Collaborative Academic-Community Partnership in the Provision of a Medication Therapy Management Service for Medicaid Beneficiaries in Rural Arizona

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BACKGROUND

- The Medicaid Program currently provides healthcare for 72 million low-income beneficiaries
- Medication therapy management (MTM) produces positive health outcomes and contains costs for Medicare beneficiaries, yet no mandate currently requires MTM services (e.g., comprehensive medication reviews) for Medicaid patients
- Limited research on MTM's effectiveness in Medicaid populations has shown cost savings[1], improved adherence[2] and enhanced quality of prescribing[3]
- In 2014, the University of Arizona Medication Management Center (UAMMC) created a novel pilot program to collaborate with community health centers in provision of comprehensive MTM services for rural Arizonans

OBJECTIVES

- To evaluate a collaborative MTM program, utilizing telephonic and community-based clinical pharmacy services in improving health indicators among rural, Medicaid beneficiaries with chronic disease

METHODS

- The University of Arizona Institutional Review Board (IRB) deemed this program evaluation
- *Community Site Roles*
  - Staff from two collaborating community-based clinics recruited and enrolled eligible Medicaid beneficiaries in to the program
  - To participate, patients met these qualification criteria: (1) had a diagnosis of diabetes mellitus (DM) and/or hypertension (HTN); (2) sought primary health care at a collaborating clinic; and (3) were between 18 and 64 years of age
  - Patient medication lists were obtained from clinics via electronic health record (EHR) or facsimile. Other pertinent health information was collected via EHR and/or patient self-report
- *University of Arizona Medication Management Center (UAMMC) Role*
  - Pharmacy staff conducted initial, telephonic MTM consultations per the American Pharmacist Association's (APhA) MTM Core Elements Service guidelines
  - Patients received a follow-up (F/U) telephone call at 3 or 6 months post-initial consultation for high- and non-high risk patients, respectively. Patient's were considered "High Risk" if predetermined criteria were met (see below)

METHODS (CONT.)

High-Risk Criteria

- High-risk patients met at least one of the following criteria:
  - DM: A1c >7%; fasting blood glucose (FBG) >130; frequent hypoglycemia; presence of DM complications; or missing preventive screenings
  - HTN: Blood pressure not at the predetermined, individualized goal per national treatment guidelines
  - Respiratory: Uncontrolled symptoms, confusion regarding inhaler use
  - Congestive Heart Failure: Fluid overload symptoms, missing fluid management plan
  - Adherence: Any non-adherence with medications defined as a patient forgetting a dose six or more days out of 30, per patient self-report

Data Collection and Analysis

- Data collection took place from January 1, 2016 to December 31, 2016
- At both the initial and follow-up consultations, the UAMMC pharmacist assessed the following clinical indicators/measures via the EHR or as per patient self-report:
  - Laboratory values/self-monitoring - A1c, fasting blood glucose, systolic and diastolic blood pressure
  - Medication-related problems (MRPs) - therapeutic duplications, interactions (drug-disease, drug-drug), and adverse drug reactions
  - Health promotion - vaccine status (influenza, pneumonia, shingles) and patient understanding of hypoglycemia management, if applicable
  - Medication adherence – Patient self-report of the number of days with a missed dose out of 30 days

RESULTS

Demographics

- A total of 88 patients participated in the program
- Patients had an average of 1.2 chronic conditions (SD: 1.01)
- The majority of participants were female (65%) and Hispanic (65%)
- The median age of participants was 50-59 years old
  - **Table 1** describes patient demographic characteristics

Table 1. Patient Demographics

	SITE 1 (n=54)	SITE 2 (n=34)	TOTAL (n=88)
Gender	**n (%)**	**n (%)**	**n (%)**
Male	12 (22)	19 (56)	31 (35)
Female	42 (78)	14 (44)	57 (65)
Ethnicity			
Hispanic	54 (100)	3 (9)	57 (65)
Non-Hispanic	0 (0)	27 (79)	27 (31)
Did not disclose	0 (0)	4 (12)	4 (5)
Age Group			
18-29	0 (0)	0 (0)	0 (0)
30-39	2 (4)	1 (3)	2 (4)
40-49	10 (19)	2 (6)	10 (19)
50-59	28 (52)	20 (59)	28 (52)
60-64	14 (26)	11 (32)	14 (26)

Laboratory Values and Self-Monitoring

- All measured biomarkers improved from initial to follow-up consultation, however only systolic blood pressure (p=0.008) was significantly improved
  - **Table 2** summarizes initial and follow-up laboratory and self-monitoring values

Table 2. Laboratory Values and Self-Monitoring

	n	Initial Mean	F/U Mean	*P* value
Hemoglobin A1c (%)	40	7.9	7.7	0.10
Fasting blood glucose (mg/dL)	41	139	135	0.25
Systolic blood pressure (mmHg)	54	135	130	0.008
Diastolic Blood Pressure (mmHg)	54	80	78	0.17

Medication Adherence

- A significant improvement in patient adherence was observed (p=0.002), from pre-to post evaluation
  - **Table 3** summarizes initial and follow-up medication adherence

Table 3. Medication Adherence

	n	Initial Mean (SD)	F/U Mean (SD)	*P* value
Number of days with a missed dose in the last 30 days	55	1.65 (4.3)	0.31 (1.1)	0.002

Health Promotion/MRPs

- A total of **199** interventions (including vaccine recommendations, MRPs identified, and education on hypoglycemia management) were identified, resulting in an average of **2.26** interventions per patient (SD: 1.66)
- A total of 46 patients required education on appropriate management of hypoglycemia
  - **Table 4** summarizes vaccine recommendations made and MRPs identified

Table 4. Health Promotion

	# of clinically qualified patients	# of recommendations made
Vaccinations	**n**	**n (%)**
Flu	29	12 (41)
Pneumonia	68	35 (51)
Shingles	25	21 (84)
	# of patients	**# of MRPs identified**
MRPs	**n**	**n (%)**
Therapeutic duplications	88	15 (17)
Drug-disease interactions	88	26 (30)
Drug-Drug Interactions	88	30 (34)
Dose-related concerns	88	3 (3)
Adverse reactions	88	11 (13)

DISCUSSION

- All measured biomarkers showed clinically significant improvement, which is encouraging given the short follow-up period between initial and follow-up consultations
- The statistically significant improvement in adherence during the 6-month follow-up period suggests the need for and benefit of MTM-delivered medication education for this Medicaid sample population
- Although both collaborating sites operated under the medical home model, designed to increase coordination of care and preventative services, the pilot program demonstrated improved safety by providing an average of 2.26 (SD: 1.66) health promotion interventions per patient
- Vaccine compliance was another area of great need as the majority of eligible patients were missing the shingles (84%) and pneumonia vaccines (51%)
- Limitations include:
  - Rolling recruitment during the program resulted in 22% of patients lost-to-follow up
  - Voluntary patient enrollment may have introduced inherent self-selection bias
  - Small sample size and lack of a control group limit generalizability of these results
  - EHR was available at only one site (Site 1)

CONCLUSIONS

- This pilot program evaluation provides initial evidence that collaborative academic-community partnerships, in provision of MTM services, may offer a feasible option to increase medication adherence, decrease MRPs, and improve health monitoring and associated markers among Medicaid beneficiaries in rural Arizona
- Future work is needed to: study provider and patient acceptance rates resulting from collaborative MTM interventions; engage more diverse Medicaid populations in other outpatient settings; and address other health outcomes

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