# A Shared Diabetes Clinic at a Veterans Affairs Medical Center

Maureen McQueeney, PharmD, BCPS, BCACP, CDE; Stacey Lutz-McCain, MSN, FNP-BC, CDE; Margaret Chrymko, PharmD; Craig Bretz, RPh, CDE; and Deborah Kuntz, RD, LDN, CDE

First studied in the 1990s, the concept of shared medical appointments holds much promise today in treating patients with diabetes.

Diabetes mellitus (DM) is a common disease that is becoming an epidemic in the United States. Uncontrolled DM can result in both microvascular and macrovascular complications. The Diabetes Control and Complications Trial (DCCT) revealed that tight control of blood glucose may help prevent the microvascular complications of diabetes.[1] According to the American Diabetes Association (ADA), tight control of blood glucose levels is considered a glycosolated hemoglobin (A1C) of < 7%, a fasting plasma glucose (FPG) of 70 to 130 mg/dL, and a postprandial glucose (PPG) of < 180 mg/dL.[2] Although it's still not known whether tight glucose control has an effect on preventing macrovascular complications, epidemiologic studies suggest a correlation exists. As a result, the ADA has published guidelines with specific goals for patients with regard to glucose control, blood pressure (BP), and total cholesterol (TC) (Table 1).[2] However, achieving these goals can be very difficult. About 60% of patients with diabetes are uncontrolled by these standards.[3] Achieving the goals requires much time and effort from an interdisciplinary team of health care professionals (HCPs) and patients.

**Table 1. ADA goals compared with SDC goals**

| Measure | ADA goal[2] | SDC goal |
|---|---|---|
| A1C | < 7% (for most patients) | < 7% (< 6.5% optimal)<br>< 8% for patients ≥ 80 years |
| FPG | 70-130 mg/dL | 90-130 mg/dL |
| PPG | < 180 mg/dL | < 180 mg/dL |
| TC | < 200 mg/dL | < 200 mg/dL |
| LDL-C | < 100 mg/dL[a] | < 100 mg/dL[b] |
| HDL-C | > 40 mg/dL (men)<br>> 50 mg/dL (women) | > 40 mg/dL (men)<br>> 50 mg/dL (women) |
| TGs | < 150 mg/dL | < 150 mg/dL |
| BP | < 130 mm Hg/< 80 mm Hg | < 130 mm Hg/< 80 mm Hg |
| Proteinuria | Absent | Absent |

[a]< 70 mg/dL in patients with DM and cardiovascular disease (CVD).
[b]The SDC used < 70 mg/dL for patients with DM and CVD, but this study used < 100 mg/dL for all patients to ensure accuracy.

Traditionally, diagnosis and management of diabetes was solely the responsibility of the primary care physician (PCP). Most of the care was done during the regularly scheduled doctor's appointment. As the population of patients with multiple medical conditions continues to rise, HCPs find themselves facing many pressures. They need to see more patients in a shorter time period. As a result, many HCPs have begun to seek alternate methods of caring for their patients.[4]

In the 1990s, Drs. Noffsinger and Scott pioneered the idea of shared medical appointments (SMAs) as a solution to the emerging problems with the traditional care model. SMAs are not meant to completely replace traditional office visits but instead work in conjunction with office visits to decrease overuse of the system. There are 3 basic models for the SMA: Cooperative Health Care Clinic (CHCC), disease specific CHCC, and the drop-in group medical appointment (DIGMA).

The concept of the SMA emphasizes that the HCP can get more work done effectively in a given time period. The goal is to increase both the HCP and patient satisfaction while improving the quality of care the pa-

**Dr. McQueeney** was a pharmacy resident, **Ms. McCain** is a nurse practitioner, **Dr. Chrymko** and **Dr. Bretz** are clinical pharmacy specialists, and **Ms. Kuntz** is a clinical dietitian, all at the Department of Veterans Affairs Medical Center in Erie, Pennsylvania. Dr. McQueeney is now an assistant clinical professor at Bouvé College of Health Sciences, School of Pharmacy, at Northeastern University in Boston, Massachusetts.

tient is receiving. The SMA allows HCPs to provide education and information to a group of patients all at once instead of repeating the same information or providing the same education multiple times each day. This approach is cost-effective and saves the HCPs' time. The SMA also allows patients to talk openly and observe other patients' struggles. Observing other patients' successes and failures may also encourage other patients, which may result in increased compliance, patient satisfaction, and increased quality of health care.[4]

In January 2004, the Erie VAMC started a shared diabetes clinic (SDC). This clinic was developed as a modified disease specific CHCC model similar to the SMAs pioneered by Drs. Noffsinger and Scott. This retrospective analysis looked at the effectiveness of the SDC at the Erie VAMC in terms of measurable outcomes.

## METHODS

### Setting

The Erie VAMC is located in Erie, Pennsylvania, and has several community-based outpatient clinics (CBOCs) in the surrounding area. The primary care clinics employ physicians and nurse practitioners. More than 20,000 unique patients are seen in the clinic each year. About 26.8% of the patients have DM. Of the veteran population with DM, about 47% have an A1C of < 7% and about 28.5% have an A1C < 6.5%.

### The SDC

In 2003, the chief of staff asked one of the nurse practitioners (CRNPs) in the primary care clinics to start a SDC. After some research, consultation with Dr. Noffsinger, and team development, the SDC was started in January 2004. The SDC took an interdisciplinary approach to the treatment of diabetes with different HCPs functioning collaboratively, similar to the old saying, "United we stand, divided we fall." To perform at its best, the clinic needs all parts working together to be effective. The SDC manages patients' diabetes and associated complications, such as hypertension (HTN) and dyslipidemia. A CRNP runs the clinic, removing the burden of managing this time-consuming disease from the PCP. As a result, PCPs have more time to manage the patient's other medical issues. Therefore, in theory, patients' quality of care should increase.

Enrollment in the clinic is voluntary. Patients are asked to join the clinic, or they are referred to the clinic by their PCP. Patients eligible for enrollment include patients with prediabetes and patients with DM. Once the patient is enrolled, the PCP allows the CRNPs to manage the patient's prediabetes, diabetes, HTN, and hyperlipidemia.

A CRNP, dietitian (RD), pharmacist, registered nurse (RN), and medical clerk assist in the clinic, along with the patient and family members who wish to attend. During the 2-hour session, patients are individually assessed, treated, and given extensive disease-state counseling. The session is not set up to be didactic; instead, it is meant to be interactive. Patients are encouraged to share stories of success and failure as well as ask questions throughout the session. Spouses or caregivers are invited to join the sessions as well. Patients are seen every 3 to 6 months, depending on control of disease and patient preference. In general, patients are with the same group at each visit; however, sometimes new patients join or patients leave.

Each patient is instructed to arrive 30 minutes before the start of the clinic, to allow time for the RN to take each patient's BP, perform foot examinations, and provide education regarding insulin administration and glucometer use. Once the shared session has begun, the CRNP evaluates each patient's laboratory values and adjusts medications accordingly. The patients' A1C, TC, high-density lipoprotein cholesterol (HDL-C) level, low-density lipoprotein cholesterol (LDL-C) level, triglycerides (TGs), urinalysis, and BP are assessed, and medications are adjusted in order to reach the predetermined goals (Table 1) set by the clinic. The CRNP orders each patient's prescriptions and completes notes. The pharmacist counsels patients on medications, makes recommendations regarding medication initiation and adjustment, and acts as the clinic facilitator while the CRNP documents clinical activities after each patient encounter. The RD provides education regarding diet and exercise. She also acts as the facilitator similarly to the pharmacist. The medical clerk schedules any necessary follow-up appointments and provides reminder letters for the patients. On occasion, guest speakers (eg, social workers and pharmacy students) are invited to address diabetes-related topics.

The clinic sets an A1C goal similar to the ADA recommendations; however, an A1C of < 6.5% is considered optimal. According to an epidemiologic analysis of the United Kingdom Prospective Diabetes Study (UKPDS), the risk of microvascular and macrovascular complications increased at A1C values ≥ 6.5%. Therefore, the clinic strives for a lower A1C level for patients where hypoglycemia is not an issue. Between visits, the CRNP and RN follow up with patients regarding their BP, cholesterol, and glucose readings.

### Evaluation

The primary objective of this study was to evaluate the effectiveness of a SDC. This was achieved by compar-

Continued on page 18

Continued from page 16

**Table 2. Patient characteristics**

| Characteristic | Baseline | Characteristic | Baseline |
|---|---|---|---|
| Mean age (SD), y | 71.8 (9.1) | Diuretic | 66 (52.4) |
| Gender, n (%) | | Statin | 107 (84.9) |
| Male | 125 (99.2) | Bile acid sequestrant | 122 (89.7) |
| Female | 1 (0.8) | Niacin | 13 (10.3) |
| Mean weight (SD), kg | 98.8 (20.1) | Fibric acid derivative | 22 (17.5) |
| Mean A1C (SD), % | 7.4 (1.4) | Anticoagulant/antiplatelet | 123 (97.6) |
| Mean LDL-C (SD), mg/dL | 96.3 (27.9) | Metformin | 55 (43.7) |
| Mean HDL-C (SD), mg/dL | 37.1 (10.5) | Sulfonlyurea | 71 (56.3) |
| Mean TGs (SD), mg/dL | 190.4 (230) | Intermediate- or long-acting insulin | 45 (35.7) |
| Mean SBP (SD), mm Hg | 132.7 (14.1) | Short-acting insulin | 16 (12.7) |
| Mean DBP (SD), mm Hg | 70.1 (7.6) | Mixed insulin | 9 (7.1) |
| Depression, n (%) | 31 (24.6) | Thiazolidinedione | 5 (4) |
| Tobacco use, n (%) | 11 (8.7) | Other hypoglycemic | 0 (0) |
| Medication type, n (%) | | Antipsychotics | 4 (3.2) |
| ACEI | 92 (73) | Flax seed | 17 (13.5) |
| ARB | 22 (17.5) | Fish oil | 49 (38.9) |
| β-blocker | 88 (69.8) | | |

ing baseline A1C levels to levels after enrollment in the clinic for at least 2 years. Secondary objectives included changes in LDL-C, HDL-C, TGs, and BP when comparing baseline values with values after 2 or more years in the SDC.

A retrospective chart review was performed from January 2007 to May 2007. Patients enrolled in the clinic for more than 2 years with a diagnosis of DM, hyperlipidemia, and HTN at the time of enrollment were included. Patients enrolled in the clinic for less than 2 years or who had prediabetes at the time of enrollment were excluded. Patients with at least 4 visits to the clinic were randomized using a random numbers table created from Microsoft Excel. Demographic and clinical data including age, gender, weight, other diseases, laboratory results before and during SDC enrollment, and prescribed medications were collected. Effectiveness of the SDC was determined by comparing baseline A1C levels to levels after enrollment in the clinic for at least 2 years. Other measurements of effectiveness included changes in LDL-C, HDL-C, TGs, and BP when comparing baseline levels to levels after at least 2 years of enrollment. Three BP readings over a 6-month period were averaged to determine the pre- and post-BP evaluations.

## Statistical Analysis

The study assessed the degree of change in both the primary and secondary objectives. Assuming a dropout rate of 10%, a sample size of 63 patients in each group was needed for the study to have a power of 90%. Statistical significance was defined as $P < .05$.

The independent variable was the time the patient entered the clinic. Using SPSS 15.0 for Windows (Version 15.0.1, November 2006), a repeat measure of analysis of variance (ANOVA) with covariates was performed to determine the degree of change in the primary and secondary objectives. The patient covariates analyzed were age, gender, and weight. Data regarding the patients' other medical conditions and medications were collected and analyzed. A McNemar test was performed on categorical data to compare the number of patients at baseline with the number of patients reaching predetermined goals set by the clinic at 2 years after enrollment. Two prespecified subgroup analyses were also performed. A subgroup analysis of patients with a baseline A1C < 8% and one of patients with a baseline A1C ≥ 8% was performed. Each analysis determined the degree of change in the primary and secondary objectives, however, covariates were not analyzed. This study was approved by the multisite Veterans Integrated Service Network

**Table 3. Pre- and post-implementation laboratory and BP results**

| | Baseline | ≥ 2 years | SD | 95% CI | *P* value[a] |
|---|---|---|---|---|---|
| A1C | 7.399 | 7.051 | 1.278 | 0.122-0.573 | = .003 |
| LDL-C | 96.461 | 89.482 | 27.056 | 2.109-11.849 | = .005 |
| HDL-C | 37.508 | 36.818 | 7.360 | -0.607-1.988 | = .294 |
| TGs | 190.349 | 148.937 | 200.762 | 6.015-76.810 | = .022 |
| SBP | 132.706 | 127.214 | 14.917 | 2.862-8.122 | < .001 |
| DBP | 70.873 | 68.151 | 7.960 | 1.319-4.126 | < .001 |

[a]Analysis of variance, N = 126.

(VISN) 4 Institutional Review Board (IRB) and the Research and Development (R&D) committee.

## RESULTS

The first 126 patients that met the inclusion criteria were enrolled in the study. Patient characteristics are summarized in Table 2. One hundred and twenty-one patients had complete data. Five patients with incomplete data were missing LDL-C levels due to TGs > 400 mg/dL.

The results of the ANOVA are shown in Table 3. After 2 years, the changes in A1C, LDL-C, TGs, systolic blood pressure (SBP), and dystolic blood pressure (DBP) were statistically significant ($P = .003$, $P = .005$, $P = .022$, $P < .001$, and $P < .001$, respectively). The results of the McNemar's test are shown in Table 4. A statistically significant number of patients met their LDL-C, TGs, and BP goals after at least 2 years of enrollment ($P = .003$, $P = .049$, and $P = .003$, respectively).

**Table 4. Goals achieved post implementation of SDC**

| Goal | *P* value[a] |
|---|---|
| A1C (< 6.5%) | = .137 |
| A1C (< 7%) | = .110 |
| LDL-C < 100 mg/dL | = .003 |
| HDL-C > 40 mg/dL (M)<br>HDL-C > 50 mg/dL (F) | = 1.0 |
| TGs < 150 mg/dL | = .049 |
| BP <130/<80 mm Hg | = .003 |

[a]McNemar's test, N = 126.

Covariates that had a significant correlation with A1C included weight ($P = .003$) and age ($P = .033$). Weight did not significantly correlate with A1C in patients who were 20% over ideal body weight (IBW); however, A1C in patients 30% over IBW was statistically significant ($P = .005$). Medications associated with a significant change in A1C included diuretics ($P = .017$), bile acid sequestrants ($P = .017$), long- or intermediate-acting insulin ($P < .001$), short- or rapid-acting insulin ($P < .001$), and premixed insulin ($P = .029$). Covariates and medication use associated with a significant change in LDL-C included angiotensin-converting enzyme inhibitors (ACEIs) ($P = .001$), angiotensin II receptor blockers (ARBs) ($P = .001$), β-blockers ($P = .003$), HMG CoA inhibitors ($P < .001$), and niacin ($P = .011$). Factors associated with a significant change in TGs included fibric acid derivative use ($P < .001$); sulfonylurea use ($P = .013$); long- or intermediate-acting insulin use ($P \leq .001$); fish oil use ($P = .049$); and weight ($P = .001$), especially in those 30% over IBW ($P < .001$). HDL-C changes were associated with use of fish oil ($P < .001$) as well as being 30% or more above IBW ($P = .043$). SBP changes were associated with tobacco and diuretic use ($P = .011$ and $P = .014$, respectively). Covariate disease states and medications associated with a significant change in DBP included age ($P < .001$), presence of depression ($P = .021$), tobacco use ($P = .018$), and metformin use ($P = .001$).

Patients with a baseline A1C < 8% did not have a significant decrease in A1C (Table 5). However, these patients did have a significant improvement in LDL-C, TGs, SBP, and DBP ($P = .044$, $P = .009$, $P < .001$, and $P < .001$, respectively). In contrast, patients with a baseline A1C of ≥ 8% did show a significant decrease in A1C and LDL-C ($P < .001$ and $P = .031$, respectively). There were no significant changes in HDL-C, TGs, and BP (Table 6). However, a significant number of patients with a baseline A1C < 8% met their LDL-C, TGs, and BP goals after at least 2 years of enrollment ($P = .031$, $P = .045$, and $P = .001$, respectively) (Table 7). While patients with an A1C of < 8% did not show a significant increase in the number meeting their A1C goal, the group with a baseline A1C of ≥ 8% had a significant increase in the number of patients reaching an A1C < 6.5%, an A1C < 7%, and TGs ($P = .016$, $P = .004$, and $P = .031$, respectively) (Table 8).

## DISCUSSION

Limited data assessing the effec-

**Table 5. Pre- and post-implementation results for A1C < 8% subgroup**

| | Baseline | ≥ 2 years | SD | 95% CI | *P* value[a] |
|---|---|---|---|---|---|
| A1C | 6.798 | 6.785 | 0.756 | –0.138-0.165 | = .862 |
| LDL-C | 97.528 | 92 | 27.306 | 0.156-11.221 | = .044 |
| HDL-C | 38.22 | 37.36 | 7.751 | –0.687-2.421 | = .271 |
| TGs | 152.26 | 133.39 | 70.030 | 4.827-32.907 | = .009 |
| SBP | 134.64 | 127.18 | 15.469 | 4.358-10.561 | < .001 |
| DBP | 71.44 | 67.97 | 7.77 | 1.912-5.027 | < .001 |

[a]Analysis of variance, N = 126.

tiveness of the shared medical care concept are available. Four studies assessed the effectiveness of the concept for patients with diabetes. However, the shared care models in these trials differed significantly in design compared with the SDC at the Erie VAMC.

Masley and colleagues performed a pilot study of a shared care clinic for patients with uncontrolled type 2 DM. Results at 1 year revealed a 32% decrease in the ratio of TC to HDL-C and a 30% decrease of A1C levels, along with a cost savings of 7%.[5] The success of this pilot clinic triggered expansion of shared groups to patients with coronary artery disease, gastroesophageal reflux disease, hearing impairments, and obesity.

Smith et al conducted a cluster randomized controlled trial with the objective to assess the effectiveness of a shared care model. This clinic consisted of a general practitioner and an RN, who took a 6-week education course prior to the study's start. The clinic also had a diabetes nurse specialist that attended the clinic 1 to 2 half days each month. The general practitioner and RN assessed patients every 3 months. The study measured biomedical outcomes, including A1C, BP, body mass index, and cholesterol. Psychosocial outcomes included patient satisfaction, smoking status, and diabetes care delivery. The results showed an improvement in diabetes care delivery and psychosocial outcomes. However, there was no difference in biomedical outcomes between the intervention and control group.[6]

Hoskins and colleagues conducted a study to assess the effectiveness of shared care. This randomized controlled trial compared diabetes care with 3 different types of care. These included (1) general practitioner care, (2) shared care between the clinic and the general practitioner, and (3) a specialized clinic. Two hundred six patients with diabetes were randomized to 1 of the 3 types of care. The outcome measures were metabolic control and BP. The results of the trial revealed that the shared care arm of the study had better results than the other 2 arms, except for frequency of A1C monitoring.[7]

Finally, a study by Naik and colleagues compared 2 different group interventions in 87 patients at a VAMC. A clinician-led, primary-care–based, patient-centered group clinic consisted of 4 sessions focused on goal setting and self-management action plans. These were compared with group education sessions with a diabetes educator and dietitian, followed by a PCP visit. Greater improvements in A1C were seen in the clinician-led group immediately following the active intervention and at 1 year ($P$ = .03 and $P$ = .05, respectively).[8]

In our study, 59% of patients

**Table 6. Pre- and post-implementation results for A1C ≥ 8% subgroup**

| | Baseline | ≥ 2 years | SD | 95% CI | *P* value[a] |
|---|---|---|---|---|---|
| A1C | 9.5036 | 7.9857 | 1.919 | 0.774-2.262 | < .001 |
| LDL-C | 91.65 | 79.62 | 26.001 | 1.201-22.672 | = .031 |
| HDL-C | 35 | 34.93 | 5.868 | –2.204-2.347 | = .949 |
| TGs | 323.68 | 203.36 | 400.848 | – 35.111-275.754 | = .124 |
| SBP | 125.93 | 127.32 | 10.354 | – 5.408-2.622 | = .483 |
| DBP | 68.89 | 68.79 | 8.203 | – 3.074-3.288 | = .945 |

[a]Analysis of variance, N = 28.

Continued on page 24

Continued from page 20

**Table 7. Goals achieved for A1C < 8% subgroup**

| Goal | *P* value[a] |
|---|---|
| A1C (< 6.5%) | = .832 |
| A1C (< 7%) | = .855 |
| LDL-C | = .031 |
| HDL-C | = .832 |
| TGs | = .045 |
| BP | = .001 |

[a]McNemar's test, N = 98.

**Table 8. Goals achieved for A1C ≥ 8% subgroup**

| Goal | *P* value[a] |
|---|---|
| A1C (< 6.5%) | = .016 |
| A1C (< 7%) | = .004 |
| LDL-C | = 1.0 |
| HDL-C | = 1.0 |
| TGs | = .031 |
| BP | = 1.0 |

[a]McNemar's test, N = 98.

reached their A1C goal of < 7% (or if aged ≥ 80 years, the goal of < 8%) with 44% of those patients reaching the even lower goal of < 6.5% (or if aged ≥ 80 years, the goal of < 8%). This is substantially higher than the national estimated average of 40% of patients reaching the A1C goal of < 7%. This is also substantially higher than the Erie VAMC estimates of about 47% and 28% of patients reaching an A1C goal of < 7% and < 6.5%, respectively.

However, there are several potential limitations with this study. Patients are enrolled in the clinic on a voluntary basis. As a result, their motivation to achieve their goals and comply with medication and lifestyle changes may be greater than the average patient. Another potential limitation is patient compliance. The population studied was from 1 VAMC, which may limit the external validity of the study. The study did not assess other potential benefits patients may receive from enrollment in the clinic. One important aspect of care that was not assessed is patient satisfaction, but there is an ongoing trial that is looking at patient satisfaction within the clinic. Finally, seasonal variations may have affected the results. The data were collected during the winter months, with most of the A1C values obtained following Thanksgiving, Christmas, and New Years. Exercise is a very important approach to increase HDL-C, and during the winter months it may be more difficult for this population to maintain adequate exercise, partly because some older veterans may fear falling on icy walkways. In addition, hyperglycemia can be more difficult to control during the holiday season, when people tend to struggle with their eating habits.

## CONCLUSION

Patients in the SDC at the Erie VAMC had significantly decreased A1C, LDL-C, TGs, and BP. A significant number of patients also met their LDL-C, TGs, and BP goals compared with baseline. No change in HDL-C was observed. Patients with an A1C ≥ 8% had the greatest benefit in A1C, LDL-C, and TGs, while patients with a baseline A1C < 8% had the most benefit in LDL-C, TGs, SBP, and DBP. When compared with the national average, a larger percentage of patients met their A1C goals in the Erie VAMC SDC. This research shows that the concept of the SMA is effective in achieving measurable outcomes in patients with diabetes. The concept of shared care offers an effective option for treating patients with DM.

### *Acknowledgments*

*The authors wish to acknowledge Barbara Blackburn, research program support assistant at the Erie VAMC in Erie, Pennsylvania, for her assistance with institutional review board submissions and Timothy Cooney, MS, research associate, Department of Orthopaedic Research, Hamot Medical Center in Erie, Pennsylvania, for his advice on statistics.*

### *Author disclosures*

*The authors report no actual or potential conflicts of interest with regard to this article.*

### *Disclaimer*

*The opinions expressed herein are those of the authors and do not necessarily reflect those of* Federal Practitioner, *Quadrant HealthCom Inc., the U.S. Government, or any of its agencies. This article may discuss unlabeled or investigational use of certain drugs. Please review complete prescribing information for specific drugs or drug combinations—including indications, contraindications, warnings, and adverse effects—before administering pharmacologic therapy to patients.*

## REFERENCES

1. The Diabetes Control Complications Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med.* 1993;329(14):977-986.
2. American Diabetes Association. Diagnosis and classification of diabetes mellitus. *Diabetes Care.* 2012;35(suppl 1):s64-s71.
3. Blonde L, Rosenstock J, Triplitt C. What are incretins, and how will they influence the management of type 2 diabetes? *J Manag Care Pharm.* 2006;12(7 suppl A):s14-s16.
4. Carlson B. Shared appointments improve efficiency in the clinic. Managed Care Web site. http://www.managedcaremag.com/archives/0305/0305.sharedappointments.html. Published May 2003. Accessed October 10, 2011.
5. Masley S, Sokoloff J, Hawes C. Planning group visits for high-risk patients. *Fam Prac Manag.* 2000;7(6):33-37.
6. Smith S, Bury G, O'Leary M, et al. The North Dublin randomized controlled trial of structured diabetes shared care. *Fam Pract.* 2004;21(1):39-45.
7. Hoskins PL, Fowler PM, Constantino M, Forrest J, Yue DK, Turtle JR. Sharing the care of diabetic patients between hospital and general practitioners: does it work? *Diabet Med.* 1993;10(1):81-86.
8. Naik AD, Palmer N, Petersen NJ, et al. Comparative effectiveness of goal setting in diabetes mellitus group clinics: Randomized clinical trial. *Arch Intern Med.* 2011;171(5):453-459.