

## Master's Thesis

### About Clinerion

Clinerion enables early patient access to innovative treatments through patient data solutions for clinical trial patient recruitment, real-world evidence, and market access. Clinerion's technology solution accelerates clinical research by radically improving the efficiency and effectiveness of trial recruitment.

Clinerion's key solution is the Patient Network Explorer (PNEx), which offers services based on patient data, including data-driven protocol optimization, site feasibility evaluation and patient identification for recruitment. Clinerion's solutions allow member hospitals to participate in leading-edge, industry-sponsored trials and save time in patient recruitment. They enable pharmaceutical companies to gain time and save costs by streamlining operations and leveraging strategic intelligence.

Clinerion's proprietary Big Data analytics technologies leverage real-time data from electronic health records which remain under the full control of participating hospitals. Clinerion is a global data technology service company headquartered in Switzerland. Clinerion's solutions comply with international patient privacy and data security regulations.

### Patient-centric Trial Recruitment

Clinerion aims to increase a patient's awareness of available clinical studies running at a hospital.

Traditionally, it has been the task of a trial physician to realize that a specific patient matches the requirements of a clinical trial, and then to contact them to ask if they would like to participate in the trial. Clinerion's Patient Network Explorer automatically informs the physician about potential patients in the hospital, in real-time.

The purpose of this Master's Thesis is to create a technical design for an application based on implementation of Clinerion's pending patent on patient-centric trial recruitment. This approach focusses on the patient, who receives information about clinical trials to which they match the criteria, which are being run in the hospital they are in.

We plan on making calls for two separate Master's Theses (or similar courses) – this current thesis to focus on backend tasks, while the second will focus on frontend tasks for making the application run on mobile devices.

### Project Description

*In the following, we give some ideas (non-exhaustive) on the functionalities of the prototype:*

A patient who is hospitalized sees a device right next to the bed in the hospital room. A setup step allows a physician to assign a placeholder for the patient identifier (PID) to the device as the patient gets hospitalized. Another setup step should allow the PID to be unlinked from the application.

On first usage of the application, the patient assigns a six-digit password which secures all the patient's data on the application and ensures only the patient can access their own data. The patient must enter this password each time when unlocking the device.

Using the PID, the application connects to an existing API provided by Clinerion and receives a ranked list of studies to which the patient best matches. Internally, the API loads an anonymized version of the patient record to the Patient Network Explorer to be matched against running trials in that hospital.

The results would show, for example, the top 3 trials for which the patient could be eligible (based on a certain threshold of match (e.g. 60%)). For each of the trials, the application would show the description of the trial, the

criteria which led to the patient being matched to it, as well as the contact information of the clinician (or trial team) and the details of the pharmaceutical company running the clinical study.

The patient can inform the trial team via the application of their willingness to participate in the clinical trial. In addition, the application will propose other hospitals within a certain physical distance who offer matching clinical trials (patient referral).

The trial team can also access all the currently running trials. Per trial, it will be possible to have a ranked list of the room numbers of the patients with a high match to the study's criteria for inclusion. Also, it should show the list of patients who have stated their interest in participating in the study.

The device can access all the information about the current running clinical studies in the hospital together with textual descriptions and contact information.

## Contact

Samia Hakmi  
Phone: +41 61 865 60 68  
Email: samia.hakmi@clinerion.com  
Elisabethenanlage 11  
4051 Basel  
Switzerland