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The Effects of a University-Based Academic Detailing Program for Primary Care Providers on Hemoglobin A1c Assessment Frequency in Type II Diabetics

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Executive Summary

Diabetes is a serious illness affecting millions of people in the United States today. The disease is characterized by the chronic and acute complications of poorly regulated blood glucose concentrations. These complications lead to significant morbidity and mortality in the diabetic population. It is estimated that diabetes accounts for over $1.9 billion in Kentucky healthcare expenditure annually, a figure that continues to grow each year. In order to address this serious public health problem, many states have adopted healthcare initiatives to target increased diabetes awareness and care. The Commonwealth of Kentucky has implemented numerous such initiatives, including an innovative program of university based academic detailing.

The Drug and Therapeutics Information Service (DATIS) is a program affiliated with the University of Kentucky College of Pharmacy designed to provide area primary care physicians with evidence-based guidelines for the treatment of public health concerns. This program utilizes clinical pharmacists to review current primary literature surrounding a topic of interest, prepare condensed reference materials based on the salient points of this literature, and participate in one-on-one academic detailing sessions with area providers. The program is currently funded by federal grants with the potential for transition to state support, prompting the need for audit.

Management of Type II diabetes was the initial focus of the DATIS group. The impact of the DATIS detailing sessions was assessed using Kentucky Medicaid data. The frequency of hemoglobin A1c assessment in the area of intervention was compared the frequency of assessment in a control area. Statewide hemoglobin A1c assessment was tracked over the same timeframe. No significant difference in assessment frequency was noted between the intervention and control areas. However, an overall statewide increase in assessment frequency was noted over the course of the analysis. These results suggest that further analysis may be necessary to determine the impact of the DATIS intervention on diabetes care in the Commonwealth of Kentucky.

The Effects of a University-Based Academic Detailing Program for Primary Care Providers on Hemoglobin A1c Assessment Frequency in Type II Diabetics

Diabetes is a chronic illness affecting millions of people in the United States today. The disease is characterized by persistently elevated blood glucose levels due to deficiencies in production or utilization of the hormone insulin. Type I diabetes, also known as insulin dependent diabetes or juvenile onset diabetes, results from insufficient pancreatic secretion of insulin. Cases of Type I diabetes are most often attributed to autoimmune or genetic causes and are largely unpreventable. Type II diabetes, also known as non-insulin dependant diabetes or adult onset diabetes, results from metabolic changes that make the body less sensitive to insulin. Most cases of Type II diabetes develop as a result of preventable metabolic changes. Risk factors for developing Type II diabetes include increasing age, obesity, and a sedentary lifestyle.

The consequences of uncontrolled diabetes are serious and far-reaching. Diabetic patients are predisposed to peripheral nerve damage, kidney damage, and ocular complications. Persistent hyperglycemia predisposes these patients to multiple infections, which commonly go unnoticed due to diabetes-associated neuropathies. Diabetics are also at much higher risks than the general population for adverse cardiovascular events. The combined effects of uncontrolled diabetes can lead to significant morbidity, mortality, and healthcare utilization.

In Kentucky over 350,000 individuals have diabetes, with many more cases currently undiagnosed [1]. It is estimated that 9.7% of the commonwealth's adult population suffers from the disease. The combined direct and indirect costs of diabetes in Kentucky approached $2.4 billion in 1999[2]. As the prevalence of childhood and

adolescent obesity increases, these costs are projected to rise dramatically over the next decade. With the impact on state sponsored healthcare in consideration, it is clear that diabetes control has become a crisis of public health and public finance in the Commonwealth.

Many approaches to increase awareness of recommended management of diabetic patients have been suggested. These include audit and feedback, continuing medical education, and academic detailing [3]. Audit and feedback approaches consist of brief objective examination followed by a review of practice guidelines. These approaches are most often undertaken by professional organizations such as the American Diabetes Association. Continuing medical education seeks to link competency with requirements for continued professional licensure. Credit toward continuing medical education requirements are most often gained through pharmaceutical industry-sponsored seminars or presentations. Each of these two approaches places greater focus on the message than the method of conveyance.

Academic Detailing

Academic detailing is an intervention that relies on developing a relationship between a physician and an educational visitor, most often a clinically trained pharmacist [4,,5,6]. The educational visitor seeks to establish this relationship by providing thoroughly researched, non-biased information to the physician as a public health service. Optimally, the educational visitor presents this information to the physician in a private session arranged at the physicians' convenience. Techniques of academic detailing emphasize one-on-one interaction, skilled interpersonal communication, and attention to the individual needs and interests of each physician [6,7]. The educational visitor also

serves as a drug information resource to the physician, reinforcing the role of as a provider of unbiased supportive information.

Academic detailing has demonstrated considerable efficacy as a method of behavior change [3,5,8]. The practice has been proven effective in improving the management of acute and chronic health conditions. To conduct an effective educational intervention, the detailer approaches the provider with the following goals:

- Assess baseline knowledge and motivations for current prescribing patterns
- Focus on specific disciplines and opinion leaders
- Define clear educational and behavioral objectives
- Establish credibility through respected organizational identity
- Present unbiased information, address each side of controversial issues
- Stimulate active participation in detailing sessions
- Highlight and repeat essential messages
- Provide positive reinforcement during follow-up visits

The above goals have been established as facets of effective detailing intervention [6].

Drug and Therapeutics Information Service (DATIS) is a continuing medical education program offering academic detailing services to physicians in Kentucky. The program was developed as a venture between the University of Kentucky College of Pharmacy and the University of Queensland with Repatriation General Hospital in South Australia [9]. The DATIS program was developed as a method to further the state public health services of the UK College of Pharmacy. This program utilizes clinical pharmacists as educational visitors to provide a health information service to area physicians.

The information provided by the educational visitor is targeted to address public health needs in the surrounding community. To this end, topics of discussion include prevalent chronic disease states that impose significant health and economic burdens to the public. Discussion topics are also chosen on the basis of potential impact, subjects where standards of care and therapeutic alternatives are constantly evolving. The DATIS program initially offered services to primary care physicians in Fayette County covering the topics of Type II Diabetes Management and Chronic Nonmalignant Pain. Since the program began in 2003, roughly 67% of primary care providers in the Fayette county region have participated in academic detailing sessions with DATIS representatives [9].

Once a topic is chosen, the clinical pharmacist conducts a thorough review of primary literature published on the subject. This information is evaluated based on regional relevance and the quality of the evidence provided. The information gathered from the literature is then used to create comprehensive reference manuals that are provided to physicians during the detailing sessions. These reference manuals, along with abbreviated graphic aids that convey a few key messages, are used as focal points for discussion. Periodic revision of these reference manuals is undertaken to assure the provided recommendations are accurate and up-to-date.

Program Funding

Initial financial support of the DATIS program was provided through the Centers for Disease Control and Prevention in August of 2002. This funding established the Lexington DATIS office, initially extending the service to Fayette County and the surrounding area. An extension of the original CDC funding has allowed the expansion of the DATIS services to Western areas of the state with the creation of an office in

Hazard, Kentucky. The program in its entirely is currently supported through the fall of 2005.

Recently the Commonwealth of Kentucky provided a letter of agreement offering additional funding for the DATIS program. The funds allocated by the State were to allow a continuation of services in Lexington, Hazard, and further expansion of the program into regions of Eastern Kentucky. However, the long-term fate of public funding for the DATIS program remains unclear. The recently allocated state funds were withdrawn pending a competitive request for proposals to take place in 2005. Budget concerns and political issues within the state CMS have created obstacles to previously secured state funds. Accordingly, the future of state funding for the DATIS program is unclear. If this funding is indeed extended, the DATIS program will represent a substantial expenditure of public funds.

As a public program, the funding for the DATIS program comes at the expense of potential support for other public services. The outcomes of such a program must demonstrate that the use of public funds is ultimately beneficial to the population at large. Furthermore, this benefit must be weighed against alternative uses of the same funds for other public services. Therefore, evaluation of such a program is important from a policy standpoint. In order to receive continued public support, the program must ultimately demonstrate a cost-effective improvement in public health outcomes.

Study Objective

Many measures to assess diabetes care exist, including fasting blood glucose, microalbuminuria, and glycosylated hemoglobin [2,10]. Glycosylated hemoglobin, or A1c, is unique in that it provides the physician with a picture of glucose control over

time. Persistently high blood glucose values lead to a glycosylation of red blood cells, which have a lifespan of roughly 90-120 days. This process is slowly reversible, and therefore best reflects glycemic control over the previous two to three months [10,11,12].

National guidelines on management of Type II diabetes indicate A1c as one of the primary monitoring parameters for diabetic patients [9,12,13]. Recommendations from the American College of Endocrinology suggest A1c should be assessed at baseline for all newly diagnosed diabetics. Follow up assessment should take place every three months until glycemic control has stabilized. Assessment every six months is recommended in patients with stable glycemic control. Therefore, the frequency of hemoglobin A1c assessment was chosen as a surrogate marker for improved diabetes care, and will be measured in patients already identified as diabetics. This approach has been used successfully in previous research of diabetes care quality improvement [3,10,14]

Consistent monitoring of A1C is one of the key messages stressed by DATIS educational visitors during sessions covering Type II diabetes care. These key messages are reinforced multiple times throughout the detailing session, and are highlighted in printed material left with the provider. As such, the frequency of hemoglobin A1c assessment also provides a measure of the impact the academic detailing session have had on primary care providers.

The key hypothesis of this study is:

H_0: A program of university-based academic detailing will result in no change in the hemoglobin A1c assessment frequency in Type II diabetics

Which will be tested against the alternative:

H_1: A program of university-based academic detailing will result in a change in the hemoglobin A1c assessment frequency in Type II diabetics

This research seeks to determine if the academic detailing program can create a measurable difference in a common marker of diabetes care. Previous studies of such programs have demonstrated significant differences in the level of care provided pre and post intervention [3]. However, certain limitations exist that prevent direct comparison to the program in Kentucky. This study seeks to determine if assessment of A1c monitoring frequency can measure the impact of the academic detailing program, and to explore possible alternative or additional methods of assessment.

Methods

Sampling

The population of interest for this study was all Type II diabetics living in the Commonwealth of Kentucky. The population accessible for this study consists of all Kentucky Medicaid patients identified as Type II diabetics by the study criteria with claims data available within the sampling time frame. Previous studies demonstrate the

utility of retrospective Medicare and Medicaid data in diabetes quality improvement initiatives.[5,15] In order to measure the effect of the intervention which took place over 12 months, pre- and post- intervention data were gathered. The pre-intervention period examines Medicaid claims processed from March 2002 through February 2003, the post-intervention period examines Medicaid claims processed from March 2004 through February 2005.

In order to isolate the effect of the academic detailing service on the population of interest, a subpopulation likely to have been effected by the intervention was identified. The primary area of intervention was the Lexington/Fayette county region. Accordingly, the intervention subpopulation was comprised of patients residing in Fayette county and the immediate surrounding area. This area was defined as all points within a twenty-five mile radius of Lexington, Kentucky. This distance was chosen based on proximity to population centers, healthcare facilities, and patient willingness-to-commute for healthcare services. A comparator subpopulation not likely to have been effected by the intervention was matched based on similar demographics and regional attributes. This area was defined as all in-state points within a twenty-five mile radius of Newport, Kentucky. A map of the Commonwealth of Kentucky divided by zip code can be found in Appendix A. Zip codes used to assign patients to subpopulations are listed in Appendix B.

Each subpopulation was isolated using zip code information available in the Kentucky Medicaid claims database. Additional information of interest available within this dataset includes ICD-9 diagnostic codes, patient demographics, prescription records, and procedure billing codes. The database is constructed of multiple tables that may be

linked based on common fields, allowing the de-identification of aggregate data. Patient claims data was available for the duration of the sampling time frame.

Measures

In order to measure the effect of the academic detailing intervention on the population of interest, frequency of hemoglobin A1c assessment was determined. The frequency of Hemoglobin A1c measurement serves as a surrogate marker of improved diabetes care. More frequent measurement signifies greater adherence with national standards of care, and therefore a predicted improvement in patient outcomes. Furthermore, an increased frequency of hemoglobin A1c assessment may be related to the academic detailing sessions experienced by the primary care providers in the intervention area.

Design

The analysis represents a quasi-experimental retrospective analysis of claims data comparing two similar regions. The Fayette county region population was defined as all Medicaid patients residing in zip codes within the county boundaries and those zip codes within twenty-five miles of Lexington. The comparator population was defined as all Medicaid patients residing in zip codes within the Kenton county boundaries and those zip codes within twenty-five miles of Newport.

Once diabetic subpopulations were isolated the frequency of A1c measurement in each region was captured through billing codes in the Medicaid database. This frequency was assessed for two distinct time periods. The twelve-month period immediately preceding the initiation of the DATIS program in Fayette County constituted the pre intervention period. This period ran from March 1, 2002 through February 28, 2003.

The following twelve-month period, running from March 1, 2003 through February 28, 2004 represented the intervention period. The majority of the academic detailing sessions covering Type II diabetes took place during this time frame. Finally, the next twelve-month period, running from March 1, 2004 through February 28,2005 represented the post-intervention period.

Results

Lexington/Fayette County Area	All areas located within a 25-mile radius of Lexington, Kentucky as determined by postcodes listed in Appendix B
Newport/Campbell County Area	All in-state areas located within a 25-mile radius of Newport, Kentucky as determined by postcodes listed in appendix B
Rest of State	All in-state areas not included in either region above

Sample Data

- **Sample Data: Statewide**

	Number of Diabetics	Male/Female	# A1c Assessments	A1c Assessment per Diabetic
Pre Intervention	43,339	0.444	13,179	31.65%
Post Intervention	47,847	0.463	16,471	34.42%

- **Sample Data: Lexington/Fayette County Area**

	Number of Diabetics	Male/Female	# A1c Assessments	A1c Assessment per Diabetic
Pre Intervention	2,960	0.361	925	31.25%
Post Intervention	2,998	0.379	923	30.79%

- **Sample Data: Newport/Campbell County Area**

	Number of Diabetics	Male/Female	# A1c Assessments	A1c Assessment per Diabetic
Pre Intervention	1,668	0.333	502	30.09%
Post Intervention	1,824	0.346	602	33.00%

- **Sample Data: Remainder of State**

	Number of Diabetics	Male/Female	# A1c Assessments	A1c Assessment per Diabetic
Pre Intervention	38,711	0.456	12,292	31.75%
Post Intervention	43,025	0.474	14,946	34.74%

Chi Square Test of Difference in Proportions

- **Pre-intervention Analysis: All groups**

Lexington/FC	Newport/CC	Rest of State	
925	502	12,292	13,179
2,035	1,166	26,419	29,620
2,960	1,668	38,711	

Chi Square: 2.271
Degrees of Freedom: 2
P value: 0.3212
Conclusion: No significant difference in the frequency of A1c assessment exists between groups prior to the intervention

- **Pre-Intervention Analysis: Control Group**

Newport/CC	Rest of State	
502	12,292	12,794
1,166	26,419	27,585
1,668	38,711	

Chi Square: 2.029
Degrees of Freedom: 1
P value: 0.1543
Conclusion: No significant difference in the frequency of A1c assessment exists between the two groups prior to the intervention.

- **Pre-Intervention Analysis: Intervention Group**

Lexington/FC	Rest of State	
925	12,292	13,217
2,035	26,419	28,454
2,960	38,711	

Chi Square: 0.322
Degrees of Freedom: 1
P value: 0.5704
Conclusion: No significant difference in the frequency of A1c assessment exists between groups prior to the intervention.

- **Pre-Intervention Analysis: Intervention vs. Control Group**

Lexington/FC	Newport/CC	
925	502	1,427
2,035	1,166	3,201
2,960	1,668	

Chi Square: 0.6648
Degrees of Freedom: 1
P value: 0.4144
Conclusion: No significant difference in A1c assessment frequency exists between the control and intervention groups prior to the intervention.

- **Post-intervention Analysis**

Lexington/FC	Newport/CC	Rest of State	
923	602	14,946	16,471
2,075	1,222	28,079	31,376
2,960	1,668	38,711	

Chi Square: 21.073
Degrees of Freedom: 2
P value: 0.00002655
Conclusion: A significant difference in A1c assessment frequency exists between groups following the intervention, further testing is warranted to determine where this difference lies.

- **Post-Intervention Analysis: Control Group**

Newport/CC	Rest of State	
602	14,946	15,548
1,222	28,079	29,301
1,824	43,025	

Chi Square: 2.322
Degrees of Freedom: 1
P value: 0.1275
Conclusion: No significant difference in A1c assessment frequency exists between the groups following the intervention.

- **Post-Intervention Analysis: Intervention Group**

Lexington/FC	Rest of State	
923	14,946	15,869
2,075	28,079	30,154
2,998	43,025	

Chi Square: 19.364
Degrees of Freedom: 1
P value: 0.000012
Conclusion: A significant difference in A1c assessment frequency exists between the groups following the intervention. The Lexington/Fayette County area reported significantly fewer hemoglobin A1c screenings per diabetic than the rest of the state (excluding the Newport region) following the intervention period.

- **Post-Intervention Analysis: Intervention vs. Control Group**

Lexington/FC	Newport/CC	
923	602	1,525
2,0375	1,222	3,297
2,998	1,824	

Chi Square: 2.5778
Degrees of Freedom: 1
P value: 0.10835
Conclusion: No significant difference in A1c assessment frequency exists between the control and intervention groups following the intervention.

❖ Within group comparison pre and post intervention

❖ Control Group

Newport/CC Pre Intervention	Newport/CC Post Intervention	
502	602	1,104
1,166	1,222	2,388
1,668	1,824	

Chi Square: 3.4071
Degrees of Freedom: 1
P value: 0.06484
Conclusion: No significant difference exists between the frequency of A1c assessment reported in the Control area prior to and following the intervention.

❖ Intervention Group

Lexington/FC Pre Intervention	Lexington/FC Post Intervention	
925	923	1,848
2,035	2,075	4,110
2,960	2,998	

Chi Square: 0.1475
Degrees of Freedom: 1
P value: 0.6999
Conclusion: No significant difference exists between the frequency of A1c assessment reported in the Intervention area prior to and following the intervention.

❖ **Rest of State**

Rest of State Pre Intervention	Rest of State Post Intervention	
12,292	14,946	27,238
26,419	28,079	54,498
38,711	43,025	

Chi Square: 81.698
Degrees of Freedom: 1
P value: <<<<0.05
Conclusion: A significant difference exists between the frequency of A1c assessment reported in the rest of the state prior to and following the intervention.

Discussion & Policy Implications

Based on the results presented above, this analysis fails to reject the null hypothesis. No statistically significant difference in the frequency of hemoglobin A1c assessment was detected between the intervention and control groups prior to or following the intervention. The frequency of hemoglobin A1c assessment remained statistically unchanged in the two regions despite an increase in the number of Medicaid covered diabetics over the period of analysis.

Prior to the intervention, no significant difference in the frequency of hemoglobin A1c assessment was detected among the groups. Following the intervention, a significant difference among groups was detected. Further analysis revealed that while the Fayette County and Campbell County regions had not significantly changed relative to baseline, the remainder of the state had. Comparing the areas of the state outside of the two subgroups of interest demonstrated a substantial increase in the rate of hemoglobin A1c assessment, approximately 3% relative to baseline. Furthermore, it was determined that

the Fayette County region was now significantly lower in assessment frequency than the remainder of the State, excluding the Campbell County area. In effect, the areas that received no intervention demonstrated a greater improvement in hemoglobin A1c assessment relative to baseline.

Evaluating effectiveness of change and quality improvement strategies is often challenging. [16]. Any assessed impact of a given strategy must be considered relative to other confounding variables. Without strictly identified populations, it is difficult to attribute change to the specific intervention in question. In the healthcare setting, clinical significance must be weighed against cost-effectiveness. Furthermore, the value of preventative care must be examined relative to the potential costs anticipated in the absence of such care. Such nebulous standards of valuation lead to difficult paths of analysis and make interpretation a challenging task.

Accordingly, the policy implications of this research are difficult to interpret. In order to justify expenditure of public funds, a program must demonstrate value-added benefit. Demonstrating the cost effectiveness of behavior change is often more important than demonstrating the change itself [17,18]. However, the limitations inherent to the required methods of data collection may obscure the true impact of the detailing intervention.

An optimal approach to evaluation would involve collecting patient specific data reflective of improved health outcomes and decreased healthcare costs. These patients would be selected based on validated diagnosis and consultation with a provider that had received the intervention. Furthermore, both the provider and patient behavior should be tracked. This scrutiny would elucidate the impact of the intervention on both the

providers' behavior patterns and the patient's response to any change in provider behavior. Such a sample could then be compared against the behavior and outcomes of patients who had not received the benefit of such an intervention. Selecting such a sample would also assure that 100% of the providers and patients in the experimental group had received the detailing intervention.

Given the nature of the study variable, additional time may be necessary to realize the full effect of the detailing intervention. Routine assessment of hemoglobin A1c is indicated no more than 4 times per year in newly diagnosed patients, and as infrequently as twice yearly in stable patients. The study period examines one year of data, which may not allow sufficient time to capture any change in assessment frequency. This time effect may be particularly important due to the strong influence of reinforcement in academic detailing sessions. As the relationship between the provider and detailer grows, stronger adherence to key messages of detailing sessions can be expected.

Any public health initiative should be based on sound policy and analysis. Diabetes represents a significant concern for both public health and public finance policy makers in the Commonwealth. Developing cost effective methods to decrease the health and financial burden diabetes place on the Commonwealth is imperative. Such programs should be evaluated thoroughly using specific data and appropriate timeframes of analysis.

The DATIS program is based on a sound model of behavior change that has been proven effective in the past [8,9]. The program merits a complete quantitative analysis of cost-effectiveness combined with qualitative analysis of provider perceptions. Quantitative analysis of impact would elucidate the effect the intervention has had on

specific patients and healthcare expenditure. Qualitative analysis would assess the perceptions of those providers who have received the intervention. Combining the results of these two approaches would create a sound foundation of analysis on which to base policy decisions. Finally, establishing a standard method of analyzing the impact of such a program would allow repeat audit in the future. Such audit could assess the continuing effects of the intervention, directed towards diabetes or other chronic conditions. Policy decisions regarding the continuation of the program could be then are framed based on the results of repeat audit relative to baseline.

Limitations

Numerous limitations must be considered when interpreting the gathered data. A primary limitation of this analysis is the use of aggregate data. Due to confidentiality stipulations, it was not possible to isolate providers or patients of providers who directly experienced the intervention. In addition, the parameters of the database selected and the number of patients represented by this database account for a large portion of the study limitations. These limitations can be subcategorized by influence on the sample, intervention, and analysis.

Sample Limitations

The sample is comprised of Medicaid patients identified as diabetics based on ICD-9 diagnosis codes. Using such parameters to identify patients does not eliminate the possibility of including patients who are not indeed diabetics, or excluding patients who are diabetics. Such errors in sampling could serve to either dilute or amplify the measured effect of the intervention. Furthermore, this sample can only be interpreted as representative of the Medicaid population. Individuals with private insurance coverage

may differ from the Medicaid population in access to healthcare, level of care provided per healthcare encounter, and routine follow-up with a healthcare provider. Finally, the intervention was applied on a provider basis, not population basis. Each provider who participated in the intervention serves patients with a variety of different insurance plans. Measuring the effects of this intervention using patients identified through only one insurance dataset excludes the effect the intervention may have had on patients outside of this plan.

Intervention Limitations

The intervention itself was applied on a provider level, while the effect was measured on a patient level. Hemoglobin A1c assessments are seldom conducted by the prescribing physician. Instead, the patient must report to an outpatient laboratory to have the test performed. The Medicaid dataset allows the isolation of a billing code for a specific procedure, but not the prescription of that procedure. Therefore, it is not the recipients of the academic detailing sessions who are being assessed. The intervention may influence how often an individual physician requests hemoglobin A1c measures, but it is the patient who determines how often such assessments are actually completed. This disconnect between intervention and assessment of effect may serve to dilute the impact of the intervention.

Furthermore, the intervention was not applied to every provider within the Fayette County region. As previously mentioned, confidentiality agreements prevented the identification of providers who had participated in the detailing sessions. As a result, aggregate data for all providers within the area of intervention was used. This approach

necessarily includes many providers that did not receive the intervention. This inclusion of non-detailed providers may also serve to dilute the impact of the intervention.

Analytic Limitations

A comparator region was selected based on available demographic information. Within the limitations of the database used this region may represent the closest comparison for the area of intervention however it is likely that unmeasured regional variations could skew the results. Access to healthcare, utilization of healthcare, and additional regional initiatives targeting diabetes could vary between the two areas. It should also be noted that proximity to the Cincinnati major metropolitan area could have influenced the results of this comparison. Patients could choose out of state providers, thus decreasing the potential impact of a state level intervention. Alternatively, healthcare standards or initiatives in the Cincinnati area could increase the frequency of hemoglobin A1c assessment in residents of Northern Kentucky.

Conclusions

Based on the results of this analysis, the following recommendations are offered:

R1 *Further analysis of the DATIS program is necessary to justify state funding. Such analysis should seek to identify patients and providers who have individually experienced the intervention if possible. Furthermore, additional surrogate or actual markers of improved patient care should be identified.*

R2 *Subsequent analysis of the DATIS program should incorporate qualitative analysis gleaned from provider feedback. Assessing this information may elucidate the perceived value of the DATIS program among providers receiving the intervention. This information may supplement the quantitative data available from claims database such as the Medicaid information used in this study*

R3 *The increasing prevalence of Type II diabetes represents a significant public health and public finance concern to the Commonwealth of Kentucky. Further exploration and analysis of methods to improve outcomes and decrease costs associated with diabetes care are warranted.*

Appendix One

Kentucky by the counties

See attached map

Appendix Two

Zip Codes in Each Study Arm

Lexington – Fayette County Region
405**
40347 40324 40383 40356 40339 40361 40391 4047 40390 40372
40310 40370 40379 40601

Newport – Campbell County Region
41071 41072 41076 41099 41048 41080 41005 41091 41095
41011 41012 41013 41014 41015 41016 41017 41018 41019
41042 41022 41094 41092 41051 41059 41001 41007 41063
41006 41033 41030 41035 41095 41035 41052

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Statistics

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