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Health Maintenance Organization-Federally Qualified Health Center (HMO-FQHC) Collaboration to Provide After-Hours Pediatric Primary Care: A Feasibility Study

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Authors' contributions

This work was carried out in collaboration between all authors. Author APG had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Author LSF, CEB, APG, SA. Acquisition of data: Authors LSF, APG, XGT. Analysis and interpretation of data: Authors LSF, CEB, SA. Drafting of the manuscript: Authors LSF, APG, XGT. Critical revision of the manuscript for important intellectual content: All authors. Statistical analysis: Authors LSF, SA. Obtained funding: Author APG. Administrative, technical and material support: Authors APG, XGT. Study supervision: CEB, APG. All authors read and approved the final manuscript.

Original Research Article

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ABSTRACT

Aims: Examine feasibility, implementation and impact of a Health Maintenance Organization (HMO)-Federally Qualified Health Center (FQHC) collaboration in providing after-hours care as an Emergency Department (ED) diversion strategy.
Study Design: Prospective study using pre-post comparison design.
Methodology: Service enhancement program with the addition of after-hours clinic

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services coupled with a Texas Children's Health Plan outreach campaign were conducted in Houston, Texas to promote the increased availability of clinic services during a six month period from September 2006 to February 2007 to enrolled Medicaid and State Children's Health Insurance Program (SCHIP) enrollees. Claims data were used to identify after-hours clinic utilization and a pre-post analysis compared ED use rates of after-hours clinic users, non-users within the service area, and other enrollees in the health plan. Start-up costs provided by community funders amounted to 46,000 dollars (onetime payment) and marketing outreach campaign was supported with 52,000 dollars from TCHP.

Results: During the intervention time frame, September 1, 2006 thru February 28, 2007, at least 194 enrollees visited the after-hours clinic. An impact on ED utilization was not found and the six-month post intervention ED utilization for both the intervention and comparison groups increased when compared to the six-month baseline measurement period.

Conclusion: Establishing and promoting the after-hours clinic during this project targeting HMO enrollees was determined to be feasible with at least 194 enrollees who resided in the targeted area visiting the after-hours clinic at the FQHC. A six-month study period was long enough to examine the feasibility of providing after-hours pediatric health services, but probably not long enough to assess the full impact of after-hours health services on ED use. Further study, over an entire year allowing for the incorporation of both high and low seasonal trends will be essential to definitively assess if and HMO-FQHC collaboration on an after-hours clinic is an effective strategy to reduce ED visits in a traditionally underserved population of children covered under the Medicaid and SCHIP.

Keywords: *Emergency department (ED) diversion; pediatrics; medicaid; state children's health insurance program (SCHIP); primary care; community health centers.*

1. INTRODUCTION

Patients receiving Medicaid benefits are more likely to receive primary care services from providers at community health centers (CHCs) and hospital outpatient departments (OPDs) than from physician offices [1]. These CHCs are often Federally Qualified Health Centers (FQHCs) who locate in relatively underserved areas that are less attractive to other providers with high commercially insured populations. Recent studies also show a decline in the percentage of office-based primary care physicians who will accept new Medicaid patients [2-5]. These findings suggest that a large percentage of the surge in demand for primary care from newly enrolled Medicaid patients will have to be met by CHCs including FQHCs and other safety net providers. This is of importance at the present time since in its 2012 ruling on the Affordable Care Act (ACA), the Supreme Court made expansion of the Medicaid program optional for states. Those states that choose to implement the expansion of Medicaid will extend coverage to children and adults up to 138% of the federal poverty level [1]. In states with expanded programs, Medicaid health maintenance organizations (HMOs) will be positioned to generate new revenue from an influx of newly eligible individuals and existing eligibles who will be more likely to enroll owing to the increased awareness of coverage options that exist under the ACA. Receiving some attention in the professional literature is the anticipated reality of a lack of access to primary and preventive health services among the newly covered and the potentially vast care burden will likely fall to FQHCs which have a long standing tradition of serving patients in areas where others have traditionally not been willing to locate and serve [2].

Limited access to healthcare providers has been shown to be related to increased use of emergency departments (EDs) among Medicaid enrollees when compared to privately insured patients [6,7]. At the national level, Medicaid and State Children's Health Insurance Program (SCHIP) enrollees have higher rates of ED use for non-emergent care than enrollees in commercial health plans [8]. The Emergency Department utilization for non-emergent problems continues to be a concern of managed care plans serving Medicaid and SCHIP populations.

With their administrative databases, their connections to populations of Medicaid and SCHIP enrollees and the community health providers that serve them, managed care plans are able to monitor ED use and design initiatives to reduce non-emergent ED use. At the time of this feasibility study, Texas Children's Health Plan (TCHP) provided Medicaid and SCHIP coverage for about 200,000 enrollees. Its provider network included pediatricians, specialists and hospitals located throughout its service area. In 2004, enrollees generated 47,300 emergency room (ER) visits costing \$17.3million. At the time, an ER visit was \$331 and the average cost of a Primary Care Physician (PCP) office visit was \$67. TCHP set out to improve primary care and reduce ED use among its Medicaid/SCHIP enrollees by subsidizing after-hours primary care clinics. This strategy was based on a survey that found that two-thirds of its network providers did not offer after-hours care. In addition to the traditional approach of educating families that their children's needs could be met during regular operating hours, TCHP decided to try a different strategy. In collaboration with a highly regarded FQHC, TCHP sought to empower its provider network to meet this stated need for after-hours care.

Strategies highlighted in the professional literature to reduce ED utilization include establishment of a patient medical home, [9] gate-keeping, [10,11] education, [12,13] after-hours on-call nurse triage, [14] and expansion of primary care availability. [9,10,14,15] One retrospective study of Medicaid HMO enrollees and their in-network primary care practices, found that patients from practices with more than 12 evening hours/week used the ED 20% less than patients from practices without evening hours [16]. This supported the TCHP interest in collaborating with an FQHC located in an underserved area to potentially decreased ED utilization towards more cost effective after-hours clinic services.

To further examine the potential of the after-hours strategy, TCHP, a Medicaid and SCHIP health maintenance organization (HMO) in the Houston area, completed a prospective evaluation of the project to reduce ED use among Medicaid and CHIP enrollees by increasing access to after-hours primary care. The purpose of this prospective study was to assess the feasibility of providing after-hours primary care services as a strategy to expand access to primary care and reduce ED visit rates among Medicaid/CHIP enrollees. Development and implementation of the intervention required collaboration among TCHP, funders in the community, and the clinic at the FQHC. This paper describes the design, implementation, and findings till six months of the study.

2. MATERIALS AND METHOD

2.1 The Intervention

Overall, the collaborative partners worked together to coordinate their resources to establish and provide after-hours pediatric care services at the after-hours clinic at the FQHC.

2.1.1 Clinic site

Texas Children’s Health Plan partnered with a highly regarded FQHC in its network, to pilot the after-hours pediatric care strategy in an area served by 60 other primary care providers (PCPs). The FQHC provided pediatric, dental and mental health services, lab and pharmacy services to a low-income, predominantly Hispanic population in Houston’s East End. As part of this collaboration, beginning in September 2006, the FQHC received start-up funds of \$46,000 from several local community funders, namely, St Luke’s Episcopal Health Charities, the Rotary Club of Houston, and the Baker Family Foundation to extend its hours of operation Table 1.

Table 1. Clinic hours of operation

Day of Week	Hours of Operation as of December 2005	Originally Scheduled Hours	New Hours during Feasibility Study	#Additional Hours	Total hours of service during Feasibility Study
Mon	8:30 AM to 7:00 PM	10.5	8:00 AM to 9:00 PM	2.5	13
Tues	8:30 AM to 7:00 PM	10.5	8:00 AM to 9:00 PM	2.5	13
Wed	1:00 PM to 7:00 PM	6	1:00 PM to 9:00 PM	2	8
Thurs	8:30 AM to 7:00 PM	10.5	8:00 AM to 9:00 PM	2.5	13
Fri	8:30 AM to 5:00 PM	8.5	8:00 AM to 6:00 PM	1.5	10
Sat	None	0	9:00 AM to 1:00 PM	4	4
Sun	9:00 AM to 1:00 PM	4	9:00 AM to 1:00 PM	0	4
Total # Hours		50		15	65

The FQHC offered a full range of comprehensive pediatric care services during regular hours as well as during the after-hours service period during the feasibility study. During regular hours, a nurse practitioner, one part-time and two full-time medical assistants and three administrative people staffed the clinic. During afterhours service period, later evenings and additional weekend hours, one physician assistant, and two medical assistants were available to see patients, and one administrative staff managed patient visits.

2.1.2 Marketing campaign

In addition to start up funds provided by community funders discussed above, TCHP contributed a marketing/outreach campaign to the capacity building effort. The clinic’s after-hours pediatric care services were promoted to approximately 18,000 TCHP

Medicaid/SCHIP enrollee-families residing within 11 ZIP codes surrounding it in the East End of Houston. The promotion included patient and provider education on the availability of the after-hours clinic specifically at the FQHC. With a marketing budget of nearly \$52,000, outreach activities occurred from September 2006 through February 2007 consisting of materials sent to households of health plan enrollees Fig. 1.

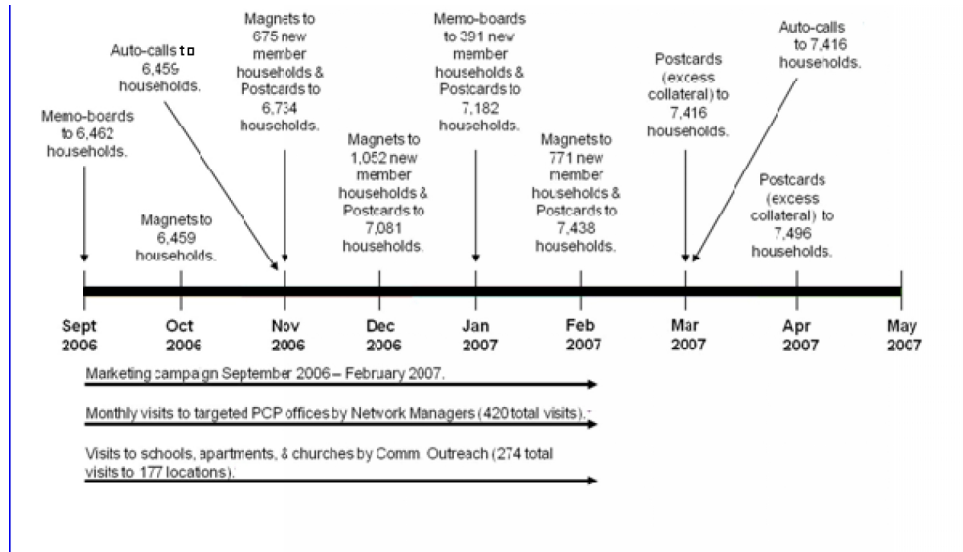


Fig. 1. Marketing campaign timeline: Sept 2006 to April 2007

To promote the after-hours services available at the FQHC, TCHP marketing staff sent out dry erase memo boards, refrigerator magnets, and informative 6x9 postcards. Educational materials, printed in English and Spanish, contained information instructing on what to do when a child becomes sick and included telephone numbers for the clinic, along with its address and hours of operation. TCHP also distributed marketing materials to community-based organizations, churches, apartment complexes, pharmacies and school nurses within the study area. TCHP staff made a total of 420 visits during the pilot period, distributing 21,730 flyers promoting the primary care services of the plan and the after-hours at the FQHC. TCHP also promoted the availability of after-hours services through an auto-dialer message service. The auto dialer campaign ran in November 2006 and March 2007, delivering 6,459 and 7,416 messages, respectively, to TCHP enrollee-households residing in the targeted study area ZIP codes Fig. 1.

3. RESULT

3.1 Evaluation

To assess initial impact of the intervention, a retrospective pre-post matched comparison group analysis of ED utilization was conducted among enrollees younger than 19 years of age. The 6 month pre-intervention period was from March thru August 2006, representing a comparable 6 month period that occurred one year before the clinic was open for after-hours care. The 6 month post intervention utilization data collection period was from March thru August 2007, a time period when the clinic was open for after-hours care but no longer

actively promoted to enrollees via the Marketing campaign. The intervention period was between September 2006 thru March 2007 when the clinic was open for after-hours care and there was active marketing/outreach efforts promoting the availability of this service to the community.

Texas Children's Health Plan provided enrollment and paid claims data for the entire pre, intra and post intervention project period. The enrollment file contained member ID, effective date, expiration date, date of birth, race, gender and ZIP code of each enrollee. The paid claims file included member ID and month and year of ED encounter over the study period. Additional variables were created to capture the number of enrollment days, any ED visit, and total ED visits for each enrollee. TCHP also provided a list of members who had at least one after-hours visit at the FQHC during the pilot.

The outcome measure was the number of ED visits per member month (PMM) for the two comparable six-month time periods (pre-pilot and post-intervention) for enrollees who resided in the intervention and matched comparison zip codes. Enrollees who resided in the targeted zip codes and were exposed to the marketing campaign comprised the intervention group. Comparison zip codes were identified using U.S. Census Bureau, 2006 American Community Survey data. Seven zip codes similar to the intervention zip codes with respect to race/ethnicity, poverty level, and percent with high school diploma were identified; households in these zip codes were not exposed to the marketing campaign.

Enrollee characteristics of each study group were examined. Differences in group characteristics were assessed using Pearson's chi-square and t-test. ED utilization rates for the two groups were calculated by dividing the total number of ED encounters by the total number of days of enrollment for the six month pre-period (March–August 2006) and a comparable six-month post period (March–August 2007). The resulting crude rate was multiplied by 30 days to arrive at the estimated ED rate PMM for each group. For ease of interpretation, PMM ED rates per 1,000 enrollees are reported.

In light of the original purpose of TCHP's feasibility study, the authors believe that judicious use of statistical analysis consistent with the limited scope of a feasibility project is appropriate. Statistical significance is set at $p < 0.05$; Pearson's chi-square and paired t-tests are used where appropriate. All computations were conducted using STATA 12 software (Stata Corp LP, College Station, TX).

3.2 Findings

A total of 20,530 individuals who resided in the intervention zip codes were enrolled in the health plan at any point in time during the 18-month study period March 2006 thru August 2007. There were 12,660 individuals who resided in the comparison zip codes and had health coverage during the pre- and post-pilot periods of interest. Enrollees in the intervention and comparison groups were statistically similar with respect to sex and age Table 2.

Table 2. Characteristics of TCHP pediatric HMO enrollees by study group

	Intervention	Comparison	P^a
n	20,530	12,660	
Sex (%)			NS ^b
Male	50.6	51.3	
Age (yrs) (%)			NS
1-4	31.6	30.5	
5-9	30.9	32.2	
10-13	18.9	18.6	
14-18	18.6	18.7	
Race/ethnicity (%)			0.0001
White	2.0	4.0	
Black	19.1	8.1	
Hispanic	63.3	71.0	
Asian	0	0	
Missing	14.7	16.4	
Utilization (%)			0.0001
Any ED visit	15.4	16.9	
Enrollment during 18mth ^c study			0.018
Mean days of coverage (sd)	144(97)	142(97)	

^a reflects significance of Pearson's chi-squared for categorical variables and t-test for enrollment days.

^bNS=not significant, ^c 18mth=544 days

Slight differences in the two groups were found in racial/ethnic backgrounds, enrollment and utilization. Relative to the comparison group, a larger proportion of intervention group members was black (19%vs.8%), and a smaller proportion was Hispanic (63% vs.71%). On average, intervention group enrollees had slightly longer periods of health plan coverage than the comparison group (144 days vs.142 days, respectively). Approximately 15% of enrollees in the intervention group, versus 17% in the comparison group, had at least one ED visit during the time period under investigation.

During the intervention time frame, September 1, 2006thru February 28, 2007, at least 194 enrollees visited the after-hours clinic. The intervention group's pre intervention baseline ED utilization rate PMM per 1000 enrollees was 35 visits (March through August 2006), increasing to 67 visits during the post period evaluation (March through August 2007). The comparison group's ED utilization rates PMM per 1000 increased from 41 to 69 from pre-to post-period evaluation.

4. DISCUSSION

We present the feasibility of collaboration between a Medicaid/SCHIP serving HMO and an FQHC to implement an after-hours pediatric care services project. The After-Hours Pediatric Care project was to test the feasibility of an expansion of pediatric care services within a community known to have high ED utilization rates relative to other communities in the TCHP catchment area. Community funders provided start-up funds for the FQHC to establish the after-hours program and the Medicaid/SCHIP serving HMO provided a marketing/outreach campaign to raise awareness of the program. The ultimate goal was to provide a high quality, community-based pediatric option during after-hours that would then decrease the more expensive ED utilization of services.

Although managed care plans have done much to improve access to primary care, ED use rates continue to escalate. A number of possible reasons for excessive use of the ED by this population have been identified in the literature including lack of access to and/or awareness of primary care, limited knowledge in determining urgency, and convenience of and personal preferences for ED care [7,17]. Because patients are able to walk into hospital EDs at any hour on any day of the week and eventually receive a broad range of diagnostic and treatment services, they are an attractive alternative for populations with limited access to alternative sources of care. Recognizing the potential impact of the ACA's Medicaid expansion, well-designed studies that are longer in duration are clearly needed to better understand the effectiveness of educational campaigns and after-hours pediatric care services aimed at expanding access to pediatric care and reducing ED utilization.

Implementation and evaluation of this FQHC-HMO intervention had several limitations. The intervention involved a single strategy and was short-term being only six months in duration however Wang and colleagues were able to achieve decreased pediatric ED utilization over a longer period [15]. In its evaluation, investigators were unable to make definitive claims about the impact of after-hours pediatric care on ED utilization. An upward trend was found in ED use rates among enrollees in both groups, increasing in both the intervention group and in the comparison group from pre- to post-period. This trend occurred plan wide as well so our intervention may not have been robust enough to alter an ongoing secular trend towards higher ED utilization. Voluntary after-hours clinics are one strategy to expand access, but these might not be as effective as other more onerous ED diversion projects like charging patients for routine care delivered in the ED or requiring prior authorization prior to referral to EDs for conditions other than the most obvious life threatening situations because patients needing care when the FQHC was closed would still have the option to go to the ED.

5. CONCLUSION

In summary, an FQHC was able to open and operate an after-hours pediatric clinic with a minimal one-time start-up investment of 46,000 dollars from a coalition of community funders, and TCHP's marketing department was able to execute a moderately priced, 52,000 dollar awareness building campaign to inform and educate targeted households and the surrounding neighborhoods about the services at the FQHC. So, at a most basic level, it is feasible to launch and publicize an after-hours clinic service and to see this service utilized by HMO enrollees over time. However, a six-month pilot was not long enough to determine if diversion of unnecessary ED care towards the community FQHC occurred. This more fundamental question needs to be answered and will require a longer, at least 12 month time frame to permit correction for seasonal variation in pediatric ED utilization. In addition, a return on investment calculation will need to be conducted as well to justify the expenditure of even these modest dollar amounts in order to justify replication on a larger scale.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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