Objectives

- Provide an overview of ‘RED FLAGS’ in both presenting history and physical assessment that are predictive of potential serious illness or injury in children

- Discuss clinical features and risk factors related to:
  - The Injured Child
  - The Sick Child
The first section will relate to aspects of mechanism of injury and the susceptibility of the paediatric patient to deterioration.

Emphasise the need to assess and be vigilant in risk of non accidental injury in all injury presentation.

Discuss escalation of concern and detailed risk assessment.
Refer to local trauma call criteria
Discuss speed and force in relation to size
Discuss seatbelts, helmets and associated injuries: abdo, chest, C-spine etc
Discuss:
Importance assessing risk of damage to underlying structures
Leaving insitu until appropriate investigations
Importance of protection from further injury or damage
Importance of reassurance and explanation for child and carers
Note bottom left – running and fell on pencil. Discuss potential organ injury. FB located millimetres from pericardium
Discuss inquisitive nature of kids and inability to assess risk or consequences. Need for competent adult supervision
Consider risk of poisoning when presented with unusual signs or symptoms
Seek expert advice early: discuss decline in use of emetics and charcoal
Monitor and/or detox as recommended
Seek advice early – Poison Centre

Copious irrigation is most commonly recommended with a few exceptions
Discuss the more concerning presentations relevant to local area e.g. Snakes, spiders, ticks, sea creatures etc
Discuss monitoring
Discuss snake venom detection kits and recommendation NOT to wash bite site
Discuss anti venom risks and benefits as appropriate
Discuss delay in onset of respiratory distress after immersion injury and the need for a prolonged period of close observation and monitoring even in children who initially appear well
Discuss risks post electrocution: entry and exit wounds, muscle and cardiac damage, U/A (blood) and urine output
Discuss why we see few these days – safety switches
Discuss above. Refer to Eye Emergency Manual
Discuss importance of pain relief in order to prevent further injury; amethocaine eye drop ONLY when penetrating injury can be safely excluded
Eye irrigation
Do not pry open swollen lids
Refer to SBIS burn transfer guidelines

Emphasise the importance of timely first aid – cooling for 20 minutes in the first 3 hours and pain relief

Severe burns in children > 10% and the implications for care and transfer, NETS and Children’s Hospital Westmead

Photo transmission/consent for advice
Discuss and refer to Paed Clinical Practice Guideline on acute head injury 2011
Red Flags - Illness
Discuss meningococcal sepsis and potential for rapid decline
Discuss other potential causes including:
  Regional distribution – vomiting, cough, strain, hanging from play equipment
  Generalised: Henoch Schonlein Purpura – post viral vasculitis causing micro bleeds
    Idiopathic Thrombocytopenic Purpura – platelet deficiency of unknown cause. May be acute or chronic.
    Beware of other signs of internal bleeding such as intra-abdo or intra-cranial
  Aplastic anaemia or other oncology conditions
Drugs most commonly ibuprofen which interferes with platelets
Note posture, level of consciousness and rash
Child asleep and fully clothed in stroller at triage, came to ED from nearby cafe – occasional irritable moan/whimper.
Checked by CIN pre triage who checked for neck stiffness. The red flag was the quality of the cry/voice sounds and irritability
Triaged in acute, undressed – just a couple of small petechiae on legs, stiff neck, reduced loc, irritable on exam
This photo taken < 1 hr post presentation
History-unwell for 2-3 days with mid range fever and off food.
Mum and grandma not overly concerned as mum’s sister had had meningococcal and was OK!
3 month old infant within 12 hrs of presentation: discuss shock, acidosis, coagulopathy, heat regulation in severe sepsis
Note gross oedema of abdo and hands/feet - necrosis
Significant fluid requirements due to shifts and third spacing
Leakage of albumin and serum proteins through leaky vasculature
Toxins
Inotropes
DEFG – Don't Ever Forget the Gonads especially when child presents with lower abdo or pelvic pain

Torsion is the red flag testicular condition. Note ‘horse riders’ gait on presentation

May twist up to 4 times. Cause: failure of embryological developmental attachments.

Peak incidence 9-13 but can occur any time.

Sometimes delayed due to reluctance by child to report

Often present with referred lower abdo pain

Venous engorgement, hypoxia, ischaemia may occur within hours

Sympathetic immunological effect on opposite testicle is not uncommon and may lead to infertility

Other causes of pain may include epididymitis, orchitis, torted appendage however early assessment necessary to establish diagnosis and time critical interventions
Discuss:

Bile:- possible obstruction. Even severe constipation may present as a bowel obstruction


Delayed presentation may mean a sick, wasted acidic or alkalotic infant with severe fluid and electrolyte disturbance that must be corrected preoperatively. Obs and monitoring. Resus

Jaundice: may be physiological if < 7-10 days. Persistent jaundice may be related to congenital defects in structures or metabolism, toxicity, infection or other serious underlying problems.

Jaundice in older infants and children may be related to toxic overdose or infections some of which may require isolation.

Pain assessment and observation of pain pattern essential – commence a ‘cry chart’ during observation period
May be related to sepsis, coagulopathy, protracted illness or inflammatory processes eg GORD.
May flag deterioration
Note also dislodged gastrostomy devices and the need for urgent reinsertion of equivalent gauge foley or nelaton catheter to maintain open tract and reduce the need for painful reinsertion/dilation procedures and maintain fluids, nutrition or medication
What disorder is related to this presentation? Why and how?
Discussion points
Peak age
Course of illness progression
Treatment
Risk of recurrence
Hypo glycaemia discussed in Recognition of sick child
Discuss Hyperglycaemia / DKA: polyuria, polydypsia, ketotic breath, dehydration, confusion, reduced level of consciousness/confusion, muscle weakness.
Urgent intervention for extremes of BSL
Discuss generalised allergic response vs anaphylaxis Refer to ASCIA website
Discuss sign and symptoms and indications for urgent intervention
Beware of cough or wheeze related to allergen exposure
Beware of face or lip/oral swelling
Anaphylaxis treatment: IM adrenaline 0.01mL/kg
Education pre discharge
Discuss the importance of indicators such as poor feeding or drowsiness in neonates and infants even when normothermic

Discuss risk of rapid deterioration in neonates and infants under 3 months, immature immune system and low reserves

Discuss increased risk of bacteraemia in high fever

Discuss hypothermia as risk factor in sepsis especially the very young

Discuss the importance of obtaining ‘clean’ urine specimen in unwell infants
Red Flags - Co-morbidities

- Prematurity
- Congenital disease
- Chronic illness
- Complex history
- Immunocompromised
- Substance abuse
- Recent admission

Discuss each for relevance
More Red Flags

• Preceding Events
  - Apnoea or cyanosis
  - Seizure
  - < half normal intake/output

• Social risk
  - Victim of violence
  - Sexual assault
  - Child at risk
Pain

Unremitting or worsening pain despite interventions
Refer to Mental Health CIN Education module

Discuss the importance of calm non threatening approach and listening skills – non-confrontational

Maintain personal space and safety; never turn your back

Children / Adolescents with mental health presentations should not be left alone in waiting rooms

Seek assistance

Mental Health Red Flags

• Aggressive or threatening behaviour / use of a weapon
• Delusions or hallucinations with a violent content
• Impulsive behaviours or absconding
• Drug or alcohol intoxication
• Self harm or suicide risk
• Missed physical cause associated with mental health problem
Risk Management

- Recognition of infectious risk and need for isolation measures

Be aware of local and NSW Health policies in regards to infectious illnesses, isolation, PPE
Revise paediatric infectious diseases, incubation periods, contact periods and exclusion criteria as relevant
Finally...

Parental concern

Take IMMEDIATE action!

Reassess Reassure Refer
References and Acknowledgements

References

- Recognition of a Sick Child or Infant, 2nd edition, Clinical Practice Guidelines, NSW Health 2011
- Emergency Triage Education Toolkit – Commonwealth Department of Health and Aging, 2007
- Pediatric Trauma Patient: P. Maloney-Harmon & S. Czerwinski (ed), Saunders, 2003
- Images: downloaded from ‘Google Images’ and Sydney Children’s Hospital photo library

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