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CLINICAL PROTOCOL – MUHC

(PROTOCOLE CLINIQUE - CUSM)

☐ Medication included ☒ No Medication included

☒ MCH ☐ MGH ☐ RVH ☐ MNH ☐ MCI ☐ LACHINE

THIS IS NOT A MEDICAL ORDER

Title:	Clinical protocol: Guidelines for intravenous therapy for pediatric and neonatal patients
This document is attached to:	Clinical protocol: Infusion of labile blood products Care of Central Venous Access Device (CVAD) in the Pediatric and Adult Population: Accessing Connections and Injection Ports Clinical protocol: Management of infiltration and extravasation in the neonatal and pediatric patient Collective order: Maintaining the patency of a peripheral intravenous catheter (PIV) in pediatric and neonatal patients Collective order: Maintaining the patency of a central venous access device (CVAD) in pediatric and neonatal patients Clinical protocol: Pediatric intra-facility transport Documentation tool: Central Vascular Access Device (CVAD) (DM-1615) MUHC Hand Hygiene Related to Patient Care Policy MUHC Least Restraint Protocol

1. PURPOSE

The purpose of this clinical protocol is to provide guidelines for safe and effective intravenous (IV) therapy for pediatric and neonatal patients.

2. PROFESSIONALS

All healthcare professionals (HCP) who care for pediatric and neonatal patients requiring IV therapy are expected to review this protocol and be knowledgeable about these practice recommendations.

3. PATIENT POPULATION

All pediatric and neonatal patients receiving IV therapy.

4. ELEMENTS OF CLINICAL ACTIVITY

Professionals are responsible to know the limits and extent of their practice as related to the particular protocol.

General principles

- All IV infusions administered to pediatric and neonatal patients must be delivered using an infusion pump. **Exception:** Critical situation where a rapid infusion of a large volume of IV fluid is required.
- Upon arrival to an area, ensure infusion devices are plugged in to electrical outlets or check battery life.

- When administering IV therapy, the volume to be infused (VTBI) function of the infusion pump should be set to reflect the volume to be administered over a two-hour period (twice the hourly rate). This allows early detection of rate and volume errors. **Exception:** Continuous infusion of a medication when the infusion pump drug library is used.
- When using an IV administration set with a buretrol, the amount of IV solution added to the buretrol should not exceed the volume administered over a two-hour period (twice the hourly rate). The VTBI should be adjusted to reflect this amount.
- The practice of leaving the clamp between the buretrol and the IV solution open and clamping the air vent so that the buretrol fills automatically as fluid is infused is not permitted unless the hourly rate exceeds 75 mL/h.
- HCPs will follow principles of aseptic non-touch technique (ANTT) when accessing or manipulating a vascular access device (VAD):
    - Always practice hand hygiene as per MUHC hand hygiene policy.
    - ANTT is used to protect critical parts (catheter material, hub, septum of the injection cap, syringe cannula, needle and luer lock connector) from microbial contamination from beginning to end of procedure.
    - ANTT aims to prevent micro-organisms on hands, surfaces or equipment from being introduced to a susceptible site. The overriding and basic principle is that the susceptible site should not come into contact with any item that is not aseptic.

Safe injection practices

- Needles, cannulae and syringes are sterile, single-use items.
- Consider a syringe or needle/cannulae contaminated once it has been used to enter or connect to a patient's IV bag or administration set.
- Do not use IV bags or bottles as a common source of supply for multiple patients.

Prevention and early detection of infiltration and extravasation

- All vascular access devices (central and peripheral venous access devices) being used for infusion must be assessed minimally hourly (every 60 minutes) using the Touch/Look/Compare (TLC) method. IV assessments using the TLC method must be done hourly even when the child is asleep (see Appendix 1: TLC Poster).
    - **Touch the IV site hourly**: The IV should be soft, warm, dry and pain free.
    - **Look at the IV site hourly**: The IV site should be visible, uncovered and without redness.
    - **Compare the IV site hourly**: The IV site should be the same size as the other side and without swelling.
- If the IV assessment is not normal, immediate action must be taken. For example, if the IV site is painful or swollen, the IV should be removed.
- More frequent assessment and extra vigilance is recommended when infusing a high-risk solution or medication. Refer to the Clinical protocol "Management of infiltration and extravasation protocol in the neonatal and pediatric patient".
- The pressure alarm on an infusion pump is not designed to detect an infiltration or extravasation and should not be relied upon to alert the healthcare provider to an issue with the integrity of the vascular access device.
- The IV insertion site must be visible at all times. It is strictly forbidden to cover or wrap an IV insertion site during an infusion.
- Teach patients and families to alert the healthcare provider if they note:
    - pain or discomfort during the infusion;
    - swelling or pain at the infusion site;

- blanching or redness of the skin at the IV insertion site;
- leakage from the IV insertion site.

- If a patient receiving an infusion via a PIV leaves the unit, the nurse must ensure that the required hourly assessments are done. Alternatively the PIV can be locked as per the Collective Order "Maintaining the patency of peripheral intravenous catheters in pediatric and neonatal patients".
- If a patient receiving an infusion via a CVAD leaves the unit, the nurse must accompany the patient as described in the Clinical protocol "Pediatric Intra-facility Transport". Alternatively, the CVAD can be locked as per the Collective Order "Maintaining the patency of CVAD in neonatal and pediatric patients".

Administration set/solution container set-up and changes

- The system set-up should be primed just before use. This should be performed by following the ANTT principles:
  - Maintain the equipment as sterile as possible (priming into the sterile packaging)
  - Maintain the cap attached to the equipment until time of connection (it should not be removed during priming).
  - Administration sets should **NEVER** be primed over contaminated areas such as sinks or garbage.
- The simplest configuration should be used. The use of stopcocks and tubing extensions should be minimized.
- If the PIV must be replaced or a new VAD is inserted, the administration set must be changed before connecting to the new access.
- IV administration sets should be changed immediately upon suspected contamination or when integrity of product or system has been compromised.
- Injection caps and stopcocks should be changed if there is accumulation of stagnant blood.and as described in Appendix 2.
- Trace all administration sets from the patient and the solution container before connecting or reconnecting an infusion.
- For the frequency of administration set changes refer to Table 1 in Appendix 2.

Monitoring IV therapy

- The nurse must verify the entire infusion system from solution container to VAD at the beginning of every shift, upon admission and transfer. This verification includes:
  - System integrity: intactness of connections.
  - Infusion accuracy: correct solution, correct rate.
  - Expiry dates of infusate, dressing and administration set.
  - Pressure setting on all infusion pumps.
- All infusion tubing must be labeled with the date of initiation and the name of the solution infusing near the connection to the patient.
- All solution containers (bags, bottles and syringes) must be labeled with the date of initiation.
- Ensure restraints or protective devices used are safe and effective (e.g. armboards). Verify intactness of skin under device at least once per shift. Do not use handmade devices. Refer to the MUHC Least Restraint Protocol.
- Ensure tubing is secured (not pulling at site) and not posing risk of entanglement (patients at high risk for tubing entanglement are active children between the ages of 3 months and 3 years or developmentally delayed, with numerous lines or lengthy lines).

Documentation of IV therapy

- When indicating by a checkmark or initials that the IV site is intact or IV site checked on the intake/output sheet or on the nursing flowsheet, this signifies the hourly assessment of the IV insertion site using the TLC method is normal.
- When an IV site is found not to be intact, a note describing the assessment and actions taken is required. Refer to the Clinical Protocol "Management of infiltration and extravasation in neonatal and pediatric patient".
- All pediatric and neonatal patients receiving IV therapy must have hourly monitoring and documentation of volume of each solution infused and total cumulative volume for each solution. The specific site where the infusion is being administered must be documented for all infusions, for example left hand PIV, left antecubital PIV or proximal lumen peripherally inserted central catheter (PICC). If the site of infusion is changed, this should be indicated on the intake/output sheet or on the flowsheet.
- The Documentation tool "Central Vascular Access Device (CVAD) (DM-1615)" must be used for all CVADs in inpatient areas.
    - Each CVAD requires a separate form.
    - The documentation tool must be completed every shift and when a problem is noted.
- For each outpatient visit, the nurse must document: intactness of dressing, site assessment and measurement of the external portion of the PICC if applicable.

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7. APPROVAL PROCESS

Institutional and professional approval

Committees	Date approved [yyyy-mm-dd]
☒ Clinical Practice Review Committee (CPRC) (if applicable)	2019-03-14
☐ Adult Pharmacy and Therapeutics (P&T) (if applicable)	NA
☐ Pediatric Medication Administration Policy (PMAP) (if applicable)	NA
☐ Pediatric Pharmacy and Therapeutics (Peds P&T) (if applicable)	NA
☐ Multidisciplinary Council (MDC) (if applicable)	NA

8. REVIEW DATE

To be updated in maximum of 4 years or sooner if presence of new evidence or need for practice change.

9. REFERENCES

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Pennsylvania Patient Safety Advisory (2015). Medication errors affecting pediatric patients: Unique challenges for this special population. Retrieved from http://patientsafety.pa.gov/ADVISORIES/Pages/201509_96.aspx

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Version History (for Administrative use only)			
Version	**Description**	**Author/responsable**	**Date**
No 1	Development and Approval	Eren Alexander, Nursing Coordinator	2019-03-14
No	Description (Creation, Approval, Revision with modifications, Revision without modifications, etc.)	Management Acronym, Function	
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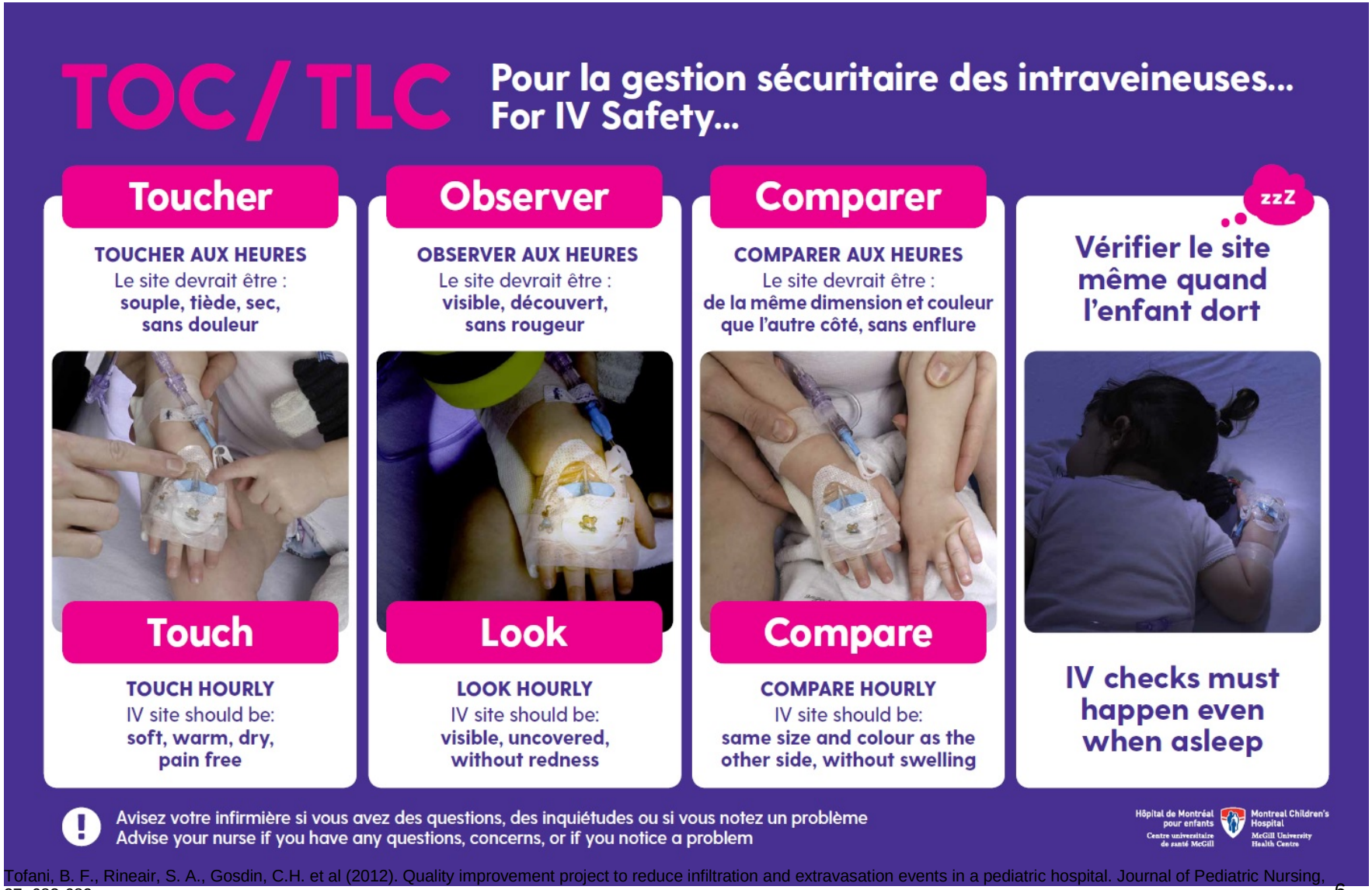
Appendix 1: TLC Poster



Tofani, B. F., Rineair, S. A., Gosdin, C.H. et al (2012). Quality improvement project to reduce infiltration and extravasation events in a pediatric hospital. Journal of Pediatric Nursing, 27: 682-689.

Appendix 2: Frequency of administration set changes (Table 1)

Type of infusion	Frequency of equipment change	Comments
Continuous infusions except lipids, blood or blood products	Every 96 h	This includes add-on devices such as stopcocks, extensions and needleless connectors. Note: needleless connectors can be changed every 7 days when lumen not in use (i.e. outpatient)
IV solutions (unless otherwise specified)	For standard solutions (commercially prepared IV solutions or prepared by pharmacy): every 96 h or with tubing change For solutions with additives prepared on the unit: change bag every 24 hours	
Propofol	Every 12 hours	Some medications require more frequent changes, refer to MCH formulary or medication protocol
Lipids	Every 24 hours	
Amino acid solution	Every 96 hours	
Blood or blood products	Refer to the Clinical protocol "Infusion of labile blood products"	
Intermittent infusions	Every 24 h if disconnected when not in use. This includes intermittent total parenteral nutrition (TPN). The new solution initiation and change of tubing should be synchronized with the end of the break period (off TPN).	The administration set should be capped aseptically when not in use. A luer lock sterile single-use cap should be used.