



Issue

- Non-convulsive status epilepticus (NCSE) and non-convulsive seizures (NCS) have been found in up to 10-15% of patients in the critical care setting with these seizures often going unrecognized
- Electroencephalogram (EEG) is gold standard but requires skilled technicians and averages 2-4 hours to obtain
- Rapid Response EEG (rr-EEG) by Ceribell Inc. is easily applied, pocket sized, and battery operated device that does not require a medical degree to interpret

Procedures for Collecting and Evaluating Information

- Department of Neurology at a Level 1 Military Trauma Center acquired 50 rr-EEG headsets from Ceribell Inc.
- From September 2021 through April 2022 all consultations sought/required EEG were assessed for inclusion
- Inclusion Criteria: >6 y/o, altered mental status, risk of seizure or seizure-like activity
- Exclusion criteria: Craniotomy without bone flap or burns/injury to forehead/scalp
- All providers completed online trainings and certification test put forth by Ceribell prior to utilizing headsets
- Data collection included time of consult, time to start recording, and time of interpretation for both conventional EEG and rr-EEG
- Conventional EEG was completed utilizing Nadus EEG

Information

- 48 rr-EEG headsets have been used
- For rr-EEG, the average time to start recording was 49.31 minutes and average time to interpret was 59.06 minutes
- For conventional EEG the average time to start recording was 128.05 minutes and average time to interpret was 246.27 minutes
- Given practical variability in time to start recording with Nadus EEG, we compared time to start of recording with rr-EEG to start of recording with Nadus EEG
- This yielded a *p*-value of 0.0016 during call
- Retrospectively, 26 critical care consultations were completed over 6 months with rr-EEG and only 16 conventional EEGs were completed in the same 6 months after utilizing rr-EEG
- This would save our institution approximately \$5,000 over this time frame



Figure 1. RR-EEG headset and Recorder from Ceribell Inc.

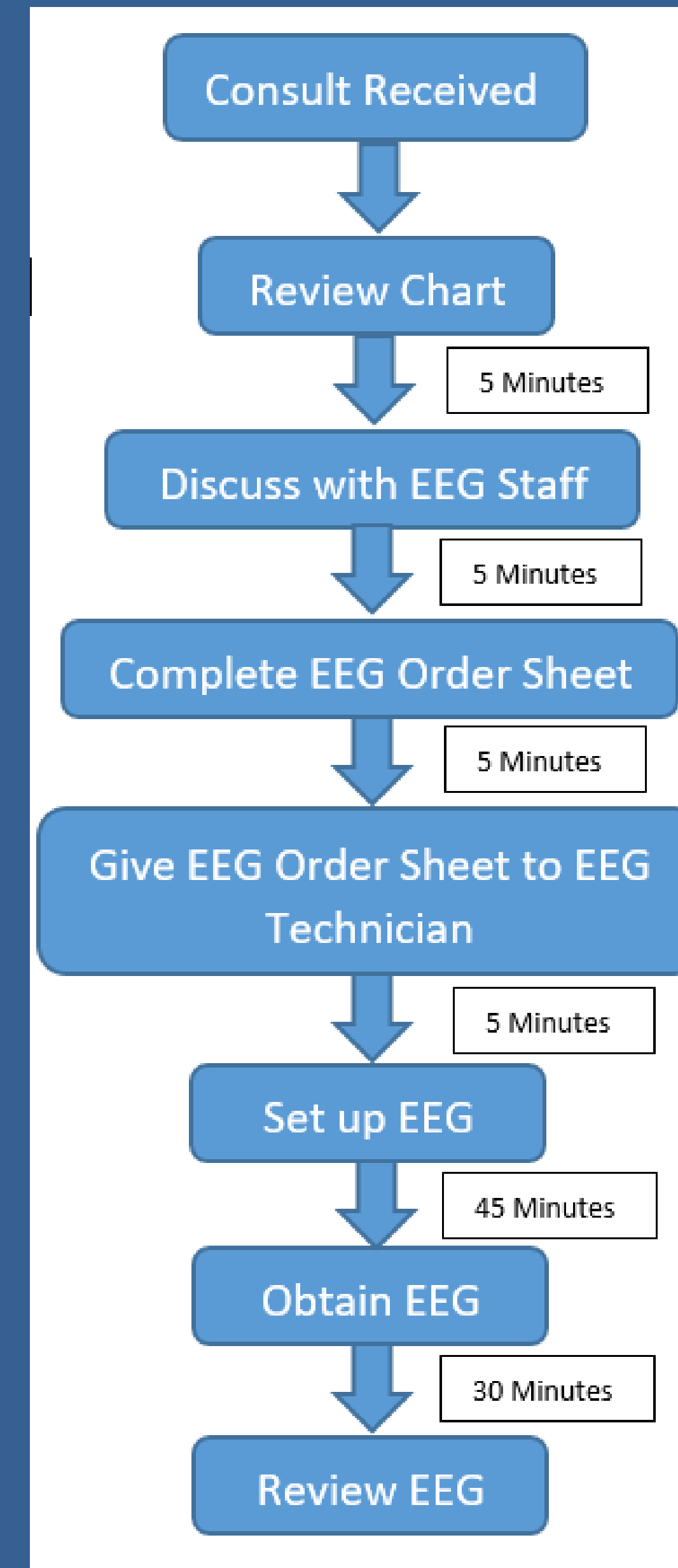
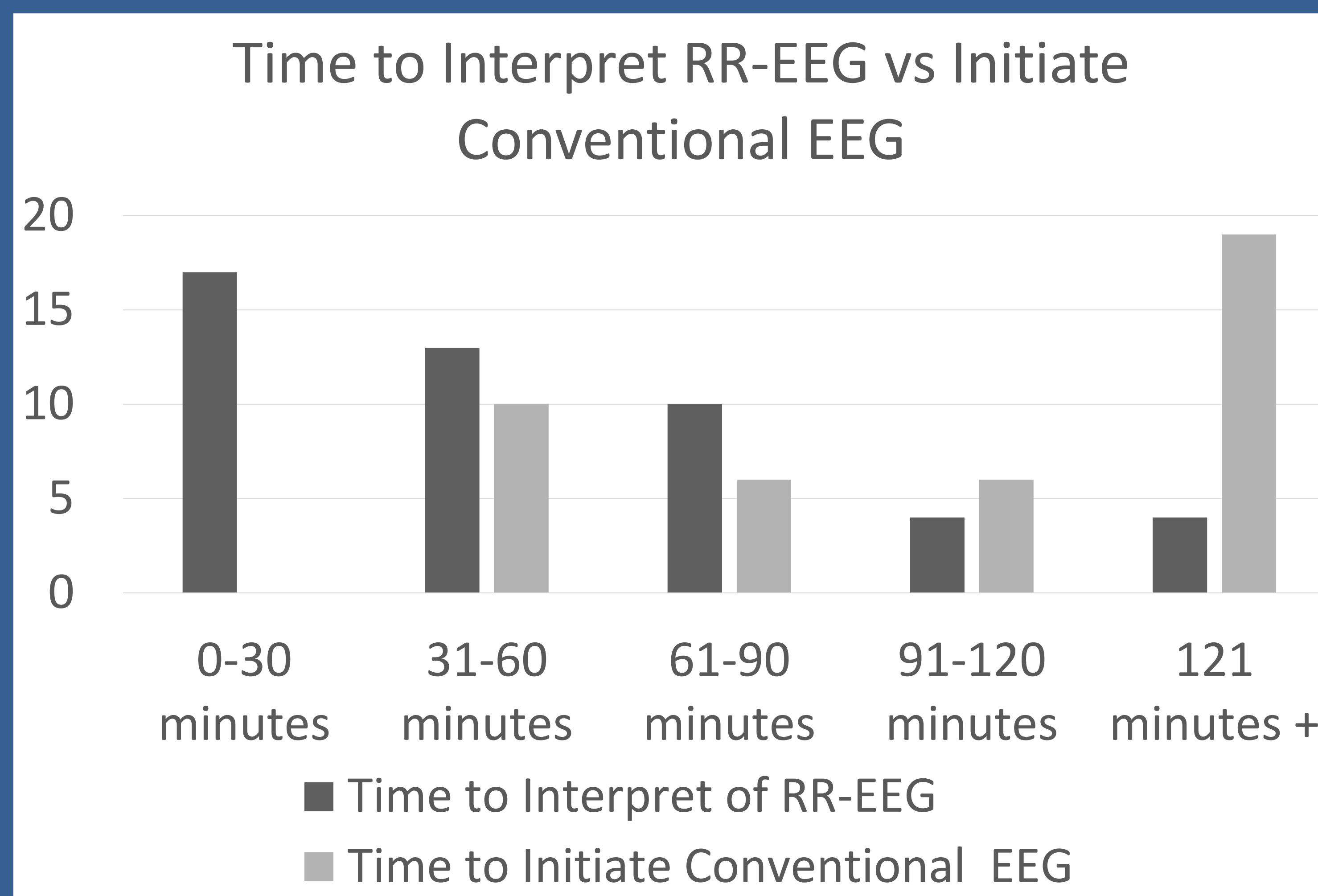
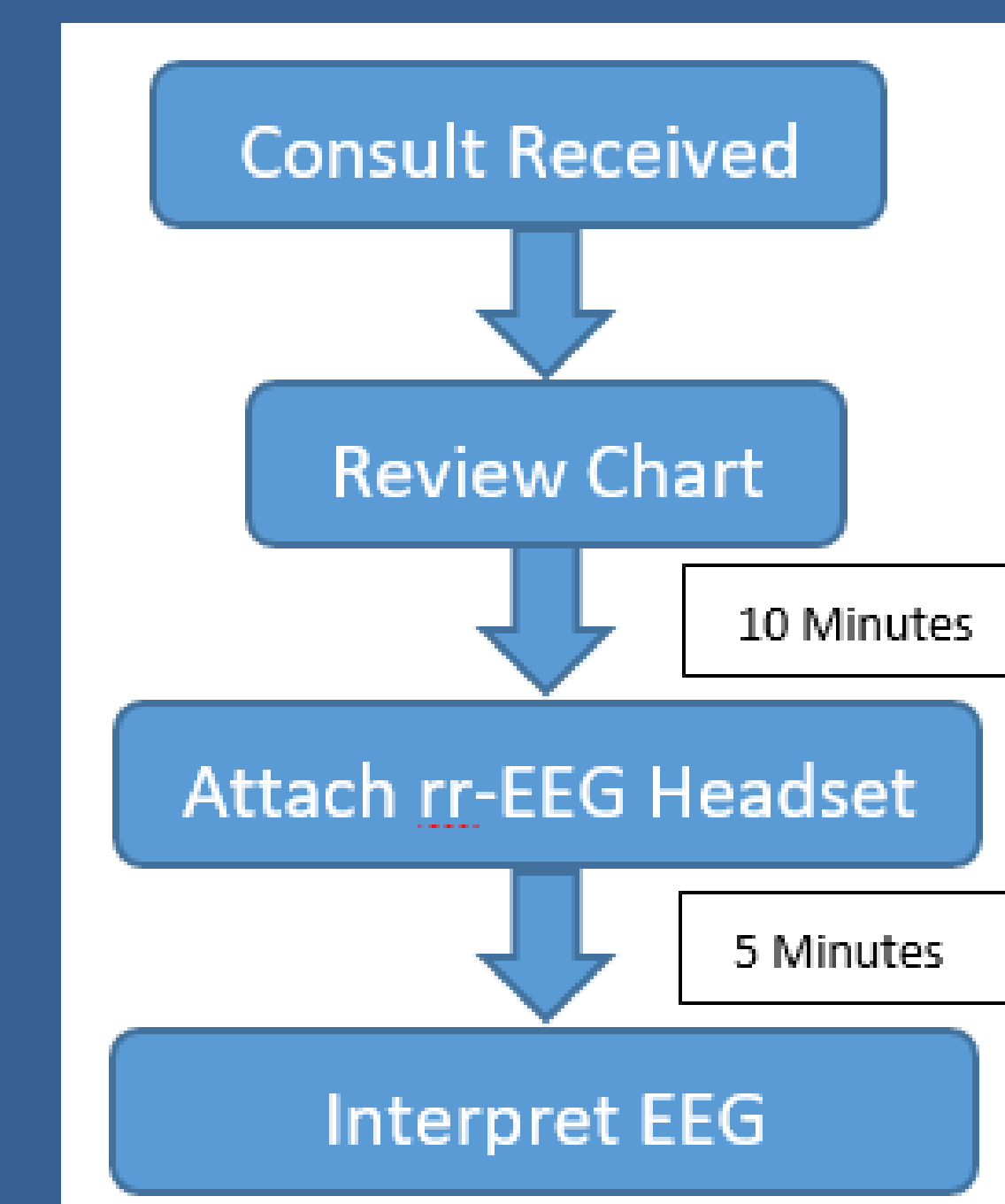


Figure 2 and 3. Left demonstrates typical process



Lessons Learned

- This pilot study confirms the utility and ease of implementation of rr-EEG
- It was 61.49% faster to apply rr-EEG compared to just setting up conventional EEG

REFERENCES

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2. Westover MB, Shafi MM, Bianchi MT, et al. The prevalence of nonconvulsive status epilepticus in critically ill adults. *Clin Neurophysiol*. 2015;126(3):444-450
3. Parvizi J, Gururangan K, Razavi B, Chafe C. Detecting nonconvulsive status epilepticus. *Neurology*. 2014;82(4):877-884.