

Reducing Ambulance Response Time with Ambulance Pre-deployment Strategy: A Pilot Study

ABSTRACT

Ambulance response time has an inseparable relationship with mortality rates and therefore is important to be reduced in order to decrease the mortality rates. However, the unprecedented increase in road traffic congestion has led to longer ambulance response time, especially during peak hours. In order to assist the ambulance to get to the first responder on-scene despite congested traffic, pre-dispatched ambulance is deployed at mobile locations during peak hours. This study aims to determine if a pre-deployment strategy is able to reduce ambulance response time in an urban emergency medical service system, and to identify the significant factors that relate to ambulance response time during peak hours. Independent t-test was used to compare the response time of ambulance runs before and after the establishment of pre-deployment strategy. Multiple regression analysis with backward elimination method was applied to identify the significant factors that relate to ambulance response time during peak hours. A total of 29 ambulance runs that dispatched from the hospital on January to March 2016 and another 38 runs from mobile locations on January to March 2017 were studied. Only runs during peak hours on weekdays were included in the study. Results show a significant decrease in ambulance response time with the pre-deployment strategy. Among the underlying factors, ambulance travel distance, age of patients and dispatch point were found to be significantly affecting ambulance response time during peak hours. This paper summarizes study to ascertain the potential benefits of ambulance pre-deployment.