

Does case management improve diabetes outcomes?

Evidence-based answer

Yes. Patients with type 2 diabetes benefit from case management, as evidenced by decreased glycated hemoglobin (HbA1c). The improvement in HbA1c appeared larger when case managers could make changes in medications independently and multidisciplinary teams were used (strength of recommendation [SOR]: **C**, 2 meta-

analyses of randomized controlled trials [RCTs] with consistent disease-oriented findings). Patients with type 1 diabetes who have case management and “intense control” experience fewer cardiovascular events and decreased retinopathy and clinical neuropathy (SOR: **B**, 1 large, good-quality RCT).

Evidence summary

The many definitions used to describe case management present a challenge in summarizing its effect.^{1,2} A Cochrane review of case management by a “diabetes specialist nurse/nurse case manager” included 6 trials and 1382 patients with either type 1 or type 2 diabetes. It revealed a short-term benefit (lower HbA1c) in only 1 trial at 6 months and no difference in HbA1c or improvement in quality of life in any trial at 12 months.³

However, a review of 66 RCTs of case management for type 2 diabetes found a mean reduction in HbA1c of 0.52% (95% confidence interval [CI], 0.31-0.73) after adjusting for study size (smaller studies tended to report larger changes) and whether or not patients were “poorly controlled” at baseline (studies with higher HbA1c levels at baseline also reported larger effects).¹ The most striking HbA1c reduction occurred when case managers could make medication adjustments without physician approval (change in HbA1c=0.80%;

95% CI, 0.51-1.10). Moreover, using a multidisciplinary team reduced HbA1c by 0.37% more than interventions without such a team (95% CI, 0.16-0.58).

The authors of an earlier review of 15 case management studies for type 2 diabetes concluded that case management alone was beneficial, resulting in an HbA1c improvement of 0.40% (interquartile range=0.46-0.65).⁴ However, they further noted that studies that showed case management to be effective also involved disease management or included additional interventions such as education, reminders, or other supports.

But studies don't always show robust outcomes

Outcomes in other studies often aren't as robust. In the year-long Informatics for Diabetes Education and Telemedicine (IDEATel) project,⁵ for example, nurse case managers supervised by diabetologists and working with primary care physicians were able to direct care based on pre-established algorithms.

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FAST TRACK

Case-managed patients with type 2 diabetes have lower HbA1c

FAST TRACK

“Intensive” diabetic control managed by a large team reduced the development of retinopathy and neuropathy for patients with type 1 diabetes

Those in the intervention group with a baseline HbA1c >7 had an HbA1c reduction of 0.32% and small but statistically significant reductions in blood pressure (3.4 mm Hg systolic and 1.9 mm Hg diastolic) and low-density lipoprotein (9.5 mg/dL).

Intensive control produces positive results, a few harms

The Diabetes Control and Complications Trial (DCCT)⁶ showed that, in patients with type 1 diabetes, “intensive” diabetic control managed by a large team of health care providers for an average of 6.5 years reduced the development of retinopathy (number needed to treat [NNT]=6; 95% CI, 5-7), progression of retinopathy (NNT=5; 95% CI, 4-7), and development or progression of clinical neuropathy (NNT=13; 95% CI, 11-18).⁷ Intensive therapy also caused harms, including episodes of hypoglycemia (number needed to harm [NNH]=3), and “hypoglycemia requiring assistance” (NNH=36).

In the follow-up to DCCT—the Epidemiology of Diabetes Interventions and Complications study (EDIC)—93% of the patients in the original cohort were followed for an average of 17 years.⁸ The risk of developing any predetermined cardiovascular event was 42% less in the intervention group (NNT=14; 95% CI, 9-65), and the combined risk of death, nonfatal myocardial infarction, or stroke was 57% lower (NNT=10; 95% CI, 7-49). Harms, such as hypoglycemia, were not reported.

Recommendations

According to the American Diabetes Association, patients with diabetes should receive medical care from a physician-coordinated team, which may include nurse practitioners, physician’s assistants, nurses, dietitians, pharmacists, and mental health professionals.⁹

The Centers for Disease Control and Prevention strongly recommends that patients with diabetes be assigned “a

case manager to plan, coordinate, and integrate care,” because case management improves glycemic control and physician monitoring.¹⁰

The American Association of Clinical Endocrinologists states: “Managing diabetes mellitus requires a team approach to patient care. However, because diabetes is primarily a self-managed disease, education in self-management skills is essential in implementing interventions.”¹¹ ■

References

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