1B : Introduction to Operational Research and Data Science

Exercise 2

Read the below information, and then, as a group, undertake the tasks below.
An eye clinic has approached you, and explained that they are concerned about lengthy waiting times within the clinic. Patients arriving in the clinic are first triaged by a nurse. If the patient requires urgent care, they are sent to the eye casualty, which is staffed by a doctor; otherwise, the patient is sent to be treated in the Nurse Treatment Room, which is staffed by a nurse, and is sent home after being treated.

In the eye casualty, the doctor examines the patient, and may order one or two of two further tests, if required, which they need to do at the reception desk. For example, the doctor may send the patient to the ophthalmic imaging room for more detailed analysis of the eye. An Ophthalmic Imaging Technician runs the equipment in the ophthalmic imaging room, and also deals with tests requested from elsewhere in the hospital. The doctor may also send the patient for a visual acuity test in the Visual Acuity Room, staffed by an optician, who also deals with requests from elsewhere.

Once the patient has had all the necessary tests, and the results have come back to the doctor, the patient is seen by the doctor again, and a diagnosis is made and discussed. At this point, the patient is either discharged, or admitted to the hospital. Either way, the doctor will need to write up the patient's case notes before moving on.

Patients who are waiting to be seen in one of the rooms, or waiting for the outcomes of tests, wait in a waiting room until they are ready to be seen.

The clinic administrator has been in consultation with the doctors, and they think one of the key problems might be that the doctor on duty is frequently called away from their work in the eye clinic to examine patients elsewhere in the hospital. They think this may be causing a bottleneck in the system, but they're not sure that's where the problem is. If it is, they're wondering whether having a nurse specialist working alongside the doctor in the eye casualty, who can order tests and write up patient notes, will help.

They wonder if modelling could help them here.

As a group :

a) *Identify the "what if?" questions that the eye clinic would want a model to answer*
b) *Build a process map of the "base case" system described above*
c) *Build an interest-influence diagram based on stakeholders you think would need to be considered for this project*
d) *Outline a plan for how you will involve patients and the public – who will you involve? How? What will they do in the project?*

You should assemble the above into a short 4 – 6 slide presentation.