

## Top Technical Tips from Team TeleEEG ... 'in a nutshell'

- *"Once you understand artefacts, the EEG will take care of itself"*

- ✦ Always monitor the electrode resistances as you are applying the electrodes.
- ✦ Symmetry of electrodes is particularly important and physical checks should be made using both hands to check that this is the case whilst applying the electrodes.
- ✦ A point of interest is that Cz can be found by asking a patient to point to the top of their head, if ever in doubt.
- ✦ Depending on the patient's hair you may need to run the electrode lead through the hair to enable the electrode head to lie flat on the scalp. If the lead is pushed away by the hair it will lever the electrode contact away from the head introducing electrode artefact and can break contact.
- ✦ Ideally <5Kohms but between 5-10K ohms will be acceptable but all resistances should be comparable to be effective.
- ✦ Once all the electrodes are on, secure them by gathering the electrodes behind the head. twist and leaving a loop to allow head movement, secure with tape to the patients' shoulder.
- ✦ Additional tape or compression bandage can be added around the patients' head to secure electrodes from movement artefact.
- ✦ If there is suspected artefact that is affecting a pair of channels with a common electrode it may be assumed it is a genuine focal abnormality but it should be encouraged that this should be addressed and the electrode checked and possibly changed to eliminate artefact. Again, this should be annotated as to what has been done on the record.

## Run some basic artefact generating procedures as follows:

1. Instruct patient to blink continually for a few seconds followed by eye deviation right-left 2-3 times. This allows you to see how the eye movement is contaminating the record.
  2. Ask the patient to move head slightly side to side
  3. On each of these points annotate on the record what is happening.
  4. Understand that sweat artefact is going to cause baseline drift. If possible, keep a fan on the patient if the ambient temperature is high.
- ✦ As the record progresses always keep annotating with respect to the position of the patient – whether sitting or lying down. Always annotate if they are restless or uncooperative.
  - ✦ If there is a great deal of muscle artefact overlying the EEG it may be because the patients jaw is clenched. This can sometimes be asymmetrical. Ask, even if in doubt, ask them to let their mouth fall open. This may be needed to be repeated as patients will often resume a clenched position.
  - ✦ When hyperventilation is performed – although with Covid-19, this has ceased, a point to consider! – movement can be an issue so any sudden deviation of random change has to be balanced against actual EEG changes, so there needs to be frequent annotation of how the patient is performing and although encouraging the patient to be consistent they must not be bouncing around in enthusiasm. I normally send handheld foil windmills to encourage patients, particularly children, but also allow the persons doing the EEG to evaluate how well and consistent the patients are hyperventilating. Blowing bubbles does not work as the kids want to chase the bubbles!



'In a Nutshell', series written and reproduced with kind permission by:

*Anne*

Anne Clarke  
TeleEEG Trustee  
Highly Specialised Clinical Physiologist - Neurophysiology



<- Not leaving the wires like this as too much movement will be picked up along the length of the wires

