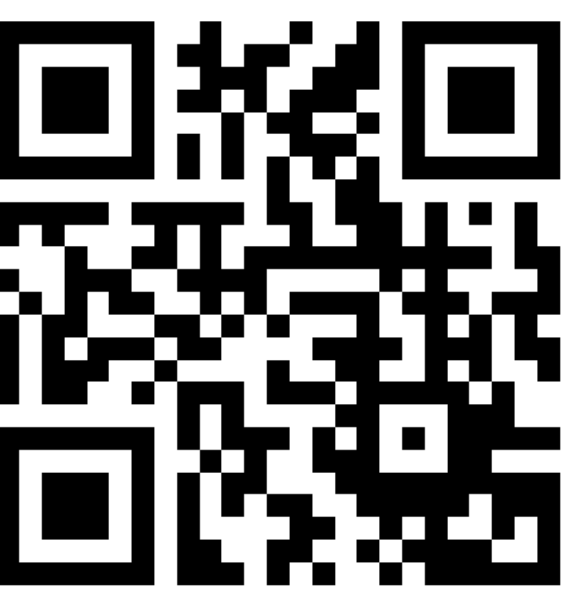
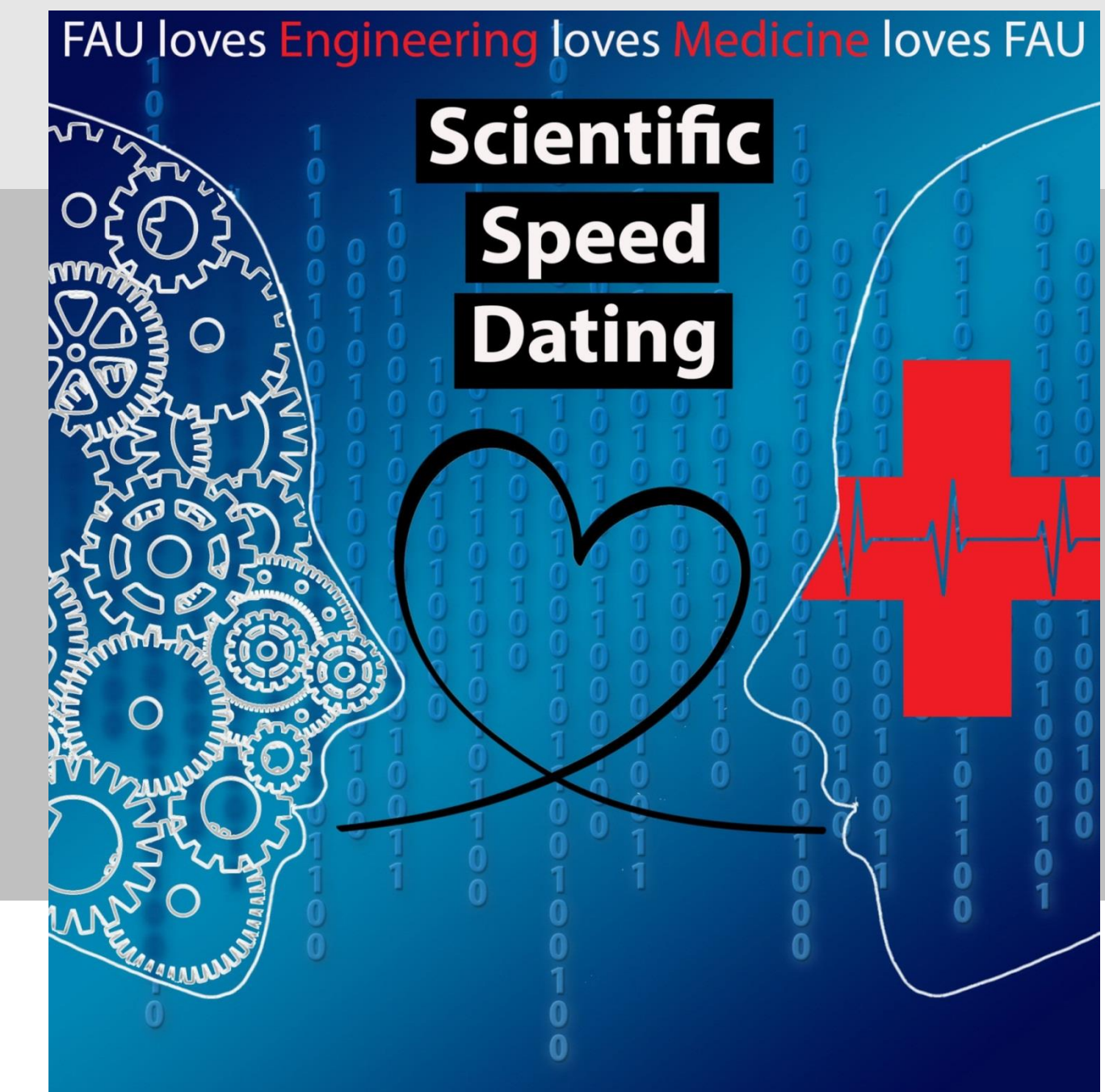


Medical Dataset Improvement for Premedication Visit

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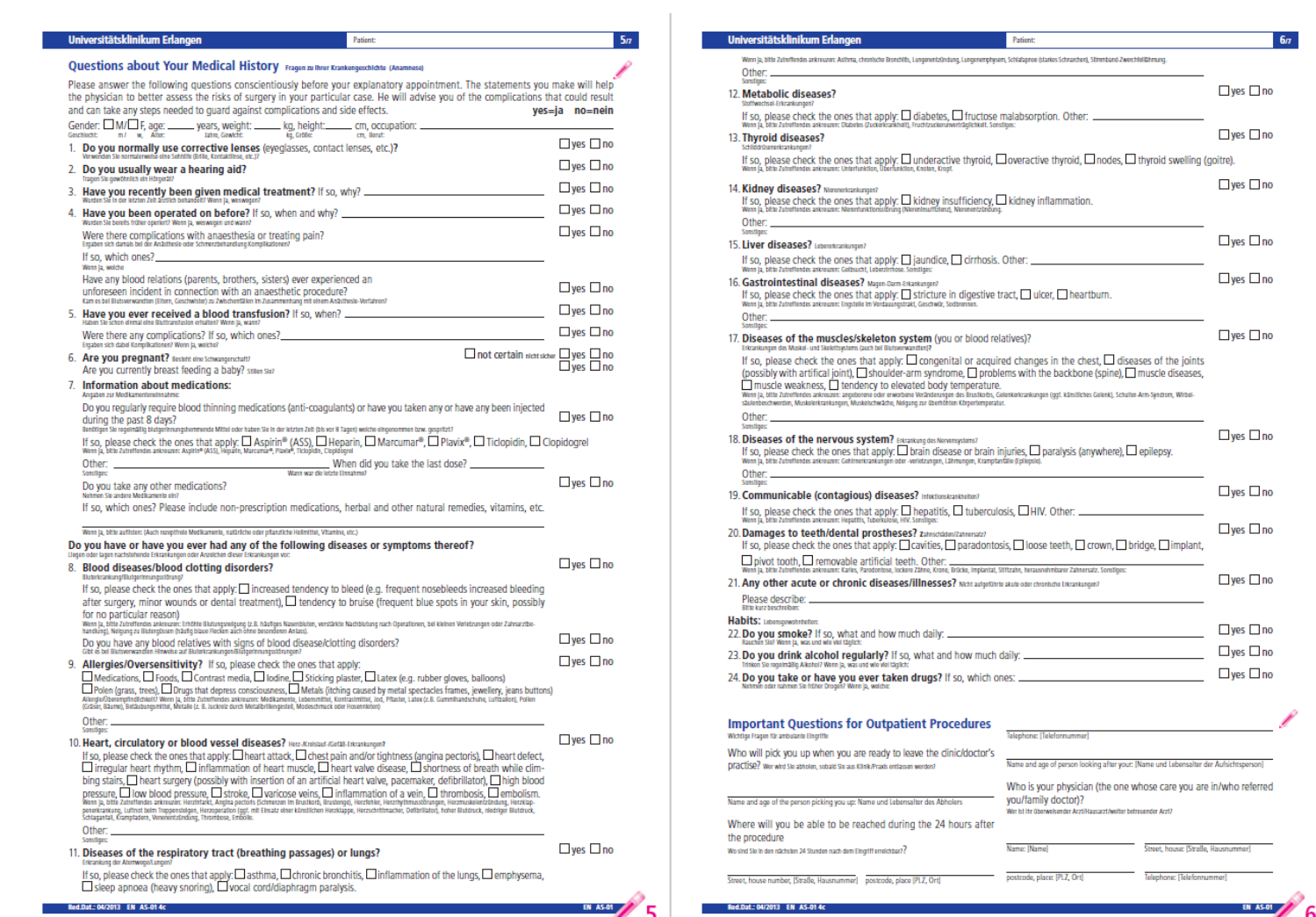
Background

Medical documentation is still tedious despite of the introduction and use of clinical information systems. Daily documentation processes are **mainly a combination of many different paper forms and computer applications at the same time for similar or identical information** at medical departments. To ensure patient safety the premedication visit is obligatory ahead of an operation with anesthesia. **In Germany more than 16 million operations** take place every year, **at Erlangen University Hospital alone more than 30.000**. Surgery and anesthesia show **many similarities in processes of preoperative informed consent** according to pre-existing diseases, allergies and drugs. However, these are **not considered** in current clinical and data processing procedures. Therefore a solution has to be evaluated for a data selection to generate a prefilled anesthesia patient questionnaire.

Methods

A **process analysis of premedication visits** at the outpatient department and mobile ones at the patient's bedside has already been performed before the project because of quality assurance. **391.000 preoperative datasets are available in the hospital-wide data warehouse (Oracle database)**. Anonymised datasets from **2013 to 2015 for patients starting at the age of 18** were selected and exported from former premedication visits for the categories **preoperative status, findings and visit** as well as **accounting data including diagnoses and procedures**. These fields are used within the **Anaesthesia Information Management System NarkoData** with the **premedication module NarkoWeb**, have been exported in CSV format and imported into a **relational MySQL database**. In a next step the PDF version of the questionnaire was transformed into a **web application**. Using **PHP** with an **Apache webserver** an **electronic questionnaire** was **prefilled** for a **patient identification number** with focus on selected form fields.

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Results

The developed web application allows the input of a patient number to execute a PHP script which runs a **SQL query** on the database. The questionnaire is prefilled with known data for the categories. It can be **exported as a PDF document** for the medical consultation and stresses the **possibility of structured secondary data reuse**. **The patient and doctor will finally check, correct and complete it.**

Selected form fields:

- ✓ height
- ✓ weight
- ✓ operations
- ✓ drugs
- ✓ allergies
- ✓ diseases of...
 - heart
 - cardiovascular system
 - lung
 - thyroid
 - nervous system
 - reflux
 - nicotine and alcohol abuse

Conclusions

The **satisfaction of patients and medical staff** at the departments of surgery and anesthesia is **increased** with focus on **process quality** by implementing and expanding the solution. Furthermore, **patient safety is supported** and the **waiting time** at the university outpatient departments can be **reduced**. **Classification regression trees (machine learning technique)** could be applied in the more detailed follow-up project based on multiple decisions. Decision boundary could then also be optimized with **training datasets**.

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