



Effective Health Care Low Carbohydrate Diet for People With Diabetes Mellitus Type 2

Results of Topic Selection Process & Next Steps

The nominator is interested in a new evidence review on low carbohydrates for people with diabetes mellitus type 2.

We identified a review covering the scope of the nomination, therefore, a new review would be duplicative of an existing product. No further activity on this nomination will be undertaken by the Effective Health Care (EHC) Program.

Topic Brief

Topic Name: Low carbohydrate diet for people with diabetes mellitus type 2, #789

Nomination Date: 5/30/2018

Topic Brief Date: 6/7/2018

Authors

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Conflict of Interest: None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

Background

- In 2015 an estimated 30.3 million people had diabetes¹.
- Diabetes is a risk factor for cardiovascular disease (MI and stroke), and can lead to blindness, lower limb amputation, and kidney failure.
- Most people with type 2 diabetes mellitus have a degree of overweight or obesity. Weight reduction can help with management of glucose.
- Treatment of type 2 diabetes include lifestyle changes, including dietary changes and physical activity, and medications.

The key question for this nomination is: Does a low carbohydrate diet improve outcomes for people with type 2 diabetes mellitus?

To define the inclusion criteria for the key questions we specify the population, interventions, comparators, outcomes, and setting (PICOS) of interest (Table 1).

Table 1. Key Question and PICOTS

| | |
|----------------------|---|
| Key Question | |
| Population | Adults with type 2 diabetes mellitus |
| Interventions | Low carbohydrate diet (energy percentage below 45%) |
| Comparators | Higher carbohydrate diet |
| Outcomes | Glucose control, weight |
| Setting | Outpatient |

Methods

We assessed this nomination for priority for a systematic review or other AHRQ EHC report with a hierarchical process using established selection criteria (Appendix A). Assessment of each criteria determined the need for evaluation of the next one.

1. Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. Establish the overall *importance* of a potential topic as representing a health or healthcare issue in the United States.
3. Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative.
4. Assess the *potential impact* a new systematic review or other AHRQ product.
5. Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. Determine the *potential value* of a new systematic review or other AHRQ product.

Appropriateness and Importance

We assessed the nomination for appropriateness and importance.

Desirability of New Review/Duplication

We searched for high-quality, completed or in-process evidence reviews published in the last three years on the key questions of the nomination. See Appendix B for sources searched.

Results

See Appendix A for detailed assessments for selection criteria.

Appropriateness and Importance

This is an appropriate and important topic. Diabetes mellitus type 2 is a prevalent condition that can lead to health complications such as stroke, heart attack, blindness and lower limb amputation. Lifestyle changes, including diet, are key to preventing complications.

Desirability of New Review/Duplication

A new evidence review would be duplicative of an existing product. We identified one 2017 systematic review² that addressed the entire scope of the nomination.

Summary of Findings

- Appropriateness and importance: The topic is both appropriate and important.
- Duplication: A new review would be duplicative of an existing product.

References

1. National Diabetes Statistics Report, 2017. Atlanta, GA: Centers for Disease Control and Prevention, U.S. Dept of Health and Human Services; 2017.
<https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf>.
2. Snorgaard O, Poulsen GM, Andersen HK, et al. Systematic review and meta-analysis of dietary carbohydrate restriction in patients with type 2 diabetes. *BMJ Open Diabetes Res Care*. 2017;5(1):e000354. doi: 10.1136/bmjdr-2016-000354. PMID: 28316796.
<https://www.ncbi.nlm.nih.gov/pubmed/28316796>

Appendix A. Selection Criteria Assessments

| Selection Criteria | Assessment |
|--|---|
| 1. Appropriateness | |
| 1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.? | Yes |
| 1b. Is the nomination a request for a systematic review? | Yes |
| 1c. Is the focus on effectiveness or comparative effectiveness? | Yes |
| 1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic? | Yes |
| 2. Importance | |
| 2a. Represents a significant disease burden; large proportion of the population | In 2015 an estimated 30.3 million people had diabetes ¹ . |
| 2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the US population or for a vulnerable population | Yes. |
| 2c. Represents important uncertainty for decision makers | Yes |
| 2d. Incorporates issues around both clinical benefits and potential clinical harms | Yes |
| 2e. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers | In 2014, a total of 7.2 million hospital discharges were reported with diabetes as any listed diagnosis among U.S. adults aged 18 years or older. These discharges included the following: ¹ --1.5 million for major cardiovascular diseases (70.4 per 1,000 persons with diabetes), including: 400,000 for ischemic heart disease (18.3 per 1,000 persons with diabetes) and 251,000 for stroke (11.5 per 1,000 persons with diabetes). --108,000 for a lower-extremity amputation (5.0 per 1,000 persons with diabetes). |
| 3. Desirability of a New Evidence Review/Duplication | |
| 3. Would not be redundant (i.e., the proposed topic is not already covered by available or soon-to-be available high-quality systematic review by AHRQ or others) | Yes. We found one 2017 systematic review that covers the scope of the nomination. It compared low carbohydrate diets to higher carbohydrate diets ² . |

Abbreviations: AHRQ=Agency for Healthcare Research and Quality; KQ=Key Question

Appendix B. Search for Evidence Reviews (Duplication)

Listed are the sources searched.

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|---|
| Search date: June 2015 to June 8, 2018 |
| AHRQ: Evidence reports and technology assessments, USPSTF recommendations |
| VA Products: PBM, and HSR&D (ESP) publications, and VA/DoD EBCPG Program |
| Cochrane Systematic Reviews and Protocols http://www.cochranelibrary.com/ |
| PubMed |
| PROSPERO Database (international prospective register of systematic reviews and protocols) http://www.crd.york.ac.uk/prospéro/ |