Diabetes Council Advocacy Committee Training: Demonstrating Value and Telling Your Story

Select Key Abstracts

Making the Case for Diabetes Self-Management Education (DSME): Reducing Costs and Improving Outcomes

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This article examines the results of the First Chicago NBD worksite-based patient education program for people with diabetes. A study of 44 employees was conducted. After 3 months on educational program, the average A1C dropped from 9.0% to 8.3%

DSME can lower A1C levels


This article summarizes the Urban Diabetes Study. Encounter data from eight Philadelphia Health Care Centers (public safety net primary care centers) for 7,839 patients were examined from March 1993 to December 2001. Having any type of DSME was associated with 9.18 fewer hospitalizations per 100 person years and $11,571 less in hospital charges per person. Each nutritionist visit was associated with 4.7 fewer hospitalizations per 100 person years and $6,503 reduction in total hospital charges.

DSME can reduce risk of hospitalization, leading to cost savings


A retrospective study used data from January 1994 to June 1998 for adults with diabetes who were members of the Fallon Clinic. Over the three years, the adjusted rate of inpatient treatment ranged from 13 per 100 patients with good glycemic control, 16 per 100 with fair glycemic control and 31 per 100 patients with poor control. A1C levels positively correlated to medical changes in clinical practice.

Lower A1C levels can reduce hospitalizations

This study uses data for 3,017 adults with diabetes who were continuously enrolled in a large health maintenance organization (HMO) over a 4-year period (1993-1995). Medical care charges increased significantly for every 1% increase above A1C of 7%. For a person with an A1C value of 6%, successive 1% increases in A1C resulted in cumulative increases in charges of approximately 4, 10, 20, and 30%.

Higher A1C levels increase medical costs


This article discusses results of a prospective study with members of a Minnesota Health Plan. People with diabetes identified through diabetes specific diagnoses codes were surveyed on history of chronic disease, health behaviors, self-management skills and socioeconomic status. Medical records and claims data were reviewed and a generalized linear regression was run to estimate the relationship between 3-year costs and baseline A1c level, coronary heart disease, hypertension, dyslipidemia, and depression. The study found that in adults with diabetes, coronary heart disease, hypertension, depression, and A1c levels are significant independent predictors of health care costs. Three-year costs were 11 percent higher for people with diabetes with an A1C of 10 percent, relative to those with a baseline A1C of 6%.

Controlling glucose and preventing and controlling heart disease, hypertension, and depression are essential to control costs


“This article summarizes studies of the cost-benefit of patient education studies in managed care and other settings, including comprehensive approaches to healthcare delivery that emphasize education. On the average, for every dollar invested in patient education, $3-4 were saved. The article concludes with recommendations for healthcare policy makers and administrators.”

On average, the ROI for patient education is $3-$4 for every $1 invested

Kaplan and Davis reviewed 13 studies cited in support of the American Diabetes Association policy statement. Only 4 accounted for program costs. Authors suggest that the rationale for DSME be based on improved health status.

Benefits of DSME should focus on improved health status


Using data from the Wisconsin Epidemiologic Study of Diabetic Retinopathy, authors found that A1C was positively correlated with risk of hospitalizations. Statistical models suggest that reducing A1C by 1% could reduce hospitalizations by 14-20% and save as much as $5 billion in direct costs alone.

A 1% reduction in A1C can reduce risk of hospitalization by 14-20%


Data from a Rhode Island registry of insulin-dependent diabetes mellitus were used to examine risk factors among people with diabetes who had been hospitalized. Subjects were followed for a three-year period following hospitalizations. Of 1,123 admissions (691 people), almost half were due to poor diabetes control and infection. An outpatient education program reduced admissions for acute care from 562 admissions to 281 admissions. The cost of participating in the program was roughly $100 per patient. The author estimated the cost per hospitalization to be approximately $2,400.00 (average length of stay was 8 days times $300 charge per day).

DSME can reduce the risk of hospitalization among previously hospitalized patients, especially for acute episodes, leading to substantial savings


The North Carolina Diabetes Prevention and Control Program assessed the impact of DSME on 310 adults. The net percentage drop in A1C was 17.17%. Applied to the per capita annual medical costs for diabetes in the state, the cost-avoidance benefit was estimated to be $140,892, or a per capita cost of $454. The estimated cost for DSME was $375 per individuals. Dividing the benefits by the cost led to a 21% return on investment.

DSME generates $1.21 in medical care cost-avoidance benefits for every $1 spent.

DSME, for this study, consisted of monthly telephone counseling calls and educational materials for members of TRICARE Management Activity (military personnel). This study followed more than 33,000 patients for 15 months and included those with any diabetes-related emergency department or hospital visit, more than 10 diabetes-related ambulatory visits, or more than twenty 30-day diabetes prescriptions. Average annual savings for participants were $783. Patients with poorer diabetes control initially had higher per-person savings.

DSME saved an average of $783 per person in medical costs.

REVIEW ARTICLES


The authors used MEDLINE to find articles on the effectiveness of self-management training that were published between 1980 and 1999. Seventy-two studies were included in the search. None of the studies with economic evaluation included indirect costs; however, the article provides summaries of the interventions, outcomes, and brief critique of each article. Overall findings suggest that DSME improves knowledge, blood glucose self-monitoring, diet and, at least in the short term, glycemic control.


The authors conducted a search of MEDLINE and Google to identify 26 papers that addressed DSME. More than half of the papers found an association between DSME and decreased costs, cost savings, cost-effectiveness, or positive return on investment. A table is provide that presents highlights of each paper, including author, study aims, study design, intervention, economic outcome, results and conclusions. Authors conclude, based on the literature, that the benefits of DSME outweigh the associated costs.

TOOLS


Chronic Disease Cost Calculator: www.cdc.gov/nccdphp/resources/calculator.htm