

Apparent patterns in ambulance response time in Timișoara

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Abstract

Introduction: The demand for efficient and effective emergency health care is increasingly challenging and guaranteeing a prompt response in the ambulance services is an important factor for favorable outcomes in time-critical situations. This paper aims at exploring explanatory factors for ambulance response time as a performance metric, in the context of the two dispatch centers in Timișoara at present. *Material and methods:* Four area quarters were delimited in the city geographical territory, based on natural barriers and large crossover roads. These zones were further considered for analysis of the call data over the year 2018, in a cross-sectional study design. The data collected by the Ambulance Service of Timis County on all solved cases comprised the city streets with: (a) the total number of calls and the four-level emergency number of calls for each; (b) minimum, maximum, and average response time. Additionally, for each street, the geographical coordinates (latitude and longitude) were approximated and the distance to the corresponding dispatch center was calculated based on the equirectangular approximation. Descriptive statistics and a multi-variable GLM model were applied for data analysis, with further Bonferroni adjustments for post-hoc comparisons. *Results:* Although the number of calls and the patterns of priority were indistinctive within the four zones, we found significant differences between the response times in the northern and southern zones, with differences of up to 3 minutes in the estimated arrival time. Statistically significant area-related differences were observed in the predictive factors for the response time: distance to the dispatch center and emergency code. *Conclusion:* A supplementary dispatch center in the northern area would help improving the ambulance time to arrival and compensating the differences between North and South of Timișoara.

Keywords:

Emergency Medical Services; Ambulance Dispatch Centers; Ambulance Time to Arrival; Pre-Hospital Delay