Implementation and Evaluation of the Success of a Direct Primary Care Model

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Abstract

Due to rising health care costs, limited access to primary care, and primary care provider shortages, new health care models need to be implemented to reduce costs, improve outcomes, increase access, and encourage more providers to remain in primary care. Direct primary care is a membership-based healthcare model that has the capability to improve health outcomes of primary care patients. A pilot, quality improvement study was used to evaluate the process and enrollment success of a new direct primary care model incorporated into an existing primary care practice to create a hybrid. Process metrics included the number of patients enrolled per month and demographic information of the enrollees including age, race, marital status, sex, comorbidities, income, and insurance type. The project site was an urgent care and family practice office in Seward, NE that focused on adult primary care patients. The direct primary care model was successfully developed and implemented and resulted in 14 enrolled patients over a six month time frame. The development and implementation of direct primary care offers the residents of the county an alternative option to access primary care.

Keywords: direct primary care, membership medicine, obesity, primary care, cost, access, access to care, physician burnout, primary care barriers, patient-centered care, and fee-for-service.

Implementation and Evaluation of the Success of a Direct Primary Care Model

Medicine in the United States is the most expensive, technologically advanced, and specialized, but it continues to have the worst health and measures of equity compared to other high-income countries (Ellner & Phillips, 2017). This lack of equity combined with the current obesity epidemic is leading America to failing health, disability, and mortality (Uzogara, 2017). Obesity is associated with several specific chronic diseases including hypertension, heart disease, hyperlipidemia, and diabetes with all requiring diligent management by primary care providers (Uzogara, 2017). It has been shown that quality primary care reduces mortality, decreases emergency room visits, improves outcomes, and lowers healthcare costs (Friedberg, Hussey, & Schneider, 2010). Development of a robust primary care foundation can contribute to the overall effectiveness of the current health care system (Palumbo, 2017). More focus needs to be placed on improving basic healthcare needs and increasing preventative care to enhance the current health system (Akinci & Patel, 2014; Friedberg et al., 2010; Klemes et al., 2012; Palumbo, 2017; Reid et al., 2009). Other barriers to effective primary care include a shortage of primary care providers, increasing healthcare costs, and lack of access. Newer healthcare models including direct primary care (DPC) offer some hope to this current health care crisis (see Appendix A for Definition of Terms).

Direct primary care is an alternative to fee-for-service type billing. Patients are usually charged a monthly fee that covers a list of primary care services chosen by the provider, including office visits, laboratory tests, and comprehensive care management. Practices that accept monthly payment or periodic fees for services have also been described as concierge, retainer, membership, hybrid, direct pay, and boutique medicine. By bypassing insurance companies, providers can offer transparent pricing, increased access to the provider, more timely

appointments, and alternate methods to communicate with the provider which may include virtual visits, phone conversations, and email exchange (Shanafelt, Dyrbye, & West, 2017).

Local Issue

The need for improved comprehensive primary care is a national issue, as well as a local issue. Medicine in the United States is expensive and despite technological advances still has poor outcomes directly related to inadequate primary care (Ellner & Phillips, 2017). Within the United States, Nebraska is rated 15th in adult obesity and 33rd for youth obesity ages 10 to 17. Nebraska's adult obesity rate climbed to 32.8% in 2017 from 11.3% in 1990 (The State of Obesity, 2017). Obesity is associated with several specific chronic diseases all of which require persistent management by primary care providers (Uzogara, 2017). The patient to primary care physician ratio in the county where the project took place is 1:1,560 which is below the state and U.S rankings ("Quick Facts," 2016; "County health rankings and road maps," 2017). The county could benefit from new primary care models that offer alternate options for obtaining quality care.

Diversity Considerations

The quality improvement project was conducted within a primary care setting that serves patients in the community and surrounding communities which are comprised of individuals with minimally diverse ethnic backgrounds. Direct primary care supports both patient centeredness and cultural competence due to the increased ability to form a relationship with the patient and provide patient-centered care. Cultural competence is a necessity in rendering quality care that is centered on the patient (Campinha-Bacote, 2011). The project did not deny patient participation based on race, religion, sex, comorbidities, type of insurance, or socioeconomic status.

Problem Statement

Due to rising health care costs, limited access to primary care, and primary care provider shortages, new health care models need to be implemented to reduce costs, improve outcomes, and encourage more providers to continue practicing in primary care. Direct primary care is a new healthcare model that could decrease health care costs and improve health outcomes in primary care patients.

Intended Improvement with Purpose

As obesity rates continue to climb and multimorbidity is at an all-time high, no better time exists to improve primary care. The purpose of this project was to evaluate the success of the implementation of a DPC model into a family practice clinic in Seward, NE making the clinic a hybrid clinic. Existing research supports the need for improved primary care and new models to increase access, decrease costs, and improve outcomes.

Facilitators & Barriers

The evidence regarding the need for improved primary care to reduce and treat multimorbidity was the main facilitator for project implementation. Membership-based health care models have been shown to increase access to care, decrease healthcare costs, and improve outcomes (Friedberg et al., 2010). Current economic barriers including lack of access to primary care and rising health care costs were strong facilitators for this project. The facility site Chief Executive Officer and Director of Operations were in full support of the implementation of DPC into the practice. Other facilitators for the project included the ancillary staff, clinic providers, and nursing team at the clinic who were in favor of trialing a new model of care. It was essential to have their buy-in to assist with the recruitment and retention of patients within the model.

Project barriers were minimal, and practitioners along with other staff were willing to advocate for the DPC model and recruit patients. No major unforeseen legal implications arose

during contract drafting and model finalization as the clinic elected to continue to also accept insurance for patients not enrolled in DPC. The other potential barrier included lack of enrollment and participation in the program by those in the community.

Review of the Evidence

Inquiry

In adult primary care patients between the ages of 19 and 65, does the development and implementation of a direct primary care model result in successful patient enrollment over 6 months at a private family practice and urgent care clinic?

Search Strategies

An extensive literature review was completed on membership-based practices, current problems within primary care, physician shortages, access to primary care, and evaluation and benefits of new healthcare models. Only a few articles were found concerning direct primary care or hybrid primary care practices. Due to this limitation, the literature search was focused to the last ten years and extended to include studies conducted outside the United States. Similar patient-centered care models including concierge medicine, the patient-centered medical home model, and other membership type models were included within the review. The search was conducted using Google Scholar search engine along with the databases PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Cochrane, and ProQuest. Keywords included *direct primary care, membership medicine, obesity, primary care, cost, access, access to care, physician burnout, primary care barriers, patient-centered medical home, and fee-for-service*. Inclusion criteria were articles supporting alternative models of healthcare including solutions to the issues of access, cost, payment, and primary care shortages. Articles contributing

to the need for improved primary care were also used in the review. Studies were excluded if they were published earlier than 2009 or printed in a foreign language.

A total of 20 articles and systematic reviews were included in the final literature review that provided evidence to support the need for changes in primary care, specifically the use of new health care models (see Appendix B for Evidence Table; see Appendix C for Modified PRISMA Table). The level of evidence for the these studies included one level I systematic review of randomized control trials (RCTs), two level II single RCTs, one level III prospective quasi-experimental study, one level III retrospective observational study, one level IV retrospective cohort study, one level IV cross-sectional observation study, two level IV non-experimental quantitative studies, two level IV prospective cohort studies, one level V single descriptive quantitative study, one level V systematic literature review, and seven level V literature reviews (Melnyk & Overholt, 2015, adapted).

Evidence by Themes

Within the literature, four evidence topics were identified that support the need for enhanced primary care and implementation of new models. First, evidence has suggested that comprehensive preventative care improves outcomes (Akinci & Patel, 2014; Friedberg et al., 2010; Klemes et al., 2012; Palumbo, 2017; Reid et al., 2009). Second, health care costs in the United States are a burden and create a barrier to adequate primary care. Increased use of primary care decreases the need for specialty and emergency services which reduces overall costs (Eskew & Klink, 2015; Klemes et al., 2012; Reid et al., 2009). Third, primary care provider shortages pose barriers to quality primary care. New models are needed to decrease primary care burnout (Doherty, 2015; Shanafelt et al., 2017). Fourth, access to quality, cost-effective primary care is associated with improved outcomes and reduces emergency department visits, admission

rates, health care costs, and surgeries (Fiscella, 2011; Ko, Rodriguez, Fairchild, Rodday, & Safran, 2009).

The Need for Improved Primary Care. The first significant evidence topic identified in the literature was the need for new primary care models. Seven articles were identified that supported this topic. Consistency within existing literature was found, noting a need for greater focus on basic healthcare needs and revitalizing preventative care to enhance the patient experience, improve outcomes, and reduce healthcare costs (Akinci & Patel, 2014; Ellner & Phillips, 2017; Friedberg et al., 2010; Klemes et al., 2012; Palumbo, 2017; Reid et al., 2009). Several studies have shown that effective, efficient, quality primary care reduces mortality, improves patient outcomes, decreases emergency room visits, and lowers costs (Friedberg et al., 2010). A strong primary care foundation can contribute to the overall integrity of our current health care system (Palumbo, 2017).

Payment for primary care services continues to be a barrier to improving care. Fee-for-service payment has not evolved consistently within primary care as more time is spent on telephone communication, patient management, and coordination of care (Phillips, 2005). A change from fee-for-service and avoidance of rewarding providers for the volume of patients seen may better support the goals of primary care (Ellner & Phillips, 2017). As reported by Palumbo (2017), a longitudinal study comparing concierge practices and traditional practices found that those in the concierge practice were less likely to be hospitalized and more likely to utilize primary care services, which resulted in cost reduction. Palumbo (2017) also found that patients who were treated by concierge primary care practitioners had higher rates of patient satisfaction due to easy access to services, comfortable interactions, courtesy, and attentiveness by the provider compared to those in traditional primary care practices. Similarly, a quantitative

study by Ko et al. (2009) evaluated patient perceptions of a concierge practice compared to general practice and found that concierge medicine patients experienced enhanced access to care, improved service, and better coordination of care than those of usual primary care practices.

Most membership type models include a form of high-intensity care which consists of a greater number of patient-provider encounters. In a study by Ghany et al. (2018), Medicare Advantage patients who received high-touch care compared to a standard care model had lower health care costs and fewer hospitalizations. Another membership-based health care network called MD-Value in Prevention (MDVIP), a patient-centered care (PCC) model, was compared to traditional primary care over five years and found hospitalization rates to be significantly lower due to personalized preventative healthcare (Klemes et al., 2012).

Health Care Costs. The second evidence topic identified was the burden of health care costs in the United States. Fiver articles were identified that supported this topic. The cost of healthcare in the United States is a significant issue compared with other countries (Klemes et al., 2012; Reid et al., 2009). In the United States, 46 million people are ages 65 and older and this is expected to double by 2030 (Uzogara. 2017). The chronic care for this population costs the United States more than $617 billion dollars per year (Ghany et al., 2018). Hospitalizations account for the most significant portion of national healthcare expenditures. With the increased utilization of comprehensive primary care, the need for specialty services and emergency department use decreases (Eskew & Klink, 2015; Klemes et al., 2012; Reid et al., 2009).

Klemes et al. (2012) completed a cross-sectional study comparing the MDVIP model, which is a membership-based model that focuses on screening and patient-centered care, to traditional models of practice to evaluate hospital utilization and discharge rates. They found

for the years 2006 through 2010, that MDVIP members were 42%, 47%, 54%, 58%, and 62% less likely, respectively, to be hospitalized than were non-members (Klemes et al., 2012). Musich, Wang, Hawkins, and Klemes (2016) also found that MDVIP members had increased health care savings and decreased utilization of urgent care and emergency room services than non-members.

In a retrospective cohort study by Ghany et al. (2018), a high-touch model of care with frequent visits reduced health care costs and decreased hospitalization rates in Medicare Advantages patients. This finding supports the benefits of health care models like DPC that offer easy access primary care. It is possible that DPC practices can reduce overhead costs by approximately 40% due to decreased staff associated with third party billing, which in return allows lower membership pricing for patients (Eskew & Klink, 2015).

Primary Care Provider Shortages. The third evidence topic identified was the current shortage of primary care providers and the effects the deficit has on health outcomes. Four articles were identified that supported this topic. The physician burnout epidemic in the United States is proliferating, and the negative results are affecting not only health care providers but patients, coworkers, friends, family members, and healthcare organizations (Rothenberger, 2017). According to Rothenberger (2017), a cross-sectional survey of physicians found that 40% met criteria for burnout, 30% met screening criteria for depression, and 6% had thoughts of suicide within the previous year. The growth of DPC has been motivated by physician burnout secondary to excessive paperwork, low reimbursement, loss of control, work-life imbalance, and time restrictions on patient interactions (Doherty, 2015; Ellner & Phillips, 2017: Shanafelt et al., 2017). Documentation burden required to meet reimbursement requirements, the justification for

testing, and quality reporting is unsustainable and needs to be reduced to relieve burnout (Shanafelt et al., 2017).

The rise in multimorbidity, combined with an increase in the population of older adults, exacerbates this burnout and increase the shortage of providers available to manage chronic health conditions (Kvedar, Coye, & Everett, 2014). According to Reid et al. (2009), the addition of a patient-centered medical home (PCMH) model to one of the clinics at Group Health reduced staff burnout by 20% and physician burnout by 15%. Emotional exhaustion among all staff was also less frequent at the PCMH clinic (Reid et al., 2009).

It is known that a higher ratio of primary care physicians to specialists is associated with fewer emergency room visits, improved health outcomes, lower mortality, and lower costs (Ellner & Phillips, 2017; Friedberg et al., 2010). Some integrated care and comprehensive care models have attempted to decrease physician burnout but have not succeeded. In a study by Zubatsky, Pettinelli, Salas, and Davis (2018) it was found that physicians working in areas of integrated care reported lower levels of depersonalization and higher levels of accomplishment compared to those working in traditional primary care. No significant difference was seen in levels of burnout, suggesting that other ways to reduce provider burnout need to be evaluated (Zubatsky et al., 2018).

Peikes et al. (2019) completed a prospective cohort study to evaluate the effects of the Comprehensive Primary Care initiative on primary care physicians. Physician experiences were similar for the comprehensive group and the comparison group. Approximately one-third of physicians in each group reported burnout. This finding also supports that new ways to address physician burnout need to be evaluated (Peikes et al., 2019). Although DPC practices are smaller in size, which could initially place greater strain on the shortage issue, DPC practices

may encourage some primary care providers to stay in practice or encourage providers to return to the primary care setting (Doherty, 2015).

Improved Access. The fourth evidence topic found was improving access to primary care. Access to quality cost-effective primary care is associated with better outcomes, and a robust primary care system is needed to sustain an equitable health care system (Ficeslla, 2011). Four articles were identified that supported this topic. Improved access to primary care reduces the frequency of emergency department use, decreases admission rates, lowers health care costs, and decreases surgeries (Ko et al., 2009). It has been shown that by removing access barriers to primary care, patient visits increase and health outcomes improve (Ficeslla, 2011).

In a retrospective observational study by Glass, Kanter, Jacobsen and Minardi (2017), the implementation of a workforce medical office that offered on-site same-day primary care services without co-pays increased frequency of primary care visits and decreased urgent care visits compared to a control group who attended primary care visits off-site at their usual office. A quantitative study by Ko et al. (2009) compared experiences of patients within a concierge medicine practice to experiences of those in a traditional medicine practice and found that those patients in the concierge practice reported greater access to care, better care coordination, and enhanced service. Superior experiences were noted in the categories of physician follow up regarding test results, ability to schedule appointments and wait time for appointments, time spent with the physician, and the return of phone calls (Ko et al., 2009).

Concierge and DPC practices have been found to increase access to underserved and uninsured people (Reid et al., 2009). A prospective cohort study by Saultz et al. (2010) evaluated the success of Access Assured, a new program designed to deliver comprehensive primary care to uninsured individuals using monthly fees with the addition of a sliding fee for regular office

visits. Within the first year, the program attracted 600 patients and was shown to be financially viable. This type of payment model is a viable option for the uninsured (Saultz et al., 2010).

Bennett et al. (2010) completed a 12-week randomized controlled trial (RCT) to evaluate the success of an online weight loss program to facilitate behavior change goals in obese primary care patients with hypertension. The intervention group lost 3.05 kg more than the control group. The evidence supports the use of technology to aid in the delivery of weight loss interventions compared to in-person visits. Adding virtual visits to chronic disease management not only increases convenience for patients, but also for the providers involved, as one of the largest barriers for adequate weight loss counseling noted by providers was lack of time. In a systematic review of RCTs by McMillan et al. (2013) evaluating patient-centered approaches to health care, patient-centered doctors were reported to be more trustworthy by patients than providers that did not display patient-centeredness. Patients also reported that they would be more likely to follow instructions from the patient-centered providers (McMillan et al., 2013).

Discussion

Limited research has been completed on DPC models. The existing research demonstrates that the United States is facing a healthcare crisis due to the obesity epidemic, ineffective primary care secondary to access barriers, rising healthcare costs, and a shortage of primary care providers. This evidence supports the need for alternative primary care models that utilize other payment methods than fee-for-service, as fee-for-service does not support reimbursement for tasks that enhance quality primary care. The research supports that PCC models including concierge and the PCMH model improve access, decreases healthcare costs, and improves patient outcomes.

Health care costs in the United States are rising due to an aging population and increasing multimorbidity. Hospitalizations account for the largest portion of these costs. Research has shown that models like MDVIP and models that increase office visit frequency reduce urgent care and emergency room visits which reduce health care spending dramatically. Existing research also supports the growing primary care shortage in the United States. Physician burnout has grown to epidemic proportions and is secondary to clerical burdens, increased productivity expectations, and low reimbursement. As the rates of multimorbidity rise, this shortage will increase.

New models of primary care need to be evaluated and implemented to help reduce burdens placed on primary care providers. Combined with improving costs and reducing the primary care shortage, improving access to care is also needed to improve patient outcomes. The literature supports that the quality of primary care dramatically improves patient outcomes. Membership models have been shown to increase access and strengthen patient-provider relationships due to increased contact. Direct primary care models also allow for alternatives to in-person visits including telephone encounters, email exchanges, and virtual visits.

Theoretical Framework

The foundation of Nola Pender's health promotion model (HPM) directly relates to chronic illness and lifestyle changes to improve the health of a population with a particular focus on primary prevention, which equates with the primary care of individuals. It encompasses new interventions and person-centered counseling to improve rates of chronic illness and achievement of higher levels of overall well-being (Galloway, 2003). The theory states that individuals have unique experiences that affect their subsequent actions (Peterson & Bredow, 2016). Direct primary care is a relatively new model and holds hope that an individual's

experience with primary care will be improved due to greater access and closer patient-provider relationships.

This framework correlates directly with the implementation of DPC as it supports one on one evaluation and identification of weaknesses and strengths directly related to the success of obtaining improved health outcomes in primary care. Quality improvement or improved patient outcomes directly applies to health-promoting behaviors, as the focus is on achieving a positive health outcome and achievement of higher levels of self-actualization and well-being (Galloway, 2003; Petiprin, 2016). Intrapersonal influences in the health promotion model also relate to the concept of patient and provider relationships. Social support and expectation of others or a respected clinician can provide influential encouragement that will increase the odds of health promotion and improved outcomes (Galloway, 2003). No other studies were found that discussed this theory in application to the DPC model (see Appendix D for Theory Application Diagram).

Methods

IRB and Site Approval

The University of Missouri - Kansas City IRB determined the project to be quality improvement not requiring IRB review. The Doctor of Nursing Practice Program Director approved the project proposal. Site approval for the project was obtained from the clinic owner (see Appendix E for IRB Approval letter; see Appendix F for Faculty Project Approval Letter).

Ethical Issues

Minimal ethical issues are present in the quality improvement project as obtaining process measures was the main focus, and only confidential demographic information was accessed. No personal health information was disclosed, and the project did not include any vulnerable populations. Medical record numbers were used to label each patient’s demographic

intake form, and after information was entered into a Microsoft Word document the demographic form was shredded. Information regarding the study was fully disclosed, and patients had the option to disclose their demographic information. The only conflict of interest that was identified was that some of the student investigator's current patients enrolled in the DPC model and had a preexisting relationship with the provider.

Costs

The clinic was already equipped with the necessary supplies and staff needed to care for the new DPC patients. Enrollment numbers were not anticipated to be large enough to increase staff volume in the initial phases of project implementation. The DPC model was new, and the majority of the expense of the project was used for advertisement and education within the community and legal advice on contract content. Advertisement costs included a banner on the outside of the clinic, small posters placed within the clinic, and some paid social media ads. The student investigator also had an information booth during a community event in July 2019 and organized a free public wellness conference in January 2020 that focused on DPC and primary care. Hourly wages for clinical staff, receptionists, marketing staff, and billing staff time were taken into consideration for time spent on education, advertisement and policy development, and contract revision. The staff was educated on services provided within the model, method to charge for services, and format to document patient interactions (See Appendix G for Budget Table). The clinic absorbed initial advertisement and legal costs, and the student investigator was awarded a small retrospective grant through the University of Missouri - Kansas City Graduate Assistance Fund.

Setting & Participants

This project was conducted to evaluate the process and success of the implementation of a direct primary care model. The clinic is a private urgent care that also offers primary care, occupational medicine, and virtual medicine. Inclusion criteria included adult patients 19 years and older who chose to enroll in the DPC model within the six-month time frame. Adult participants were the only ones asked to complete the demographic information form. Exclusion criteria included patients aged 65 and older, or Medicare or Medicaid coverage. Convenience sampling was used, and the sample size was estimated to be 20 to 50 patients.

Evidence Based Practice Intervention

The first phase of the project consisted of the development of the DPC model including services to be rendered and the necessary contracts for patient enrollment. Contracts were developed by the student investigator and included a patient enrollment form, billing authorization form, and a demographic intake form. Once contracts were finalized and approved by facility Chief Executive Officer and the organization's attorney advertisement and education to the community began. Advertisement information was developed by the student investigator and finalized with the help of the marketing team. Advertisement consisted of social media postings, a banner outside of the clinic, a newspaper article, and poster advertisements within the clinic. Education to the public included videos on social media recoded by the project leader, an information booth at a community event, a free wellness event that focused on DPC and primary care, and free informational sessions with patients upon request (see Appendix H for Recruitment Materials).

Enrollment started August 1st, 2019 and continued through January 31st, 2020. Upon enrollment, adult patients completed an initial demographic intake form. A patient agreement contract was signed and monthly billing was set up. Patients were then able to establish care and

schedule visits as they were needed. There were two DPC plans, one platinum plan that cost $149.00 per month and one silver plan that cost $89.00 per month. An enrollment fee of $50 per family was collected at time of enrollment. Additional family members that enrolled were given a 50% discount.

Both plans included unlimited primary care and urgent care visits. The platinum plan included all in-house labs, procedures, medications, x-rays, and an annual flu shot. The silver plan included additional fees for services including in-house labs, procedures, medications, and x-rays. All patients were also able to obtain medical advice and or treatment via virtual visits, email through the patient portal, and telephone conversation with providers and staff. After six months of open enrollment, patient demographic data and enrollment totals were evaluated and results were analyzed (see Appendix I for Intervention Flow Diagram; see Appendix J for Project Timeline; see Appendix K for Logic Model).

Change Process and Evidence Based Practice Model

The chosen model for organizational change was the Diffusion of Innovations model, as DPC is a very new practice model, and diffusion among staff and patients was anticipated to follow this model. Diffusion is defined as the progression through which an innovation is disseminated through individuals from other individuals over time (Dearing, 2009; Melnyk & Overholt, 2005). The model states that the rate of adaptation by individuals will follow a bell-shaped curve. Innovators will comprise the start of the curve as they usually recognize innovative opportunities. They are followed by the early adaptors, then the early majority, then the late majority, and then lastly the laggards. This model supports the implementation and adaptation pattern of DPC as diffusion among staff and patients was predicted to be slow.

The Model for Evidence-Based Practice Change was used to guide the implementation of DPC (Melnyk & Overholt, 2005). The model promoted the adoption of the new practice model. The need for DPC was assessed and supported by evidence which is the foundation for this pilot study. Per the model processes, outcomes and costs were evaluated, and the DPC model is anticipated to continue to grow and be successful.

Sustainability of the model after project completion is highly tenable. Minimal cost obligations are expected after initial advertisement of the model. Staff and management were supportive of the model and continue to promote it daily. Due to buy in from staff and use of the model by the community, the model is anticipated to continue to be successful. Possible future changes in our healthcare system and insurance market does hold the potential to change the future demand for DPC.

Study design

The quality improvement project was a pilot, quasi-experimental, single-cohort study that evaluated the success of the development and implementation of a DPC model at an urgent care and family practice clinic in Nebraska.

Validity

The intervention was implemented at a well-established practice with a moderate patient population and well-trained providers and staff. To prevent threats to internal validity, all adult patients that chose to participate in DPC within the time frame had their demographic information included in the data collection. No patients refused to complete the form. Some patients who were already receiving treatment at the clinic may have chosen to enroll in the program to support the new model and provider offering the service. Attrition was also taken into consideration.

The external validity of the process measures was strong as the development, recruitment, and patient enrollment processes could be easily replicated and implemented in a variety of settings and clinics. Overall enrollment numbers were small, and demographic data was specific to the small town in Nebraksa affecting external validity. A larger sample size in a more populated community with diversity would make the results more generalizable to other populations. Due to the homogeneous population, anticipated limited participants, and DPC quality improvement offered to all, no randomization was used.

Measurement Instrument and Outcomes

The primary outcome of the quality improvement project was successful implementation and enrollment of patients into the DPC model. Data collected included enrollment totals between the months of August 2019 through January 2020 and associated demographics of those adult patients. Demographic data were recorded upon each adults enrollment with an investigator developed intake form that included patient age, marital status, sex, race, comorbidities, income, and insurance type. Details of the study were verbally disclosed to each patient by the investigator, and completion of the form constituted as consent (see Appendix L for Demographic Intake Form). Each enrollment was completed one on one with the student investigator.

Quality of Data

A post-hoc power analysis was not conducted as this was a post-only data study without a comparison. No studies were identified that explored the impact of DPC, specifically hybrid models combining traditional practice with DPC, that could be compared to the findings of the current study.

Analysis Plan

Descriptive statistics were used to analyze the number of enrollees and the demographic data of the patient population. Statistical Package for the Social Sciences (SPSS) was used in data analysis for this project. Quality analytics will help the student researcher further evaluate the success of the model in a small community with the use of the DPC model variable to understand the likelihood of enrollment and usability by the community (see Appendix M for Data Collection Template).

Results

Settings and Participants

The quality improvement project took place at a private family practice and urgent care clinic in Nebraska. The enrollment period for the project started on August 1st, 2019 and ended on January 31st, 2020. Goal enrollment was 20 to 50 patients which was not met. Within the time frame 14 participants enrolled. Of the 14 patients that enrolled, nine were adult patients 19 years and older, and five were dependents. Eight of the patients were female and six were male. The nine adults were the only ones who completed the demographic intake form. During the study period two patients chose to unenroll as they obtained new insurance, and one patient was removed due to the inability to pay monthly fees.

Actual Intervention Course

The student investigator spent several months prior to the project start researching DPC models, hybrid practices, and the legal issues surrounding potential conflicting fee schedules while working closely with the organization's Director of Operations and CEO to develop the outline for the model. The actual evolution of the DPC program began in Spring 2019 and carried through July 2019. A patient contract, billing authorization form, and demographic intake

form were developed by the investigator and approved by the CEO and organization's attorney after many revisions.

The student investigator worked with staff in the billing department to develop a policy for enrolling patients and to define their DPC status within the electronic medical record system. Receptionists in the office were educated on billing procedures and entering DPC patient information. Clinic nurses and medical assistants were educated on the model and the details of the platinum and silver plans to be able to answer questions and assist patients with care. A fee sheet was developed for each patient visit for tracking purposes and for billing of additional services within the silver plan. The student researcher was also active in advertisement, participated in video recordings, and worked with design staff to develop marketing materials.

Actual advertisement for the model started in June of 2019 and continued throughout the enrollment period. The student investigator offered free one on one consults to ten prospective patients during the study period who were interested in the model and had further questions. Direct primary care was actively discussed and offered to most patients obtaining care within the clinic. The DPC model went live on August 1st, 2019. The only major revision that was needed after enrollment started was the billing process and the method that the monthly payments were charged to each patient. Total DPC enrollment consisted of 14 patients over the six month time frame. Eight of those enrollments occurred within the first month and five more occurred within the first three months of the study.

Outcome Data

The primary outcome of the project was to develop and integrate a DPC model into the practice. Enrollment numbers were calculated by month, and demographic information for each adult aged 19 and older was entered into a Microsoft Word spreadsheet. Descriptive statistics

were used to analyze the data. Throughout the enrollment period, 14 total patients signed up for DPC, eight enrolled during August, and five enrolled in October. Advertisement and education were heaviest during the first three months of the study period.

Of the 14 patients who enrolled, nine (64.29%) were adults 19 and older and five (35.71%) were 18 and younger, and eight (57.1%) were female and six (42.9%) were male. All nine adult patients were Caucasian (100%), with six (66.7%) having no insurance, two (22.22%) having commercial insurance, and one (11.11%) having private insurance. Income ranges of adults enrolled were all below $75,000.00 annually. Of the nine adult patients one (11.11%) had an income between $0-$14,999, four (44.44%) had an income between $15,000-$34,999, one (11.11%) had an income between $35,000-$49,999, two (22.22%) had an income between $50,000-$64,999, and one (11.11%) had an income between $65,000-$74,999. Of the nine adult patients four (44.44%) were single and five (55.56%) were married. The frequency of co-morbid conditions of those enrolled were three (33.33%) with hypertension, four (44.44%) with obesity, two (22.22%) with a chronic respiratory disease, seven (77.78%) with a mental health disorder, and one (11.11%) with hyperlipidemia (See Appendix M for Statistical Analysis). No DPC patients had a health sharing plan during enrollment, and no individuals had a diagnosis of diabetes, cancer, or kidney disease.

Discussion

Successes and Study Strengths

The development and implementation of the DPC model were prosperous and resulted in patient enrollment and the rendering of primary care and acute care services through the DPC program. No major problems or setbacks were encountered. Billing procedures needed to be revised in the beginning but caused no errors in monthly payment withdrawal and did not affect

or inhibit patient care. With the advertisement of DPC, an unintended positive consequence occurred with a general increase in the volume of new traditional primary care patients. Flow of new DPC patients and additional paperwork was met with ease by staff and did not disrupt daily procedures.

Each department within the organization was eager to assist the student investigator with each phase of the project. Staff and management had complete buy in and promoted the new service fully. Organizational culture supported the need for enhanced primary care which made the transition to offering DPC seamless. Direct primary care fit within the organization's mission as the model offered an alternative to traditional care and supported the prioritization of patient care.

Results Compared to Evidence in Literature

The quality improvement project focused on process measures and demographic information of the implementation and enrollment of DPC patients into an existing urgent care and primary care office making the practice a hybrid clinic. Existing research supports the use of DPC to enhance primary care. The student investigator was unable to find any existing research comparable to the quality improvement intervention.

Limitations

Internal and External Validity

Limitations of the study were minimal. The number of existing primary care patients who enrolled in DPC was similar to the number of new DPC patients who were not currently obtaining care from the clinic. Demographic information was used from all adults who enrolled as no one refused to disclose data. The clinic was located in a small town, and enrollment or non-enrollment could have been dependent on prior opinions of the clinic. Since the model is new,

enrollment numbers could have been associated with the amount of advertisement and education provided to the community. Attrition was also experienced as one DPC participant was removed due to the inability to pay monthly fees, and two chose to un-enroll as new health insurance was obtained.

Staff within the clinic promoted the model to patients receiving care. Those who had no insurance were targeted the most. The student researcher tried to mention details of the model to most patients. Questions about deductibles were asked, and if the patient acted interested, more information was given. The sample size of 14 patients affects external validity which limits generalization. The level and expense of advertisement and education to a community larger than Seward may differ and affect the overall transferability of results.

Sustainability of Effects and Plans to Maintain

The clinic will continue to offer DPC to patients. Sustainability potential is strong. Patients have continued to show interest, and enrollment numbers have continued to increase since the enrollment period for the project ended. Evaluation of the model will continue with possible changes to pricing and services offered in the future.

Staff have continued to promote the model within the clinic, and internal advertisement will be maintained with the use of posters, brochures, and the banner on the outside of the clinic. Momentum of overall paid advertisement with the use of social media and the newspaper will diminish in frequency due to cost. This loss of this energy may decrease the speed of new enrollments. Internal promotion and word of mouth will continue to be the driving force for the growth of DPC.

Efforts to Minimize the Study Limitations

Direct primary care models are new, and no similar models were found within a 30 miles radius of the clinic that institute the DPC model. Advertisement and education were essential and offered through broad media sources so that no one specific population was targeted. Internal clinic advertisement was directed at current patients who chose to seek care at the facility. Postings on the clinic's Facebook page were only able to reach those who follow the page unless a paid advertisement was used and promoted to reach all Seward residents.

Self-pay patients who received care in the clinic were targeted by staff and offered DPC information at the time of service. To minimize this as a limitation, DPC was mentioned to nearly all patients who received care by the student investigator. This targeting may have influenced the total number of uninsured patients who signed up for DPC in comparison to those with health sharing plans or commercial insurance with high deductibles.

Interpretation

Expected and Actual Outcomes

Direct primary care has demonstrated the ability to enhance primary care, decrease costs, and increase access to care. The student investigator expected enrollment numbers to be above 20, and the actual enrollment total was 14. Overall growth of traditional primary care increased during the study period, which was an unintended positive consequence. It was known ahead of time that education to the community regarding DPC would be a slow tedious process that would take time to disperse throughout the community. Enrollment numbers support the fact that growth of DPC will be slow as the community learns about DPC. The patients who did enroll used the model for urgent care services just as often as primary care services. Because the study period started in August, it is possible that some individuals had already met their deductible or thought they might come close and chose not to enroll as a result.

Intervention Effectiveness and Revision

The development of the DPC model was effective and successful. The student investigator was able to work with management and marketing directors within the organization to build a DPC program, develop a method for recurrent monthly billing, educate the public on the model, and successfully carry out effective urgent care and primary care services.
Cost of the model and the two tiers of service was priced higher than comparison cost at other DPC practices in the state due to our unique hybrid model and unknown level of use and profitability. The cost will continue to be evaluated and adjusted based on volume, use, and services rendered. Future plans include potential decrease in price to match the market. The model was also meant to include virtual medicine for ease of access. This was discussed with each patient on enrollment. Due to small enrollment numbers and the unique situations encountered, virtual visits were not needed, and patients did not seem interested in utilizing these types of visits. Virtual visits still have the potential to be beneficial within the DPC program, especially given the large number of patients with mental health disorders that enrolled during the study period. Future education and demonstrations to new and current members may help to increase this service within the model and increase comfort with use.

Expected and Actual Impact to Health System, Cost, and Policy

It has been shown that quality primary care improves outcomes and offers the potential to increase the effectiveness of the health care system (Friedberg, Hussey, & Schneider, 2010; Palumbo, 2017). The addition of DPC to the community gives residents an alternative cost-effective easily accessible option to accessing primary care and urgent care. In the future, DPC may also reduce barriers to primary care by helping to alleviate primary care provider shortages by offering a less stressful model of practice.

The actual cost of DPC implementation surpassed estimated costs solely due to legal fees and review of contracts. Estimated costs of advertisement and education were equivalent to actual costs. Funding for the project was supported by the clinic. A small retrospective grant of $300 was awarded to the student investigator in February 2020.

The economic sustainability of the model long term will depend on the future changes within the United States health care system. Skyrocketing health care costs lie within the agenda for both Democratic and Republican parties, and results of the 2020 election may influence the current economic demand for cheaper comprehensive healthcare. The ability to use health savings account dollars on monthly memberships or having those dollars count towards deductibles would be a driving force in the long-term growth and sustainability of DPC.

Conclusions

Existing evidence supports the needs for new health care models to improve the current quality of primary care in the United States. The obesity epidemic and the current primary care provider shortage put stress on improving the efficacy and sustainability of current models of practice. Direct primary care offers a solution to this problem while improving access, reducing healthcare costs, improving patient outcomes, and decreasing provider burnout. Successful implementation of the DPC model brought alternative options to access primary care to the community.

Further Study

Success of the model and buy in from staff and providers may result in the model being used at the organization's other clinics within Nebraska. With further implementation of the model, the potential for additional investigation of the impact of DPC on the health of society is a possibility. A randomized control trial comparing outcomes between the DPC practice and the

traditional fee-for-service practice would provide insight on which models have the potential to strengthen current health care systems and improve markers of health. Further evidence-based quality improvement initiatives with establishment of DPC can provide additional outcomes data on benefits.

Dissemination

Plans for dissemination of the data included a poster presentation at Celebrate Nursing with the Nebraska Nurses Association hosted by Nu Rho-at-Large Chapter, Sigma Theta Tau in April 2020. Dissemination also included submission of findings for publication within the Journal of Doctoral Nursing Practice. The target audience will be seeking ways to improve primary care, stop the obesity epidemic, and decrease the rise of multimorbidity secondary to ineffective health care.

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Appendix A

Definition of Terms

Primary Care Practice: A primary care practice is the patient's first contact of the health care system and is the continuing focal point for all future health care services (American Academy of Family Physicians [AAFP], 2019).

Direct Primary Care Model: a practice and payment model where patients pay their provider or practice in the form of periodic monthly payments for a set of comprehensive primary care services (AAFP, 2019).

Hybrid Practice: A hybrid practice is a practice that has both DPC memberships and a traditional third party fee for service available (DPC Frontier, 2019).

Patient-Centered Care: A common term for healthcare which reflects the patient’s unique preferences and values which is agreed upon in partnership with the provider (New England Medical Journal [NEMJ] Catalyst, 2017).

Virtual Visit: An internet-based interaction between provider and patient (FMD, 2019).

Appendix B

Evidence Table

(P) In adult primary care patients between the ages of 19 and 65 (I) does implementation of a direct primary care model (C) compared to traditional fee for service primary care model with (O) result in patient enrollment (T) over a 6 month period (S) at Twin Rivers Urgent Care and Family Care in Seward, NE.

Title, year	Purpose	Design and Evidence Level	Sample and Setting	Results and Analysis	Limitations and Usefulness
NEW PRIMARY CARE MODELS					
1.(Ellner & Phillips, 2017) The Coming Primary Care Revolution	Discuss design principles of the coming primary care revolution.	Literature Review Level 5	Analysis of existing literature focusing on high-functioning primary care systems.	The revolution should consist of movement away from volume based medicine. Relationships will continue to be the foundation of quality primary care-increasing value.	There needs to be a primary care revolution. Improved primary care is a solution to the problems the U.S. is currently facing. Limitations: Authors incorporated their own opinions.
2.(Palumbo, 2017). Keeping Candles Lit: The role of Concierge Medicine in the Future of Primary Care.	Evaluating the existing evidence on the contributions of concierge medicine. Discussion of its effects on health care coverage, and its attributes to society.	Systematic Literature Review Level 5	29 manuscripts focusing on the institutional and ethical issues.	Concierge models could play a role in significantly enhancing primary care access and providing improvements in sustainability of the current healthcare system. Concierge patients are more satisfied with the relationship with the provider.	Concierge medicine supports population health. Concierge models could enhance primary care and improve the sustainability of the current healthcare system. Limitations: a small number of articles used.

3.(Uzogara, 2017) Obesity Epidemic, Medical and Quality of Life Consequences: A Review	Evaluation of the growing obesity epidemic and its consequences.	Literature Review Level 5	Published studies and anecdotal reports.	Obesity rates are at epidemic proportions. Reports details of various body consequences of obesity.	Interventions need to be developed to combat the obesity epidemic. Limitations: uses some unpublished anecdotal reports.
4.(Akinci & Patel, 2014) Quality Improvement in Healthcare Delivery Utilizing the Patient-Centered Medical Home Model	Evaluation of the PCMH and its ability to increase patient confidence in the healthcare services they receive.	Systematic Literature Review Level 5 Peer-reviewed articles between 2007 and 2013.	Studies included involve patients with multiple diseases. Comprehensive literature on the medical home model, and analysis of the United States healthcare system were also included.	The PCMH improves quality of care, and impacts quality of life for patients. PCMH also promotes improved practice infrastructure keep the patient at the center of their care.	PCMH model promotes patient-centeredness and fosters communication and coordination of care. Great potential to improve patient quality of life. Limitations: Small number of articles
5.(McMillan et al. 2013) Patient-Centered Approaches to Health Care: A Systematic Review of Randomized Controlled Trials.	Evaluation of the efficacy of patient-centered care interventions for people with chronic illness.	Systematic Review of 30 RCTs. Level 1	A large variety of patients including those in the US and other countries: GP, cancer care, stroke patients, hospital, diabetics, acute/ chronic, adolescents with fatigue, OB, and psych.	Interventions that increased empowerment resulted in higher patient satisfaction. Better communication resulted in higher levels of concordance and agreement. PCC could help meet the increased primary care demands secondary to rising multimorbidity in a time of fragmented and non-universal health care coverage.	Patient-centered doctors were shown to be more trustworthy by patients than the doctors that did not display patient-centered qualities. Limitations: Small number of RCTs Cochrane risk of bias tool used- several studies had a high risk of bias.

6.(Friedberg, Hussey, & Schneider 2010). Primary Care: A Critical Review of the Evidence on Quality and Costs of Health Care.	Review of empirical evidence linking definitions of primary care to health care quality, costs, and outcomes.	Literature Review Level 5	161 articles The US and other countries	Evidence supports initiatives to increase providers ability to reorient the health system to emphasize delivery.	Supports the use and need of new models in primary care/ reduction of fee-for-service may help reorient of health care system. Limitations: Lack of info regarding the "medical home."
7.(Ko, Rodriguez, Fairchild, Rodday, & Safran, 2009) Paying for Enhanced Service	Evaluation of the experiences of patients within a general medicine practice compared with a concierge medicine practice.	Single Quantitative Study – random samples of patients were drawn from a panel of four concierge providers and four general medical providers. A questionnaire was administered. Level 5	212 from gen practice and 132 from concierge between January and May 2006. Boston, MA	Patients within the concierge practice reported better service, improved care coordination, and greater access to care compared to those of the traditional medical practice.	Concierge medicine has positive benefits. Limitations: Unmeasured differences between the two populations. Possible bias from concierge clients due to fees. Two small practices
COST					
8.(Ghany et al., 2018) High-Touch Care Leads to Better Outcomes and Lower Costs in a Senior Population.	To compare the care outcomes of patients receiving one of two models of primary care, one with high touch care (HTC) and one without.	Retrospective Cohort Study Level 4	Two models of primary care including only Medicare Advantage seniors over 3 months. Chen Senior Medical Center- spread over 7 states vs control traditional family practice.	In a sample of Medicare Advantage patients, those who received HTC had fewer hospitalizations and lower healthcare costs.	HTC/ frequent encounters resulted in fewer complications and could improve patient-provider relationships. Limitations: Patients were matched with a limited number of factors. Possible information bias. HTC has components that may have played a role in outcomes.

9.(Musich, Wang, Hawkins, & Klemes, 2016) The Impact of Personalized Preventative Care on Health Care Quality, Utilization, and Expenditures.	Evaluation of health care use of a personalized preventive medicine program that delivers specific care focusing on disease prevention, behavior modification, and compliance with quality-related metrics.	Single randomized control trial Level 2	There were 10,186 members of the MDVIP group that were randomly selected and matched to nonmembers. Trends of health care utilization and expenditure were tracked for three years after enrollment.	MDVIP members experienced decreased emergency room and urgent care use compared to nonmembers. Extending visit lengths was shown to decrease one of the barriers effective primary care.	Results show that the primary care model improved the physician-patient relationships while focusing on preventive care. Limitations: patients enrolled were from single insurer health plans.
10.(Eskew & Klink, 2015) Direct Primary Care: Practice Distribution and Cost Across the Nation.	Describes characteristics of the DPC model. Identifies DPC practices across the U.S. and distinguishes it from other practice types, such as concierge medicine. Describes DPC pricing from existing DPC practices across the U.S.	Literature review Level 5	141 practices with 273 locations across 39 states. Data presented included number of physicians/non-physicians, fees, whether the practice was split, and Medicare opt-out status. Throughout the US.	Qliance (corporate multi-site DPC model) patients have a reduction in ER visits, decreased testing, specialist visits, and surgical procedures compared to traditional practices. As the use of quality primary care grows, overall health care costs are decreased.	The literature search did not identify a consistent definition of the DPC model. Limitations: Difficulty calculating prices due to variations and discounts Several of the DPC practices evaluated are small and quality data is lacking.
11.(Klemes, Seligmann, Allen, Kubica, Warth, & Kaminetsky, 2012) Personalized Prevention Care Leads to Significant Reductions in Hospital Utilization	Comparison of MD value in prevention (MDVIP) model to nonmember states over a five year period.	Cross-Sectional Study – observational Level 4	Discharge rates from the hospital were evaluated and compared to MDVIP members and nonmembers. Five states: Florida, New York, Arizona, Virginia, and Nevada over five years.	MDVIP members had less hospitalizations compared to non MDVIP members for the years 2006-2010. In the MDVIP cohort admissions were all decreased as compared with non-MDVIP members.	The MDVIP model of personalized care allows providers to be more proactive, and had lower costs related to healthcare. Limitations: This was an observational study in only five states, whereas MDVIP is a national company.

12.(Reid et al., 2009) Patient-Centered Medical Home Demonstration: A Prospective, Quasi-Experimental, Before and After Evaluation	Evaluation of a PCMH at Group Health Cooperative within its first year. Several components were evaluated.	Prospective Quasi-experimental before and after evaluation. Level 3	2 group over 12 months in Seattle, WA. Adults only, no children. Nineteen regular clinics compared with the PCMH trial clinic.	Staff burnout less in PCMH. More time spent communicating with patients via email and phone. Greater continuity of care noted. Fewer out of office urgent contacts. No difference in costs.	More focus needs to be placed on improving basic healthcare needs and increasing preventative care. Limitations: Older study, Quasi experimental design. Possibly section bias. Results not generalizable.
PRIMARY CARE SHORTAGE					
13.(Peikes et al. 2018) The Effects of a Primary Care Transformation Initiative on Primary Care Physician Burnout and Workplace Experience.	Assess the effects of comprehensive primary care (CPC) initiative on physician experience. Evaluate burnout.	Prospective cohort study- using cross-sectional random selection. Level 4	500 CPC and 900 matched practices for comparison.	CPC did not affect burnout levels or physician experience. Approximately one-third of physicians in each group reported burnout.	New ways to address burnout need to be evaluated. Limitations: Author used matching, rather than random assignment. Physicians' experiences were not measured before CPC.
14.(Zubatsky, Pettinelli, Salas, & Davis, 2018). Associations Between Integrated Care Practice and Burnout Factors of Primary Care Physicians.	Explore physician levels of burnout when working in integrated care.	Single Quantitative Study, cross-sectional Level 4	A survey was sent to health care providers in a variety office settings. There were 288 primary care physicians within the sample.	Physicians in fully-integrated care settings reported high levels of personal accomplishment and low levels of depersonalization compared to other providers in non-integrated care settings. No differences in burnout were noted.	Integrated care did not reduce burnout- other methods need to be evaluated. Limitations: This study was cross-sectional and did not span over a large amount of time. Providers experiencing burnout may have felt obligated to complete the survey.

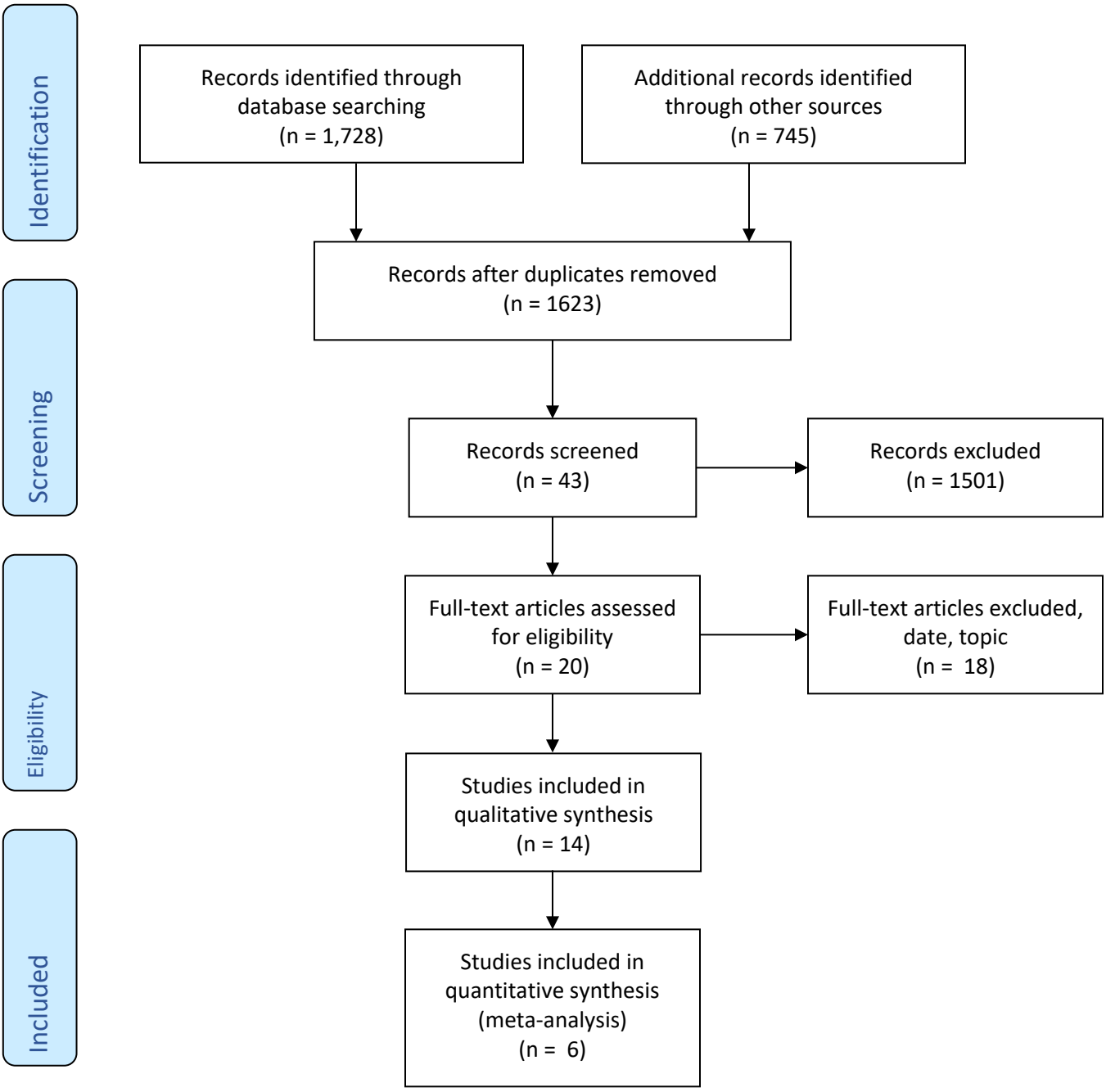
15. (Rothenberger, 2017) Physician burnout and Well-Being: A Systematic Review and Framework for Action.	Provide a current summary regarding current existing literature on physician burnout to develop a framework to decrease its prevalence.	Literature Review Level 5	Articles from Jan. 1, 2000, through Dec. 28, 2016. Any literature regarding medical students and physician burnout. Healthcare organizations in the U.S.	All U.S. physicians and medical students are at significant risk of burnout. Burnout prevalence now exceeds 50%. The physician burnout epidemic in the United States is growing rapidly, and the negative results are affecting not only health care providers.	40% met criteria for burnout, 30% met screening criteria for depression, and 6% had thoughts of suicide within the previous year. Limitations: Small number of articles.
16.(Doherty, 2015) Assessing the Patient Care Implications of "Concierge" and Other Direct Patient Contracting Practices: A Policy Position Paper From the American College of Physicians	Access the impact of DPCPs on access, cost, and quality.	Literature Review Level 5	Extensive literature review completed by the American College of Physicians.	The growth of DPC has been motivated by physician burnout secondary to paperwork, low reimbursement, loss of control, work-life imbalance, and time restrictions on patient interactions.	The ACP recognizes that policymakers need to address the increased pressures on primary care physicians causing this burnout. Limitations: Bias from ACP- statements from the group included in the article.
ACCESS					
17.(Glass, Kanter, Jacobsen, & Minardi, 2017) The Impact of Improving Access to Primary Care.	To evaluate utilization and costs changes for employees and dependents who had primary care access barriers removed.	Retrospective observational study over 8 year period. Level 3	Intervention (worksite primary care) and control group Fontana, CA	More PC visits within the intervention group decreased urgent care visits, When primary care access is improved the potential for reduction in utilization and costs is improved but not easily achieved.	Better primary care reduces urgent care/ ER needs. Increased PC costs canceled out potential savings from less urgent visits. Limitations: Quality and clinical outcomes were not evaluated. Differences in cohorts noted.

18.(Powell, 2017). Patient Perceptions of Telehealth Primary care Video Visits	Describe patient experiences with video visits.	Qualitative semi-structured interviews. Level 4	A total of 32 patients identified, 19 successfully interviewed experienced video calls for personal use, and zero percent had prior video calls for health care. Patients who had a virtual visit with their primary care provider aged 18+ at a single academic medical center.	Virtual medicine and telemedicine are becoming increasingly popular in all areas of healthcare because of convenience, accessibility, and potential cost savings. Patients reported increased satisfaction with video visits. Primary concerns were for privacy and lack of physical exam.	Benefits of virtual visits include improved convenience, privacy, efficiency, and comfort for patients. Limitations: Sampling frame limits to patients within two practices and one health system. Interviews were sometimes conducted up to one month after the visit possibly reducing the recall of their visit.
19. (Bennett et al., 2010) Web-Based Weight Loss in Primary Care: A Randomized Controlled Trial	Evaluation of the success of a short-term web-based weight loss intervention in primary care among 101 hypertensive and obese patients.	RCT Level 2	101 PC patients in Cambridge, Massachusetts. Over 1 year- 2005 to 2006 compared to current standard of care offered by the outpatient practice.	Participation in a three month virtual based behavioral weight loss intervention resulted in 3.05 kg greater weight loss than patients receiving usual primary care alone.	Successful web-based virtual weight loss programs can be offered in the primary care setting. Limitations: Small sample size. Follow-up period was of short duration
20.(Saultz et al., 2010). Access Assured: A Pilot Program to Finance Primary Care for Uninsured Patients Using a Monthly Enrollment Fee	Evaluation of a program (Access Assured) used by two family medical practices to offer care to uninsured patients using a monthly membership payment system with the use of a sliding fee schedule for office visits.	Prospective cohort study Level 4	All uninsured patients who scheduled appointments in any of the two family medicine clinics operated by Oregon Health and Science University.	600 enrolled patients equaled fifty new clients per month which was more than expected. Most patients also had a higher income than expected.	The program was financially viable and was able to be expanded to Oregon residents. A membership payment program is a useful for serving uninsured patients. Limitations: short duration period.

Appendix C

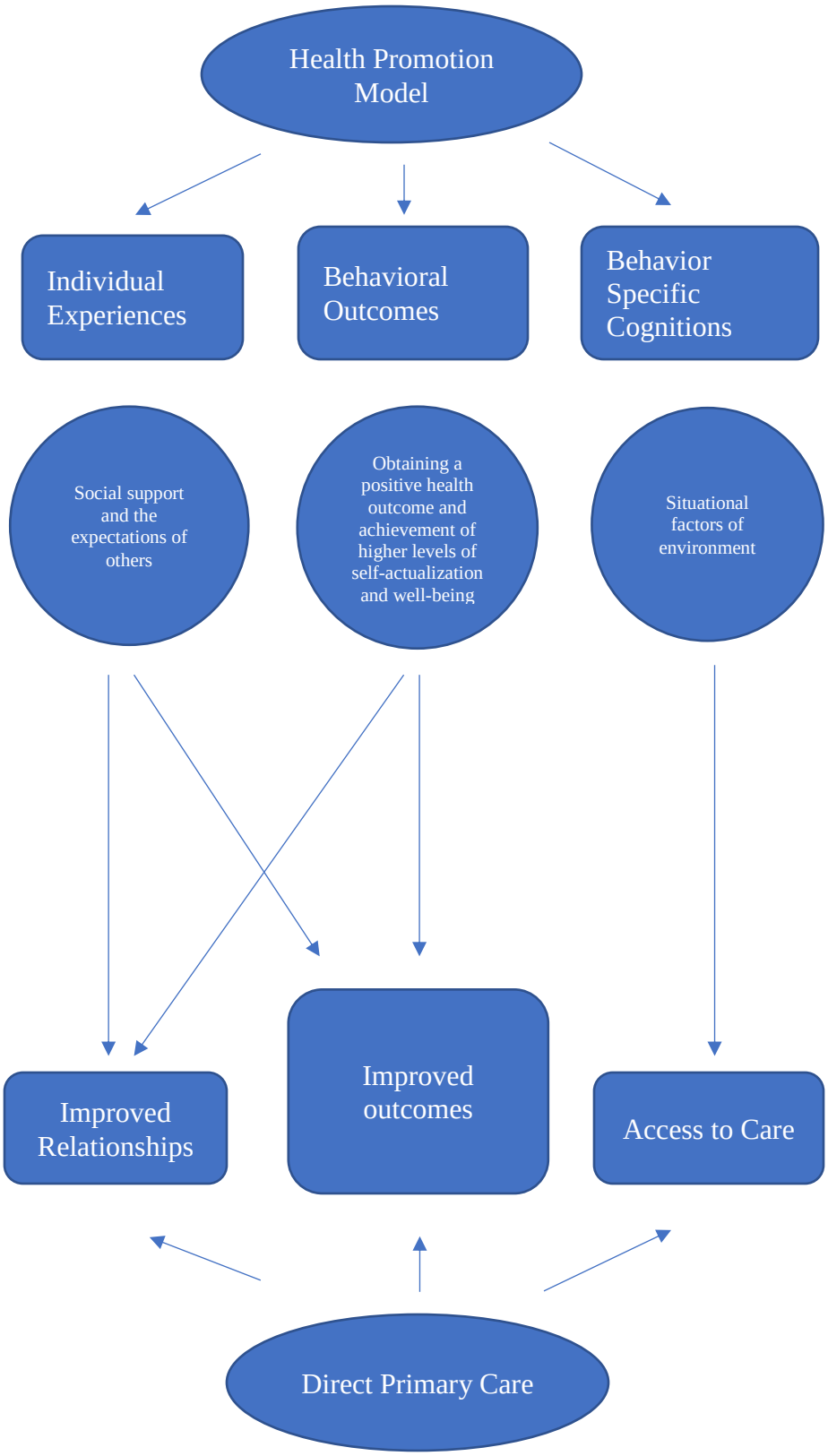
Modified Prisma Table

PRISMA 2009 Flow Diagram



Appendix D

Theory to Application Diagram



Appendix E

IRB Approval Letter

UMKC **Institutional Review Board**
University of Missouri-Kansas City

5319 Rockhill Road
Kansas City, MO 64110
816-235-5927
umkcirb@umkc.edu

Dear Lyla Jo Lindholm,

A member of the UMKC Research Compliance Office screened your QI Questionnaire to project #2015988-QI entitled "Implementation and Evaluation of the Success of a Direct Primary Care Model" and made the following determination:

QI Determination: **The project has been determined to be a quality improvement activity not requiring IRB review.**

If you have any questions regarding this determination, please feel free to contact our office at 816-235-5927, umkcirb@umkc.edu, or by replying to this notification.

Note Regarding Publications: It is appropriate to disseminate and replicate QI/program evaluation successes, including sharing the information external to an organization. This may include presentations and publications. The mere intent to publish the findings does not require IRB review as long as the publication does not refer to the activity as research.

Thank you,
UMKC Institutional Review Board

Appendix F

Faculty Approval Letter

Appendix G

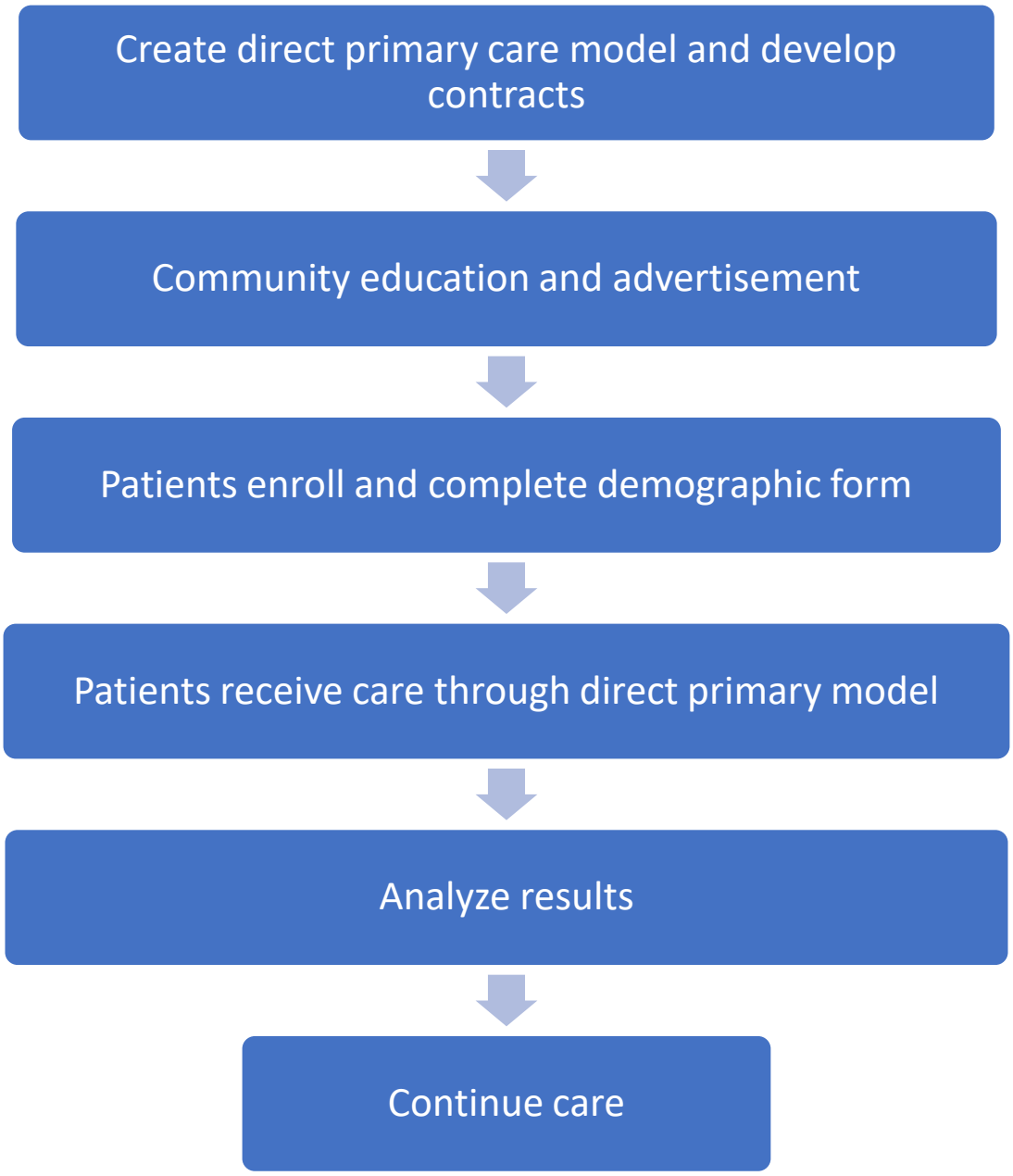
Budget Table

Item	**Item Description**	**Quantity**	**Unit Cost**	**Anticipated Cost**	**Actual Cost**
Legal Fees:	Attorney fees for review of contracts	Hybrid questions Review of 3-4 contracts Advice as project progresses	Various	$500.00	$3,500
Advertisement	Newspaper ads	One	4x6”- $264/week (SCI); $113/week	$500.00	FREE (spotlight ad)
	Mailers	Target population		$1,750.00	Did not order
	Banner	One large		$275.00	$99.49
	Facebook paid ads		$15-$25 each		$200
Miscellaneous	Staff education	2 clinical staff, 2 receptionist	5 hours @ $20.00 per hour	$400.00	$128.00
	Other staff time spent	Billing, marketing, and director			$550.00
	Printing for handouts			$200.00	$390.00
	Community education night			$400.00	$150.00
Total				$4025.00	$8,816.98

Appendix H (Recruitment materials deleted)

Appendix I

Intervention Flow Diagram



Appendix J

Project Timeline

May 2019	Present project at clinical institute
April-July 2019	Development of DPC model- included services, costs, and available health care plans Model approval from CEO Contract development Attorney approval of contracts
June- July 2019	Faculty and IRB approval
June-August 2019	Advertisement and community education
August 2019- Jan. 2020	Open enrollment Obtain Consent Pre-enrollment demographic intake form Continue advertisement and Education
Jan. -Feb. 2020	Data collection/ process measures
Feb. – April 2020	Results finalized for publication Poster presentation at local nursing conference Prepare manuscript for publication

Appendix K Logic Model for DNP Project

Inquiry, PICOTS: (P) In adult primary care patients between the ages of 19 and 65 (I) does implementation of a direct primary care model with the use of virtual medicine (C) compared to traditional fee for service primary care model with (O) result in patient enrollment, and improvements in self-reported health care costs, access to provider, and level of overall wellness (T) over a 6 month period (S) at Twin Rivers Urgent Care and Family Care in Seward, NE.

Inputs	**Intervention(s)** *Activities*	**Outputs** *Participation*	**Outcomes -- Impact** Short	Medium	Long
Evidence, sub-topics 1. New health care models are needed to enhance the current health care system. 2. Health care costs are burdening and create a barrier to adequate primary care. 3. Primary care provider shortages pose barriers to quality primary care. New models are needed to decrease primary care burnout. 4. Access to quality cost-effective primary care is associated with improved outcomes and reduces cost. **Major Facilitators or Contributors** 1. DNP Faculty 2. Support from project site- CEO and clinic staff. 3. Community support **Major Barriers or Challenges** 1. Lack of enrollment 2. IRB response delay 3. Legal barriers 4. Lack of buy-in	**EBP intervention which is supported by the evidence in the Input column.** Implementation of a direct primary care model will result in enrollment and decrease health care costs, increase access, improve patient satisfaction, and improve health. **Major steps of the intervention (brief phrases)** 1. Develop a direct primary care model 2. Implement the model into practice 3. Advertise and enroll patients into the practice 4. After six months evaluate process measures and demographic data	**The participants:** Primary care patients in Seward, NE who choose to enroll in the DPC program. **Site:** Twin Rivers Urgent Care and Family Care- Seward, NE **Time Frame:** 6 months **Consent or assent Needed:** By enrolling into DPC and completing demographic form **Other person collecting data:** Receptionist **Others directly involved in consent or data collection:** Partner in practice, Nichole, APRN	**(Completed during DNP Project)** **Outcome(s) to be measured** **Primary:** Process measures including participants enrolled and demographics **Measurement tool** Self-developed demographic intake form. **Statistical analysis to be used** Descriptive statistics	**(after student DNP)** **Outcomes to be measured** 1. Pre and post survey analysis of self-reported access, cost, and satisfaction	**(after student DNP)** **Outcomes that are potentials** 1. Evaluation of improvement in HgBA1Cs, blood pressure, weight loss within DPC practice compared to traditional fee-for-services health care. 3. Employer group enrollment

Appendix L

Demographic Intake Form

MRN:_____

Circle Answers Below

Gender: Male Female Other

Age: 19-30 31-45 46-65

Race: White Black or African American Hispanic or Latino (any) Asian

American Indian and Alaskan Native Native Hawaiian and Other Pacific Islander

Type of Insurance: None Commercial Private Health sharing plan

Marital Status: Single Married Widowed

Income: $0-$14,999 $15,000-$34,999 $35,000- $49,999 $50,000-$64,999

$65,000-$74,999 $75,000-$99,999 $100,000 or more

Co-morbidities: Diabetes Hypertension Obesity

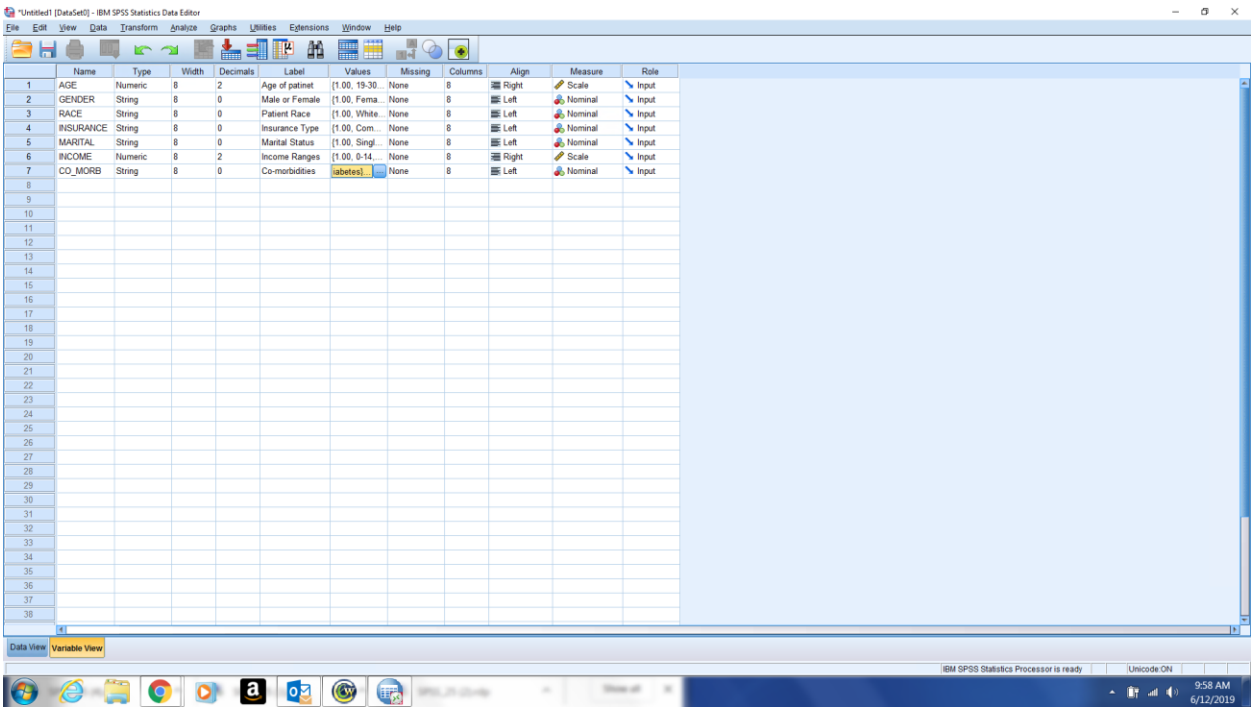
Cancer Respiratory Disease Kidney disease

Mental health Other:_____

Appendix M

Data Collection Template

	F	%
Gender of all Patients		
Female	8	57.1%
Male	6	42.9%
Other		
Age of all Patients		
0-18	5	35.71%
19-30	2	14.29%
31-45	3	21.43%
46-65	4	28.57%
Race of Adults		
White	9	100%
Black or African American		
Hispanic or Latino		
Asian		
American Indian or Alaskan Native		
Native Hawaiian or other Pacific Islander		
Insurance Type of Adults		
None	6	66.67%
Commercial	2	22.22%
Private	1	11.11%
Health sharing plan		
Marital Status of Adults		
Single	4	44.44%
Married	5	55.56%
Widowed		
Income of Adults		
$0-$14,999	1	11.11%
$15,000-$34,999	4	44.44%
$35,000- $49,999	1	11.11%
$50,000-$64,999	2	22.22%
$65,000-$74,999	1	11.11%
$75,000-$99,999		
$100,000 or more		
Co-morbidities of Adults		
Diabetes		
Hypertension	3	33.33%
Obesity	4	44.44%
Cancer		
Respiratory Disease	2	22.22%
Kidney disease		
Mental health	7	77.78%
Other	1	11.11%


*Untitled1 [DataSet0] - IBM SPSS Statistics Data Editor
File Edit View Data Transform Analyze Graphs Utilities Extensions Window Help
Name Type Width Decimals Label Values Missing Columns Align Measure Role
1 AGE Numeric 8 2 Age of patinet [1.00, 19-30... None 8 Right Scale Input
2 GENDER String 8 0 Male or Female [1.00, Fema... None 8 Left Nominal Input
3 RACE String 8 0 Patient Race [1.00, White... None 8 Left Nominal Input
4 INSURANCE String 8 0 Insurance Type [1.00, Com... None 8 Left Nominal Input
5 MARITAL String 8 0 Marital Status [1.00, Singl... None 8 Left Nominal Input
6 INCOME Numeric 8 2 Income Ranges [1.00, 0-14,... None 8 Right Scale Input
7 CO_MORB String 8 0 Co-morbidities abetes)... None 8 Left Nominal Input
Data View
Variable View
IBM SPSS Statistics Processor is ready
Unicode:ON
9:58 AM
6/12/2019