Policy Compliance Procedure

Health
Hunter New England Local Health District

Pre-operative procedures for the prevention of surgical site and implanted device infections

Sites where PCP applies	All HNE Health facilities where surgical, IV device and implantable procedures are performed
This PCP applies to:	
1. Adults	Yes
2. Children up to 16 years	Yes
3. Neonates – less than 29 days	No Approval gained from the Children Young People and Families Network on 10 November 2023.
Target audience	Surgeons, Anaesthetists, Pre-procedural clinics, Nurses & Midwives caring for surgical patients, Nephrology Services, HNE Imaging
Description	Proper pre-procedure controls reduce the risk of post procedure and device associated infections.

Go to Procedure

Keywords	Skin disinfection, surgery, infection prevention, surgical site infection, urinary tract infection, chlorhexidine, urine culture, Portacath, Permacath, haemodialysis, pre-op wash, SSI, MRSA, MSSA
This PCP relates to NSW Ministry of Health Policy Directive	NSW Health Policy Directive PD2023_025 Infection Prevention and Control in Healthcare Settings
PCP number	PD2023_025:PCP 33
Replaces existing document?	Yes
Document number and dates of superseded document/s	GNAH_0110, JHH_0094, JHH_0093, JHH_0091, JHH_0095, JHH_0092

Related Legislation, Australian Standard, NSW Ministry of Health Policy Directive or Guideline, National Safety and Quality Health Service Standard (NSQHSS) and/or other, HNE Health Document, Professional Guideline, Code of Practice or Ethics:

See Reference Section at end of this document.

Tier 2 Director responsible for Policy to which the PCP relates. PCP authorised by	Elizabeth Grist, Executive Director, Clinical Services, Nursing and Midwifery
PCP contact person and Network or Service etc. responsible for the PCP	Dr Sarah Browning, Director, Infection Prevention Service
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Date authorised	17 January 2024
This document contains advice on therapeutics	Yes Approval gained from HNE Quality Use of Medicines Committee on 15 January 2023
Issue date	19 January 2024
Review date	19 January 2027

Note: Over time links in this document may cease working. Where this occurs, please source the document in the PPG Directory at: http://ppg.hne.health.nsw.gov.au/

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PURPOSE AND RISKS

Surgical site infection (SSI) and procedure-associated infections are associated with increased morbidity and mortality and other negative impacts on patient physical and mental health. They contribute to a substantial financial burden to the health system due to increased length of stay, the need for return to surgery, increased nursing care and hospital readmission.

Patients known to carry MSSA or MRSA are at a higher risk of developing a serious SSI. Screening of patients for MSSA or MRSA nasal colonisation is indicated prior to certain types of major surgery so that staphylococcal load reduction can take place to reduce the risk of postoperative infection.

Modifiable risk factors that may predispose a patient to a post procedure infection should be considered prior to all procedures. This PCP provides guidance on best practice requirements for peri-procedure/surgical care in order to reduce complications due to infection.

Any unplanned event (healthcare associated infection) resulting in, or with the potential for, injury, damage or other loss to patients/staff/visitors as a result of this procedure must be reported through the Incident Information Management System and managed in accordance with the PD2020_047 Incident Management Policy. This would include unintended injury that results in disability, death or prolonged hospital stay.

Surveillance of Healthcare Associated Infections (HAIs) allows the hospitals and clinicians to measure the effectiveness of strategies recommended throughout this policy.

The recommended procedures in this policy should be used as a reference when performing retrospective investigations with incidences of surgical site infections with the findings reported to the appropriate Governance committees.

Risk Category*:* Clinical Care & Patient Safety

GLOSSARY

Acronym or Term	Definition
Antibiotic prophylaxis (surgical)	Refers to the prevention of infectious complications by administering an effective antimicrobial agent prior to exposure to contamination during surgery. When indicated, prophylaxis must be administered with enough time (generally 15-30 minutes) before incision to achieve effective plasma and tissue concentrations at time of incision.
Chlorhexidine	Chlorhexidine gluconate is a broad-spectrum topical antiseptic with action against gram negative and positive bacteria. It provides immediate and residual action in reducing the postoperative infection risk.
HAI	Healthcare Associated Infection
ICNet	HNELHD software program that tracks patient movements and infection data. This is used by IPS staff. The software provides a wide range of reports on infection data and outbreaks
MRSA	Methicillin-resistant *Staphylococcus aureus* – these strains are resistant to nearly all beta-lactams and for systemic infection or prophylaxis, a glycopeptide (vancomycin or teicoplanin) is required.
MSSA	Methicillin-susceptible *Staphylococcus aureus* – these strains are susceptible also to flucloxacillin.
Negative Pressure Wound Therapy (NPWT)	Refers to disposable dressings that are prescribed to promote wound healing of surgical, complex, and high-risk wounds in clients who have been appropriately assessed. They provide sub atmospheric pressure to incision lines and shallow/deep wound beds while removing excess exudate, reducing peri-wound oedema, promoting granulation, and splinting of the surgical wound.
Open surgery	Surgical procedures performed by making an incision large enough to expose the entire operative area are called “open” surgeries, as opposed to more minimally invasive surgeries such as those performed laparoscopically
Prospective Surveillance	Surveillance in real time. Review of triggered microbiology alerts in ICNet or direct reporting to identify and review cases as they emerge.
Retrospective Surveillance	Finding cases through finding cases through a review or late reporting of an SSI.
Surgical Site Infection (SSI)	Post-operative infection, defined as either superficial or deep (includes organ or organ-space infections). The surveillance criteria come from the CDC (USA)[1] which is referenced in NSW by the Healthcare Associated Clinical Indicator Manual (Clinical Excellence Commission , 2021). For superficial infections, infection must manifest by 30 days post operatively. For deep infections related to certain types of surgery, this time interval moves out to 90 days. HAI-Clinical-indicator-manual.pdf
TRUS biopsy	Trans-rectal ultrasound guided biopsy

[1] 2024 version - https://www.cdc.gov/nhsn/pdfs/pscmanual/9pscssicurrent.pdf

PROCEDURE

Compliance with this PCP is mandatory.

1. Withdrawal of certain procedures

With the introduction of this PCP, the following procedures are no longer required of HNE Health preoperative services:

a. The use of antiseptic wash in showering before surgery is to be phased out.

   i. According to extensive evidence from randomized trials, the use of antimicrobial solution/soap prior to surgical procedures has not been proven to reduce surgical site infections. This is to be replaced with showering with normal soap in most instances.

   ii. For certain types of procedures (listed below in Section 7), non-rinse 2% aqueous chlorhexidine wash cloths are to be used preoperatively as a more effective measure of skin disinfection.

b. Preoperative midstream urine cultures from asymptomatic patients are NOT required for most types of procedures (see section 4 below).

2. CJD risk screening:

As specified in the PCP, Management of Creutzfeldt - Jakob disease (CJD) risk due to reprocessing of instruments, administration of a pre-procedure CJD questionnaire is required prior to posterior eye surgery, ENT surgery within the olfactory region and neurosurgery at any HNE sites for planned or unplanned procedures.

3. Management of patients at high risk for infection

a. Patients with diabetes should have their glycaemia control assessed and optimized as good glycemic control markedly reduces the risk of post-operative infections.

   i. Perform or review HbA1c and capillary glucose measurements.

   ii. Withhold anti-glycaemia medications that could cause complications: – refer to Peri-procedural Management of Glycaemia - JHH for specific actions.

   iii. Contact the Endocrinology Service or the appropriate local physician for advice if required.

   For guidance, Peri-procedural Management of Glycaemia- JHH can be used as a model of practice and requires consideration for local application/endorsement.

b. Patients who are current smokers should be encouraged and assisted in cessation.

   All aspects of smoking history and therapy offered should be recorded on the Nicotine Dependent Care Assessment Form.

   Please refer to PD2015_003_PCP_3_MNID_and_prospective_aged_care_residents.pdf

4. Indications for preoperative screening for *Staphylococcus aureus* (MSSA or MRSA) nasal carriage and preoperative staphylococcal load reduction

a. Preoperative MSSA/MRSA screening is required for patients undergoing the following procedures:
   - Open cardiac and valve procedures
   - Shoulder, hip, or knee joint total arthroplasties: primary or revision procedures
   - Aortic work (stent and open) and all lower limb open surgery for vascular reconstructions (bypass, endarterectomy). Iliac stents (as they are a covered stent)
   - Haemodialysis catheter insertions- refer to HNELHD GandP 21_02 Renal: *Staphylococcus aureus* Load Reduction in Dialysis Patients

b. Collect nasal swab.
   - Use a bacterial transport swab, sample both anterior nostrils with same swab to a depth of 2 cm, rotating the swab against the nasal septum and interior of the nose for at least 15 seconds.

c. It is recommended that a pre-printed pathology request screening form be used.
   - On the pathology request, specify '**Pre-op. Staph screening'** and include details of the planned procedure.

d. Patients shown to be nasal MSSA and MRSA carriers preoperatively are to undergo staphylococcal load reduction over the 5 days prior to the procedure[2].
   - For emergency procedures, the process can commence as soon as practicable and if necessary continued post-operatively to make up the 5 days. There are two instruction sheets one for staff and one for patients. Links are provided below in Appendix.

e. Carriers of MRSA require addition of teicoplanin for preoperative surgical prophylaxis (HNELHD CG 20_59 Surgical Antibiotic Prophylaxis).

f. If a patient who carries MSSA or MRSA is prepared for theatre and then cancelled on the day of surgery.
   i. The load reduction needs to be repeated prior to the re-scheduled procedure if more than one week has elapsed.
   ii. Further nasal screening is unnecessary.

g. For other re-scheduled patients who were initially negative for MSSA/MRSA, repeat nasal screening required if delay of more than one month occurs.

h. Repeat nasal screening is NOT performed to assess MSSA/MRSA clearance post load reduction.

i. If the purpose of screening is also to 'clear' a patient's MRO carriage status (based on advice from Infection prevention service), then two separately collected sets of clearance swabs are required (consult infection prevention service advice).
   i. Request is for **'MRO screening'.** Inform facility infection prevention consultant that screening has been initiated so follow up of results is organised.

[2] The load reduction for *S. aureus* relies on use of topical chlorhexidine for skin disinfection and nasal Mupirocin. In order to avoid antiseptic incompatibility, the surgical or procedural skin preparation should be with a Chlorhexidine-containing product rather than iodine.

5. Indications for preoperative mid-stream urine culture[3]:

a. Any preoperative patient with symptoms of an acute urinary tract infection (recent onset dysuria and/or loin pain) requires urine culture[4].

   i. Symptomatic urinary infection requires treatment PRIOR to surgery.

   ii. Clearance urine cultures are NOT required post treatment.

b. Urological patient – require preoperative urine culture regardless of symptoms.

   i. Detection of significant bacteriuria (> 10^8/L of two or less uropathogens) is an indication for oral antibiotic treatment guided by pathology sensitivity results.

   ii. Rectal swab for multi-resistant (ciprofloxacin-resistant) Gram negative colonization may be required before TRUS biopsy- refer to Therapeutic Guidelines: Surgical prophylaxis for urological surgery (via CIAP).

   iii. Preoperative surgical antibiotic prophylaxis agent may need to be altered based on the susceptibility of significant bacterial pathogens cultured from the urine. Consult Infectious Diseases or Clinical Microbiologist on call consultant as required.

c. Vascular surgery patient – infrarenal procedure involving graft placement – require preoperative urine culture regardless of symptoms.

   i. Detection of significant bacteriuria (> 10^8/L of two or less uropathogens) is an indication for oral antibiotic treatment guided by pathology sensitivity results.

6. Pre-operative and pre-procedure showering

All patients are recommended to shower or be washed with soap and water or bed bath wipe for bed bound patients on the day of surgery and be dressed in freshly laundered gown or clothes.

- Showering can occur at home prior to hospital entry or at the hospital on the morning of surgery according to hospital instruction.

All patients must be supplied a bed or procedure trolley which has been cleaned and remade with clean linen prior to transfer to the operating theatre.

7. Indications for use of preoperative non-rinse chlorhexidine 2% aqueous skin wipes (Imprest oracle purchase number: 832113)

a. Patients undergoing the following surgeries or procedures (whether elective or emergency) should apply (or have applied by staff) non-rinse 2% chlorhexidine skin wipes on the morning of the day of the procedure after showering (prior to application of the wipes, staff should review the patient for cleanliness of skin).

   - Application can be performed at home prior to hospital entry.

b. Indicated procedures[5]:

   - Open cardiac, aortic, permanent pacemakers, cardiac stents, and valve surgeries
   - Orthopaedic surgery–upper or lower limb hemi and total arthroplasties including emergency procedures.

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[3] The service, clinic or doctor who organizes the urine culture should arrange to review the result and provide antimicrobial treatment well in advance of the procedure date.
[4] Urinalysis or the appearance of the urine are NOT indications for urine culture *per se*.

[5] In order to avoid antiseptic incompatibility, the surgical or procedural skin preparation should be with a chlorhexidine-containing product rather than iodine.

- Laminectomies and spinal fusions
- Aortic surgery (stent and open), all lower limb open surgery for vascular reconstructions (bypass, endarterectomy) and iliac stents
- Central venous access device (CVAD) insertion (e.g., Portacaths, Hickman lines, Swan-Ganz) – relevant surgery, Paediatric and medical Imaging services
- Insertion of Permacaths or Vascaths for dialysis or other therapy
- Emergency caesarean section

c. Refer to procedural fact sheets for non-rinse chlorhexidine 2% aqueous skin wipes via the intranet links provided below.

   i. After application to skin, the solution is allowed to dry and not washed off.

   ii. Record the preparation on the surgical checklist as “chlorhexidine wash cloth applied”. (Consult infectious disease clinician if allergy to chlorhexidine).

d. In the absence of available non-rinse wipes, use either MICROSHIELD® 2% chlorhexidine skin cleanser or triclosan 1% (Phisohex)**.**

   i. To be applied during showering on the day of surgery (see instruction sheet).

8. Pre-procedure hair removal

Prior to surgical procedures patients should only have body hair removed if necessary.

In these instances, it should be removed only by clipping as close to procedure time as possible. Shaving as a form of pre-operative hair removal is strongly discouraged.

9. Pre-procedure antibiotic prophylaxis when indicated[6]

When indicated, prophylaxis must be administered with enough time (generally 15-30 minutes, dependent on antibiotic being used) before incision to achieve effective plasma and tissue concentrations at time of incision. See this guidance HNELHD CG 20_59 Surgical Antibiotic Prophylaxis or consult Therapeutic Guidelines: Surgical antibiotic prophylaxis for specific procedures (via CIAP)

10. Patients in whom negative pressure wound therapy should be considered:

Identifying patients who are at increased risk of developing a SSI pre-operatively will assist planning to decrease their risk. For patients who meet the following criteria single use disposable NPWT may be considered to promote wound healing i.e.:

- BMI >35.
- History of SSI or wound dehiscence
- Diabetes
- Extended intraoperative procedure time

Patients need to be appropriately assessed pre-operatively and meet the criteria of the specialty to be prescribed in accordance with HNELHD GandP 22_31 Negative Pressure Wound Therapy Single Use, Disposable Dressings Guideline.

[6] Pre-emptive treatment of established or presumptive preoperative infection, for instance perforated viscus or orthopaedic trauma patients requires separate consideration.

STAFF PREPARATION

It is mandatory for staff to follow relevant: “five moments of hand hygiene”, infection control, moving safely/safe manual handling, documentation practices and to use HAIDET for patient/carer communication: Hand hygiene Acknowledge, Introduce, Duration, Explanation, Thank you or closing comment.

Consultation

- Infection Prevention Service staff
- Nursing and Midwifery Policy Guidelines Committee
- Patient Safety and Quality
- Public Health
- Health Share Services
- Children Young People and Families
- Renal Stream
- Facility Managers
- Theatre and SSU Managers
- Surgical Services
- Staff Health & Wellbeing Services
- Cardiac, Orthopaedic, Renal, Obstetric, & Vascular Services
- District Pharmacy Services / DQUMC
- Clinical Nurse Consultant & Nurse Educators District Wide
- NS2 Consumer Representative Christina West

IMPLEMENTATION, MONITORING COMPLIANCE AND AUDIT

1. The document will be communicated through the Policy and Procedure Guideline updates and the CE News.

2. The document will be monitored for effectiveness and compliance through Surveillance and investigations of surgical site infections (SSI) ensuring that the guidelines of this policy are referenced during look backs with SSIs.

3. Results of reportable SSI investigations will be tabled at relevant Standard 3 Committee meetings and Morbidity and Mortality (M&M) meetings and reported via the Incident information management system (IIMS).

4. ONLINE RESOURCES

    - Surgical Site Infection surveillance definitions: staff information

    - Guidance for collecting MRO screening specimens (HNE Infection Prevention service)

APPENDIX:

- Pre-procedure staphylococcal load reduction-Information for Clinicians
- Adult: Chlorhexidine Wash Cloth Information for Staff
- Adult: Chlorhexidine wash cloths Patient information-adults
- Paediatric: Chlorhexidine wash cloth application for children: staff information
- Paediatric: Chlorhexidine wash cloth application for children: patient/parent information

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- HNELHD CG 14_35 Surgical Antibiotic Prophylaxis
- JHH_JHCH_0116: Urology Antibiotic Prophylaxis
- PD2017_013:PCP 9 Management of Multi-resistant Organisms (MROs) and *Clostridium difficile*
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FEEDBACK

Any feedback on this document should be sent to the Contact Officer listed on the front page.