

Queensland
Trauma Education

CHEST TRAUMA

Penetrating chest trauma

Immersive scenario

Participant resource kit

CSDS



Clinical Skills Development Service

Metro North
Health



Queensland
Government

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Queensland Trauma Education**Chest trauma - Penetrating chest trauma: Immersive scenario - Participant resource kit
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Queensland Trauma Education

The resources developed for Queensland Trauma Education are designed for use in any Queensland Health facility that cares for patients who have been injured as a result of trauma. Each resource can be modified by the facilitator and scaled to the learners needs as well as the environment in which the education is being delivered, from tertiary to rural and remote facilities.

National Safety and Quality Health Service (NSQHS) Standards



About this training resource kit

This resource kit provides healthcare workers with the skills to assess and manage low velocity penetrating chest wall trauma.

Learning objectives

By the end of this session the participant will be able to:

- Demonstrate the assessment of a trauma patient with penetrating chest injuries.
- Identify the need for escalation of decompression strategy in penetrating chest wall trauma.
- Recognise and effectively manage a patient with immediately life-threatening penetrating chest trauma.

Supporting resources

- Structured assessment in trauma - infographic poster.

Overview of penetrating chest trauma

Chest trauma is the second most common traumatic injury in non-intentional trauma.⁽¹⁾ Trauma to the chest is associated with the highest mortality; in some studies, up to 60% depending on the mechanism of injury.⁽²⁾ While penetrating chest trauma is less common than blunt trauma, it can be more deadly. Penetrating chest trauma admissions account for 1-13% of all trauma admissions.⁽³⁾

Knowledge of likely sequelae of injury patterns are key factors for assessment, management and patient survival.

Further reading

Ludwig, C., & Koryllos, A. (2017). Management of chest trauma. *Journal of thoracic disease*, 9(Suppl 3), S172–S177. <https://doi.org/10.21037/jtd.2017.03.52>

Mumtaz, U., Zahur, Z., Raza, M. A., & Mumtaz, M. (2017). Ultrasound And Supine Chest Radiograph In Road Traffic Accident Patients: A Reliable And Convenient Way To Diagnose Pleural Effusion. *Journal of Ayub Medical College, Abbottabad : JAMC*, 29(4), 587–590.

Karmy-Jones, R., Namias, N., Coimbra, R., Moore, E. E., Schreiber, M., McIntyre, R., Jr, Croce, M., Livingston, D. H., Sperry, J. L., Malhotra, A. K., & Biffl, W. L. (2014). Western Trauma Association critical decisions in trauma: penetrating chest trauma. *The journal of trauma and acute care surgery*, 77(6), 994–1002. <https://doi.org/10.1097/TA.0000000000000426>

QAS Clinical Practice Guidelines: Trauma/chest injuries
https://www.ambulance.qld.gov.au/docs/clinical/cpg/CPG_Chest%20injuries.pdf

Primary Clinical Care Manual, 10th edition 2019, Section 3: Emergency – Chest, p. 171
<https://www.publications.qld.gov.au/dataset/primary-clinical-care-manual-10th-edition>

ANZCOR Guideline 11.10.1- Management of Cardiac Arrest due to Trauma
<https://resus.org.au/guidelines/>

CHEST TRAUMA

Structured assessment in trauma

Primary survey

- A Airway/C-spine**
Rapidly assess, maintain or secure airway and C-spine.
Life threats
Airway obstruction, Blunt/penetrating neck injury.
- B Breathing/Ventilation**
Rapidly assess, support ventilation/oxygenation.
Life threats
Tension pneumothorax, Massive haemothorax, Open pneumothorax
Flail chest, Ruptured diaphragm.
- C Circulation with Haemorrhage control**
Rapidly control, assess and support haemodynamics.
Life threats
Exsanguinating external haemorrhage, Cardiac tamponade,
Penetrating cardiac injury.
- D Disability**
Rapidly assess and protect neurological status.
Life threats
Catastrophic cerebral haemorrhage.
- E Exposure**
Expose patient, assess for further injuries,
maintain normothermia.

Acronyms and abbreviations

(E) FAST scan	(Extended) Focussed Assessment with Sonography in Trauma
FBE	full blood examination
ICC	intercostal catheter
ICS	intercostal space
JVP	jugular venous pressure
LHS	left hand side
NRB	non-rebreather mask
PCO2	partial pressure of carbon dioxide
PO2	partial pressure of oxygen

References

1. Ludwig, C. and Koryllos, A. (2017) Management of chest trauma. *Journal of Thoracic Disease*, 9(S3), pp.S172-S177.
2. Mumtaz U, Zahur Z, Raza MA, Mumtaz M. (2017) Ultrasound and Supine Chest Radiograph In Road Traffic Accident Patients: A Reliable And Convenient Way To Diagnose Pleural Effusion. *Journal of Ayub Medical College*, 29(4):587-590.
3. Karmy-Jones, R., Namias, N., Coimbra, R., Moore, E., Schreiber, M., McIntyre, R., Croce, M., Livingston, D., Sperry, J., Malhotra, A. and Biffi, W. (2014) Western Trauma Association Critical Decisions in Trauma. *Journal of Trauma and Acute Care Surgery*, 77(6), pp.994-1002.
4. Australian Resuscitation Council (2016, April). *ANZCOR Guideline 11.10.1 Management of Cardiac Arrest due to Trauma*. <https://resus.org.au/guidelines/>
5. Clinical Quality & Patient Safety Unit, QAS. (2019, January) *Clinical Practice Guidelines: Trauma/Chest injuries*. Queensland Government. <https://ambulance.qld.gov.au/clinical.html>
6. Queensland Government (2020, May 19). *Primary Clinical Care Manual - 10th edition, Section 3: Emergency – Chest*, p.171. <https://www.publications.qld.gov.au/dataset/primary-clinical-care-manual-10th-edition>

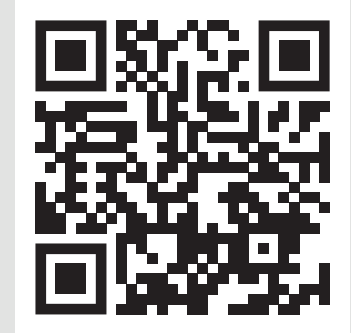
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