

CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

# Oral Glucose Tablets versus Gel or Solution for the Treatment of Mild Hypoglycemia: Comparative Clinical Effectiveness

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## Research Questions

1. What is the comparative clinical effectiveness of oral glucose tablets versus oral glucose gel or solution for the treatment of mild hypoglycemia in patients of any age?

## Key Findings

One systematic review was identified regarding oral glucose tablets versus gel or solution for the treatment of mild hypoglycemia. In addition, one evidence-based guideline was identified.

## Methods

A limited literature search was conducted on key resources including PubMed, the Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2014 and April 24, 2019. Internet links were provided, where available.

## Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

**Table 1: Selection Criteria**

<b>Population</b>	People of any age experiencing mild hypoglycemia
<b>Intervention</b>	Oral glucose tablets
<b>Comparator</b>	Oral glucose gel; Oral glucose solution
<b>Outcomes</b>	Clinical effectiveness in terms of time to return blood glucose levels to normal range, safety
<b>Study Designs</b>	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized trials, evidence-based guidelines

## Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

One systematic review was identified regarding oral glucose tablets versus gel or solution for the treatment of mild hypoglycemia. In addition, one evidence-based guideline was identified. No health technology assessment reports, meta-analyses, randomized controlled trials, or non-randomized trials were identified.

Additional references of potential interest are provided in the appendix.

## Overall Summary of Findings

One systematic review was identified regarding oral glucose tablets versus gel or solution for the treatment of mild hypoglycemia.<sup>1</sup> The systematic review by De Buck *et al.* included 77 patients from four studies, of which two studies were randomized controlled trials (RCTs) and two were non-randomized studies.<sup>1</sup> The authors reported low confidence in the body of evidence.<sup>1</sup> Oral glucose was reported to result in a higher blood glucose concentration 20 minutes after administration when compared to buccal glucose administration.<sup>1</sup> There was no significant differences demonstrated between oral glucose tablets, oral glucose solutions or dextrose gel (a product combining buccal and oral routes).<sup>1</sup>

The 2018 Diabetes Canada guideline on hypoglycemia recommended patients with diabetes to carry a source of fast-acting carbohydrate at all times such as glucose tablets, juice box, packets of table sugar, etc.<sup>2</sup> The authors suggested that for people taking acarbose experiencing hypoglycemia, glucose tablets must be used, or milk or honey must be used if glucose tablets are unavailable.<sup>2</sup>

## References Summarized

### Health Technology Assessments

No literature identified.

### Systematic Reviews and Meta-analyses

1. De Buck E, Borra V, Carlson JN, Zideman DA, Singletary EM, Djarv T. First aid glucose administration routes for symptomatic hypoglycaemia. *Cochrane Database Syst Rev*. 2019 Apr 11;4:Cd013283.  
[PubMed: PM30973639](#)

### Randomized Controlled Trials

No literature identified.

### Non-Randomized Studies

No literature identified.

### Guidelines and Recommendations

#### *Patients with Diabetes*

2. Yale J-F, Paty B, Senior PA. Hypoglycemia. 2018 Clinical practice guidelines. *Can J Diabetes*. 2018;42(Sup.1):S104-S108. <https://guidelines.diabetes.ca/docs/cpg/Ch14-Hypoglycemia.pdf> Accessed 2018 May 3.  
*See pages S105-S106: Treatment of Hypoglycemia and S106: Recommendations #5*

## Appendix — Further Information

### Previous CADTH Reports

2. Oral glucose gel for neonatal hypoglycemia: a review of clinical effectiveness, cost-effectiveness and guidelines. (CADTH rapid response report: summary with critical appraisal). Ottawa (ON): CADTH: <https://www.cadth.ca/sites/default/files/pdf/htis/2018/RC0998%20Oral%20Glucose%20Gel%20for%20Neonatal%20Hypoglycemia%20Final.pdf> Accessed 2018 May 2.

### Systematic Reviews and Meta-analyses – Alternative Interventions

3. Carlson JN, Schunder-Tatzber S, Neilson CJ, Hood N. Dietary sugars versus glucose tablets for first-aid treatment of symptomatic hypoglycaemia in awake patients with diabetes: a systematic review and meta-analysis. *Emerg Med J.* 2017 Feb;34(2):100-106.  
[PubMed: PM27644757](#)

### Additional References

4. HealthLink BC. Treating low blood sugar. 2017; <https://www.healthlinkbc.ca/health-topics/aa20606>. Accessed 2019 May 2.
5. Diabetes Australia. Hypoglycaemia. 2015  
<https://www.diabetesaustralia.com.au/hypoglycaemia> Accessed 2019 May 2.
6. National Institute of Diabetes and Digestive and Kidney Diseases. Low blood glucose (hypoglycemia). 2016; <https://www.niddk.nih.gov/health-information/diabetes/overview/preventing-problems/low-blood-glucose-hypoglycemia>. Accessed 2019 May 2.
7. Dagens Diabetes. Glucose tablets likely better for easing hypoglycemia symptoms. *Emergency Medicine Journal.* 2016; <https://dagensdiabetes.info/index.php/alla-senastenyheter/2336-glucose-tablets-likely-better-for-easing-hypoglycemia-symptoms-emergency-medicine-journal>. Accessed 2019 May 2.