

## In Brief

New models are emerging for using patient groups in the medical care of diabetes. Most include a diabetes education component. Several of these models have demonstrated improved glycemic outcomes during randomized trials. However, determining which component of these care delivery systems is responsible for any realized clinical improvement is difficult. Thus, more well-designed, randomized, controlled studies and more details on applying group techniques to medical appointments are necessary to understand the health and cost-effectiveness outcomes of group medical appointments.

# Group Medical Appointments in Diabetes Care: Is There a Future?

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Group medical visits are causing much excitement as a means to provide better access and more complete care at lower costs. Over the past decade, several models for group medical visits have emerged, mainly in managed care environments. Some of these models originated in the care of the frail elderly, a population that suffers from many chronic, as opposed to acute, illnesses. The general acceptance and future of group medical appointments depend on thorough research evaluating their usefulness and costs, not only financially, but in terms of professional training, patient satisfaction, and outcomes.

Some confusion exists regarding the term “group medical visit.” Currently, no single definition of a group medical appointment is universally accepted. Most group medical visit models include a group education component taught by a nurse, psychologist, or other health professional. The main difference among models is that some include only individual visits with the physician, whereas others include group visits through which several patients meet with the same physician at the same time. The latter typically allows for individual appointments if necessary or if requested by a patient. To clarify the focus of his models and the Cooperative Health Care Clinic, Noffsinger<sup>1</sup> coined the term “shared medical appointment” to describe

those models that have several patients meeting with the same physician at the same time.

### Education-Based Cluster Visits

Cluster visits<sup>2</sup> are monthly 2-hour group visits with a multidisciplinary team led by a nurse educator and including a dietitian, a pharmacist, and a behavioral therapist. During a randomized, controlled study of cluster visits for patients who were in poor glycemic control (hemoglobin A<sub>1c</sub> [A1C] >8.5%), two physicians met regularly with nurse educators but rarely with patients. Seventy percent of patients contacted agreed to participate.

Compared to a primary care control group, cluster visit participants improved A1C results (change A1C results were 1.3 vs. 0.2 percentage points, respectively;  $P < 0.001$ ) and had lower hospital admission rates ( $P = 0.04$ ). After 6 months, cluster visit intervention patients had higher satisfaction with components of their diabetes care ( $P < 0.006$ – $0.001$ ), higher frequency of blood glucose monitoring ( $P < 0.0001$ ), and reported more self-efficacy related to balancing food and glucose levels, treating low blood glucose, and managing glucose levels when sick ( $P < 0.03$ – $0.0001$ ). Table 1 summarizes studies on this model and the other four group medical visit models.

**Table 1. Summary of Studies Examining the Use of Groups in Medical Care**

Group Visit Model	Author	Design/Control Group	Subjects	Setting	Results
Cluster visits	Sadur et al., 1999	RCT/usual care	~142–156 diabetic patients with A1C >8.5%	HMO	Improved A1C; improved satisfaction with diabetes care; increased frequency of SMBG
Chronic care clinics with individual physician and pharmacy visits	Wagner et al., 2001	RCT/usual care	35 primary care practices servicing 707 diabetic patients	HMO	Fewer specialty and emergency room visits; improved bed disability days and Short-Form 36 general health; no differences on A1C or other physiological measures
	Coleman et al., 1999	RCT/usual care	9 primary care practices; 169 frail older adult patients	HMO	After 24-month follow-up, intervention and control groups did not differ on costs, utilization, incontinence, falls, depression, or physical functioning
Group medical visits (CCHC) as required or requested	Beck et al., 1997	RCT/usual care	321 chronically ill elderly patients	HMO	Fewer repeated hospitalizations and specialty and emergency room visits; greater satisfaction, lower monthly costs after 1-year follow-up
	Coleman et al., 2001	RCT/usual care	295 chronically ill elderly patients	HMO	Fewer emergency room visits and hospitalizations; less likely to have any emergency room visits
Group medical visits with individual new problem and annual check-up visits	Trento et al., 2001, 2002	RCT/individual visit and education	112 diabetic patients	Diabetes clinic in Italy	Lower A1C levels, improved diabetes knowledge and quality of life compared to controls at 2- and 4-year follow-up; less progression of retinopathy at 4-year follow-up; higher 4-year costs for group patients, averaging 2.12 US\$ more per quality of life point gained
Group medical return visit with individual medical visit as required or requested	Noffsinger, 2001	Quality improvement project/no control group	3-physician neurology practice; number of volunteer patients unclear	HMO	Reduced waiting time for appointments with more available appointments and decreased number of past due appointments; 81% of patients reported being “very satisfied” with visit, 16% “somewhat satisfied,” and 3% “neutral”; no physiological or other patient data given

RCT, randomized, controlled trial; SMBG, self-monitoring of blood glucose; US\$, United States dollars

### Chronic Care Clinics

A second model posits that chronic care clinics within a health maintenance organization (HMO) provide better health outcomes for older individuals and for those with chronic illness than typical primary care visits. These clinics are based on a chronic disease approach to illness that recognizes the need for active patient participation and supports patients' confidence and skills in managing their illness.<sup>3</sup> Chronic care clinic visits for approximately eight patients at a time consist of a standardized assessment, and individual (not group) appointments with the primary care physician, nurse, and clinical pharmacist, followed by group education and support.

A randomized, controlled trial<sup>4</sup> evaluated the use of chronic care clinics for the treatment of diabetes within a primary care setting of a large HMO. Primary care practices within the HMO were randomized to either chronic care clinic (intervention) ( $n = 278$  patients) or usual care (control;  $n = 429$  patients).

Approximately 35% of invited patients never attended the chronic care clinics. Two reasons cited were “a reluctance to participate in groups” and “concern about the length of the visit.” Results showed that after 24 months' follow-up, glycemic control deteriorated equally in both groups (mean A1C from 7.4 to 7.9%), whereas total cholesterol improved slightly in both groups. On

average, chronic care clinic patients had more primary care visits (6.4 vs. 5.5,  $P = 0.05$ ) and fewer emergency department (0.1 vs. 0.2,  $P = 0.04$ ) and specialty (2.8 vs. 3.7,  $P = 0.007$ ) visits per year than control patients. One must interpret the reduced utilization of medical services—particularly specialty services—for intervention patients cautiously in light of the deterioration in glycemic control. Intervention patients also averaged fewer bed disability days (31.5 vs. 39.4,  $P = 0.02$ ) per year and scored slightly higher on the general health subscale of the Short-Form 36 (46.8 vs. 44,  $P = 0.03$ ).

Another randomized, control trial evaluating chronic care clinics for high-risk or frail elderly patients in the

same large HMO found no difference between intervention and control groups after 24 months of follow-up.<sup>5</sup> The clinics consisted of a 30-minute visit with the physician and nurse emphasizing reduction of disability, a 15-minute session with the pharmacist, and a group self-management education session with topics selected by the group. Finally, the treatment team had access to health status assessment information.

Chronic care clinic elderly patients did not differ from control subjects in health status or in cost of medical care. Although the authors noted several methodological challenges in studying health care delivery in an HMO, Williams,<sup>6</sup> in an editorial on chronic care clinics, suggested that the quality of the intervention and conceptual problems may also be implicated, particularly the paradigm's lack of emphasis on changing both physician and patient behavior.

### Group Medical Visits

Trento et al.<sup>7</sup> investigated group visits that provide a group educational assessment and diabetes education facilitated by a physician and an "educationist." One hundred and twelve patients were randomized to either the group visit or to individual medical and diabetes educator visits. Twenty-two patients discontinued participation (13 intervention, 9 control group patients). Group visit patients who needed clinical attention or who requested a private physician appointment were seen after the education session. The same physicians and educators provided care for patients in both the intervention and control groups.

Although A1C results were similar for the two groups at baseline, after 2 years, A1C results of patients attending the group visits maintained their baseline levels while those of control subjects deteriorated (baseline A1C for both groups  $7.4 \pm 1.4\%$ ; final A1C for intervention group  $7.5 \pm 1.4\%$  vs.  $8.3 \pm 1.8\%$  for control group,  $P < 0.002$ ). Group visit patients also had more improved quality of life, diabetes knowledge, and health problem identification (all  $P < 0.001$ ). At the 4-year follow-up, group intervention patients showed less progression of retinopathy, lower A1C results, and improved diabetes knowledge and quality of life compared to control patients.<sup>8</sup> Although the group intervention was more expensive, the cost was only

\$2.12 more per point gain in quality of life score.

The Cooperative Health Care Clinic (CHCC)<sup>9-12</sup> offers a different model of group medical visits that attempts to provide more efficient care to chronically ill elderly patients who have patterns of high utilization of medical care. Invited patients attend monthly group appointments that consist of a 15-minute warm-up and socialization session during which they usually discuss events that happened since the last meeting, a 30-minute health education session on a topic decided in the previous meeting, a 15-minute break during which the primary care physician circulates and interacts with individual patients while the nurse takes blood pressure and other health measurements and assessments, a 15-minute question-and-answer period, and 30 minutes for brief individual medical visits, if necessary.

A randomized, controlled, 1-year trial ( $n = 321$ )<sup>11</sup> showed that CHCC participants had more visits ( $P = 0.02$ ) and calls to the nurse ( $P = 0.04$ ) but fewer emergency room visits ( $P = 0.009$ ), fewer visits to subspecialists ( $P = 0.03$ ), and fewer repeat hospital admissions ( $P = 0.02$ ). The CHCC had a higher percentage of participants with updated influenza and pneumonia vaccinations. Both patients and physicians reported higher levels of satisfaction when compared to the control group. Costs for the CHCC averaged \$14.79 less per participant per month than for the control group. Of interest, 99 of 300 patients originally contacted refused participation. Among those randomized, 48 CHCC participants and 21 controls dropped from the study.

A second randomized, controlled trial used a broader selection of physician practices within the same large HMO to examine emergency department utilization among 295 older adults with  $>10$  visits per year.<sup>12</sup> Patients were randomized to the CHCC or usual care. After 2 years, intention-to-treat found that intervention patients were less likely to visit the emergency department (35 vs. 52%,  $P = 0.003$ ) and had fewer emergency department visits (0.65 vs. 1.08;  $P = 0.005$ ) and hospitalizations (0.44 vs. 0.81;  $P = 0.04$ ) than controls.

Another model of group medical visits is the Drop-In Group Medical Appointment.<sup>1,13</sup> This model was designed to solve access problems of

follow-up patients in either primary care or subspecialty medicine while maintaining both patient and provider satisfaction. Approximately 10-15 patients attend 90-minute drop-in group medical appointments that consist of a 5-minute introduction by the behavioral therapist or nurse, 75 minutes during which the physician sees each patient in turn in the group setting, and 10 minutes for brief private physical examinations or discussions.

Drop-in medical appointments have not been formally evaluated with randomized, controlled trials. A quality improvement project evaluated the effect of Drop-In Group Medical Appointments on patient flow in a three-physician neurology practice.<sup>13</sup> Results found improved access through reduction in wait time for appointments, with decreased patient complaints, and 81% of patients "very satisfied" with the drop-in group appointment. Health outcomes were not studied.

Each of the models described above recognizes that patient education is extremely important. However, those models that were studied with randomized controlled trials were all compared to usual care rather than an intensive education group; thus, one cannot determine if the education program component with physician involvement or the reformulated medical care delivery was the key to any improvement in health outcomes in diabetes.

Although people with diabetes appear to participate in and benefit from group education, the dropout rates cited in several studies of group models may affect findings and necessitate an intention-to-treat analysis. Only Wagner et al.<sup>4</sup> reported intention-to-treat analyses. High refusals may also indicate reluctance of patients to participate in group ventures when it concerns their medical visits and raises concerns about whether these results are generalizable to other diabetes populations. Further, most of these models have been implemented or tested in the HMO environment.

Other health care providers, such as those who have practices in fee-for-service environments, need to consider reimbursement, cost-effectiveness, and patient preferences before shared medical appointment models become generally accepted outside of HMOs. Thus, although there is much interest in using groups to provide better

access to medical care, an obvious need exists for more systematic investigations into the usefulness, practicality, and effectiveness of currently available models.

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