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Determining Required Allocation of Police Patrols by Stochastic Simulation in Three Districts at a Large City in Mexico

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Abstract: Complex global and local problems continue drastically affecting public safety in Mexico. Focusing on generating better logistic strategies to combat violence, we have continued our efforts towards optimizing the allocation of police patrols to patrolling zones, quadrants and districts to minimize the response time to the location of the event. We incremented the number of districts evaluated from two in our previous research to three out of a total of eight in the city. Our research is based on a stochastic simulation model that evaluates required number of patrols based on districts' demand for service and service processes probabilistically characterized. Data was obtained from the city's emergency response safety system during 24 hrs of 23 continuous days. Currently, not all patrolling zones have a dedicated patrol, dispatching and transportation times are considerably prolonged and patrolling zones are substantially larger than ideal to meet an international target response time.

Keywords: Public safety, Emergency response systems, Patrol allocation