

In Brief

Most patients with type 2 diabetes receive their medical care from primary care providers. Shared medical appointments (SMAs) are one option to meet the various medical and education needs of patients in one appointment, while also providing peer support and motivation. Research suggests that SMAs can be effective in improving knowledge, quality of life, and problem-solving skills in patients with diabetes. However, more research is needed to determine the optimal group size, format, and curriculum.

Shared Medical Appointments in Diabetes Care: A Literature Review

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Type 2 diabetes is an expanding problem that burdens the U.S. health care system; there are now > 21 million adults with type 2 diabetes in the United States.¹ Health care costs associated with diabetes in 2007 were estimated at \$174 billion, with \$116 billion in excess medical expenditures and \$58 billion in reduced national productivity.² With the incidence and cost of diabetes rising steadily, increased efficiencies and cost reductions in the delivery of care to patients with type 2 diabetes are being identified and implemented.

Most people with type 2 diabetes receive their medical care and counseling from primary care providers (PCPs). Because of the growing demand for high-quality health care services in an environment of declining reimbursement, PCPs are being financially pressured to see more patients per day. Typically, this results in many patients spending as few as 10–17 minutes with their PCP every 3–6 months.^{3,4} Consequently, the majority of PCP appointments must focus on assessing blood glucose control, nutrition, physical activity, foot care, and comorbidities such as hypertension, hyperlipidemia, and cardiovascular disease. Parchman et al.⁴ found that during a diabetes follow-up appointment, a provider addressed 17 topics, questions, or symptoms; wrote on average two prescriptions; and discussed nutrition and medication changes, all within 17 minutes. These short, problem-based appointments do not offer sufficient time to implement

educational interventions that would improve knowledge and self-efficacy about self-management.

Shared medical appointments (SMAs) have been suggested as an alternative to one-on-one office appointments. SMAs are group visits that integrate diabetes self-management education and training and peer support within PCP visits. Traditionally, SMAs have two components: a short one-on-one session with the clinician for the purposes of conducting an individualized visit to assess and treat the disease and comorbidities and a longer session in which participants with type 2 diabetes interact about how to manage their disease and learn self-care behaviors in a group setting.

It has been observed that people with diabetes in one-on-one care had progressive deterioration of knowledge, problem-solving ability, and quality of life compared to those in a group-managed cohort, who improved in diabetes knowledge and quality of life.⁵ It is not known whether the enhanced educational component of SMAs positively affects diabetes self-care knowledge and self-efficacy, which in turn should promote lasting changes in self-management behaviors. The purpose of this article is to describe SMAs and review the evidence on the benefits of SMAs for patients with type 2 diabetes.

SMAs: History and Background

SMAs have been around for many years, although not widely used as

a model of care, in the Midwestern United States and abroad. Generally, this care model has been used in health maintenance organizations in providing chronic care for diseases such as asthma, chronic obstructive pulmonary disease, heart failure, and type 2 diabetes. No one specific model of an SMA is universally applied, and some confusion exists about the terminology used to define the concept of group medical appointments.⁶ The terms “shared medical appointment” and “group medical appointment” often are used interchangeably. Moreover, the term “group medical appointment” implies psychotherapy to some patients and may have a negative connotation. However, SMAs do not include behavioral therapy or psychotherapeutic intervention, but instead focus on educational interventions that can lead to behavior changes through cognitive and behavioral strategies to enhance coping and problem-solving.

SMAs can be conducted in many different formats with different purposes. Some SMA models provide medical care by a physician followed by an educational component in a shared appointment. The medical care in this model can be provided either in a group or in one-on-one appointments before the group educational component begins. Other models of SMAs accomplish the educational component by having various members of the health care team such as a physician, a nurse, a dietitian, a psychologist, or an exercise physiologist conduct the education component of the visit. Although some SMAs are designed such that the health care provider educates attendees about a particular health topic, others are focused on social support and peer interaction; people with the same disease receive support from each other, identify barriers to self-care, and find methods of overcoming barriers while receiving new knowledge and skills.

From the patients’ perspective, standard office visits do not permit providers enough time to answer questions, formulate new concepts, or facilitate behavior changes. However, in an SMA, the pace of the visit is slower, which allows time for learning and integration of new knowledge and skills. SMAs build synergy between health care providers and patients

while using group interactions to increase knowledge and self-care skills.

SMAs: Evidence of Benefit

Randomized trials

Little empirical evidence exists about the effectiveness of SMAs in improving self-care behaviors among people with type 2 diabetes. Only one systematic review of randomized clinical trials on SMAs had been completed up to 2010.⁶ The review included seven studies, of which four were not specific to diabetes care. The three trials that were specific to type 2 diabetes each included a group medical appointment component.⁶ Of those three trials, two were conducted in a health maintenance organization,^{7,8} and the third was conducted in a diabetes clinic in Italy.⁵

In the managed care setting, Sadur et al.⁷ used monthly, 2-hour SMAs with a multidisciplinary team, including a nurse educator, a dietitian, a pharmacist, and a behavioral therapist, with subjects in poor glycemic control as demonstrated by an A1C > 8.5%. The control subjects were managed as usual by their PCP. The SMA patients had more of a reduction in A1C than the usual care group (1.3 and 0.2%, respectively; $P < 0.001$). Additionally, the SMA patients had lower hospital admission rates ($P = 0.04$) and reported more self-efficacy related to balancing food intake and glucose level ($P = 0.003$), treating hypoglycemia ($P = 0.03$), and managing blood glucose when ill ($P = 0.001$). It is not known whether the differences would have been present if both groups had received multidisciplinary care.

In another study⁸ conducted over 2 years in chronic care clinics that were part of a health maintenance organization, the intervention group received individual visits with a PCP and additional self-management support from an office nurse and consultation with a pharmacist. The control group received usual care during individualized office appointments. No difference in glycemic control was found between the groups. The office nurses provided the education in the intervention group, which may have affected the outcome if they did not have expertise in teaching diabetes self-management skills. Other factors that could have contributed to the lack of difference in glycemic control

between the groups were the number of visits to the provider and the length of each appointment.

Trento et al.⁵ conducted a randomized, 5-year follow-up study of 112 patients with type 2 diabetes managed in group appointments compared to usual care. The group appointments included an educational component in each of four sessions focusing on weight control, meal planning, improving glycemic control, and preventing complications. The investigators found that knowledge of type 2 diabetes improved during 5 years in the group-managed cohort, whereas it worsened in the control group (knowledge test scores +12.4 vs. -3.4, $P = 0.001$). The improved knowledge of type 2 diabetes coincided with improved problem-solving ability in the group-managed subjects and decreased problem-solving ability in the control group (problem-solving assessment scores +5.7 vs. -2.3, $P = 0.001$). The researchers also found that group-managed patients compared to control-group patients had an improved quality of life over 5 years (quality of life assessment scores -23.7 vs. 19.2 [declining scores indicated increasing satisfaction], $P = 0.001$). The group-managed cohort maintained glycemic control, whereas control group patients’ A1C levels became more elevated, indicating worsening control (-0.1 vs. 1.7%, $P = 0.001$).

It is unclear whether a standard curriculum was used for the control and treatment groups. The authors describe type 2 diabetes education being provided by a physician and an “educationist” with unknown credentials. They also noted that the curriculum used in the group appointment cohort was divided into four sessions but did not elaborate on the number of visits or the amount of time spent on education.

Clancy et al.⁹ implemented a group visit model in a primary care clinic in an effort to improve adherence to American Diabetes Association (ADA) standards of care for people with diabetes. They conducted a 12-month trial involving 186 subjects randomized to either usual care through a large outpatient clinic serving an under-insured population or group visits that met monthly for 1 year. They concluded that the intervention group exhibited significantly greater

concordance with the ADA process of care indicators.

In another study, Clancy et al.¹⁰ evaluated the acceptability of group medical appointments in inadequately insured people with type 2 diabetes. A total of 120 patients were randomized to either usual care or group medical appointments. Baseline average A1C was 10.3% for intervention group subjects and 10.6% for control subjects.

No statistically significant improvements in A1C occurred during the 6-month intervention. However, the intervention subjects reported a higher “trust in physician” score than control subjects ($P = 0.02$) and were more successful in meeting ADA process of care indicators ($P = 0.001$).

The intervention group might have been more successful than the control group because control subjects were seen by different PCPs based on clinic staffing, whereas intervention group patients saw the same physician and diabetes nurse educator team for all visits. This improved continuity of care may have influenced the “trust in physician” scoring used in this study.

Nonrandomized trials

Two nonrandomized trials using group medical appointments in the management of type 2 diabetes have also been published. In one, Culhane-Pera et al.¹¹ conducted a 13-month study using group medical appointments with Hmong refugees with type 2 diabetes. The authors found significant improvement in anxiety scores among participants in the group medical appointments ($P = 0.05$). No significant differences were found in biological parameters such as A1C, blood pressure, or lipids.

In the other nonrandomized trial by Gold et al.,¹² 44 Hispanic patients with uncontrolled type 2 diabetes were provided synchronous provider visits and self-management education sessions. The intervention group showed statistically significant improvement in A1C ($P = 0.001$), whereas the control group did not ($P = 0.04$).

Research gaps

No clinical trials have been reported in which the same curriculum was standardized between a control group and an intervention group. Likewise, no clinical trials have been reported in which the same health care provider conducted visits in both the one-on-one and group appointments.

All of the randomized trials evaluating SMAs randomized patients to either a treatment group or to usual care. No trials to date have evaluated SMAs versus individual medical appointments that occur on the same treatment schedule as the SMAs. The articles by Sadur et al.⁷ and Clancy et al.¹⁰ are the only two reports stating that the intervention group received diabetes education from a diabetes nurse, but neither one produced significant differences in diabetes control.

Implementing SMAs

Current treatment guidelines for managing type 2 diabetes recommend that all patients receive self-management education, which is usually accomplished by referral to a certified diabetes educator. Historically, however, PCPs have low referral rates for diabetes education,¹³ so many patients may be uninformed about diabetes self-management. The SMA model provides an opportunity for the primary care system to provide education and medical care concurrently. SMAs could potentially be used to decrease the burden of diabetes care in the primary care system.

Managing logistics

Providing SMAs can be logistically challenging because they require more preparation, the availability of an appropriate clinical environment to accommodate a group of patients, and a high level of organization. Scheduling up to 10 patients for one appointment requires health care providers to review patient records in advance to determine whether any need routine screening tests, immunizations, or referrals for retinal examinations, among other things, and to assess any health status changes. While patients are waiting for an SMA to begin, activities must be planned, such as the screening of educational videos or education sessions with ancillary staff.

The clinical environment must be able to accommodate seating for the SMA and should be located close to examination rooms, where private exams can take place. Using a conference room instead of a waiting room is ideal to ensure group privacy.

Potential Benefits of SMAs

Overall, implementing SMAs in a primary care practice can bring about an organized approach to deliver-

ing diabetes care and to meeting the standards of medical care for the disease. Although PCPs are busy caring for patients with many different disease states each day, SMAs create a focus that can be used to organize and streamline care while continuing to individualize treatment to improve patient outcomes.

From a practical perspective, this model can be implemented in any family practice office to help manage type 2 diabetes. It does not require any special training or knowledge beyond the standards of medical care in diabetes. It also provides a structure to manage very complex care that may be currently poorly managed. SMAs offer needed support to patients who must undertake major lifestyle changes. In addition, they give advanced practice nurses, dietitians, and pharmacists an opportunity to further support PCPs in managing complex patients. Finally, SMAs allow for greater efficiency in providing care because they decrease the repetition of information, promote positive interactions between patients and providers, and improve outcomes.

The relative cost of SMAs to providers can be determined by comparing the time needed to provide care to the same number of patients in individual and SMA models. For example, in an individual-appointment model, a provider might see one patient every 15 minutes, or four patients per hour, on average. In an SMA model, the medical portion of the appointment might be accomplished by the provider in 10 minutes, allowing the provider to see six patients per hour. The reimbursement for both models of care is the same, but the SMA model potentially could allow more patients to be seen in a shorter period of time if the educational component of the appointment is conducted by a non-physician health care team member. Thus, there is a potential for increased revenue for providers.

Summary and Conclusion

In clinical trials, SMAs have demonstrated effectiveness in improving knowledge, quality of life, and problem-solving skills related to diabetes compared to usual care. Improved adherence to the ADA standards of care for diabetes management also has been demonstrated in some populations using SMAs. Additionally, some clinical trials using SMAs have demonstrated improvement in glycemic

control and in patients' perceptions of their health care providers.

SMA's have the potential to help PCPs operate more efficiently and increase revenue. Patients benefit from additional visits, group interaction and support, and more time with the PCP.

Additional research is needed regarding the cost-effectiveness of delivering SMA's. Studies examining the difference between group and individual sessions with the same number of visits, the same providers, and a standard education curriculum provided to both groups would be of particular interest.

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