The limits programmed for one care area may not reflect safe limits for a different care area.

        4.1.2. The drug cannot be found in any infusion drug library.

    4.2. If infusing in another inpatient clinical area's drug library, or infusing outside the drug library itself, based on the rare instances above, the HCP must:

        4.2.1. Refer to the necessary drug information resources and ensure that the requirements for monitoring can be met for that drug.

        4.2.2. Have an independent double check (IDC) of the infusion pump programming, dosing, and administration ranges of the medication.

        4.2.3. Document that the infusion pump was programmed outside of the drug library, and/or outside of the clinical care area's library on the patient's medication administration record (MAR)/health care record.

        4.2.4. Documentation must include:

            4.2.4.1. Drug library used or that the infusion pump was programmed outside of the drug library.

            4.2.4.2. The HCP administering the initial dose.

            4.2.4.3. The HCP performing the initial IDC.

            4.2.4.4. The clinical indication and actions taken.

4.2.5. The HCP verifying or starting a new record must follow steps 4.2 – 4.2.4.4 outlined above and document on the subsequent medication administration record/patient health care record for the duration that the order is active.

4.2.6. The HCP must notify pharmacy IWKdruginfo@iwk.nshealth.ca if the drug entry is not available in the clinical area's drug library or in any drug library.

5. All HCPs who utilize infusion pumps must receive competency-based training on their safe use.

   5.1. Initial certification and re-certification must include successful completion and review of IWK Health's infusion pump resources and module training in advance of providing care.

   5.2. HCPs competence of infusion pump safety through initial certification and minimum every two-year re-certification must be evaluated and documented on a competency tracking record by the immediate manager (or delegate responsible for tracking competency) in the care area.

   5.3. Following initial assessment and training, the HCP must maintain competence in the use of infusion pumps.

   5.4. Manufacturer's instructions/user guides must be always accessible. Refer to eSource Learning for Infusion Pump User Manuals.

6. Initial certification and re-certification on the safe use of infusion pumps must be provided to HCPs:

   6.1. Who are new employees to IWK Health or new to the care area and/or patient population.

   6.2. Who are returning from a leave of one year or greater.

   6.3. When technology and/or software is upgraded or changed.

   6.4. Who use infusion pumps very infrequently in a care area and require just-in-time training.

   6.5. When evaluation or self-assessment indicates that re-training is required.

7. Student learners of HCPs utilizing infusion pumps must receive training and successfully complete a competency assessment on the use of infusion pumps, and:

7.1. The preceptor must supervise the student learner to ensure that all applicable policies are followed.

7.2. The preceptor must be competent in the use of the pump.

8. If a deficit in competence in the use of infusion pumps is identified, a plan must be developed by the HCP's manager (or delegate) to address the deficit.

9. If patients and/or families are provided with a patient-operated infusion pump, safe use training must be provided by an infusion pump certified HCP and documented on the patient's health care record.

10. The drug library for infusion pumps must be developed and maintained in accordance with IWK Health Policy #1.50 Infusion Pump Drug Library Development and Maintenance.

11. Routine preventative maintenance, troubleshooting, and repair of infusion pumps must be conducted by Clinical Engineering as per the manufacturer's guidelines.

12. Cleaning and disinfecting of infusion pumps, space stations, and poles must be performed in accordance with manufacturer's cleaning/disinfecting guidelines and in accordance with IWK Health Policy # IC210.0 Cleaning & Low-level Disinfection of Non-Critical Reusable Patient Care Equipment/Devices including:

12.1. Following patient use and prior to new patient care

12.2. Once daily during patient use

12.3. When visibly soiled

13. Safety events related to infusion pumps must be reported in IWK Health's electronic event reporting system, monitored, and evaluated for implications to practice in accordance with IWK Health Policy # 302.1 Reporting, Managing and Conducting Quality Review of Patient Safety Events.

14. The infusion pump must be taken out of service and sent to biomedical engineering for review of data whenever a patient safety event related to an infusion pump occurs.

15. Biomedical engineering must review infusion pump data and submit report of findings to IWK Health patient safety consultants for review and determination of next steps.

GUIDING PRINCIPLES AND VALUES

Delivering safe, high-quality care is a strategic priority of IWK Health. The organization strives to reduce serious safety events through a strengthened culture of quality and safety. This

includes providing clear direction and promoting a standardized approach to infusion pump safety.

REFERENCES

Legislative Acts/References

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RELATED DOCUMENTS

Policies

IWK Health Policy #1.50 Infusion Pump Drug Library Development and Maintenance

IWK Health Policy # IC210.0 Cleaning and Low-level Disinfection of Non-Critical Reusable Patient Care Equipment/Devices

IWK Health Policy #1016 Post-operative Care of Gastrostomy or Gastrostomy/Jejunostomy Tube Insertion

IWK Health Policy #1165 Insulin Pumps: Safe Management of Patients with Continuous Subcutaneous Insulin Infusion (CSII) Pumps at the IWK Health Centre

IWK Health Policy # 302.1 Reporting, Managing and Conducting Quality Review of Patient Safety Events

IWK Health Policy #1140 Administration of Intravenous Medications

IWK Health Policy #25.05 High Alert Medications

IWK Health Policy #1181 Independent Double Check

IWK Health Policy #625 Blood Component and Blood Product Administration

IWK Health Policy #1516 Intravenous Patient Controlled Analgesia for Adults

IWK Health Policy #1518 Pediatric Patient Controlled Analgesia

Other

Reference to Infusion Pump Resources on eSource Learning available at http://iwksharepoint.nshealth.ca/esource/resources/Pages/Infusion-Pump-Resources.aspx

Appendices

Appendix A – Definitions

Appendix A

Continuous Ambulatory Delivery Device (CADD) - is an infusion pump that is designed to facilitate patient care for a variety of adult and pediatric patients and clinical care areas. The pump can be programmed with a protocol configuration consisting of therapy, qualifier and drug information (Smiths Medical, 2020).

Continuous Infusion Delivers medication at a constant rate consisting of, at a minimum, drug units and time units (e.g., mg/h, mcg/kg/min, units/h, etc.).

Dose Error Reduction System (DERS) Electronic infusion pumps manufactured to warn users of incorrect medication, calculation errors, or mis-programming that would result in significant under or over delivery of a drug, electrolyte, or fluid. They are designed to prevent errors in solution and medication delivery, and often called “smart pumps” (ECRI, 2015).

Drug Library A comprehensive list of medications and fluids that are to be delivered using the infusion pump. This library includes any dose, volume, or rate limitations that are programmed into the software (Phelps, 2017).

Hard Limit The limit located in the drug library for each medication that cannot be bypassed and prevents users from starting an infusion as programmed (ISMP, 2020).

Heath Care Provider (HCP) means a practitioner lawfully entitled under the law of a province to provide health services in the place in which the services are provided by that person. (Canada Health Act, 1985)

Independent Double Check A process in which a second practitioner conducts a verification. Such verification can be performed in the presence or absence of the first practitioner. In either case, the most critical aspect is to maximize the independence of the double check by ensuring that the first practitioner does not communicate what he or she expects the second practitioner to see, which would create bias and reduce the visibility of an error (ISMP, 2022).

Intermittent Infusion
Delivers a dose of medication over a designated time. Doses are usually repeated at designated intervals (e.g., 1 g IV over 15 minutes repeated q8h).

Patient Safety Event An event or circumstance with could have resulted or did result in unnecessary harm to a patient**.**

Soft limit a dose limit programmed into a pump: the pump will alert the user the dose is unusually low (or high); however, the user can still proceed (Phelps 2017)

Version History

(To Be Completed by the Policy Office)

Major Revisions (e.g. Standard 4 year review)	Minor Revisions (e.g. spelling correction, wording changes, etc.)