

RMED and MPH Capstone Project

- Diabetes Care in Full-Time versus Part-Time University Settings



- Improvement in Diabetes Care with Flow Sheet Implementation

Background

- Full-time University Setting= Rockton, Mount Morris, and Shappert
- Part-time University Setting= LaSalle and Spring Valley

- Flow sheet implemented at Spring Valley Clinic in 1998
- Flow sheet collects data for all above measures every 3 months

Measures Compared

- Chart audits collected data on :
 - HbA1c (Checked/Not Checked and $<8.5/ \geq 8.5$)
 - Lipids (Checked/Not Checked and TX adjusted if LDL ≥ 100 and ≥ 130)
 - Dilated Eye Exam (Yes/No)
 - Foot Exam (Yes/No)
 - Microalbuminuria (Checked/Not Checked)

Methods

- UPCC chart review in collaboration with 2nd year medical students (N= 313)
 - 2004 data collected in Feb-March 2005 as part of multi-year Quality Improvement Study
- Spring Valley chart audit (N= 51)
- LaSalle chart audit (N= 15)
 - Both Spring Valley and LaSalle charts were audited for both 2003 (not used in analysis) and 2004
- SPSS 12.0 used to analyze the data
- Contingency table analysis performed and Chi Square used to test statistical significance of difference between the 2 groups (p set at .05)

DIABETES CARE

Clinic site: Mt. Morris Shappert Rockton FHC Spring Valley

Patient Demographics

Gender: ___ Male ___ Female *Year Of Birth:* _____ *Age:* _____

Race: Caucasian African American Asian Hispanic other

Payor Source: Medicare Medicaid private insurance out of pocket

Type of diabetes: Type I Type II *Year Diagnosed:* _____

AUDIT ITEMS	Yes	No
Annual Exam (yes requires a complete history and physical exam but not necessarily a genital exam)		
Dilated Eye Exam (documentation, either by patient report or consultant note, of completed eye exam in past 12 months by ophthalmologist or optometrist) date: __/__/__		
Foot Exam (needs to include documentation of sensory exam) result (most recent): intact/not date: __/__/__		
HBA1C result (most recent): _____ date: __/__/__		
Renal Disease (positive if known proteinuria or diabetic NEPHROPATHY)		
Urinalysis (any u/a done in 12 months) result (most recent): positive/negative date: __/__/__ (Positive result = urine dip protein 1+ or greater)		
Microalbuminuria (any MICROALBUMINURIA test in past 12 months) result (most recent): positive/negative date: __/__/__ (Positive result >30 ug albumin per mg creatinine for spot urine or >30mg albumin per 24hours)		
Lipids (was an LDL cholesterol done in past 12 months) result: _____ date: __/__/__		
was TX adjusted if LDL > 100?		

HbA1c Checked

		UPCC OR RMED SITE				Total
		UPCC	LASALLE	SPRING VALLEY		
HBA1C CHECKED	NO	Count	26	3	4	33
		% within UPCC OR RMED SITE	8.3%	20.0%	7.8%	8.7%
	YES	Count	287	12	47	346
		% within UPCC OR RMED SITE	91.7%	80.0%	92.2%	91.3%
Total		Count	313	15	51	379
		% within UPCC OR RMED SITE	100.0%	100.0%	100.0%	100.0%

HbA1c Value

			UPCC OR RMED SITE			Total
			UPCC	LASALLE	SPRING VALLEY	
A1C CODE RESULT	<8.5	Count	220	12	44	276
		% within UPCC OR RMED SITE	70.3%	80.0%	86.3%	72.8%
	≥8.5	Count	46	2	6	54
		% within UPCC OR RMED SITE	14.7%	13.3%	11.8%	14.2%
	NO A1C RESULT RECORD	Count	47	1	1	49
		% within UPCC OR RMED SITE	15.0%	6.7%	2.0%	12.9%
Total	Count	313	15	51	379	
	% within UPCC OR RMED SITE	100.0%	100.0%	100.0%	100.0%	

HbA1c Checked P-Values HbA1c Values

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.081	.284
N of Valid Cases		379	
a Not assuming the null hypothesis.			
b Using the asymptotic standard error assuming the null hypothesis.			

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.145	.085
N of Valid Cases		379	
a Not assuming the null hypothesis.			
b Using the asymptotic standard error assuming the null hypothesis.			

Lipids Checked

			UPCC OR RMED SITE			
			UPCC	LASALLE	SPRING VALLEY	Total
LIPIDS CHECKED	NO	Count	60	3	7	70
		% within UPCC OR RMED SITE	19.2%	20.0%	13.7%	18.5%
	YES	Count	253	12	44	309
		% within UPCC OR RMED SITE	80.8%	80.0%	86.3%	81.5%
Total		Count	313	15	51	379
		% within UPCC OR RMED SITE	100.0%	100.0%	100.0%	100.0%

Lipids Value

			UPCC OR RMED SITE			Total
			UPCC	LASALLE	SPRING VALLEY	
LIPIDS CONTROLLED	NO LIPIDS RESULTS RECORDED	Count	43	0	2	45
		% within UPCC OR RMED SITE	13.7%	.0%	3.9%	11.9%
	NO, LDL >=130	Count	85	2	17	104
		% within UPCC OR RMED SITE	27.2%	13.3%	33.3%	27.4%
	YES, LDL <130	Count	185	13	32	230
		% within UPCC OR RMED SITE	59.1%	86.7%	62.7%	60.7%
Total	Count	313	15	51	379	
	% within UPCC OR RMED SITE	100.0%	100.0%	100.0%	100.0%	

Lipids Checked P-Value Lipids Value

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.048	.642
N of Valid Cases		379	
a Not assuming the null hypothesis.			
b Using the asymptotic standard error assuming the null hypothesis.			

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.152	.061
N of Valid Cases		379	
a Not assuming the null hypothesis.			
b Using the asymptotic standard error assuming the null hypothesis.			

Treatment Adjusted if LDL > 100

			UPCC OR RMED SITE			Total
			UPCC	LASALLE	SPRING VALLEY	
TX ADJUSTED FOR LIPIDS IF LDL > 100	N/A	Count	124	11	26	161
		% within UPCC OR RMED SITE	39.6%	73.3%	51.0%	42.5%
	NO	Count	90	3	16	109
		% within UPCC OR RMED SITE	28.8%	20.0%	31.4%	28.8%
	YE	Count	99	1	9	109
		% within UPCC OR RMED SITE	31.6%	6.7%	17.6%	28.8%
Total	Count	313	15	51	379	
	% within UPCC OR RMED SITE	100.0%	100.0%	100.0%	100.0%	

Dilated Eye Exam

			UPCC OR RMED SITE			
			UPCC	LASALLE	SPRING VALLEY	Total
DILATED EYE EXAM DOCUMENTED	NO	Count	151	9	39	199
		% within UPCC OR RMED SITE	48.2%	60.0%	76.5%	52.5%
	YE	Count	162	6	12	180
		% within UPCC OR RMED SITE	51.8%	40.0%	23.5%	47.5%
Total		Count	313	15	51	379
		% within UPCC OR RMED SITE	100.0%	100.0%	100.0%	100.0%

Treatment Adjusted P-value Dilated Eye Exam

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.168	.027
N of Valid Cases		379	
a Not assuming the null hypothesis.			
b Using the asymptotic standard error assuming the null hypothesis.			

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.191	.001
N of Valid Cases		379	
a Not assuming the null hypothesis.			
b Using the asymptotic standard error assuming the null hypothesis.			

Foot Exam Completed

		UPCC OR RMED SITE				Total
		UPCC	LASALLE	SPRING VALLEY		
FOOT EXAM COMPLETED	NO	Count	84	12	14	110
		% within UPCC OR RMED SITE	26.8%	80.0%	27.5%	29.0%
	YES	Count	229	3	37	269
		% within UPCC OR RMED SITE	73.2%	20.0%	72.5%	71.0%
Total		Count	313	15	51	379
		% within UPCC OR RMED SITE	100.0%	100.0%	100.0%	100.0%

Microalbuminuria Screen

			UPCC OR RMED SITE			
			UPCC	LASALLE	SPRING VALLEY	Total
MICROALBUMINURUA	NO	Count	149	15	48	212
		% within UPCC OR RMED SITE	47.6%	100.0%	94.1%	55.9%
	YES	Count	164	0	3	167
		% within UPCC OR RMED SITE	52.4%	.0%	5.9%	44.1%
Total		Count	313	15	51	379
		% within UPCC OR RMED SITE	100.0%	100.0%	100.0%	100.0%

Foot Exam Completed P-Value Microalbuminuria Screen

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.222	.000
N of Valid Cases		379	
a Not assuming the null hypothesis.			
b Using the asymptotic standard error assuming the null hypothesis.			

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.344	.000
N of Valid Cases		379	
a Not assuming the null hypothesis.			
b Using the asymptotic standard error assuming the null hypothesis.			

Conclusions

- Full-time university setting better at:
 - adjusting treatment if $LDL > 100$
 - referral for dilated eye exam
 - foot examinations
 - microalbuminuria screening
- Part-time university setting with better:
 - HbA1c screening
 - blood glucose control (measured by HbA1c)
 - lipid screening
 - lipid control (measured by $LDL < 130$)*
 - All are non-significant (p-value > 0.05)

- Flow-sheet implementation proved to be superior for all values, except control of lipids and referral for dilated eye examinations

Limitations

- Chart audit not always accurate
- Small number of patients in LaSalle
- Ages 18-65

Future Study

- Improvement in diabetes care in rural clinics over time (2003 and 2004)
- Comparison of clinics for 2003 data