

Identification of Out-of-Hospital Cardiac Arrest: Protocols Comparison Experiment

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ABSTRACT

Background: Early identification of out-of-hospital cardiac arrest (OHCA) has proven to increase survival rates. Toward this goal, emergency dispatchers commonly use one of two types of emergency medical dispatcher systems: criteria based dispatch (CBD) and medical priority dispatch (MPD), each with a unique out-of-hospital cardiac arrest protocol. The CBD protocol is a set of guidelines and prompts, intended for dispatchers with clinical background and experience, while the MPD scripted caller interrogation protocol is intended for who are non-clinician dispatchers.

Method: To compare the two protocols in terms of the probability of OHCA identification and duration of the identification process, we conducted an experiment that simulates an emergency phone call by a bystander to the emergency dispatch. Two groups participated in the experiment: 1) trained paramedics, in the role of CBD dispatchers and 2) students without formal clinical background, in the role of either MPD dispatchers or bystanders. In the simulation, each participant in the dispatcher role was asked to determine if a patient was having a cardiac arrest, or another clinical condition, according to information provided via a cellphone call by a bystander.

Results: Duration of the identification process was significantly shorter for users of the MPD protocol (CBD – 50 vs. MPD – 33 seconds, $p = 0.003$). The identification probability of the cardiac arrest was 86.49% for the CBD users and 82.86% for MPD users, but this difference was not statistically significant ($p = 0.606$).

Conclusion: The shorter identification process when the MPD protocol was used suggests that further optimization research regarding some combination of the two protocols may help increase the probability to identify OHCA and shorten the duration of the identification process.