EFFICACY OF A FREE CLINIC UTILIZED AS A TRANSITIONAL CLINIC FOR THE UNINSURED: OUTCOMES ON CHRONIC DISEASE MANAGEMENT AND EMERGENCY DEPARTMENT/HOSPITAL RATES.

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Efficacy of a Free Clinic Utilized as a Transitional Clinic for the Uninsured: Outcomes on Chronic Disease Management and Emergency Department Visit/Hospitalization Rates.

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Abstract:

Objectives. To analyze the effectiveness of a novel system of transitional care to a medical home for uninsured populations living with chronic, uncontrolled diabetes. To quantify the impact of A1C management and healthcare maintenance on rates of hospitalization and/or emergency department visits due to disease complications.

Methods. A retrospective chart review was performed, and patients were surveyed in Summer 2018 to determine current medical home status and what their last A1C was measured at after transitioning from the free clinic. The patient population selected included 38 patients who entered the transition process with a mean age 52 (±6.9 years). This group was made up of 14 men and 24 women. 16 total participants were fully transitioned to an FQHC (8 men and 8 women).

Results. 50% successfully established care in a medical home. Established patients had an average initial A1C of 10.2%, time of transition A1C of 6.4% and post-transition A1C of 7.4%. Hospitalizations were reduced by 91% for all patients and Emergency Department visits was reduced by up to 79%.

Conclusions. Transitioning to a medical home after achieving A1C control in a transitional clinic increased the likelihood of continued disease management and decreased the likelihood that they would require a higher level of care related to disease complications.

Policy Implications: Medical homes may improve chronic disease outcomes for patients and healthcare systems.

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Introduction:

Data on methods for the establishment of long-term care in a medical home for uninsured populations in the United States is scarce. Uninsured populations still make up 9% of the American population, despite the introduction of the Affordable Care Act in 2010. In many urban areas, including Central City in Maricopa County, Arizona, the percentage of the population that is uninsured climbs to upwards of 31.1%[1]. These high rates are even more impactful in Arizona, considering that a large majority of the uninsured population experiences numerous other barriers to care, including language and employment status[2].

In the United States, 11.4 million Americans between the ages of 15-64 with chronic diseases do not have health insurance. These uninsured individuals make up 16.6% of the 8.5 million with diabetes. They are 16.4% less likely than their insured counterparts to visit a physician (22.6% vs. 6.2%) and are 19.9% less likely to have a medical home for their care (26.1% vs 6.2%). In fact, for 7.1% of the uninsured patients with these conditions, their standard site of care is an emergency department, an increase of 6% over those who were insured[3]. 25% of emergency visits in 2015 were from patients 45 and older with diabetes. These patients were almost twice as likely to be admitted compared to their non-diabetic counterparts[4].

Research has shown that uninsured adults with chronic diseases are more likely to be undiagnosed and to experience adverse effects from their disease, such as a stroke or death. These increases over their insured peers can be upwards of 26% for mortality and 65% for a stroke event. These detrimental effects of lack of insurance on chronic disease progression can be traced back to an absence of disease management and preventive care. In fact, when access to care is rectified in uninsured populations, including those who were over the age of 65, outcomes are significantly improved[5].

Transitional care has been increasing in prevalence in hospital systems, with the main goal of their usage focusing on the reduction of 30-day rehospitalizations from the time of discharge. The majority of the patient studies in circulation follow the results of the implementation of transitional care in patients with chronic diseases, including heart failure and diabetes. Currently, numerous transitional care programs exist for patients being discharged from

a hospital after a hospital stay for a chronic condition. Some of these systems are designed for socioeconomically disadvantaged patients, including those who are uninsured or on Medicaid. None of the current studies, however, focus on patients who were seen in a clinic before transitional care was initiated, as opposed to a hospitalization event[6-9].

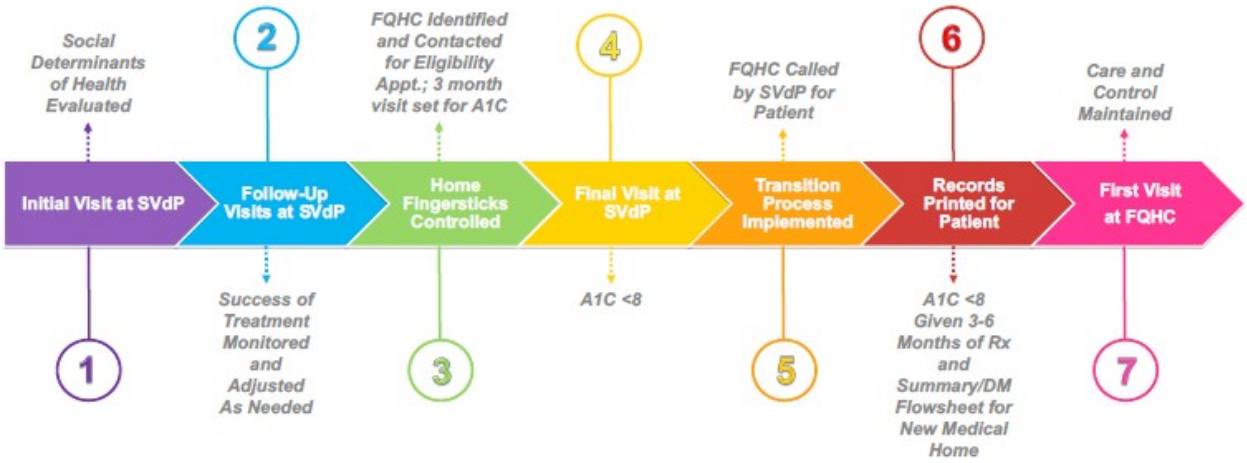
16.6% of uninsured patients report visiting the Emergency Department in the past year[10]. In Maricopa County in 2015, out of a total 1,383,393 Emergency Department visits, there were 8,150 related to diabetes[11]. Uninsured patients can often be forced to use the Emergency Department for primary care for chronic conditions due to a lack of proper access to care in other settings. Access to proper care is defined as care that addresses their medical needs. Many patients who turn to the Emergency Department for care have been to clinics before going to the Emergency Department. However, these clinics are often only able to provide band-aid solutions to their medical problems and do not address the underlying cause of the disease or the disease progression. Patients may also think that going to an Emergency Department in a hospital for care will give them a better standard of treatment due to a lack of education or cultural biases regarding care in a hospital versus a clinic. In an Emergency Department, the goal for physicians is not to provide ongoing care for a chronic underlying condition, so even if the current episode of an exacerbation of disease is addressed in the Emergency Department, the patient will not receive a solution to disease and symptom longevity as they would in a medical home primary care setting. These misuses of the Emergency Department are a costly expenditure, especially when the complaint or event could have been avoided or addressed in a primary care clinic setting. In a study on homeless adults utilizing the Emergency Department, enrolling the chronically ill patients in a case management system with access to housing services as a part of their discharge plan decreased hospitalizations, hospital days, and Emergency Department visits over the following 12 months. Reductions of 29%, 29%, and 24% respectively showed how providing an access point to stable care can improve patient management in chronic diseases and decrease wasteful Emergency Department expenditure within healthcare systems[12].

For patients at SVdP, the transition process involved seven steps as outline in the timeline below **(Figure 1)**. First, patients were referred from a hospital or another clinic who was not able to address their needs. Second, they received evidence based standard of care for diabetes, diabetic complications, and all other chronic and preventative healthcare needs including vaccines and cancer screenings. This included enrollment in a diabetes self-management training

program, receiving first line medications through patient assistance programs free of charge, and addressing other social determinant including applying for Medicaid or Medicare. Once sugars were controlled on fingersticks the transition process started steering the patients to a specific FQHC and having them make eligibility appointments. When A1C control was achieved they were referred to the FQHC they had gone through eligibility for prior for on going care. The last step was successful transition to their new medical home through attending an initial appointment for establishing care at their selected FQHC.

The intention of this study is to determine if a standardized system of the transition of care from a temporary clinic to a permanent medical home is effective in a high-risk uninsured population with chronic disease in the Phoenix metropolitan area. This study will be a survey of former patients who utilized the transition system and the organizations that run the medical homes where the patients were directed to transfer their care to. We will examine the correlation between the involvement of a standardized transfer of care policy and the success of such an initiative.

Figure 1: St. Vincent de Paul Medical Home Transition Process



Methods:

This project was given IRB approval in May 2018 by the University of Arizona IRB review board (Protocol #: 1805527311). A retrospective chart review was conducted to identify

patients who recently transitioned from the St. Vincent de Paul free clinic to a federally qualified health center utilizing the transition system that had been put into place to enable continuous care in a medical home after diabetes control was achieved via hemoglobin A1C management at St. Vincent de Paul. Charts from patients that transitioned from six months to two years prior were reviewed. Patients were required to have had type two diabetes mellitus an A1C <8% prior to transition. Qualified individuals included adults aged 25-65. Gender, sex, or ethnicity were not excluding factors. Exclusion criteria included not being able reachable to complete the post-transition survey or having not started the final step of the transition process to an FQHC.

Data collected included date of transition, clinic transitioned to, initial A1C at St. Vincent de Paul, transition A1C, and follow-up A1C post-transition. Additional data recorded was composed of incidents of hospitalization and emergency medicine visits obtained from hospital records or the patient themselves. Data was kept secure through assigning a coding process to participant's answers to de-identify the data.

Once qualified patients were identified their telephone numbers on file were utilized to contact them for consent via telephone. A medical Spanish interpreter was present for all calls to provide interpretation services if needed. After consent was acquired, a survey was administered, and their answers recorded. The survey focused on whether successful implementation of each step of the transition process occurred including attending their first appointment, going to the assigned clinic, and avoiding repeat labs at their first appointment. Survey questions included:

1. "Did you go to your first scheduled appointment?"
2. "Did you experience any issues getting into your clinic?"
3. "Did you go to the clinic originally assigned to you?"
4. "Did you get labs done on the first visit?"
5. "Have you gone to other FQHCs or free clinics since leaving St. Vincent de Paul?"
6. "Have you gone to the Emergency Department since leaving St. Vincent de Paul?"
7. "Have you been hospitalized for this condition since leaving St. Vincent de Paul?"

We additionally had patients receive a recent hemoglobin A1C test to compare their current level of control to their control upon leaving St. Vincent de Paul.

Statistical analysis focused on detecting significant differences in A1C levels pre and post transition, as well as whether there was a significant change in hospitalizations and emergency

medicine visits due to their chronic health condition. Additional investigative outcomes included identification of obstacles to transition.

To complete the analysis, we compared frequencies of hospitalizations and emergency medicine visits to the patient's level off control before and after their transition. Before transition was defined as 12 months prior to transition. After transition ranged from 5-14 months post-transition depending on the date that a patient was successfully transitioned in relation to the time data was collected. The average post-transition time period was six months (±2.8 months). Kruskal-Wallace analysis was used to determine the statistical significance of the different in A1C. Linear and Logistic Regression was indicated to determine the relationships between the post-transition difference in A1C and identified barriers to successful implementation of the transition process. The same regressions were used for comparing difference in A1C and projected hospitalization or Emergency Room usage. Significance was assumed at the $p<0.05$ level.

Results:

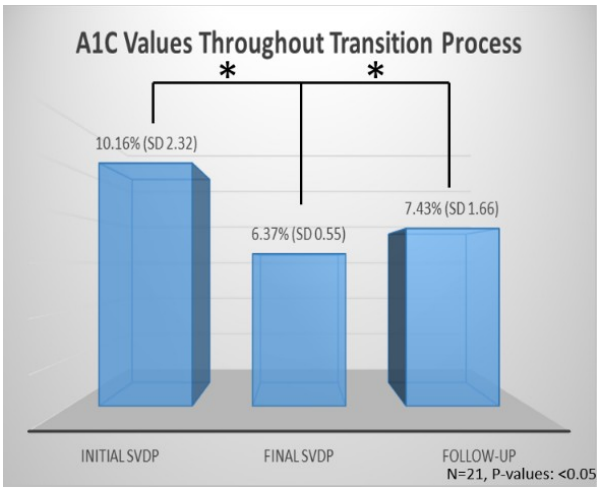
38 patients who had entered the transition process between July and December 2017 after having their Diabetes Mellitus stabilized were surveyed (**Table 1**). 42% of these patients were able to successfully establish care with an FQHC after control was achieved while in the free clinic and after transition. Those who were able to establish care maintained that level of control at 6-12 months of follow up with an average initial A1C of 10.2% (±2.32), time of transition A1C of 6.4% (±0.55) and post-transition A1C of 7.6% (±1.66) (**Figure 2**). These values were significantly significant based on the data from 21 participants who were able to provide a recent A1C value.

Table 1: Demographic Data, SVdP (St. Vincent de Paul)

	Men	Women	All
# of Patients	14	24	38
Average Age	52	52	52
Transitioned	8	8	16
A1C (First at SVdP)	9 (1.9)	9.8 (2.3)	9.5 (2.2)
A1C (Last at SVdP)	6.3 (0.42)	6.5 (0.56)	6.4 (0.51)

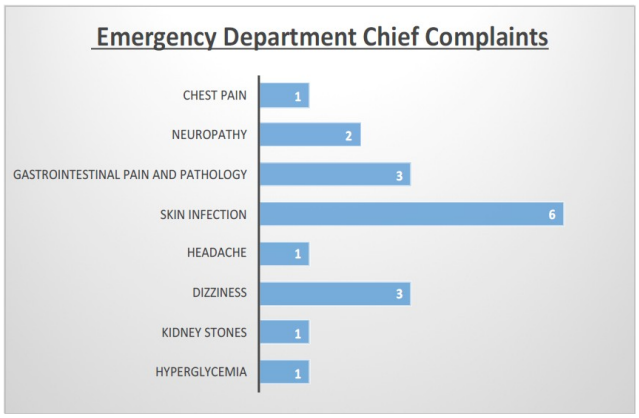
Age StDev: ±2.9 years

Figure 2: A1C Values Throughout Transition Process



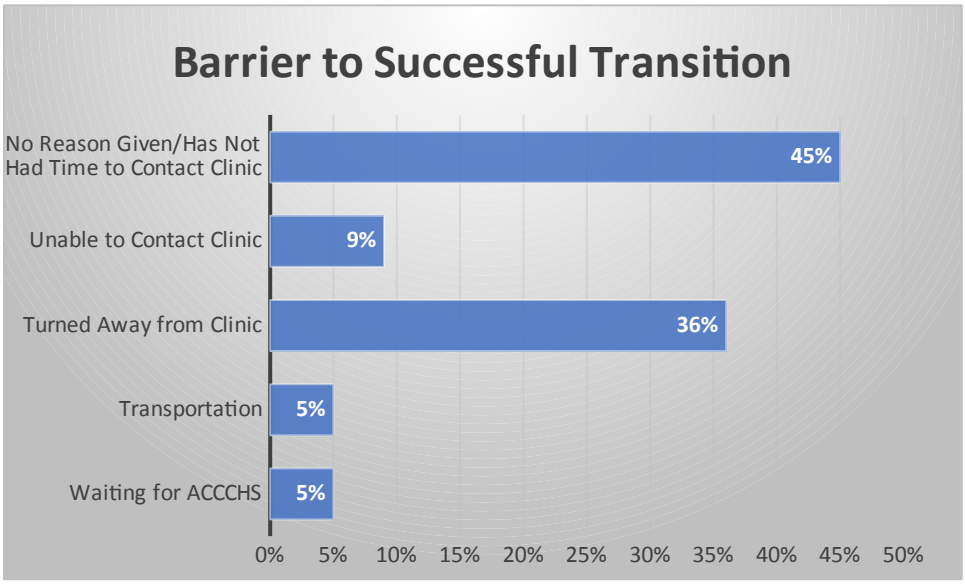
Additionally, incidents of hospitalization after transition were reduced by 91% for all patients and Emergency Room usage was reduced by 79%. Prior to the transition there had been 42 emergency visits, and after transition there were nine total visits. This was a statistically significant reduction. Emergency visit chief complaints from those successfully transitioned (n=18) were accessed from the hospital system and recorded (**Figure 3**). Hospitalizations were also significantly reduced from 11 to one. We were unable to determine all the reasons for hospitalizations in the transitioned groups for prior to transition, however the one post-transition hospitalization was due to an infected pedal ulcer. Two pre-transition hospitalizations were due to gallbladder pathology, one due to facial abscesses, and another due to bladder cancer resection.

Figure 3: Emergency Department Chief Complaints



For those who were unable to transition, common barriers to transition were established (**Figure 4**). The most common reason was that the patient had not yet had time to approach their new medical home to establish care or had not yet felt the need to as they were feeling well (45%). Another common complaint was that they were turned away from a clinic or told they did not qualify even though they had been assigned that clinic at St. Vincent de Paul as they were known to qualify for treatment there (36%).

Figure 4: Barriers to Successful Transition



Discussion:

There has been a lack of studies focusing on a transitional care system in uninsured populations, even though the uninsured make up 9% of the US population. Instead, previous studies have focused on transitional care going from a hospital setting to the community to reduce hospital readmission rates. In this project, we hoped to address a large gap in the standard of care for uninsured populations, using current data from the Phoenix Metropolitan Area. To do so, we examined the effectiveness of a transitional care system in a safety-net system which was meant to improve clinic and patient follow-through in obtaining continuous medical care in a medical home.

Having an established medical home, even if temporary in the case of SVdP, resulted in maintenance of diabetes control below the pre-determined cut-off threshold of 8.0% HgA1C. Having a chronic illness managed and addressed directly by a primary care clinic as opposed to

bouncing from clinic to clinic or from Emergency Department to Emergency Department was vital in patients successfully gaining control of their diabetes. This is important to distinguish, as even though there was a statistical significance between the final pre-transition A1C level in patients compared to the follow-up A1C, an acceptable level on control was still maintained. As A1Cs post-transition were only able to be obtained in 21/38 patients included in the study, additional data will be needed to further determine the impact of transition on A1C.

These patients had significant improvement in disease surrogates despite only 41% of them successfully transitioning to FQHCs. FQHCs were chosen as their permanent medical homes due to the nature of resources they offer uninsured patients. Regarding the low rate of complete transitions, factors can be divided into patient and clinic centric areas. Patient centric include patients not feeling that they needed to be seen as they were feeling good or that they did not have enough time to establish care. These concepts exhibit the concept of healthcare in this country that does not emphasize preventative care as much as care when things have already escalated. In terms of time, transition was started three months prior to their last appointment at SVdP. Therefore, there was sufficient time and patient ownership and prioritization of healthcare needs to be emphasized and reinforced. Clinic centric obstacles included FQHCs telling patients that they did not qualify for care or that they should call back in three months without good cause as to why. This shows a concerning barrier to care from the suppliers of care themselves and may be related to how FQHCs get paid a standard rate of $250 for Medicare/Medicaid patients, so that the uninsured may be de-prioritized over maximizing those insured patients. Improving training for FQHC staff regarding their mission and their intended service populations could help to transition from business centric to patient centric practices to improve these barriers.

Hospital based transitional clinics have the aim of decreasing hospital readmissions which lead to penalties from third party payors. They have strong incentive to maximize likelihood of readmission without the countering incentive to provide long-term, appropriate primary care like the system employed at SVdP. Acting less as a primary care clinic and more as a replacement for the emergency department, hospital transitional care systems often serve to only delay readmissions and can lead to increased fragmentation of care. In that way, their sole purpose would seem to be to stave off insurance penalties as opposed to transitioning patients to sufficient longitudinal primary care after hospital admission. The SVdP method of transitional

care functions in a completely opposite way to put patients first and as the data has shown, this leads to sustainable results and improvement in patient quality of life.

Regarding higher level of care expenditures, incidents of hospitalization or emergency medicine visits were reduced in the patients maintaining their A1C at acceptable levels compared to patients who presented uncontrolled after the transition process. These changes were also significant. Of the emergency department visits with accessible chief complaints from prior to transition, many were related to common complications from diabetes. These complaints, along with the reduction in emergency visits after A1C control show how impactful uncontrolled diabetes can be on an Emergency Department. These results are notable for their displayed benefits to the healthcare system and patients alike, having clinical and statistical significance. Fewer instances of hospitalizations and emergency medicine visits translate into improved quality of life for patients as they are not experiencing exacerbations of their uncontrolled chronic conditions, while the healthcare system is not having to dedicate costly resources to their care. Prevention of adverse outcomes of chronic disease is less costly to patient and physician alike.

Limitations of this study include a small sample size. However, our sample size was determine based on statistical power and therefore was adequate but could be improved to increase the power of this study. Additional improvements could be made by increasing the number of follow-up A1Cs obtained.

Public Health Implications:

Access to proper primary care and disease management can reduce Emergency Department expenditure and improve patient outcomes. With hospitalizations and Emergency Department visits reduced, healthcare systems will avoid unnecessary expenses and increase the quality of care uninsured populations experience by more successfully incorporating them into a wider system of long-term, stable care in a medical home where chronic conditions can be managed to improve quality of life. The St. Vincent de Paul transition system can serve as a framework for healthcare systems throughout the country serving chronically ill, uninsured populations.

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