Instruction for referrals project:

Goal of the project is to be able to from the text given by the clinician depict what type of examination needs to be performed.

Usually the clinician types in some keywords/diagnosis that we use to personalize the diagnostic method.

There are several types of imaging methods in radiology but in this project we will only focus on Computed Tomography (CT). Also there are several body parts, but we will only touch on abdomen and vascular structures.

I have made an excel file with 503 patient cases.

Each are labeled after a code, age, sex, requested exam, clinical information, question, end result and comments.

**Code** - I just use to prevent any duplicates.

**Age, sex** – self-explanatory. But I have them in order to prevent the system from doing exams on pediatric patients, so below 18 years old should be done by a human instead.

**Requested Exam** – This is the exam the clinician can choose from their list. It does give some hint on what type of examination should be performed, but it has an impact in really few cases.

**Clinical information** – The most important part is what the clinician writes about the patient. The background, history, spread of disease, treatment etc. We usually look after some keywords to detect the best diagnostic exam

**Question –** Also very important, the clinician has a suspicion of a diagnosis and this usually guides the choice of diagnostic method. Sometimes they don’t write it and its part of the clinical information

**End Result –** So this is the method we radiologist have picked because we think it will answer the question the clinician in the best possible way. Since I am working with abdomen we will only focus on this. Various diseases are depicted in various ways depending on how you choose to image the patient. We usually perform a CT with or without intravenous contrast. The contrast helps to depict various organs in the abdomen in better ways. It also depends on when (how many seconds after given iv contrast) how the organs are displayed. Some tumours are better seen in various phases. For this we have a specific set of exams that we choose depending on the clinical question.

For that we use letters and numbers. The most common ones are

A (1-13), B (1-16), N (1-14), L (1-8), P (1-2) etc.

Some patients have however bad kidney function and in these patients we don’t use IV contrast, in this case we only perform a simple exam without contrast = B1 or A1. But my thought was that if I patients has high contrast, they should be excluded from the AI tool and instead go to a human to see if it makes sense to make an exam or not.

The goal of the project is to be able to insert the clinical information to this AI tool and with that recommend what is the optimal examination for this patient. Hopefully also refer recommend human consultation by having some exclusion criteria’s such as low age or poor kidney function.