Chemotherapy Appointment Scheduling
Spreadsheet tool for simulation of a given appointment schedule

We developed a spreadsheet-based tool to simulate a given appointment schedule for chemotherapy patients. The simulation model provides an estimate for patient waiting time, total working time to finish all treatments, and chair utilization.

INPUT SHEET

1. Appointment schedule
   - The number of patients scheduled to arrive at each appointment time (7:30, 8:00,...) for different appointment durations (30, 60, 90,...) should be provided. The user can change the schedule according to clinic’s patient mix.

2. Number of nurses and chairs
   - The treatment of a patient can start only when a nurse and a chair are available. If all nurses are busy and chairs are full, the patient waits until both resources become available. The user should enter the total number of nurses and chairs.

3. Nursing time to start the treatment and actual treatment duration
   - The chemotherapy nurse has to start the treatment of a patient. We assume a random nursing time for chemotherapy start. It is assumed to be uniformly distributed between 10 and 15 minutes. The input sheet does allow the user change this distribution. But the VBA code can be changed to handle any distribution.
   - Actual treatment duration might change due to changes in chemotherapy doses and side effects for the drugs. We assume random treatment durations, which are functions of scheduled durations. We assume the actual treatment duration changes between 0.8*Scheduled duration and 1.2*Scheduled duration. The input sheet does allow the user change this distribution. But the VBA code can be changed to handle any distribution.

4. Number of replications
   - Several replications should be run to collect statistically reliable performance measures. The user should enter the number of replications.
1. Summary statistics of performance measures over all replications
   - Patient waiting time, total working time to complete all treatments, and chair utilization are the performance measures. The minimum, average, maximum and standard deviation are presented in a table.

2. Figures of performance measures for all replications
   - The figures show the performance measures for all replications. The user can see the variability in performance measures.

**HOW CAN THE SPREADSHEET-BASED SIMULATION TOOL BE USED?**

The spreadsheet-based tool can be used to test the impact of different appointment scheduling methods and number of available resources on clinic performance. The Excel file can be downloaded from Dr. Turkcan’s website: [http://www1.coe.neu.edu/~aturkcan/](http://www1.coe.neu.edu/~aturkcan/)

If you have any questions or comments about the spreadsheet-based tool, please contact Dr. Turkcan.