ASET Position Statement

Video EEG Data Management in Long Term Monitoring Studies

With advancements in technology, video EEG (VEEG) data can be recorded utilizing higher sampling rate options to capture higher frequencies that have been associated with seizures. Video recording options that include High Definition (HD) settings for a clearer view of subtle clinical seizure changes are also available. With all these advantages, it is essential to develop an infrastructure that accommodates servers with a larger storage capacity and an efficient data management plan. It is also of utmost importance that samples of VEEG are collected, saved, and archived according to department-specific guidelines[1,2]. ASET strongly recommends the development of department-specific protocols clearly delineating the steps for adequate management of VEEG data according to department needs and the facility's Health Information Management guidelines. Parameters, such as relevant data to preserve and the length of VEEG samples, need to be established with input and approval from the Neurodiagnostic laboratory's Medical Director[3,4]. If there are no state-mandated regulations for data management and storage, refer to ASET's policies and procedures for Long Term Monitoring for examples of guidelines to be included in the department-specific protocol (Addenda A and B).

ASET strongly recommends that Neurodiagnostic department management, in collaboration with the Medical Director and technologist team, develop guidelines to include relevant data for easy retrieval, documentation, and billing purposes[2].

Specialization within neurodiagnostics has become very common due to the high level of skill required to work in our most advanced areas of practice, such as Long Term Monitoring (LTM) in the Epilepsy Monitoring Unit (EMU) and critical care areas, in order to ensure that sensitive VEEG data is managed and saved appropriately[5]. ABRET Neurodiagnostic Credentialing and Accreditation has added a credentialing exam specifically for LTM, known as the CLTM[6]. The additional training and responsibility needed to work in the EMU and critical care settings are recognized as an advanced, specialized modality of Neurodiagnostics[7]. *Please refer to the ASET National Competency Skill Standards for Long Term Monitoring in Epilepsy and for Performing ICU/cEEG Monitoring*[8].

It is therefore ASET's position that qualified EEG Specialists, credentialed in EEG (i.e., R. EEG T.)[9], are responsible for the analysis and management of VEEG data. Furthermore, ASET

strongly encourages technologists working in Epilepsy Monitoring Units and critical care areas to pursue the advanced CLTM credential[6].

References:

1. ASET Position Statement: *Retention of neurodiagnostic procedures data*. 2013.
2. ASET – The Neurodiagnostic Society. (2011) *Department Management and Office Procedures: Medical Records, Billing, Risk Management.* In: <u>Policies and Procedures for the Neurodiagnostic Department: Reference Manual.</u> Kansas City, MO.
3. American Clinical Neurophysiology Society. Guideline twelve: guidelines for long-term monitoring for epilepsy. *J Clin Neurophysiol.* 2008 Jun;25(3):170–80.
4. ASET – The Neurodiagnostic Society. (2011) *Long Term Monitoring.* In: <u>Policies and Procedures for the Neurodiagnostic Department: Reference Manual.</u> Kansas City, MO.
5. ASET Position Statement: *Long-Term Monitoring (LTM) for Epilepsy: LTM Neurodiagnostic Patient Observer and LTM Neurodiagnostic EEG Data Analyst*. 2013.
6. ABRET Neurodiagnostic Credentialing and Accreditation. (August, 2015) CLTM Exam Eligibility Requirements (<u>http://abret.org/candidates/credentials/cltm/</u>).
7. ASET – The Neurodiagnostic Society. (2016) *Job Descriptions for the LTME Specialist I and II; ICU/cEEG Specialist I and II; and Advanced LTM Analyst.* In: <u>Handbook of Neurodiagnostic Job Descriptions and Competencies, 2nd Edition</u>. Kansas City, MO.
8. ASET – The Neurodiagnostic Society. (2016) *National Competency Skill Standards for Performing LTME and for Performing ICU/cEEG Monitoring.* In: <u>Handbook of Neurodiagnostic Job Descriptions and Competencies, 2nd Edition</u>. Kansas City, MO.
9. ASET Position Statement: *Neurodiagnostic Practice Levels*. 2011.

Other sources:

1. American Clinical Neurophysiology Society. Guideline four: recording clinical EEG on Digital Media. *J Clin Neurophysiol.* 2016 Aug;33(4):317–319.
2. <u>www.naec-epilepsy.org</u>

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ADDENDUM A. ASET Policy and Procedure on Editing the Prolonged Video EEG

EDITING THE PROLONGED VIDEO EEG

PURPOSE: To provide a protocol for editing the prolonged video EEG, in order to consolidate the essential and relevant portions of a multi-hour study into a concise and manageable data file.

GENERAL GUIDELINES

IMPORTANT: *The guidelines provided below must be customized to your equipment. The instructions for editing on this protocol EXAMPLE do not apply to all VEEG review systems.*

1. Prolonged Video EEGs may be recorded for as few as two and as many as 24 hours each. This provides a large amount of data, not all of which is relevant to the presenting problem of the patient. Editing provides a format for concentrating on the essential parts of the recording, and consolidating them into a smaller data unit. Each technologist is responsible for editing the studies assigned to them up to the final hour of their shift.

2. Every two to three hours, the technologist should exit the collection mode via the desktop icon located in the bottom left corner of the screen. At the desktop, double click the ANALYSIS icon.

3. Under FILE, select OPEN RECORDING. If the patient to be edited is not being recorded on the collector being used, choose the location of the files to be edited. This is done by accessing the drop down list under LOCATION. The possible choices are C7, C8, C9 or CA.

4. Locate the patient name and file on the PTI list. Highlight the row by left clicking on the first grey block to the left of the page corresponding to the chosen file. Double click the same grey block to open the file.

5. Click on the EDIT option, and double click on the last choice, EDIT FILE. This will produce a small window on the main screen with editing options.

6. Click on the MPEG icon to activate the video screen. This screen must be open and displayed in order to attach video files to the EEG data. When the icon is double clicked, the recorded video of the patient will be displayed in a window on the main screen.

7. Click on COMMENTS to bring up the drop down menu. Choose COMMENT LIST from the options available to open up the comment window. This window will display all comments entered during the recording, any montage or instrumentation changes, and patient events. Any edits already made will also be displayed with the start and stop times of the selected periods.

8. If the opened file has already been edited, locate the NEXT FILE icon at the bottom of the screen. Click the icon to advance to the next file. Continue until reaching a file which has not been reviewed.

9. To review the file, click on the >> icon and the EEG will automatically advance. To stop the advancement, click the red triangle. All data should be reviewed, regardless of whether it will be included in the edit.

10. Data is selected for inclusion into an edit by clicking (within the opened edit window) the icon which sets the left starting point. A green border will appear along the top of the EEG data, from the starting point and continuing to the right. All data under the green border will be included in the edit.

11. Advance the EEG (using the > icon) until all of the data to be included has been covered by the green border. At this point, select (from within the opened edit window) the icon which will set the right endpoint of the edit. The colored border will turn purple, indicating that the data covered underneath has been selected as a completed "snippet" of information.

12. Ensure that the edited data includes the following: all patient events, either button pushes or identified by parents or staff; the entire routine baseline EEG (including hyperventilation and photic stimulation); a representative sample of interictal abnormalities; transitions from wake to sleep and sleep to wake; and any questionable findings. When editing patient events, start the edit several minutes prior to the beginning of the event, and end the edit several minutes after the event stops.

13. At least two to three minutes of EEG should be saved each hour (equal to one file), regardless of whether or not patient events have occurred.

14. ALL EEG DATA MUST BE REVIEWED BEFORE CHOOSING PORTIONS FOR EDITING.

15. After all available EEG has been reviewed, and edits have been set, click on the X located in the upper right corner of the editing window, closing that window.

16. Click on the X located on the upper right corner of the video window, closing that window.

17. Click on the X located in the upper right corner of the comment window, closing that window.

18. Left click FILE, activating the drop down list. Choose EXIT to close and exit the patient file. The screen will automatically return to the collection window, and real time EEG will be displayed.

19. Repeat this process, beginning at the point the last edit was set and reviewing all EEG data recorded from that time onward, every two to three hours. Set all necessary edits, and return to the collection screen.

WHEN COMPLETING A VEEG STUDY:

1. After completing a patient's VEEG, the last editing process will include sending the edited files to the strip files. Review all data recorded from the point of the last edit. Set all edits.

2. The last edit should include the final two to three minutes of the VEEG, up to the point the collection is stopped.

3. Set the edits as explained above. When the last edit is in place, choose (from the editing window) the icon which will process all edits. A window will appear, asking if the edits are to include digital video. Select this option.

4. The next window will ask to which location the edited files should be sent. Utilizing the drop down menu, choose STRIP FILES. Then choose SEND.

5. A window will appear, which will track the sending process. When all the files have been successfully sent, a window will open which will say SYSTEM FILES SUCCESSFULLY SENT. Click OK to close this window.

6. Close all opened windows, and exit the program by choosing EXIT under the FILE option. The desktop should now be displayed.

ADDENDUM B. ASET Policy and Procedure on Epilepsy Monitoring Technologist Responsibilities in Reviewing and Clipping and Archiving Data

EPILEPSY MONITORING TECHNOLOGIST RESPONSIBILITIES

IMPORTANT: *The guidelines provided below are to be used as an EXAMPLE only. Guidelines for your facility should be developed in collaboration with the Neurodiagnostic Department's management, Medical Director, and technologist team.*

Reviewing and Clipping

- 20 minutes of random wake and random sleep should be clipped for patients daily.
- All patient push buttons should be clipped even if they are not seizures, unless they are an accidental push button. If tech doesn't believe episode in question is a seizure, it should be clipped as "EVENT".
- All seizures should be clipped unless patient has excessive number of seizures. The epilepsy doctor will say when enough seizures have been clipped. Seizures should then be marked and counted for each shift.
- Other things maybe clipped as necessary such as interictals, arousals, etc.
- Patients who are unresponsive or in drug induced comas should have random samples clipped for full day containing 5 minutes every 3 hours.

Archiving

- Patients can be archived as soon as they are disconnected. Techs can wait until there is enough data to fill disk before archiving patient.
- Video can be deleted from Random Samples for coma patients before archiving.
- After patient is archived, data needs to be left on system for 1 week to allow doctors to finish doing reports. Prior to removing any data from system, make sure that there is documentation of reports.
- If data needs to remain on system for legal reasons, it should be moved to save full file bin. Once full files are archived, data can be cleared or deleted from system.
- If data is needed for Epilepsy Conference, it should be moved to the _____ [folder; for example: Epilepsy Conference bin]. Data can be cleared or deleted after patients are presented at Epilepsy Conference.
- If a doctor requests data stay on system for other reasons, files can be moved to the Doctor's individual bin.