PAEDIATRIC ACUTE CARE GUIDELINE	
Abdominal Trauma	
Scope (Staff):	All Emergency Department Clinicians
Scope (Area):	Emergency Department

This document should be read in conjunction with this DISCLAIMER
http://kidshealthwa.com/about/disclaimer/

Abdominal Trauma

Background

- Trauma / serious injury is a leading cause of death in children in Australia.
- Early ABC interventions improve morbidity and mortality secondary to major trauma.

Risk

Failure to follow this guideline may lead to delayed diagnosis or misdiagnosis of life threatening injuries.

Key Points

- Children can sustain significant internal abdominal injury despite minimal signs of external trauma.
- Persistent tachycardia may be the only clue to intra-abdominal haemorrhage in the child without an overt source of bleeding.
- Pelvic fracture is a marker of severe injury; there is often associated head, abdominal and/or chest trauma.
- CT scan of the abdomen is the investigation of choice in stable children with abdominal trauma.
- The management of major abdominal / pelvic trauma requires a team approach; early liaison with a paediatric surgeon and paediatric tertiary centre is vital.

Initial stabilization of child with abdominal trauma

Primary survey (see Serious Injury guideline)

- A – Airway with C-spine support
- B – Breathing +/- ventilatory support
- C – Circulation and haemorrhage control

Analgesia should be initiated early and titrated to effect.

Vital signs

- HR, BP, RR, SaO2, and peripheral perfusion.
- The **trend** and response to fluid therapy will reflect haemodynamic stability.

Secondary survey

- Includes examination of the abdomen, back, pelvis, genitalia and rectum.

Examination of the abdomen

- Aim to exclude tenderness, rebound, guarding or rigidity (which will require evaluation by a surgeon and a CT scan).
- In children with significant pain, carefully titrating parenteral opiates will decrease distress and allow a more accurate clinical assessment.
- In the intubated child with possible intra-abdominal injury, the value of clinical examination is limited and these children will require a CT scan of the abdomen.
- In major trauma, rectal examination should be performed, assessing:
    - Rectal tone (for possible spinal injury)
    - Check for blood and prostate position

Investigations

Pathology

Group and Hold (or full cross-match), FBC, electrolytes, LFT's, lipase, coagulation screen and blood glucose.

Imaging

- **Trauma series** in resuscitation room (chest, pelvis and lateral cervical spine), when indicated. Thoracic and lumbar spine may be indicated, based on mechanism or clinical findings.
- **CT Scan** Investigation of choice in STABLE CHILDREN with abdominal trauma.
- **Focussed Assessment by Sonography for Trauma (FAST)**
    - Detection of free fluid at the bedside.
    - Limited as operator dependent and only performed by clinicians with appropriate

training.
    - Does not alter need for CT scan
- **Formal Ultrasound**
    - Little role, except when CT scan is unavailable.

Management of child with significant abdominal trauma

- High flow oxygen.
- Vascular access x 2.
- If signs of shock or uncontrolled bleeding:
    - Tranexamic acid
    - Fluids:
        - Intravascular bolus of 10mL/kg crystalloid (normal saline) or blood
        - Repeat 10ml/kg if still shocked
        - If ongoing volume resuscitation with blood product is required beyond 20ml/kg consider activating massive transfusion protocol.

Consider:

- Nasogastric tube: to decompress the stomach. May also detect blood in the stomach. (Orogastric if concern for base of skull fracture)
- Urinary catheter: to monitor fluid resuscitation and to look for haematuria. If a urethral injury is suspected (see below), seek surgical advice before insertion.

Contraindications to urethral catheterisation following trauma:
The following features suggest urethral disruption, which needs to be excluded by retrograde urethrogram / cystogram before catheterisation can be safely performed:
- Perineal haematoma or bruising (including scrotum / labia).
- Blood at the urethral meatus.
- A high-riding prostate on rectal examination.
- Unstable pelvic fracture.
- Inability to void (in a conscious patient).

- Ongoing management is dictated by the haemodynamic response of the child to fluid resuscitation. CT scan may not be possible in a very small number of exsanguinating children with deteriorating vital signs despite fluid resuscitation. In this situation, early surgical consultation regarding urgent laparotomy is required.

Penetrating Trauma

- Usually requires exploration by laparoscopy or laparotomy.
- Remember to log roll the patient and examine the back to exclude other injuries and exit wounds.
- An erect AXR or lateral decubitus film may indicate the presence of free air.

Pelvic Fractures

- A child with a fractured pelvis has been exposed to severe trauma.
- Major differences to adult pelvic fractures:
    - Greater energy is required to cause fracture.
    - Avulsion fractures.
    - Single fractures.
- Presence of a pelvic fracture suggests associated injuries – other skeletal, head, abdominal and pulmonary injuries. The management of these usually takes priority over the pelvic fracture management.
- Bladder injury can occur with straddle 'fall-astride' type mechanism.
- Vascular injury and exsanguination in children is rare.
- A pelvic binder should be used for all suspected pelvic fractures.

Disposition

1. All children with a significant abdominal or pelvic injury will require admission under an appropriate surgical unit.
2. Children with significant ongoing abdominal pain following trauma should not be discharged, regardless of negative imaging results. CT Scan is not 100% sensitive for all intra-abdominal injuries.
3. Visible abdominal wall bruising increases the risk of serious intra-abdominal injury and requires a surgical opinion and often admission for serial clinical examination of the abdomen.
4. A "handlebar" mechanism of upper abdominal injury poses a significant risk of intra-abdominal (particularly duodenal) injury and should therefore lower the threshold for surgical referral and admission.
5. Young children with a significant mechanism of injury but who are apparently injury free or have only minor injuries should be considered for observation (12-24 hours) under the appropriate surgical unit.
6. Parents of discharged children should be given clear instructions to return should a child's condition change.

Tags

abdomen, abdominal, blood, FAST, haemorrhage, liver, shock, spleen, transfusion, trauma

This document can be made available in alternative formats on request for a person with a disability.

File Path:	
Document Owner:	Dr Meredith Borland HoD, PMH Emergency Department

Reviewer / Team:	Kids Health WA Guidelines Team		
Date First Issued:	20 August, 2013	Version:	
Last Reviewed:	23 November, 2017	Review Date:	23 November, 2020
Approved by:	Dr Meredith Borland	Date:	23 November, 2017
Endorsed by:	Medical Advisory Committee	Date:	23 November, 2017
Standards Applicable:	NSQHS Standards: 		
Printed or personally saved electronic copies of this document are considered uncontrolled			