1. INTRODUCTION

A biomarker is a characteristic that is objectively measured and evaluated as an indicator of normal biological processes, pathogenic processes, or pharmacologic responses to a therapeutic intervention. A speech-based biomarker takes speech as an input and evaluates the patient’s speech production (quality, competence or other aspects) at either a particular time moment or as a trend during months of rehabilitation.

Idea:

- record audio
- Pattern Recognition with 9K features
- Qualitative or numeric characterisation

Advantages over traditional medical tests:
- Instantaneous
- Cost-effective
- Nonintrusive
- Human-computer interactive

2. DIABETES DATA COLLECTION

3 times per day

- Speech evidence (neurological test)
- Auditory experiments and fuzzy logic modelling

3. MONITORING TOOL IN NEUROLOGICAL REHABILITATION

The system tracks the patient’s dynamics based on the reading test.

AIM: quantify skills for emotional communication in order to substitute subjective and manual assessment of competence in emotional communication.

Functionality:
- Patient regularly repeats the "reading test" at home.
- Data is sent from patient’s mobile to the server for analysis.
- The scores of the tests are plotted during the months of rehabilitation.

4. CONCLUSIONS

Computational, voice-based, generic biomarker for two applications:
- Diabetes: ongoing database collection.
- Neurology: preparing for clinical trials.

5. REFERENCES