Prehospital and Disaster Medicine

www.cambridge.org/pdm

Structured Review

Cite this article: Birkun AA and Douma MJ. (2026) Non-Resuscitative Telecommunicator-Assisted First Aid: A Scoping Review. *Prehospital and Disaster Medicine*. **41**(e11), 1–6.
doi: 10.1017/S1049023X26108942

Received: 27 February 2026 UTC
Revised: 7 May 2026 UTC
Accepted: 27 May 2026 UTC

Keywords:
distance counseling; emergencies; emergency medical dispatcher; Emergency Medical Services; first aid

Abbreviations:
CPR, Cardiopulmonary Resuscitation; EMD, Emergency Medical Dispatch(er); EMS, Emergency Medical Services; PAI, Pre-Arrival Instructions; PRISMA-ScR, Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews; T-CPR, Telecommunicator Cardiopulmonary Resuscitation; TAFA, Telecommunicator-Assisted First Aid

Correspondence:
Alexei A. Birkun, MD, DMedSc
Medical Institute named after S.I. Georgievsky of V.I. Vernadsky Crimean Federal University
Simferopol, 295051, Russian Federation
E-mail: birkunalexei@gmail.com

© The Author(s), 2026. Published by Cambridge University Press on behalf of World Association for Disaster and Emergency Medicine.

Non-Resuscitative Telecommunicator-Assisted First Aid: A Scoping Review

Alexei A. Birkun MD, DMedSc[1] and Matthew J. Douma RN, PhD[2]

[1]Medical Institute named after S.I. Georgievsky of V.I. Vernadsky Crimean Federal University, Simferopol, Russian Federation and [2]Department of Critical Care Medicine, University of Alberta, Canada

Abstract

Introduction: The provision of instant telephone pre-arrival instructions (PAI) on first aid to laypeople by emergency services' telecommunicators for conditions beyond cardiac arrest, such as trauma or acute coronary syndrome, is practiced by emergency services around the world and is recognized by some prehospital systems as a standard of care. However, to the best of the authors' knowledge, no attempts have been made to date to systematically summarize the related research evidence.

Study Objective: The aim of this study was to systematically map and analyze published quantitative research on telecommunicator-assisted first aid (TAFA) for medical emergencies other than cardiac arrest.

Methods: Peer-reviewed journal papers reporting original quantitative data on experimental or real-world applications of TAFA were identified through PubMed, Scopus, and Google Scholar. Studies focusing solely on cardiac arrest management (cardiopulmonary resuscitation [CPR] or automated external defibrillation) were excluded. A scoping review of eligible papers was conducted in accordance with the PRISMA-ScR guidance.

Results: Twenty-two studies published from 2000 through 2024 met inclusion criteria. First authors represented nine high-income countries. The studies investigated hypothetical or actual application of TAFA for anaphylaxis, chest pain or myocardial infarction, stroke, trauma, bleeding, childbirth, foreign body airway obstruction, opioid overdose, and respiratory arrest; four studies did not specify the type of emergency. Eight studies (36.4%) analyzed real Emergency Medical Services (EMS) call data, another eight (36.4%) were simulation-based, five (22.7%) used surveys, and one (4.5%) represented a cost-effectiveness analysis. The studies described existing TAFA practices, evaluated expectations and perceptions of the service by the public, demonstrated the feasibility of experimental techniques, including video communication, and identified areas for future investigations and interventions. Along with some beneficial effects of TAFA, several studies have demonstrated downsides of the practice, including suboptimal dispatcher adherence to pre-arrival protocols. The relationships between the real-world application of TAFA and patient outcomes are unclear.

Conclusion: According to the review of quantitative research, non-resuscitative TAFA remains an under-explored area of prehospital medicine. Considering the paucity and the inconclusiveness of available evidence, significantly more research is required to better understand its effects and practical implications. The evidence map generated by this scoping review may assist the professional community in advancing the development of non-resuscitative TAFA.

Introduction

Emergency services' telecommunicators, including call takers and dispatchers, are the frontline of immediate health care response to unscheduled community requests for first aid and medical assistance. In addition to collecting critical health information, prioritizing calls, and rapidly dispatching appropriate medical resources, telecommunicators may provide laypeople with instant telephone pre-arrival instructions (PAI) on first aid, thus contributing to the initiation and continuation of care before professional help reaches the patient's side.[1]

Since the first organized PAI program for cardiac arrest in 1974,[2] many Emergency Medical Services (EMS) systems have systematically integrated telecommunicator cardiopulmonary resuscitation (T-CPR) procedures into their daily operations.[3,4] Given the proven benefits of T-CPR in increasing bystander intervention rates and improving neurological outcomes after cardiac arrest,[5] major resuscitation societies strongly advocate for T-CPR as a safe, cost-effective, and efficient life-saving strategy.[6–8] Research on T-CPR continues to expand,[9] driving further innovation and adoption world-wide.

The growing international focus on T-CPR has not been matched by comparable attention to telecommunicator-assisted first aid (TAFA) for emergencies beyond cardiac arrest, such as trauma, acute coronary syndrome, overdose, anaphylaxis, and other time-sensitive conditions. Although practiced in several regions[4] and recognized by some EMS systems as a standard of

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 13:01:55, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S1049023X26108942

care,[10] non-resuscitative TAFA remains largely overlooked in research. A preliminary search of TAFA-related literature conducted in 2022[11] had found 248 unique publications, of which 96% addressed telephone advice for cardiac arrest, whereas papers related to TAFA for other emergencies were occasional. Limited research productivity in this area may hinder evidence-based advancement and broader implementation of non-resuscitative TAFA, resulting in missed opportunities to improve public health outcomes and to reduce demand on EMS resources.

The present scoping review systematically maps and analyzes the existing body of quantitative research on non-resuscitative TAFA, highlighting current knowledge, evidence gaps, and directions for future study.

Methods

This study is reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guidance.[12] The completed PRISMA-ScR checklist is available as an online supplement (Appendix A).

For the purpose of this review, TAFA was defined as a telecommunication process involving the provision of PAI on first aid by emergency services' telecommunicators to laypeople via audio-only calls or video streaming.

Protocol and Registration

A protocol for the review was not registered or published. However, the methodology of the review remained unchanged, and no post-hoc decisions were made concerning the search, selection, or analysis of sources of evidence.

Eligibility Criteria

Studies were included if they reported original quantitative data on simulated, experimental, or real-world applications of TAFA for health emergencies. Studies concerning exclusively cardiac arrest management (CPR or automated external defibrillation; not addressing aspects of first aid for other emergencies); mental health first aid; non-emergency medical counselling (eg, primary care or nursing advice through a medical helpline); telemedicine in special settings (eg, in-flight or maritime environments); those limited to telecommunicator recognition or triage of health emergencies (not involving the provision of first aid advice); reporting qualitative research on telecommunicator or caller perceptions (eg, sociolinguistic or conversation analysis); or not specifying the nature of the provided advice were outside the scope of the current work. The analysis included English-language peer-reviewed journal papers, excepting guideline or consensus documents, study protocols, publications without abstracts (eg, letters, commentaries, editorials, conference proceedings), and reviews. However, relevant reviews were searched, collected, and evaluated to retrieve potentially eligible original studies. No limits were applied to publication dates.

Information Sources and Search

Search strategies were developed based on terminology identified in previously published reviews and original research on T-CPR. The final search strategies are provided in Appendix B. In 2025, PubMed (National Center for Biotechnology Information, National Institutes of Health; Bethesda, Maryland USA), Scopus (Elsevier; Amsterdam, Netherlands), and Google Scholar (Google Inc.; Mountain View, California USA) were searched to identify potentially eligible documents. Additionally, reference lists of eligible papers and relevant reviews were manually scanned to identify the articles of interest.

Selection of Sources of Evidence

The search results were imported into Zotero 7.0.16 (Corporation for Digital Scholarship; Vienna, Virginia USA) reference management program and cleared of duplicates. Titles and abstracts of the remaining unique records were sequentially screened to identify potentially relevant publications. Then, full texts of the selected articles were analyzed to verify their inclusion in the scoping review, and reference lists of the included papers were checked to identify additional eligible publications.

Data Charting Process and Data Items

Data were extracted from the eligible articles using an *a priori* author-developed data-charting form. Collected data included: author(s) and year of publication, article title, web link, publication type, country of origin (based on first author's primary affiliation), study aim, addressed health condition(s), study design, methods, study sample, key results, conclusions, and recommendations related to TAFA. The final charting form is available online.[13] All charted data underwent duplicate verification to ensure accuracy. Literature screening and initial data extraction were conducted by one reviewer (AAB) with subsequent check of study eligibility and accuracy of the extracted data for all included articles by the second reviewer (MJD). Any discrepancies were resolved through discussion.

Critical Appraisal of Individual Sources of Evidence

This scoping review did not involve a critical appraisal of included sources of evidence.

Synthesis of Results

The general characteristics of studies were summarized using descriptive statistics, and a narrative synthesis of the results was undertaken.

Results

Characteristics of Sources of Evidence

The flow of selection of publications for this review is outlined in Figure 1. Of the 53 full texts evaluated for eligibility, 31 were excluded as they did not report relevant quantitative data on TAFA or dealt exclusively with telecommunicator-guided assessment of the patient's condition. The remaining 22 articles were included in the analysis.[4,14–34]

Key characteristics of particular articles, including authors, years of publication, countries of origin, study aims, addressed health conditions, designs, methods, main findings, conclusions, and recommendations related to TAFA, are available in the online repository.[13]

The articles were published from 2000 through 2024. Based on the first author's primary affiliation, the reported studies originated from nine high-income countries, including the United States ($n = 10$; 45.5%),[14,18,19,22,25–29,33] Norway ($n = 3$; 13.6%),[23,24,34] France ($n = 2$; 9.1%),[16,20] the United Kingdom ($n = 2$; 9.1%),[15,21]

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 13:01:55, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S1049023X26108942

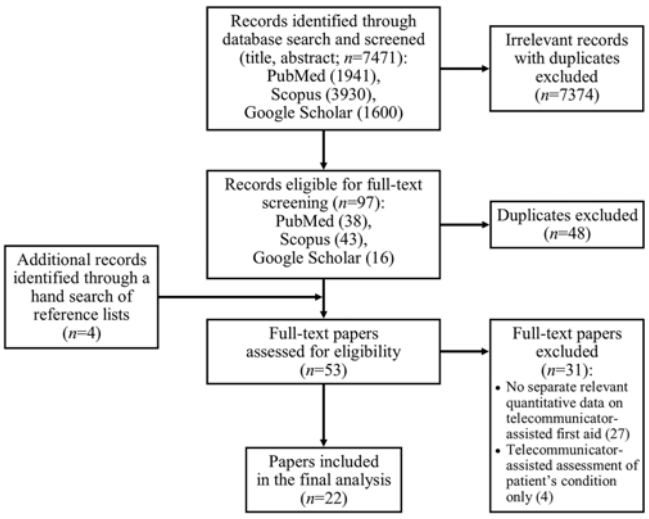


Figure 1. Study Selection Diagram.

Australia ($n = 1$; 4.5%),[4] Germany ($n = 1$; 4.5%),[17] Japan ($n = 1$; 4.5%),[32] Spain ($n = 1$; 4.5%),[30] and Switzerland ($n = 1$; 4.5%).[31]

Research designs included experimental randomized controlled ($n = 4$),[28,30,32,33] non-randomized controlled ($n = 1$),[23] and non-controlled ($n = 1$)[27] descriptive cross-sectional ($n = 1$),[4] observational cross-sectional ($n = 4$),[14–16,18] prospective observational ($n = 5$),[19,20,24,25,34] retrospective observational ($n = 5$),[17,21,22,26,29] and retrospective descriptive ($n = 1$) studies.[31] Five studies were cohort (two prospective[20,34] and three retrospective[21,22,31]) studies.

The studies investigated hypothetical or actual application of TAFA for the following health conditions: anaphylaxis ($n = 3$),[26,31,33] chest pain or myocardial infarction ($n = 3$),[18,20,21] stroke ($n = 3$),[18,22,29] trauma ($n = 3$),[17,24,34] bleeding ($n = 2$),[14,28] childbirth ($n = 2$),[14,30] foreign body airway obstruction ($n = 2$),[14,32] opioid overdose ($n = 2$),[25,27] and respiratory arrest ($n = 2$).[14,19] The type of addressed health emergencies was not specified in four publications.[4,15,16,23]

Studies of Real-World EMS Call Data

Eight studies (36.4%)[20–22,24,26,29,31,34] involved analyses of real EMS call data with sample sizes ranging from 113 to 52,282 (median [Q1, Q3]: 374.0 [170.8, 37,377.8]). In particular, Fourny, et al (2011)[20] reported the provision of medical advice for patients with myocardial infarction (instead of immediately dispatching a mobile intensive care unit) as a type of inappropriate initial dispatcher's decision that, combined with other inappropriate decisions, may result in substantial delays in time to reperfusion therapy. Barron and coauthors (2013)[21] determined rates of completion of emergency medical dispatch (EMD) protocol for pre-arrival aspirin administration to treat suspected acute coronary syndrome and revealed a substantial number of cases where the protocol was not used by dispatchers, though the patients met the necessary criteria. A study by Caceres, et al (2013)[22] showed that recognition of stroke by emergency dispatchers significantly increased the likelihood of the provision of telephone guidance to callers. Further, Li and colleagues (2021),[29] along with reporting rates of the provision of PAI for suspected stroke events, confirmed that the use of instructions was significantly and negatively (inversely) associated with EMS delay. Bakke and coauthors (2017)[24] presented rates of emergency dispatch telephone guidance in trauma, revealed low sensitivity and specificity of dispatchers for correctly identifying trauma patients requiring first-aid measures, and found that dispatcher advice did not significantly influence whether first aid was performed correctly or attempted at all, though in regions with a high spontaneous first aid rate. According to Idland, et al (2024),[34] video streaming by dispatchers in calls regarding injured patients, although infrequently used, improved dispatcher recognition of the need for first-aid measures but did not influence the quality of first aid compared with audio-only calls. Grisanti, et al (2019)[26] demonstrated suboptimal adherence to EMD protocols for allergies by EMS dispatchers, who infrequently asked about epinephrine availability or instructed callers with suspected anaphylaxis and available epinephrine to use it. Subsequent study of suspected anaphylaxis cases by Dami, et al (2022)[31] reported rates of accepted and declined dispatcher advice on using epinephrine autoinjector and identified reasons for refusing the use of the drug. Based on the research results, the authors recommended to further investigate a relationship between TAFA and bystander attempts to provide first aid,[24] improve accuracy of telephone triage to enhance dispatcher identification of the need for TAFA,[20,24] conduct studies to understand reasons of why dispatchers are not using an EMD protocol,[21] make efforts to increase protocol adherence,[26] perform protocol improvement,[26] enhance public access to aspirin[21] and epinephrine,[31] implement related public education campaigns,[21] provide training for dispatchers,[22,26,29,31] and carry out TAFA performance oversight.[22,26]

Simulation-Based Experimental Studies

Another eight studies (36.4%)[19,23,25,27,28,30,32,33] generated research data in simulated settings. Sample size varied from 12 to 246 (median [Q1, Q3]: 31.5 [21.0, 80.0]). Beauchamp, et al (2009)[19] demonstrated a high success rate of laypersons in telephone-directed placement of a laryngeal tube during simulated respiratory arrest. Melbye and colleagues (2014)[23] tested mobile phone video conferencing between EMD and bystanders who performed various first-aid tasks according to the provided instructions in different surroundings. The study group concluded that video conferencing can be used during medical emergencies under suboptimal sound and light conditions. According to a study by Goldberg, et al (2018),[25] bystanders were able to access pre-stationed intranasal naloxone and administer it in a shorter time than community EMS response times. Later, Ornato and collaborators (2020)[27] showed successful dispatcher-directed bystander administration of naloxone nasal spray delivered by drone to opioid overdose victims. An article by Scott and coauthors (2020)[28] reported a randomized controlled study where laypeople provided with telephone instructions from a trained EMD applied a tourniquet and stopped simulated bleeding completely in most cases. A study by Aranda-García, et al (2022)[30] demonstrated the feasibility of remote video assistance to untrained bystanders equipped with smart glasses in a scenario of unplanned out-of-hospital birth. Igarashi, et al (2022)[32] confirmed the superior quality of first aid for choking infants with dispatcher advice through video calls compared to voice-only calls. In research by Davidson, et al (2024),[33] bystanders guided by drone-specific or standard EMD instructions successfully interacted with the drone and administered the required interventions for pediatric anaphylaxis, with better adherence to drone safety cues in the group that received the drone-specific guidance. The publications recommended further studies in more realistic scenarios[19,33] or clinical settings[25,27] and

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 13:01:55, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S1049023X26108942

advised considering relevant ethical aspects of using video communication technologies for TAFA.[30]

Surveys

Five studies (22.7%)[4,14–16,18] collected data through surveys, which encompassed from nine to 652 participants (median [Q1, Q3]: 409.0 [47.0, 588.0]). Billittier and colleagues (2000)[14] evaluated the lay public's ($n = 524$) expectations of PAI when dialing 9-1-1 and found that most respondents expected to receive the instructions for health emergencies regardless of the current availability of such service. O'Cathain, et al (2002)[15] determined the acceptability of TAFA to ambulance callers before ($n = 355$) and after ($n = 297$) the introduction of the Advanced Medical Priority Dispatch System. The study showed the effect of an increase in the amount of first aid advice given to callers and caller satisfaction with the service. Positive public rating of telephone guidance provided by EMS call centers and 61% patient compliance with the self-treatment advice given were reported in an article by Labarère and coauthors (2003).[16] A survey of 9-1-1 communication centers carried out by Evenson, et al (2007)[18] examined personnel training, certification, and PAI provision rates for stroke and myocardial infarction. As part of a survey of EMD services across Asian countries published by Lee, et al (2020),[4] seven of nine participating countries confirmed the practice of provision of non-resuscitative PAI. The research-synthesized recommendations included future investigations of callers' compliance, willingness, and ability to follow PAI,[14,16] examination of TAFA economic impact and its actual effects on patient outcomes,[14] and organization of training and certification for call center personnel.[16,18]

Economic Evaluation Research

One study (4.5%) published by Auerbach, et al (2006)[17] represented a cost-effectiveness analysis of two equipment versions of telemedical devices for traffic accident emergency rescue, one of which included a mobile device with a touch-screen display, audio, and video connection for instructing and supporting laypersons in performing first aid. The study found that the application of the telemedical device may considerably reduce the number of traffic-related fatalities, but its application would be associated with a high cost-effectiveness ratio. To facilitate the implementation of the technology, the authors recommended building a coordinated European initiative among European member states.

Discussion

The provision of PAI on first aid to untrained bystanders has a potential for increasing community first response rates and improving outcomes of health emergencies in a safe and cost-effective way.[35] Such practice is recognized by developed emergency systems as a mandatory function of EMD.[10,36] The current scoping review showed that, despite the importance of the topic, there remains a paucity of related research evidence. The literature search revealed only 22 quantitative studies on non-resuscitative TAFA, which were highly heterogeneous in terms of design, methods, and data sources, and covered a limited spectrum of emergencies. All studies were led by authors from high-income countries.

The lack of evidence on non-resuscitative TAFA contrasts with the domain of T-CPR, which constitutes a forefront area of modern emergency medicine research, demonstrating a consistently increasing number of peer-reviewed publications, counted in hundreds.[9] The progressive growth of research outputs for T-CPR is not least because of the intensive promotion of the concept by relevant professional bodies, including the International Liaison Committee on Resuscitation (Belgium),[37] the American Heart Association (Dallas, Texas USA),[8] and the European Resuscitation Council (Niel, Belgium).[7] Besides issuing the evidence-based recommendations, these organizations delineate related knowledge gaps that further increase scholar's attention to T-CPR and potentiate original research endeavors. That said, non-resuscitative TAFA basically remains out of scope of the current international guidelines and consensuses on first aid.

Notwithstanding the small amount and diversity of research on non-resuscitative TAFA, the particular studies have generated important insights regarding real-life practices of emergency telephone guidance on first aid, demonstrated the feasibility of experimental techniques, including video communication technologies, and identified multiple areas for future investigations and organizational interventions. The evidence suggests that non-resuscitative TAFA is provided by EMS systems in different countries and is generally positively perceived by the public. However, its performance with regard to adherence to EMD protocols can be suboptimal, and implementation of targeted dispatcher training programs is therefore advisable. While several studies demonstrated the potential feasibility of dispatcher guidance in simulated settings, relationships between the real-life application of TAFA and patient outcomes remain unclear and necessitate further research.

Given the important health-protecting and life-saving perspectives of TAFA, significantly more academic attention is needed for this area of emergency medicine. Similar to the *Telecommunicator CPR Policy Statement* from the American Heart Association,[6] an international call for action could be endorsed by recognized professional entities to provide conceptual justification, operational definitions, and performance measures for TAFA, along with outlining the research agenda to encourage further investigations and developments. The creation of dedicated national and international expert groups, including within the International Liaison Committee on Resuscitation First Aid Task Force, may build a strong foundation for organized and evidence-based advancement of this promising strategic approach for enhancing community first aid.

Limitations

This review has limitations to acknowledge. No study protocol was registered or published prior to the review initiation. The literature was sought in two bibliographic databases and in one language. However, grey literature search through the academic search engine and manual screening of reference lists were additionally employed to ensure better coverage of potentially eligible studies. The review did not consider letters, commentaries, notes, and other papers without an abstract, whereas these publications may occasionally report relevant original data. These limitations may have caused search-related bias. Also, this scoping review focused on peer-reviewed articles that reported quantitative data. All qualitative studies were excluded, although they may synthesize important information on the subject. Finally, the literature

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 13:01:55, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S1049023X26108942

screening and initial data extraction were conducted by one reviewer with subsequent check by the second reviewer, which may have introduced selection bias.

Conclusions

This scoping review of quantitative studies showed that non-resuscitative TAFA remains an under-explored area of prehospital medicine. Considering the available limited, heterogeneous, and inconclusive evidence, significantly more research is required to better understand its effects and practical implications. By mapping the current knowledge and outlining the evidence gaps, this review may assist the prehospital medicine community in advancing the development of non-resuscitative TAFA.

Supplementary Material. To view supplementary material for this article, please visit https://doi.org/10.1017/S1049023X26108942

Data Availability Statement. The dataset generated and analyzed during the current study is available in the Mendeley Data repository.[13]

Author Contributions. Alexei A. Birkun: Conceptualization, Methodology, Investigation, Data Curation, Project Administration, Writing - Original Draft Preparation.

Matthew J. Douma: Validation, Formal Analysis, Supervision, Writing - Reviewing and Editing.

Funding Statement. This research did not receive any financial support.

Competing Interests. The authors declare no conflicts of interest.

Use of AI Technology. The authors did not use any artificial intelligence (AI) tools or services to assist with preparation or editing of this work.

Editor's Note. Editor-in-Chief (EIC) Dr. Jeffrey Franc declares a minor conflict of interest (COI) in reviewing this manuscript. In instances where the EIC has a minor COI, the manuscript follows the standard review process but requires additional approval from an Editorial Board member before acceptance. Final approval for publication of this manuscript was given by Editorial Board member Dr. Joe Cuthbertson.

References

1. Hewett Brumberg EK, Douma MJ, Alibertis K, et al. 2024 American Heart Association and American Red Cross Guidelines for First Aid. *Circulation.* 2024;150(24):e519–e579. doi: 10.1161/CIR.0000000000001281.
2. Carter WB, Eisenberg MS, Hallstrom AP, Schaeffer S. Development and implementation of emergency CPR instruction via telephone. *Ann Emerg Med.* 1984;13(9 Pt 1):695–700. doi: 10.1016/s0196-0644(84)80730-1.
3. Gräsner JT, Wnent J, Herlitz J, et al. Survival after out-of-hospital cardiac arrest in Europe - Results of the EuReCa TWO study. *Resuscitation.* 2020;148:218–226. doi: 10.1016/j.resuscitation.2019.12.042.
4. Lee SCL, Mao DR, Ng YY, et al. Emergency medical dispatch services across Pan-Asian countries: a web-based survey. *BMC Emerg Med.* 2020;20(1):1. doi: 10.1186/s12873-019-0299-1.
5. Eberhard KE, Linderoth G, Gregers MCT, Lippert F, Folke F. Impact of dispatcher-assisted cardiopulmonary resuscitation on neurologically intact survival in out-of-hospital cardiac arrest: a systematic review. *Scand J Trauma Resusc Emerg Med.* 2021;29(1):70. doi: 10.1186/s13049-021-00875-5.
6. Kurz MC, Bobrow BJ, Buckingham J, et al. Telecommunicator cardiopulmonary resuscitation: a policy statement from the American Heart Association. *Circulation.* 2020;141(12):e686–e700. doi: 10.1161/CIR.0000000000000744.
7. Semeraro F, Greif R, Böttiger BW, et al. European Resuscitation Council Guidelines 2021: Systems saving lives. *Resuscitation.* 2021;161:80–97. doi: 10.1016/j.resuscitation.2021.02.008.
8. Berg KM, Cheng A, Panchal AR, et al. Part 7: Systems of Care: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation.* 2020;142(16_suppl_2):S580-S604. doi: 10.1161/CIR.0000000000000899.
9. Imbriaco G, Ramacciati N. International trends and key contributors in dispatcher-assisted cardiopulmonary resuscitation research: a 25-year bibliometric analysis. *Emerg Crit Care Med.* 2025;5(2):76–82. doi: 10.1097/EC9.0000000000000150
10. NAEMSP. Emergency medical dispatch. *Prehosp Emerg Care.* 2008;12(2):217. doi: 10.1080/10903120801906754.
11. Birkun AA. Dispatcher Telephone Assistance on First Aid: An Important but Unexplored Area for Research. *Prehosp Disaster Med.* 2022;37(6):858–859. doi: 10.1017/S1049023X22001492.
12. Tricco AC, Lillie E, Zarin W, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med.* 2018;169(7):467–473. doi: 10.7326/M18-0850.
13. Birkun A, Douma M. Dataset of original research on non-resuscitative telecommunicator-assisted first aid. *Mendeley Data.* 2025;V1. https://doi.org/10.17632/hschfk4mgv.1
14. Billittier AJ, Lerner EB, Tucker W, Lee J. The lay public's expectations of prearrival instructions when dialing 9-1-1. *Prehosp Emerg Care.* 2000;4(3):234–237. doi: 10.1080/10903120090941254.
15. O'Cathain A, Turner J, Nicholl JP. The acceptability of an emergency medical dispatch system to people who call 999 to request an ambulance. *Emerg Med J.* 2002;19(2):160–163. doi: 10.1136/emj.19.2.160.
16. Labarère J, Torres JP, Francois P, et al. Patient compliance with medical advice given by telephone. *Am J Emerg Med.* 2003;21(4):288–292. doi: 10.1016/s0735-6757(03)00087-1.
17. Auerbach H, Schreyögg J, Busse R. Cost-effectiveness analysis of telemedical devices for pre-clinical traffic accident emergency rescue in Germany. *Technol Health Care.* 2006;14(3):189–197. PMID: 16971757.
18. Evenson KR, Brice JH, Rosamond WD, Lellis JC, Christian JB, Morris DL. Statewide survey of 911 communication centers on acute stroke and myocardial infarction. *Prehosp Emerg Care.* 2007;11(2):186–191. doi: 10.1080/10903120701205174.
19. Beauchamp G, Phrampus P, Guyette FX. Simulated rescue airway use by laypersons with scripted telephonic instruction. *Resuscitation.* 2009;80(8):925–929. doi: 10.1016/j.resuscitation.2009.04.030.
20. Fourny M, Lucas AS, Belle L, et al. Inappropriate dispatcher decision for emergency medical service users with acute myocardial infarction. *Am J Emerg Med.* 2011;29(1):37–42. doi: 10.1016/j.ajem.2009.07.008.
21. Barron T, Clawson J, Scott G, et al. Aspirin administration by emergency medical dispatchers using a protocol-driven aspirin diagnostic and instruction tool. *Emerg Med J.* 2013;30(7):572–578. doi: 10.1136/emermed-2012-201339.
22. Caceres JA, Adil MM, Jadhav V, et al. Diagnosis of stroke by emergency medical dispatchers and its impact on the prehospital care of patients. *J Stroke Cerebrovasc Dis.* 2013;22(8):e610–e614. doi: 10.1016/j.jstrokecerebrovasdis.2013.07.039.
23. Melbye S, Hotvedt M, Bolle SR. Mobile videoconferencing for enhanced emergency medical communication - a shot in the dark or a walk in the park? —— A simulation study. *Scand J Trauma Resusc Emerg Med.* 2014;22:35. doi: 10.1186/1757-7241-22-35.
24. Bakke HK, Steinvik T, Ruud H, Wisborg T. Effect and accuracy of emergency dispatch telephone guidance to bystanders in trauma: post-hoc analysis of a prospective observational study. *Scand J Trauma Resusc Emerg Med.* 2017;25(1):27. doi: 10.1186/s13049-016-0343-z.
25. Goldberg SA, Dworkis DA, Liao VT, et al. Feasibility of bystander administration of public-access naloxone for opioid overdose. *Prehosp Emerg Care.* 2018;22(6):788–794. doi: 10.1080/10903127.2018.1461284.
26. Grisanti K, Martorano L, Redmond M, et al. Emergency call characteristics and EMS dispatcher protocol adherence for possible anaphylaxis. *Prehosp Emerg Care.* 2019;23(5):691–699. doi: 10.1080/10903127.2018.1557305.
27. Ornato JP, You AX, McDiarmid G, et al. Feasibility of bystander-administered naloxone delivered by drone to opioid overdose victims. *Am J Emerg Med.* 2020;38(9):1787–1791. doi: 10.1016/j.ajem.2020.05.103.
28. Scott G, Olola C, Gardett MI, et al. Ability of layperson callers to apply a tourniquet following protocol-based instructions from an emergency

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 13:01:55, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S1049023X26108942

medical dispatcher. *Prehosp Emerg Care.* 2020;24(6):831–838. doi: 10.1080/10903127.2020.1718259.
29. Li X, Hu Q, Gregg A. An integrated spatio-temporal analysis of emergency medical service response characteristics for stroke events across Alabama. *J Transp Health.* 2021;20:101018. https://doi.org/10.1016/j.jth.2021.101018.
30. Aranda-García S, Santos-Folgar M, Fernández-Méndez F, et al. 'Dispatcher, Can You Help Me? A Woman Is Giving Birth.' A pilot study of remote video assistance with smart glasses. *Sensors.* 2022;23(1):409. doi: 10.3390/s23010409.
31. Dami F, Enggist R, Comte D, Pasquier M. Underuse of epinephrine for the treatment of anaphylaxis in the prehospital setting. *Emerg Med Int.* 2022;2022:5752970. doi: 10.1155/2022/5752970.
32. Igarashi Y, Suzuki K, Norii T, et al. Do video calls improve dispatcher-assisted first aid for infants with foreign body airway obstruction? A randomized controlled trial/simulation study. *J Nippon Med Sch.* 2022;89(5):526–532. doi: 10.1272/jnms.JNMS.2022_89-513.
33. Davidson EE, Correll JA, Gottula A, et al. Impact of drone-specific dispatch instructions on the safety and efficacy of drone-delivered emergency medical treatments: a randomized simulation pilot study. *Resusc Plus.* 2024;18:100652. doi: 10.1016/j.resplu.2024.100652.
34. Idland S, Kramer-Johansen J, Bakke HK, et al. Can video streaming improve first aid for injured patients? A prospective observational study from Norway. *BMC Emerg Med.* 2024;24(1):89. doi: 10.1186/s12873-024-01010-0.
35. Delbridge TR, Bailey B, Chew JL Jr, et al. EMS agenda for the future: where we are ... where we want to be. EMS Agenda for the Future Steering Committee. *Ann Emerg Med.* 1998;31(2):251–263. PMID: 9472190
36. Clawson JJ. Emergency medical dispatching. *Prehosp Disaster Med.* 1989;4(2):163–166. https://doi.org/10.1017/S1049023X00029964.
37. Greif R, Bray JE, Djärv T, et al. 2024 International consensus on cardiopulmonary resuscitation and emergency cardiovascular care science with treatment recommendations: summary from the Basic Life Support; Advanced Life Support; Pediatric Life Support; Neonatal Life Support; Education, Implementation, and Teams; and First Aid Task Forces. *Circulation* 2024;150(24):e580–e687. doi: 10.1161/CIR.0000000000001288.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 13:01:55, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S1049023X26108942