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**Executive Summary**

In recent years, the Accident & Emergency (A&E) managed by the Department of Emergency Medicine of the National Health Hospital has been seeing many patients with an increasingly long waiting time.

**Purpose**

There are proposed renovation works by the Senior Management. This proposal aims to suggest the optimal outcomes below to provide the infrastructure that is sufficient to support the patient load:

1. Quantity of P1 Critical Care Intensive Treatment Area beds
2. Quantity of P2 Critical Care Area beds
3. Quantity of P3/P4 doctor consultation rooms
4. Any other recommendations

Ultimately, we want to reduce wait time for patients.

The patient flow through A&E has been mapped using a flowchart in PowerPoint.

**Analytical Process**

Analysis has been done on Jupyter Notebook using Python to achieve the optimal outcomes. Using the dataset provided, which consisted of 354 patient data records from 19 January 2015 to 25 January 2015, we have found:

1. Number of Patients Admits (according to date)
2. Number of Patients Admits (according to Triage Category)
3. Number of Patients Admits (according to Triage Category and Hour Admitted)

With these findings, we can suggest outcomes for our initial purpose. On top of that, we can offer manpower allocation based on the busiest day (Friday, 25 January 2015). The renovation process will undoubtedly cause several inconveniences; hence we have suggested the best days to conduct the renovation in these three areas – Critical Care Intensive Treatment, Critical Care Area and Consultation Room.

We have also listed down our assumptions made during this analysis.

**Future Considerations**

Unfortunately, the data that directs which Inpatient Ward Destination was not analysed due to time constraints. In future, this data would be useful to analyse medical specialities that patients are mostly categorised under.