



ROCKINGHAM KWINANA DISTRICT HOSPITAL
 Nurse Practitioner – Emergency Services
CLINICAL PRACTICE GUIDELINE
INJURY – OPEN WOUNDS

No. 1

Scope		Outcomes
Nurse Practitioner	<ul style="list-style-type: none"> All open wound injuries 	Identify patients suitable for NP CPG
Medical Practitioner +/- Nurse Practitioner	<ul style="list-style-type: none"> Wound requiring specialist suture technique Uncontrolled haemorrhage Compensable status - MVIT/ WC (all assessment and documentation must be completed by the attending medical officer) 	Identify patients not suitable for NP CPG and redirect to usual ED care +/- NP in team.
Initial Assessment and Interventions		Outcomes
History	<ul style="list-style-type: none"> MIST: Mechanism: Injuries sustained; Signs – vitals; Treatment given / pre hospital management / time Range of movement / ability to weight bear Deformity Past medical history / medications Allergies / immunisations / tetanus status Last food / fluids 	Identify patients not suitable for NP CPG → exit CPG
Focused clinical assessment	<p>Assess size and location of wound Classify by: -</p> <ul style="list-style-type: none"> Severity - Superficial / Penetrating Degree of Contamination – clean / contaminated / infected Tidy / untidy – straight edges vs jagged edges Depth – epidermis/dermis/subcutaneous/muscle fascia/bone Cause – intentional / unintentional Description – cut / laceration / abrasion / contusion / incision / puncture Consider referral for: <ul style="list-style-type: none"> facial wounds wounds overlying a joint wounds in young children injuries involving tendons nerve damage contaminated wounds untidy wounds (see acute referrals) <p>After anaesthetising wound:</p> <ul style="list-style-type: none"> Thoroughly explore wound for any underlying structures i.e. tendon injury <p>If bony tenderness or suspicion of foreign body see appropriate CPG</p>	<p>Determine method of closure and additional management required</p> <p>D/W ED Consultant / SMO re. need for referral to specialty unit (as appropriate).</p>
Neurovascular Assessment	<ul style="list-style-type: none"> colour warmth movement sensation - complete sensory loss - partial sensory loss / hypoaesthesia capillary refill peripheral pulse nerves/tendons (a thorough understanding of colour, anatomy and function of the injured limb is essential for proper management) 	Identify patients not suitable for NP CPG → exit CPG



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Pain Assessment	<ul style="list-style-type: none"> • Pain score 	Determine need for and type of analgesia
Analgesia / First Aid Management	<ul style="list-style-type: none"> • First aid <ul style="list-style-type: none"> ○ rest ○ ice / immobilisation ○ compression ○ elevation • Administration of analgesia (see medications) <p>* Consider early application of Local Anaesthetic after thorough assessment and documentation of neurovascular function</p>	Reduction / relief of pain. Minimise or prevention of complications
Working diagnosis and Investigations		Outcomes
Imaging	<ul style="list-style-type: none"> • No imaging required where there is <u>no</u> suspicion of bony injury or foreign body • X-ray required if: <ul style="list-style-type: none"> ○ Pain and localised tenderness suggestive of bony injury ○ Suspicion of foreign body • Ultrasound in addition to X-ray may be required if non radio-opaque foreign body is suspected 	Detect foreign body or determine joint involvement
Pathology	<p>Not routinely indicated but consider:</p> <ul style="list-style-type: none"> • Wound swab if moderate or severe infection, esp. where there is: <ul style="list-style-type: none"> ○ cellulitis ○ signs and symptoms of systemic infection ○ delayed presentation. • IV access and insert cannula if required • If surgical repair required, pre operative investigations may include FBP, U&E, Group & Hold, and INR as discussed with admitting medical officer. 	Ongoing assessment of need for intravenous access Referral to specialty unit identifies need for pre-operative investigations – performed as requested
Diagnosis	<ul style="list-style-type: none"> • Clean wound – appears clean, no evidence of contamination, healthy tissue present, good apposition of wound edges evident • Tidy / untidy – straight edges vs jagged edges – see acute referral • Contaminated wound – see acute referral • Nerve damage – see acute referral • Tendon damage – see acute referral • Other- Need for antibiotics and or tetanus immunoprophylaxis will depend on patient MIST, wound examination findings and whether delayed presentation as per therapeutics guidelines. 	Patient identified as suitable for NP CPG and discharged safely Correct diagnosis made and patient management carried out and/or referred to appropriate specialty unit for intervention prior to discharge home safely or further management +/- admission (see acute referral)



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Interpretation of results (diagnostic features) and Management decisions		Outcomes
Cleaning of wound	Wound irrigation A 30ml syringe attached to 19g cannula without the stylet should be used to vigorously irrigate with 0.9% NaCl <ul style="list-style-type: none"> • Wound cleansing • Chlorhexidine solution soaked gauze used to topically clean wound. • Contaminated wounds - 1% Povidine Iodine applied for 3 – 5 minutes then washed off. 	
Management	a. Tissue Adhesive - Simple wounds <3cm in length –ensure good wound edge approximation. - Consider for wounds in children b. Steri-strip - May be adequate in simple wounds in areas with little skin tension i.e. not over joints– requires patient compliance, keep dry for 72hrs, minimal movement etc. c. Staples - Suitable for scalp wounds only d. Suture - Select appropriate suture material - absorbable / non- absorbable - Wound usually requires infiltration with local anaesthetic which allows for thorough wound examination / cleaning e. Dressing Dressing will be required for closure of wounds. Select appropriate dressing according to need. Consider: - - Absorption of blood / exudate - Wound immobilisation / pain relief - Application of pressure - Occlusion from dirt, bacteria and inquisitive fingers - Aesthetic covering	Selection of appropriate closure material will ensure good wound healing and cosmesis
Associated Care	Consider: <ul style="list-style-type: none"> • ECG for patients >65yrs who require surgical intervention • IV fluids for patients who require fasting for surgical intervention 	



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Acute Referral	<p>Consider need for acute referral for:</p> <ul style="list-style-type: none"> • Facial wounds requiring Plastics/Surgical specialty review • Wounds overlying a joint requiring Surgical / Orthopaedic specialty review • Wounds in young children • Tendon damage - evidence of peripheral tendon damage after focussed clinical examination and direct visualisation of wound may require specialty unit review (dependant on injury sustained and location) • Nerve damage – evidence of peripheral nerve damage after focussed clinical examination may require specialty unit review (dependent on injury sustained and location) • Contaminated wounds – evidence of contamination and presence of debris in wound, devitalisation of wound edges <i>Extent of contamination of the wound will determine whether referral to Plastics unit is required as the wound may require surgical debridement in an operating theatre if extensive.</i> • Jagged edges - may require debridement or specialist suture technique 	<p>Correct diagnosis made - D/W ED Consultant / SMO to identify +/- need for referral to appropriate specialty unit for intervention prior to safe discharge home or further management +/- admission</p>
Patient discharge education		Outcomes
When to return	<ul style="list-style-type: none"> • Verbal / written instructions from NP • ED written patient information 	Ensure patient understands problem, treatment, follow up and is safe for discharge home
Follow up appointments	<ul style="list-style-type: none"> • Verbal / written instructions from NP • Written information to LMO via Kommunik8 	Ensure patient understands problem, treatment, follow up and is safe for discharge home
Medication instructions	<ul style="list-style-type: none"> • Verbal / written instructions from NP • Written information as per Hospital Pharmacy on medications dispensed. 	Ensure patient understands problem, treatment, follow up and is safe for discharge home
POP care (where appropriate)	<ul style="list-style-type: none"> • Verbal / written instructions from NP • ED written patient information 	Ensure patient understands problem, treatment, follow up and is safe for discharge home
Safety assessment i.e. crutches	<ul style="list-style-type: none"> • Refer patient for crutches as appropriate • Patients > 60 yrs of age consider referrals 	Ensure patient understands problem, treatment, follow up and is safe for discharge home
Other Referrals	<p>Consider referrals for specific patient problems as required:</p> <ul style="list-style-type: none"> ○ Social Work ○ Physiotherapy ○ Drug and Alcohol Counsellor ○ Aboriginal Liaison Officer ○ ED Mental Health Liaison Nurse ○ Allied health ○ Interpreter ○ Discharge coordinator etc 	Ensure patient understands problem, treatment, follow up and is safe for discharge home



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Certificates	<ul style="list-style-type: none"> Absence from work certificates Certificate of attendance 	Ensure appropriate documentation completed
Letters	<ul style="list-style-type: none"> LMO letter via Kommunik8 Copy of ED notes to Specialist or Outpatient Clinic (as appropriate) 	Ensures continuity of care and referral to health care team

Medications		Outcomes
All medications will be stored, labelled and dispensed in accordance with hospital policy and relevant legislation		
<p>MILD PAIN S2 – S4</p> <p>Simple analgesia</p>	<p>On initial assessment of mild pain:</p> <p><u>ADULTS:</u> Paracetamol PO / PR - 500 mg – 1gram 4 - 6 hourly, not to exceed 4 grams in 24 hrs. IV infusion: - 1 gram infused over 15 minutes. Not to exceed 4 doses in 24 hrs. Use for mild – mod pain or fever where PO/PR not tolerated, or patient fasting/ vomiting</p> <p><u>OR</u> Paracetamol - 500mg/Codeine 8mg per tablet - 1 or 2 tablets PO 4 – 6 hourly, not to exceed 8 tablets in 24 hrs</p> <p><u>CHILDREN:</u> Paracetamol: PO / PR – 15 mg/kg/dose 4 hourly up to 4 times /day. Not to exceed 4 doses in 24 hours IV infusion: >6 months 15 mg/kg/dose infused over 15 minutes. Not to exceed 4 doses in 24 hrs. Use for mild – mod pain or fever where PO/PR not tolerated, or patient fasting/ vomiting.</p> <p><u>OR</u> Painstop Day: 0.6 – 0.8 mL/kg PO 4- 6 hourly. Not to exceed 4 doses in 24 hrs</p> <p><u>OR</u> Painstop Night: 6 – 8 hourly PO; Max 3 doses in 24 hrs Age: 2 yrs: 4-5 mL 3-4 yrs: 6-7 mL 5-6 yrs: 7-8 mL 7-8 yrs: 9-10 mL</p> <p>Total daily maximum of paracetamol 90 mg/kg/24 hrs for the first 48 hours, thereafter 60 mg/kg/24 hrs.</p> <p>CAUTION: PAINSTOP NIGHT When dosing at maximum level of paracetamol; dose will deliver a larger than recommended promethazine dose and may give a higher than necessary codeine dose leading to an increase in sedation.</p>	<p>Patients given analgesia appropriate to allergies, current medications and past medical history</p> <p>Analgesia requirements are determined by ongoing assessment of pain and the provision of adequate analgesia.</p> <p>Patients with excessive pain or pain unrelieved by analgesia require review by ED Consultant / Senior Medical Officer</p>



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<p>MODERATE PAIN S2 – S4</p>	<p>On initial assessment of moderate pain or failure to relieve mild pain:</p> <p><u>ADULTS:</u> Paracetamol 500 mg/Codeine 30 mg per tablet - 1 or 2 tablets PO 4-6 hourly, not to exceed 8 tablets in 24 hrs AND/OR Naproxen: 500 mg PO initially then 250 mg 6 – 8 hourly OR Ibuprofen: 400 mg PO 3 – 4 times daily</p> <p><u>CHILDREN:</u> Ibuprofen: 10 mg/kg PO 3-4 times daily to maximum of 600mg in 24 hours</p> <p>If NSAIDS contraindicated, Tramadol (adults and children >12 years) Oral: 50-100mg QID, maximum 400mg over 24 hours OR IM / slow IV: 50-100mg QID, maximum 600mg over 24 hours</p> <p>Special Note: TRAMADOL:</p> <ul style="list-style-type: none">• Contraindicated in epilepsy and SSRI use.• Caution must be used in the elderly – maximum dose 300mg daily <p><i>FAILURE TO CONTROL MODERATE PAIN AND/OR INITIAL ASSESSMENT OF SEVERE PAIN – Discuss further management with ED Consultant / Senior ED Medical Officer</i></p>	
<p>SEVERE - Reassess Narcotic Analgesia S8</p>	<p>NOTE: Currently NPs require medical prescription for S8 medications</p> <p><u>ADULTS (only)</u> Oxycodone oral : 5mg every 4 hours OR Morphine IM: 5 -10mg single dose Slow IV: 1- 2.5mg incremental doses to a maximum total dose of 10mg (given over period of 30 minutes)</p> <p><u>CHILDREN:</u> Morphine IM: 0.2mg/kg single dose Slow IV: 0.1 - 0.2mg/kg/dose given in titrated doses up to maximum of 10 mg in 30 minutes</p>	



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<p>Anti-emetic S4</p> <p>PRN</p>	<p>Consider need for:</p> <p>Metoclopramide hydrochloride Oral/IM/IV Adults - > 20 years 10 mg – 20 mg 8 hourly - 16 – 20 yrs 5 – 10 mg 8 hourly</p> <p>Prochlorperazine Oral: Acute - 20mg initially then 5-10mg 8-12 hourly IM deep: - 12.5 mg 8 hourly</p> <p>NOTE: Antiemetics are not to be used in children <16 years</p>	
<p>Intravenous fluids S4</p>	<p>Consider need for: 0.9% Sodium Chloride IV infusion at 8-12 hourly titrated to patients requirements</p>	
<p>Local Analgesia (LA) S4</p>	<ul style="list-style-type: none"> • Lignocaine 1% (plain) • Lignocaine 1% with adrenaline 1:100,000 <p>* Administration via infiltration techniques: Lignocaine (plain): MAX dose 3 mg/kg Lignocaine (with adrenaline): MAX 7 mg/kg</p> <ul style="list-style-type: none"> • Adrenaline/Lignocaine/Amethocaine (ALA) ALA solution for topical application ONLY to provide local surface anaesthesia for superficial wounds / lacerations. <p>* Consider need for digital nerve block</p> <p>**Preparations containing ADRENALINE are not to be used on digits, nose, ears, penis or contaminated wounds.</p>	
<p>Antibiotics S4</p>	<p>The use and appropriateness of antibiotic therapy in the treatment of potentially infected / infected wounds depends on the cause, condition, and likely microbial organisms to be treated.</p> <p><i>Refer to the Antibiotic Therapeutic Guidelines for appropriate antibiotic drug administration.</i></p> <p><u>CLEAN WOUNDS</u> LOW RISK: Not routinely used for clean wounds not involving tendons or joints that can be adequately debrided and irrigated and are seen within 8 hours</p> <p>HIGH RISK: delayed presentation or difficult debridement Di/flucloxacillin: (child: 25 mg/kg up to) 500mg PO 6 hourly for 5- 7 days PLUS Metronidazole: (child: 10mg/kg up to) 400mg PO 12 hourly for 5 – 7 days</p> <p><u>Alternatively use:</u> Amoxycillin + clavulanate (child: 22.5 + 3.2 mg/kg up to)</p>	



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875+125mg PO 12hourly for 5 - 7days

**Patients with penicillin hypersensitivity:*

Cephalexin: (child: 25 mg/kg up to) 500mg 6 hourly for 5 – 7 days

PLUS

Metronidazole: (child: 10 mg/kg up to) 400mg PO 12 hourly 5-10 days

CONTAMINATED WOUNDS

Di/flucloxacillin: (child: 50 mg/kg up to) 2 g IV 6 hourly
PLUS

Gentamicin: (child: <10 yrs. 7.5 mg/kg; ≥ 6 mg/kg) 4 – 6 mg/kg IV daily (note: adjust dose for renal function)

PLUS

Metronidazole: (child: 12.5 mg/kg up to) 500 mg IV 12 hourly

**Patients with penicillin hypersensitivity:*

Metronidazole: (child: 12.5 mg/kg up to) 500 mg IV 12 hourly

PLUS

Cephazolin: (child: 50 mg/kg up to) 2 g IV 8 hourly

NOTE:

- Duration of treatment should be at least 5 days.
- If antibiotic prophylaxis against gas gangrene is required, to initial regime add:

Benzylpenicillin: (child: 60 mg/kg up to) 2.4 G IV repeat 4 hourly as necessary

CLENCHED FIST / ANIMAL and HUMAN BITES

HIGH RISK:

- o Delayed presentation
- o Puncture / difficult debridement
- o Wounds on hands / feet / face
- o Involving underlying structures eg joints / tendons

Amoxicillin + clavulanate (child: 22.5 + 3.2 mg/kg up to) 875+125mg PO 12hourly for 5 - 7days

PLUS

Procaine penicillin (child 50 mg/kg up to) 1.5 grams IM single dose (if commencement of above delayed)

ESTABLISHED INFECTION (severe / penetrating)

Metronidazole: (child: 10 mg/kg up to) 400 mg PO 12 hourly for 5 – 10 days (consider initial IV dose)

PLUS

Cefotaxime (child 50 mg/kg up to) 1 gram IV 8 hourly for 5 – 10 days

OR

Ceftriaxone (child: 50 mg/kg up to) 1 gram IV daily for 5 – 10 days

Alternatively use:

Ticarcillin + clavulanate (Timentin): (child: 50 mg/kg up to) 3 gram IV 6 hourly for 5 – 7 days



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	<p><i>*Patients with penicillin hypersensitivity:</i> Metronidazole: (child: 10 mg/kg up to) 400 mg PO 12 hourly 5-10 days PLUS EITHER Doxycycline: (child >8yrs and >50 kg: 2 mg/kg up to) 100 mg loading dose PO 12 hourly day 1, then 100 mg daily 5-10 days OR Trimethprim+sulfamethoxazole: (child: 4+20 mg/kg up to) 160+800 mg PO, 12 hourly 5-10days OR Ciprofloxacin: (authority prescription) (child: 10 mg/kg up to) 500 mg PO 12 hourly 5-10 days</p> <p>NOTE: <i>A low threshold should exist for discussing these patients with the ED Consultant / Infectious Diseases or Plastics unit for appropriate therapy and management regimes</i></p>	
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Vaccine / Immunisation S4	<p>* Consider tetanus immuno-prophylaxis in tetanus prone wounds</p> <p><i>Refer to Australian Immunisation Handbook 8th Edition - section on Immunisation for tetanus prone wounds - for dosage regimen (dependent upon previous immunisation status and type of exposure) online @ http://www1.health.gov.au/immhandbook/</i></p> <p>≥ 8 years Diphtheria - tetanus vaccine for use in adults (ADT / dT): - 0.5ml IM</p> <p>< 8 years Diphtheria - tetanus vaccine for use in children (CDT / DT): 0.5ml IM</p> <p>Tetanus Immunoglobulin: 250 IUIM as soon as practicable post injury 500 IU IM if >24hours post injury</p>	
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Evaluative strategies		
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Unexpected representation	Emergency Department Information System (EDIS) attendance record and NP clinical log	
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NP Clinical Practice	NP Clinical Practice / Medical Record Audit	
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Key Terms		
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<p>NP- Nurse Practitioner SMO – Senior Medical Officer PS- Pain Score S1-S4- Schedule of the drug administration act LMO- Local Medical Officer OPA- Outpatients Appointment</p>	<p>CPG- Clinical Practice Guideline WC- Work cover MVIT- Motor vehicle insurance trust DVA- Department of Veteran Affairs WADH – Western Australian Department of Health Communiik8 – Electronic system for direct faxing of patient presentation information to LMO</p>
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References

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