EEG Reporting Guidelines

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Learning Objectives

• To describe a standardized format for routine scalp EEG reporting
• To apply guideline recommendations for describing EEG findings in routine scalp EEG studies
• To express the significance of EEG findings in succinct and clinically relevant impression and clinical correlation statements
Why is this important? What is the purpose?

• Improve interrater reliability
  • via format standardization
• Convey clinically relevant information
• Align with other standardized terminology

Tatum et al. *JCN* 2016
Scope and other guidelines

This guideline:

• Routine scalp EEG

Others-specific settings:

• Neonatal EEG
• Critical care EEG
• Long term monitoring for epilepsy
• Electroencephalographic inactivity

https://www.acns.org/practice/guidelines
Overall reporting format

- History
- Technical Description
- EEG Description
- Impression
- Clinical Correlation
Key features

• Succinct
• Reason for EEG

**Relevant** clinical information
• Identifying information
  • patient
  • recording type

Relevant clinical information

• Medical history
• Medications
  • Sedatives
  • Antiseizure medications
• Neuroimaging
• Cranial surgery history
• Prior EEGs done?

Tatum et al. *JCN* 2016
Technical Description

• Date of recording & interpretation
• Electrodes
• Conditions eg. Sleep deprivation
• State of consciousness
• Special parameters in post-hoc review
  • If not consistent with EEG minimum standards for recording
Electrodes

- Number
- 10-20 or 10-10 system
  - Minimum standards required
- Additional electrodes
- Special electrodes
- Modified electrode locations

EEG Description

Components
- Background
- Sleep/state change
- Activation procedures
- Abnormalities
- Other features

Other considerations
- Objective description
- Describe normal variants (if present)

Tatum et al. JCN 2016
EEG Description

- Posterior dominant rhythm
  - Best frequency
- Reactivity
- Nondominant activity
  - Principal frequencies
  - Location
  - Morphology
- Organization
- Symmetry
- Amplitude (quantitative)

Background

Tatum et al. JCN 2016
• Describe state changes
• Reflect all sleep stages present
• Normal sleep elements
  • eg. spindles
• Describe abnormalities
  • Rapid cycling
  • REM at onset
  • Asymmetries of normal sleep elements
EEG Description

- Morphology
- Continuous vs intermittent
- Region
- Frequency
- Bursts vs runs vs sporadic
- Amplitude
- if bilateral
  - Symmetry
  - Synchrony

Abnormalities

Tatum et al. *JCN* 2016
**EEG Description**

- Epileptiform discharges
  - Location
  - Morphology
  - Prevalence
  - Pattern of occurrence
    - Duration
    - Frequency

**Abnormalities**

Onset
Propagation
Postictal
Duration
Frequency
Clinical characteristics

Temporal and spatial
Location
Distribution
Morphology
Amplitude
Rhythmicity

Tatum et al. *JCN* 2016
Hyperventilation and photic stimulation
Describe responses
Describe elicited abnormalities
If not done, describe why
Describe any other activation maneuvers
When to describe?

- Artifacts
- ECG
- Other channels
  - Eyes, EMG, respiratory…
- Video
  - Seizure/spell clinical
  - Level of consciousness
Impression

- Normal or abnormal
- Significance of EEG findings
- For the referring clinician
  - Understandable to any specialty
- Why abnormal?
  - Give clear, concise line item: minimum necessary
  - List abnormalities in order of importance
Clinical Correlation

- Integrate reason for referral AND findings
- To assist with patient management
- Avoid technical terms
- DO NOT make treatment recommendations
- Ok to suggest further testing if appropriate
- Compare to prior EEG
Take Home Points

In your routine EEG reports:

• Provide clinically relevant succinct history
• Craft an objective description of background, states, and abnormalities, characterizing the various features
• Write a succinct and clear synthesis of findings (impression)
• Integrate the findings and reason for referral in an easy to understand clinical correlation