Diabetes Prevention Programs

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Updated Information/Addendum

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Overview

This addendum provides an update to the October 2017 report by Ray, Thielke, and King (2017) that evaluated the evidence for the long-term effectiveness of combined diet and physical activity focused lifestyle interventions on individuals with prediabetes or at high risk for diabetes.

Key Findings

- No additional studies were identified in the updated search of the Ovid MEDLINE database.
- The Centers for Medicare & Medicaid Services (CMS) released the final rule for the Medicare Diabetes Prevention Program on November 2, 2017. Starting in 2018, Medicare will cover up to 24 months of participation in a Center for Disease Control and Prevention (CDC)-approved diabetes prevention program. The final rule established a pay-for-performance payment structure that encourages sustained weight loss of at least five percent.
- There are no updates to the strength of evidence findings of the October 2017 ("original") report by Ray et al. (2017).

Methods

Center for Evidence-based Policy (Center) researchers searched Ovid MEDLINE for systematic reviews (with or without meta-analysis), technology assessments, and individual studies on the Diabetes Prevention Program or DPP-like interventions that were published between January 1, 2017 to November 20, 2017. The original report included systematic reviews and technology assessments published within the last 10 years, and updated the identified systematic reviews by including an additional search of the Ovid MEDLINE database for individual studies published between January 1, 2015 and September 27, 2017 (Ray et al., 2017). This report update is intended to identify any newly published studies since the search completed for the original report (Ray et al., 2017). Given the delay of article indexing in the PubMed database, the search dates of the original report and this update intentionally overlap. Center researchers followed the same study inclusion and exclusion criteria as described in the original report (Ray et al., 2017). See Appendix A for full description of methods.

The CMS final rule on the Medicare Diabetes Prevention Program was identified through the CMS proposed and finalized rules notification list serv.

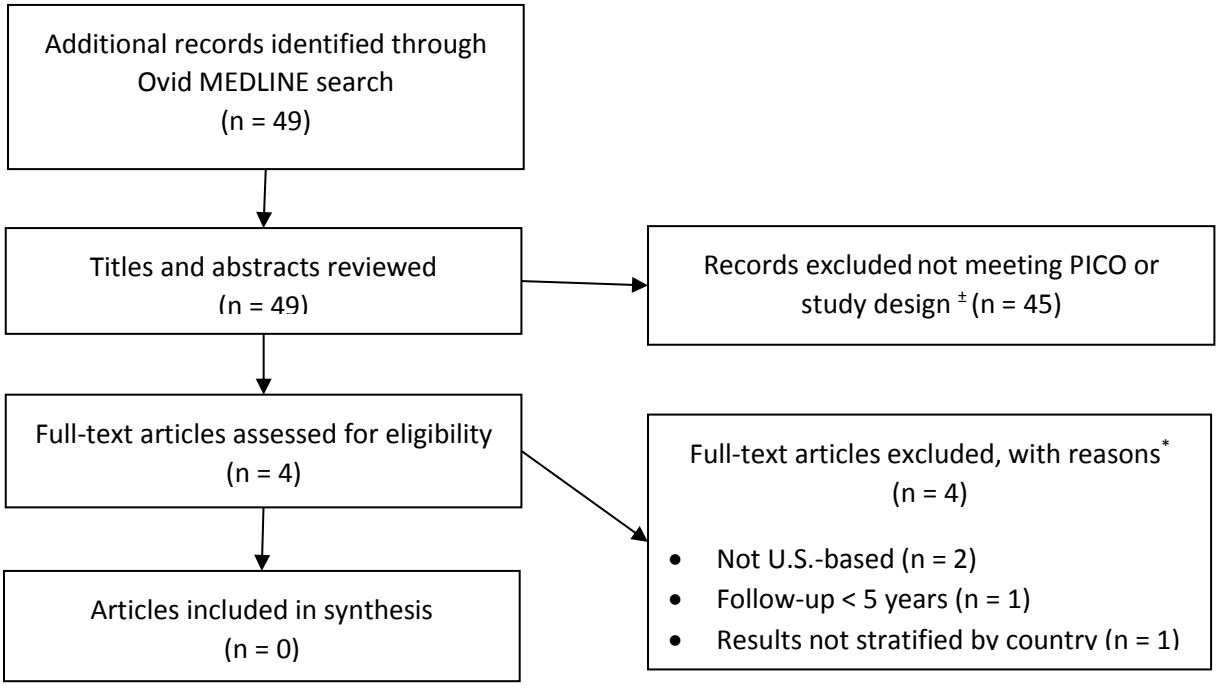
Evidence Review

Findings

Center researchers, through a search of the Ovid MEDLINE database, did not identify any additional studies that met the pre-specified inclusion criteria. Figure 1 outlines the number of

articles identified by the Ovid MEDLINE search. The search strategies and list of studies reviewed in full with reasons for exclusion are in Appendices A and B, respectively.

Figure 1. Search Results



± Articles were excluded if they did not meet predetermined inclusion criteria (e.g., PICO, study design, English language, publication date) as described in Appendix A.

* Exclusion rationale provided in Appendix B.

Payer Policies

Medicare

On November 2, 2017, CMS released the 2018 final rules for the Medicare Diabetes Prevention Program. Under the new rules, individuals are eligible for one year of core program participation that includes a minimum of 16 intensive core sessions with a CDC-approved curriculum, and one year of core maintenance sessions as long as an individual maintains five percent weight loss or greater (CMS, 2017). Payment for diabetes prevention programs will be performance-based and tied to specific attendance and/or weight loss goals. Table 1 outlines the payment structure as described in the final rule (CMS, 2017).

Table 1. Medicare Diabetes Prevention Program CY 2018 Final Payment Structure

Performance Goal	Proposed Performance Payment per Beneficiary (*with* ≥5% weight loss)	Proposed Performance Payment per Beneficiary (*without* ≥5% weight loss)
First core session attended	$25	
4 total core sessions attended	$50	
9 total core sessions attended	$90	
2 sessions attended in first core maintenance session interval (months 7 to 9 of the MDPP core services period)	$60*	$15
2 sessions attended in second core maintenance session interval (months 10 to 12 of the MDPP core services period)	$60*	$15
5% weight loss achieved	$160	$0
9% weight loss achieved	$25	$0
2 sessions attended in ongoing maintenance session interval (4 consecutive 3-month intervals over months 13 to 24 of the MDPP ongoing services period)	$50* for each 3-month maintenance session, maximum payment amount: $200	$0
Total performance payment	$670	$195

*Abbreviations. MDPP: Medicare Diabetes Prevention Program. Notes. * The required minimum weight loss from baseline must be achieved or maintained during the core maintenance session 3-month interval or maintained during the ongoing maintenance session 3-month interval. Source. Adapted from CMS (2017).*

Discussion

Center researchers did not identify any additional studies that evaluated the long-term effectiveness and safety of diabetes prevention programs. In 2018, CMS will continue coverage of the Medicare Diabetes Prevention Program expanded model and encourage sustained weight loss through the performance-based payment structure described in Table 1. The information included in this report update does not change the strength of evidence findings from the original report by Ray et al. (2017).

References

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Appendix A. Methods

Ovid MEDLINE Search Strategy

To ensure that the most recent data were included, Center researchers searched Ovid MEDLINE from January 1, 2017, to November 20, 2017, for systematic reviews and individual studies on diabetes prevention programs. The search strategy from the original report by Ray et al. (2017) was used with modifications to the date limitations.

Database: Ovid MEDLINE(R) Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily, Ovid MEDLINE and Versions(R)
Search Strategy:

1 exp Diabetes Mellitus/
2 diabetes.mp
3 1 or 2
4 exp primary prevention/ or exp secondary prevention/ or exp tertiary prevention/
5 prevention.mp
6 4 or 5
7 exp Life Style/
8 ((life and style) or life style or lifestyle).mp
9 7 or 8
10 exp Prediabetic State/
11 ((prediabetic and state) or prediabetic state or prediabetes).mp
12 10 or 11
13 3 and 6 and 9 and 12
14 limit 13 to english language
15 limit 14 to yr="2017 -Current"
16 remove duplicates from 15

Study Inclusion/Exclusion Criteria

Two Center researchers independently reviewed the results from the Center core sources and Ovid MEDLINE database searches at each stage of review (e.g., title and abstract, full text). Any study that was identified by at least one researcher as potentially meeting inclusion criteria was advanced to the next review level. All excluded studies were determined by two Center researchers as not meeting the predetermined inclusion criteria. Any disagreement between study reviewers regarding the inclusion of a study was arbitrated by a third Center researcher. Center researchers excluded studies that were not systematic reviews, meta-analyses, technology assessments, or individual studies (as applicable by topic); that were published before 2007; were published in a language other than English; or did not meet the specific inclusion/exclusion criteria outlined below.

Inclusion Criteria

Population: Adults (over 18 years of age) in the United States meeting either of these criteria:

- CDC-recognized eligibility criteria for the NDPP: overweight (BMI ≥24, ≥22 if Asian), AND no prior diagnosis of type 1 or type 2 diabetes, AND findings of prediabetes (any of the following):
    - HbA1c: 5.7% to 6.4%
    - Fasting plasma glucose: 100–125 mg/dL
    - Two-hour plasma glucose (after 75 g load): 140–199 mg/dL
    - History of gestational diabetes
- Additional risk factors for diabetes considered were delivery of a macrosomic infant (i.e., greater than 9 lbs.), family history of type 2 diabetes, race/ethnicity, polycystic ovarian syndrome, use of medication that impairs glucose tolerance (e.g., glucocorticoids)

Interventions: DPP; similar interventions based on the DPP protocol focusing on diet and exercise promotion

Comparators: Usual care (e.g., standard diet and exercise education), with or without pharmacological interventions

Outcomes: Incidence of diabetes; quality of life; morbidity; mortality; adverse effects, cost or cost-effectiveness (all outcomes at ≥5 years after initiation of the intervention)

Exclusion Criteria

Study exclusion criteria included the following:

- Studies conducted outside of the U.S.
- Studies that reported less than five years follow-up data only
- Studies that did not stratify results by intervention type and/or country
- Studies that reported on surrogate outcomes, with the exception of HbA1c and weight loss
- Case reports, letters, editorials, comments
- Duplicate information from a research study published in more than one source (only the highest quality, most recent publication with outcome of interest was included)
- Systematic reviews that included only studies that were summarized by more comprehensive systematic reviews or systematic reviews of higher quality and/or that were more recently published
- Studies identified that were included in a summarized systematic review or technology assessment

Appendix B. Articles Selected for Full-Text Review Inclusion/Exclusion Rationale

Citation	Inclusion/Exclusion Rationale
Davies et al. (2017)	Exclude: Not U.S.-based
Haw et al. (2017)	Exclude: Results not stratified by country
Khan, Tsipas, and Wozniak (2017)	Exclude: Follow-up < 5 years
Schmid et al. (2017)	Exclude: Not U.S.-based

About the Center for Evidence-based Policy

The Center for Evidence-based Policy (Center) is recognized as a national leader in evidence-based decision making and policy design. The Center understands the needs of policymakers and supports public organizations by providing reliable information to guide decisions, maximize existing resources, improve health outcomes, and reduce unnecessary costs. The Center specializes in ensuring that diverse and relevant perspectives are considered and appropriate resources are leveraged to strategically address complex policy issues with high-quality evidence and collaboration. The Center is based at Oregon Health & Science University in Portland, Oregon.

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