



OHIO PHARMACISTS IMPROVE CHRONIC CARE MANAGEMENT FOR PATIENTS WITH DIABETES

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INTRODUCTION

- Almost 24 million Americans currently have diabetes and millions more are at risk for diabetes.¹ Diabetes is a leading cause of blindness, amputations, and kidney failure.
- Chronic illness care for disease states like diabetes, can be improved by the provision of Medication Therapy Management (MTM).
- MTM is a partnership of the pharmacist, the patient or their caregiver, and other health professionals that promotes the safe and effective use of medications and helps patients achieve the targeted outcomes from medication therapy.²
- MTM programs, such as the Asheville project, document pharmacists' successes in improving health outcomes for diabetes patients in an employer group in North Carolina.³
- Ohio pharmacists are providing such MTM services in Northwest Ohio through the City of Toledo Diabetes Medication Therapy Management (MTM) program.
- Programs like these showcase that pharmacists are in an optimal position to provide high-quality, cost-effective care for Ohioans.

OBJECTIVE

To measure the impact of an employer-sponsored, pharmacist-conducted Medication Therapy Management Program on Economic, Clinical, and Humanistic Outcomes and process measures.

METHODS

Study Design:
This is a prospective, pre-post longitudinal study.

Program Setting:
The MTM program is provided at one of seven independent pharmacy sites in Toledo, OH. These include The Pharmacy Counter Pharmacy (three locations), Glenbyrne Pharmacy, Kahler Pharmacy, Erie Drugs, and Ryan Pharmacy.

Key Players: City of Toledo employees and their dependents are the target audience for the City of Toledo Diabetes MTM program. This program is funded by the National Business Coalition of Health. Partnering organizations include the FrontPath Coalition, The City of Toledo, members of the PharmacistCare™ coalition, and The Pharmaceutical Care and Outcomes Research (PCOR) laboratory at The University of Toledo. The PCOR lab conducts all statistical evaluations.

Inclusion/Exclusion Criteria:
Patients are eligible for the study if the City of Toledo is their primary provider for medical insurance and prescription coverage. Study participants must be currently taking medications for Type 2 Diabetes. Participants must understand English and have transportation to a PharmacistCare™ coalition pharmacy.

Sample Size:
Currently 90 patients have been enrolled.

Study Duration :

The MTM program will be conducted over a one-year time period, beginning January 15th, 2008 and ending on February 29th, 2009.

DATA COLLECTION

Data for various economic, clinical and humanistic outcomes are collected at six time points: baseline visit, visit 1 (one month from baseline visit), and then at visits 2 through 5 (every 3 months from visit 1).

The clinical and humanistic outcomes are measured at the baseline visit, and every 3 months thereafter.

Economic outcomes are measured at baseline and 6 and 12 month intervals.

Humanistic outcomes included quality of life (using SF-36 v2), patient satisfaction, adherence with medications, and knowledge about diabetes. Humanistic outcomes are collected at staggered intervals.

STATISTICAL ANALYSIS

The Wilcoxon-Signed rank test is used to compare variables at two time points.

Preliminary data analysis for the period between the baseline visit and 3-month visit is presented here.

RESULTS

Outcomes/Measures	Variables	Available Data (N)	Baseline Visit Mean	3-Month Visit Mean	Increase (!) Decrease (!)
Clinical	HgbA1c	47	7.59	7.40	↓
	Systolic BP (mmHg)	46	133.00	130.30	↓
	Diastolic BP (mmHg)	46	82.74	79.70	↓*
	BMI	45	36.77	36.48	↓
Social	Caffeine (bev/day)	50	1.75	1.55	↓
	Alcohol (bev/day)	38	0.214	0.212	↓
	Smoking (packs/day)	50	0.142	0.125	↓
	Exercise (hrs/week)	47	1.28	1.29	↑
Process	Sick Days (past 3 mo)	48	1.11	0.27	↓
	SMBG (times/day)	50	1.46	1.93	↑*
	Hypoglycemic Episodes (past 3 mo)	48	1.97	1.23	↓*

*Statistically significant, p=0.05

Survey	Available Data (N)	Mean Score (Baseline)	Mean Score (3-month visit)
Patient Satisfaction	50	3.46	4.17*
Patient Adherence	50	3.76	4.20*

*Statistically significant, p=0.05

Tests	Available Data: (N)	Mean # of Correct Responses (Baseline)	Mean # of Correct Responses (1-month visit)	Significance
Diabetes Knowledge	63	8.02	8.65	significant increase (p=0.001)
Hypertension Knowledge	40	8.33	8.70	non-significant increase (p=0.117)
Hyperlipidemia Knowledge	38	7.45	7.79	non-significant increase (p=0.276)

Knowledge tests are scored on a scale of 1-10. (1= low knowledge and 10= high knowledge about disease state)

DISCUSSION

- Study results to date are very promising. Hemoglobin A1c levels have decreased. A reduction in Hemoglobin A1c levels of 1% has been shown to reduce long-term microvascular/macrovascular complications.⁴
- Systolic blood pressure has decreased from baseline to the 3-month visit, and has approached the American Diabetes Association (ADA) goal of 130 mmHg. Diastolic blood pressure has significantly decreased and reached the ADA goal of 80 mmHg.⁵
- Patients have experienced a reduction in caffeine, alcohol, and smoking as a result of the pharmacist intervention. Patients have also increased time spent exercising every week.
- Process measures have also shown improvement. Sick days have decreased, hypoglycemic episodes have significantly decreased, and self-monitoring of blood glucose has significantly increased.
- Patient satisfaction with pharmacist services and patient adherence to their medication regimens have also significantly increased.
- Disease state knowledge has increased for diabetes, hypertension, and hyperlipidemia. Knowledge increases are statistically significant for diabetes.

CONCLUSION

- Pharmacist interventions have successfully improved clinical, social, process, and humanistic measures from baseline to the 3-month study visit.
- These interventions will result in overall improvements in health of City of Toledo employees, and a reduction in costs related to diabetes-related complications.
- Pharmacists are instrumental in maintaining a healthy, productive workforce.

Pharmacists should be considered as key health care providers capable of transforming Ohio's health care system into a high quality, cost-effective, high performing system that optimizes the health of Ohioans by 2013.

References
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