



Queensland
Trauma Education

TRAUMA AND THE OLDER PERSON

Traumatic brain injury

Immersive scenario

Participant resource kit

CSDS



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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.

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Queensland Trauma Education

Trauma and the Older Person – Traumatic brain injury: Immersive scenario – Participant resource kit, Version 1.0

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About this training resource kit

This resource kit provides healthcare workers with the knowledge and skills for the assessment and management of traumatic brain injury in the geriatric population.

National Safety and Quality Health Service (NSQHS) Standards



Learning objectives

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

- Perform a structured assessment and recognise severe traumatic brain injury (TBI).
- Implement neuroprotective management strategies and perform anticoagulant reversal.

Supporting resources

- Primary survey: Structured assessment in trauma - infographic
- Specific management

Overview of traumatic brain injury

Traumatic brain injury (TBI) is a common cause for emergency department presentation in the over 65yr age group. Falls are the leading cause for TBI presentations in older adults, with traffic and motor vehicle related trauma less common (51 vs 9%).¹ Diagnosis of TBI is more challenging in this cohort, as demonstrated in one study 17% of older adults with TBI and a normal neurological examination were found to have an acute intracranial injury on CT brain.² In addition, older adults with co-morbidities generally have a higher morbidity and mortality, with more complications and worse functional recovery than younger patients.³

Anticoagulant therapy, in particular warfarin and the DOACs, pose additional challenges in this cohort with poor prognosis from neurocritical bleeding (50% mortality).⁴

Further reading

Traumatic brain injury in older adults: do we need a different approach?	
Publication	Future Medicine
Link	https://doi.org/10.2217/cnc-2018-0001

Traumatic brain injury—the effects of patient age on treatment intensity and mortality	
Publication	BMC Neurology
Link	https://doi.org/10.1186/s12883-020-01943-6

Mild head trauma in elderly patients: experience of an emergency department	
Publication	Heliyon
Link	https://doi.org/10.1016/j.heliyon.2020.e04226

Reversal of warfarin anticoagulation in geriatric traumatic brain injury due to ground-level falls	
Publication	Trauma Surg Acute Care Open
Link	https://doi.org/10.1136/tsaco-2019-000352

Management of bleeding and/or over coagulation	
Organisation	Therapeutic Guidelines
Link	https://tgldcdp.tg.org.au/viewTopic?topicfile=anticoagulant-therapy&sectionId=cvg7-c31-s15#tcvg7-c31-tbl4 (requires log in)

Clinical guidelines

Non-vitamin K Antagonist Oral Anticoagulant (NOAC) Guidelines	
Organisation	Clinical Excellence Commission, NSW Health
Link	https://www.cec.health.nsw.gov.au/_data/assets/pdf_file/0007/326419/noac_guidelines.pdf

Managing patients on dabigatran (Pradaxa®)	
Organisation	Queensland Health
Link	https://www.health.qld.gov.au/_data/assets/pdf_file/0029/443666/dabigatran-info.pdf

Guideline for managing patients on a factor Xa inhibitor –Apixaban (Eliquis®) or Rivaroxaban (Xarelto®)	
Organisation	Queensland Health
Link	https://www.health.qld.gov.au/_data/assets/pdf_file/0026/147662/qh-gdl-950.pdf

Guidelines for Anticoagulation using Warfarin – Adult	
Organisation	Queensland Health
Link	https://qheps.health.qld.gov.au/_data/assets/pdf_file/0033/1797702/warfarin.pdf

Clinical decision-making tool

Closed Head Injury (Adult) Clinical Pathway	
Organisation	Queensland Health
Link	https://qheps.health.qld.gov.au/_data/assets/pdf_file/0026/2158307/SW214.pdf

PRIMARY SURVEY

Structured assessment in trauma

C

Catastrophic haemorrhage

Rapidly assess, control haemorrhage

Immediate management: Application of direct pressure, consider tourniquet application, do not remove penetrating foreign objects, initiate large bore IV access and rapid fluid resuscitation.

Life threats: Exsanguinating external haemorrhage, blunt/penetrating thoracic and/or abdominal injury.

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

Specific management

1. Institution of neuroprotective measures for traumatic brain injury.
2. Reversal of anti-coagulant therapy in life threatening haemorrhage.

Acronyms and abbreviations

Term	Definition
TBI	traumatic brain injury
VKA	vitamin K antagonist
DOAC	direct oral anticoagulant
RSI	rapid sequence induction
INR	international normalised ratio
PT	prothrombin time
TT	thrombin time
aPTT	activated partial thromboplastin time
ECT	ecarin clotting time

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