

Impact of Real-Time Medical Dispatch Consultation on Epinephrine Administration by BLS Teams in Suspected Anaphylaxis

Tomer Kaplan B.EMS MPH(1), Shihrbankablan B.Sc.Pharm MPH(2), Nadav Oppenheim MD(2,3), Mrs. Aya Cohen(4), Refael Strugo MD(1,5), Gal Pachys MD(6,7), Michael Markovits MD(2,8), Reshef Meshulam MD(2,8), Baruch Berzon MD(2,9), Daniel Trotzky MD MHA(2,10)

(1) Magen David Adom (MDA), Ramla, Israel. (2) School of Public Health, Gray Faculty of Medical & Health Sciences, Tel Aviv University, Tel Aviv, Israel. (3) Shamir Medical Center (formerly Assaf Harofeh), Zerifin, Israel. (4) Division of Emergency Medicine and Emergency Preparedness, Tel Aviv Sourasky Medical University Medical Center, Tel Aviv, Israel. (5) The Department of Emergency Medicine, Recanati School for Community Health Professions, Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer Sheva, Israel. (6) Division of Emergency Medicine, Shaare Zedek Medical Center, Jerusalem, Israel. (7) The Faculty of Medicine, The Hebrew University, Jerusalem, Israel. (8) Department of Emergency Medicine, Tel Aviv Sourasky Medical University Medical Center, Tel Aviv, Israel. (9) Department of Emergency Medicine and Department of Emergency Preparedness, Shamir Medical Center (formerly Assaf Harofeh), Zerifin, Israel. (10) Medical Management, Tel Aviv Sourasky Medical University Medical Center, Tel Aviv, Israel.

INTRODUCTION

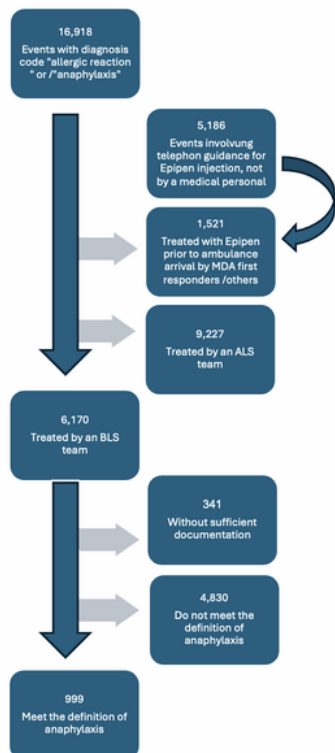
Anaphylaxis is a potentially life-threatening systemic hypersensitivity reaction in which prompt intramuscular epinephrine administration is the recommended first-line treatment. However, previous international studies have consistently demonstrated persistent underuse of epinephrine in the prehospital setting despite established clinical guidelines.

Magen David Adom (MDA), Israel's national EMS organization, operates a unique model of structured real-time medical consultation, in which Basic Life Support (BLS) teams can consult experienced physicians and senior paramedics at the medical dispatch center during patient management. To our knowledge, this consultation model has not been systematically evaluated in the international EMS literature.

This study evaluated whether real-time telephone consultation with an Emergency Medicine specialist at a medical dispatch center was associated with higher rates of epinephrine administration by prehospital Basic Life Support (BLS) medical teams managing anaphylaxis.

METHODS

A retrospective cohort study of Israel's national Emergency Medicine Services, Magen David Adom (MDA), records (2023–2024) included BLS-managed anaphylaxis cases meeting predefined clinical criteria. Cases with dispatcher-guided epinephrine use were excluded. The exposure was telephone consultation with an emergency physician during field care, and the primary outcome was epinephrine auto-injector administration.



RESULTS

Of 6,170 BLS events coded as anaphylaxis, 999 met the inclusion criteria for anaphylaxis. Consultation occurred in 37 out of 999 (3.7%) events. Epinephrine was administered in 8 of 37 (21.6%) events with consultation versus 76 out of 962 (7.9%) without consultation (OR=3.22; 95% CI: 1.42–7.30; P=0.009). In a secondary analysis using a broader and less restrictive definition of anaphylaxis, consultation occurred in 51/1,289 (4.0%) events. Epinephrine was administered in 10/51 (19.6%) events with consultation and 90/1,238 (7.3%) events without consultation (OR=3.11; 95% CI: 1.51–6.42; P=0.004). Telephone consultation remained an independent predictor of epinephrine administration (OR = 3.94; p = 0.002).

CONCLUSION

In this national EMS system, which incorporates a structured model of real-time medical consultation, telephone consultation with an emergency medicine specialist was associated with higher odds of prehospital epinephrine administration in anaphylaxis, across both the severe and broader case definitions. The findings suggest that EMS systems in which medical dispatch is staffed by clinically experienced personnel and emphasizes real-time clinical judgment, rather than solely protocol-driven triage, may offer a valuable framework for addressing persistent epinephrine underuse in the prehospital setting.

The study further highlights the unique operational framework of Magen David Adom (MDA), where experienced physicians and senior paramedics are actively integrated into emergency medical dispatch and ongoing field management. Analysis of the broader MDA database also demonstrated that many patients with suspected anaphylaxis were identified during the initial emergency call and received dispatcher-guided instruction for epinephrine auto-injector administration prior to ambulance arrival, emphasizing the potential contribution of early recognition and intervention to improving prehospital anaphylaxis care.

CONTACT

Shihrbankablan B.Sc.Pharm MPH -
shihrbankablan@gmail.com