

Creating better patient schedules by gaining an understanding of the work of a medical secretary

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1 Abstract

Introduction: Grown-Ups with Congenital Heart disease (GUCH) patients go through life with extensive check-ups every year. Check-ups include a sequence of physiological tests, analysis and doctor consultation requiring complex planning by the secretaries at the outpatient clinic. Additionally, the no-show rate among this patient group is high. Patients missing appointments take a toll on the resources of the clinic and can cause problems for the patients if important signs of regression are not detected early. There is therefore a need for better planning that takes the risk of no-shows into account in order to get better resource utilization.

Operations Research (OR) is the science of making better decisions by applying an analytical approach to problem solving, where the complex decisions are captured in mathematical models that help optimize the outcomes. Using methods of OR it is possible to create models where all patients are planned optimally according to the criteria in the model.

Aim: The aim of the study was to use OR methods to create patient schedules that would optimize the value created in the clinic.

Material and methods: The project takes place at an outpatient clinic servicing over 1600 GUCH patients. Through observations and interviews with clinic staff a mathematical model of the planning problem was developed.

Results: We present the results and account for how we, in an effort to create the best possible schedules for each patient discovered that the medical secretaries were creating schedules of a very high quality for each individual patient. We also present how to integrate the highly compassionate planning capabilities of the medical secretaries with an algorithm acting as a decision support system, solving the combinatorial puzzle of attaining high utilization.

Conclusions: The health care system exists for the sake of the patient. With improved planning, the patients will need to visit the clinic over fewer days and have a shorter waiting time between invitation and appointment, which will reduce the no-shows.

Gaining a thorough understanding of the work of the employee is crucial to creating optimization tools that create value both for society and for the patients as well.