## MEG Acquisition Methods

1. Date of Exam: //20 m m dd yyyy
2. Spontaneous
   1. Duration:
   2. Sedation: *(Check only one)*  Yes  No
   3. Sampling frequency:
   4. Bandwidth:
3. Evoked field
   1. Epoch number:
   2. Sedation: *(Check only one)*  Yes  No

Type:

* 1. Sampling frequency:
  2. Bandwidth:

## MEG / EEG Source Analysis Methods

1. Volume conductor (Check only one)

One shell sphere

Two shell sphere

Three shell sphere

Four shell sphere

Boundary element model (BEM)

Finite element model (FEM)

1. Dipole (Check only one)

Moving

Rotating

Regional

Fixed coherent

Fixed MUSIC

1. Distributed source models (Check only one)

Minimum norm least squares (MNLS, L2 Norm)

Standardized low resolution electromagnetic tomography (sLORETA)

L1 Norm

Lp Norm

Low resolution electromagnetic tomography (LORETA)

Dynamic statistical parametric mapping (dSPM)

1. Beamformer (Check only one)

Vector SAM LCMV

## GENERAL INSTRUCTIONS

MEG is typically acquired in the interictal state together with scalp EEG. If a spontaneous seizure does occur, and if patient movment does not create error in head positioning / registration, then early ictal discharges (as for interictal spikes and sharp waves) may be analyzed for localization.

Recording of spikes can be accomplished in awake or sleep states. Sedation is commonly necessary, especially for children. Achieving sleep aids capture of spikes and increases signal to noise. There is no preference for spikes that occur during awake or sleep states. Choice of sedation is site specific and dependent on level of monitoring care required. Mild oral sedatives such as oral clonidine can be very effective do not typically require anesthesia. Whatever sedation is used, it should not suppress epileptiform activity.

Source analysis can be accomplished by a number of methods that fall under two large modeling techniques—dipole and distributed source. Choice of method is up to the investigator, and may depend on the nature of spike source generatory. No one method is preferred. Equivalent current dipole modeling is the one that is most validated in clinical application, at least thus far as reported in the literature. Distributed source models do have advantages, especially for extended sources. Regardless of source localization method, it is strongly recommended that MEG be interpreted and analyzed in conjunction with EEG, for the two modalities are strongly complimentary and allow optimal resolution of dipole orientation and temporal evolution of source generators.