Clinical Practice Guidelines:
Trauma/Pre-hospital trauma by-pass

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<tr>
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<td>Date</td>
<td>January, 2020</td>
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<tr>
<td>Purpose</td>
<td>To ensure a consistent approach to pre-hospital trauma by-pass.</td>
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<tr>
<td>Scope</td>
<td>Applies to Queensland Ambulance Service (QAS) clinical staff.</td>
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<tr>
<td>Health care setting</td>
<td>Pre-hospital assessment and treatment.</td>
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<tr>
<td>Population</td>
<td>Applies to all ages unless stated otherwise.</td>
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<td>Source of funding</td>
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<tr>
<td>Author</td>
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Pre-hospital trauma by-pass

The trauma by-pass clinical practice guideline is designed to identify trauma patients who require transport to a Major Trauma Service.

Three elements should be considered for the triage of trauma patients in Queensland:

• Vital signs
• Mechanisms of injury
• Patterns of injury

**Vital sign criteria**

<table>
<thead>
<tr>
<th></th>
<th>NEONATE First 28 days</th>
<th>INFANT 1–12 months</th>
<th>CHILD 1–8 years</th>
<th>OLDER CHILD 9–12 years</th>
<th>ADULTS &gt; 14 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conscious state</strong></td>
<td>ALOC</td>
<td>ALOC</td>
<td>ALOC</td>
<td>ALOC</td>
<td>ALOC</td>
</tr>
<tr>
<td><strong>Respiratory rate</strong></td>
<td>&lt; 40 or &gt; 60</td>
<td>&lt; 20 or &gt; 50</td>
<td>&lt; 20 or &gt; 35</td>
<td>&lt; 15 or &gt; 25</td>
<td>&lt; 10 or &gt; 30</td>
</tr>
<tr>
<td><strong>SpO₂ (room air)</strong></td>
<td>&lt; 95%</td>
<td>&lt; 95%</td>
<td>&lt; 95%</td>
<td>&lt; 95%</td>
<td>&lt; 95%</td>
</tr>
<tr>
<td><strong>Heart rate</strong></td>
<td>&lt; 100 or &gt; 170</td>
<td>&lt; 90 or &gt; 170</td>
<td>&lt; 75 or &gt; 130</td>
<td>&lt; 65 or &gt; 120</td>
<td>&gt; 120</td>
</tr>
<tr>
<td><strong>Systolic BP</strong></td>
<td>N/A</td>
<td>&lt; 60 mmHg</td>
<td>&lt; 70 mmHg</td>
<td>&lt; 80 mmHg</td>
<td>&lt; 90 mmHg</td>
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</tbody>
</table>

Table 1: Abnormal vital signs

**Mechanism of injury criteria**

Triage by mechanism of injury has limited accuracy, however it may help detect significant occult injury.

*High-risk mechanisms include:*

- Ejected from vehicle
- Fall from height ≥ 3 metres
- Involved in an explosion
- Involved in a high impact RTC with incursion into the occupant’s compartment
- Involved in a vehicle rollover
- Involved in an RTC in which there was a fatality in the same vehicle
- Entrapped for > 30 minutes
Clinical features (cont.)

• If a Major Trauma Service is > 45 minutes road transport time, the patient should be transported to the highest hospital level Regional Trauma Service if there is one within 45 minute road transport time.

• If the nearest Regional Trauma Service is > 45 minutes road transport time the patient is to be taken to the closest local hospital. Under these circumstances the Retrieval Services Queensland (RSQ) must be notified via the appropriate OpCen to ensure consideration for early secondary transport.

• If any of the mechanisms of injury criteria are present, paramedics are to take into account the potential for occult major trauma and consider transporting the patient as per the above procedure.

• If none of the triage criteria are met, the patient should be transported to the nearest appropriate facility.

SPECIAL NOTE: If a Major Trauma Service is within 45 minutes road transport time, it should be the preferred destination if the patient fits the criteria as stated above – even if this means bypassing a Regional Trauma Service which may be closer.

Injury pattern criteria

- Injuries to the head, neck, chest, abdomen, pelvis, axilla, or groin that:
  - are penetrating
  - sustained from blasts
  - involve two or more of those regions
- Limb amputation above the wrist or ankle.
- Suspected spinal cord injuries.
- Burns in adults > 20%, or in children > 10%, or other complicated burn injury including burn injury to the hand, face, genitals, airway, or respiratory tract.
- Serious crush injury.
- Major open fracture, or open dislocation with vascular compromise.
- Fractured pelvis.
- Fractures involving two or more of the following: femur, tibia, or humerus.

Clinical features

Procedure:

• If any of the vital signs criteria or patterns of injury criteria are present, the patient should be transported to a Major Trauma Service if there is one within 45 minutes road transport time.
Clinical features (cont.)

Transporting patients directly to specialist facilities

- Patients with the following injuries should be transported directly to the appropriate facilities offering specialist services, providing it is within 45 minutes road transport time:
  - Adults with > 20% body surface area or complicated burns to the Royal Brisbane and Women’s Hospital.
  - Children with > 10% body surface area or complicated burns to the Queensland Children’s Hospital.
  - Patients with spinal injuries with neurological deficit to the Princess Alexandra Hospital.
  - Patients with amputations to a major trauma service.

Additional information

Major trauma services are provided at:

- Gold Coast University Hospital
- Queensland Children’s Hospital
- Princess Alexandra Hospital
- Royal Brisbane & Women’s Hospital
- The Townsville University Hospital

Regional trauma services are provided at:

- Bundaberg Hospital
- Caboolture Hospital
- Cairns Hospital
- Hervey Bay Hospital
- Ipswich Hospital
- Logan Hospital
- Mackay Base Hospital
- Mater Hospital Brisbane
- Mt Isa Hospital
- Redcliffe Hospital
- Rockhampton Hospital
- Sunshine Coast University Hospital
- The Tweed Hospital (New South Wales)
- Toowoomba Hospital
SPECIAL NOTE:

Use of retrieval team [3]

Paramedics should consider the use of a medical retrieval team for patients who are trapped and/or require interventions beyond the scope of the treating paramedics.

Pre-hospital medical retrieval teams should not unnecessarily delay the transport of the patient to a definitive treatment medical facility. Refer to local work instructions regarding the availability of pre-hospital medical retrieval teams.

Traumatic cardiac arrest

If the patient has life-threatening injuries and suffers a cardiac arrest immediately before or during transport, the patient should be transported to a Major Trauma Service if within 15 minutes road transport time. If transport time to a Major Trauma Service is > 15 minutes, consider transport to the nearest appropriate hospital.

Note: Clinicians are only to perform procedures for which they have received specific training and authorisation by the QAS.