## GENERAL EEG INFORMATION

1. Date EEG recorded: // to //
2. EEG type:

[ ]  Routine

[ ]  Continuous/prolonged

[ ]  Other, specify:

* 1. Routine EEG duration:

[ ]  1 hour or less

[ ]  1-2 hours

[ ]  2 hours

[ ]  Greater than 2 hours

[ ]  N/A

[ ]  Other, specify:

* 1. Prolonged EEG duration:

[ ]  Less than 24 hours

[ ]  Greater than or equal to 24 hours

[ ]  N/A

[ ]  Other, specify:

1. Video?

[ ]  No

[ ]  Yes

[ ]  Unknown

[ ]  Other, specify:

1. Sampling rate?

[ ]  256 Hz

[ ]  512 Hz

[ ]  Unknown

[ ]  Other, specify (Hz):

1. Behavioral states recorded:

[ ]  Awake

[ ]  Asleep

[ ]  Unresponsive state

[ ]  Indeterminate

[ ]  Other, specify:

## RECORDING/TECHNICAL SPECIFICATIONS

1. Number of electrodes (including reference and ground):
2. Electrode type: (select at least one):

[ ]  Reusable silver electrodes [ ]  Disposable conductive plastic electrodes

[ ]  Reusable tin electrodes [ ]  Electrode cap

[ ]  Reusable gold cup electrodes [ ]  Subdermal needle electrodes

[ ]  Reusable sintered silver-silver chloride electrodes [ ]  Subdermal wire electrodes

[ ]  Reusable platinum electrodes [ ]  Intracranial electrode strips

[ ]  Reusable stainless-steel electrodes [ ]  Intracranial depth electrode

[ ]  Disposable silver-silver chloride electrodes [ ]  Other, specify:

1. Quantitative EEG analysis used (select at least one):

[ ]  None [ ]  Asymmetry indices

[ ]  Amplitude-integrated EEG [ ]  Rhythmicity measures

[ ]  Spectral analysis [ ]  Spike detection

[ ]  Seizure detection [ ]  Other

1. EEG indication (select at least one):

[ ]  Seizure detection [ ]  Management of SE

[ ]  Ischemia detection [ ]  Burst-suppression for management of ICP

[ ]  Characterization of spells [ ]  Research

[ ]  Prognosis [ ]  Unknown

1. Electrodes attached by:

[ ]  EEG technologist [ ]  ICU RN

[ ]  ICU MD [ ]  Other

## FOCAL AND GENERALIZED SLOWING

1. Focal slowing?

[ ]  Yes

[ ]  No

1. Focus:
2. Start time:
3. Slowing type:

[ ]  Persistent (i.e., continuous)

[ ]  Transient

[ ]  Post-ictal

1. Slowing location:

[ ]  Localized regional lobar or multilobar

[ ]  Hemispheric (side):

[ ]  Generalized

[ ]  No localized onset, specify:

1. Localized regional lobar or multilobar:

[ ]  Left frontal

[ ]  Right frontal

[ ]  Left parietal

[ ]  Right parietal

[ ]  Left occipital

[ ]  Right occipital

[ ]  Left temporal

[ ]  Right temporal

## EEG BACKGROUND AND PDR

1. Posterior dominant rhythm (PDR) present?

[ ]  Yes

[ ]  No

[ ]  Unable to determine

[ ]  N/A (< four months of age)

1. Frequency of the posterior dominant rhythm during relaxed wakefulness (round to the closest 0.5 Hz):
2. EEG background and PDR normal for age?

[ ]  Yes

[ ]  No – PDR slow, disorganized or absent, or background slow

[ ]  EEG data not adequate to assess background and PDR

1. Background symmetry categorized as :

[ ]  Symmetric

[ ]  Mild asymmetry (consistent asymmetry in amplitude on referential recording of < 50%, or consistent asymmetry in frequency of 0.5-1 Hz)

[ ]  Marked asymmetry (> 50% amplitude or > 1 Hz frequency asymmetry)

1. Predominant EEG background frequency:

[ ]  Delta (1-4 Hz)

[ ]  Theta (4-7 Hz)

[ ]  Alpha or greater (≥ 7 Hz)

[ ]  Unable to determine; artifact contaminated

1. Voltage:

[ ]  Normal

[ ]  Low (most < 20 µV in longitudinal bipolar with standard 10-20 electrodes)

[ ]  Suppressed (all activity < 10 µV)

1. Continuity categorized as:

[ ]  Continuous

[ ]  Nearly continuous (< 10% attenuation [> 10 µV but 50% of the background voltage] or suppression [< 10 µV)

[ ]  Discontinuous (10-49% of attenuation or suppression)

[ ]  Burst-attenuation/burst-suppression (50-90% attenuation or suppression)

[ ]  Suppression (>90% of the record <10 uV)

1. Reactivity to stimulation categorized as (select one or more):

[ ]  Frequency change to tactile stimulation

[ ]  Amplitude change to tactile stimulation

[ ]  Other change to tactile stimulation \_\_\_\_\_\_

[ ]  Frequency change to auditory stimulation

[ ]  Amplitude change to auditory stimulation

[ ]  Other change to auditory stimulation \_\_\_\_\_\_

[ ]  Frequency change to visual stimulation

[ ]  Amplitude change to visual stimulation

[ ]  Other change to visual stimulation \_\_\_\_\_\_

[ ]  None

[ ]  Unclear

[ ]  Untested

1. Stage II sleep transients (select one):

[ ]  Normal (for age, in adults K-complexes and spindles both present and normal)

[ ]  Abnormal (for age, in adults K-comlexes but no spindles present)

[ ]  Abnormal (for age, in adults spindles but no K-comlexes present)

[ ]  Abnormal (immature, asymmetric or asynchronous for age)

[ ]  Absent

1. EEG features consistent with ischemia:

[ ]  No

[ ]  Attributed to vasospasm

[ ]  From other cause of ischemia, specify:

1. qEEG detected ischemia:

[ ]  None

[ ]  Relative alpha variability

[ ]  Asymmetry index

[ ]  Alpha delta ratio

[ ]  Other

## EEG FINDINGS ICTAL

1. Seizures recorded?

[ ]  Yes

[ ]  No

1. Type of seizures recorded:

[ ]  Convulsive

[ ]  Non-convulsive

1. Electrographic seizures:

[ ]  Yes

[ ]  No

1. Typical electrographic seizure duration (any individual seizure):

[ ]  None

[ ]  Brief rhythmic discharge (< 10 sec)

[ ]  Short (≥ 10 sec but < 5 min)

[ ]  Prolonged (5 to 30 min)

[ ]  > 30 min

1. Electrographic seizure burden:

/24 hours

1. General epileptiform abnormalities:

[ ]  Yes: ≥ 3 Hz

[ ]  Yes: < 3 Hz

[ ]  No

1. Ictal onset: location on EEG:

[ ]  Localized focal

[ ]  Localized regional lobar or multilobar

[ ]  Hemispheric (side):

[ ]  Generalized

[ ]  No localized onset, specify:

[ ]  Other, specify:

1. Full ictal propagation: location on EEG:

[ ]  Localized focal

[ ]  Localized regional lobar or multilobar

[ ]  Hemispheric (side):

[ ]  Generalized

[ ]  No localized onset, specify:

[ ]  Other, specify:

1. Generalized rhythmic or periodic patterns (choose all that apply):

[ ]  None

[ ]  Periodic discharges (≥ 6 cycles)

[ ]  Spike-wave (includes sharp-wave and polyspike-wave)

1. Type of generalized rhythmic or periodic patterns:

[ ]  Frontally predominant

[ ]  Occipitally predominant

[ ]  Midline predominant

[ ]  “Truly” generalized

1. Prevalence of generalized rhythmic or periodic patterns (specify % of record that includes the pattern):

[ ]  Continuous (> 90% abundant):

[ ]  Abundant (50-89%):

[ ]  Frequent (10-49%):

[ ]  Occasional (1-9%):

[ ]  Rare (< 1%):

1. Frequency of generalized rhythmic or periodic patterns (cycles per second):
2. Evolving generalized rhythmic or periodic patterns (choose all that apply):

[ ]  None

[ ]  Frequency

[ ]  Morphology

[ ]  Location

1. Clinical correlate of generalized rhythmic or periodic patterns (choose all that apply):

[ ]  None

[ ]  Facial twitching

[ ]  Eye deviation

[ ]  Minor muscle movements

[ ]  Convulsive movement of the extremities

1. Generalized rhythmic or periodic patterns, PLUS:

[ ]  None

[ ]  Superimposed fast activity

[ ]  Superimposed sharp waves or spikes

[ ]  Superimposed fast activity or rhythmic activity

[ ]  Superimposed fast activity and sharp waves/spikes

1. Lateralized rhythmic or periodic patterns (choose all that apply):

[ ]  None

[ ]  Periodic discharges (≥ 6 cycles)

[ ]  Rhythmic delta activity (≥ 6 cycles)

[ ]  Spike-wave (includes sharp-wave and polyspike-wave)

1. Type of lateralized rhythmic or periodic patterns:

[ ] Unilateral asymmetric

[ ]  Bilateral asymmetric

[ ]  Lobes most involved

[ ]  Hemispheric

1. Prevalence of lateralized rhythmic or periodic patterns (specify % of record that includes the pattern):

[ ]  Continuous (> 90%):

[ ]  Abundant (50-89%):

[ ]  Frequent (10-49%):

[ ]  Occasional (1-9%):

[ ]  Rare < 1%):

1. Frequency of lateralized rhythmic or periodic patterns (cycles per second):
2. Evolving lateralized rhythmic or periodic patterns (choose all that apply):

[ ] None

[ ]  Frequency

[ ]  Morphology

[ ]  Location

1. Clinical correlate of lateralized rhythmic or periodic patterns:

[ ]  None

[ ]  Facial twitching

[ ]  Eye deviation

[ ]  Minor muscle movements

[ ]  Convulsive movement of the extremities

1. Bilateral independent rhythmic or periodic patterns (choose all that apply):

[ ]  None

[ ]  Periodic discharges (≥ 6 cycles)

[ ]  Rhythmic delta activity (≥ 6 cycles)

[ ]  Spike-wave (includes sharp-wave and polyspike-wave)

1. Type of bilateral independent rhythmic or periodic patterns:

[ ] Unilateral asymmetric

[ ]  Bilateral asymmetric

[ ]  Lobes most involved

[ ]  Hemispheric

1. Prevalence of bilateral independent rhythmic or periodic patterns (specify % of record that includes the pattern):

[ ]  Continuous (> 90%):

[ ]  Abundant (50-89%):

[ ]  Frequent (10-49%):

[ ]  Occasional (1-9%):

[ ]  Rare < 1%):

1. Frequency of bilateral independent rhythmic or periodic patterns (cycles per second):
2. Evolving bilateral independent rhythmic or periodic patterns (choose all that apply):

[ ] None

[ ]  Frequency

[ ]  Morphology

[ ]  Location

1. Clinical correlate of bilateral independent rhythmic or periodic patterns:

[ ]  None

[ ]  Facial twitching

[ ]  Eye deviation

[ ]  Minor muscle movements

[ ]  Convulsive movement of the extremities

1. Multifocal rhythmic or periodic patterns (choose all that apply):

[ ]  None

[ ]  Periodic discharges (≥ 6 cycles)

[ ]  Rhythmic delta activity (≥ 6 cycles)

[ ]  Spike-wave (includes sharp-wave and polyspike-wave)

1. Type of multifocal rhythmic or periodic patterns:

[ ] Unilateral asymmetric

[ ]  Bilateral asymmetric

[ ]  Lobes most involved

[ ]  Hemispheric

1. Prevalence of multifocal rhythmic or periodic patterns (specify % of record that includes the pattern):

[ ]  Continuous (> 90%):

[ ]  Abundant (50-89%):

[ ]  Frequent (10-49%):

[ ]  Occasional (1-9%):

[ ]  Rare < 1%):

1. Frequency of multifocal rhythmic or periodic patterns (cycles per second):
2. Evolving multifocal rhythmic or periodic patterns (choose all that apply):

[ ] None

[ ]  Frequency

[ ]  Morphology

[ ]  Location

1. Clinical correlate of multifocal rhythmic or periodic patterns:

[ ]  None

[ ]  Facial twitching

[ ]  Eye deviation

[ ]  Minor muscle movements

[ ]  Convulsive movement of the extremities

1. Ictal Interictal Continuum (IIC):

[ ]  Yes

[ ]  No

1. Interictal epileptiform discharges:

[ ]  Yes

[ ]  No

1. Maximum frequency of interictal epileptiform discharges (cycles per second):

## RECORDING CIRCUMSTANCES

1. Medication received at time of EEG (record amount received in a 24 hour period):

[ ]  Propofol:

[ ]  Midazolam:

[ ]  Pentobarbital:

[ ]  Thiopental:

[ ]  Dexmedetomidine:

[ ]  Other, specify:

1. Maximum intracranial pressure (ICP) on day of EEG (mmHg):
2. Time ICP recorded during EEG recording above 20 mmHg (minutes):

## ARTIFACTS

1. Breach artifact:

[ ]  None

[ ]  Present but able to interpret EEG

[ ]  Present and preventing interpretation of EEG

1. Muscle artifact:

[ ]  None

[ ]  Present but able to interpret EEG

[ ]  Present and preventing interpretation of EEG

1. Ventilator artifact:

[ ]  None

[ ]  Present but able to interpret EEG

[ ]  Present and preventing interpretation of EEG

1. Electrical artifact:

[ ]  None

[ ]  Present but able to interpret EEG

[ ]  Present and preventing interpretation of EEG

1. Pneumatic boots artifact:

[ ]  None

[ ]  Present but able to interpret EEG

[ ]  Present and preventing interpretation of EEG

1. Cardioballistic artifact:

[ ]  None

[ ]  Present but able to interpret EEG

[ ]  Present and preventing interpretation of EEG

1. Other artifact not listed above:

## General Instructions

This CRF Module is designed for use in any project using electroencephalography (EEG) to study ictal or interictal abnormalities. EEG is the recording of electrical activity along the scalp produced by the firing of neurons within the brain. In clinical contexts, EEG refers to the recording of the brain's spontaneous electrical activity as recorded from multiple electrodes placed on the scalp. Researchers should note that these CDEs are not appropriate for Intensive Care Unit use.

Please note: The elements on this CRF are classified as Supplemental and should only be used when the research team considers them appropriate for the study.

## Specific Instructions:

Please see the Data Dictionary for definitions of each of the data elements included in this CRF module.

* Unable to determine PDR: If sedated or asleep cannot assess, which is different than absent despite having state which could be assessed.
* Reactivity to stimulation: Change in cerebral EEG activity to stimulation.
* Reactivity type: If reactive to stimulation characterize the response as change in amplitude or frequency
* EEG ischemia: In the interpretation of the treating team there were EEG findings indicating brain ischemia.
* qEEG ischemia: Indicate which qEEG parameters indicated brain ischemia.
* Electrographic seizures: Pattern has to last at least 10 min in patients with qualitative or quantitative impairment of consciousness. The following criteria qualify: (1) epileptiform discharges at >2.5 per second or (2) improvement after treatment with typical ictal spatiotemporal evolution or subtle ictal clinical phenomena with epileptiform discharges/rhythmic activity >0.5 per second.
* Electrographic seizure burden: Cumulative burden measured in total minutes of seizure over 24 hours.
* Evolution of rhythmic or periodic patterns:
	+ Frequency: Change in the same direction for two consecutive time periodsby at least 0.5/s.
	+ Morphology: ≥ 2 consecutive changes to a novel morphology
	+ Location: Spread into or sequentially out of at least two standard 10-20 electrode locations.
* Maximum ICP: If measured, record range maximum ICP in mmHg on day of EEG.
* ICP, time above 20: If measured, record time spent in minutes above 20 mmHg.