EL RIO COMMUNITY HEALTH CENTER

TUCSON, ARIZONA

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EL RIO
COMMUNITY HEALTH CENTER

APhA FOUNDATION

PROJECT IMPACT
IMPROVING AMERICA'S COMMUNITIES TOGETHER

About the Community and Patients

- Community
  - Federally Qualified Health Center, University of Arizona College of Pharmacy, Health Services Advisory Group (HSAG)
  - Collaboration to develop workforce (students/residents) and sustainability initiatives to spread
- Patients
  - 114 patients cared for within Project IMPACT: Diabetes
  - 71.9% Hispanic, 18.4% Caucasian, 6.1% American Indian, 3.5% Other
  - 59.6% Female vs 40.4% Male
  - Approximately 1/3 uninsured

Process of Care & Role of Pharmacists

- Collaborative Practice Agreement/Standing Orders
- Use of Patient Self-Management Credential was new
- Patient experience
  ◦ Pharmacist visits
  ◦ Frequency of lab testing/data collection
  ◦ In-house eye exam, foot exam by pharmacist
- Collaborative Drug Therapy Management, Patient-Centered Medical Home, and an Accountable Care Organization

Final Results

	N =	Baseline	Most Recent	Change to Date	P Value	Days Experience
A1C	112	9	8.5	-0.5	0.001	443.9
BMI	98	34.7	34.6	-0.1	0.294	407.9
Systolic BP	102	120.4	121.8	1.5	0.211	398.3
Diastolic BP	102	70.2	71.2	1.0	0.208	398.3
LDL-C	84	95.3	99.4	4.1	0.151	135.5
HDL-C	84	44.0	43.6	-0.4	0.414	135.5
Triglycerides	84	198.7	181.4	-17.2	0.111	135.5
Total Cholesterol	84	179.0	178.9	-0.1	0.486	135.5

Increasing Patient Access and Improving Patient Outcomes in Diabetes through Pharmacy-Based Disease Management Services

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Introduction

- Diabetes Mellitus (DM) is a major cause of morbidity and mortality in U.S. with costs exceeding $245 billion in 2012,
- Systematic approaches of care for DM may improve measures of care including glucose, blood pressure (BP), lipids, and glycosylated hemoglobin A1C,
- Such approaches may also increase appropriate use of aspirin (ASA) and angiotensin converting enzyme inhibitors (ACEIs) or angiotensin-renin blockers (ARBs), when appropriate
- Since August 2001, El Rio Health Center (El Rio) has provided a pharmacist-managed DM clinic, partly under the auspices of Arizona HB 2415
- This bill allows qualified pharmacists to establish collaborative agreements with providers and patients in practices sites that establish those relationships.

Objective

- To evaluate changes in metabolic parameters, BP, ASA, statin and ACEI/ARB use before and after patient enrollment into the El Rio DM pharmacist-managed clinic
- To provide increased access to DM care for patients

Methods

- A Microsoft Access® database was created in February 2002 incorporating quality of care measures based on American Diabetes Association and other guidelines along with local expert opinion,
- Retrospective data were entered from a previous software program used since August 2001, then prospectively entered through April 11, 2014,
- Data collected included demographics, medical history, medications, various laboratory measures, vitals, preventive services, and SOAP notes
- The database integrity was validated with an in-depth review of the first 43 patients along with routine audits,
- All patients who were categorized as active, discharged (DC) controlled or DC death/moved, and had at least one follow-up for the parameter measured ≥ 90 days were included; patients who were "no shows" for initial visit were excluded,
- A paired t-test was used for comparison of continuous data; confidence intervals and 2 proportion testing were used for percentage and proportion comparisons
- Significance was set with alpha = 0.05; all statistical analyses were performed with Minitab® version 15.

Table 1. Patient Demographics (n=2007)*

Characteristic		Number (%)
Age:	Average	60.4 years (13.77 SD)
Gender:	Female/Male	1200 (60)/807 (40)
Ethnicity:	African American	37 (1.8)
	Caucasian	233 (12)
	Hispanic	1098 (55)
	Native American	598 (30)
	Asian	8 (0.4)
	Other	33 (1.6)
PMH:	Smoker	334 (17)
	Type 1/ Type 2 Diabetes**	71 (4)/1879 (94)
	Hypertension	556 (28)
	Coronary Artery Disease	264 (13)
	Peripheral Vascular Disease	62 (3)
	TIA/CVA/Carotid Disease	71 (4)

Table 2. Changes in Metabolic and BP Measures: Baseline to Follow-Up*

| Parameter	# Pts	Baseline (Mean)	FU (Mean)	Diff.	95% CI	P-value
TC (mg/dL)	2006	190	173	17	15 to 19	<0.001
TG (mg/dL)	2003	225	185	40	29 to 50	<0.001
HDLc (mg/dL)	1995	42	43	-0.5	-1.0 to -0.05	0.026
LDLc (mg/dL)	1904	105	95	9	9.5 to 12.9	<0.001
SBP (mm/Hg)	1975	123	124	-0.5	-1.6 to 0.105	0.052
DBP (mm/Hg)	1975	74	72	1.9	1.3 to 2.4	<0.001
A1C (%)	1992	9.6	8.4	1.2	1.1 to 1.3	<0.001
Gluc (mg/dL)	1991	202	178	24	12 to 29	<0.001
BMI (kg/m²)	1879	33.6	34.7	-1	-2.6 to 0.7	0.229
GFR‡	795	84	79	5	2 to 7	<0.001

*Numbers rounded to nearest whole number except for A1C. ‡GFR (Glomerular Filtration Rate): (186 x Creatinine $^{-1.154}$) x Age $^{-0.203}$ x 0.742 (if Female) x 1.21 (if African American)

Graph 1. % Patients in Each A1C Range: Baseline to Follow-Up (n=1992)*
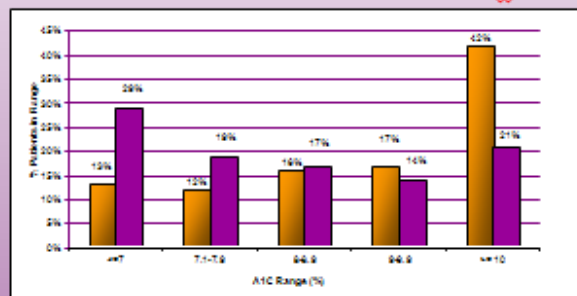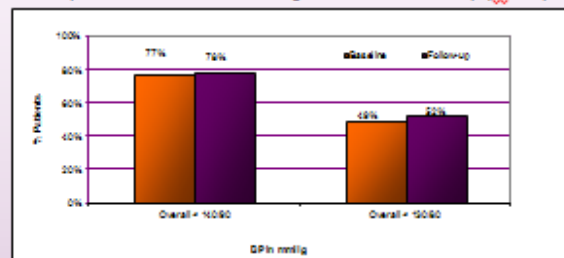

*P<0.05 for all A1c ranges except 8-8.9% P=0.254
% rounded to nearest whole number and may not equal 100%

Graph 2. % Patients in Each LDLc Range: Baseline to Follow-Up (n=1904)*
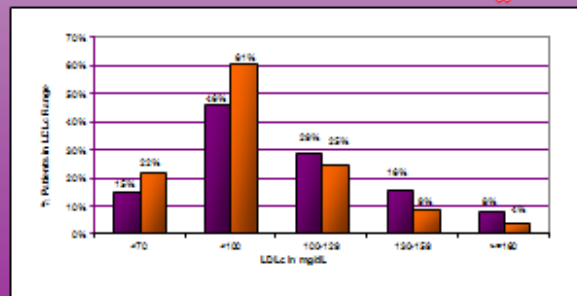
* All comparisons P≤ 0.001
% rounded to nearest whole number and may not equal 100%

Graph 3. Patients in Each BP Range: Baseline to Follow-Up (n=2007)*

*P=0.448 for <140/90 and P = 0.043 for <130/80. % rounded for both measures.

Table 3. % Patients on ASA/ACEIs-ARBs/Statins: Baseline to Follow-Up*

Parameter	# Pts	Baseline (%)	FU #	FU (%)	Diff. (%)	95%CI	P-value
ASA	885	45%	1461	94%	49%	0.45 to 0.53	<0.001
ACEI/ARB	1052	56%	1453	87%	31%	0.26 to 0.35	<0.001
Statin	932	38%	1376	75%	37%	0.3 to 0.4	<0.001

*230 patients with ASA contraindication; 287 patients had contraindication to ACEI/ARB; 77 patients had contraindication listed to statin medications

Results

- A total of 2007 patients met the inclusion criteria from 01/01/2001 through 4/11/14,
- The mean days in clinic were 1220 (SD 1138, range 90-4596)
- There were statistical differences favoring follow-up over baseline for most of the measures.
- Approximately 23,768 more visits for DM care occurred over the 10 years of the clinic.

Conclusion

- This study shows the positive impact of a pharmacist managed DM service on dyslipidemia, glucose control, blood pressure and medications shown to reduce diabetes complications,
- Another analysis of preventive services showed similar results in eye exams, microalbuminuria testing, vaccinations and foot exams,
- While this data shows the positive impact of pharmacy services on DM for patients who attend appointments, improvements in management which embrace non-adherent patients are still needed.

Process Measures

- Eye exam in 89.7% of patients (n=87)
- Foot exam in 100% of patients (n=100)
- Influenza vaccine in 91.4% of patients (n=105)

Impact of Project IMPACT: Diabetes

- Knowledge assessment/change in knowledge was assessed formally for the first time
- Leveraged results, exposure and outcomes to secure funding from the Arizona Department of Health Diabetes Program
- Presented our results to the Patient Safety and Clinical Services Collaborative teams
- Was selected for a recent AADE grant for $320,000/4 years

Sustainability

- AADE Accreditation for DSMT Billing
- 340B Optimization
- AWV
- "Incident-to"
- Grants/Research
- Foundation
- Shared Revenue
- Employer-Based Contract