

**The Impact of Extended Hours Primary Care on Emergency Department Use
Among Medicaid/SCHIP Enrollees in Houston, TX**

by

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Abstract:

Objective. The objective of this study was to evaluate the impact of a pilot project to reduce emergency department (ED) visits in a Medicaid/SCHIP population by increasing the availability of extended hours primary care. **Methods.** A Medicaid/SCHIP managed care plan in Houston provided funding support to a primary care clinic in its network to operate extended business hours. Marketing and outreach campaigns were conducted to promote the increased availability of clinic services. A pre-post analysis was conducted comparing ED use rates of after-hours clinic users, non-users within the service area, and other enrollees in the health plan. **Results.** Clinic users' monthly ED visit rate decreased 100% from 2.77 per 100 enrollees to 0 ($p = .04$), while ED use for non-users in the service area declined by 20% (2.14 to 1.72 per 100, $p = .04$) and the rate for all enrollees in the health plan declined by 9% (1.84 to 1.68, $p = .01$). **Conclusion.** Extended hours primary care has potential as a strategy for reducing ED visits in the SCHIP population.

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Emergency department (ED) utilization for non-emergent problems is an increasing concern of managed care plans serving Medicaid and State Children's Health Insurance Program (SCHIP) populations. Although managed care plans have done much to improve access to primary care for Medicaid and SCHIP enrollees, at the national level they still have higher rates of ED use for non-emergent care than enrollees in commercial health plans.¹ 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.² Because patients are able to walk into hospital EDs at any hour on any day of the week and eventually receive a broad spectrum of diagnostic and treatment services, they are an attractive alternative for populations with limited access to alternative sources of care.

Over the past decade, a number of ED diversion strategies have been implemented in communities throughout the country. They include community education, nurse-operated telephone triage, after-hours primary care, case management, and urgent care centers.³ 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 well positioned to monitor ED use and to design initiatives to try to influence use by this population.

The Texas Children's Health Plan (TCHP), the largest of five Medicaid and SCHIP managed care plans in the Houston area, recently completed an ED diversion pilot project designed to reduce ED use among its Medicaid/SCHIP beneficiaries in Houston, Texas. This

paper describes the intervention and presents the methods and results of an evaluation of its impact.

Methods

Intervention. Texas Children's Health Plan (TCHP), founded in 1996, is the nation's first group health plan exclusively for children. TCHP provides Medicaid and SCHIP coverage for about 200,000 enrollees in the Houston area and ten surrounding counties. Its large provider network includes pediatricians, specialists and hospitals located throughout its service area. Beginning in 2006, TCHP set out to improve primary care and reduce ED use among its Medicaid/SCHIP enrollees by addressing the mismatch between availability and need for after-hours primary care. The project began with a survey in which TCHP found that two-thirds of its network providers do not offer after-hours care. Rather than take the traditional approach of educating families that their children's needs could be met during regular operating hours, TCHP sought to empower its provider network to meet this stated need for extended-hours care.

In one primary care enhancement initiative taken on by the plan, TCHP partnered with El Centro de Corazón (El Centro), a federally qualified health center in its network, located in east Houston, to provide centralized, extended-hours primary care for an area served by 60 other primary care providers (PCPs). El Centro provides primary medical, dental and mental health services in addition to lab and pharmacy services to a low-income, predominantly Hispanic population in Houston's East End (see Map). The clinic became a federally qualified community health center in 2003. Beginning in September 2006, El Centro extended its hours of operation by opening at 8:00AM instead of 8:30 AM Monday through Friday and remained open until

8:00PM instead of 5:00PM Monday through Thursday. It closed at its regular time of 1:00PM on Friday but opened from 9:00AM to 1:00PM on Sundays. The clinic was closed Saturdays.

Comprehensive primary medical care services were provided at El Centro during extended hours. A nurse practitioner, one part-time and two full-time medical assistants staffed the clinic during daytime hours. During evening and weekend hours, one physician assistant and two medical assistants were available to see patients. To manage patient visits at the clinic, the administrative office was staffed by three people during the day, one during evening hours and two on Sundays.

El Centro's extended hours primary care services were promoted to approximately 18,000 TCHP Medicaid/SCHIP enrollee-families residing within 11 ZIP codes that surround El Centro in the East End of Houston (see Map, shaded area). The promotion included patient and provider education on the availability of the after-hours clinic. Outreach activities occurred from September 2006 through February 2007 consisting of materials sent to households of health plan beneficiaries. Various mail-outs included dry erase memo boards, refrigerator magnets, and a magnet mailer, and informative 6x9 postcards. TCHP continued to send households information about the extended hours program at El Centro through April 2007. These outreach materials, printed in English and Spanish, contained information instructing parents and guardians what to do when a child becomes sick and included telephone numbers for El Centro, 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 274 visits between September 2006 and February 2007, distributing 21,730 flyers promoting the primary care services of the plan and the extended hours at El Centro. TCHP also

promoted the availability of extended-hours services through an auto-dialer message service. The auto dialer campaign ran in September and November 2006 and delivered 5,568 and 5406 messages, respectively, to TCHP enrollee-households residing in the targeted study area ZIP codes.

Evaluation. A retrospective pre-post comparison group analysis of ED utilization was conducted among TCHP Medicaid/SCHIP clients with continuous enrollment from March 2006 through August 2007. Average monthly rates of total ED visits per 100 enrollees were calculated for the six month pre-period (March – August 2006) and a comparable six-month post period (March – August 2007) for users of the clinic, non-users in the service area, and all TCHP enrollees excluding those residing in the service area.

To ensure complete capture of the utilization pattern of clients in the study, an enrollee had to have continuous coverage over the study period. Continuous coverage was defined as active enrollment for an 18-month period from March 2006 through August 2007 with an allowable gap in coverage of up to 100 days and no constraints on the distribution of those days of disenrollment. In Texas, during this period Medicaid coverage had to be renewed every six months and SCIP coverage every 12 months. TCHP also provided a list of member who had at least one after-hours visit at El Centro between September 2006 and February 2007. This information was used to identify Clinic users.

TCHP provided enrollment and paid claims data for the study 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.

Outcome measures included monthly total ED visits per 100 enrollees for the two comparable six-month time periods (pre-pilot and post-pilot) for the three study groups. The pre-pilot period was from March to August 2006 before the clinic was open for extended hours. The post-pilot time frame was from March to August 2007 when the clinic was open for after-hours care but no longer promoted to enrollees.

Mean monthly ED visit rate differences during the pre- and post-pilot periods were compared across the three groups. Paired t-tests were used to determine statistical significance with a p-value of <0.05. All statistical analyses were conducted using STATA 10 software (StataCorp LP, College Station, TX).

Results

The total number of TCHP enrollees during the study period was 370,811 of which 28,128 (7.6%) were continuously enrolled for the entire 18-month study period (Table 1). We identified 194 enrollees who used El Centro during after-hours from September 2006 to February 2007. Of these 194 users, only 24 (12.4%) were continuously enrolled. Continuously enrolled users and non-users from the service area were also about 12% of total service area enrollees. Continuously enrolled TCHP enrollees outside the service area were 7.4% of total enrollees outside the service area. The user group was younger than the non-user and TCHP enrollee groups. The user and non-user groups were more Hispanic than the TCHP enrollee group. Approximately 20% of the non-user and TCHP groups had at least one ED visit during the time period under investigation. A higher proportion of users visited the ED during the 18-month study period (33%).

From the pre-pilot to the post-pilot period, the user group's total ED visit rate fell by 100% from a monthly pre-pilot rate of 2.8 ED visits per 100 enrollees to 0 ($p = 0.04$) (Table 2). The pre-post rate differences in total ED visits that occurred for non-users and the TCHP groups declined by smaller percentages (19.6% and 9.2%, respectively). The pre-post differences were statistically significant for all three groups.

Discussion

Although the numbers are small and should be interpreted with caution, the study indicates that users in the area served by the after-hours clinic reduced their use of the ED compared to non-users within the target area and to enrollees living outside the target area. Non-users in the target area reduced their use of the ED compared to enrollees living outside the target area. This result provides tentative support for the extended care model as a strategy for reducing ED visits in the Medicaid/SCHIP population.

The findings provide a positive result on ED diversion strategies to the large array of studies in the literature that have shown mixed results on efforts to reduce pediatric ED utilization.⁴ Some of these strategies are specific to managed care and include establishment of a patient medical home, gate-keeping, after-hours on-call nurse triage, and access to primary care.

In a study of 2,000 randomly selected preschool children aged 19 to 35 months with continuous enrollment in Rhode Island's Medicaid managed care program (RIte Care), Brousseau et al.⁵ explored the association between pediatric ED utilization and type of medical home. The investigators defined medical home as "a place where the child receives the bulk of his or her health care and where the responsibility for coordinating that health care is welcome." RIte Care PCP sites included hospital clinics, neighborhood health centers, office-based practices

and staff model HMOs. They found that 791 children utilized the ED during the study year at a rate of 68 visits per 100 person-years. Compared to hospital clinic patients, children enrolled in a staff-model HMO and health center patients with medical home characteristics had decreased ED utilization (OR=0.34, 95%CI 0.27-0.42 and OR=0.71 95%CI 0.53-0.95, respectively).

Several studies have found that educational programs have either a short-lived impact or no impact on ED use. A study in Minneapolis, Minnesota assessed the effect of mailing an informative booklet about care of non-urgent conditions and emphasized alternatives to the ED.⁶ In this randomized parallel group study of Medicaid beneficiary households from two health plans (n= 3101 and n=3822), investigators found no significant differences in ED use between those who did and did not receive the booklet during the 6.5 months of follow-up (23% versus 24% in Plan A and 27% versus 28% in Plan B). Additionally, they saw no reduction in the proportion of ED visits for the non-urgent conditions highlighted in the booklet (62% versus 60% in Plan A and 51% versus 48% in Plan B).

Similarly, in a randomized, controlled trial among parents of 130 patients seen in an urban university pediatric ED (Cleveland, Ohio) for non-urgent conditions, Chande and colleagues⁷ tested the hypothesis that educating parents about use of their PCP and providing information about common pediatric illnesses will reduce ED visits. Twenty-one patients (30%) from the educational intervention group returned to the ED at six-months follow-up compared to 16 (26%) from the control group (P = 0.68, chi 2). Among the ED returnees, seventeen (81%) from the intervention group had minor illness while 11 (69%) did from the control group.

Another study tested two ED-based educational/case management interventions targeting children with fee-for-service Medicaid.⁸ Families of a Medicaid-recipient child who presented at a pediatric ED in Columbus, Ohio for non-emergent problems received information about the

importance of a PCP from either a health professional, such as a pediatric nurse or pediatric social worker, or a clerical employee who did not have specific health professional training. Families who received information from health professionals were assigned to case management and those who received information from clerical employees were assigned to the minimal intervention. In the case management arm of the intervention (n = 180), health professionals continued to work with families to overcome perceived barriers associated with appropriate utilization of a PCP for up to three months after the index ED visit. In the minimal intervention (n = 135), clerical workers assisted families make the first PCP appointment and were involved with them up until the first primary care appointment was completed. A third group (n = 613), the control, received no intervention. Six months after the index ED visit, there were 14.5% and 11.1% fewer non-emergent ED visits among participants with the case management and minimal interventions, respectively, when compared to the control group. However, the impact of the educational intervention was short-lived; as the difference in utilization among the groups was not observed during the six to 24 months following the intervention.

Wang and colleagues evaluated a pilot program, based at a large primary care pediatric practice in Broward County, Florida, designed to encourage use of primary care and reduce ED use.⁹ Features of the pilot program included a combination of case management, expanded after-hours care, walk-in services, and an after-hours, on-call registered nurse triage service. Medicaid children enrolled in the pilot program (n = 17,382) had an average monthly ED use rate of 32 visits per 100 compared to 40 visits per 100 for the control group (a 20% reduction) who received services from other PCPs (n = 26,066). Pilot program evaluation results suggest that a continuous, multi-strategy approach might be needed to alter ED utilization patterns.

Our study involved a single strategy and was short-term. It had several other limitations. Data in the enrollment file dated back only to January 2006, three months prior the pre-pilot start date. This cut-off date might have excluded some enrollees from being eligible for the study. However, this possibility is small given the known instability of Medicaid and SCHIP populations and the low proportion of continuously enrolled who were eligible using the study's cut off dates.

The billing data used for this study may contain measurement error. Paid claims data may need to be adjusted based on late claim submissions, claims paid in error, and other clerical error. Paid claims data reflect the level of coding accuracy achieved on claims forms at the provider level. For example, some PCPs might not code consistently or appropriately for after-hours visits leading to an inaccurate estimation of extended-hours clinic utilization. Similarly, study investigators defined extended hours to include the time from 8:00AM to 8:30AM, but paid claims of patients visiting the clinic during that time would not contain the CPT codes indicating an after-hours visit, because that time of day typically is considered to be normal office hours. This problem led to an underestimation of extended hours visits to El Centro Clinic.

It is possible that other programs operating concurrently within the community, or other activities that influence utilization of the ED or El Centro extended hours services could explain the results obtained in this study. If one clinic in a particular community extends its hours, it is plausible to expect other clinics or providers in the area to extend hours of operation to compete for patients who might find the extended hours alternative appealing. Additionally, certain findings indicate there was a lack of communication or misunderstanding between TCHP and El Centro concerning implementation of after-hours primary care services. El Centro Clinic hours

of operation as printed on outreach materials and sent to enrollee households during the pilot program did not accurately reflect the clinic's actual hours of operation, which were verified through log audit. The effect of this error within the study groups is unknown.

Despite these limitations, the multiple comparison group design and the inclusion of only continuously enrolled clients make the results credible. Study results suggest that the extended hours pilot program had an effect on the ED use of those who responded to the outreach campaign. Continued monitoring of the treatment group's ED use is needed to better understand the long-term effectiveness of extended hours primary care services aimed at reducing ED utilization.

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Map. Harris County ZIP Codes Targeted by the Pilot Project.

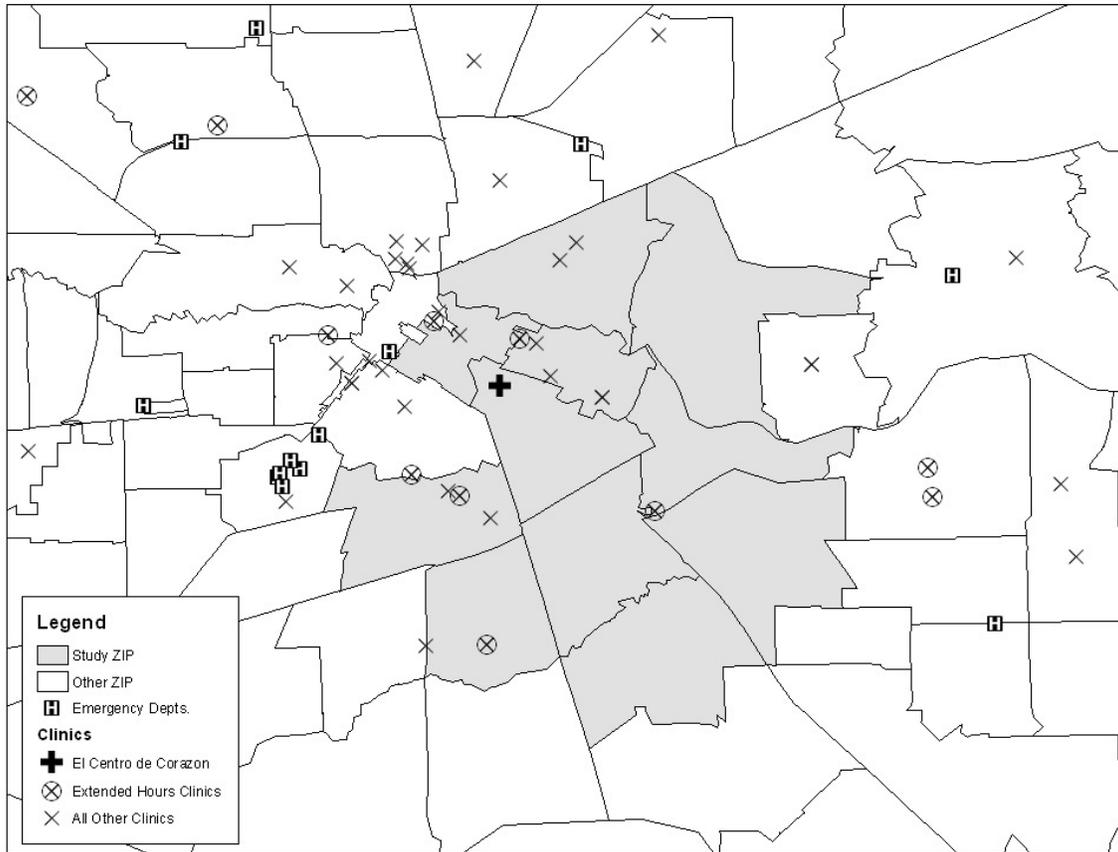


Table 1: Characteristics of Study Groups			
	Users	Non-Users from Service Area	All TCHP Excluding Service Area
Total Enrollees	194	17,647	352,970
Continuous Enrollees (%)	24 (12.4)	2,030 (11.5)	26,074 (7.4)
Mean Age (sd)	5.5 (5.0)	16 (15.1)	17 (15.2)
Race/Ethnicity	<i>%</i>	<i>%</i>	<i>%</i>
White	0.0	1.3	11.8
Black	0.0	14.0	12.8
Hispanic	86.0	62.2	41.8
Other	0.0	1.2	4.8
Unknown/Missing	14.0	21.3	28.7
Gender			
Male	54.2	52.3	52.4
Female	45.8	47.7	47.6
ED Utilization			
% with ED visits	8 (33.3)	402 (19.4)	4,558 (18.3)

Table 2. Comparison of Pre-Post ED Visit Rates						
	Pre-Pilot		Post-Pilot		Pre-Post Comparisons	
	Total ED Visits	Monthly Rate per 100	Total ED Visits	Monthly Rate per 100	% Difference in Monthly Rate per 100	Paired t-test, P Value
Users	4	2.8	0	0.0	-100%	p=0.04
Non-Users from Service Area	261	2.1	209	1.7	-19.6%	p=0.04
TCHP Enrollees Excluding Service Area	2,874	1.8	2,616	1.7	-9.2%	p=0.005