Implement of Queue Management System in Oncology Out-patient department
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Introduction
An electronic queue management system (QMS), a customized departmental solution, was implemented in the Out-patient Department (Department of Oncology, Princess Margaret Hospital) to manage patient flow.

Objectives
Streamline the queuing process and augmenting patients' visiting experience.

Methodology
A "Homemade" electronic queuing system was developed in C# and ASP.NET to manage the patient flow in the Out-patient Department (OPD). A patient calling queue is generated from the patient's appointment list which is retrieved by making a request to the QMS web service of HA IT department. Upon arrival of the patient, the patient will be entered into a virtual queue with an assigned queue number from the reception desk. The patients will then be asked to measure the weight and blood pressure. The measurement readings are saved to a centralized system for health status monitoring. While waiting for the consultation, the patients may review the queuing status through the real time queuing displays installed in the waiting area. The queuing displays are not limited to the OPD waiting area, one set is also installed in the Cancer Patient Resource Centre (CPRC) which is located on a different level of the building. Patients can enjoy the services in the CPRC without worrying about missing their appointments. Once the patients are consulted, the timing of each event is recorded. Oncologist's log-in and log-out times are also recorded. So, users can access the real time queuing status as well as doctor's manpower allocation.

Result
The computerized queue management system reduces manpower needed in the queuing process. The queuing algorithm will assign a queue number automatically according to the check-in and appointment time of the patient. Patients are automatically assigned to the doctor according to the sub-clinic and the queue number. Reduce the chance of irregular and haphazard queuing. More queue information is available to the patients and hence reducing the amount of stress to our

staff.　　　Improve patient's privacy by calling queue number instead of patient's name.　　　A supplementary queuing display is available in CPRC. This will further increase the visitors' freedom of movement within the hospital.　　　The integration of the physiological monitoring system allows easy monitoring of the health status of the patients throughout the follow-up period.　　　Each event in the QMS is time stamped. This allows generating different key performance indexes for resources and manpower management purpose. This also allows the management to make strategic decisions based on the dynamic report generated.　　The key performance indexes include:　1. Patient waiting time　2. Real time queue length　3. Consultation time 4. Total and remaining workload in ManHour　5. Estimated finish time　　　The QMS is under continuous development with regular feedbacks from the end users to further enhance the features of the system.