PathSimR – Use Case Outline

***For use by analysts with engagement and information from stakeholders***

## Project title & summary

***Please provide a summary of the project including the basis of the study, any prior work that has already been undertaken and intended uses e.g. Service pathway reconfiguration, designing a new patient pathway, changing capacity along patient pathway etc.***

## Stakeholders

***Please provide a list of key personnel/teams/organisations involved with the project***

## Key questions & insights

***Please provide a list of key questions that this project will support answering or key metrics that need to be attained. e.g. Does reconfiguring stroke recovery services reduce transfer delays by changing pathways between rehab wards, does increasing the length of haematology clinics by 50% reduce the average wait of patients to under 8 weeks, should a cataract recovery room be converted into a surgical theatre to increase utilisation across the pathway?***

## Summary of services along patient pathway

***Please provide a list of service points (any existing or new service point that is required within the model system) with a description including any key information about the service (e.g. continuous care bedded ward, fixed hour clinic, service that changes capacity etc.), length of stays/length of service and the timetable over which services are provided (particularly for clinics, community services, etc.).***

|  |  |  |
| --- | --- | --- |
| Service Point | Service Point Type | Description |
| e.g. Stroke Acute Rehab Ward | e.g. Continuous care bedded ward | * e.g. Ward currently has 25 beds. * e.g. Number of beds is fixed throughout the year * e.g. Patients stay on average of 10 days with less than 10% staying more than 25 * e.g. Service length distribution is log-normal with params 1;1 |
| e.g. GP Clinic | e.g. Fixed Hours clinic with changing number of staff in the week | * e.g. Clinic has 5 members of staff on Monday and Friday and 4 on other weekdays * e.g. Patients clinic appointments are 15 minutes but occasionally last up to 30 * Clinic is open 9am-3pm on weekdays |

## Summary of exits from patient pathway

***Please provide a list of exits to which patients can leave the care pathway. These can include discharges that have inherent delays e.g. Nursing home where there may be a delay in finding availability or Home with Social Care where equipment needs to be installed in the home before the patient can safely be discharged.***

|  |  |  |
| --- | --- | --- |
| Exit | Possible Discharge Delay | Description |
| e.g. Home | e.g. No Delay | e.g. Patients are discharged to their own homes through their own transport |
| e.g. Home with Social Care | e.g. Min: 1 Day; Max: 3 Days | e.g. Delay possible as equipment may need to be installed in the patient’s home before discharge is safe. Once installed, the patient can be discharged. |

## External arrival rates to the patient pathway and queue capacity

***Using the list provided above, please provide an estimate of the arrival rate (averages per time unit) from outside the patient pathway to each of the service points (service points that only receive patients from other service points in the pathway will have no external arrivals) and also the number of patients that can queue before each service point (this includes both patients arriving from outside the pathway and also patients already within the pathway, split as external and internal queues respectively)***

|  |  |  |
| --- | --- | --- |
| Service Point | Arrival Rate Estimation | Queue Capacity |
| e.g. Stroke Acute Rehab Ward | e.g. 3 per day | **External:** 0  **Internal:** 3 |
| e.g. GP Clinic | e.g. 4 per hour | **External:** Infinite (Patients wait until there is a space available at the GP)  **Internal:** N/A (Start of patient pathway so no internal queue) |

## Features of the patient pathway

***Please provide a brief overview of how the services are connected within the pathways and where patients can exit to. It may be helpful to provide an initial sketch of the network in parts or whole. An estimation of the percentage of patients that move between each service point would also be helpful. Also indicate any special rules that may apply within these service points or the queues connecting them.***

|  |  |  |
| --- | --- | --- |
| Service Point | Onward Service Points or Exits | Additional Information |
| e.g. Stroke Acute Rehab Ward | Home – 25%  Rehab Ward-50%  Home w/ Social Care – 25% | e.g. Patients have been known to return to this ward from further down the pathway creating a loop |
| e.g. GP Clinic | Home-50%  RTT – 25%  GP Follow-up - 25 | e.g. Could be part of multiple pathways, need to account for patient splits if appropriate. |

## Assumptions and limitations

***Please provide a brief overview of any assumptions made in the description above and any limitations that the model may not be able to accurately simulate.***