GUIDELINES ON PIN SITE CARE FOR EXTERNAL FIXATORS	
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Approved By *Name: Fionnuala O'Neill* *Title: Chairperson Nurse Practice Committee*	*Signature* *Date: August 2015* 
Authorised By *Name: Rachel Kenna* *Title: Director of Nursing*	*Signature* *Date: August 2015* 
Author/s	*Name: Maria Noonan* *Title: CNS Limb Reconstruction*
Location of Copies	*On Hospital Intranet and locally in department*

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1.0 Introduction

An external fixator is a device used to stabilise a broken bone; facilitate deformity correction; limb lengthening or soft tissue reconstruction. The fixator is attached to the bone using a series of wires and pins. A fixator can have from seven to twenty seven pin sites depending on its structure. It may remain in position on the limb from three months to thirty months. This purpose of this guideline is to promote a safe and standardised method of cleaning pin sites on external fixators in order to maintain comfort and wellbeing for the child and to prevent pain and infection.

2.0 Indications for Pin Site Care

Following application of an external fixator, the pin site is dressed post-operatively with a pressure sponge dressing. These dressing are left in position for up to 48 hours to prevent haematoma development or as clinically indicated. After 48 hours, the pin sites should then be cleaned as indicated below. Cleaning of the pin sites should be performed on a minimum of alternate days and as clinically indicated (NAON 2005; R.C.N. Guidelines 2011).

Aseptic Non Touch Technique Level 3 (ANTT) should be used for this procedure (See Appendix 1) (OLCHC 2007).

3.0 Definition of a Pin Site

A pin site is "the area that a pin or wire enters or exits a limb". It can be a wire or pin but is commonly referred to as a pin site.

4.0 Complications Associated with Pin Sites

- Localised skin infection - staphylococcus aureus is the most common causative organism (Checketts et al. 1993, Davies et al. 2005)
- Pain and discomfort due to any adjustment technique and movement of wires and pins through skin (Gordan et al. 2000)

5.0 Equipment

Chlorhexadine Gluconate 2% in 70%	Sterile scissors
Dressing pack	Gauze squares
Non-sterile gloves	Chlorhexidine liquid 4% for the bath / shower
Plastic apron if required	

ACTION	RATIONALE & REFERENCE
Preparation Explain the procedure to child and parent / carer	To ensure child's and parents/carer's understanding of the procedure and to gain their trust and cooperation *Hockenberry et al. 2003*.
Encourage parent / carer to observe procedure	To teach procedure for home care *NAON 2005.*
Administer appropriate analgesia to the child at least 60 minutes prior to the procedure	To reduce the pain, discomfort and anxiety which the procedure may cause *Lloyd Jones 2004*
If appropriate the play specialist can help prepare the child.	To help to prepare the child psychologically *Hockenberry et al. 2003*
Prepare environment and equipment	To ensure the procedure can be carried out safely and efficiently
Bath / Shower procedure (if appropriate) Chlorhexadine solution (2 capfuls) can be used unless contra-indicated.	As per Consultant wishes
Wash hands thoroughly with antiseptic solution. Apply non sterile gloves and plastic apron as appropriate.	To prevent cross infection *OLHSC 2010*
Pull back clips or remove tape holding dressings in place.	To allow dressings to soak off without disturbing healing skin tissue.
Allow the child to soak in the bath until dressings can be removed with ease. If showering, ensure water is warm and allow adequate time for easy removal of dressings. In the event that a bath /shower is not appropriate, dressing removal can be encouraged by applying water to soak off if dressing is adhered to the skin.	A bath or shower also facilitates cleaning of the wound and removal of exudates without causing excess discomfort *Briggs and Tora i Bou 2004, Joanna Briggs Institute 2006*
After bath / shower / dressings are now removed -Cleaning procedure Wash hands with antiseptic solution. Apply non-sterile gloves as per **ANTT Level 3.**	To prevent cross infection *OLHSC 2010 & 2007* To detect infection *NAON 2005* / R.C.N. 2011
Assess all pin sites for signs of infection i.e. redness around the site edges, soreness to	Oral antibiotics for treatment of infection. Swab only on

touch and oozing exudate. If signs of infection are present, refer to orthopaedic registrar for review. *(See below if wound swab is required).*	recommendation of Limb Reconstruction CNS or orthopaedic registrar.
	Avoid using products which contain small fibres that could enter the pin site *NAON 2005*
Moisten a gauze square with chlorhexadine 2%/70%.	To remove any residue of exudates and prevent infection *NAON 2005* To prevent cross infection *Trigg and Mohammed 2006*
Remove any exudate from pin sites by gently putting pressure on the skin and pin and moving in a circular fashion around the pin in one direction only. Repeat if needed with a separate piece of gauze.	To detect infection *NAON 2005 / R.C.N. 2011*
Following cleaning of the pin sites, again assess for signs of infection as above. If evidence of infection is present perform a wound swab. **Note: A wound swab should be taken after cleansing the wound. See 'Guideline on performing a wound swab'**	Cleansing the wound prior to swabbing allows for more accurate collection of organisms from the wound, and reduces contamination of swab from exudate *Kingsley & Winfield-Davies 2003, OLCHC 2004* To prevent cross infection *OLHSC 2010*
Ensure the pin sites are left clean and have been attended to.	To prevent loosening and accidental removal. This also prevents excess movement of tissues
Dressing application Wash hands thoroughly with antiseptic solution.	To prevent loosening and accidental removal of dressing.
Cut 'key-hole' dressings from gauze squares to apply over all pin sites.	To prevent accidental dislodgement and to avoid placing pressure on pin site.
Hold in place with plastic clips or tape. Ensure all sites are covered. Ensure dressings fit snugly for comfort and absorption of exudate but not too tightly that may cause pressure to the skin. Discard equipment appropriately.	To promote safety and prevent cross contamination. Dispose of soiled equipment in Healthcare Risk Waste (i.e. Clinical Waste). Other equipment can be placed in Healthcare Non-risk Waste, (i.e. Household waste). Department of Health and Children 2002, OLHSC 1997) To maintain a trusting relationship between the child and nurse *Hockenberry et al. 2003* To maintain an accurate record of nursing care and to facilitate communication. To ensure safe practice and maintain accountability *An Bord Altranais 2002*
Praise and thank the child.	Open wounds can be potential sites for MRSA colonisation.

Document all care given. Note: If child returns to hospital and requires an MRSA screen, take swabs from Pin Sites as part of the screen.	

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7.0 Appendix 1: Aseptic Non-Touch Technique (OLCHC 2007)

The purpose of **Aseptic Non-Touch Technique** (**ANTT**) is to ensure that equipment/fluids which come in contact with body sites susceptible to infection are uncontaminated (ICNA 2003).

Aseptic Non-Touch Technique is supported by the principles of standard precautions, which are:
√ Hand hygiene √ Wearing of personal protective equipment √ Safe handling of sharps, waste and linen

ANTT can be delivered at different levels depending on the nature of the procedure and risk of infection to the child. The expected outcome for every procedure is that the child will be free from infection. The following framework should be used to guide practitioners in relation to the appropriate level of ANTT to use. Clinical judgement must be used at all times.

Level	Indications	Method	Additional Information
1	Where the procedure will involve the practitioner having to directly touch susceptible sites. Examples of such procedures include: surgery insertion of central venous access devices insertion of a chest drain	Hand hygiene to the level of surgical scrub **Equipment:** Sterile gloves Sterile 'field' using sterile drapes Sterile equipment & solutions Sterile gown Mask Hat	Dispose of all waste appropriately: **Sharps:** into a 'sharps' container **Contaminated equipment, dressings etc:** Healthcare Risk Waste (i.e. Clinical Waste) **Packaging, uncontaminated equipment:** Healthcare Non-Risk Waste (i.e. Household Waste)
2	Where the procedure involves **a) an open unhealed wound** **or** b**) break in a line, e.g.** opening the hub of a CVAD changing a Needle Free device opening the connections points of e.g. urinary catheter, chest drain insertion of a urinary catheter **or** **c) during the preparation / administration of TPN** as its ingredients offer a high risk of bacterial contamination **or** d) taking blood cultures from a CVAD (remove needle-free device before taking blood cultures)	Hand hygiene **Equipment:** Sterile gloves Sterile 'field' – trolley or large plastic tray which has been washed with detergent & warm water, dried and then wiped with an alcohol wipe. Sterile drape to cover trolley or tray DO NOT USE A DISPOSABLE TRAY Sterile equipment & solutions Alcohol wipes (single use) – sufficient numbers for procedure)	Antiseptic hand-wash to above the wrists using an antiseptic hand-washing solution (i.e. Hydrex) **or** Wash hands using lever line soap & warm water, dry hands and follow with alcohol hand rub (Hydrex Hand Rub) Clean necks of medication, H20 & NaCl vials with alcohol wipe prior to opening Waste disposal as for Level 1

3	Where the procedure involves a closed system, e.g. Administration of medication through a bung Taking bloods through a Needle Free device Emptying a urinary drainage bag	Hand hygiene **Equipment:** Non–sterile gloves (Optional - see note) Sterile equipment & solutions Prepared plastic tray which has been washed with detergent and warm water and dried **or** A clean unused disposable tray – discard after each use Alcohol wipes (single use) – sufficient numbers for procedure)	Hand-washing as for Level 2 Note: If there is any risk that you may contaminate the device or if there is any risk of contamination of your hands by body fluids, you **must** wear gloves. Waste disposal as for Level 1