**Conclusion:** The use of a second ultrasound to diagnose DVT in patients with a negative first ultrasound is a useful strategy. However a small proportion of patients with negative second ultrasound were subsequently diagnosed with DVT. This needs further evaluation.

## P7.09

## Discrete event simulation of an A&E Department using SimPy

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**Introduction:** Accident and Emergency (A&E) departments are constantly searching for ways to decrease waiting times for patients attending. This is due to the fact that there is a worldwide problem of overcrowding and prolonged waiting times in these departments. Discrete Event Simulation (DES), which is a way to imitate the operation of a real-world process or system over time, is one of the tools that is being made use of regularly in order to understand and attempt to solve these issues.

**Methods:** A simulation program, using SimPy (Simulation in the programming language Python), was written, based on an A&E department. Patients were divided into two groups. Group 1 consisted of those patients who required hospitalization after being seen in the A&E department, while group 2 consisted of those patients who were not admitted to a ward. This program had a number of factors altered so as to identify which factors could alter waiting time. Nine scenarios were run based on the simulation program. The mean and maximum waiting times were analyzed for each scenario and compared to the original one.

**Results:** Group 1 patients - The largest decrease in mean waiting time was of 7.9% when the time spent in the bay is decreased. The largest increase in mean waiting time was of 79.2% when the time of hospitalization is increased. Group 2 patients - The largest decrease is of 34.6% in mean waiting time when the time taken to be seen was decreased. The largest increase in mean waiting time was of 48.7%, when the time to be seen in the A&E department was increased.

**Conclusions:** SimPy is a useful tool to be used in simulation of an A&E department. It has shown that a reduction in patient time spent in the A&E department was important to decrease waiting times. An increase in ward beds is also necessary to decrease waiting times in the A&E department. In order to avoid prolonged waiting times, one must avoid prolonged admissions. The use of such a tool or similar locally, could also assist in identifying the issues that may cause prolonged waiting times and overcrowding.

## P7.10

## Investigation of clinical outcomes for medical patients after readmission

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**Introduction and aim:** Medical readmissions at Mater Dei Hospital were shown to constitute a significant burden with a readmission rate of 10.1%. The aim of our study was to investigate clinical outcomes at 90 days for all patients who were readmitted once to the medical department of Mater Dei Hospital during February 2010.

**Method:** We followed patients up for 90 days after the index readmission and data was collected retrospectively with regards to death, recurrent readmissions and transfer to nursing hospitals or other institutions. For the purpose of statistical analysis these patients were considered to having developed an unfavourable outcome and subsequently compared to patients with a favourable outcome i.e. no further episodes in the 90 day period after readmission.

**Results:** Patients in the favourable group were significantly younger with a mean age of 65 years (95%CI=+/- 0.31years) compared to the mean age of the unfavourable outcome group at 71.8 years (95%CI=+/- 2.00years) with a *p* value of 0.017. Patients with heart failure or a respiratory diagnosis (COPD and pneumonias) during their first readmission were also more likely to develop unfavourable outcomes ($p$=0.047). Epidemiological factors of gender and location of residence were not found to contribute significantly towards the development of either favourable or unfavourable outcomes. In all 60.3% of readmitted patients had developed an unfavourable outcome at 90 days. During this period 52 patients (33.3%) were readmitted more than once with the number or readmissions ranging from 1 to 8. Of note was the fact that 26.9% of patients who had been readmitted at least once in February 2010 had passed away during the 90 day follow up.

**Conclusion:** The fact that a high proportion of patients had developed an unfavourable outcome during follow-up could indicate that many rehospitalisations are unavoidable. Additionally the frequency of heart failure and respiratory conditions in this group may represent progression in the natural history of the patient's underlying chronic disease as a cause for the original readmission and subsequent rehospitalisations.

## P7.11

## An exploratory study of medical outpatients' use of mobiles and internet in Malta

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**Introduction:** Medical services face inexorably rising demand, due to ageing populations, who tend to suffer from chronic diseases. Self-management is advocated to better chronic disease outcomes; mobile technology and Internet are potential channels for improving patientself- care models. It enables targeted patient information and feedback, as well the potential to improve effectiveness via better adherence. The evidence base to date looks promising, but is limited and needs further assessment. Malta has a mobile subscription rate of 117%, with 64.3% of the population being Internet users;70% of households have internet access, rising to 96% of households with children; older persons are least likely to have internet access.

**Objectives:** To assess mobile phone ownership, SMS (short messaging service) and Internet access by patients attending Medical Outpatients in two Health Centres.

**Methods:** Consecutive medical outpatients attending between Oct 2011-Jan 2012 were asked about their mobile phone ownership, SMS usage and Internet access; demographic data including age decile and gender were also noted. Data was completely anonymised.

**Results:** 205 patients were included in this pilot sample, comprising 44.7% men, 55.3% women. The mean ages were 63 years for men and 65 years for women. 77% use a mobile phone, over half use SMSs and just over a third have Internet access at home. There was no gender difference for mobile and SMS usage; Internet usage was somewhat commoner in men, but the numbers were too small to achieve significance.

**Conclusions:** Mobile phone usage is common in this group of medical outpatients, especially in the deciles most likely to suffer from chronic disease. SMS usage is common. Home Internet usage reflects the older patient population - but compares favourably with the national rate of 31.7% to 12.7% quoted for individuals ranging from 55-74 years. Use of these channels is feasible-although this will require a 'blended' approach so as to target patients appropriately.