

New response plans allow cross-trained firefighters and EMS workers to respond to either call, saving costs

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According to a new study, changing the response plans for fire and emergency service personnel is proving to have top-dollar savings. New

research in the journal *Manufacturing & Service Operations Management* finds that pooling resources to have cross-trained fire-medics respond to both emergency medical calls and fire incidents, rather than having firefighters respond to fires and emergency medical personnel respond to medical incidents, can save more than \$3 million a year.

"Our evaluation of the fire-medice system in St. Paul, Minnesota, shows the large productivity advantages of a combined fire-medice response system as compared to the traditional approach of having separate fire engines and ambulances," says Arthur Swersey of the Yale School of Management.

The study, "Cross-trained Fire-Medics Respond to Medical Calls and Fire Incidents: A Fast Algorithm for a Three-State Spatial Queuing Problem," was conducted by Swersey alongside Cheng Hua of Shanghai Jiao Tong University (SJTU).

The authors found cost savings of more than \$3 million a year by determining that 33% additional personnel would be needed under the traditional system to achieve the same response times as with the fire-medice plan.

"This research develops a queuing or waiting line model that is used to evaluate the performance of the fire-medice system. Our work has widespread applicability to even the [largest cities](#), in the United States and in foreign countries," says Hua, a professor in the Antai College of Economics and Management at SJTU.

"With the trend of declining fire department demand, and budgetary constraints, cities are under pressure to close fire stations. But a far better alternative is to implement this novel fire-medice system," concludes Swersey.

More information: Cheng Hua et al, Cross-Trained Fire-Medics Respond to Medical Calls and Fire Incidents: A Fast Algorithm for a Three-State Spatial Queuing Problem, *Manufacturing & Service Operations Management* (2022). [DOI: 10.1287/msom.2022.1140](https://doi.org/10.1287/msom.2022.1140)

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