

Nurse Practitioner Wound Management Clinical Protocol Minor Surgical Procedures

Fremantle Hospital and Health Service (FHHS)

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Overview of Practice

The prevalence of wounds in the community and within the hospital setting demonstrates the need for wound care services and the role of the Nurse Practitioner (NP) in Wound management.

Any client with a wound has a right to expect a high standard of care in line with best practice standards, regardless of the aetiology of their wound, where the care is delivered or by whom. When a client with a wound is managed inappropriately, they can suffer from failure to heal which results in the wound being present for longer than necessary and an increased risk of complications. Posnett and Franks (2008) stated that a high proportion of chronic wounds remain unhealed for long periods and for almost certainly longer than necessary. Ineffective management such as this can result not only in prolonged client suffering but also increased cost to healthcare organisations through ongoing resource use and increased length of stay.

Non-healing chronic wounds affect client's lives emotionally, mentally, physically and socially. They can be pivotal in preventing full recovery, increasing hospital stay and increasing the need for ongoing treatments (Splisbury et al 2007).

Optimal wound care is care that addresses every need of the patient in order to maximise their quality of life while they have that wound. This involves addressing concurrent issues that may impact on their health such as under-nutrition, illness, infection, the environment in which care is carried out and the expertise available to provide the care.

Moffat et al (2008) suggested that this involves a complex interplay with the patient, their wound, the knowledge and skills of the healthcare professional and availability of resources all being important in planning and progression.

Although the provision of wound care should be relatively straight forward it is often not so. According to Queen et al (2004) over the last 20 or 30 years wound care has changed dramatically with significant developments in scientific research and clinical knowledge.

The Nurse Practitioner Wound Management (NPWM) role has been established in Victoria (Warnambo), New South Wales (Hunter Valley), Royal Perth Hospital and Sir Charles Gairdner Hospital Western Australia.

Carville and Lewin (1998) reported a wound prevalence of 1699 patients with wounds across Silver Chain Services in Western Australia in 1996. Of the nursing visits 44% were devoted to wound care. Leg ulcers (including diabetic foot ulcers) were the primary group treated comprising 81.5%.

Data from a Nurse Practitioner feasibility study at the Canberra Hospital (MacLellan, Gardner & Gardner, 2002) demonstrated the common wound aetiologies to be chronic leg ulcers, infected leg ulcers, cellulitis, pressure ulcers, diabetic foot ulcers, multi-trauma wounds, and fungating tumours. These

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patterns are similar to the wound referrals currently reviewed by the Clinical Nurse Consultant Vascular/Chronic wounds at Fremantle Hospital and Health Service.

The patient presenting with an Acute or Chronic wound requires a comprehensive assessment that will include the wound history, client history, and physical examination performed by the NPWC. There may be the requirement of a number of diagnostic investigations to complete a comprehensive assessment to determine an accurate diagnosis and initiate appropriate treatment.

Management of care may require working in collaboration with other health care providers, prescription of medications, management of pain and topical management of skin and wound conditions.

Client outcomes include wound healing or wound maintenance depending on the aetiology and the patient's Co-morbidity factors. Wound specific outcomes may include odour control, treatment of infection, debridement and pain management.

Client education plays an important part in the role of the Nurse Practitioner, including promoting health and developing a partnership in care. Follow up care and discharge will be dependent on the individual patient and their management plan.

The protocols that follow are inter-related and outline key processes and actions for the Nurse practitioner treating patients with Acute/Chronic Wounds. These protocols have been developed by working in parallel with those currently in use at Royal Perth Hospital and Sir Charles Gairdner Hospital therefore I would like to acknowledge their work.

The information provided in these Clinical Protocols is intended for information purposes only. Clinical Protocols are designed to improve the quality of health care and decrease the use of unnecessary or harmful interventions. These Clinical Protocols have been developed to be used within South Metropolitan Health Service, and they provide advice regarding the care and management of clients presenting with Wounds.

While every reasonable effort has been made to ensure accuracy of these clinical protocols, no guarantee can be given that the information is free from error or omission. The recommendations do not indicate an exclusive course of action or serve as a definitive mode of client care. Variations, which take into account individual circumstances, clinical judgement and client choice may also be appropriate. Users are strongly recommended to confirm by way of independent sources that the information contained within the Clinical Protocols is correct.

MINOR SURGICAL PROCEDURES

Introduction

There are occasions when wound biopsies or sharp debridement procedures are required to manage the wound, both procedures can be classified as minor surgical procedures. The flow chart demonstrates the protocol (see figure 2).

Biopsy

Skin biopsy is a biopsy technique in which a segment of skin is removed and sent to the pathologist to render a microscopic diagnosis.

The common punch size used to diagnose most inflammatory skin conditions is the 3.5 or 4mm punch. Ideally, the punch biopsy includes the full thickness skin and subcutaneous fat in the diagnosis of skin disease.

Curettage biopsy can be done on the surface of tumours or on small epidermal lesions with minimal to no topical anaesthetic using a round curette blade. Diagnosis of basal cell carcinoma can be made with some limitation, as morphology of the tumour is often disrupted. The pathologist needs to be aware of the type of anaesthetic used, as topical anaesthetic can cause infarct in the epidermal cells.

Debridement

Wound healing is delayed by the presence of devitalised tissue (National Institute for Clinical Excellence 2001).

An ulcer or open wound can not be thoroughly assessed until all devitalised tissue is removed. Dead or foreign material in a wound adds to the risk of infection and sepsis and inhibits wound healing (Leaper 2002).

Debridement is the removal of necrotic or foreign material from and around a wound to optimise wound healing. There are many different methods that can be used to debride a wound. They can broadly classified as surgical/sharp, mechanical, biological, chemical, enzymatic and autolytic.

Conservative sharp debridement (CSWD) is a procedure used to debride non-viable tissue from a wound down to non-bleeding tissue using sharp instruments (e.g. scalpel, scissors). Sharp debridement may be necessary in either acute wounds (e.g. skin tears) or chronic wounds (e.g. pressure ulcers). Consideration to perform the procedure requires consideration of both local and systemic factors.

Debridement may also be undertaken in preparation for skin grafting, application of skin substitutes, or topical negative pressure therapy (e.g. VAC-Vacuum Assisted Closure).

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The outline of assessment process, investigations and management are outlined in Table 2

Table 2 Assessment and Management: Minor Surgical Procedures

PROCESS	ACTION	GUIDANCE
History	A complete history is taken	<ul style="list-style-type: none"> • Medical, surgical, allergy history/ co-morbidities • Wound history • Current medications (prescribed and OTC) • Previous diagnostic investigations • Social and occupational history including carer or home support • Physical mobility • Activities of daily living
Examination	<p>Physical examination of the wound and associated are/limb</p> <p>More generalised assessment as necessary</p>	<p>Findings from assessment of complex, infected wounds, leg ulcers and diabetic foot ulcers</p> <p><i>Abnormal clinical presentation:</i></p> <ul style="list-style-type: none"> • Raised/unusual clinical features • Suspicion of neoplastic disease • Senescent tissue • Hypergranulation tissue • Non healing wound despite optimal treatment <p><i>Presence of:</i></p> <ul style="list-style-type: none"> • Infection not responding to antibiotic treatment • Contaminated/non-viable material • Foreign bodies
Investigations	Biopsy of wound for histology and/or microbiology	<p>Histology</p> <ul style="list-style-type: none"> • To confirm wound aetiology <p>Microbiology</p> <ul style="list-style-type: none"> • To identify organisms and sensitivities
Diagnosis	Make provisional diagnosis	On clinical picture, available assessment data and results of investigations
Management	<p>Urgent referrals:</p> <ul style="list-style-type: none"> • Life/Limb threatening infection • Abnormal test results that require medical intervention • Treatment required outside NP scope of practice • Significant deterioration in wound since last review 	<p>Notify medical practitioners of investigations ordered and referrals organised</p> <p>If the wound fails to heal despite optimal therapy then consultation with other health care practitioners and further investigations may be required at that time</p>

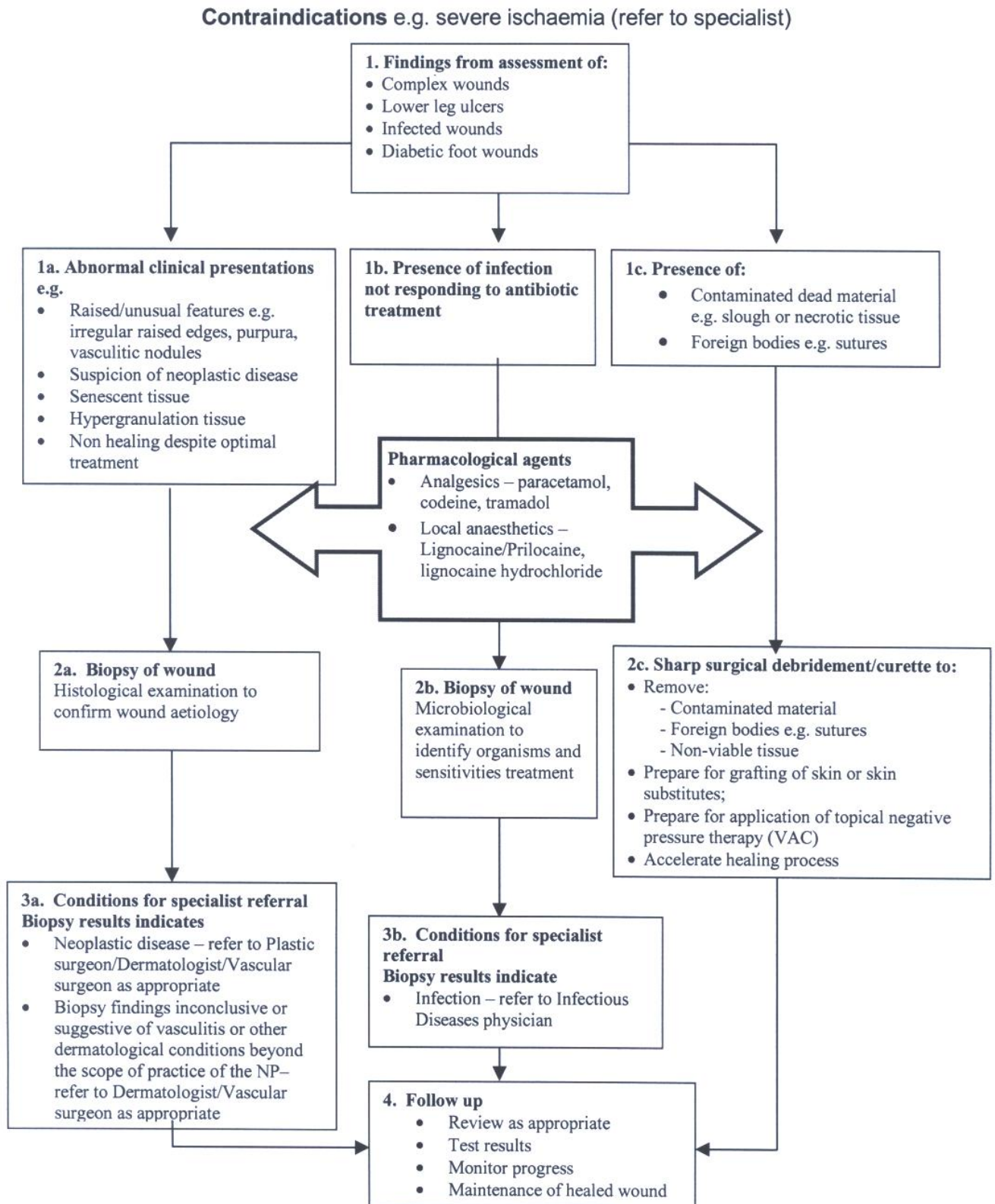
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PROCESS	ACTION	GUIDANCE
<p>Management (cont)</p>	<p>Nurse Practitioner: Non-Pharmacological treatment</p> <p>Client education for self care</p> <p>Pharmacological treatment – Based on diagnostic investigations, clinical assessment, and Therapeutic Guidelines</p> <p>Conservative sharp surgical Debridement</p>	<p>Non-Pharmacological treatment</p> <ul style="list-style-type: none"> • Appropriate dressings/bandaging based on diagnosis and patient lifestyle preferences • Cleansing and debridement of wound <p>Client/Carer education for self care</p> <ul style="list-style-type: none"> • Hygiene (cleansing self and wound waterproofing as required) • Diet (the importance of essential vitamins and minerals as required) • Signs and symptoms of complications • Bandaging/dressing techniques • Exercise regimes • Lifestyle factors/changes • Disease process and health maintenance • Prevention of recurrence • Pain management • Medications <p>(Include relevant consumer literature in the form of leaflets/booklets)</p> <p>Pharmacological treatment</p> <ul style="list-style-type: none"> • Analgesics • Topical antimicrobials/antifungals • Local anaesthetics • Topical corticosteroids • Oral antibiotics <p>Conservative Sharp Surgical Debridement</p> <p><i>To remove:</i></p> <ul style="list-style-type: none"> • Contaminated material • Foreign bodies • Non viable tissue <p><i>To prepare the wound environment for:</i></p> <ul style="list-style-type: none"> • Topical Negative Pressure Therapy (VAC) • Skin Grafts • Substitutes to accelerate the healing process
<p>Management Partnership</p>	<p>Appropriate referrals to assist in overall management</p>	<p>Other Health Professionals as required:</p> <ul style="list-style-type: none"> • General Practitioner • Plastic Surgeon • Dermatologist • Infectious Diseases Physician • Vascular Surgeon <p>Consultation with the medical practitioner if required for further treatment and investigations</p>

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PROCESS	ACTION	GUIDANCE
Management Partnership (cont)		<i>Allied Health:</i> <ul style="list-style-type: none"> • Dietician • Podiatrist • Diabetes Educator • Occupational Therapist • Pharmacist <i>Community Care Providers:</i> <ul style="list-style-type: none"> • Silver Chain Nursing • Other home care providers
Ongoing Care	Follow-Up	Review as appropriate: <ul style="list-style-type: none"> • Test results • Monitor progress • Maintenance of wound • Review treatment plan in accordance in investigative results
Separation	Discharge from service	As appropriate: <ul style="list-style-type: none"> • Wound healing achieved • Referral to community services for long term management • Referral for specialist care

Figure 2. Minor Surgical Procedures for Diagnosis and Treatment in Wound Care.



Adapted from MacLellan, L., Gardner, G., Gardner, A (2002) Designing the future in wound care: The role of the nurse practitioner. *Primary Intention* 10(3): 97-112 © ACT Government, reprinted with permission.

Review

Clinical protocol will become effective once approval and designation have been agreed and will be reviewed every 2 years or earlier if significant research becomes available to change practice or there are new developments in the drug formulary listings.

Further protocols will be developed in relation to chronic wounds and diabetic foot ulcers.

Implementation Plan

Implementation of the NPWM Protocols will occur at the appointment of the Nurse Practitioner Wound Management at Fremantle Hospital and Health Service.

The time frame will be approximately two months to allow for the introduction of the role of the NP into the organisation.

Evaluation Plan

Submitted protocols will be reviewed annually and evaluated using the Clinical Governance Framework. Reporting will be provided to the key line manager of the designated NP (Nursing Director Surgical Services at Fremantle Hospital and Health Service), and the Director General of Health as outlined by the Office of Chief Nursing Officer (Department of Health Western Australia, 2003).

Professional Development and Management

The NP will set realistic objectives and a professional development plan in collaboration with their Nursing Director Surgical Services.

Educational requirements to professional colleagues will be ongoing.

The NP will be involved in research pertinent to their clinical field.

Participation in Hospital and Health Sector activities undertaken in role related guidelines, policies and standards will be identified.

Clinical Risk

The NP in Wound Management will have input into relevant practice guidelines, relevant research and ensure that standards following evidence based best practice are undertaken, working closely with Wound West and other clinical experts.

Potential risks, including clinical incidents and adverse effects will be identified, managed and reported as part of the annual NP review and reporting process to the Department of Health. There will be ongoing liaison with the FHHS Clinical Governance Unit.

Consumer Value

Consumer satisfaction/complaints will be ascertained via satisfaction and complaints surveys of key customer groups. Auditing of practice may be benchmarked against best practice/guidelines that are available to ensure consumer satisfaction and expectations are met.

Consumer input into protocols or patient education material will also be considered.

**Drug Formulary
Wound Management**

Classification	Drug	Dosage
Analgesic	Paracetamol	500-1000mg 4-6 hourly
Analgesic	Paracetamol/Codeine	500mg/8mg 4-6 hourly
Antibiotic	Amoxicillin Clavulanate	500/125-875/125mg 12 hourly
Antibiotic	Cephalexin	250-500mg 6 hourly
Antibiotic	Flucloxacillin	250-500mg 6 hourly
Antibiotic	**Ciprofloxacin	250-500mg twice daily
Antibiotic	**Clindamycin	150-450mg 8 hourly
Antibiotic	Metronidazole	200-400mg 8-12 hourly
Topical Antibiotic	Metronidazole	0.5% twice daily
Topical Antibiotic	Silver Sulphadiazine Chlorhexidine digluconate	1%, 0.2% 1-2 x/day
Topical Antifungal	Clotrimazole	1% 3 x/day
Topical Antifungal	Terbinafine	1% 1-2 x/day
Topical Antifungal	Nystatin	100,000units/g 2-3 x/day
Topical Antiseptic, Anti-infective	**Mupirocin	2% 3 x/day
Topical Corticosteroid	Hydrocortisone	0.5-1% 1-2 x/day
Topical Corticosteroid	Hydrocortisone acetate	0.5-1% 1-2 x/day
Topical Corticosteroid	Triamcinolone Acetonide	0.02% 1-2 x/day
Topical Corticosteroid	Betamethasone valerate	0.02-0.05% 1-2 x/day
Topical Corticosteroid	Betamethasone dipropionate	0.05% 1-2 x/day
Topical Anaesthetic	Lignocaine	0.05-1% Pre-procedure
Local Anaesthetic	Lignocaine with Adrenaline	0.05-1% Pre-Procedure
Local Anaesthetic	Lignocaine with Prilocaine	0.05-1% Pre-Procedure

**** IDD APPROVAL**

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Classification	Indications	Considerations
Analgesics	<p>Mild pain:</p> <ul style="list-style-type: none"> Paracetamol 100mg 4-6 hourly, maximum daily dose 4000mg <p>Mild to moderate pain:</p> <ul style="list-style-type: none"> Paracetamol with codeine 500mg/8mg 1-2 tablets 4 to 6 hourly maximum dose 4000mg paracetamol <p>OR</p> <ul style="list-style-type: none"> Tramadol 50mg to 100mg 4 to 8 hourly maximum daily dose 400mg (300mg maximum dose for elderly) <p>(Therapeutic Guidelines: Analgesics, 2002)</p>	<p>For more severe pain, review causative factors and refer to appropriate specialist (e.g. Pain Service, Vascular Surgeon)</p>
Antibiotics (topical)	<p>Localised skin infections, critical colonisation of wounds (e.g. leg ulcers and pressure ulcers) and minor burn prophylaxis</p> <ul style="list-style-type: none"> Silver sulfadiazine (SSD) 1% + chlorhexidine 0.2% cream topically, once or twice daily <p>(contraindicated if sulpha or chlorhexidine allergy)</p> <p>Impetigo, infected small skin lesions (mild or localised infections) and elimination of Staph. aureus carriage</p> <ul style="list-style-type: none"> Mupirocin 2% topical, following skin cleansing 3 times per day for up to 10 days. <p>Cancerous malodorous wounds</p> <ul style="list-style-type: none"> Metronidazole gel 0.75% topically Silver sulfadiazine (SSD) 1% + chlorhexidine 0.2% cream topically, once or twice a day <p>(Sibbals, Orsted, Shultz et al., 2003. Therapeutic Guidelines: Antibiotic 2006; Therapeutic Guidelines: Dermatology, 2002)</p>	<p>Alternatives to consider include silver, povidone-iodine and cardexomer iodine dressing products</p> <p>Approval is required from a Clinical Microbiologist or ID Physician for Mupirocin use</p>
Antibiotics (systemic)	<p>Skin and soft tissue infection</p> <p>Empirical antibiotics to be commenced whilst waiting for sensitivities</p>	<p>The routine use of antibiotics is not advocated in chronic wounds</p> <p>Antibiotic to be commenced only when there is clinical evidence of infection (e.g. localised erythema, localised pain. Localised heat. Cellulitis and oedema)</p>

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	<p>For mild to moderate infection with surrounding cellulitis, use:</p> <ul style="list-style-type: none"> • Flucloxacillin 250- 500mg orally 6-hourly for at least 5 days <p>For clients hypersensitive to penicillin (excluding immediate hypersensitivity) use:</p> <ul style="list-style-type: none"> • Cephalexin 500mg 6-hourly for at least 5 days <p>Diarrhoea is a common adverse effect and the client should be told to seek medical attention should this persist</p> <p>Alternatively, if Gram-Negative organisms are suspected or known to be involved, use:</p> <ul style="list-style-type: none"> • Amoxicillin+Clavulanate 875+125mg orally, 12 hourly for 5 days <p>Gram-negative organisms often colonise ulcers, therefore for less severe infections, antibiotics against gram positive organisms should be used initially. If the infection is not responding then broadening to include gram-negative cover can be considered.</p> <p>(Therapeutic Guidelines: Antibiotic 2006)</p> <p>Diabetic foot infections: For mild to moderate infection with no evidence of osteomyelitis or septic arthritis, use:</p> <ul style="list-style-type: none"> • Amoxicillin+clavulanate 875+125mg orally, 12 hourly for at least five days <p>OR</p> <ul style="list-style-type: none"> • Cephalexin 500mg orally, 6 hourly, for at least five days <p>Plus</p> <ul style="list-style-type: none"> • Metronidazole 400mg orally, 12 hourly for at least five days <p>Inform patients that nausea, diarrhoea and metallic taste is an adverse effect whilst taking metronidazole. To seek medical attention for persistent nausea and diarrhoea</p>	<p>If no clinical improvement within one week (next visit) or worsening of symptoms, for medical review</p> <p>For more severe infections, particularly where systemic symptoms are present, and for intravenous antibiotics, medical review will be required</p> <p>Antibiotic susceptibilities of gram negative organisms should be reviewed and advice obtained from a Clinical Microbiologist or ID Physician for organisms resistant to amoxicillin + clavulanate</p> <p>For severe limb-or life threatening infection (systemic toxicity/ septic shock, bacteraemia, marked necrosis or gangrene, ulceration to deep tissues, severe cellulitis, presence of osteomyelitis) medical review is required</p>

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Classification	Indications	Considerations
	<p>For clients with penicillin hypersensitivity, use:</p> <ul style="list-style-type: none"> • Ciprofloxacin 500mg orally, 12 hourly for at least five days <p>To seek medical attention if the client develops a rash, nausea, vomiting, diarrhoea, abdominal pain, and/or dyspepsia</p> <p>Plus</p> <ul style="list-style-type: none"> • Clindamycin 300mg to 450mg orally, t.d.s for at least five days <p>Patients must be informed of the adverse effects of diarrhoea with a risk of pseudomembranous colitis, whilst taking clindamycin. Clients must be told to report these side effects and seek medical attention</p> <p>(Therapeutic Guidelines: Antibiotic, 2006)</p>	<p>Approval is required from a clinical Microbiologist or ID Physician for ciprofloxacin and Clindamycin use</p>
<p>Topical Antifungal</p>	<p>Tinea (Body,limbs,face and interdigital)</p> <ul style="list-style-type: none"> • Terbinafine 1% topically, daily for 7 days <p>Or an imidazole:</p> <ul style="list-style-type: none"> • Clotrimazole 1% topically, 2 to 3 times daily for 2 to 4 weeks, continued for 14 days after symptoms resolve. <p>Cutaneous candidiasis</p> <ul style="list-style-type: none"> • Clotrimazole 1% topically, 2 to 3 times daily for 2 to 4 weeks, continued 14 days after symptoms resolve. <p>If necessary for inflammation, add</p> <ul style="list-style-type: none"> • Hydrocortisone cream 1% topically, 2 to 3 times daily <p>(Therapeutic Guidelines: Dermatology, 2004)</p>	<p>Diagnosis of fungal infections can be confirmed via microscopy and culture of skin scrapings, subungual debris, nails or plucked hair</p>

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Classification	Indications	Considerations
Topical Corticosteroids	<p>Stasis/contact dermatitis</p> <p>Mild</p> <ul style="list-style-type: none"> • Hydrocortisone cream 1% topically, 2 to 3 times daily <p>Or</p> <ul style="list-style-type: none"> • Hydrocortisone acetate 1% cream or ointment 30g. Apply once or twice a day. <p>Moderate</p> <ul style="list-style-type: none"> • Betamethasone valerate 0.02%-0.5% cream or ointment topically, once or twice a day. <p>Severe</p> <p>Betamethasone dipropionate cream or ointment 0.05%, topically once or twice daily (use sparingly, and for as short a period of time as possible, due to potency and potential adverse effects)</p> <p>(Therapeutic Guidelines: Dermatology, 2004)</p>	<p>Uncomplicated stasis dermatitis is common in chronic leg ulcers. Stasis dermatitis is frequently complicated by allergic contact dermatitis, which usually resolves with the removal of the sensitising agents (frequently encountered in many dressing products) and treatment with a mild/moderate topical corticosteroid</p> <p>If poor response, refer to a Dermatologist</p>
Local anaesthetic	<p>Biopsy</p> <ul style="list-style-type: none"> • Lignocaine (7mg/kg) with Adrenaline (5 micrograms/mL). Lignocaine/Adrenaline 1:100 000, 5mL • Lignocaine 1%, 5mL <p>Local Wound Debridement (pre procedure) where appropriate</p> <ul style="list-style-type: none"> • Lignocaine with Prilocaine 0.05%-1% topically <p>Rossi (Ed), 2005; Therapeutic Guidelines: Dermatology, 2004.</p>	<p>Lignocaine with adrenaline should not be used on an extremity such as a digit, especially in the presence of PAD, to avoid potential necrosis.</p> <p>For infiltration 1-2 mL is sufficient to provide anaesthesia and will not distort histology</p>

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