SESLHD PROCEDURE COVER SHEET

NAME OF DOCUMENT	Assessment and Management of Acute Adult Traumatic Brain Injury in the Emergency Department (ED) and Trauma wards using the Abbreviated – Westmead Post Traumatic Amnesia Testing (A-WPTAS) and Post Traumatic Amnesia Testing (PTA)
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SUMMARY	The procedure provides evidence-based guidelines for the management and testing of patients with suspected closed head injuries within the emergency department's (ED's) across SESLHD and surgical wards at St George Hospital (SGH), The Sutherland Hospital (TSH), Prince of Wales Hospital (POWH) and Sydney/Sydney Eye Hospital (SSEH) where Trauma patients are situated.

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1. POLICY STATEMENT

Mild Traumatic Brain Injury (MTBI) accounts for 70-90% of all head injured patients. Post traumatic amnesia (PTA) 'is the recovery period during which a person is disorientated or confused and unable to recall new information following a head injury'. It is strongly encouraged patients presenting to the ED following a mild closed head injury, complete an abbreviated version of the PTA scale entitled the A-WPTAS.

2. A-WPTAS OVERVIEW

2.1 BACKGROUND

The Abbreviated Westmead Post Traumatic Amnesia Score (A-WPTAS) and Post traumatic amnesia (PTA) testing is used in the recovery period post a head injury during which a persons' orientation and ability to lay down new memories is impaired.

A-WPTAS is used to provide a consistent framework to manage patients with traumatic head injuries. It is an abbreviated version of the formal PTA testing that can be conducted within 24 hours of injury.

PTA testing is an essential form of monitoring the patient's mental state and behavioural disturbances. The duration of PTA is also used as an index of severity for prognosis, referral to rehabilitation services and medico-legal and scientific purposes.

The Abbreviated Westmead Post Traumatic Amnesia Score (A-WPTAS) is endorsed by the Australian College of Emergency Medicine and the use of A-WPTAS in the ED and initial ward setting provides support for clinical decision making, further evidence in the consideration for CT scanning, and reduced length of stay for patients post MTBI. A Glasgow Coma Scale (GCS) of 15/15 does not always signify normal cognitive function. Using the A-WPTAS tool will help identify patients at risk of acute cognitive impairment. Patients fulfilling the inclusion criteria for MTBI will have an A-WPTAS commenced which also incorporates the routine GCS screening as part of their normal vital signs. The A-WPTAS is to be documented on the NSW Health A-WPTAS form (SMR060.950).

The A-WPTAS education package available through My Health Learning (Course Code: 95267584) consists of three e-learning packages to support the implementation of the A-WPTAS state form which is used for the assessment of patients with mild traumatic brain injury in the acute setting. Staff are strongly encouraged to complete this module before completing A-WPTAS.

Note: The patient must be able to communicate via either speech, writing, pointing to printed answers or by indicating "yes" or "no" when prompted. An interpreter can be used in accordance with Ministry of Health Policy Directive PD2017_044 – Interpreters – Standard Procedures for Working with Health Care Interpreters. A-WPTAS testing will primarily be undertaken in the ED. It can also be undertaken in the ward environment for continuing assessment of patients admitted from the ED or used in the assessment of patients sustaining a head injury from an in-hospital fall.

2.2 INCLUSION CRITERIA FOR A-WPTAS TESTING:

Eligible patients are those with a history of a closed head injury within 24 hours of presentation and must meet the following criteria:

- Glasgow Coma Scale (GCS) of 13-15 at the time of injury
- Opening eyes spontaneously (GCS eyes score 4)
- Obeying commands (GCS motor score 6)

Signs of blunt head injury may include, but are not limited to:

- Patchy recall of events, anterograde or retrograde amnesia
- Repetitive questioning
- Loss of consciousness at the scene
- Persistent abnormal alertness/behaviour/cognition
- Dangerous mechanisms, e.g. high speed MVAs
- Mild nausea or single episode of vomiting
- Mild headache

2.3 EXCLUSION CRITERIA

- Age < 7 years or > 70 years*
- Known intracranial injury or neurological impairment e.g., Organic brain syndrome.
- Presentations >24hrs post traumatic head injury with ongoing symptoms^
- Patients with GCS <13
- Open head injury

**A-WPTAS has been validated for those aged 18-61yrs and clinical judgement recommended for use outside this age range.*

^Patients that present greater than 24hrs post closed head injury with persistent neurological symptoms (including headache, nausea and vomiting) or focal neurological signs such as a cognitive deficit (amnesia or disorientation) should undergo urgent computed tomography (CT) of the head. As outlined in Section 3.2 - DETERIORATION IN CLINICAL CONDITION - A-WPTAS TESTING.

If there are any salient radiological findings or the patient displays ongoing symptoms (mild or moderate in nature) then patients should be formally referred to the Neurosurgical Service at a tertiary referral centre such as SGH or POWH for expert advice and possible PTA testing. Note a mild injury without radiological findings may not necessitate a transfer however these patients may still be referred for a case review if there are clinical concerns. All head injury patients should have neurological observations attended on the 'BTF Adult Observation Chart' on their electronic medical record (EMR) throughout their presentation.

Patients under the influence of drugs and/or alcohol are not automatically excluded from having an A-WPTAS conducted if they otherwise meet the inclusion criteria and are compliant with the

assessment. If it is appropriate to delay commencing the assessment, this practice is encouraged.

2.4 A-WPTAS TESTING PROCESS

- Provide a quiet environment to conduct the assessment with minimal distractions eg. Ask family members to wait outside and pull the curtains.
- Ensure possible visual clues, such as electronic devices, are placed away during testing.
- Perform hand hygiene as per standard infection control procedures.
- Introduce self to patient, check patient identification and obtain consent for assessment.
- Instructions for completing A-WPTAS testing are provided below, guidance is also provided on page 3 of the A-WPTAS form.

Step 1: Glasgow Coma Scale (GCS) Assessment

- Assess patient eye opening and motor response. The patient must open their eyes spontaneously and obey commands to be suitable for commencement of A-WPTAS testing.
- Assess verbal response (orientation questions): Patient must correctly answer all five questions to achieve a score of 5/5 for verbal response. Questions and appropriate response guidelines are provided on page 3 of A-WPTAS form
- Assess limb strength and pupil response and document on A-WPTAS form.

Step 2: Picture Recognition

- Show the patient 3 x picture cards (Page 1) of A-WPTAS form, ensure they can repeat the names of each picture (cup, keys, bird). Inform the patient that they are required to remember the pictures when asked in one hour
- It is necessary to ensure the images are encoded in memory. To do this, provide a brief delay, engage in conversation/ complete paperwork then ask ‘Do you recall the pictures that you need to remember in an hour?’ If they have difficulty or cannot recall, show and revise the pictures before leaving the bed space.

Step 3: Hourly Assessment

- Return to the patient one hour post initial assessment repeat Step 1 (GCS)
- Ask the patient to recall the 3 pictures shown the previous hour. If they are unable to recall, they can be prompted by showing the 9 pictures (Page 4 of A-WPTAS form) and ask them to identify the three pictures shown
- If patient fails to recall pictures after prompting repeat Step 2.

3. PROCEDURE

3.1 DOCUMENTATION

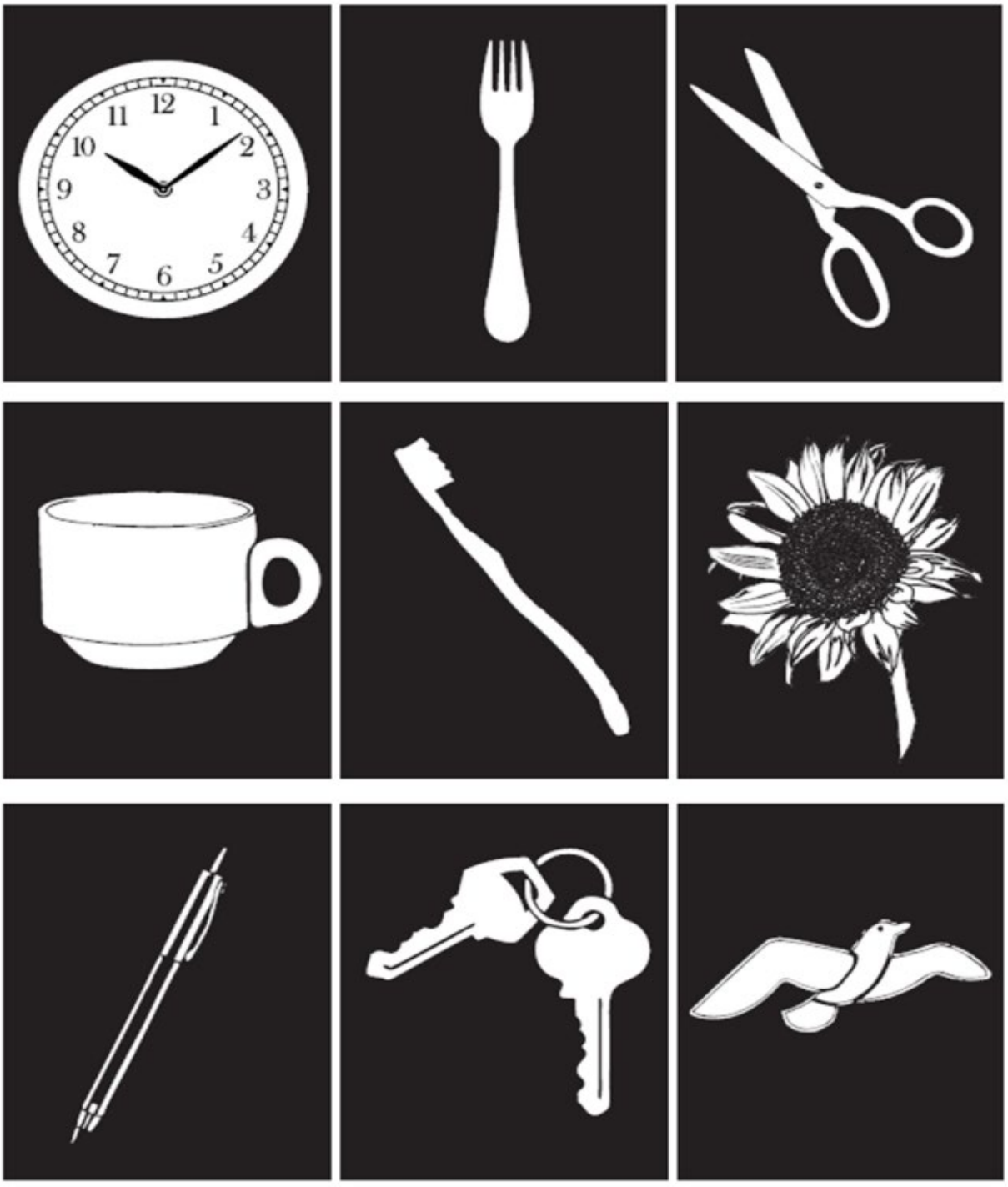
A-WPTAS assessment and results must be entered in the patient's EMR and documented on the NSW Health A-WPTAS form (SMR060.950).

Scoring the results

- First assessment, calculate GCS out of **15**, patient must achieve 5/5 for orientation questions to score 5
- Subsequent assessments calculate GCS **(A)** and score for picture cards **(B)** to obtain score out of **18**
- Orientation questions and picture responses, score **1** for each correct answer and **0** for incorrect.
- If the patient required prompts, mark an asterisk in the score section e.g. **1*** or **0***

TOTAL GCS SCORE (A)				
Picture Recognition	Picture 1 - Cup	Show 3 pics		
	Picture 2 - Keys			
	Picture 3 - Bird			
TOTAL PICTURE RECOGNITION SCORE (B)				
TOTAL A-WPTAS SCORE (A+B)				

- Repeat steps **1 and 3** until the patient has recorded 18/18 or until 4 consecutive hours of testing have been completed
- ED patients who fail A-WPTAS must be discussed with the senior MO responsible for the patient to facilitate referral for formal PTA testing and inpatient management
- At SGH, if CT imaging demonstrates intracranial injury (eg. subdural haemorrhage) the patient must be referred for formal PTA testing
- At TSH, if CT imaging demonstrates intracranial injury the patient should be referred to SGH.



3.2 DETERIORATION IN CLINICAL CONDITION - A-WPTAS TESTING

If GCS/ A-WPTAS drops by >2 or more points consult senior medical staff.
If the patient is on the ward follow local CERS response for acute deterioration.
A low threshold should be taken in considering early transfer for CT scanning if:

- Persistent GCS < 15 at 2 hours post injury
- Deterioration in GCS
- Focal neurological deficit
- Clinical suspicion of skull facture
- Persistent abnormal mental status (either clinical, A-WPTAS or GCS) or persistent vomiting or severe headache at 4 hours post time of injury.

3.3 ADMISSION CRITERIA

- A-WPTAS score <18 at 4 hours post time of injury
- Initial GCS 9-12
- Persistent GCS 13
- Clinical deterioration
- Clinically not improving
- Abnormal CT scan
- Multiple injuries

Early discharge after admission will be at the discretion of the Neurosurgical or Trauma Services.

3.4 DISCHARGE FROM ED

Clinically safe for discharge for home observation if at 4 hours post time of injury:

- GCS score 15/15
- A-WPTAS score 18/18 once
- Normal alertness/behaviour/cognition
- Clinically improving after observation
- Normal CT scan or no indication for CT scan
- Clinical judgement required if elderly and/or known coagulopathy due to increased risk of delayed subdural haematoma
- Anyone deemed suitable for home observation should be discharged with a responsible adult.

Discharge advice

- Provide both verbal and written head injury advice: Mild head Injury discharge advice card. Head injury advice for other languages is also available Languages other than English: Head Injury Advice
- Provide discharge summary for GP

- All patients should be advised to see their GP if they are not feeling back to normal within 2-3 days
- Advice to return to ED / Follow-up with LMO if any concerns
- Any patient with a documented abnormal A-WPTAS score or who suffered significant clinical symptoms such as headache, nausea or dizziness should be routinely referred to their GP for follow up within 2-3 days and strongly encouraged to do so.

3.5 RE-PRESENTATION

If the patient re-presents to ED, the following must be conducted:

- Full medical re-assessment including full set of vital signs
- A-WPTAS assessment (if re-presentation is within 24 hours of injury ONLY)
- CT scan if indicated (particularly if not performed at the first presentation)
- Low threshold for admission for ongoing assessment
- Emphasis and encouragement to attend their GP for follow-up after discharge.

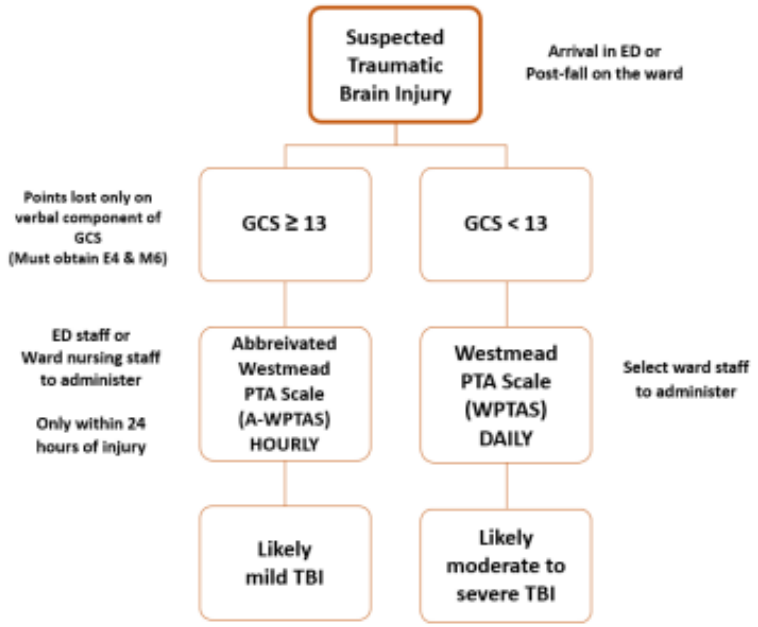


Figure 1: Monash Health Assessment and Management of post – traumatic amnesia in Acute Traumatic Brain Injury (adults)

THE FOLLOWING PART OF THIS POLICY APPLIES TO ST GEORGE (SGH) AND PRINCE OF WALES HOSPITAL (POW) ONLY.

PLEASE NOTE: PATIENTS IN THE SUTHERLAND HOSPITAL (TSH) AND SYDNEY/SYDNEY EYE HOSPITAL THAT MEET PTA CRITERIA OR DO NOT PASS AWPTAS, NEED TO BE FORMALLY REFERRED, ACCEPTED AND ADMITTED TO A TERTIARY REFERRAL CENTRE FOR FORMAL PTA TESTING SUCH AS SGH OR POW.

4. ASSESSMENT AND MANAGEMENT OF ACUTE ADULT TRAUMATIC BRAIN INJURY (PTA)

4.1 Background – PTA OVERVIEW

Post traumatic amnesia (PTA) 'is the recovery period during which a person is disorientated or confused and unable to recall new information following a head injury'.[1]

Trauma to the brain can result in diminished or an altered state of consciousness depending on the severity that can cause temporary or persistent issues and impairments in cognitive and physical functions. Traumatic brain injury (TBI) can arise from any insult to the brain externally or a direct blow, commonly caused by sports, motor vehicle accidents, falls or assaults. TBI peak incidence is in males aged 16 – 24 years predominantly.

The Westmead PTA Scale is a commonly used standardised assessment tool designed to provide an objective prospective measure of PTA in adults. The test consists of questions assessing memory and orientation.

The Westmead PTA Scale was designed for patients with a closed head injury. Patients with a head injury caused by penetrating/missile trauma, hypoxia or stroke are excluded from testing, as these patients were not included in the studies when the test was designed.

The only staff who can complete PTAs on patients are those who are trained by the Occupational Therapists at these respective sites.

4.2 Importance of PTA testing

- PTA testing allows for monitoring of the patient's mental state and behavioural disturbances common when in PTA. This also assists to increase staff awareness and understanding of PTA
- The duration of PTA is used as an index of severity for prognosis, medico-legal and scientific purposes[2]

Note: PTA testing begins when the patient has regained consciousness and can communicate intelligibly. The patient may be able to communicate via speech, writing, pointing to printed answers or by indicating "yes" or "no" when prompted.

4.3 Inclusion Criteria

Following the initial stabilisation of blunt head injury patients who require admission. Patients must meet one or more of the following criteria:

- Reported amnesia or patchy recall of the events
- Loss of consciousness at the scene
- Glasgow Coma Scale <15 at the scene
- Evidence of a head injury on a cerebral CT

4.4 Exclusion Criteria

- Patients aged > 70 years with pre-existing cognitive impairments e.g. dementia. If the patient has no history of cognitive impairment, they may complete PTA testing. This is especially important for patients who might be eligible for entry into the Lifetime Care and Support Scheme
- Patients aged < 7 years
- Patients with open head injuries
- Patients with a head injury caused by hypoxia or stroke

4.5 Steps in completing PTA testing

1. Collect the tools required for testing: 9 picture cards (fig. 1), 1 score sheet (fig. 2), 3 x photos of Occupational Therapists, Quiet environment (minimise distractions e.g. turn off the television, ask family members to wait outside and pull the curtains)
2. Perform hand hygiene in accordance with standard infection control practices
3. Confirm patient identification and introduce self to patient. Obtain consent of patient to complete PTA test
4. Be aware of the expected answers e.g. patient's age, D.O.B, day, time, etc
5. The first day of testing requires you to ask the first 7 orientation questions only. Tell the patient if they are right or wrong and correct any incorrect answers. Three prompts can be provided for each question if the patient appears to be having difficulties providing a response. Note- these prompts must be consecutive e.g. "Is it Monday, Tuesday or Wednesday"
6. Show the patient 3 x picture cards (from fig. 1) to remember for the following day
7. Show one photo and ask the patient to remember the face and name for the following day (the name of the therapist is located on the back of the photo)
8. Rehearse the cards, name and face a few minutes after testing. Circle the cards shown and record the name of the therapist in the appropriate section on the score sheet. Repeat the process the following day
9. Subsequent days of testing: requires you to ask all 12 questions. Provide the patient with the three photos and ask them to identify the face and name of the person they were to remember
10. Ask the patient to recall the 3 picture cards that were also shown on the previous day. If they are unable to do so, offer the patient the 9 cards and ask them to identify the three they were to remember
11. If the patient scores 12/12, change the cards for the following day. Record the date and

circle the new cards on the score sheet for reference the next day

12. If the patient scores less than 12/12, the cards are to remain the same for re-testing the following day. Remind the patient what the cards will be and rehearse this with them
13. Scoring the results: Record each answer and score 0 for an incorrect answer or 1 for a correct answer on the PTA score sheet. Add the individual scores to give a total score out of 7 on the first day and 12 on subsequent days. If the patient required prompts, mark an asterisk in the score section e.g. 1* or 0*
14. Document the results in the patients file. When documenting the final PTA entry the length of PTA duration must be recorded in the patient's electronic medical record. This is from the date of injury to the date the first of 3 consecutive 12/12 scores were achieved
15. Note: Once the patient has received 28 days of continuous PTA testing they will no longer be required to achieve 3 consecutive days of 12/12 scores. The goal will then be to achieve one day only of 12/12 score. Such a patient must be referred to the rehabilitation team and liaison made with Brain Injury Services
16. The Occupational therapist also provides written and verbal education to the patient and family members regarding the side effects and precautions post head injury. If concerns arise post discharge, family members are advised to return to ED or see their GP for a review
17. To determine if a patient is medically ready for discharge from PTA prior to scoring 3 x consecutive scores of 12/12 a neuropsychology assessment is recommended. If neuropsychologist assessment is unavailable, PTA testing can be halted by senior medical staff at their discretion and patients may be discharged by senior medical personnel when deemed appropriate prior to achieving 2 scores of 12/12. This must be clearly documented in the patient's notes. Appropriate follow up must be arranged.

5. REFERENCES

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6. REVISION AND APPROVAL HISTORY

Date	Revision No.	Author and Approval
Feb 2022	DRAFT	Kelsey Langley, CNS2 Trauma, SGH
May 2022	DRAFT	Draft for Comment period.
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December 2022	1	Approved at November 2022 Clinical and Quality Council Meeting. Processed and published.