Suspected seizure in adults guideline, Department of Emergency Medicine Nambour General Hospital

Purpose

This guideline assists clinicians when deciding the appropriate management pathway for patients presenting with signs and symptoms of seizure, consistent with evidenced based practice.

This document is underpinned by relevant standards identified below.

Scope / site specifics

The guideline applies to medical staff working in the Department of Emergency Medicine (DEM), Nambour General Hospital (NGH), Sunshine Coast Hospital and Health Service (SCHHS).

Guideline

All adult patients presenting with suspected seizure should be managed as per the flowchart in Appendix 1 and the seizure decision support table in Appendix 2.

This document is intended as a guide and does not replace clinical judgement: It should be used in consultation with senior emergency medical staff.
Definition of key terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>DEM</td>
<td>Department of Emergency Medicine</td>
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<tr>
<td>DUIT</td>
<td>Day Unit Intervention and Therapy</td>
</tr>
<tr>
<td>ECG</td>
<td>Electrocardiogram</td>
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<tr>
<td>EEG</td>
<td>Electroencephalogram</td>
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<td>GCS</td>
<td>Glasgow coma score</td>
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<tr>
<td>PNES</td>
<td>Psychogenic non-epileptic seizures</td>
</tr>
<tr>
<td>RAM</td>
<td>Rapid Access Medical (clinic located in outpatients NGH)</td>
</tr>
</tbody>
</table>

References and further reading


Fountain, N.B (2013) Delivering quality care in epilepsy

Goldberg, I, Auriel M. Y, Gandelman-Marton E. R. (2013) Utility of hospitalization following a first unprovoked seizure. EEG and Epilepsy Unit, Department of Neurology, Tel-Aviv Sourasky Medical Center, Tel-Aviv, Israel.


Seneviratne, U. (2008). Management of the first seizure: an evidence based approach. Department of Neuroscience, Monash Medical Centre, Melbourne, Australia & Alfred Hospital, Melbourne, Australia


EQuIP National Standards (ACSQHC)

Standard 12 criterion 1 – Assessment and care planning ensure that current and ongoing needs of the consumer / patient are identified.

Templates, forms and other related or supporting documents

Patient education -Seizure information sheet
Consultation

Key stakeholders who contributed to and/or reviewed this version include:
SCHHS 4F project steering committee (endorsed v2 16/06/2015)

Audit / compliance strategy

At the time of document review evidence will be required to demonstrate effectiveness of and compliance to the procedure.

<table>
<thead>
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<th>Level of risk</th>
<th>Medium</th>
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<tr>
<td>Audit strategy</td>
<td>Health record documentation review</td>
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<tr>
<td>Audit tool</td>
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</tr>
<tr>
<td>Audit date(s)</td>
<td>Biannual review of pathway</td>
</tr>
</tbody>
</table>

Key elements, indicators and/or outcomes

- Reduction in total admitted patient time
- Reduce number of overnight stays
- Increase use of RAM and DUIT unit
- Improve compliance with NEAT
- Reduction in low value investigations and interventions
- Equivalent or better than current safety

Document revision and approval

<table>
<thead>
<tr>
<th>Version</th>
<th>Document author</th>
<th>Revision date</th>
<th>Authorised by</th>
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<tr>
<td>2.0</td>
<td>SMO Geriatrics</td>
<td>30/06/2015</td>
<td>Chair 4F project steering committee</td>
</tr>
</tbody>
</table>
Appendix 1 Flowchart, DEM NGH

Suspected seizure - adult

- History and clinical examination
- Eyewitness account/ video recording?
- Neuro examination
- BSL / ECG
- Screen for underlying cause/ precipitant

Seizure criteria
- Loss of consciousness (LOC)
- Prodrome may be present
- Limb jerking and/or tonic posturing (uni/ bilateral)
- Head turning to one side
- Tongue biting (esp lateral), frothing, incontinence
- Spontaneous but slow recovery
- Confusion and drowsiness following event

First seizure

- Detailed neurological exam
- ECG
- Bloods as indicated 2*
- Commence treatment of underlying cause

CT brain 1*

Primary cause identified?

- YES

- Appropriate disposition

- Phone General Medicine consultant; discuss plans for discharge/admission
- Refer to RAM medical clinic (at discretion of consultant)
- Book EEG (complete referral to Neurology clinic)

- NO

Recurrent seizure

- Detailed neurological exam
- Bloods as indicated 2*
- Review for provoking factors
- Review medication adherence

CT criteria 1*

- Focal neurological signs 3*
- Significant change in pattern
- Significant head injury

Safe to go

- Appropriate time for discharge home
- Responsible supervision for 24 hours
- Patient agrees to attend follow-up

Provide patient information

- Management of recurrent symptoms
- Driving instructions (documented) 4*
- Confirm follow-up appointment with patient/ family/ carer
- Written medication changes
- Importance of capturing recurrent episode on video recording device, ie. phone

Urgent referral

- Review in RAM clinic
- Non-urgent referral
- Review in Neurology clinic

Follow-up with GP/ known specialist

Neurology clinic

Home

Discharge criteria

- GCS15 (or recovery to prior functional level)
- No new focal neurological deficit (following usual recovery pattern)
- Normal observations and investigations
- No new changes on CT 1*

Red flags

- New focal neurological abnormality
- ETOH or drug withdrawal
- Signs of underlying acute condition (stroke, infection, metabolic disturbance, etc)
- Pregnancy/ postpartum (6 weeks)
- History of malignancy
- Prolonged recovery phase
- History of clustering of seizures or status epilepticus

Recurrent DEM presentations

Prevent and/or improve patient outcomes

Home

Printed copies are uncontrolled and will expire within 24 hours of printing

Date approved 30/06/2015 | Review date 30/06/2017
### Appendix 2 Seizure decision support, DEM Nambour General Hospital

#### Brain imaging in seizures
1. Non-contrast CT is sufficient in most presentations.
2. Contrast enhanced CT is indicated only with specific clinical indications, e.g. history of active malignancy.
3. Elective MRI may be more appropriate in first seizure without evident underlying cause.

#### Suggested bloods
2. All patients Chem 8 or ISTAT equivalent. For recurrent seizures:
   - Drug levels (Phenytoin, Carbamazepine, Sodium Valporate).
   - Consider urine drug screen
   - Else only as clinically indicated (e.g. history of fever, etc)

#### Post-seizure focal neuro deficits
(Todd’s Paresis) 3. Occurs in 10% of all seizures.
Most common after a focal motor seizure.
Can range from a partial to a complete paralysis,
Can last from hours up to 2 days

5. PNES is difficult to diagnose at first presentation. The diagnostic gold standard is video EEG during a typical event. The following features should alert one to the possibility of PNES and prompt attempts to capture the event on video (which is invaluable diagnostic information for neurologist review).

#### Prolonged tremulous shaking of limbs with a stop-start quality (most common presentation).
- Forceful eye closure.
- Weeping during/just after the event.
- Fluctuating frequency and amplitude of the jerks.
- Frequent events with jerking lasting >10 minutes.
- Rhythmic pelvic thrusting.
- Absence of tachycardia/ tachycardia >30% of baseline during event.
- Rapid recovery to normal after event.

Driving should be ceased for at least 6 months and after specialist clearance.
Transport options are available for patients unable to return for follow-up appointments. Document transport requirements in referral notes.

#### Think of non-convulsive status epileptics if:
- Prolonged recovery >1 hour after end of clinical seizure;
- Look for subtle twitching of the eyelid, face, limb muscles.
Pursue neurology opinion/ EEG if above present.

#### Seizures in alcohol/ substance withdrawal
Red flag
Most seizures in people with drug and alcohol dependency are NOT due to withdrawal. There is usually another cause or contributing factor. Always exclude other causes.
Alcohol withdrawal seizure may occur very early (6-7 hours after the last drink, even with relatively high blood alcohol levels) and reflects the rate of decrease in the blood alcohol. Withdrawal seizures are generalized, not focal or partial.

#### Provoking factors to consider in recurrent seizures
- Medication changes/ compliance
- Sleep deprivation
Underlying causes to consider in 1st seizure (acute symptomatic seizures)
- Space occupying lesion (tumour/ infection)
- Stroke
- Severe metabolic disturbance (electrolyte imbalances, hypoglycaemia, hyperglycaemia, uremia, eclampsia)
- Recent head injury/ post intracranial surgery
- Drug abuse and withdrawal (illicit, alcohol, prescribed).

#### Definitions
- ECG: Electrocardiogram
- EEG: Electroencephalogram
- DEM: Department Emergency Medicine
- DUIT: Day Unit Intervention and Therapy
- GCS: Glasgow coma score
- PNES: Psychogenic non-epileptic seizures
- RAM: Rapid access medical (clinic located in outpatients NGH)

#### Pregnancy and post-partum
Red flag
Urgent obstetric review to exclude eclampsia (ante/ peri/ post natal)
- Headache/ visual change/ upper abdominal pain/ worsening peripheral oedema
- BP ≥140/90, hyperreflexia, clonus
- FBC, ELFT’s, urine protein: creatinine ratio
- If eclampsia suspected, 1st treatment of seizure should be magnesium infusion (see protocol).
- Non-eclamptic seizure: as per pathway suggested bloods and imaging (non-contrast CT).
- Consider other imaging (MRI/ MRA/ MRV) if history suggestive of PRES/ cerebral sinus thrombosis.

#### Consult obstetric team regarding:
- Appropriate fetal monitoring (including CTG and possible fetal ultrasound).
- Potential inpatient review regarding other assessments of fetal wellbeing.
Consider discussion with obstetric medicine team for inpatient/ outpatient review, ph 5470 5734 M-F 8:00 – 4:30pm. Afterhours liaise with general medicine team or contact RBWH obstetric physician on call.