**TuberXpert specifications**

# Context

This work takes place in the domain of therapeutic drug monitoring (TDM). Currently, Tanzania is experiencing a high amount of tuberculosis cases. The country has expressed its commitment to end TB by 2035. The main tool to achieve this goal is TDM. However, the problem is that it is a long and difficult process. A software called Tucuxi has already been developed and is part of the solution. Nevertheless, it does not solve the fact that the tool needs TDM professionals to be used efficiently. On this perspective, the purpose of this work is to develop a clinical decision support system (CDSS) on top of Tucuxi computation core to automate TDM decision making.

# Objective

An extensible CDSS must be developed, tested and documented. The CDSS will use a local version of Tucuxi computation core for dosage predictions and adjustment computations. The system will be a command line interface (CLI) that will produce a dosage adjustment report based on the received inputs.

# Features

**Input validation**

* The program will receive information about the patient and his treatment trough an extensible markup language (XML) file similar to those used with Tucuxi CLI.
  + The XML structure may be extended with new useful elements if needed.
* The program will analyze and verify the relevance of the data.

**Drug file selection**

* The program must be able to select a relevant drug file for each drug in input.

**Dosage adjustment**

* The program must be able to understand the current state of a treatment and suggest an adjustment.

**Output**

* The output of the decisions must be an XML file that can be used by various templates for the report generation.

**Report generation**

* The program must summarize all useful information in a well-formatted report.
  + Suspicious covariates.
  + Drug file selected.
  + Graph “A priori” or “A posteriori”, depending on the patient.
  + Dosage adjustments.
  + …

**Multi-language**

* The program must support various languages.
* At least, the English version must be available.
  + It should be easy to add a translation and use it.

**Testing**

* The program behavior must be tested with various inputs.
  + Since it is difficult to predict all cases, obvious cases testing is sufficient.

# Deadlines

|  |  |
| --- | --- |
| When | What |
| 16.05.2022 | Intermediate report. |
| 29.07.2022 12:00 | Upload final report, poster, and publishable summary on Gaps. |
| 29.07.2022 12:00 | Notify responsible and secretariat by email when previous point is done. |
| 22.08.2022 – 16.09.2022 | Bachelor thesis defense |