## A. EEG Background

<table>
<thead>
<tr>
<th>Symmetry</th>
<th>Background EEG frequency</th>
<th>PDR</th>
<th>Continuity</th>
<th>Reactivity</th>
<th>State Changes</th>
<th>Cyclic Alternating Pattern of Encephalopathy (CAPE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symmetric</td>
<td>Beta</td>
<td>Present</td>
<td>Continuous: &lt;1% periods of suppression (&lt;10 µV) or</td>
<td>Reactive</td>
<td>Present with normal stage N2 sleep transients</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specify frequency</td>
<td>attenuation (≥10µV but &lt;50% of background voltage)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild asymmetry</td>
<td>&lt;50% Voltage OR 0.5-1 Hz Frequency</td>
<td>Absent</td>
<td>Unreactive: Present but with abnormal stage N2 sleep transients</td>
<td>Unreactive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marked asymmetry</td>
<td>≥50% Voltage OR &gt;1 Hz Frequency</td>
<td>Unclear</td>
<td>SIRPIDs only: Present but without stage N2 sleep transients</td>
<td>Unknown/unclear</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Localization of Bursts
- (G/L/BI/UI/Mf)
- (Optional: Specify lobe(s) most involved or hemispheric)

### Highly Epileptiform Bursts
- (Present or Absent)

### Identical Bursts
- (Present or Absent)

### Burst-suppression or Burst-attenuation
- 50-99% periods of suppression or attenuation

### Suppression
- >99% periods of suppression or attenuation

## B. Sporadic Epileptiform Discharges

<table>
<thead>
<tr>
<th>Prevalence</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Abundant</td>
<td>≥1/10s</td>
</tr>
<tr>
<td>Frequent</td>
<td>≥1/min but &lt;1/10s</td>
</tr>
<tr>
<td>Occasional</td>
<td>≥1/h but &lt;1/min</td>
</tr>
<tr>
<td>Rare</td>
<td>&lt;1/h</td>
</tr>
</tbody>
</table>

## C. Rhythmic and Periodic Patterns (RPPs)

### Main term 1

- **G** Generalized
  - Optional: Specify frontally, occipitally, or midline predominant; or generalized, not otherwise specified.

- **L** Lateralized
  - Optional: Specify unilateral, bilateral asymmetric, or bilateral asynchronous
  - Optional: Specify lobe(s) most involved or hemispheric

- **BI** Bilateral Independent
  - Optional: Specify symmetric or asymmetric
  - Optional: Specify lobe(s) most involved or hemispheric

- **UI** Unilateral Independent
  - Optional: Specify unilateral, bilateral asymmetric, or bilateral asynchronous for each pattern
  - Optional: Specify lobe(s) most involved

- **Mf** Multifocal
  - Optional: Specify symmetric or asymmetric
  - Optional: Specify lobe(s) most involved or hemispheric

### Main term 2

- **PD** Periodic Discharges

- **RDA** Rhythmic Delta Activity

- **SW** Spike and Wave
  - OR
  - Polyspike and Wave
  - OR
  - Sharp and Wave
Epileptiform discharges averaging >2.5 Hz for ≥10 s (>25 discharges in 10 s), or any pattern with definite evolution and lasting ≥10 s, and has a plus modifier or fluctuation; OR

RPP that qualifies for the IIC (below) that is present for ≥10 continuous minutes, OR

A total duration of ≥5 continuous minutes if the seizure is convulsive (i.e., with bilateral tonic-clonic motor activity).

1. Any PD or SW pattern that averages >1.0 Hz but ≤2.5 Hz over 10 s (>10 but ≤25 discharges in 10 s); OR
2. Any PD or SW pattern that averages >0.5 Hz and ≤1 Hz over 10 s (>5 and ≤10 discharges in 10 s), and has a plus modifier or fluctuation; OR
3. Any lateralized RDA averaging >1 Hz for at least 10 s (at least 10 waves in 10 s) with a plus modifier or fluctuation; AND
4. Does not qualify as an ESz or ESE.

NOTE 1: Phases: Applies to PD and SW only, including the slow wave of the SW complex
NOTE 2: Sharpness and Polarity: Applies to the predominant phase of PD and the spike or sharp component of SW only
NOTE 3: Relative voltage: Applies to PD only
NOTE 4: Evolution: Refers to frequency, location or morphology
NOTE 5: Triphasic: Applies to PD or SW only

Electrographic and Electroclinical Seizures

Electrographic Seizure (ESz)

Either:
A) Epileptiform discharges averaging >2.5 Hz for ≥10 s (>25 discharges in 10 s), OR
B) Any pattern with definite evolution and lasting ≥10 s

Electrographic Status Epilepticus (ESE)

An electrographic seizure for either:
A) ≥10 continuous minutes, OR
B) A total duration of ≥20% of any 60-minute period of recording.

Electroclinical Seizure (ECSz)

Any EEG pattern with either:
A) Definite clinical correlate time-locked to the pattern (of any duration), OR
B) EEG and clinical improvement with a parenteral (typically IV) anti-seizure medication

Electroclinical Status Epilepticus (ECSE)

An electroclinical seizure for either
A) ≥10 continuous minutes, OR
B) A total duration of ≥20% of any 60-minute period of recording, OR
C) ≥5 continuous minutes if the seizure is convulsive (i.e., with bilateral tonic-clonic motor activity).
Possible ECSE: An RPP that qualifies for the IIC (below) that is present for ≥10 continuous minutes or for a total duration of ≥20% of any 60-minute period of recording, which shows EEG improvement with a parenteral anti-seizure medication BUT without clinical improvement.

E. Brief Potentially Ictal Rhythmic Discharges (BIRDs)

Focal (including L, BI, UI or Mf) or generalized rhythmic activity >4 Hz (at least 6 waves at a regular rate) lasting ≥5 to <10 s, not consistent with a known normal pattern or benign variant, not part of burst-suppression or burst-station, without definite clinical correlate, and that has at least one of A, B or C below:

Definite BIRDs feature either:
A. Evolution ("evolving BIRDs") OR
B. Similar morphology and location as interictal epileptiform discharges or seizures in the same patient

Possible BIRDs are:
C. Sharply contoured but without (a) or (b) above

D. Electrographic and Electroclinical Seizures

Plus (+) Modifiers

No +
+F
Superimposed fast activity – applies to PD or RDA only
EDB (Extreme Delta Brush): A specific subtype of +F
+R
Superimposed rhythmic activity – applies to PD only
+S
Superimposed sharp waves or spikes, or sharply contoured – applies to RDA only
+FR
If both subtypes apply – applies to PD only
+FS
If both subtypes apply – applies to RDA only

Minor modifiers

Onset
Triphasic
Lag
Polarity

Sudden
<3 s
Yes
A-P
Anterior-
Posterior
Negative

Gradual
>3 s
No
P-A
Posterior-
Anterior
Positive

Dipole
No
Unclear

NOTE 1: Phases: Applies to PD and SW only, including the slow wave of the SW complex
NOTE 2: Sharpness and Polarity: Applies to the predominant phase of PD and the spike or sharp component of SW only
NOTE 3: Relative voltage: Applies to PD only
NOTE 4: Evolution: Refers to frequency, location or morphology
NOTE 5: Triphasic: Applies to PD or SW only