


NURSING GUIDELINE ON PERFORMING A WOUND SWAB	
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Approved By Name <i>Fionnuala O'Neill</i> Title: <i>Chair Nurse Practice Committee</i>	Signature <i>Fionnuala O'Neill</i> Date <i>12/12/13</i>
Authorised By Name <i>Rachel Kenna</i> Title: <i>Deputy Director of Nursing</i>	Signature <i>Rachel Kenna</i> Date <i>22/11/13</i>
Author/s	Carol Hilliard Nursing Practice Development Coordinator
Location of Copies	<i>On Hospital Intranet and locally in department</i>


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GUIDELINE FOR NURSES ON PREFORMING A WOUND SWAB

1.0 Introduction

The efficient and effective assessment and diagnose of wound infection is necessary to inform the appropriate management of the wound. A wound swab is performed to isolate and identify micro-organisms in a wound, and to determine the antibiotic sensitivity of those micro-organisms (Dougherty & Lister 2011). This guideline is intended to guide nursing practice in relation to the performing a wound swab on children attending OLCHC.

2.0 Definition of Guidelines

These Guidelines on Performing a Wound Swab represent the written instructions about how to ensure high quality care is provided. 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.

3.0 Definitions / Terms

Contamination: Presence of micro-organisms but without multiplication.

Colonisation: Micro-organisms present in or on a host, without host interference or interaction and without eliciting symptoms in the host.

Critical colonisation: Delayed healing with malodour, raised levels of exudate and slough present in the wound but without clinical infection and surrounding cellulitis.

Wound Infection: Condition in which the person interacts physiologically and immunologically with a micro-organism. Occurs when host resistance fails to control the growth of microorganisms. The development of a wound infection is dependent on the pathogenicity and virulence of the microorganism and the immuno-competency of the host

Inflammation: Initial response to tissue invasion or injury. Results in a defensive reaction to tissue injury with increased blood flow and capillary permeability and facilitates physiologic cleanup of the wound; accompanied by increased heat, redness, swelling and pain in the affected area.

Wound: A cut or break in the continuity of the skin caused by injury or surgical procedure


Wound swab: sampling of the surface of the wound to isolate and identify micro-organisms in a wound, and to determine the antibiotic sensitivity of those micro-organisms
(EWMA 2006, Baranoski & Ayello 2008, Health Service Executive 2009)

4.0 Applicable to

These guidelines are applicable to all nurses who are involved in performing a wound swab.

5.0 Objectives of the Guidelines on Performing a Wound Swab

The purpose of the guidelines is to promote safe, effective and consistent practice in relation to when, why and how a wound swab should be performed.

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6.0 Guidelines on Performing a Wound Swab

A wound swab is performed to isolate and identify micro-organisms in a wound, and to determine the antibiotic sensitivity of those micro-organisms (Dougherty & Lister 2011). Tissue biopsy is considered the gold standard for determining bacterial presence in a wound; however, it is not always reasonably practicable to perform a biopsy, especially in paediatrics. Furthermore research has shown that a wound swab is a valid and cost-effective alternative to an invasive biopsy (Gardner *et al.* 2006, Bonham 2009, Angel *et al.* 2011).

6.1 Assessing the need for a wound swab

To avoid unnecessary swabbing, nurses should exercise clinical judgement prior to taking a wound swab, to determine :

- 1) Why is this swab being taken?
- 2) What does one wish to find out from this swab?

6.2 Clinical Signs of Wound Infection

Microbiological assessment alone is not a reliable method for diagnosing wound infection as a wound may be colonized with bacteria which does not adversely affect healing (EWMA 2006, Cooper 2010). A thorough assessment of both the child and the wound for signs and symptoms of a wound infection must also be conducted (EWMA 2006, Baranoski & Ayello 2008, Santy 2008). The signs of a wound infection include but are not limited to:

- Erythema
- Heat
- Increasing pain in area
- Purulent exudate
- Oedema
- Pyrexia
- Odour
- Swelling of area
- Friable granulation tissue
- Delayed healing
- Wound breakdown
- Child is off form / reduced appetite


(EWMA 2006, Baranoski & Ayello 2008, Santy 2008)

6.3 Wound Swabbing technique

There is some debate in the literature as to the most effective method of swabbing the wound. Two techniques have been described (**Table 1**).


Table 1: Techniques for performing a wound swab

Technique	Description	Comment
Levine's method <i>Levine 1976</i>	Rotate the swab over a 1cm ² area of the wound, applying sufficient pressure to express fluid from the wound bed.	Identified as superior to the Z-Technique for culturing a wound <i>Angel et al 2011</i>
Z-Technique	Repeat in other parts of the wound if needed Move the swab in a zig-zag motion across the wound, while rotating the swab between the fingers.	May be uncomfortable for the patient to apply downward pressure on the wound This method has shown high sensitivity when compared to tissue cultures <i>Gardner et al. 2006</i> However, there is a risk of contamination when swabbing a larger area <i>Bonham 2009</i>

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6.4 Guidelines on performing a wound swab

ACTION	RATIONALE & REFERENCE
Assess the child's level of pain and administer appropriate analgesia.	To reduce the pain associated with the procedure, thus increasing the child's comfort <i>Nilsson & Renning 2012</i>
Assess wound for evidence of healing or infection.	Careful wound assessment can help to identify if infection is present <i>EWMA 2006, Santy 2008</i>
Decontaminate hands with appropriate solution	To prevent cross infection <i>OLCHC 2010</i>
Use appropriate ANTT level depending on the nature and extent of the wound.	To prevent contamination of the wound and swab <i>OLCHC 2013</i>
Method	
Before taking a wound swab, gently cleanse wound with water, either by irrigating or using sterile gauze.	Cleansing the wound prior to swabbing: <ul style="list-style-type: none"> • Reduce contamination of swab from exudate • Removal of topical gels, etc which may have been used on the wound • Ensures accurate collection of organisms from wound <i>Bonham 2009, Cooper 2010</i>
Do not use an antimicrobial cleansing solution as this may result in a false negative result	
If wound surface is wet, use a dry swab.	This allows for maximum collection of micro-organisms from the wound bed <i>Bonham 2009</i>
If wound surface is dry, slightly moisten the swab with sterile water.	
Swabbing Technique	
Use a zig-zag motion to draw the swab across the wound surface, while rotating the swab gently between fingers	Z-Technique has shown high sensitivity when compared to tissue cultures <i>Gardner et al. 2006</i>
Large Wound:	
In a large wound it may be more appropriate to sample selected parts of the wound.	There may be a risk of contamination when swabbing a larger area using the Z-Technique.
Identify a 1cm ² section of an area of infection, extension of wound, or cellulitis.	To permit accurate interpretation of results, only swab areas of suspected infection in a large wound <i>Levine 1976, Bonham 2009</i>
Apply gentle downward pressure on the wound with the swab to release exudate (Levine's Technique).	To give an accurate picture of the presence of bacteria within the wound <i>Levine 1976, Bonham 2009</i>
Abscess / Deep wound	
Ideally aspirate pus from the deepest portion of the lesion using a syringe. Place pus in sterile screw-cap container.	To ensure detection of bacteria within the wound and to avoid obtaining a sample of superficial flora <i>Health Protection Agency 2009</i>
If aspiration of pus is not possible or there is insufficient pus to collect in a sterile container, swab the deepest part of the lesion using a black transport swab. Avoid contamination of the swab by the wound surface.	To avoid inaccurate results <i>OLCHC 2012</i>

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Label swab with patient details, anatomical site of the wound, date and clinical area.

To maintain accurate documentation *An Bord Altranais 2002*

Label microbiology form with clinical details, i.e.

- Clinical speciality, e.g. Burns, Oncology,
- Anatomical site of the wound
- Clinical indicators for performing swab
- If wound is deep or superficial
- If the wound is a post-operative surgical wound, and if so, how many days post-op
- If the patient is immuno-compromised
- Any other clinically relevant information

Recording the site of the wound swab is important as organisms which may be normal flora in one part of the body can be pathogenic in another part

Providing the microbiologist with patient's clinical information permits

- a) holistic interpretation of the results and
- b) epidemiological data in relation to causative organisms of infections in the patient population

Bonham 2009, Health Protection Agency 2009, Cooper 2010, OLCHC 2012

Send swab to laboratory.

7.0 Special Considerations

See Section 6.4 above

8.0 Companion Documents

OLCHC (2012) *Laboratory Users Handbook: Microbiology — Notes on specimen collection technique*. OLCHC, Dublin. http://labintranet/handbook/micro/hb_MicroSpecColl.html

OLCHC (2013) *Aseptic Non-Touch Technique Reference Guide*. OLCHC, Dublin


9.0 Implementation Plan

Communication and Dissemination

- Guidelines will be posted on hospital Intranet
- Hard copies of the guidelines will be included in the Nurse Practice Guideline Folder in each clinical area
- Email will be circulated to all staff informing them of issue of guideline
- Information will be circulated in NPDU Newsletter

Training

- Education and training will be delivered at departmental level using existing educational resources, e.g. Clinical Nurse Facilitators
- Education is included in induction packages for relevant clinical areas / staff

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10.0 Monitoring and / or Audit

Evaluation and Audit includes:

- Data in relation to wound infection in specific services, e.g. Surgical, Orthopaedics, Burns
- If trends in wound infection are noticed, e.g. causative organism, the Microbiology Dept will liaise with relevant teams / disciplines
- Feedback from nursing staff on the guidelines to contribute to ongoing guideline development

11.0 References

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