

CADTH Reference List

# Electronic Food Assessments for People with Diabetes

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## Key Messages

- One systematic review was identified regarding the clinical effectiveness of electronic food assessments for people with diabetes.
- No evidence was identified regarding the cost-effectiveness of electronic food assessments for people with diabetes.
- No relevant evidence-based guidelines were identified regarding the use of electronic food assessments for people with diabetes.

## Research Questions

1. What is the clinical effectiveness of electronic food assessments for people with diabetes?
2. What is the cost-effectiveness of electronic food assessments for people with diabetes?
3. What are the evidence-based guidelines regarding the use of electronic food assessments for people with diabetes?

## Methods

### Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, the Cochrane Database of Systematic Reviews, the International HTA database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were electronic food assessments and diabetes. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2015 and December 13, 2020. Internet links were provided, where available.

### Selection Criteria and Summary Methods

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in Table 1. Full texts of study publications were not reviewed. The Overall Summary of Findings was based on information available in the abstracts of selected publications. Open access full-text versions of evidence-based guidelines were reviewed when abstracts were not available, and relevant recommendations were summarized.

**Table 1: Selection Criteria**

Criteria	Description
<b>Population</b>	People with diabetes (any type)
<b>Intervention</b>	Electronic food assessments (e.g., electronic food journals or diaries, digital food tracking systems)
<b>Comparator</b>	Q1-Q2: Usual care (e.g., basic dietary education, dietician assessment, no dietary assessment or food logging); alternative methods of tracking dietary intake (e.g., paper-based systems) Q3: Not applicable
<b>Outcomes</b>	Q1: Clinical effectiveness (e.g., blood pressure, body weight, patient satisfaction, quality of life, adherence, glycemic control, glycated hemoglobin) Q2: Cost-effectiveness (e.g., cost per quality-adjusted life-year gained) Q3: Recommendations regarding best practices (e.g., appropriate patient populations, implementation considerations)
<b>Study Designs</b>	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, economic evaluations, evidence-based guidelines

## Results

One systematic review<sup>1</sup> was identified regarding the clinical effectiveness of electronic food assessments for people with diabetes. No relevant health technology assessments, randomized controlled trials, non-randomized studies, economic evaluations, or evidence-based guidelines were identified.

Additional references of potential interest that did not meet the inclusion criteria are provided in Appendix 1.

## Overall Summary of Findings

One systematic review<sup>1</sup> was identified regarding the clinical effectiveness of electronic food assessments for people with diabetes. The authors found that participants in 4 of the reviewed studies had significantly greater improvements in glycated hemoglobin levels after using electronic devices to record food intake, compared to the control group.<sup>1</sup>

No relevant economic evaluations or evidence-based guidelines were found regarding the cost-effectiveness of or use of electronic food assessments for people with diabetes; therefore, no summary can be provided.

## References

### Health Technology Assessments

No literature identified.

## Systematic Reviews and Meta-Analyses

1. Porter J, Huggins CE, Truby H, Collins J. The Effect of Using Mobile Technology-Based Methods That Record Food or Nutrient Intake on Diabetes Control and Nutrition Outcomes: A Systematic Review. *Nutrients*. 2016 Dec 17;8(12):17. [Medline](#)

## Randomized Controlled Trials

No literature identified.

## Non-Randomized Studies

No literature identified.

## Economic Evaluations

No literature identified.

## Guidelines and Recommendations

No literature identified.

## Appendix 1: References of Potential Interest

### Randomized Controlled Trials – Mixed Interventions

2. Jiwani R, Wang J, Berndt A, Ramaswamy P, Mathew Joseph N, Du Y, Ko J, Espinoza S. Changes in Patient-Reported Outcome Measures With a Technology-Supported Behavioral Lifestyle Intervention Among Patients With Type 2 Diabetes: Pilot Randomized Controlled Clinical Trial. *JMIR Diabetes*. 2020 Jul 24;5(3):e19268. . [10.2196/19268](https://doi.org/10.2196/19268)[Medline](#)
3. Kim EK, Kwak SH, Jung HS, et al. The Effect of a Smartphone-Based, Patient-Centered Diabetes Care System in Patients With Type 2 Diabetes: A Randomized, Controlled Trial for 24 Weeks. *Diabetes Care*. 2019 01;42(1):3-9. [Medline](#)
4. Wang J, Cai C, Padhye N, Orlander P, Zare M. A Behavioral Lifestyle Intervention Enhanced With Multiple-Behavior Self-Monitoring Using Mobile and Connected Tools for Underserved Individuals With Type 2 Diabetes and Comorbid Overweight or Obesity: Pilot Comparative Effectiveness Trial. *JMIR Mhealth Uhealth*. 2018 Apr 10;6(4):e92. [Medline](#)

### Non-Randomized Studies

#### Mixed Intervention

5. Waki K, Aizawa K, Kato S, et al. DialBetics With a Multimedia Food Recording Tool, FoodLog: Smartphone-Based Self-Management for Type 2 Diabetes. *J Diabetes Sci Technol*. 2015 May;9(3):534-540. [Medline](#)

#### No Comparator

6. Inada S, Yoshiuchi K, Iizuka Y, et al. Pilot Study for the Development of a Self-Care System for Type 2 Diabetes Patients Using a Personal Digital Assistant (PDA). *Int J Behav Med*. 2016 06;23(3):295-299. [Medline](#)

#### Alternative Outcomes

7. Ahn Y, Bae J, Kim HS. The development of a mobile u-Health program and evaluation for self-diet management for diabetic patients. *Nutr Res Pract*. 2016 Jun;10(3):342-351. [Medline](#)

### Clinical Practice Guideline – Methodology Unclear

8. Diabetes Canada Clinical Practice Guidelines Expert Committee, Clement M, Filteau P, Harvey B, Jin S, Laubscher T, Mukerji G, Sherifali D. Organization of Diabetes Care. *Can J Diabetes*. 2018 Apr;42 Suppl 1:S27-S35. . <https://guidelines.diabetes.ca/docs/cpg/Ch6-Organization-of-Diabetes-Care.pdf>10.1016/j.jcjd.2017.10.005 See: Clinical information systems, page S31; Recommendation 2E, page S33

### Review Articles

9. Doupis J, Festas G, Tsilivigos C, Efthymiou V, Kokkinos A. Smartphone-Based Technology in Diabetes Management. *Diabetes Ther*. 2020 Mar;11(3):607-619. . Epub 2020 Jan 25. [10.1007/s13300-020-00768-3](https://doi.org/10.1007/s13300-020-00768-3)[Medline](#)
10. Allman-Farinelli M, Gemming L. Technology Interventions to Manage Food Intake: Where Are We Now? *Curr Diab Rep*. 2017 Sep 23;17(11):103. [Medline](#)
11. Darby A, Strum MW, Holmes E, Gatwood J. A Review of Nutritional Tracking Mobile Applications for Diabetes Patient Use. *Diabetes Technol Ther*. 2016 Mar;18(3):200-212. [Medline](#)