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Enhancing Dispatch Systems for Out-of-Hospital Cardiac Arrest: A Proposal for Improved Survival Outcomes

Ibtihal Alsahabi

Abstract- Early and effective cardiopulmonary resuscitation (CPR) is critical for survival and neurological recovery in cases of out-of-hospital cardiac arrest (OHCA). This commentary proposes a novel approach involving the use of a CPR instructional video tailored for laypersons. It also recommends a three-phase approach for the implementation of this strategy, including a trial period, agreements with telecom and dispatch system providers, and a public health campaign to raise awareness and improve compliance with instructions. This proposal aims to enhance the dispatch process for OHCA, ultimately improving survival rates and neurological outcomes.

Index Terms— Cardiopulmonary resuscitation, CPR instructional video, Dispatch system, Out-of-hospital cardiac arrest, Survival outcomes.

Early and effective cardiopulmonary resuscitation (CPR) is fundamental to survival and neurological recovery in cases of out-of-hospital cardiac arrest (OHCA) [1,2]. Given the crucial role of the dispatch system as the first link in the survival chain, it is imperative that it be continuously reevaluated and improved [3]. Enhancements in dispatcher-assisted CPR, rapid deployment of automated external defibrillators (AEDs), and streamlined coordination with emergency medical services are all essential components for optimising OHCA outcomes. By focusing on these critical

interventions, the emergency response system can significantly impact patient survival and long-term neurological function following cardiac arrest [4,5].

The dispatch system for CPR varies between countries, with some utilising the medical priority dispatch system (MPDS) and others employing criteria-based dispatch (CBD) [6]. While dispatch-assisted CPR should be a norm, several challenges require consideration, including the difficulty of describing chest compressions to untrained individuals, unrealistic expectations of full compliance with instructions by distressed callers, and poor communication with dispatchers.

To address the challenges in the current dispatch system for OHCA, this commentary proposes a novel approach involving the use of a CPR instructional video tailored for laypersons. The video would be sent to the caller, providing visual guidance on hands-only chest compressions, thereby reducing the need for extensive verbal instructions. The dispatcher would remain available to address any queries; for example, if the patient starts moving their hands, the dispatcher will instruct the caller to stop the compression and put the patient in a recovery position.

The leverage of visual aids, which are a well-established method in learning theories, ensures effective teaching and involvement of the caller in learning CPR [7-10]. By incorporating visual demonstrations, such as instructional videos or interactive graphics, dispatchers can enhance the caller's understanding of CPR techniques and increase their confidence in performing life-saving interventions. This approach not only facilitates better retention of CPR skills, but also empowers individuals to take immediate action in emergency situations, ultimately contributing to improved OHCA outcomes.

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Furthermore, the healthcare sector is replete with the need for improvement, both in quality and in safety, with particular focus on increasing the likelihood of desired health outcomes [11]. The effectiveness of visual-aided CPR would require monitoring, by measuring and comparing survival and neurological outcomes with those of the EMS providers through comparative data. From a practical perspective, we propose a three-month trial, after which we can assess the utility of sending videos to smartphones by calculating the number of calls, out of the total number with and without a smartphone, in which the caller had a smartphone with a data plan/WIFI. This trial period can be used to assess smartphone capability, as well as to negotiate agreements with telecom and dispatch system providers. Agreements with telecom companies should allow for the sending and receiving of short videos between the dispatch centre and any smartphone, irrespective of the phone's plan or internet allowance. Finally, the public health campaign can be used to air an instructional CPR video on national television, detailing what to do and how to do it. Increased public awareness is essential to improve compliance with CPR instructions and foster more positive patient outcomes.

In summary, to improve survival rates and neurological outcomes in cases of OHCA, it is vital to enhance the dispatch system. Integrating visual methods into this system could significantly improve the quality of CPR and the overall survival rate of OHCA patients. This proposal, implemented in conjunction with initiatives such as Community Volunteering EMS, the integration of CPR education into school curricula, and mandating CPR certification for certain activities, could contribute to better outcomes for OHCA.

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