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*The content of this Training Module is subject to changes when it is deemed necessary to do so base on the feedback from the target users.

INTRODUCTION

The Clinical Practice Guidelines Early (CPG) Management of Head Injury in Adults was published in 2015. A Quick Reference (QR) and a Training Module (TM) are developed to increase the utilisation of these CPG. This TM has been developed by the members of Development Group of the CPG. The content of the TM are extracted from the main CPG. It may be reproduced and used for educational purposes but must not be used for commercial purposes or product marketing.

OBJECTIVES

- To actively disseminate and train healthcare providers to practice on what have been recommended in the main CPG. It may also be used for educational purpose in the early management of head injury in adults in any healthcare settings in Malaysia.

- To assist the 'trainers' in delivering all components related to the implementation of the CPG systematically and effectively.

TARGET USERS

All healthcare providers involved in the early management of adult patients with head injury in primary, secondary and tertiary healthcare settings

This document contains a Training Module booklet and a CD-ROM on:

- Introduction, objectives, target users, authors and instructions for use
- Proposed training programme/schedule
- Test questionnaire
- 9 lectures (in **PPT**)
- 4 case discussions (in **PPT**)

TRAINING THE CORE TRAINERS ON CLINICAL PRACTICE GUIDELINES (CPG)
EARLY MANAGEMENT OF HEAD INJURY IN ADULTS

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INSTRUCTIONS FOR USE

This Training Module consists of:

i. Lecture - nine sections
ii. Case discussions - four sections
iii. Training programme/schedule
iv. Test questionnaire

(A booklet and a CD on this Training Module are enclosed together)

The training may be conducted in one day consisting of two parts. In part 1, didactic lectures are delivered to the whole group of training participants to inculcate the understanding on the early management of head injury in adults. In Part 2, participants are grouped into smaller groups to deliberate on cases of early management of head injury with assigned facilitators. In both parts, there should be active participation from the training participants for effective learning.

The test questionnaire must be given to the training participants before the training session starts (pre-test) and after it ends (post-test). The pre-test is to assess the level of knowledge and understanding of training participants in the early management of head injury in adults. The post-test is to ascertain the increase in the training participants' knowledge after attending the training session.

Should the trainers have any queries, kindly forward to htamalaysia@moh.gov.my

TRAINING SCHEDULE

TIME	ACTIVITY	LECTURER/ FACILITATOR
1st Day (18 July 2016)		
1300 - 1400	**Registration**	Secretariat
1400 - 1430	**Welcome Address, Pre-test MCQ & Implementing the Guidelines**	Dr. Amin
1430 - 1445	**Definition, Classification & Differential Diagnoses**	Mr. Liew
1445 - 1515	**Pre-Hospital Care/Management**	Dr. Zainab/ Dr. Jalil
1515 - 1545	**Management in Emergency Department**	Dr. Cecilia/ Dr. Nik
1545 - 1615	**Case Discussion 1 (PHC)**	Dr. Jalil/ Dr. Zainab
1615 - 1630	**GCS Assessment**	Mr. Clement/ Mr. Sofan/ Dr. Cecilia
1630 - 1700	**Case Discussion 2 (ED)**	Dr. Nik/ Dr. Cecilia
1700 - 1715	**EVENING TEA**	
2nd Day (19 July 2016)		
0800 - 0830	**Referral & Safe Transfer**	Mr. Sofan
0830 - 0900	**Imaging in Head Injury**	Mr. Tony/ Dr. Zarina
0900 - 1000	**Medication in Head Injury**	Pn. Norsima
1000 - 1030	**Special Considerations**	Mr. Das/ Dr. Vanitha
1030 - 1100	**Tele-consultation Discharge Advice & Follow-Up**	Mr. Gee/ Mr. Clement
1030 - 1045	**MORNING TEA**	
1045 - 1115	**Case Discussion 3 (Imaging & Referral)**	Mr. Tony/ Dr. Zarina/ Mr. Sofan
1115 - 1145	**Case Discussion 4 (Special Considerations)**	Dr. Vanitha/ Mr. Andre Das
1145 - 1215	**Post-course MCQ**	Mr. Liew
1215 - 1230	**Discussion, Course Evaluation & Closing**	Mr. Liew/ Dr. Amin
1230 - 1300	**LUNCH & END**	

Answer all questions by circling the right answers.

No.	Question	Answer	
		True	False
1.	**Following statements are regarding head injury (HI):**		
	a. HI is defined as blunt and/or penetrating injury to the head (above the neck) and/or brain due to internal force with temporary or permanent impairment in brain function.	T	F
	b. To define HI, three criteria must be present, namely mechanism, anatomical and physiological.	T	F
	c. Normal computed tomography (CT) scan brain excludes all form of HI.	T	F
	d. A 21 years old gentleman involved in a road traffic accident and sustained HI. Upon examination, he opens his eyes to call, disorientated to time, place and person but obey to follow simple commands. His Glasgow Coma Scale (GCS) score is 12/15.	T	F
	e. Haemorrhagic stroke without history of recent trauma is one of the differential diagnoses for adults presenting with altered consciousness.	T	F
2.	**An ambulance call received from the public regarding a 30-years-old motorcyclist who is found unconscious in the drain with swelling on his forehead.**		
	a. On assessment, eyes open to painful stimuli, incomprehensible speech and localises to painful stimuli. He sustains mild head injury (MHI) with GCS 12/15.	T	F
	b. Immobilisation with cervical collar is compulsory.	T	F
	c. Oxygen supplementation should not be given to prevent oxygen toxicity.	T	F
	d. Patient should be intubated at scene when SpO_2 ranges from 90 - 95% on nasal prong.	T	F
	e. Intravenous normal saline may be given if blood pressure (BP) <90/60 mmHg.	T	F

No.	Question	Answer	
		True	False
3.	**Regarding management of MHI in emergency department (ED):**		
	a. The sum of GCS 15/15 is a sufficient documentation.	T	F
	b. The risk of rapid deterioration is high during the first 6 hours.	T	F
	c. Patient should be triage to yellow zone in the presence of pelvic fracture.	T	F
	d. Low risk patient can be discharged home safely without observation to be taken care by a reliable caregiver.	T	F
	e. Patient should be admitted to surgical ward if worrying signs is presence after 6 hours of observation.	T	F
4.	**Which of the following statements are true?**		
	a. Airway, cervical spine, breathing and circulation should be examined before assessment of HI is performed.	T	F
	b. Head chart monitoring includes serial GCS, BP, pulse rate, pupil size and reaction.	T	F
	c. It is safe to observe patient >65 years old without CT scan in ED.	T	F
	d. Verbal advice is sufficient while discharging patient with MHI.	T	F
	e. After 6 hours of observation in ED, all patients with MHI can be discharged home.	T	F
5.	**Regarding pharmacological treatment in MHI:**		
	a. Non-steroidal anti-inflammatory drugs are absolute contraindication in MHI patients.	T	F
	b. Barbiturate therapy increases occurrence of hypotension.	T	F
	c. Isotonic crystalloid is the preferred choice of fluid in HI.	T	F
	d. Levetiracetam shows significant advantage compared to phenytoin in post-traumatic seizure patients.	T	F

No.	Question	Answer	
		True	False
	e. Naloxone may be used as opioid reversal in HI.	T	F
6.	**A 45-years-old man, on clopidogrel for primary prevention of ischaemic heart disease, had a bicycle accident with loss of consciousness (LOC) for about 2 minutes. He walked into the ED 5 hours after the accident. He had no complains or symptoms including amnesia or vomiting. On assessment, he had a GCS of 15/15 with no injuries anywhere. The appropriate management includes:**		
	a. He can be allowed home after observing for 6 hours in either the ED or the ward if his GCS has not changed.	T	F
	b. He should have a CT scan done although his GCS is 15/15 and asymptomatic.	T	F
	c. A discussion should be carried out with his physician and surgeon on whether he needs any special treatment to reverse the effect of clopidogrel.	T	F
	d. Defer surgery on any compound fracture to at least 24 hours.	T	F
	e. If he is intubated due to intoxication and restlessness, extubation can be performed after a CT scan based solely on improvement in his GCS and a negative CT scan.	T	F
7.	**A 17-years-old gentleman, who is involved in motor vehicle accident (MVA) with GCS 13/15 and deformed right lower limb, is being transferred from a district hospital without specialist to a neurosurgical centre. Safe transfer of this patient includes**:		
	a. Hypotension and hypoxia should be prevented to avoid secondary brain injury.	T	F
	b. Delay in transferring patient for X-ray of deformed limbs with MHI is associated with increased morbidity.	T	F
	c. All blood investigations must be ready prior to transfer.	T	F
	d. Transfer checklist should be completed prior to transfer.	T	F
	e. A copy of the summary and transfer record should be kept in	T	F

No.	Question	Answer	
		True	False
	the referring hospital for audit purposes.		
8.	**With regards to cervical imaging in HI:**		
	a. Canadian c-spine rule (CCR) is not applicable for GCS <15.	T	F
	b. NEXUS low risk criteria incorporates mechanism of injury to determine the need for radiographic evaluation of cervical spine.	T	F
	c. For adults who have sustained a HI and other body areas scanned for multi-region trauma, CT cervical should be performed at the same setting.	T	F
	d. One of high risk factors for cervical spine injury in CCR is age >65 years.	T	F
	e. CT head perfomed for retrograde amnesia should include CT cervical.	T	F
9.	**Regarding head CT in HI:**		
	a. According to Canadian CT Head Rule (CCHTR), a healthy 68-years-old lady who has a minor slip and fall in the toilet, GCS full, no amnesia, no LOC, no vomiting, not on any anticoagulant/antiplatelet, but only complains of mild giddiness and pain of the small scalp haematoma, only needs a period of observation in ED before she can be safely discharged.	T	F
	b. A 17-years-old boy, involved in an MVA with severe HI, and intubated and ventilated in ED, is noted to develop unequal pupils, and thereafter was also noted to have hypotension and tachycardia. He needs blood transfusion and immediate CT head because he is showing lateralizing sign.	T	F
	c. A 55-years-old man with history of heart valve replacement on warfarin falls off his motorcycle, sustains small bruises on his knees, GCS 15/15, fully conscious and alert, does not have LOC but could not recall detailed account of events after the accident, does not need a CT head.	T	F
	d. Available validated criteria for indication for head CT in traumatic brain injury (TBI) show high specificities, but	T	F

No.	Question	Answer	
		True	False
	moderate to low sensitivities.		
	e. According to CCHTR, mechanism of injury is a validated predictor for intracranial bleed in CT head of TBI patients.	T	F
10.	**About teleconsultation, discharge advice and follow-up of HI patients:**		
	a. Teleconsultation is a safe mode of consultation and reduces unnecessary transfer.	T	F
	b. Seizure, amnesia, headache and speaking incoherently are not alarming features.	T	F
	c. In the standardised written discharge advice, emergency contact numbers are optional.	T	F
	d. Routine follow-up are for all HI patients.	T	F
	e. Minor HI patients can be safely followed up by clinic visit or telephone conversation within 48 hours.	T	F

ANSWERS FOR TEST QUESTIONNAIRE

Question		Answers	Question		Answers	Question		Answers
1.	a.	**F**	**5.**	a.	**F**	**8.**	a.	**F**
	b.	**F**		b.	**T**		b.	**F**
	c.	**F**		c.	**T**		c.	**F**
	d.	**F**		d.	**F**		d.	**F**
	e.	**T**		e.	**T**		e.	**T**
2.	a.	**F**	**6.**	a.	**F**	**9.**	a.	**F**
	b.	**T**		b.	**T**		b.	**F**
	c.	**F**		c.	**T**		c.	**F**
	d.	**F**		d.	**F**		d.	**F**
	e.	**T**		e.	**F**		e.	**T**
3.	a.	**F**	**7.**	a.	**T**	**10.**	a.	**T**
	b.	**T**		b.	**T**		b.	**F**
	c.	**F**		c.	**F**		c.	**F**
	d.	**T**		d.	**T**		d.	**F**
	e.	**T**		e.	**T**		e.	**T**
4.	a.	**T**						
	b.	**T**						
	c.	**F**						
	d.	**F**						
	e.	**F**						