

**ADMINISTERING LIDOCAINE 1% SUBCUTANEOUSLY
BY THE CLINICAL NURSE SPECIALIST FOR PERIPHERALLY
INSERTED CENTRAL CATHETERS GUIDELINE**


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1.0 Introduction

This guideline is intended to serve as direction for the Peripherally Inserted Central Catheter Clinical Nurse Specialist (PICC CNS), to administer prescribed Lidocaine 1% subcutaneously while gaining venous access.

An administration of lidocaine 1% subcutaneously, has shown a decreased perception of pain associated with picc insertion when a local anesthetic is used prior to catheter insertion

(Local anesthesia prior to the insertion of peripherally inserted central catheters (FRY and AHOLT Journal of Infusion Nursing).

(Effectiveness of intradermally injected lidocaine hydrochloride as a local anesthetic for intravenous catheter insertion (journal of emergency nursing 1988; 14; 160-163))

2.0 Definition of Guidelines

Local anesthetic depresses 'superficial peripheral nerves and blocks the conduction of pain impulses from their site of origin' (Berry and Khon 2016)

Subcutaneous (SC) injection: delivers medication below the epidermis and dermis layers into the subcutaneous tissue (Ford et al 2010)

3.0 Applicable to

This SOP is applicable to PICC CNSp in CHI at CRUMLIN only.

In making clinical decisions regarding the need for IV access, the CNSp must remain cognisant of relevant legislation, of her level of expertise and scope of practice.

The CNSp will utilise the expertise of clinicians to prescribe the appropriate dose of Lidocaine 1% subcutaneously in the patient's medication kardex.

The authorised prescriber is any doctor or nurse by virtue of their qualification and conditions of employment to prescribe medications for patients under the care of the organisation, subject to any other conditions or medications management policies applicable in the organisation

Utilising the guidelines

(A) Administration of intramuscular and Subcutaneous Injections Version 3
Issue date February 2017chi@crumlin

(B) Preparation for the administration of local anesthetic guidelines (June 2019 CHI@Crumlin)
<http://www.olchc.ie/Healthcare-Professionals/Nursing-Practice-Guidelines/Operating-Theatre-Local-Anaesthesia-Guidelines-July-2019.pdf>


(C) Medication policy 2017 CHI@Crumlin

This Guideline must be read in conjunction with nmbi standards for Medicines Management for nurses and midwives.

Medical councils – 'A guide to ethical conduct and behaviour'.

Following the guidelines for administration of intramuscular and subcutaneous injections in use within CHI@crumlin2017

<https://www.olchc.ie/Healthcare-Professionals/Nursing-Practice-Guidelines/Intramuscular-and-Sub-Cutaneous-Injections-.pdf>

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Utilising

Medication safety – 10 rights of medication safety 2018 CHI@Crumlin

<https://www.olchc.ie/Healthcare-Professionals/Nursing-Practice-Guidelines/Medication-Safety-10-Rights-of-Medication-Safety-2018.pdf>

Medication policy 2017 CHI@crumlin

<https://www.olchc.ie/Healthcare-Professionals/Nursing-Practice-Guidelines/Medication-Safety-10-Rights-of-Medication-Safety-2018.pdf>

The Clinical Nurse Specialist PICC will be familiar with intravenous cannulation guidelines CHI@Crumlin 2016

<https://www.olchc.ie/Healthcare-Professionals/Nursing-Practice-Guidelines/Intravenous-Cannulation-.pdf>

Once the vein site has been prepared, the following steps should be performed in sequence to administer lidocaine 1% whilst minimising pain

Explain the procedure to the child/ parents to gain cooperation and trust and reduce anxiety.


Ensure privacy for the child throughout the treatment.

Gather equipment, ensure it is intact, to prepare for the procedure.

Select a syringe size that is appropriate to the medication volume (Macqueen et al 2012).

Change needles after drawing up the medication to ensure a clean needle for administration. Avoid the presence of air bubbles in injection syringes, to ensure accurate dosage.

- Identify and landmark the injection site
- Anesthetize the puncture site with the 1% lidocaine subcutaneously
- Administer the prescribed subcutaneous lidocaine 1% utilizing a short 24 g needle withdrawing initially to confirm no blood return and out-rule accidental intravenous administration.
- Gently bunch up the skin , avoids injection into muscle (Macqueen et al 2012)
- Insert needle at 45 to 90 degree angle depending on size of child (Macqueen et al 2012)
- Needle should be short enough so that the medication does not reach the muscle layer
- 90 degree angle for all ages (Barron and Hollywood 2010) 45 degree angle for children with little sub cutaneous tissue (Dougherty and lister 2011)
- Inject the medication slowly (for example count from 1-10)
- Recommended gauge & length of needle for sub cutaneous injection (NIAC 2013) 23-25 gauge length 16mm
- Dispose of equipment as per hospital waste management policy to ensure the safety of staff and children (OLCHC 2014 OLCHC 2011)
http://olchcnet.hse.ie/Policies,_Guidelines,_Protocols_SOP's/Policies_A_-_Z/Waste_Management_Policy_2018.pdf
- Assess the child during the procedure , refer to medical teams as appropriate
- Record the medication administration as per hospital policy including which site was selected

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4.0 Complications

- Local anesthetic depresses “superficial peripheral nerves and blocks the conduction of pain impulses from their site of origin (berry and kohn 2016)
- Adverse reactions can occur due to hypersensitivity to the local anesthetic
- Preparation for administration of local anesthetic guidelines (CHI@Crumlin June 2019)

<https://www.olchc.ie/Healthcare-Professionals/Nursing-Practice-Guidelines/Anaesthesia-Local-Anaesthesia-Guideline-2019.pdf>

- Prompt intervention will reduce the risk of adverse effects on the patient. Be aware of local anesthetic toxicity (LAST) protocol and sourcing intralipid medication and protocol stored in the pharmacy room (aagbi 2010) (acorn 2018)
- This ensures patient safety while adhering to nmbi guide to drug administration 2007

Local anesthetic systemic toxicity (LAST) primarily affects the central nervous system and cardiovascular system AAGBI safety guide. www.aagbi.org/publications/guidelines/docs/la_toxicity_2010.pdf

LAST is very rare but always must be considered when administering local anesthetics, by any route. The clinical presentation of LAST is highly variable but can include:

- Perioral numbness
- Metallic taste
- Mental status changes
- Anxiety
- Muscle twitching
- Respiratory depression and cardiac changes

Administer Lipid rescue. Lipid is stored in theatre and the Emergency Department.


Administer 20 percent lipid emulsion along with advanced cardiac life support or when neurotoxicity occurs.

- Bolus lipid emulsion rapidly over two to three minutes and begin infusion based on patient ideal body weight as follows:
 - <70kg: 1.5mL/kg IV, followed by infusion at 0.25mL/kg/minute IV(reference)
 - >70kg: 100mL IV followed by infusion of 200 to 250 mL IV over 15 to 20 minutes.
- Repeat bolus once or twice and double infusion rate for persistent cardiovascular instability
- Continue infusion for at least 10 minutes after hemodynamic stability is achieved
- Maximum dose approximately 12mL/kg
- Transfer patient to monitored setting

Association of Anesthetists of Great Britain and Ireland (AAGBI) (2010). Management of severe local Anaesthetic toxicity association of Anaesthetists of Great Britain and Ireland.

Association of perioperative registered nurses (2018) guidelines for perioperative practice (AORN Denver)

This guideline provides an evidence based approach and support best practice for the administration of subcutaneous (SC) lidocaine 1%. The goal of these guidelines is to facilitate the maximum therapeutic effects of medication while reducing complications, injury and discomfort for the child.

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It represents written instructions to ensure high quality of care. Guidelines must be accurate, up to date, evidence based, easy to understand, non-ambiguous and emphasise safety. When followed they should lead to the required standards of performance.

5.0 Evaluation and Audit

The PICC Clinical Nurse Specialist for whom this SOP is designed for is responsible for monitoring this SOP and auditing practice. Documentation is essential for the continuity of care (nmbi 2016)

9.0 References (*as necessary*)

Nursing board and midwifery of Ireland (2007). Guidance to nurses and midwives on medication management. Nursing board and midwifery of Ireland Dublin.

<https://www.nmbi.ie/Standards-Guidance/Medicines-Management>

Nursing and Midwifery Board of Ireland (2015) Scope of Nursing and Midwifery Practice Framework Nursing and Midwifery Board of Ireland Dublin

<https://www.nmbi.ie/nmbi/media/NMBI/Publications/Scope-of-Nursing-Midwifery-Practice-Framework.pdf?ext=.pdf>

Nursing and Midwifery Board of Ireland (2015) Standards for Medicines Management for Nurses and Midwives (draft for consultation).

Medical council (2016) guide to professional conduct and ethics (8th edition) medical council Dublin

<https://www.medicalcouncil.ie/News-and-Publications/Reports/Guide-to-Professional-Conduct-and-Ethics-8th-Edition-2016-.pdf>

AAGBI association of Anaesthetists of Great Britain and Ireland (2010). Management of severe local anesthetic toxicity association of Anaesthetists of Great Britain and Ireland, London

Available at

<https://www.aagbi.org>

AORN association of perioperative registered nurses (2018) guidelines for perioperative practice AORN Denver

Local anesthesia prior to the insertion of peripherally inserted central catheters (fry and aholt journal of infusion nursing 2001)

CHI @ Crumlin (2014) waste management policy OLCHC Dublin


http://olchcnet.hse.ie/Policies_Guidelines_Protocols_SOP's/Policies_A_-_Z/Waste_Management_Policy_2018.pdf

CHI @ Crumlin (2013) aseptic non-touch technique OLCHC Dublin

<https://www.olchc.ie/Healthcare-Professionals/Nursing-Practice-Guidelines/Aseptic-Non-Touch-Technique-Ref-Guide-3rd-Edn-Aug-2017.pdf>

Medication Policy

Medication administration double checking process algorithm CHI@crumlin

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<https://www.olchc.ie/Healthcare-Professionals/Nursing-Practice-Guidelines/Medication-Administration-Double-Checking-Process-Algorithm-.pdf>

Guidelines on the administration of intramuscular and subcutaneous injection CHI@crumlin 2017

<https://www.olchc.ie/Healthcare-Professionals/Nursing-Practice-Guidelines/Intramuscular-and-Sub-Cutaneous-Injections-.pdf>

Preparation for the administration of local anesthetic guideline CHI@crumlin June 2019

<https://www.olchc.ie/Healthcare-Professionals/Nursing-Practice-Guidelines/Anaesthesia-Preparation-and-Administration-of-Local-Anaesthesia-2018.pdf>

Management of severe local anaesthetic toxicity (2010) available at www.aagbi.org

www.aagbi.org/publications/guidelines/docs/la_toxicity_2010.pdf

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