



Government of Western Australia  
Department of Health

Royal Perth Hospital  
Nurse Practitioner – Emergency Services  
CLINICAL PRACTICE PROTOCOL  
**INJURY - FACE**



Scope		Outcomes
<b>Nurse Practitioner</b>	<ul style="list-style-type: none"> <li>Wounds, abrasions and lacerations requiring closure with Sutures, Tissue Adhesives or Steri-strips</li> </ul>	Identify patients suitable for ED NP CPG
<b>Medical Practitioner +/- Nurse Practitioner</b>	<ul style="list-style-type: none"> <li>Wound requiring specialist suture technique</li> <li>Haemorrhage uncontrolled</li> <li>Penetrating or non penetrating with haemorrhage not controlled in adult patients</li> <li>Facial or skull fractures</li> <li>Damage to underlying structures e.g. nerves, salivary ducts.</li> <li>Cosmetic considerations</li> </ul>	Identify patients not suitable for ED NP CPG and redirect to usual ED care +/- ED NPC in team.
Initial Assessment & Interventions		Outcomes
<b>Primary Survey</b>	<ul style="list-style-type: none"> <li>Airway</li> <li>Breathing</li> <li>Circulation</li> </ul>	Abnormal primary survey identified → exit CPG
<b>History</b>	<ul style="list-style-type: none"> <li>Mechanism, injuries sustained, signs-vitals, treatment- given pre hospital management- time</li> <li>Deformity</li> <li>Past medical history / medications</li> <li>Allergies / immunisations / tetanus status</li> <li>Last food / fluids</li> <li>Compensable status – MVIT / WC / DVA / Private Insurance</li> </ul>	Identify patients not suitable for ED NP CPG → exit CPG
<b>Focused clinical assessment</b>	Assess size and location of wound classify by: <sup>[1]</sup> <ul style="list-style-type: none"> <li>Severity - Superficial / Penetrating</li> <li>Involvement of facial structures – likelihood of underlying fracture</li> <li>Degree of Contamination – Clean / Contaminated / Infected</li> <li>Depth – epidermis/dermis/subcutaneous/muscle fascia/bone</li> <li>Cause – Intentional / Unintentional</li> <li>Description – Laceration / Abrasion / Contusion / Incision / Puncture</li> </ul>	Determine method of closure and additional management required
<b>Neurovascular Assessment</b>	<ul style="list-style-type: none"> <li>colour</li> <li>warmth</li> <li>sensation</li> <li>nerves</li> </ul>	Identify patients not suitable for ED NP CPG → exit CPG
<b>Pain Assessment</b>	<ul style="list-style-type: none"> <li>Pain scale</li> </ul>	Determine need for and type of analgesia
<b>Analgesia / First Aid Management</b>	<ul style="list-style-type: none"> <li>First aid               <ul style="list-style-type: none"> <li>- rest</li> <li>- ice / immobilisation</li> <li>- compression</li> <li>- elevation</li> </ul> </li> <li>Administration of analgesia (see medications)</li> </ul>	Reduction / relief of pain. Minimise or prevention of complications



Working Diagnosis and Investigations		Outcomes
<b>Imaging</b>	No imaging required unless foreign body thought to be present or if joint involved or bony tenderness on examination	Detect foreign body or determine joint involvement
<b>Pathology</b>	Not routinely indicated but consider <ul style="list-style-type: none"> <li>• Wound swab</li> <li>• IV access and insert cannulae if required</li> <li>• Pre operative pathology if requires surgical repair</li> </ul>	Ongoing assessment of need for intravenous access
<b>Diagnosis</b>	<ul style="list-style-type: none"> <li>• <b>Clean wound</b> – appears clean, no evidence of contamination, healthy tissue present, good apposition of wound edges evident</li> <li>• <b>Contaminated wound</b> – 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. The patient may require surgical debridement of the wound in an operating theatre if extensive.</i></li> <li>• <b>Nerve damage</b> – evidence of nerve damage after focussed clinical examination will require referral to Plastics Unit dependent of injury sustained and location in conjunction with EP</li> <li>• <b>Tendon damage</b>– evidence of tendon damage after focussed clinical examination will require referral to Plastics Unit dependent on injury sustained and location in conjunction with EP</li> <li>• <b>Wounds of complex tissue</b> eg eye lids, lips and ducts are to be referred to the Plastic Surgery Unit</li> <li>• <b>Other</b>- Need for antibiotics and or tetanus will depend on the mechanism of injury and wound examination findings as per therapeutics guidelines<sup>[2]</sup></li> </ul>	Correct diagnosis made and Patient Assessment by Plastics Unit for admission or referral
<b>Cleaning of wound</b>	<p><b>Wound irrigation</b><sup>[3]</sup> A 30ml syringe attached to 16g cannula without the stylet should be used to vigorously irrigate with 0.9% NaCl for wounds above the eye<sup>[1, 3]</sup></p> <p><b>Wound cleansing</b><sup>[1]</sup> Chlorhexidine 15mg &amp; Cetrimide 150mg/30mL solution soaked gauze used to topically clean wound.</p> <p><b>Contaminated wounds</b> - Chlorhexidine 15mg &amp; Cetrimide 150mg/30mL solution to irrigate wound until clean.<sup>[1, 3]</sup></p>	



<b>Management</b>	<p><b>a. Tissue Adhesive</b> <sup>[1, 4]</sup></p> <ul style="list-style-type: none"> <li>- Simple laceration &lt;3cm in length –ensure good skin apposition</li> <li>- Consider for lacerations in children</li> </ul> <p><b>b. Steri-strip™ and Skin-Link™</b></p> <ul style="list-style-type: none"> <li>- May be adequate in simple laceration in areas with little skin tension i.e. not over joints– requires patient compliance, keep dry for 72hrs, minimal movement etc.</li> </ul> <p><b>c. Suture</b></p> <ul style="list-style-type: none"> <li>-Select appropriate suture material – Absorbable / Non-Absorbable <sup>[1]</sup></li> <li>-Wound usually requires infiltration with local anaesthetic</li> <li>-Allows for thorough wound examination and cleaning</li> </ul> <p><b>d. Dressing</b></p> <p>Dressing will be required for closure types <b>b</b> and <b>c</b>. Select appropriate dressing according to need. Consider: -</p> <ul style="list-style-type: none"> <li>-Absorption of blood / exudate</li> <li>-Wound immobilisation / pain relief</li> <li>-Application of pressure</li> <li>-Medication carrier i.e. topical antibiotics</li> <li>-Occlusion of dirt, bacteria and inquisitive fingers</li> <li>-Aesthetic covering</li> <li>- need for home dressings</li> </ul>	Selection of appropriate closure material will ensure good wound healing and cosmesis
<b>Associated Care</b>	<ul style="list-style-type: none"> <li>• Consider ECG for patients &gt; 65 yrs who require surgical intervention</li> <li>• Consider IV fluids for patients who require fasting for surgical intervention</li> </ul>	
<b>Acute Referral</b>	<ul style="list-style-type: none"> <li>• Refer to Plastics Unit all wounds involving lip margins and eyes.</li> <li>• Referral to; <ul style="list-style-type: none"> <li>+/- physiotherapy</li> <li>+/- care coordination</li> <li>+/- interpreter</li> <li>+/- Allied health etc.</li> </ul> </li> </ul>	
<b>Patient Discharge Education</b>		<b>Outcomes</b>
<b>When to return</b>	<ul style="list-style-type: none"> <li>• Verbal instructions from ED NP</li> <li>• ED written patient information</li> </ul>	Ensure patient understands problem, treatment, follow up and is safe for discharge home
<b>Follow-up Appointments</b>	<ul style="list-style-type: none"> <li>• Advise patients to see LMO within 7 – 10 days for removal of sutures / wound check.</li> <li>• Arrange Plastics out-patient appointment if applicable and issue OPD book</li> </ul>	
<b>Other Referral</b>	<ul style="list-style-type: none"> <li>• As appropriate to allied health team members Referrals may be made for specific patient problems or as required to <ul style="list-style-type: none"> <li>- care coordination</li> <li>- social work</li> <li>- physiotherapy</li> <li>- aboriginal liaison officer</li> <li>- drug and alcohol counsellor</li> </ul> </li> </ul>	



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<b>Medication Education</b>	<ul style="list-style-type: none"> <li>• Verbal instructions from ED NP</li> <li>• Contact ED Pharmacist to provide medication education for patient when available.</li> </ul>	
<b>Wound care</b>	<ul style="list-style-type: none"> <li>• Verbal instruction from ED NP</li> <li>• Dressing supplies if applicable</li> <li>• ED written patient information</li> </ul>	
<b>Certificates</b>	<ul style="list-style-type: none"> <li>• Absence from work certificates</li> <li>• WC certificate</li> </ul>	
<b>Medication</b>		<b>Outcomes</b>
All medication will be stored, labelled and dispensed in accordance with hospital policy and relevant legislation		
<b>Analgesia</b>	See separate Analgesia Clinical Protocol	<p>Patients given analgesia appropriate to allergies, current medications and past medical history</p> <p>Analgesia requirements determined by ongoing assessment of pain and adequate analgesia provided</p>



**Antibiotics** <sup>[2]</sup>

**1. Clean Wounds:** Not routinely used for clean wounds that can be adequately debrided and irrigated within 8 hours:

**di/flucloxacillin** 500 mg orally, 6-hourly for 5 days

**PLUS**

**metronidazole** 400 mg orally, 12-hourly for 5 days.

**Alternately:**

**amoxicillin+clavulanate** 875+125 mg orally, 12-hourly for 5 days.

**For patients hypersensitive to penicillin** (excluding immediate hypersensitivity), replace the di/flucloxacillin with:

**cephalexin** 500 mg orally, 6-hourly for 5 days.

For patients with immediate penicillin hypersensitivity, discuss antimicrobial therapy with an Infectious Diseases Physician / Clinical Microbiologist or Registrar

**2. Contaminated Wounds**

**di/flucloxacillin** 2g IV 6 hrly

**PLUS**

**gentamicin** 5 to 7mg/kg daily (adjust dose for renal function) \*\*\*

**PLUS**

**metronidazole** 500mg IV 12 hrly

**OR**

**ticarcillin+clavulanate** 3+0.1 g IV, 6-hourly.

**Alternately, or for patients with penicillin hypersensitivity** (excluding immediate hypersensitivity), use initially:

**metronidazole** 500mg IV 12 hrly

**PLUS**

**cephazolin** 2g IV 8 hrly

For patients with immediate penicillin hypersensitivity, discuss antimicrobial therapy with an Infectious Diseases Physician / Clinical Microbiologist or Registrar.

**\*\*\*Gentamicin**

**Gentamicin should be avoided** in those patients with a creatinine clearance of <20ml/min, and **used with caution** in patients >75 years of age.

**Dosage individualisation and adjustment in patients with renal dysfunction**

Individualised dosing and frequent laboratory monitoring with dosage adjustment are required if a patient falls in to any of the following groups:

- Patient greater than 75 years of age;
- Serum creatinine greater than 150 micromol/L or creatinine clearance (CrCL)\* < 75 mL/min;
- Patient more than 90 kg or less than 50 kg in weight;
- Patient is predisposed to significant alterations in circulating fluid volume or body water (dehydration, post-surgery, complex case history or situated in a special nursing area: HDA, ICU, CCU, BMTU etc).

**Refer to RPH Pharmacy Fact File or DoseCalc for advice on dosing and monitoring**



### 3. Bites and clenched fist injuries

#### Low risk

Antibiotics may not be necessary for simple wounds not involving tendons or joints that can be adequately debrided and irrigated within 8 hours.

#### High risk

Wounds that are a high risk for infection include:  
Wounds with delayed presentation ( $\geq 8$  hours), puncture wounds that are unable to be debrided adequately.  
Wounds on the face wounds with underlying structures involved (eg bones, joints, tendons) wounds in the immunocompromised patient.

#### Presumptive therapy is necessary; use:

**amoxicillin+clavulanate** 875+125 mg orally, 12-hourly for 5 days.

For patients hypersensitive to penicillin, see 'Established infection' (below).

4. ESTABLISHED INFECTION If obviously infected, a wound swab should be collected.

Delaying primary closure should also be considered.

For severe and penetrating injuries, treatment duration is usually a total of 14 days (IV + oral). Longer therapy is needed for injuries involving bones, joints and/or tendons; consider osteomyelitis or septic arthritis. Use:

**ticarcillin+clavulanate** 3+0.1 g IV, 6-hourly.

**Alternately, or for patients with penicillin hypersensitivity** (excluding immediate hypersensitivity), use initially:

**metronidazole** 500mg IV 12 hrly

**PLUS**

**cephazolin** 2g IV 8 hrly



For patients with immediate penicillin hypersensitivity, discuss antimicrobial therapy with an Infectious Diseases Physician / Clinical Microbiologist or Registrar.

**5. Water-related skin and soft tissue infections**

Patients presenting with a wound infection, cellulitis or sepsis, which may be due to contact with water (eg fishermen, swimmers or aquarium owners), the following organisms may be encountered: *Aeromonas* species (source: fresh or brackish water); *Mycobacterium marinum* (source: fish tanks); *Shewanella putrefaciens*, *Vibrio vulnificus*, *Vibrio alginolyticus* and other noncholera vibrios (source: salt or brackish water).

Treatment of these infections can be difficult, and advice should be sought from a Clinical Microbiologist or an Infectious Diseases physician or registrar



<p><b>Vaccine S4</b></p>	<p><b>Tetanus Immunoglobulin</b> intramuscular Injection</p> <p><b>Adsorbed diphtheria and tetanus toxoids (ADT) 0.5mL</b> intramuscular Injection</p> <p><i>Refer to Australian Immunisation Handbook 8<sup>th</sup> Edition - section on Immunisation for tetanus prone wounds - for dosage regimen (dependent upon previous immunisation status and type of exposure) online @ <a href="http://www1.health.gov.au/immhandbook/">http://www1.health.gov.au/immhandbook/</a></i></p>	
<p><b>Local Analgesia S4</b> [6, 7]</p>	<p><b>Lignocaine 1-2%:</b> Local infiltration <b>Max 3mg/kg</b></p> <p><b>Lignocaine 1% with adrenaline 1:100,000</b></p> <p><b>Ropivacaine 0.75%, max dose not to exceed 300mg (ie 40 ml of 0.75% solution).</b></p>	<p><b>Adrenaline not to be used on extremities, eg nose, ears</b></p> <p><b>Ropivacaine used for longer term local anaesthesia, or when adrenaline contra-indicated.</b></p>

**References**

Reviewed and endorsed by Mr Mark Duncan-Smith  
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**Key to terms**

**CPG**- Clinical Practice Guideline  
**DVA**- Department of Veteran Affairs  
**EP**- Emergency Physician  
**PS**- Pain Score  
**S1-S4**- Schedule of the drug administration act  
**LMO**- Local Medical Officer  
**MVIT** – Motor Vehicle Insurance Trust  
**NP (Emergency)**- Nurse Practitioner – Emergency Services  
**OP**- Outpatients  
**WC**- Work cover

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**By Alan Noonan, A/NP**

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