

Dispatcher Telephone Assistance on First Aid: An Important but Unexplored Area for Research

Alexei A. Birkun, MD, PhD, DMedSc 

Department of General Surgery,
Anesthesiology, Resuscitation, and Emergency
Medicine, Medical Academy named after S.I.
Georgievsky of V.I. Vernadsky Crimean Federal
University, Russian Federation

Correspondence:

Alexei A. Birkun, MD, PhD, DMedSc
Lenin Blvd, 5/7, Simferopol, 295051,
Russian Federation
E-mail: birkunalexei@gmail.com

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Abbreviations:

DA-CPR: dispatcher-assisted cardiopulmonary
resuscitation
EMS: Emergency Medical Services
PAI: pre-arrival instructions

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Dear Editor,

Since being originally introduced by the Phoenix Fire Department (Phoenix, Arizona USA) in 1970s,¹ provision of instant telephone instructions on first aid to witnesses of life-threatening conditions by Emergency Medical Services (EMS) dispatchers or trained call takers has turned into an everyday practice of emergency systems in many regions of the world. Well-recognized dispatcher-assisted cardiopulmonary resuscitation (DA-CPR) has been endorsed by the international scientific community and is currently recommended for wide application as long as it is proven to considerably increase lay rescuer CPR rates and enhance survival from sudden cardiac arrest.² The concept of DA-CPR became increasingly popular in the last two decades, and a growing body of the scientific evidence continues to boost development and implementation of this life-saving strategy.

By contrast to the dispatcher advice in cardiac arrest, up to now, far too little attention has been paid to research on telephone assistance in other emergencies which also could lead to irreversible death if not promptly managed by a bystander. In August 2022, a search of English-language publications concerning the dispatcher telephone guidance was carried out through PubMed/MEDLINE (National Center for Biotechnology Information, National Institutes of Health; Bethesda, Maryland USA) and Scopus (Elsevier; Amsterdam, Netherlands) with keyword combination: (dispatch* OR telecommunicator* OR call-taker*) AND (instruction* OR guidance OR assist* OR advice). Based on abstract and full-text screening, all relevant publications were thematically and quantitatively distributed across the list of life-threatening emergencies that was pre-developed based on a systematic search and analysis of 21 national and international guidelines/consensuses on first aid (see Dataset³).

A total of 248 unique publications were identified (Table 1). Of these, 95.6% of papers addressed DA-CPR (including dozens of articles reporting randomized controlled studies), whereas no or very few peer-reviewed publications touched upon dispatcher telephone advice on first aid in critical conditions other than cardiac arrest (such as anaphylaxis, asthma attack, bleeding, chest pain, or choking) where rapid and correct intervention before arrival of medical assistance may be crucial for survival.

Whereas EMS are broadly utilizing dispatch information systems which incorporate detailed pre-arrival instructions (PAI) on first aid for a variety of health disturbances, including the aforementioned emergencies, these instructions seem to be mainly based on empirical experience rather than scientific rationale. As it has been recently shown for choking,⁴ the PAI consequently may omit relevant evidence-based instructions on first aid or contain recommendations disagreeable with latest guidelines. Hence, in real-life emergency situations, victims may receive suboptimal aid from bystanders that could affect the outcome.

Previous research from the USA has shown that when calling emergency, lay people expect telephone pre-arrival advice for different conditions, including choking, not breathing, bleeding, and childbirth, even although they may not receive this service in their location.⁵ Along with DA-CPR, dispatcher-assisted first aid represents a vitally important and required component of prehospital care, and a potentially fruitful area for emergency medicine research. Future work is needed to systematically develop (and periodically update) dispatch algorithms and scripted PAI for a spectrum of life-threatening conditions on the basis of current first aid guidelines and other scientifically sound sources of information. The evidence-based algorithms/PAI should be further evaluated in randomized controlled studies, broadly discussed within the professional community, and where appropriate,

Common Life-Threatening Emergencies Addressed in First Aid Guidelines	Number and Type of Publications
Anaphylaxis	2 (Observational Studies)
Bleeding	1 (Experimental, Randomized Controlled Study)
Breathing Problem (Including Asthma, Croup)	0
Cardiac Arrest	237, Including: Observational Study 153 Experimental, Randomized Controlled Study 50 Experimental, Non-Randomized Controlled Study 9 Review 13 Meta-Analysis 4 Guidelines/Consensus 6 Other 2
Chest Pain/Myocardial Infarction	2 (Observational Studies) ^a
Choking	0
Diabetic Emergency/Hypoglycemia	0
Drowning	0
Electrocution	0
Emergency Childbirth	0
Fever	0
Heat Emergency (Including Heat Cramps, Heat Exhaustion, Heat Stroke)	0
Hypohydration/Dehydration	0
Hypothermia	0
Injury/Trauma	1 (Observational Study)
Poisoning/Chemical Exposure	2 (Experimental, Non-Randomized Controlled Studies)
Radiation Exposure	0
Seizure	0
Shock	0
Stroke	1 (Observational Study) ^a
Unconsciousness/Altered Mental State	0

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Table 1. Distribution of Peer-Reviewed Publications Concerning Telephone Dispatcher Guidance on First Aid

Notes: Editorials and correspondence papers were excluded. Three publications (not included in the table) concerned dispatcher-assisted first aid generally, not related to a specific emergency condition.

^a One study concerned pre-arrival instructions in both suspected myocardial infarction and stroke.

recommended by recognized organizations as the standardized and validated constituent elements of perspective scientifically credible

framework intended for extensive implementation of dispatcher-assisted first aid world-wide.

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