Indo-Dutch Workshop on Medical Devices for Affordable Health

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&

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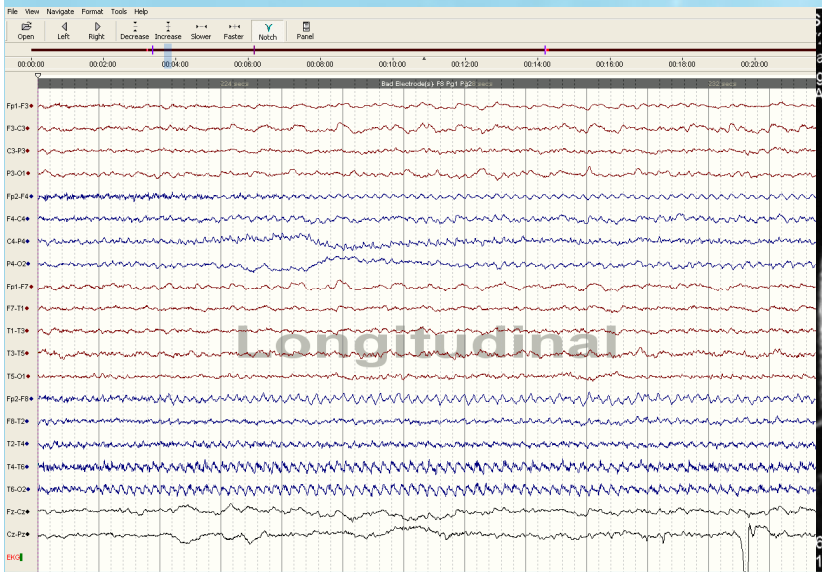
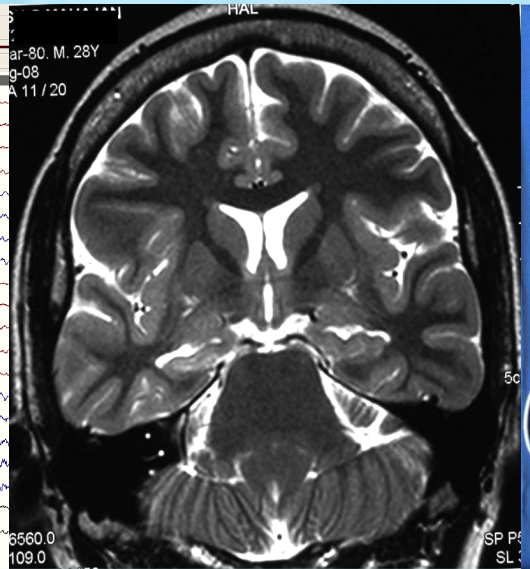
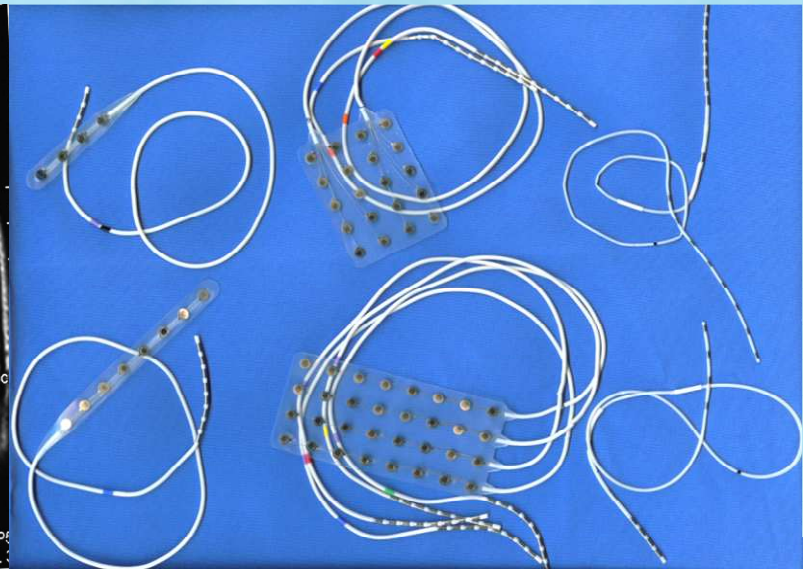






Background

- Clinical neurologist by training
- Working in clinical care of neurology patients and applied research
- Areas of special interest:
  - Epilepsy (Medically refractory epilepsy)
  - Neurophysiology

R. MADHAVAN NAYAR CENTRE

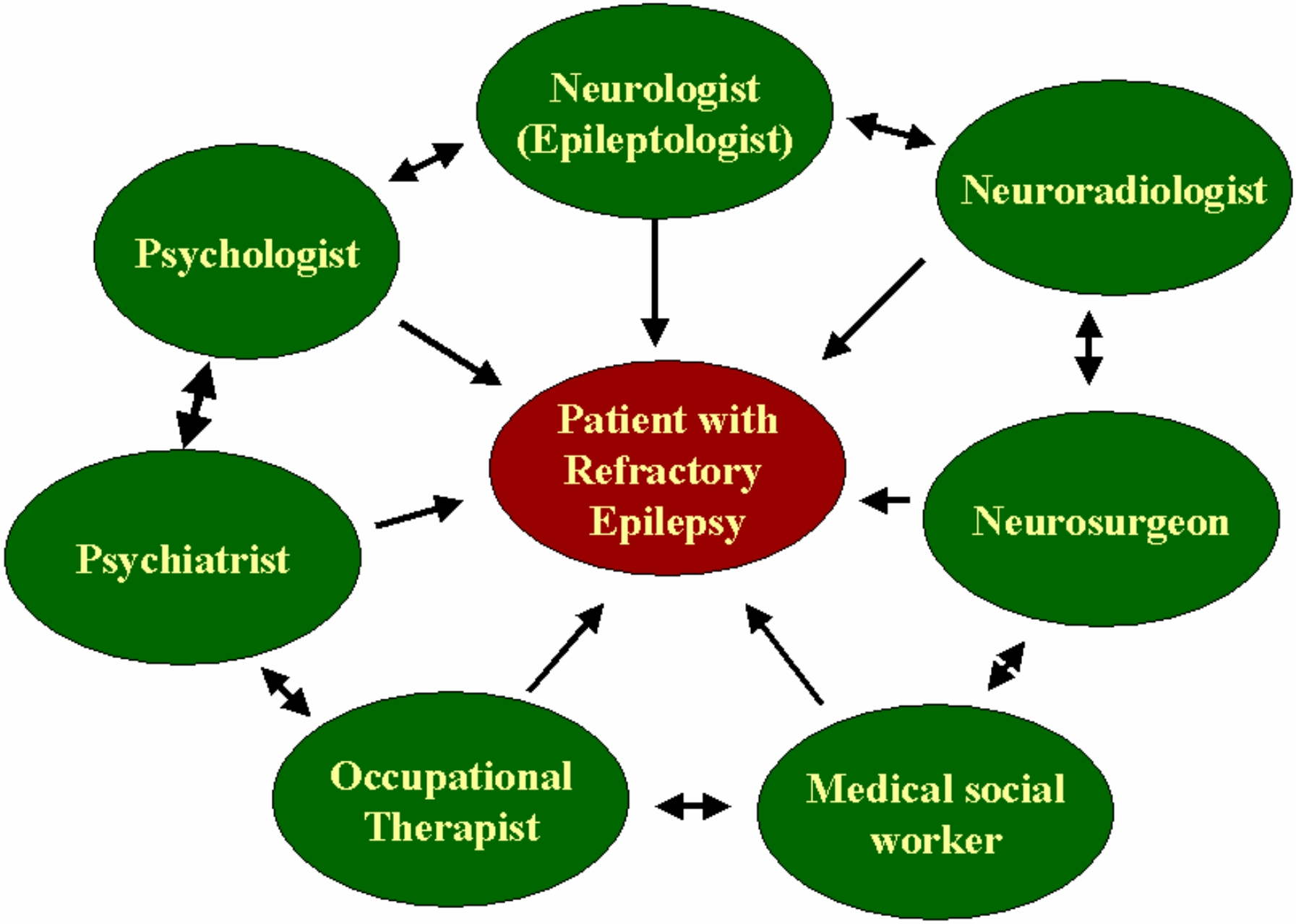
FOR

COMPREHENSIVE EPILEPSY CARE

Basic activities

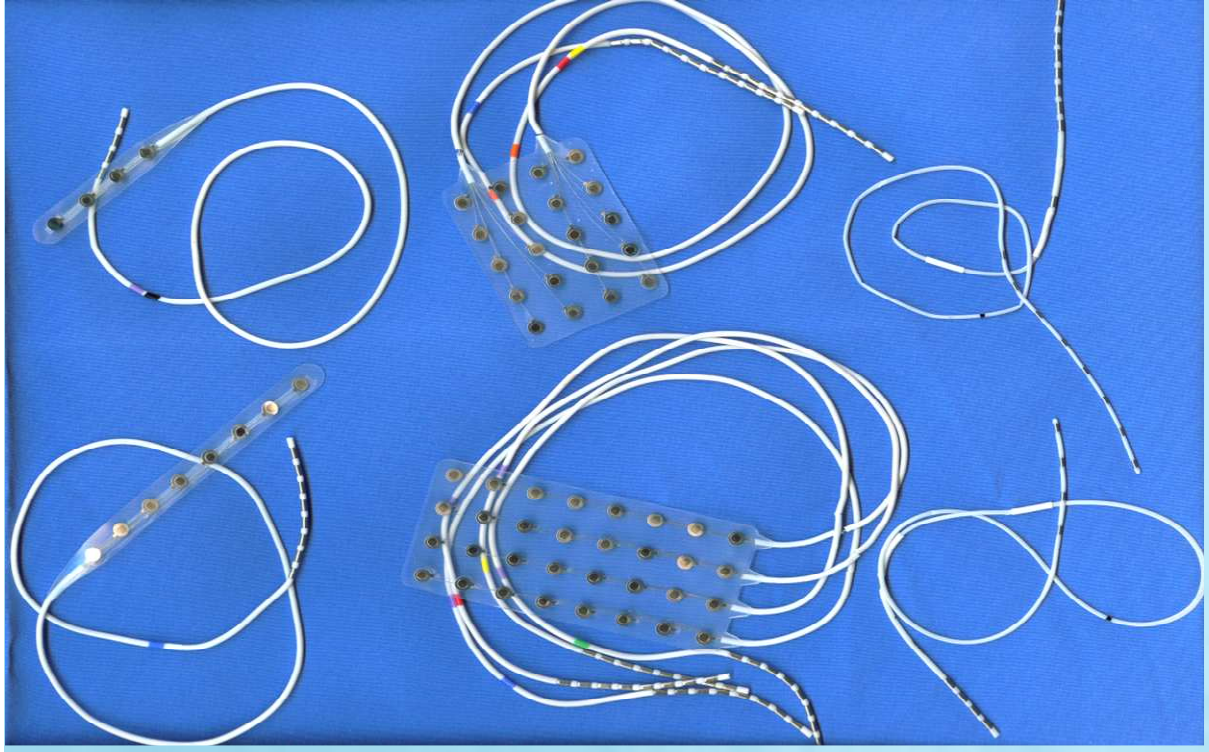
- Clinical care of all types of epilepsy patients
  - **Diagnosis**
  - **Treatment**
- Evaluation of patients with refractory epilepsy for possible epilepsy surgery
- Advanced training for neurologists
- Research: Applied, Basic

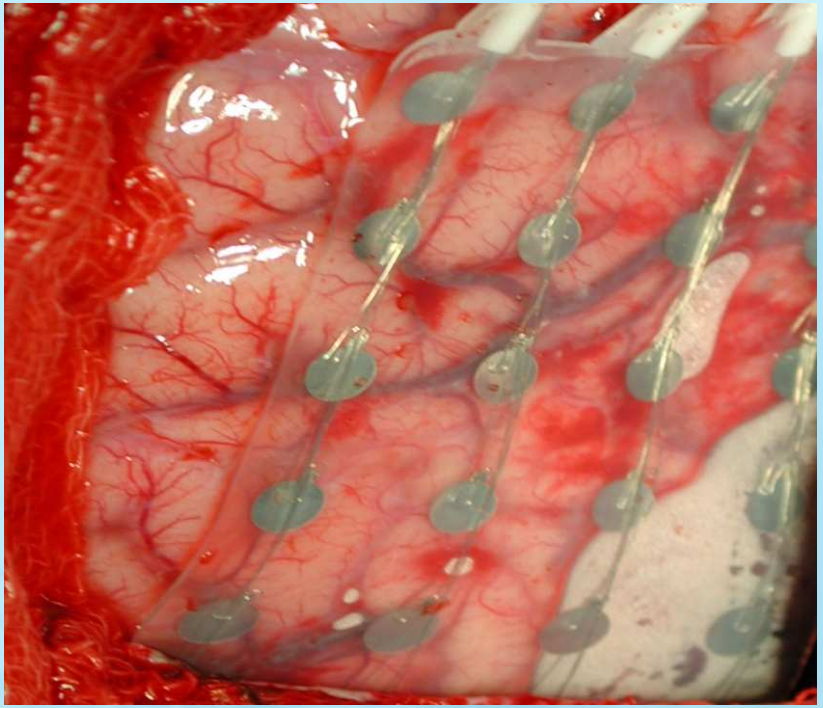
Comprehensive epilepsy care: Team work

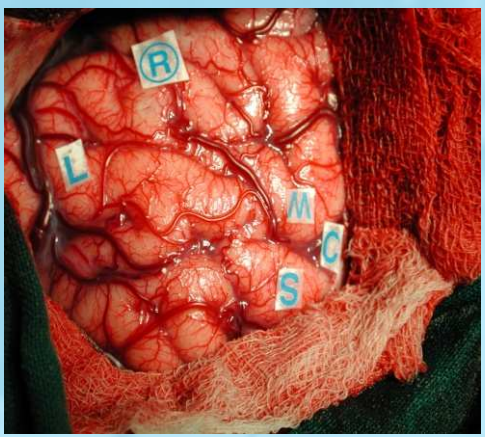


Presurgical evaluation

- Localization of epileptogenic focus:
  - Long-term VEEG monitoring
  - MRI/fMRI
  - Functional imaging: PET/SPECT
  - Intracranial monitoring
    - Intraopeartive: ECoG, awake craniotomy
    - Extraopeartive



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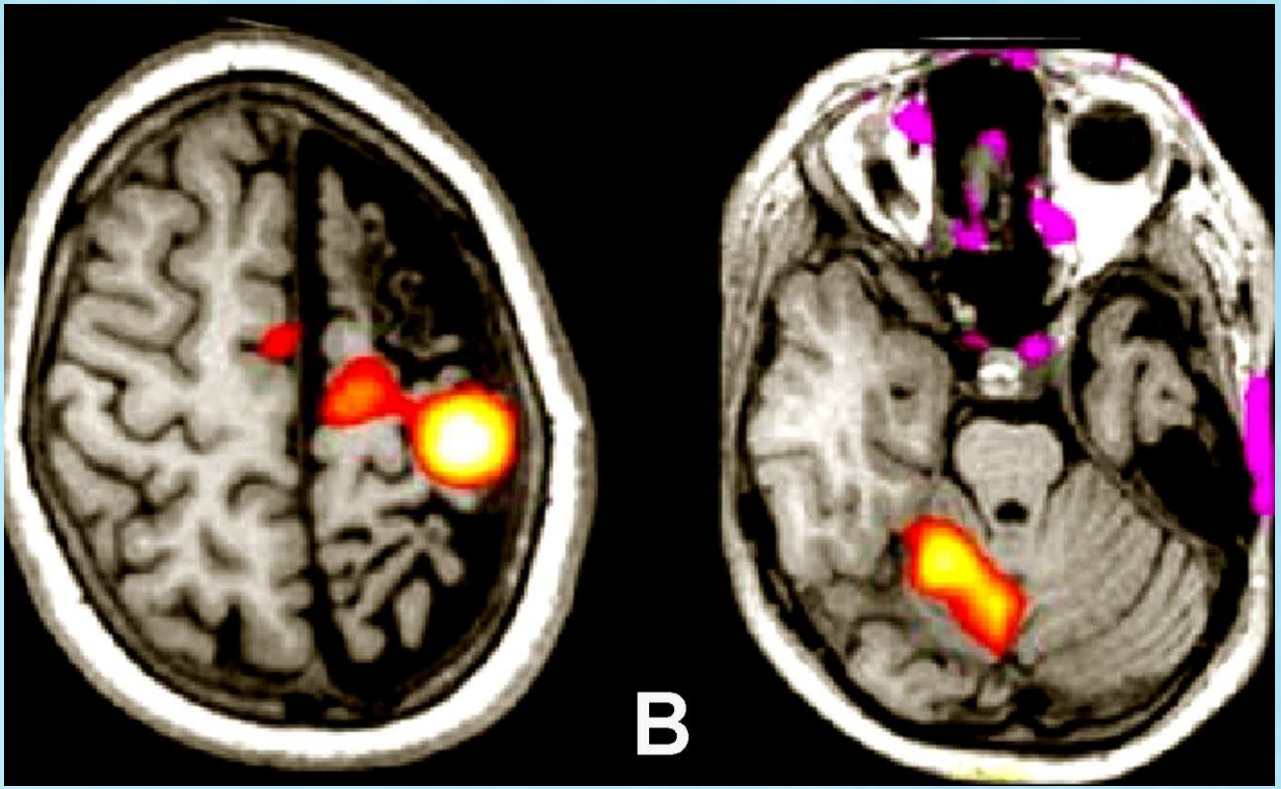
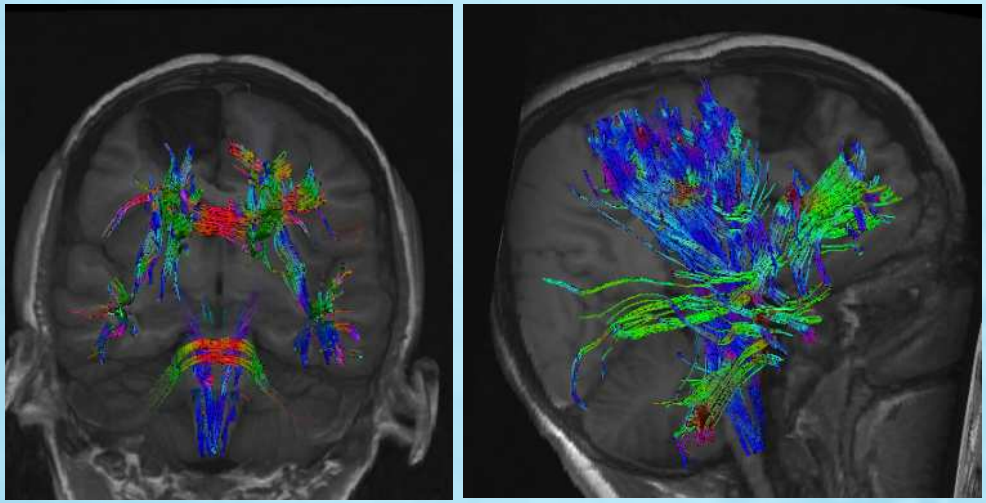
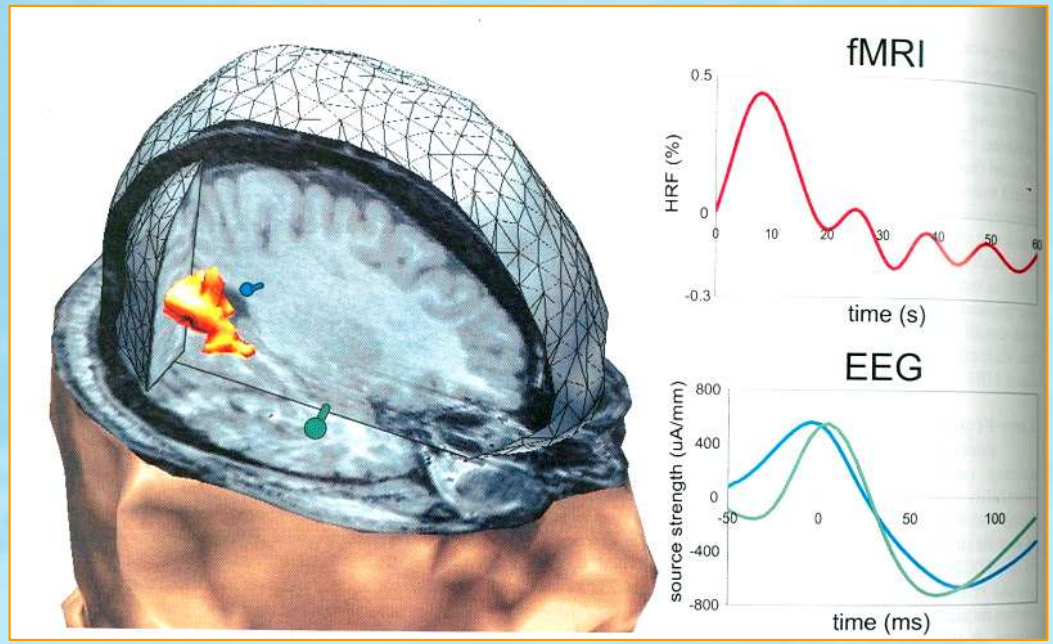
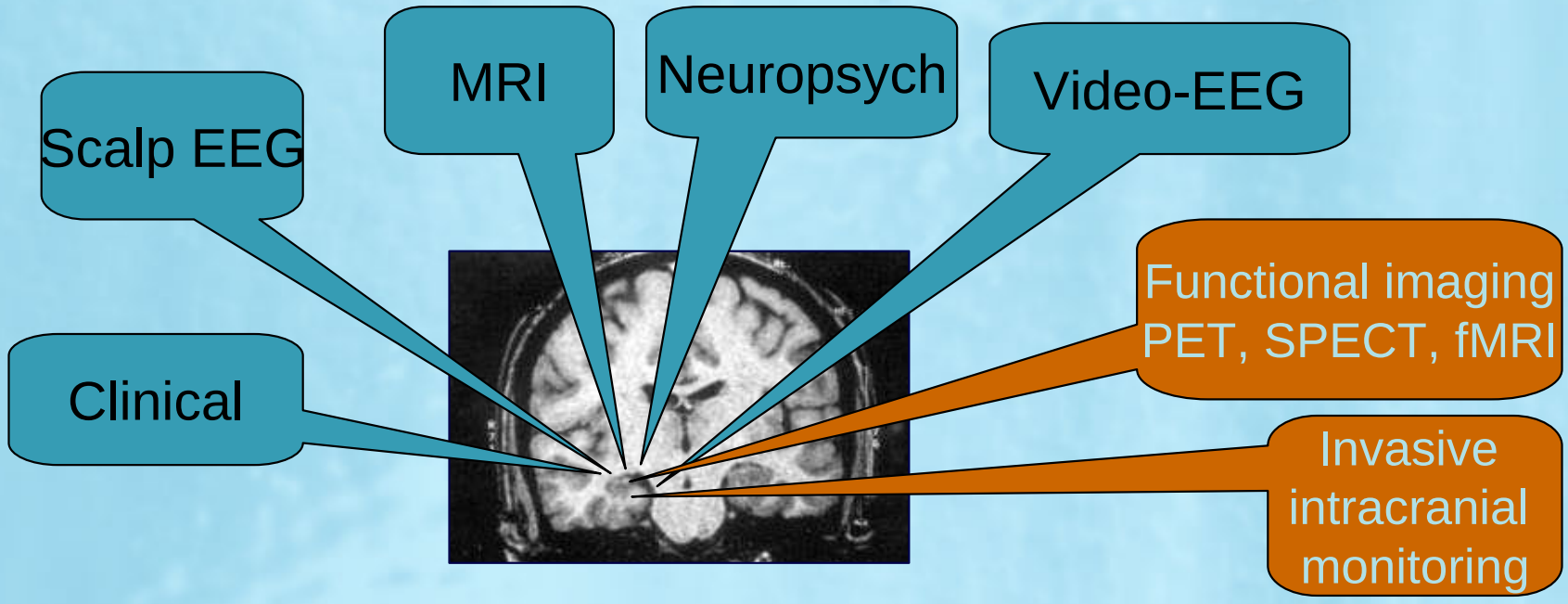

B



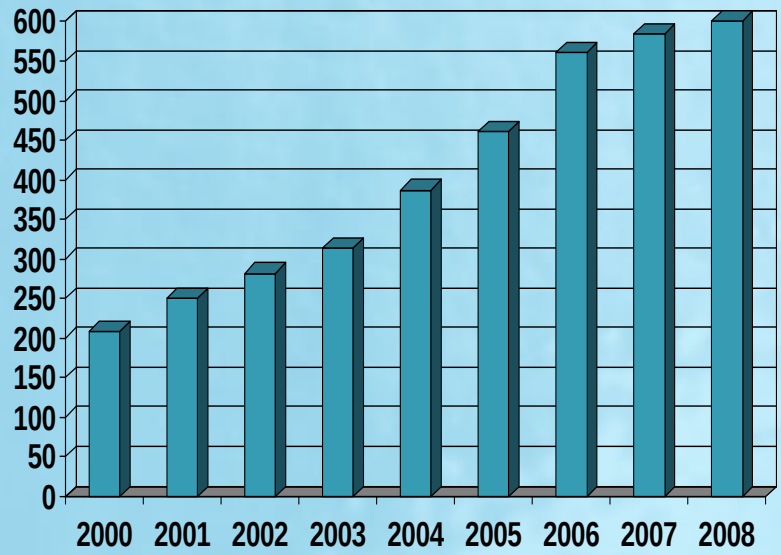

fMRI
0.5
HRF (%)
0
-0.3
0
10
20
30
40
50
60
time (s)
EEG
800
400
0
-400
-800
source strength (uA/mm)
-50
0
50
100
time (ms)

Presurgical evaluation



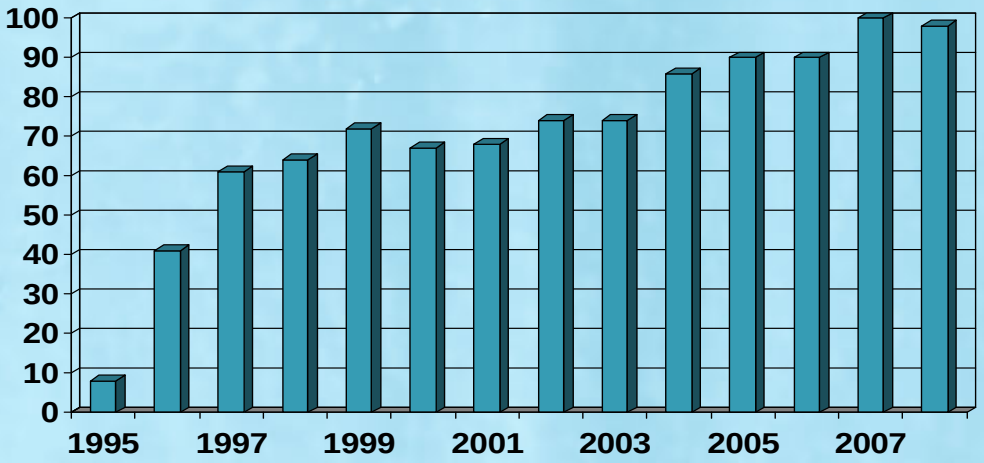
RMNC
Main activities

VEEG



During last 3 years: 600/year

Epilepsy surgeries

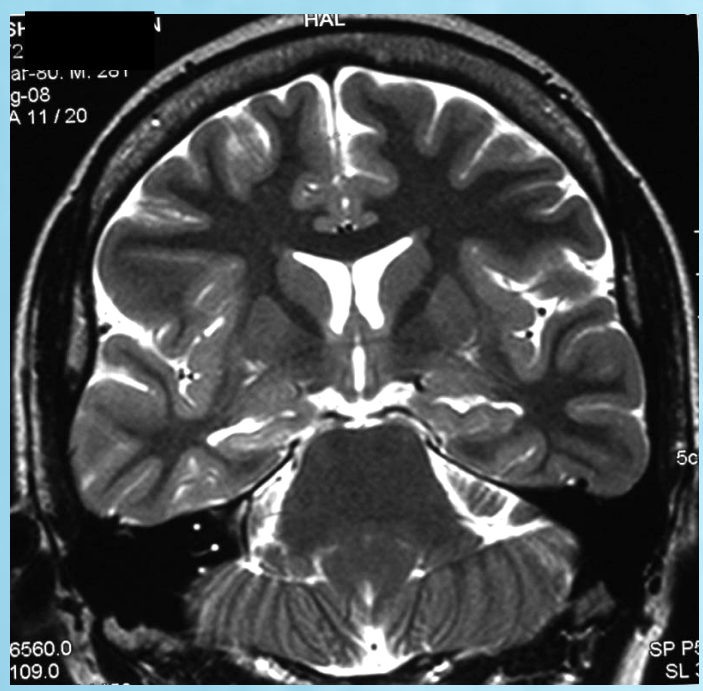


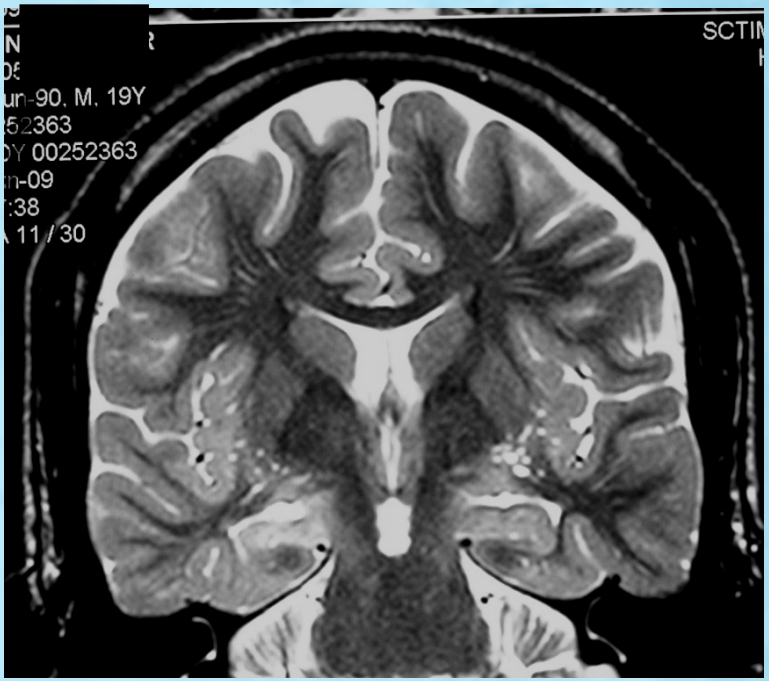
Average: 90-100/year

Research: Current and Future

1. To improve the outcome of lesional epilepsy surgery
2. Structural delineation of epileptogenic zone in patients with normal/equivocal MRI
3. EEG based seizure detection programms
4. Genetic basis of epilepsy

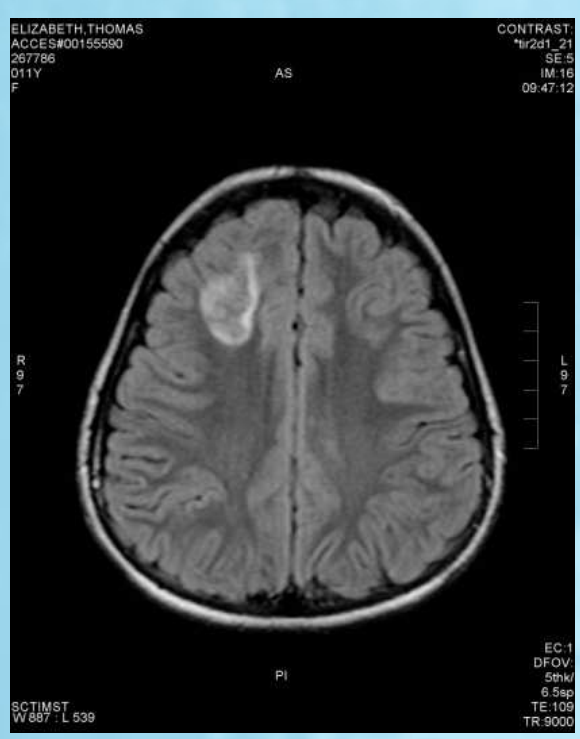
Improved delineation of Neocortical temporal sclerosis in patients with MTLE-HS

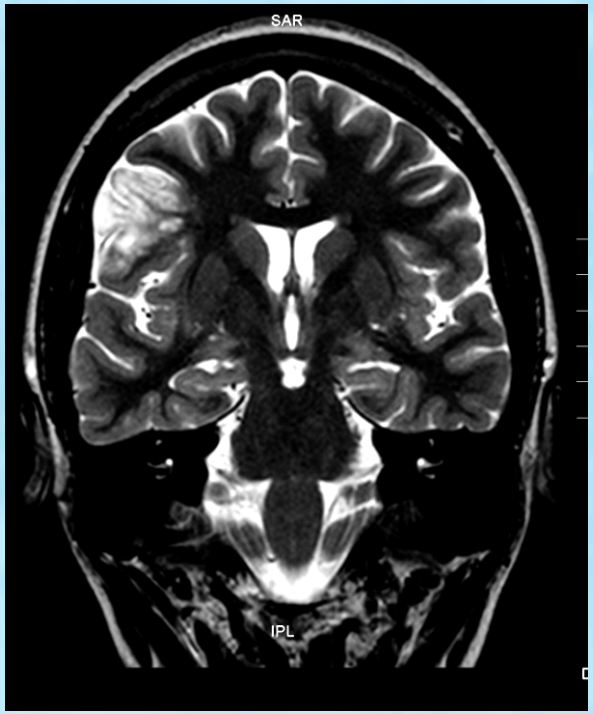


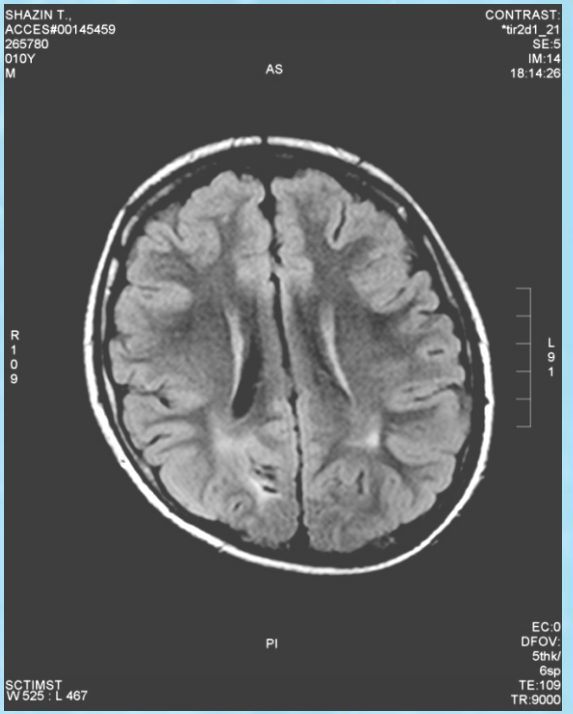


ATL Vs Selective AH

Structural delineation of
Peri-lesional tissue
MRI negative refractory epilepsies

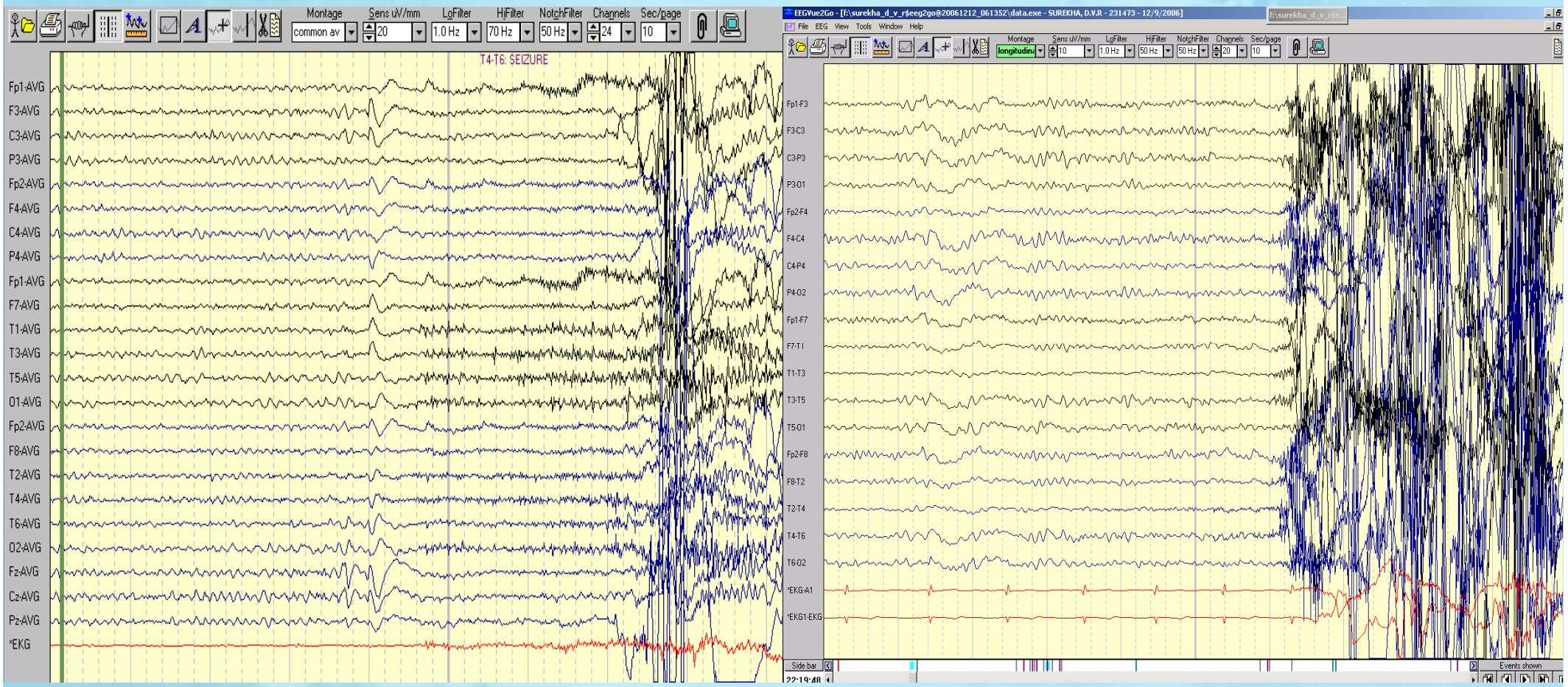




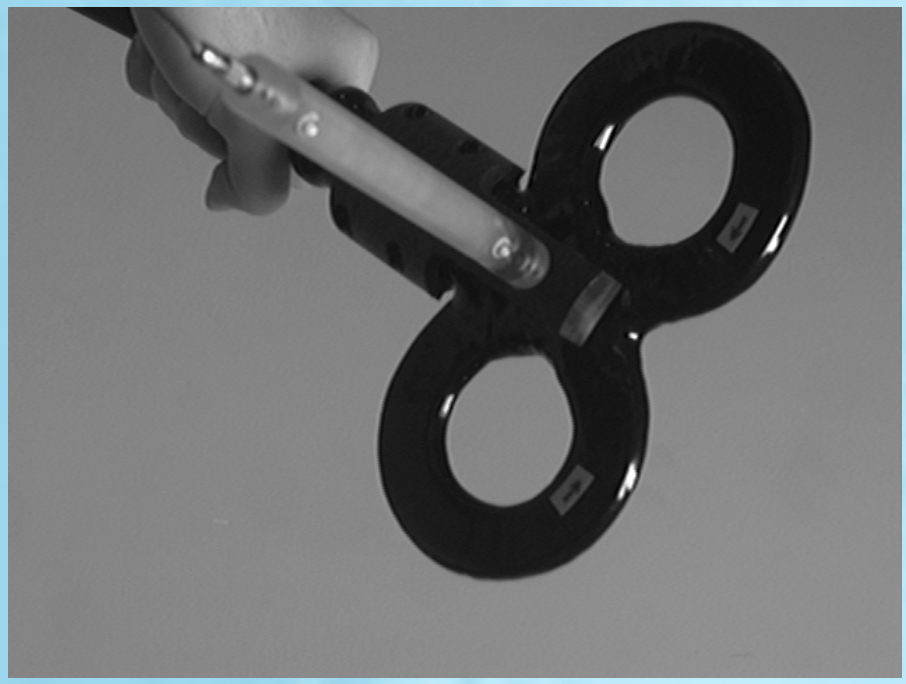


High strength MRIs, EEG-fMRI, MEG

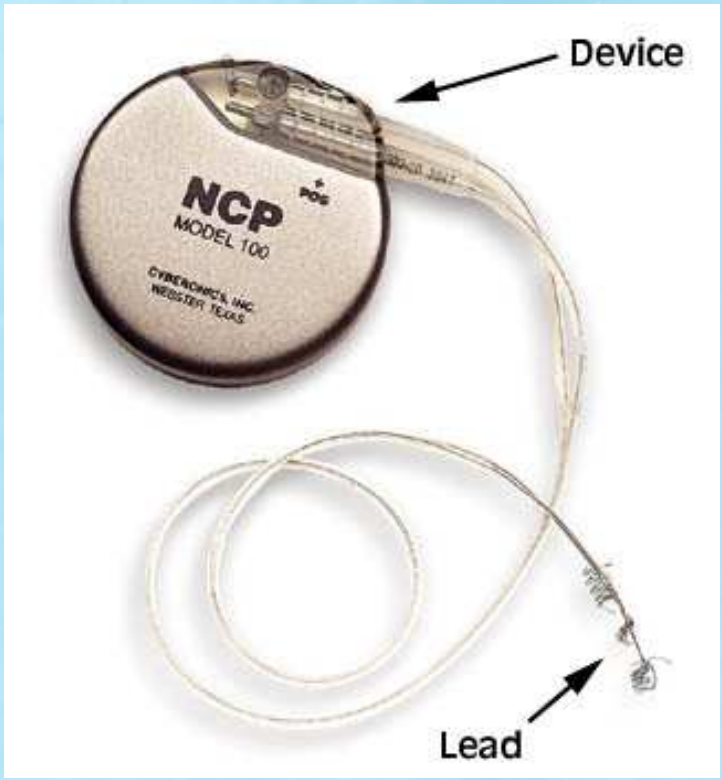
Quantitative analysis of diffuse ictal patterns



New therapies for epilepsy



TMS



VNS

Development of seizure detection programmes

- EEG based seizure warning systems

Genetic basis of epilepsy and refractory epilepsy

- To identify new genes and therapies in various epilepsy syndromes


thank
you