

Chapter 11

Reducing Consultation Waiting Time and Overtime in Outpatient Clinic: Challenges and Solutions

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ABSTRACT

Outpatient clinics face increasing pressure to handle more appointment requests due to aging and growing population. The increase in workload impacts two critical performance indicators: consultation waiting time and clinic overtime. Consultation waiting time is the physical waiting time a patient spends in the waiting area of the clinic, and clinic overtime is the amount of time the clinic is open beyond its normal opening hours. Long consultation waiting time negatively affects patient safety and satisfaction, while long clinic overtime negatively affects the morale of clinic staff. This chapter analyzes the complexity of an outpatient clinic in a Singapore public hospital, and factors causing long consultation waiting time and clinic overtime. Discrete event simulation and design of experiments are applied to quantify the effects of the factors on consultation waiting time/clinic overtime. Implementation results show significant improvement once those factors are well addressed.

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INTRODUCTION

An outpatient clinic is a private or public health-care facility which is devoted to diagnosis and treatment of non-emergency patients (Gupta & Denton, 2008). There are many types of outpatient clinics and the functions and settings of outpatient clinics vary from country to country (Chand, et al., 2009; Wijewickrama, 2006; Zhu, Heng, & Teow, 2009). In Singapore, there are three types of outpatient clinics: general practitioner (GP), polyclinic and specialist outpatient clinic (SOC). A GP is a private medical practitioner who provides primary care in the community neighbourhood. Polyclinic is a government clinic covering a wide range of subsidized primary care services. Both GP and polyclinic cater mainly to walk-in patients. Specialist outpatient clinics (SOCs) are clinics belonging to hospitals and medical centres. They offer specialized services for the diagnosis and treatment for more complex medical conditions that usually cannot be treated at the primary care, and include specialties such as Orthopaedics, Surgery, Eye, Ear, Nose and Throat. An SOC mainly accepts patients with appointments.

Patients are referred to SOC from various sources such as GPs, polyclinics or within the same hospital's emergency and inpatient departments. There are also many cross referrals from other specialty SOC within the hospital. All the referrals enter the SOC's appointment system. A free time slot is assigned to each request. The assignment practice follows various policies. For instance, a first-come-first-serve policy will give the incoming request an earliest available time slot. However, some time slots may also be reserved for requests that need urgent attention. The capacity of a SOC is usually measured by the number of free time slots. The capacity depends on many factors such as consultant workload, space constraint and target revenue.

Outpatient clinics with appointment system have several advantages over those for walk-in patients. Firstly, demand fluctuation can be absorbed

by the appointment system. Over-utilization or under-utilization is less likely to happen than in walk-in based outpatient clinics. Secondly, appointment-based outpatient clinics provide a better patient experience than walk-in-based outpatient clinics. Patients are able to choose their preferred doctors and continue to see the same doctor for their follow-up visits in appointment-based outpatient clinics. The patient waiting time of well planned appointment based clinics are shorter because the uncertainty of patient arrivals is mitigated by the pre-defined time slots. This chapter mainly focuses on appointment-based outpatient clinics. Henceforth, outpatient clinics mentioned in this chapter refer to appointment-based outpatient clinics.

There are a few performance measures for an outpatient clinic. Two commonly used measures are waiting time and overtime. According to Gupta & Denton (2008), there are two types of waiting times in a typical outpatient clinic: indirect waiting time and direct waiting time. Indirect waiting time represents the time between a confirmed request and the assigned time slot. It is also known as appointment lead time. Indirect waiting time is usually determined by the demand/supply relationship. A long indirect waiting time indicates a possible inaccessibility of healthcare facility and may cause higher no-show rate. Direct waiting time represents the physical waiting time a patient spends in the waiting area of the clinic. Long direct waiting time may affect patient satisfaction negatively (Gupta & Denton, 2008). Clinic overtime represents the extended opening hours. Overtime overuses the clinic resources, and can cause negative effects on the morale of both physicians and other clinic staff. Direct waiting time and overtime are usually determined by the appointment schedules and administrative efficiency. The study focuses on the direct waiting time and overtime. Henceforth, waiting time mentioned in this chapter refers to the direct waiting time.

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