

# The Potential of Group Visits in Diabetes Care

Andrew M. Davis, MD, MPH; Devin R. Sawyer, MD; and Lisa M. Vinci, MD

Optimal control of blood pressure, lipids, and glycemia occurs in < 10% of patients with diabetes in national surveys, even as diabetes becomes epidemic and care for diabetes increasingly becomes the target of pay-for-performance and public reporting requirements. Complicating the task is that diabetes typically coexists with multiple medical problems that compete for attention during traditional clinical visits; recent evidence suggests this barrier may be even more salient than the concept of clinical inertia.<sup>1</sup>

Alternative models of diabetes primary care beyond traditional clinic visits have been increasingly explored, including disease management,<sup>2</sup> nurse case management,<sup>3</sup> and nurse practitioner–doctor teams.<sup>4</sup> Ambitious care delivery redesign, decision support, and patient self-management strategies have been coordinated into what is often termed the chronic care model and have shown promise in improving intermediate outcomes in diabetes.<sup>5,6</sup> A recent meta-analysis reviewed 11 potentially useful quality interventions in diabetes care and concluded that 2 were most effective, namely health care team changes and case management.<sup>7</sup> Compared to more ambitious practice redesign, group visits are a relatively straightforward innovation that offers promise in improving efficiency and encouraging patient self-management. In this article, we review recent literature and explore practical issues from our experience in a Midwest academic medical center and a West Coast family medicine residency.

## Evidence for Group Diabetes Visits

The use of group visits is an innovative approach receiving attention for its potential to improve the care of established patients with chronic conditions, such as diabetes, asthma, urological conditions, and coronary disease, while using available resources more efficiently. The terminology of group visits includes “group visits,” “shared medical appointments,” “cluster visits,” and “problem-solving DIGMA (drop-in group medical appointments).”<sup>8,9</sup> Most successful group visit programs include an element of between-visit care coordination and case management, typically provided by a nurse or nurse practitioner. Setting up a limited element of care coordination for attendees of group visits can be a useful step towards broader use of care coordination in a practice and can help make the case for a diabetes patient registry.

Group visits may be used in place of or in addition to usual one-on-one primary care and offer advantages in length, focus, patient interaction, and

added structure. Group visits should be distinguished from more narrowly defined group education classes, which address self-management skills, exercise, and nutrition but do not provide medical evaluation, medication adjustment, or the coordination and delivery of preventive services that can be provided in group visits.

Group visits typically include group education, shared problem-solving, focused private or semi-private medical evaluations that allow individualized medication adjustment, and ordering of preventive services and referrals. Sessions may last from 60 minutes to several hours and typically include 3–20 patients. The draw for patients lies in the potential for group visits to provide better access and to improve counseling, between-patient learning, and self-efficacy.

Typically led by a physician or advanced practice nurse, group visits often include the participation of a medical assistant or nurse. Some systems have included intermittent participation of a social worker, pharmacist, or mental health professional.

Recent experience from the Robert Wood Johnson Diabetes Initiative suggests that basic screening with the validated depression screening Patient Health Questionnaires (PHQ-9 and PHQ-2) can readily be done in a variety of practice settings.<sup>10</sup> We have found the PHQ-2 very feasible during routine enrollment for group classes.

Patients often enjoy interacting in a group environment that can provide encouragement and tips that they may

## IN BRIEF

Compared to more ambitious practice redesign, group visits are a relatively straightforward innovation that offer promise in improving efficiency and encouraging patient self-management. This article reviews recent literature and explores practical issues from the authors' experience in a Midwest academic medical center and a West Coast family medicine residency.

not receive in a short clinical visit; physicians may benefit from the change of pace and a chance to creatively and more thoroughly address the issues presented by chronic conditions common in primary care.

In evaluations of group visits, improved satisfaction has been reported for patients and clinicians,<sup>11</sup> along with better quality of care and reduced emergency department and specialist visits (Table 1).<sup>11–20</sup> A few practices have reported improved practice profitability and productivity,<sup>15,21</sup> although this is far from the rule.

### Practical Issues

We address practical issues based on a range of experience in our practice sites and the literature. We offer two organizational models: a 90-minute nurse-practitioner led group visit of six to nine patients, and a second approach using a preliminary medical assistant visit and three patients seen together by a primary care physician in an hour-long session. Local resources, interests, and circumstances will influence which model, in part or in whole, is best suited for adoption.

### General Comments

#### Patient selection and retention

Recruitment for group classes may attract a practice's most enthusiastic and knowledgeable patients. This can be an advantage because more recently diagnosed and perhaps less-eager patients can sometimes be mentored by such individuals. Strong encouragement from primary care physicians can be crucial in enrolling less-engaged patients, particularly if the physicians themselves are not participating in the group classes. Provision of healthy snacks, free parking, and phone reminders before visits can help maintain enrollment and program momentum.

#### Educational materials

Standardized materials have reduced the effort needed to develop a curriculum

even for underserved and low-literacy populations.<sup>23–25</sup> The American Diabetes Association (ADA) has recently updated its Diabetes Education Database (available online at [www.diabetes.org](http://www.diabetes.org)), and practices considering group visits may consider formal education and practice-level ADA recognition as they identify their patients with diabetes and redesign their clinical care processes.

### Reimbursement issues

Medicare does not reimburse the group education component of group visits unless it is provided by a certified diabetes educator (CDE). To qualify as a CDE, a health professional must complete at least 2,000 hours of hands-on diabetes education and pass an examination given by the National Certification Board of Diabetes Educators, which is a significant challenge for general primary care practices.

Our approach to group visit billing has been to use the office visit Evaluation and Management (E&M) methods employed in standard one-on-one office visits. While we have gained experience with group classes, we have generally depended on traditional E&M codes billed by advanced practice nurses or physicians, using the extent of history, physical exam, decision making, and complexity. Documentation is vital in either the nurse practitioner-led or the physician-led model. Electronic or paper checklists are useful to promote appropriate documentation. Either an E&M billing code Level 3 or Level 4 (99213 or 99214) may be appropriate in a typical visit.

#### Nurse Practitioner-Led 90-Minute Model

Advanced practice nurses have been substituted for physicians in our pilot experience with group visits. Group size in this model is typically six to nine patients, and sessions typically last 90 minutes. Advantages to nurse practitioners as group visit leaders include their ability to conduct physical examinations,

prescribe, refer, and provide vaccinations. Team changes that effectively permit nurses or pharmacist case managers to make medication adjustments by protocol or licensure without awaiting physician authorization reduced hemoglobin A<sub>1c</sub> (A1C) values by more than twofold compared to all other interventions,<sup>7</sup> although design of such programs must consider individual states' scope of practice requirements.

Some aspects of the exam can be conducted as a group activity, including teaching of foot self-exam and monofilament use (more information available online at [www.medicalmonofilament.com](http://www.medicalmonofilament.com)) and training in home monitoring of blood pressure, which has been linked to improved blood pressure control. In general, such modeling behavior may improve patient engagement and self-efficacy.<sup>22</sup> Vitals signs are taken by a nurse, and diabetes care charts with green/yellow/red zones (indicating excellent/good/poor control based on patients' blood pressure, lipid, and glyce-mic control results) are prepared before the visit. The chart is then shared with patients to facilitate engagement, understanding, and shared decision making.

A similar but more generic approach and useful overview of the nuts and bolts of organizing 90-minute shared medical appointments has been published by Bronson and Maxwell, based on experience at the Cleveland Clinic.<sup>23</sup> The authors provide a description of a sample session, including suggestions for patient flow, organizing focused examinations, and billing; they report that physician backlog and the satisfaction of patients and clinicians have improved. Confidentiality issues are addressed with a waiver. A physician leads the session, with an additional team member (nurse, nurse practitioner, social worker, or psychologist) running the session while the physician performs and documents private evaluations. This second member helps ensure that patients have appropriate referrals, prescriptions, and appoint-

<b>Table 1. Selected Literature Review of Group Visits in Diabetes</b>				
<b>Study</b>	<b>Setting and Patient Demographics</b>	<b>Population and Duration</b>	<b>Intervention</b>	<b>Results</b>
Wagner et al. <sup>12</sup>	Staff smodel health maintenance organization; mean age 61 years; 44% female; 30% non-Caucasian; mean A1C 7.5%	707 patients from general diabetes population in 14 primary care practices; 24 months	Half-day chronic care clinics involving primary care physician, registered nurse, and pharmacist	Improved microalbumin testing, fewer emergency department and specialty visits; A1C and patient satisfaction better in attendees
Trento et al. <sup>13</sup> Trento et al. <sup>14</sup>	Mean age 62 years; 46% female; hospital-based diabetes clinic in Turin, Italy; mean A1C 7.4%	112 patients; analysis at 4 years	Systemic group education (physician and clinical educator) versus individual consultation education	A1C -0.3% versus +1.3% in usual care (UC). Weight decreased 2.6 versus 0.9 kg in UC; less retinopathy; better diabetes knowledge, problem-solving ability, and quality of life
Bray et al. <sup>15</sup>	Mean age 61 years; 54% female; 72% African American; rural North Carolina	314 patients; 12 months	4-session group visit with an advanced practice nurse, registry, and case management	Improved foot exams, lipid testing, and aspirin use; better billable visits, increased productivity
Beck et al. <sup>11</sup>	Group model health maintenance organization in Colorado	321 chronically ill older patients; 1 year	Health education, prevention measures, mutual support, and one-to-one consultations with physician as needed	Less emergency department use, fewer admissions, greater patient and physician satisfaction
Clancy et al. <sup>16</sup>	Academic internal medicine practice; mean age 56 years; 72% female; 83% African American; mean A1C 9.1%	186 poorly insured patients; assessed at 12 months	Primary care physician- and registered nurse-led; groups of 14-17 patients met monthly	Greater concordance with ADA standards of care and women's preventive screenings
Sadur et al. <sup>17</sup>	Group model health maintenance organization; mean age 56 years; 41% female 71% white; mean A1C 9.5%	185 patients 10-18 patients for each cluster visit; 6 months	2-hour monthly cluster visits involving diabetes nurse educator, psychologist, and nutritionist	A1C -1.3 versus +0.2% in control subjects. Improved self-efficacy and reduced hospital and outpatient utilization
Look AHEAD: Pi-Sunyer et al. <sup>18</sup>	Large multicenter U.S. randomized controlled trial; mean age 59 years; 59% female; 63% white; 16% African American, 13% Hispanic; mean A1C 7.3%	5,145 patients with type 2 diabetes with intensive lifestyle intervention compared to a diabetes support and education control group; 1 year	Group behavioral programs adapted from the Diabetes Prevention Program; months 1-6: three group visits; months 7-12: meetings every other week with dietitians, psychologists, and exercise specialists	A1C 7.3-6.6% in intervention group, 7.3-7.2% in control subjects; significant improvements in blood pressure, lipids, and microalbumin
INITIATE: Yki-Jarvinen et al. <sup>19</sup>	Multicenter study at academic clinics in Finland; mean age 58 years; 38% female; mean A1C 8.8%	121 patients needing insulin initiation	Initiation of insulin; counseling in groups of four to eight patients versus individually	Equal drop in A1C ~ 2%; counseling time 2.2 hours in group versus 4.2 hours individually
Kirsh S et al. <sup>20</sup>	Cleveland VA primary care clinic; quasi-experimental design; mean age 61 years; 2% female; mean A1C 10.4%	44 patients; 3 months	Up to eight patients seen by multidisciplinary team for 1-2 hours	Statistically greater improvements in A1C and blood pressure control relative to concurrent nonrandomized control subjects

ments as they check out and may share documentation responsibilities.

### Physician-Led 1-Hour Mini-Group Visit

An alternative to the nurse practitioner model is the mini-group visit used during the past 5 years by Sawyer and associates in a family medicine residency program in Olympia, Wash.<sup>24</sup> In this format, primary care physicians schedule three diabetic patients at a time for a shared 1-hour appointment in the resident continuity clinic.

Planned visits to medical assistants occur 1–2 weeks before the group visit; the assistants follow a list of standard orders signed off by the provider that include blood pressure measurement, weight and foot checks, routine laboratory tests, immunizations, and referrals to other resources, such as ophthalmology and diabetes education. Medical assistants also spend time discussing self-management goal setting with each patient. By the time physicians meet with patients, they have current laboratory results and health measures and an updated list of patient goals, which allows them more time to discuss diabetes management with patients.

Mini-group visits also give patients the opportunity to share their challenges and successes with other patients and solve problems related to the daily struggles of dealing with their chronic disease. Although the primary purpose of the visit is medical management, providers are not “driving” the care. With nondirective counseling, patients are offered choices and are included in the decision-making process. This leads to patients “owning” the medical plans that are developed. By sharing this care with other patients, they develop increased confidence to self-manage their disease, feel more accountable for their care, and feel proud to have played a role in the care of the others present. Providers may engage in conversation about lifestyle change and blend this with the medical plans that are developed. Patients

are encouraged to self-manage and set lifestyle goals at the same time they are participating in medical decisions that drive their care. These visits are billed the same as equivalent traditional medical visits.

Data over a 3-year period have shown that patients who participated in planned or group medical visits and set goals had lower A1C levels than the clinic average and that the difference increased over time.<sup>24</sup> Patients were more likely to have had a foot exam and a dilated eye exam during the same time period. Cholesterol data were also encouraging, with the clinic LDL average decreasing from first to last measure from 116 to 101.6 mg/dl. After implementation, patient survey data suggested that patients began to value and trust the medical assistants more, describing them as “critical members of the health care team.” Patients felt well cared for, better supported, and more successful and confident. Medical assistant focus group and survey data have shown that assistants want to be more involved in patient care, gained knowledge and confidence in diabetes care and self-management through the experience, and were more satisfied with their jobs. Provider survey data have shown modest improvements in comfort with, and perceived effectiveness in, providing self-management support.

### Conclusion

As this brief review suggests, the literature supporting group visits, while promising, is heterogeneous, predominantly from group model health maintenance organization settings, and has employed various combinations of health professionals and intensities of case management. Jaber et al.<sup>21</sup> have made detailed and thoughtful suggestions for improving group visit study methodology, intervention content, and assessment techniques. The choice of optimal personnel and structure for group visits will in large part depend on local resources, and further research will be required to define how group visits are

best combined with case management, information feedback to patients and providers, self-management innovation, and connection to community resources. Continued exploration is warranted given the potential for group visits to engage patients, facilitate peer learning, and improve self-management skills, while providing a change of pace for clinicians and improving the efficiency and quality of diabetes care.<sup>25</sup>

### REFERENCES

- Parchman ML, Pugh JA, Romero RL, Bowers KW: Competing demands or clinical inertia: the case of elevated glycosylated hemoglobin. *Ann Fam Med* 5:196–201, 2007
- Davidson MB, Ansari A, Karlan VJ: Effect of a nurse-directed diabetes disease management program on urgent care/emergency room visits and hospitalizations in a minority population. *Diabetes Care* 30:224–227, 2007
- Taylor CB, Miller NH, Reilly KR, Greenwald G, Cuning D, Deeter A, Abascal L: Evaluation of a nurse-care management system to improve outcomes in patients with complicated diabetes. *Diabetes Care* 26:1058–1063, 2003
- Litaker D, Mion L, Planavsky L, Kippes C, Mehta N, Frolkis J: Physician-nurse practitioner teams in chronic disease management: the impact on costs, clinical effectiveness, and patients' perception of care. *J Interprof Care* 17:223–237, 2003
- Nutting PA, Dickinson WP, Dickinson LM, Nelson CC, King DK, Crabtree BF, Glasgow RE: Use of chronic care model elements is associated with higher-quality care for diabetes. *Ann Fam Med* 5:14–20, 2007
- Vargas RB, Mangione CM, Asch S, Keesey J, Rosen M, Schonlau M, Keeler EB: Can a chronic care model collaborative reduce heart disease risk in patients with diabetes? *J Gen Intern Med* 22:215–222, 2007
- Shojania KG, Ranji SR, McDonald KM, Grimshaw JM, Sundaram V, Rushakoff RJ, Owens DK: Effects of quality improvement strategies for type 2 diabetes on glycemic control: a meta-regression analysis. *JAMA* 296:427–440, 2006
- Noffsinger E: Increasing efficiency, accessibility, and quality of care through drop-in group medical appointments. *Group Pract J* 48:12–18, 1999
- Wellington M: Stanford Health Partners: Rationale and early experiences in establishing physician group visits and chronic disease self-management workshops. *J Ambul Care Manag* 24:10–16, 2001
- Anderson D, Horton C: Integrating depression care with diabetes care in real-world settings: lessons from the Robert Wood Johnson Foundation Diabetes Initiative. *Diabetes Spectrum* 20:10–16, 2007
- Beck A, Scott J, Williams P, Robertson B, Jackson D, Gade G, Cowan P: A randomized trial of group outpatient visits for chronically ill old-



er HMO members: the Cooperative Health Care Clinic. *J Am Geriatr Soc* 45:543–549, 1997

<sup>12</sup>Wagner EH, Grothaus LC, Sandhu N, Galvin MS, McGregor M, Artz K, Coleman EA: Chronic care clinics for diabetes in primary care: a system-wide randomized trial. *Diabetes Care* 24:695–700, 2001

<sup>13</sup>Trento M, Passera P, Bajardi M, Tomalino M, Grassi G, Borgo E, Donnola C, Cavallo F, Bondonio P, Porta M: Lifestyle intervention by group care prevents deterioration of type II diabetes: a 4-year randomized controlled clinical trial. *Diabetologia* 45:1231–1239, 2002

<sup>14</sup>Trento M, Passera P, Borgo E, Tomalino M, Bajardi M, Cavallo F, Porta M: A 5-year randomized controlled study of learning, problem solving ability, and quality of life modifications in people with type 2 diabetes managed by group care. *Diabetes Care* 27:670–675, 2004

<sup>15</sup>Bray P, Roupe M, Young S, Harrell J, Cummings DM, Whetstone LM: Feasibility and effectiveness of system redesign for diabetes care management in rural areas: the eastern North Carolina experience. *Diabetes Educ* 31:712–718, 2005

<sup>16</sup>Clancy DE, Huang P, Okonofua E, Yeager D, Magruder KM: Group visits: promoting adherence to diabetes guidelines. *J Gen Intern Med* 22:620–624, 2007

<sup>17</sup>Sadur CN, Moline N, Costa M, Michalik D, Mendlowitz D, Roller S, Watson R, Swain BE, Selby JV, Javorski WC: Diabetes management in a health maintenance organization: efficacy of care

management using cluster visits. *Diabetes Care* 22:2011–2017, 1999

<sup>18</sup>Pi-Sunyer X, Blackburn G, Brancati FL, Bray GA, Bright R, Clark JM, Curtis JM, Espeland MA, Foreyt JP, Graves K, Haffner SM, Harrison B, Hill JO, Horton ES, Jakicic J, Jeffery RW, Johnson KC, Kahn S, Kelley DE, Kitabchi AE, Knowler WC, Lewis CE, Maschak-Carey BJ, Montgomery B, Nathan DM, Patricio J, Peters A, Redmon JB, Reeves RS, Ryan DH, Safford M, Van Dorsten B, Wadden TA, Wagenknecht L, Wesche-Thobaben J, Wing RR, Yanovski SZ: Reduction in weight and cardiovascular disease risk factors in individuals with type 2 diabetes: one-year results of the look AHEAD trial. *Diabetes Care* 30:1374–1383, 2007

<sup>19</sup>Yki-Jarvinen H, Juurinen L, Alvarsson M, Bystedt T, Caldwell I, Davies M, Lahdenpera S, Nijpels G, Vahatalo M: Initiate Insulin by Aggressive Titration and Education (INITIATE): a randomized study to compare initiation of insulin combination therapy in type 2 diabetic patients individually and in groups. *Diabetes Care* 30:1364–1369, 2007

<sup>20</sup>Kirsh S, Watts S, Pascuzzi K, O'Day ME, Davidson D, Strauss G, O Kern E, Aron DC: Shared medical appointments based on the chronic care model: a quality improvement project to address the challenges of diabetes with high cardiovascular risk. *Qual Saf Health Care* 16:349–353, 2007.

<sup>21</sup>Jaber R, Braksmajer A, Trilling JS: Group visits: a qualitative review of current research. *J Am Board Fam Med* 19:276–290, 2006

<sup>22</sup>Lorig KR, Holman H: Self-management education: history, definition, outcomes, and mechanisms. *Ann Behav Med* 26:1–7, 2003

<sup>23</sup>Bronson DL, Maxwell RA: Shared medical appointments: increasing patient access without increasing physician hours. *Cleve Clin J Med* 71:369–370, 372, 374 passim, 2004

<sup>24</sup>Langford AT, Sawyer DR, Gioimo S, Brownson CA, O'Toole ML: Patient-centered goal setting as a tool to improve diabetes self-management. *Diabetes Educ* 33:139S–144S, 2007

<sup>25</sup>Wagner EH: Diversifying the options for interacting with patients Editorial. *Qual Saf Health Care* 16:322–323, 2007

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*Andrew M. Davis, MD, MPH, is Director of Quality and an assistant professor in the Department of Medicine, and Lisa M. Vinci, MD, is an assistant professor in Internal Medicine at the University of Chicago in Illinois. Devin R. Sawyer, MD, is an associate professor at the University of Washington, Seattle, and a family physician and faculty member at the St. Peter Family Medicine Residency Program in Olympia, Wash.*