Pharmacist-managed diabetes mellitus program in the underserved population: improving care through a comprehensive patient-centered approach

Yennie Quach PharmD[1,2], Michel Daher PharmD[1,2], Matthew Atkinson BA[1], Samaneh Zhian BS, MS[1]
Jessina McGregor PhD[1], Harleen Singh PharmD, BCPS[1,2]

[1]Oregon State University/Oregon Health & Science University College of Pharmacy, Portland, OR; [2]Central City Concern, Portland, OR

BACKGROUND

❖ Diabetes mellitus management (DM) in underserved populations is challenging due to poverty, homelessness, addiction, mental health comorbidities, lack of safe place to store medications, and inability to coordinate medications with meals

❖ The underserved population has the highest risk of DM related emergency department visits

❖ These challenges can be overcome by building a robust self-sustained program that delivers patient specific care to overcome or eliminate barriers to DM management

OBJECTIVES

❖ Develop and implement a pharmacist-managed DM program

❖ Provide comprehensive patient-centered care to enhance DM self-management in the underserved

METHODS

Patient Setting:

❖ The Old Town safety net clinic offers primary care, wound care, pharmacy, psychiatry, occupational therapy, laboratory, and acupuncture services

❖ Care provided to >600 patients with DM, and approximately 300 patients with pre-diabetes

❖ 22% have glycosylated hemoglobin (A1C) >9%

Criteria for DM Program Enrollment:

❖ In August 2013, the clinic implemented a pharmacist-managed DM program

• Goal is to assist the patients in achieving A1C goal and enhance disease knowledge and competence through DM educational classes

❖ Targeted population:
• Age ≥ 18 years
• Newly diagnosed with type 2 DM (T2DM)
  Or
  Uncontrolled T2DM with an A1C>7.5%
• Not under care of a diabetes specialist

Program Elements (Figure 1):

1. Initial enrollment into the program and initial visit
2. Individual/group DM self-management education
3. Individual follow-up visits to assess optimal therapy

METHODS CONTINUED

Evaluation:

❖ Disease Management:
• A1C measured at baseline and after 12-weeks
❖ DM Classes evaluated by pre/post questionnaire
• DM Knowledge with 4-6 multiple choice questions
• Competency assessed by likert scale questions

Data Analysis:

❖ Primary outcomes: change in A1C, number achieving A1C goal <7.5%, survey responses
❖ Paired t-tests used to compare change over time

Figure 1. Overview of DM Program Activities
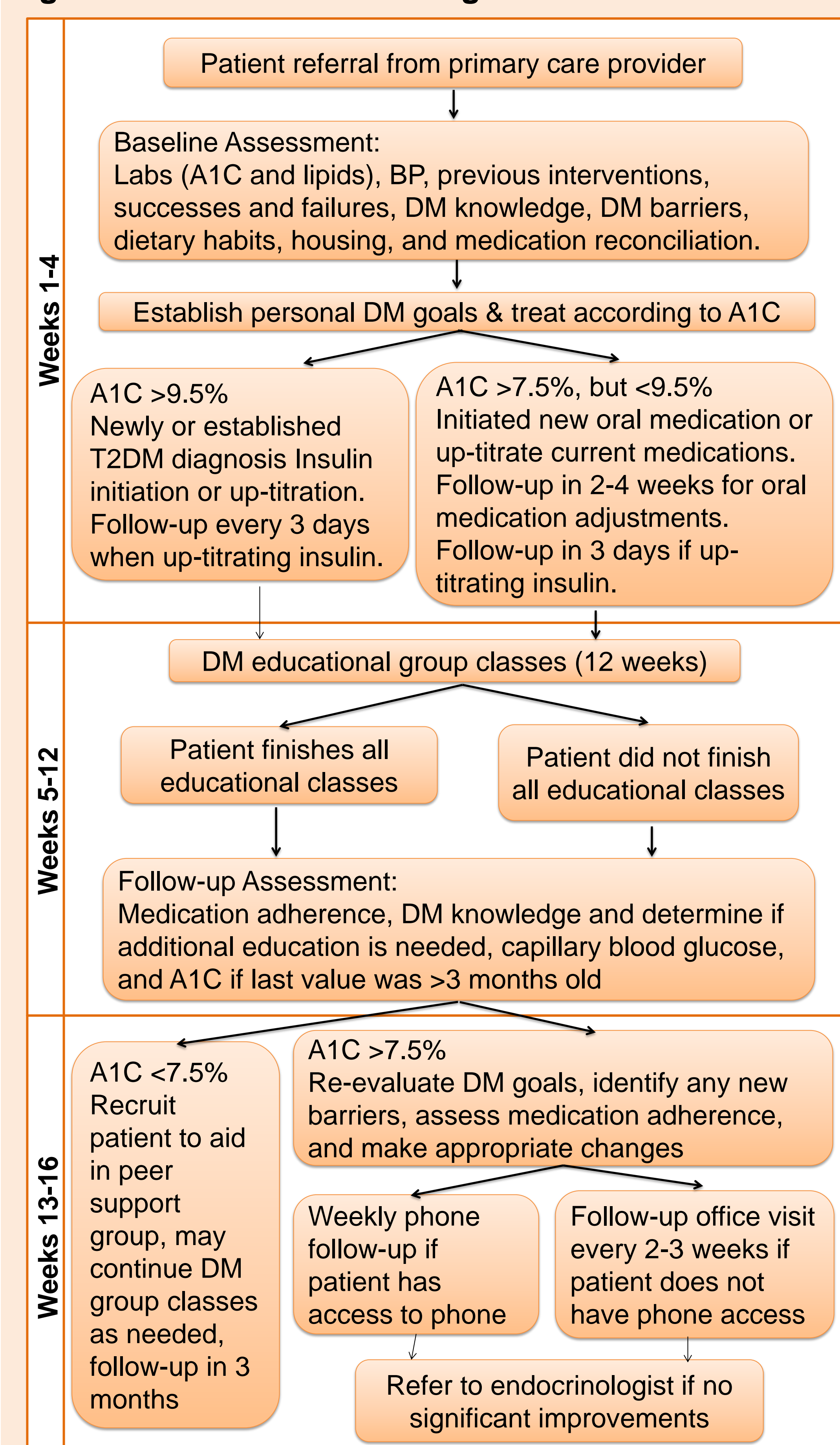
RESULTS

Table 1. Baseline Characteristics

Characteristics	Study Group (N=40)
Age (yr)	53.7 ± 8.3
Male	19 (47.5%)
Race or ethnicity	
African American	9 (22.5%)
Caucasian	22 (55%)
Hispanic	7 (17.5%)
Native American	2 (5%)
Lab Values	**Mean Values**
A1C (%)	9.5% ± 2.4%
LDL (mg/dL)	111.7 ± 39.9
Systolic BP (mmHg)	127 ± 17.8
Diastolic BP (mmHg)	77.7 ± 13
Comorbidities	
Coronary Artery Disease	8 (20%)
Dyslipidemia	22 (55%)
Hypertension	19 (47.5%)
Bipolar	7 (17.5%)
Major Depressive Disorder	19 (47.5%)
Schizophrenia	5 (12.5%)
Substance Abuse	18 (45%)
Treatment	
Oral medication only	16 (41%)
Insulin only	2 (5.1%)
Oral medication and insulin	21 (53.8%)
Filling Pharmacy	
Central City Concern	30 (75%)

Figure 2. Frequency of Patients at A1C Goal
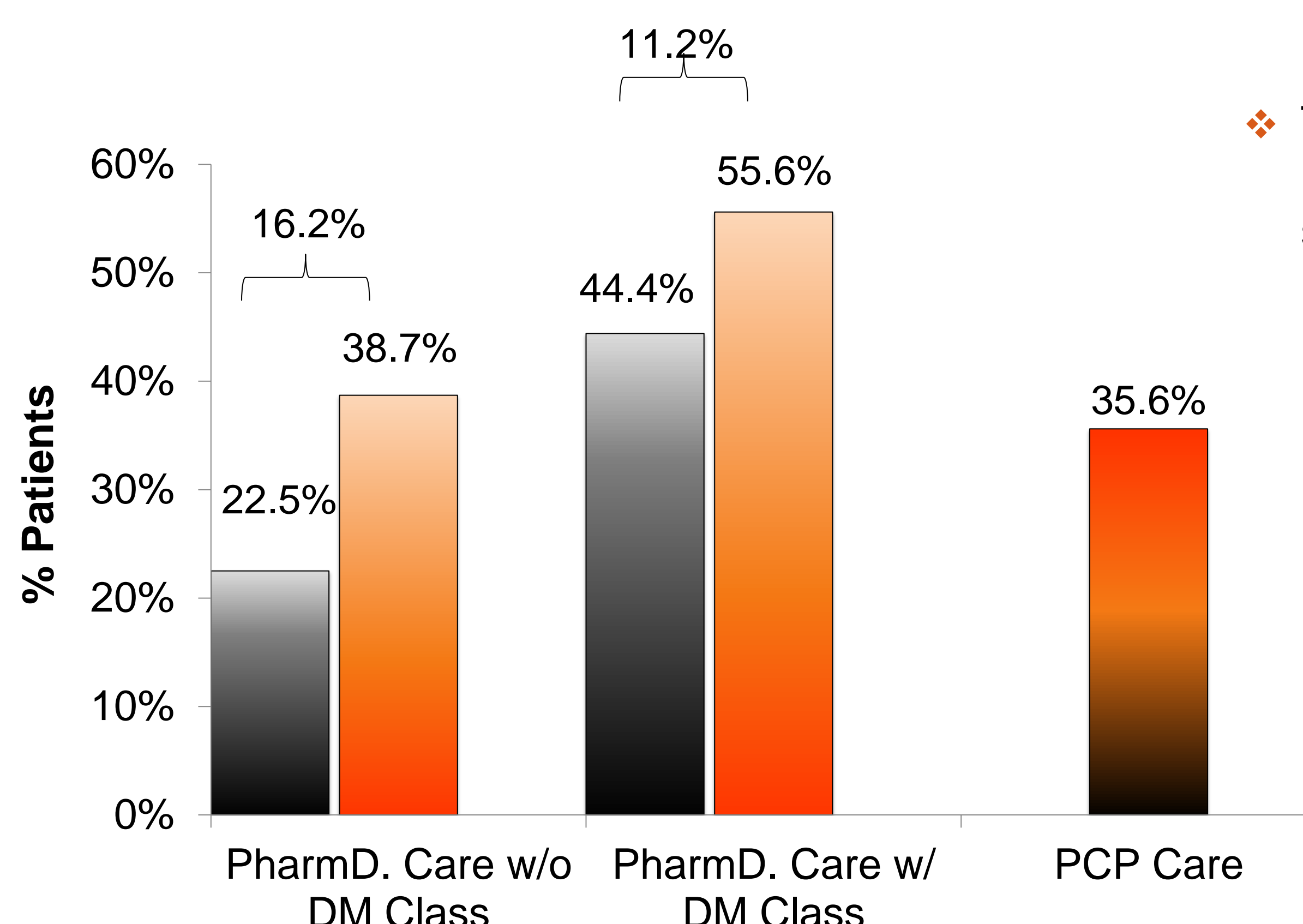
RESULTS CONTINUED

Patient Characteristics

❖ >100 patients enrolled in DM program

❖ To date, 40/100 (40%) patients have pre and post A1C values for comparison (Table 1)

❖ 25/100 (25%) engaged in educational classes
• 9/25 (36%) have pre and post A1C values

Change in A1C

❖ Median A1C change is 0.75% (range: 0-2.75%)

❖ Median A1C change among those enrolled in educational classes is 1.4% (range: 0.9-3.4%)

Achievement of A1C Goal (Figure 2)

❖ 17/40 (43%) achieved A1C goal of <7.5% at follow-up

DM Knowledge and Competency

❖ Mean score improvement for DM knowledge questions is 32.5%

❖ Mean improvement in self-assessed DM management competency is 18.5%

CONCLUSION

❖ A higher percentage of patients enrolled in the pharmacist-managed DM program met A1C goal compared to standard PCP care

❖ Strategies such as appointment reminders, walk-in appointments, flexible scheduling, assistance with housing and food, daily medication dispense, and frequent follow-ups contributed to the success in managing DM in this complex population

❖ The results of this study suggest that the incorporation of pharmacy services into primary care setting may positively impact the management of DM and other chronic disease states