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COMMUNITY GUIDE RECOMMENDATIONS

Team-Based Care to Improve Type 2 Diabetes Management: Recommendation of the Community Preventive Services Task Force

Community Preventive Services Task Force

TASK FORCE FINDING

The Community Preventive Services Task Force (CPSTF) recommends team-based care to control type 2 diabetes based on strong evidence of effectiveness. Evidence demonstrates that team-based care improves patients' blood glucose (measured using HbA1c levels); blood pressure; and lipid levels. Interventions also increase the proportion of patients who reach target blood glucose, blood pressure, and lipid levels.

Teams evaluated in this review included patients; their primary care providers (not necessarily physicians); and one or two additional healthcare professionals (most often nurses or pharmacists).

DEFINITION

Team-based care to improve diabetes control is a health systems—level, organizational intervention that incorporates a multidisciplinary team to help patients manage their diabetes. Each team includes the patient; the patient's primary care provider (not necessarily a physician); and one or more other health professionals.

Team-based care to control diabetes aims to do the following:

- Ensure patients receive appropriate tests and examinations (e.g., blood glucose level, blood pressure, lipid level, weight, and eye and foot examinations).
- Manage and control patients' risk factors (e.g., blood glucose level, blood pressure, lipid level) through medications.
- Educate and assist patients with self-management and adherence to treatment regimens.
- Promote patients' adoption of healthy behaviors and lifestyle choices (e.g., improved diet, increased physical activity, cessation of smoking).
- Improve patients' quality of life and prevent diabetes-related complications.

BASIS OF FINDING

The CPSTF recommendation is based on evidence from a systematic review of 35 studies (search period 1960—October 2015) that evaluated the impact of team-based care on blood glucose, blood pressure, and lipids. Of the included studies, 25 were identified using the reference list of a high-quality systematic review (Tricco,[1] search period 1960—2010); seven were identified from a bridge search conducted using the same search terms (search period 2010—October 2015); and three were identified by searching through the reference lists of included studies.

The systematic review team conducted a random effects meta-analysis to evaluate the included studies that compared team-based care interventions with usual care (absolute effectiveness, 32 studies). The team also conducted a qualitative assessment of studies that added one or more team members to existing team-based care interventions (incremental effectiveness, four studies). The CPSTF finding is limited to people with type 2 diabetes because only one of the included studies examined intervention effectiveness for people with type 1 diabetes.

Compared with usual care, team-based care interventions improved patients' diabetic outcomes, including blood glucose level, systolic blood pressure, diastolic blood pressure, high-density lipoprotein, low-density lipoprotein, total cholesterol, and triglycerides. Team-based care interventions also improved patients' diabetes-related quality of life and general physical and mental health. Study participants had fewer hospitalizations and emergency department visits resulting from all causes.

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Team-based care interventions produced greater reductions in blood glucose for patients with a baseline HbA1c ≥8% (mean decrease of 0.8%, 95% CI= −1.1, −0.5; 15 studies) when compared with participants with a baseline HbA1c <8% (mean decrease of 0.2%, 95% CI= −0.4, 0.0; eight studies). This difference was seen both within and between studies. Baseline HbA1c of 8% was a common benchmark used in the included studies to signal risk for uncontrolled diabetes.

APPLICABILITY AND GENERALIZABILITY CONSIDERATIONS

Intervention Settings

Most included studies evaluated interventions implemented in the U.S., with additional studies from Canada, the United Kingdom, Hong Kong, the Netherlands, Switzerland, Taiwan, and United Arab Emirates. Most interventions were implemented in clinics and in an urban setting.

Demographic Characteristics

The 35 included studies provided demographic information on 15,472 study participants. Overall, study participants had a mean age of 58.4 years and were 52.2% female. Few studies reported participants' income or employment or level of education. Study population from the U.S. included whites (median 61.5%); African Americans (median 16.5%); Hispanics/Latino (median 19.2%); Asian Americans (median 2.9%); American Indians/Alaskan Natives (median 2.9%); and other (median 3.8%).

Two studies stratified results based on race/ethnicity. One study found that interventions were effective for both white and non-white patients. One study found that more Latinos achieved blood pressure (<130/80 mmHg) and low-density lipoprotein (<100 mg/dL) targets than African Americans and non-Hispanic whites. Some studies targeted specific population groups and found that team-based care improved diabetes-related indicators for racial/ethnic minorities or low-income populations.

Intervention Characteristics

Services delivered. The components of care delivered varied between studies. Almost all reported an initial education component and a continued education/counseling component. A majority of the studies included regular testing and monitoring and medication modification. About one third of the studies included patient goal setting and development of an action plan to achieve those goals. Studies that included goal setting for patients were less effective at reducing blood glucose levels than studies that did not offer this service.

Intervention duration. Team-based care interventions ranged in duration from <6 months to >36 months; these differences did not influence intervention effectiveness.

Team composition and operation. Similar improvements in patient outcomes were reported when teams added one or two members to the patient–primary care provider relationship. Studies recruited additional team members by hiring new people or expanding the roles of existing staff. The type of recruitment method did not influence intervention effectiveness.

Most of the included studies formed a team by adding a nurse or a pharmacist to the patient–primary care provider relationship. Greater reductions in patients' blood glucose levels were reported when pharmacists rather than nurses were added to the team, though the addition of either led to improved blood glucose levels.

In the included studies, patients' medication regimens could be changed by primary care providers making all medication changes, team members proposing medication changes that require approval from primary care provider, or all qualified team members making changes to medication as appropriate. Programs that allowed team members to make suggestions with primary care provider approval led to greater reductions in diastolic blood pressure than did programs that only allowed primary care providers to make medication changes.

Studies that allowed all team members access to patients' medical records showed more favorable reductions in blood glucose when compared with studies that did not.

Team communication was categorized as either explicit or implicit. Through explicit communication, team members actively exchanged information during team meetings or other formal interactions and communication channels. Through implicit communication, team members shared information passively. Examples of this could include leaving notes in patients' health records or leaving status updates in primary care providers' folders. Studies with explicit communication showed more favorable blood pressure outcomes than studies with implicit communication.

Added team members interacted with patients face-to-face; remotely (e.g., telephone, e-mail); or both in person and remotely. Studies showed that patients experienced greater reductions in blood glucose levels when services such as education, counseling, and follow-up were

delivered both in person and remotely, rather than just in person or remotely.

CONSIDERATIONS FOR IMPLEMENTATION

Evidence from included studies shows that team-based care, implemented with people who have type 2 diabetes, produces clinically and statistically significant reductions in a wide range of diabetes indicators including blood glucose, blood pressure, and lipids.

A larger reduction in blood glucose levels was observed for patients with baseline HbA1c ≥8%, though team-based care was also effective for patients with baseline HbA1c <8%. A widely cited, long-term cohort study of people with type 2 diabetes suggested that for every 1% reduction in HbA1c level there was a corresponding 35% reduction in the risk of microvascular complications and 25% reduction in diabetes-related death, irrespective of baseline HbA1c.[2] From this estimation, the HbA1c reductions found in this review have important clinical implications.

Team-based care is patient-centered care delivered by a team of healthcare professionals from different medical disciplines. In most included studies, care was tailored to reflect each patient's knowledge of diabetes, ability to adopt behavior modifications to control diabetes, severity of diabetes indicators, and diabetes-related complications.

Team-based care has been implemented for various populations in different settings, and with different team composition and operation procedures. Evidence indicates that composition of effective teams can be flexible. Team-based care was shown to be effective with one or two added team members, either nurses or pharmacists, who were recruited as new hires or who were existing staff with expanded roles.

The current body of evidence only included studies that provided enough resources to establish team-based care interventions for a short duration. Outside of research settings, team-based care interventions can face challenges such as limited resources or lack of knowledge on how to transition to patient-centered care or form a functional and effective multidisciplinary team. A list of resources to guide interested health teams through implementing team-based care is available at the Community Guide website.

This review, in conjunction with the Community Guide review of team-based care to improve blood pressure control,[3] demonstrates that team-based care is effective in managing diabetes and hypertension. Team-based care may be a platform to successfully treat other chronic conditions or patients with multiple chronic conditions.

EVIDENCE GAPS

Additional research and evaluation are needed to answer the following questions and fill existing gaps in the evidence base. The questions are, What are intervention effects on diabetes-related complications and healthcare use? How effective are interventions with the following populations (people with Type 1 diabetes, younger people with diabetes, uninsured people with diabetes, and people with diabetes living in rural settings)? How do team composition and operation affect intervention outcomes? What services (e.g., education, counseling, goal setting, or medication modification) are provided by team members? How do team members communicate? Do teams use electronic records or meetings or other means of communication? Do programs provide protocols to delineate the team roles and responsibilities? Who is the team lead? The primary care provider, or the team member providing the majority of services? Who is the primary contact for the patients? The primary care provider, the team member providing majority of the services, both, or someone else?

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