

**The State of the Evidence for Emergency Medical Services (EMS)
Care of Prehospital Hypoglycemia:
An Analysis of Appraised Research from the Prehospital Evidence-based Practice
Program.**

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Introduction

The Prehospital Evidence-based Practice (PEP) program is an online, freely accessible, continuously updated repository of appraised EMS research evidence. This report is an analysis of published evidence for EMS interventions used to assess and treat patients suffering from hypoglycemia.

Methods

PubMed was systematically searched in June 2019. One author screened titles, abstracts and full-texts for relevance. Trained appraisers reviewed full text articles, scored each on a three-point Level of Evidence (LOE) scale (based on study design and quality) and three-point Direction of Evidence (DOE) scale (supportive, neutral, or opposing findings for each intervention's primary outcome), abstracted the primary outcome, setting and assigned an outcome category (patient or process). Second party appraisal was conducted for all included studies. The level and direction of each intervention was plotted in an evidence matrix, based on appraisals.

Results

Twenty-nine studies were included and appraised for seven interventions: 5 drugs (Dextrose 50% (D50), Dextrose 10% (D10), glucagon, oral glucose and thiamine), one assessment tool (point-of-care (POC) glucose testing) and one call disposition (treat-and-release). The most frequently reported study primary outcomes were related to: clinical improvement (n=15, 51.7%), feasibility/safety (n=8, 27.6%), and diagnostics (n=6, 20.7%). The majority of outcomes were patient focused (n=18, 62.0%).

The distribution of LOE for interventions with supportive findings was: high quality (n=3, 42.9%): D50, D10, glucagon; moderate quality (n=2, 28.6%): 'treat and release' and POC glucose testing. The distribution of LOE for interventions with neutral findings was: moderate quality (n=2, 28.6%): oral glucose and thiamine. No interventions were opposed by the evidence. The majority of studies were conducted in the prehospital setting.

Conclusion

EMS interventions for treating hypoglycemia are informed by high-quality supportive evidence. Both D50 and D10 are supported by high-quality evidence; suggesting D10 may be an effective alternative to the standard D50. "Treat-and-release" practices for hypoglycemia are supported by moderate-quality evidence for the patient related outcomes of relapse, patient preference and complications. This body of evidence is high-quality, patient-focused and conducted in the prehospital setting thus generalizable paramedic practice.