Epilepsy Monitoring (Video EEG): Referral to Admit v3.0

Inclusion Criteria
- Patients referred to epilepsy monitoring unit (EMU) for diagnostic or presurgical evaluation

Exclusion Criteria
- Grid placement

Internal referral for EMU placed

Refrerral type
- Pre-Surgical

External referral for EMU placed

Referral type
- Non-Surgical (Not Phase 1), includes diagnostic

Establish visit goals
- MD completes Phase 1 checklist
- MD places procedure orders for video EEG 24hr Telemetry study (including need for sedation)

Educate Family
- Epi RN confirms orders, checklist, educates family, and screens for need for sedation

Schedule visit
- Family Services Coordinator schedules EMU stay with family and screens for need for sedation

Prepare for visit
- NEU MA contacts family to review rules, complete EMU Admission Plan Note, and escalate any concerns
- Patient needs are reviewed at Epilepsy Triage and EMU Admission Plan Note completed
- NEU MA documents EMU Admission Plan Note in EMR and contacts family with any new instructions (medication wean)

Patient arrives for admit, is transported to room

Go to Inpatient Phase

Recommended Admission Duration
- Seizure Frequency→ EMU days
  - Daily→ 1-2 EMU days
  - Nearly every day with seizure free periods of <2 days→ 3 EMU days
  - 3-4 days a week→ 5 EMU days
  - For less frequent seizures - 7 EMU days
  - For patients with Non-Epilepsy Seizures consider <48 hour study

Summary of Version Changes

Explanation of Evidence Ratings

For questions concerning this pathway, contact: EpilepsyMonitoring@seattlechildrens.org
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• A systematic review of 32 mostly uncontrolled studies found that 75-96% of seizures in patients admitted for Psychogenic Non-Epileptic Seizures had events in the first 48 hours [Level of Evidence (LOE): Expert Opinion (Popkirov 2015)]

• A consensus-based guideline from England and Wales recommended contacting parents or guardians 1-3 weeks prior to admission to confirm seizures and necessity of admission, and the following length of stay [Level of Evidence (LOE): Expert Opinion (Pressler 2017)]:

<table>
<thead>
<tr>
<th>Seizure frequency</th>
<th>Video EEG monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>1-2 days</td>
</tr>
<tr>
<td>Nearly daily with seizure free periods &lt;2 days</td>
<td>3 days</td>
</tr>
<tr>
<td>3-4 days per week</td>
<td>5 days</td>
</tr>
<tr>
<td>&lt;4 per week or seizure free periods of &gt;4 days</td>
<td>AED reduction</td>
</tr>
</tbody>
</table>
Medication Wean

Decision to wean:

1. Reducing Anti-Epileptic Drugs (AEDs) after admission may be necessary.
2. The majority of patients will begin wean after admission. For patients beginning wean prior to hospitalization, the protocol needs to be determined and communicated prior to hospitalization.
3. When medications are prescribed by a primary epileptologist who is not at Seattle Children’s, the SCH provider can contact the primary epileptologist to establish AED wean plan.
4. For communication: document the plan, counsel families on risks and effects of AED tapering, inform nursing team.

Weaning Process:

1. Choose which medication to wean based on patient history (meds, seizure history and frequency, travel distance).
2. Avoid weaning benzodiazepines or phenobarbital as this may provoke atypical seizures.
3. Wean AEDs with a short half-life. (Rationale: The effects of weaning medications with a longer half-life may not be seen during a short hospitalization).
4. For medications being weaned, give 50% of each dose, unless patient history necessitates a different individualized plan.
5. Insert IV for patients who have AED wean.
6. Give 1 or 2 doses of home AEDs prior to discharge.
An unintended event resulting in a person coming to rest on the ground/floor or other lower level (witnessed), or is reported to have landed on the floor (unwitnessed), and is not related to the patient’s stage of growth and development.

For more information see Fall Prevention Program in the Learning Center
Most people with seizures have triggers

- Common Triggers
  - Sleep deprivation
  - Stress
  - Change in medication
  - Illness
  - Individual Triggers
- Telemetry EMU triggers
  - Sleep Deprivation (stay up late, get up early)
  - Bicycle
  - Medication wean
  - Individualize and negotiate with family

Expert opinion
Approved by the Epilepsy Monitoring Pathway Periodic Review team for May 24, 2018 go-live

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Please cite as:
Evidence Ratings

This pathway was developed through local consensus based on published evidence and expert opinion as part of Clinical Standard Work at Seattle Children's. Pathway teams include representatives from Medical, Subspecialty, and/or Surgical Services, Nursing, Pharmacy, Clinical Effectiveness, and other services as appropriate.

When possible, we used the GRADE method of rating evidence quality. Evidence is first assessed as to whether it is from randomized trial or cohort studies. The rating is then adjusted in the following manner (from: Guyatt G et al. J Clin Epidemiol. 2011;4:383-94.):

Quality ratings are **downgraded** if studies:
- Have serious limitations
- Have inconsistent results
- If evidence does not directly address clinical questions
- If estimates are imprecise OR
- If it is felt that there is substantial publication bias

Quality ratings are **upgraded** if it is felt that:
- The effect size is large
- If studies are designed in a way that confounding would likely underreport the magnitude of the effect OR
- If a dose-response gradient is evident

Guideline – Recommendation is from a published guideline that used methodology deemed acceptable by the team.

Expert Opinion – Our expert opinion is based on available evidence that does not meet GRADE criteria (for example, case-control studies).

**Quality of Evidence:**
- ★★★★★ High quality
- ★★★★☆ Moderate quality
- ★★★☆☆ Low quality
- ★★☆☆☆ Very low quality

Guideline
Expert Opinion
Summary of Version Changes

Version 1.0 (12/22/2012): Go live, epilepsy monitoring for patients with suspected epileptic encephalopathy

Version 2.0 (7/11/2012): Added diagnostic and presurgical epilepsy monitoring

Version 2.1 (10/30/2013): Reduced IV midazolam dosing

Version 2.2 (9/30/2014): Changed assessment for tolerance of EEG leads from Child Life to EEG Technologist, added approval and citation pages

Version 3.0 (5/24/2018): Added preadmission process, standardized seizure medication wean, and added post-discharge communication

Return to Referral to Admit
Medical Disclaimer

Medicine is an ever-changing science. As new research and clinical experience broaden our knowledge, changes in treatment and drug therapy are required.

The authors have checked with sources believed to be reliable in their efforts to provide information that is complete and generally in accord with the standards accepted at the time of publication.

However, in view of the possibility of human error or changes in medical sciences, neither the authors nor Seattle Children’s Healthcare System nor any other party who has been involved in the preparation or publication of this work warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such information.

Readers should confirm the information contained herein with other sources and are encouraged to consult with their health care provider before making any health care decision.
Search Methods, Epilepsy Monitoring, Clinical Standard Work

Studies were identified by searching electronic databases using search strategies developed and executed by a medical librarian, Susan Groshong. Searches were performed in December, 2017, in the following databases: Ovid Medline; Cochrane Library; Embase; National Guideline Clearinghouse; TRIP; and Cincinnati Children’s Evidence-Based Recommendations. In Medline and Embase, appropriate Medical Subject Headings (MeSH) and Emtree headings were used respectively, along with text words, and the search strategy was adapted for other databases using text words. Concepts searched were epilepsy, electroencephalography, neurophysiological monitoring and seizure localization. Retrieval was limited to 2008 to current, humans, English language and to certain evidence categories, such as relevant publication types, index terms for study types and other similar limits. An additional article was identified by team members and added to results.

An additional search was conducted in January, 2018, in Ovid Medline and Embase. Concepts searched were epilepsy surgery, prognosis and outcomes. Retrieval was limited to 2008 to current, ages 0-18, English language and to certain evidence categories, such as relevant publication types, index terms for study types and other similar limits.

Flow diagram adapted from Moher D et al. BMJ 2009;339:bmj.b2535


