### Introduction
Multimodal pre-surgical planning using semi-automatic and manual segmentation of individual patient anatomy is a first step of treatment of neurosurgical patients. Combination of this data with highly precise robotic-assistance system can lead to increased effectiveness, accuracy and safety of the procedure which can be confirmed by intra-operative data.

### Methods
Dedicated neurosurgical robotic-assistance device (ROSA, Medtech, France) was used in 14 cases. Among them were 7 stereotactic biopsies, 4 cortical displasia, 1 DBS and 1 sEEG. In all cases we perform immediate post-operative CT scans; 5 from 7 biopsies was performed under intraoperative control by small craniotomy and ultrasound imaging. Presurgical planning was done using OsiriX and ROSA planning station in all biopsy cases and in sEEG case; rest of the cases was planned using ROSA planning station.

### Results
Our preliminary data suggests that pre-operative planning can dramatically increase efficiency and safety of the procedure. All possible mistakes during the planning will interfere the course of treatment and all steps must be cross-checked during the procedure.

### Conclusions
Modern neurosurgical interventions require high mechanical accuracy and sophisticated pre-surgical planning. Combination of different neuro-imaging modalities processed with 3D visualization software and robotic-assistance during surgical manipulation may be a cornerstone of the individual treatment of neurosurgical patients. This can lead to increased patient safety, low complications rate and time-effective procedures. Furthermore all the processed data can be stored and used for future simulation training of young trainees. Because of multimodal and multistage nature of planning this procedures require a close collaboration between neurosurgeons, radiologists and IT team.

### References

#### Learning Objectives
By the conclusion of this session, participants should be able to: 1) Describe the importance of multimodal pre-surgical planning, 2) Discuss, in small groups, the role of robotic surgical assistance, 3) Identify an effective way to perform the pre-surgical planning using different approaches.

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