



CMS ER Diversion Grant Program

Final Report to the

Division of Health Care Finance and Policy

June 14, 2011



**Neighborhood
Health Plan™**

Your health. Our promise.



Our Mission

Neighborhood Health Plan's mission is to promote the health and wellness of our members, and to help ensure equitable, affordable health care for the diverse communities we serve.

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Executive Summary

Introduction and Overview

Neighborhood Health Plan (NHP) was awarded the contract to administer the CMS ER Diversion Grant Program effective August 1, 2008 by the Division of Health Care Finance and Policy (DHCFP). The CMS ER Diversion Grant Program provided \$3.9M in grant funding to 17 Community Health Centers (CHCs) in two phases. The provided financial support allowed CHCs to implement specific interventions with the goal of decreasing preventable emergency department (ED) utilization and increasing capacity at CHCs. Grantees implemented projects with a specific focus in the following areas:

- Expanding hours of operation;
- Expanding capacity of CHCs to provide urgent care services and/or primary care; and/or
- Creating medical home linkages through nurse triage or other methods.

This project evaluation and final report sought to determine what impact, if any, the various interventions had on preventable ED visits and/or CHC capacity. A cost savings impact analysis was also conducted to determine if systemic cost savings were realized as a result of these grant projects. The CMS ER Diversion Grant Program was implemented in two phases. Phase I funded the five sites identified in the state's grant application to CMS, namely Brockton Neighborhood Health Center, Greater Lawrence Family Health Center, Lowell Community Health Center, Lynn Community Health Center, and Manet Community Health Center. These sites were selected for their previous successful collaborations to address preventable ED usage with their local hospital. Phase I of the grant program ran from January 1, 2009 through December 31, 2009. Sites for Phase II of the grant program were selected during an open application process. Sites were selected using the following criteria: proposal quality; geographic distribution; targeting underserved population; and Medicaid volume at the site. Phase II sites implemented projects from July 1, 2009 through June 30, 2010.

Challenges and Limitations

- Two health centers, Boston Health Care for the Homeless and Island Health Center did not have sufficient NHP claims data to be included in the calculation of metrics.
- Data for this evaluation only represent individuals enrolled in NHP. Therefore, the data does not include all patients enrolled in Medicaid at the CHCs.

Results

Non-Emergent ED utilization¹: NHP analyzed internal ED data to determine the extent to which participating CHCs reduced non-emergent ED use, by comparing non-emergent ED visits as a percentage of total ED visits. 12 of 15² CHCs showed a reduction in non-emergent ED utilization from the baseline to intervention period. The reduction in non-emergent ED utilization ranged from 0.4% to 8.8%. The average reduction was 2.5%.

Expanded Access: 11 of the 17 CHCs expanded access by adding additional urgent care capacity, after hours/weekend capacity or expanded same day visit capacity. Based on self-reported CHC data, an

¹ NHP defines a non-emergent diagnosis as one which, under most circumstances, is treatable within a primary care setting.

² The results include 15 CHCs rather than the total 17 CHCs in the grant program because 2 health centers (Boston Health Care for the Homeless and Island Health Center) did not have sufficient NHP claims data to be included in the analyses.

additional 22,114 urgent care or acute same-day/walk-in visits were provided as a result of this grant between January 1, 2009 and June 30, 2010.

Cost Savings Impact: Cost savings are realized if it is assumed that some portion of the CHC urgent care and same day visits made possible through the grant program prevented a non-emergent ED visit. The estimated cost savings range from \$1 million to \$4.2 million.

Summary and Discussion

- The grant interventions that appear to have the most impact and are most likely to be sustainable are those focused on increasing access to health center providers through expanded urgent care access and/or expanded primary care access. Projects that focused on nurse triage or care management, in some cases, had a positive impact on non-emergent ED utilization; however, these projects were the most difficult to sustain beyond the grant period because, for the most part, CHCs are not able to receive billable revenue for triage and case management services.
- Analysis of non-emergent ED visits suggests that many CHCs show promise in reducing non-emergent ED use.
- Health centers were able to increase access to primary care and urgent care as a result of these grants. The cost impact analysis demonstrates this increased capacity results in cost savings to the system when patients receive care at community health centers for non-emergent conditions, rather than in the ED.
- A critical factor in the success of the projects was the level of collaboration and cooperation from hospitals. The willingness of hospitals to collaborate and participate on reducing non-emergent ED use varies from community to community.

Section I: CMS ER Diversion Grant Program Summary

Neighborhood Health Plan (NHP) was awarded the contract to administer the CMS ER Diversion Grant Program effective August 1, 2008 by the Division of Health Care Finance and Policy (DHCFP). The CMS ER Diversion Grant Program provided \$3.9M in grant funding to 17 Community Health Centers (CHCs) in two phases. The provided financial support allowed CHCs to implement specific interventions with the goal of decreasing preventable emergency department (ED) utilization and increasing capacity at CHCs. Grantees implemented projects with a specific focus in the following areas:

- Expanding hours of operation, and/or
- Expanding capacity of urgent care services and/or primary care, and/or
- Creating medical home linkages through nurse triage or other methods.

This report describes the interventions implemented by the CHCs and evaluates the grants' impact.

Section 2: Overview

2.a. Evaluation Questions and Metrics

This evaluation of the CMS ER Diversion Grant Program sought to determine what impact, if any, the CHC projects had on preventable ED visits and/or CHC capacity. NHP used the following questions to guide the evaluation.

- What was the change in non-emergent ED visits at the grantee sites?
- What was the change in primary care connections with patients of the grantee sites?
- How did the interventions affect urgent care and primary care capacity at the grantee sites?
- What interventions produced positive results and how comparable are the interventions that produced these results?

DHCFP and NHP agreed upon the following metrics for evaluating the grantee projects. This report will compare the results of pre and post grant non-emergent ED utilization and report on the metrics listed below. Refer to Appendix A for details about the measurement plan and the data sources for these metrics.

- Rate of change in non-emergent ED use
- Increases in "medical home" utilization by beneficiaries who had been identified as frequent ED users
- Number of successful referrals ("diversions")
- Numbers of clients seen during newly established primary care sites or during newly expanded clinic hours, as well as the numbers of additional clients seen during regular hours, for those CHCs with newly expanded clinic hours
- Any data on cost savings and clinical/quality impact on beneficiaries' health

2.b. Participating Community Health Centers

The CMS ER Diversion Grant Program was implemented in two phases. The two-phased approach allowed the state to identify a small group of CHCs that could ramp up projects quickly in Phase I and then allow time to conduct an open solicitation process for Phase II which allowed the selection of additional CHCs to implement projects. Phase I of the grant program funded the five sites identified in the state's grant application to CMS. These sites were selected for their previous successful

collaborations to address preventable ED usage with their local hospital. Phase I of the grant program ran from January 1, 2009 through December 31, 2009. Sites were given until March 31, 2010 to expend the grant funds. The five Phase I sites and grant amounts are listed below.

CMS Phase I Sites (1/1/09-12/31/09)	Grant Amount
Brockton Neighborhood Health Center	\$450,000
Greater Lawrence Family Health Center	\$450,000
Lowell Community Health Center	\$450,000
Lynn Community Health Center	\$450,000
Manet Community Health Center	\$200,000
Total Cost for Phase I Projects	\$2,000,000

Sites for Phase II of the grant program were selected during an open application process. All CHCs who were not receiving Phase I funding or funding from the Health Safety Net Urgent Care Grant program were eligible to apply. Sites were selected using the following criteria: proposal quality; geographic distribution; targeting underserved population; and Medicaid volume at the site. Phase II sites implemented projects from July 1, 2009 through June 30, 2010. Sites were given until September 31, 2010 to expend the funds. The 12 Phase II site and grant amounts are listed below.

CMS Phase II Sites (7/1/09 – 6/30/10)	Grant Amount
Boston Health Care for the Homeless ¹	\$197,987
Caring Health Center	\$121,667
Fenway Community Health	\$94,910
Framingham Community HC	\$149,347
Harvard Street Neighborhood Health Center	\$190,684
Holyoke Health Center	\$239,910
Island Health Center ¹	\$163,751
Joseph Smith Community Health Center	\$125,124
Martha Eliot Community Health Center	\$199,063
Roxbury Comprehensive Community Health Center	\$105,626
South Boston Community Health Center	\$194,416
Whittier Street Neighborhood Health Center	\$216,366
Total Cost for Phase II Projects	\$1,998,851

2.c. Types of Interventions

Three intervention types were offered for CHCs to implement. Sites could in turn execute one type of intervention, a combination of two interventions or, in a few cases, all three interventions. As mentioned earlier, the interventions were the following:

¹ This health center did not have sufficient NHP claims data to be included in the non-emergent utilization and the medical home calculations.

- Expanding hours of operation, and/or
- Expanding capacity of urgent care services and/or primary care, and/or
- Creating medical home linkages through nurse triage or other methods.

Grantee sites expanding hours of operation either opened evening hours and/or opened Saturday hours. The health centers combined opening additional hours with expanding urgent care or acute care walk in services. For example, Fenway Health opened new Saturday hours and made them only available for urgent care or acute care services. Patients were referred to Saturday appointment slots when they contacted on-call providers after regular hours, or the health center provided Saturday appointments to patients who called on Thursday or Friday and could not be seen those weekdays.

Sites expanding urgent care capacity did so either by adding additional hours, adding provider capacity during existing hours, or expanding physical space.² Examples of these expansions include construction of a new urgent care wing at Brockton Neighborhood Health Center and for the first time development of an urgent care team at Caring Health Center.

Sites that focused on strengthening medical home linkages implemented nurse triage programs and/or care management strategies. An example of this intervention was Manet Community Health Center which hired a Patient Navigator to provide direct follow-up to Manet patients seen in the ED. Refer to Appendix B for detailed listing of intervention types for each site.

Section 3: Results

3.a. Non-Emergent ED Utilization

Reducing non-emergent ED utilization was a key overarching goal of the CMS ER Diversion Grant Program. NHP analyzed internal ED data to determine if CHCs reduced non-emergent ED use by comparing the non-emergent percentage of total ED visits. Non-emergent ED visits are categorized based on the claims submission diagnosis code using NHP's definition of a non-emergent condition. NHP defines a non-emergent diagnosis as one which, under most circumstances, is treatable within a primary care setting. Examples of non-emergent diagnoses include conjunctivitis, influenza, sinusitis, and tonsillitis.

Phase I: Three of the five Phase I CHCs showed a reduction in non-emergent ED utilization from the baseline period (January 1, 2008 – December 31, 2008) to the intervention period (January 1, 2009 – December 31, 2009).³ The decreases in non-emergent ED utilization ranged from a 0.4% to 1.1%.

Phase II: Nine of the ten Phase II CHCs implementing grants showed reductions in non-emergent ED utilization from the baseline to intervention period. These results compared the 12 month intervention period (July 1, 2009-June 30, 2010) to the 12 month baseline period (July 1, 2008-June 30, 2009). Refer to Appendix C for the results of this measure and the measures below by individual health center.

3.b. Ambulatory Sensitive ED Visits

Ambulatory sensitive conditions are medical issues that are potentially preventable and can be treated outside a hospital in an outpatient setting. Many, but not all, of the diagnoses considered non-emergent are also considered ambulatory sensitive conditions. Examples of ambulatory sensitive

² Sites choosing to expand urgent care capacity added additional hours designated for acute care only, versus a general expansion of operating hours as described in the first intervention option.

³ Throughout this report, percentages referenced in the results represent the simple difference in percentages between baseline and intervention time periods. For example, a -4% change would represent the difference between 6% at the baseline period and 10% at the intervention period.

diagnoses that are not on the non-emergent list of diagnoses are influenza with pneumonia and dental caries. Using the MassHealth definition of ambulatory sensitive conditions, NHP analyzed internal ED claims data to determine if CHCs saw a decline in the percent of total ED visits that were ambulatory sensitive conditions.

Phase I: Four of the five Phase I CHCs demonstrated a reduction in the percent of total ED visits that were ambulatory sensitive conditions from the baseline period (January 1, 2008 – December 31, 2008) to the intervention period (January 1, 2009 – December 31, 2009). Reductions ranged from 0.4% to 2.4%.

Phase II: Seven of ten Phase II CHCs decreased the percent of total ED visits that were ambulatory sensitive conditions at their sites from the baseline period (July 1, 2008 – June 30, 2009) to the intervention period (July 1, 2009 – June 30, 2010). Reductions ranged from 0.3% to 9.6%.

3.c. Low Acuity ED Visits

Low acuity ED visits are those visits which the hospital facility bills to NHP with a billing code indicating a low severity visit. ED visits billed with CPT codes 99281 – 99282 are considered low acuity visits. NHP analyzed internal ED claims data to look at whether CHCs were able to reduce the percentage of low acuity visits by patients assigned to the health center.

Phase I: Three of five Phase I CHCs demonstrated a reduction in the percent of total ED visits that were low acuity from the baseline period (January 1, 2008 – December 31, 2008) to the intervention period (January 1, 2009 – December 31, 2009). The decreases in low acuity percent of total ED visits ranged from 1.8% to a 2.9%.

Phase II: Seven of ten Phase II CHCs showed a reduction in the percent of total ED visits that were low acuity from the baseline period (July 1, 2008 – June 30, 2009) to the intervention period (July 1, 2009 – June 30, 2010). The decreases in low acuity percent of total ED visits ranged from 0.1% to 5.3%.

3.d. Medical Home Utilization

The ED Diversion strategies implemented under this grant program not only sought to decrease unnecessary ED utilization; they also sought to increase medical home/primary care connections for patients who were found to be utilizing the ED. The measure used to track whether medical home connections increased was the percentage of members with an ED visit who also had a primary care visit at their assigned primary care site within the same 12 month period as the ED visit compared to the percentage from the baseline period.

Phase I: Four of the five Phase I CHC sites increased primary care utilization from the baseline period (January 1, 2008 – December 31, 2008) to the intervention period (January 1, 2009 – December 31, 2009). Increases for these four sites ranged from 1.3% to 3.3%.

Phase II: Three of the ten Phase II sites with sufficient data showed increases in primary care utilization when comparing the baseline period (June 30, 2008 – July 1, 2009) to the intervention period (July 1, 2009 – June 30, 2010). The remaining seven sites saw declines in the percent of members assigned to their site who had both an ED and PC visit in the same 12 month period. One potential explanation for the decline is the challenges health centers have faced in maintaining enough providers to meet the demand for services, particularly as health care reform in Massachusetts has increased the percentage of individuals with health insurance coverage.

3.e. Expanded Access

Eleven of the seventeen CHCs expanded access by adding additional urgent care capacity, after hours/weekend capacity or expanded same day visit capacity. Based on self-reported CHC data, an additional 22,114 urgent care or acute same-day/walk-in visits were provided as a result of this grant. These visits included Saturday hours for acute care (e.g., Fenway Health and Manet Health Center), expanded same-day acute care capacity (e.g., Greater Lawrence Family Health Center), expanded urgent care access (e.g., Brockton Neighborhood Health Center and Whittier Street Health Center), or newly established urgent care capacity (e.g., Caring Health Center and Harvard Street Health Center). Additionally, health centers also provided primary care nurse practitioner visits and social worker/behavioral health team visits totaling 2,361 during the grant period. Sites expanded access by adding additional evening or Saturday appointment slots or adding additional providers during existing hours. The majority of health centers reported being able to sustain these new or expanded hours beyond the grant period with the billable revenue received. Most of these health centers were able to use the grant funds to cover the “start-up costs” such as the support staff needed to operate additional hours before the hours are at full capacity. The expanded hours provided valuable care access for vulnerable populations in the state.

3.f. Cost Savings Impact Analysis

Cost savings are realized if it is assumed that some portion of the CHC urgent care and same day visits made possible through the grant program prevented a non-emergent ED visit. Below is a chart illustrating the savings based on three scenarios. Using the most conservative of the estimates, the system still realized savings because the CHC created the capacity to service the patients at their center and the patient avoided the ED for a non-emergent situation. In addition, some portion of these CHC visits will result in better continuity of care and creation of a medical home for the patient.

Cost Savings Impact Analysis	
Total Additional Patient Visits (urgent care, same day and/or extended visits) ⁴	22,114
Total cost for the 22,114 CHC visits based on average CHC visit cost of \$126 ⁵	\$2,786,364
Total cost if 100% of the 22,114 CHC visits resulted in non-emergent ED visits based on an average non-emergent ED cost of \$316 ⁶	\$6,988,024
Scenario 1: savings achieved if 100% of the 22,114 visits were seen at the CHCs instead of resulting in a non-emergent ED visit.	\$4,201,660
Scenario 2: savings achieved if 50% of the 22,114 visits were seen at the CHCs instead of resulting in a non-emergent ED visit.	\$2,100,830
Scenario 3: savings achieved if 25% of the 22,114 visits were seen at the CHCs instead of resulting in a non-emergent ED visit.	\$1,050,415

⁴ Patient visits counts are self-reported by grantee CHCs and approximates in some cases.

⁵ Source: Medicaid CHC office visit 2008 cost of \$126 from Division of Health Care Finance and Policy report *Preventable/Avoidable Emergency Department Use in Massachusetts*, July 2010.

⁶ Source: Medicaid non-emergent ED visit cost of \$316 from Division of Health Care Finance and Policy report *Preventable/Avoidable Emergency Department Use in Massachusetts*, July 2010.

These cost savings represent estimated cost savings for a 12 month period. Cost savings will continue for health centers with sustainable interventions that maintain expanded hours and expanded access for urgent care and acute care walk-in services.

3.g. Non-Emergent Weekday/Work Hour ED Visits

Many of the CHC grant interventions focused on expanding urgent care/acute care walk in access during the work day. NHP analyzed data on the percentage of weekday/work hour ED visits that are non-emergent to determine whether grantee sites were able to reduce the percentage of non-emergent weekday/work hour visits. NHP data categorizes work day and work hour visits as those visits taking place between 9am and 6pm excluding major holidays (New Years, Fourth of July, Labor Day, Thanksgiving and Christmas). The time of day (admit hour) is captured from the claims data received from the hospital. Hospitals are not required to always include an admit hour when they submit claims to NHP. Therefore, not all claims have a valid admit hour. The calculations for percentage of weekday and work hour ED visits that are non-emergent must have at least 20 entries with a valid admit hour to be included in the calculation. All Phase I sites had enough data to be included in the calculations. Nine of the twelve Phase II sites had sufficient data to be included. Boston Health Care for the Homeless, Framingham Health Center and Island Health Care were not included due to insufficient data.

Phase I: Two of the five Phase I sites showed a decline in the percentage of weekday/work hour ED visits that are non-emergent from the baseline period (January 1, 2008-December 31, 2008) to the intervention period (January 1, 2009 – December 31, 2009). Brockton Neighborhood Health Center and Lynn Community Health Center demonstrated declines of 8.4% and 6.9% respectively. The percentage of weekday/work hour ED visits that are non-emergent during the intervention period ranged from 24.4% at Brockton Neighborhood Health Center to 44.2% at Greater Lawrence Family Health Center.

Phase II: Seven of the nine sites with sufficient data for this measure showed a decline in the percentage of work day/work hour ED visits that were non-emergent from the baseline period (July 1, 2008-June 30, 2009) to the intervention period (July 1, 2009 – June 30, 2010). The rates of work day/work hour ED visits that were non-emergent during the intervention period for these sites ranged from a low of 29.7% at Holyoke Health Center to a high of 40.8% at Whittier Street Health Center.

3.h. Impact on Frequent ED Utilizers

This analysis looked at NHP members who were frequent ED users to determine what, if any, impact the grant interventions had on reducing the percentage of members who had frequent visits to the ED in a 12 month period. NHP data categorizes members by those who have had one to two ED visits; those who have had three to five ED visits; and those who have had more than five ED visits. For the purpose of this evaluation, NHP looked at members who had three or more ED visits. It should be noted these frequent ED users comprise only a small portion of overall ED utilization. Eighty to ninety percent of members with at least one ED visit only had one or two during a twelve month period.

Phase I: None of the Phase I sites made a notable impact, either positive or negative, on frequent ED users. Members with three or more visits increased less than one percent (0.3%) from the baseline period (January 1, 2008 – December 31, 2009) to the intervention period (January 1, 2009 – December 31, 2009).

Phase II: Similar to the Phase I sites, the Phase II sites showed no significant impact on frequent ED users. Members with three or more ED visits decreased less than one percent (-0.5%) for the Phase II sites.

Section 4: Project Summaries

Phase I Project Summaries

Brockton Neighborhood Health Center:

Description of Intervention: Brockton Neighborhood Health Center (Brockton NHC) constructed a new urgent care suite that expanded urgent care from the 6 exam rooms to 15 exam rooms using funds from the CMS ER Diversion Grant program and funds from other sources. The existing 6-room urgent care area was converted to adult primary care to allow for expansion in primary care. This enabled urgent care to transition patients from urgent care to a primary care home. For many Brockton NHC patients, urgent care became an entry point into the Massachusetts health care system, as shown by the center's rapid growth. Between calendar years 2008 and 2009, total urgent care visit volume increased by 60% (from 9,708 visits). However, Brockton's capacity was not adequate to absorb and integrate all new patients into primary care. As a result of Brockton NHC's urgent care expansion, the health center was able to see approximately 600 new patients per month during the grant period.

This grant also funded one licensed social worker for the urgent care department. The social worker served as a liaison with local emergency departments and provided behavioral health assessment and treatment to patients most at risk for behavioral health emergency department visits. The urgent care social worker reported 1,122 patient visits for the year.

The health center plans to maintain the social worker that was funded by the grant and also hired an additional social worker outside of the grant funding. Brockton NHC's application to the Medicaid PCC plan behavioral health contractor (MBHP) to bill for social work visits was approved effective July 1, 2009. Now that the health center is able to bill for social worker visits, these positions are almost fully sustainable by patient services revenues.

The urgent care space expansion contributed to sustaining an expanded urgent care department. The health center plans to hire at least two more urgent care medical providers in the first year after the new space is open.

Outcomes: Brockton NHC showed positive results in increasing the percentage of members with an ED visit who also had a primary care visit (3.3%) and decreasing the percentage of weekday and work hour ED visits that are non-emergent (-8.4%). Brockton NHC also showed decreases in non-emergent ED use (-0.4%), ambulatory sensitive ED use (-1.5%), and low acuity ED use (-2.9%). While the decrease in non-emergent ED use was small, it signifies a reversal in the rate of non-emergent use that occurred in the two years prior to the grant program. Brockton NHC showed the largest decrease in weekday work hour non-emergent ED use of the Phase I sites.

Brief Analysis and Project Dynamics: Although other unknown factors may have contributed to the changes in patient behavior observed at Brockton NHC, the health center's ability to increase urgent

care access appears to have had an overall positive impact by shifting non-emergent use to the health center's urgent care department.

Greater Lawrence Family Health Center (GLFHC):

Description of Intervention: GLFHC initiated a renovation and expansion of its oldest clinic facility by adding 15 exam rooms and increasing acute care and walk-in visits. The CMS ER Diversion Grant supported these efforts by providing funding for both the construction and operation of the new site. During the grant period, GLFHC worked on increasing access for same day/walk-in visits. As a result, the health center saw 3,798 more acute care walk-in visits from the period July – December 2009 compared to July-December 2008.

GLFHC has a history of collaboration with its local hospital, Lawrence General Hospital (LGH). As part of this grant, GLFHC focused on working with LGH to implement ED diversion and referral strategies. Staff members at these two organizations have had the opportunity to meet and discuss collaborative efforts. LGH is keeping a log of GLFHC patients that have been seen in the ED for non-emergent care. A staff member at GLFHC then follows up with patients to make appointments with their PCPs. This reduces the incidence of overall ED visits for acute care and increases continuity of care for GLFHC patients. GLFHC is encouraging patients to make acute visits at GLFHC's clinic facilities. The renovation and expansion of the health center's North facility will assist in this effort by providing additional access and availability for patients. The health center planned to hire a number of additional providers and was able to do this because of the expanded space.

Outcomes: For GLFHC, the in non-emergent ED utilization from the baseline period to the intervention period was +1.7% and +4.9% for non emergent work day visits. Also, over the two periods, ambulatory sensitive use increased by +0.5% and low acuity ED use increased 1.9%.

Brief Analysis and Project Dynamics: GLFHC's results did not have as much impact on ED utilization as compared to the other Phase I CHCs. These ED utilization findings may be explained by the fact that construction of the expansion project took most of the intervention period. As a result, GLFHC may not have been able to accommodate all patients. It is likely that existing patient behaviors remained for GLFHC patients during the grant period. Effects of GLFHC's intervention are therefore likely to be realized in years following the intervention period.

Lowell Community Health Center (LCHC):

Description of Intervention: LCHC's grant project focused on two key areas: clinical flow improvements (including both facility renovations and process improvement), and health education and care management enhancement for patients utilizing the ED. The health center also collaborated with its local hospital to collect and track ED patient data with the goal of enhancing patient follow-up and education.

Lowell CHC expanded its Adult Department exam room capacity to nine exam rooms which created additional space to meet access needs for new patients, medical visits, and follow-up appointments. The health center also improved its process for handling walk-in and urgent care visits by creating an open access team to more quickly and efficiently address patients' needs. The Adult Department

physical expansion greatly helped the health center address additional patient needs. The expansion allowed the health center to operate better in their current space and bridge the time period before they build a new and larger health center facility which is currently in the construction stage.

This grant allowed Lowell CHC to have a dedicated nurse case manager to actively work with patients to manage their care in an effort to reduce preventable ED visits. The case manager provided ED follow-up and education, coordination of clinical services, and assisted with supportive services. The health center case manager reviews the daily ED faxes from hospitals which list the Lowell CHC patients who had an ED visit the prior day and prioritizes follow-up for the patients. In addition to the follow-up appointments, the case manager also contacted patients to determine their status and provide education as needed. The health center tracked all ED visits and the disposition to monitor trends and make sure proper coordination occurred. LCHC worked actively with hospital ED discharge staff to provide care management to 386 new patients in 2009 including follow-up appointments thus providing access to primary care and preventing repeat ED visits for some episodic illness that could be effectively managed on an outpatient basis. The health center planned to continue the case manager services beyond the grant and cover the position within its operations or another grant.

Outcomes: LCHC's expanded access and nurse triage/care management for complicated cases seems to have resulted in increased members with ED visits who also had primary care visits (1.5%). There was also a 0.1% decline in the proportion of frequent ED user who had three or more ED visits. The overall rate of non-emergent ED visits declined by 0.5%, as did the rate of ambulatory sensitive ED use (-0.7%) and the rate of low acuity ED use (-1.8%).

Brief Analysis and Project Dynamics: LCHC was unable to meet its original goal of expanding hours to include two additional evening time blocks due to recruiting challenges. The health center was unable to recruit and hire an additional Adult Medicine provider during the grant period to expand. The health center did plan to continue recruiting and hire an additional provider which would allow them to expand hours.

Lynn Community Health Center:

Description of Intervention: Lynn CHC implemented two interventions under this grant. The first was a continuation and expansion of their Nurse Triage System and the second was the development of a Behavioral Health Response Team. Lynn CHC improved its nurse triage system by enhancing collaborative efforts with North Shore Medical Center, which identifies patients using the ED and follows up with these patients to connect them with primary care. The health center also worked on improving telephone access to a Lynn CHC triage nurse during peak times. In addition, Lynn CHC developed a team to improve and expand the health center's capacity to respond to urgent or acute behavioral health needs during existing daytime, early evening and Saturday hours. The goal of the new team was to foster a more integrated approach to the delivery of behavioral health and primary care for patients with chronic mental health problems.

Lynn Community Health Center's Nurse Liaison worked closely with 1,594 distinct patients who had visited the ED to link them to care at the health center during the grant period. Between January and December 2009, the local hospital systems' two EDs referred 961 patients to Lynn CHC for follow-up; 515 patients kept the appointments at the health center given to them by the ED staff. These data demonstrate the ability of a hospital and health center to collaborate to improve primary care medical home linkages. The health center also improved its nurse access and call center performance. The

result was a total of 2,251 same day slots that were provided to patients with acute medical issues, ER follow-up visits or follow-up to inpatient discharges between January and December 2009.

The Behavioral Health Response Team (BHRT) provided walk-in / same day access to behavioral health services both for primary care patients of the Lynn Community Health Center and for new patients referred by the two local hospitals. The grant allowed the health center to keep open schedule same day access to several rotating Behavioral Health psychotherapists and two days per week access to a psychopharmacologist. The BHRT offered patients intensive flexible support options including frequent brief in person or phone call check-ins to help patients avoid a visit to the ED. Access to the BHRT psychotherapists and psychopharmacologist also made it possible for LCHC primary care providers to obtain a quick and timely consultation and get same day evaluations for patients they were concerned about. After a year of BHRT operation, the clinicians reported to the administrator of this health center that they felt it was reasonable to say 20% of BHRT patients would realistically have needed referral to hospital EDs if BHRT services had not been available in such a timely manner. During the third quarter and last quarter of 2009, 245 and 224 individual patients were seen, respectively.

Outcomes: Lynn CHC increased the percentage of members with an ED visit who also had a primary care visit (1.5%) and decreased the percentage of weekday/work hour non-emergent ED visits by 6.9%. The results show the health center's nurse same-day access focus and nurse education and triage may have been able to increase the linkages to primary care and increase patients' access to same day care. Additionally, Lynn CHC decreased the percentage of ED visits that were ambulatory sensitive by 0.4% and decreased the percentage of ED visits that were low acuity by 1.9%.

Brief Analysis and Project Dynamics: Due to the lack of a direct third party reimbursement structure for either the Nurse Liaison position or the Behavioral Health Response Team, Lynn CHC's interventions may face sustainability challenges. The health center was able to continue the Nurse Liaison position and absorb the position cost but was unable to continue the Behavioral Health Response Team.

Manet Community Health Center:

Description of Intervention: This grant enabled Manet Community Health Center (Manet) to improve and increase access to care by retaining a Nurse Practitioner; offering additional Saturday hours during the grant year; hiring a patient navigator and data support professional; and increasing exam space at Manet's delivery site at Quincy Medical Center.

Manet expanded to include additional Saturday appointment slots. Thirty seven (37) Saturday time blocks were added starting in January 2009, and over the course of the intervention period cumulatively provided 333 physician visits, and 111 mid-level visits at Manet's 110 West Squantum Street delivery site. The Family Nurse Practitioner, hired through the grant, recorded 1,145 total visits during calendar year 2009. Additionally, the ED Diversion Patient Navigator provided direct follow-up service to 1,432 patients between March and December 2009.

Manet expanded its exam space from six to eight rooms at its Quincy Medical Center site. The grant supported the renovation and build-out costs for the two additional exam rooms during the grant period. The health center planned to continue the expansion even further, adding an additional five exam rooms for a total of thirteen rooms. The second wave of expansions were somewhat delayed by Quincy Medical Center's focus on its financial challenges and realignment with affiliated hospitals.

Outcomes: Manet decreased non-emergent ED utilization by 1.1% and decreased ambulatory sensitive ED utilization by 2.4%, both the largest decrease among all Phase I sites. The health center also increased the percentage of members with an ED visit who also had a primary care visit (1.3%) and decreased the percentage of members with three or more ED visits by 1.0%. Increased access to services at Manet appears to have positively impacted the non-emergent ED use at their health center sites.

Brief Analysis and Project Dynamics: While Manet was able to keep the Family Nurse Practitioner due to the billable services the position provides, the center was not able to keep the Patient Navigator and Data Support positions beyond the grant period. Manet found the positions were valuable but without direct financial support, the positions could not be sustained.

Phase II Project Summaries

Boston Health Care for the Homeless (BHCHP):

Description of Intervention: BHCHP's ambulatory clinic at Jean Yawkey Place added walk-in evening hours once a week. The additional time block was staffed by an MD, an RN, a medical assistant, a behavioral health therapist, a case manager, and a front desk person. The health center also added Saturday morning hours at its largest shelter-based clinic at Pine Street Inn, resulting in a total of 8 additional hours of operation each week. This project also involved highly collaborative efforts with hospital and city partners. BHCHP was able to add extra appointment slots 5 days a week at the new day center opened at Woods Mullen shelter, located adjacent to BHCHP's ambulatory clinic in the South End of Boston. This day center is intended to attract high users of emergency services and is working to divert preventable ER use. This grant allowed BHCHP to meet a community need and staff the center with a nurse every day. Through the collaboration with hospital leadership and within the course of the grant period, BHCHP also identified the opportunity to provide more appropriate discharge planning for homeless patients admitted to Boston Medical Center. The health center was able to provide one nurse and one case manager to navigate both the limited and highly nuanced options available to homeless individuals, and better prevent them from returning to the ER soon after discharge. In addition, a nurse and case manager rounded at Boston Medical Center for homeless patients in the inpatient unit and ED.

Outcomes: These extended-hours, walk-in, urgent care clinics allowed BHCHP to serve 809 unduplicated patients – most of whom would have otherwise used the emergency department for non-emergent issues- and record a better than expected 1,271 encounters in the first 12 months of the program. As anticipated, a large portion of the visits were related to deferred primary care and non-urgent medical needs, such as persistent coughs and skin infections. The Tuesday evening clinic at Jean Yawkey Place allowed for a total of 492 visits at an average of 10 patients per Tuesday evening, while additional Saturday morning hours at the Pine Street Inn allowed for 470 visits, serving an average of 13 patients per Saturday morning. At the Woods Mullen Day Center, nurses provided 309 visits. The nurse and case manager rounding on inpatient units and at the ED at BMC saw a total of 110 unique patients in one or more of 144 visits.

Brief Analysis and Project Dynamics: The nurse and case manager visits, though highly utilized and effective, are not billable. Therefore without these grant funds the health center would have been less able to envision and carry out this unique approach to ED diversion.

Caring Health Center (Caring):

Description of Intervention: Caring developed an Urgent Care Team under the grant. The team provided treatment to 514 patients during 943 medical visits/encounters. Designating two physicians to treat urgent care and walk in visits enhanced productivity by allowing mid-level providers (nurse practitioners and physician assistants) to focus on return visits and complete physical exams. During the reporting year, mid-level provider productivity levels resulted in 2,628 encounters, an increase of 159 encounters from the previous fiscal year. Much of the mid-level success in increased productivity may be attributed to the Urgent Care Project. Caring Health Center plans to continue the Urgent Care Team services beyond the grant period using billable revenue to cover the services.

Caring also collaborated with its two local hospitals, Baystate Medical Center and Mercy Medical Center, as part of this grant project. The health center senior staff and related clinical and administrative staff of the emergency departments in the two local hospitals met to collaborate on this project and discuss the capacity for new urgent care cases and new patients. The parties agreed to share referrals. The hospitals agreed to identify existing Caring Health Center patients accessing care at the emergency departments and to refer them back to the health center for follow-up care. The hospitals also identified uninsured patients or patients without a primary care provider and referred those patients to Caring for primary care. Caring now refers walk-in and urgent care patients who need emergency treatment directly to the hospitals, assisting them with transportation if necessary and alerting the respective emergency departments of a patient en route.

Outcomes: Caring Health Center showed improvement in the six measures for this grant program: non-emergent ED utilization decreased by 0.2%; ambulatory sensitive ED utilization decreased by 2.4%; low acuity ED utilization decreased by 0.1%; medical home utilization increased by 2.1%; non-emergent weekday/work hour visits decreased by 0.1%; and the proportion of frequent ED users declined by 0.9%.

Brief Analysis and Project Dynamics: As a result of this project, a working relationship was developed between Caring's triage nurses and the emergency department nursing supervisors at Baystate Medical Center and Mercy Medical Center. Within Caring, selected employees were identified and trained to be members of the Urgent Care Team and points-of-contact for the hospital staff.

Fenway Health Center:

Description of Intervention: Fenway Community Health Center (Fenway Health) expanded clinic hours to four hours on Saturdays. Clients who called with emergent needs after all same-day appointments were taken on Thursday or Friday were scheduled for Saturday appointments. The Nurse Manager working with staff to ensure coverage and triage for the expanded hours adamantly felt the Saturday hours were valuable and avoided ED use. The Nurse Manager reported that in his estimation based on feedback from and observation of patients at least 80% of those patients seen during the expanded hours would have been referred to the ED if there were no Saturday hours. The health center reported staff referral and patient requests were appropriate. Fenway Health staff was in agreement that access to the Saturday clinic hours was not driven by a convenience factor but rather by appropriate need. A total of 204 patients were seen on Saturdays during the grant period.

Outcomes: Fenway Health showed the most dramatic decrease in both the non-emergent percentage of total ED visits (-8.8%) and the ambulatory sensitive percentage of total ED visits (-9.6%) compared to the

other Phase I and Phase II grant sites. This shows positive improvement for the health center although it may be impacted in part due to the relatively small number of NHP members Fenway Health has compared to the other health centers. The health center also increased the percentage of members with an ED visit who also had a primary care visit (3.1%) and decreased the percentage of weekday work hour visits that are non-emergent (-5.2%) even though the health center's intervention did not directly target this population.

Brief Analysis and Project Dynamics: Fenway Health plans to continue the four-hour Saturday clinic. The health center reports that the steady growth in the number of appropriate patients suggests consideration of extending the hours, and/or assigning an additional provider to the current clinic hours.

Framingham Community Health Center:

Description of Intervention: Framingham Community Health Center (Framingham CHC) implemented an enhanced nurse triage system that included uniform protocols for triage, training for nurses doing triage, an improved telephone system, and language supports (including bi or tri-lingual nurses, on site interpretation, and telephonic interpretation) to provide language appropriate triage. The ED follow-up included improving communications with the local hospital, MetroWest Medical Center, and contacting patients subsequent to emergency department use to ensure continuity of care. It should be noted that the health center expanded hours at the same time as this triage and education project; however, the expansion of hours were not a part of this grant and are, therefore, not evaluated in this report.

The project also included patient education about proper emergency department utilization, sick visits, and after-hours coverage through the creation of a new brochure and welcome packet addressing all these protocols. The program included meeting with new patients initially to educate them on these protocols and then to distribute the packet to all patients. Education on appropriate ED use also occurs during the visit and when a patient calls for assistance.

The nurse triage line received approximately 50 calls per day. The health center believes a portion of these calls would end up as emergency department visits if the triage line were not available to address patients' needs. In a six month period from January to June 2010, 6,250 calls came to the triage line during the hours of operation. Approximately 400 patients have received Welcome Packets, which include information such as when to contact the health center and when to go to the ED.

Framingham CHC plans to continue to follow up on ED visits and provide telephone triage by the health center nurses. Plans are also in place to finalize the work to assess, improve and plan for centralization of nurse triage so that nursing time is more effective and efficiently used and patient needs are met. The health center also plans to continue to work with the hospital to improve communications and flow so the health center receives regular reports in a timely manner and is able to follow up with patients.

Outcomes: Framingham CHC reduced both its non-emergent percentage of total ED visits and low acuity percentage of total ED visits each by over five percent (-5.4% and -5.3% respectively). The health center's nurse triage access along with the center's expanded hours likely were able to increase patients calling the health center or going to the health center for services rather than going directly to the ED.

Brief Analysis and Project Dynamics: The health center was disappointed by the follow-through from MetroWest Medical Center. Early in the grant year (Fall 2009) initial meetings with hospital representatives were positive and the health center received regular reports. The hospital promised

the health center additional information and more timely reports from the emergency department. Unfortunately, the health center has not been receiving regular cumulative report nor do they receive timely ED reports after a patient has visited the ED. Without these reports, the health center is unable to provide timely follow-up. In approximately 34% of the ED visits, the health center did not receive notice that the patient had been seen and in an additional 26% of visits, the ED report was sent weeks after the visit.

Harvard Street Health Center:

Description of Intervention: Harvard Street Health Center (Harvard Street) expanded hours of operation in the evenings from 5:30 to 8:00pm and 9:00 to 3:00pm on Saturdays. A total of 5,063 patients were seen during the period of expanded hours funded by the grant. The health center plans to continue expanded hours beyond the grant period despite some challenges in sustainability.

Harvard Street Health Center is engaging in outreach to ensure the communities served by the health center are aware of its extended hours. The health center wants to continue to offer extended hours and additional patient visits and associated billable revenue during these hours will assist to sustain the expanded hours.

Outcomes: Harvard Street HC's increased hours and expanded urgent care access resulted in the largest decrease (10.3%) among all grant sites in percentage of weekday and work hour ED visits that are non-emergent. The health center also decreased its non-emergent percentage of total ED visits by 1.3%, decreased its low acuity percentage of total ED visits by 1.7%, and decreased the percentage of members with three or more ED visits by 2.6%.

Brief Analysis and Project Dynamics: Harvard Street Health Center reports that operating their urgent care service requires a staffing level and additional supplies beyond the standard primary care service needs that are not always met by standard fee for service reimbursements. The health center also reports that the acuity of the Urgent Care services lends itself to a high burnout rate among providers requiring frequent rotation of staff and reshuffling of schedules which is a challenge to sustainability.

Holyoke Health Center:

Description of Intervention: Holyoke Health Center has begun implementation of a radiology suite at the health center's main site in downtown Holyoke. The health center encountered many delays throughout the planning and implementation process of the intervention. As a result, the radiology suite is not yet fully operational but as of June 2011 the health center reports progress is being made and the site hopes to have the radiology suite open in the next few months. The health center had difficulty reaching an agreement at the beginning with its local hospital, Holyoke Medical Center, to partner on the project. Holyoke Medical Center is now on board with the project and fully collaborating with the health center. The grant provided funding for architectural and construction costs while the hospital provided the health center with the radiology equipment. The hospital's radiologists will be responsible for reading the x-rays and communicating diagnostic information back to the health center providers. In addition to the delay with the hospital arrangement, the health center has also faced construction delays including conforming to new Department of Public Health ventilation requirements.

The radiology suite hours will mirror the health center's hours of operation so that health center providers can refer their patients for x-rays at the time of the medical service. The health center will

consider expanded hours if there is volume to support it. Based on referral data, hospital data and managed care reports, Holyoke Health Center anticipates a daily volume ranging between 10-20 patients for outpatient x-ray and ultrasound. The health center also will be offering mammography; however, this is outside of this grant project and funding. This grant is supporting a portion of the costs to construct the radiology suite and the health center will cover the rest of the build-out expenses. With the hospital's support, the health center anticipates the radiology service will be sustainable and provide an immediate impact on reducing day time ED visits to the hospital for x-rays and ultrasounds.

Outcomes: Despite Holyoke Health Center's delays in implementing the grant project, the health center saw reductions in non-emergent ED utilization (-5.9%), reduction in ambulatory sensitive ED utilization (-1.3%), reduction in low acuity ED utilization (-1.9%), increased medical home utilization (+1.0%), decreased non-emergent work day visits (-3.6%), and decreased the proportion of frequent ED users (-2.6%).

Brief Analysis and Project Dynamics: Holyoke Health Center struggled to complete the implementation of the radiology project during the grant period due to prolonged negotiations with its local hospital partner Holyoke Medical Center. At one point, the health center was unsure Holyoke Medical Center would participate in the project so they released a request for proposals to other hospital systems to determine if another hospital might be interested in partnering with Holyoke Health Center in case Holyoke Medical Center would not partner on the radiology project. The health center was given an extension to complete the project beyond the initial 12 month grant period.

The outcomes for Holyoke Health Center patients during the grant period could be the result of earlier grant program interventions. During the 2007 Health Safety Net/Urgent Care Grant Program, the health center expanded its hours of operation and expanded the number of exam rooms.

Island Health Care:

Description of Intervention: The health center increased its urgent care capacity through the recruiting, training and hiring of a new full-time Nurse Practitioner which resulted in additional dedicated urgent care hours within the current schedule.

Outcomes: On average, the health center has recorded an additional 100 urgent care visits per month, or 1,200 annually with the new Nurse Practitioner position. Island Health Care is committed to keeping the Nurse Practitioner position for Urgent Care services, although the health center has yet to determine whether they can completely sustain the position on billable revenue alone and are looking for fundraising/grants to cover the difference.

Brief Analysis and Project Dynamics: Island Health Care has not yet expanded hours of operation or received and tracked data related to referrals from the local hospital, Martha's Vineyard Hospital Emergency Department. The health center is hopeful that these data will be forthcoming in the very near future. The hospital was unusually constrained/pressured due to the rather sudden departure of its ED Director (who has since been replaced), as well as the completion and opening of the newly renovated facility (including a new ED). The hospital ED does routinely refer their clients to Island Health Center for primary care follow-up.

Joseph M. Smith Community Health Center:

Description of Intervention: Joseph M. Smith Community Health Center (JMSCHC) implemented a Medical Home Team model to provide greater access to urgent care appointments for its patients, and to enhance the relationship between providers, nurses and their patients. The Medical Home Team Program placed providers, nurses and medical assistants into teams that care for a particular group of patients. In the event of an urgent care need, a patient's assigned provider may not always be available, either because he or she is not at the health center, or because he or she is fully booked seeing other patients. The purpose of the medical home team model was to create a strong patient-provider relationship with team nurses and other team providers in addition to the patients' primary provider in order to better understand and address patient needs, thereby reducing ED visits. The health center discontinued use of centralized triage and transitioned to having the team nurses assume the triage function. This health center's focus on implementing a team model resulted in the number of patients being seen by their assigned provider during the grant period increasing from 68% (baseline) to a high of 83%.

In addition, team nurses now follow up more comprehensively with patients through multiple phone calls to ensure their needs are being met by the health center, with the goal of reducing the number of patients who feel like they need to go to the ED. The health center also worked on planning and implementing other strategies to increase access to urgent care at the health center. All pediatric patients who call with an urgent care need are now seen the same day, reducing the need for parents to take their children to the ED. JMSCHC also put plans into place to implement well-baby training for new moms on what to do when their babies are sick. These training sessions will take place during regular well-child checks and will be conducted by nurses before or after the mother has seen the provider.

JMSCHC also planned to review lists of insured patients assigned to the health center but never seen and send an introductory letter to those patients to encourage them into primary care. JMSCHC has had a long waiting list for new medical patients since the beginning of 2010. As a result, JMSCHC was not able to call newly assigned patients and offer them initial appointments without first putting them on the waiting list. Medical and community services staff felt that it would not be reasonable to spend the time and resources calling these patients, but rather wait until either patients called the health center and set up initial appointments for themselves, or until there was no longer a waitlist for new patients. The intended outcome was that new patients will be fully registered at the health center and call JMSCHC to speak with their providers before going to an ED for urgent care, but this has not been realized due to overwhelming demand for medical services and a shortage of providers and physical space.

The health center plans to maintain the team model beyond the grant period. Hiring new providers to meet the demand for services was a priority for the health center and will assist the success of the team model.

Outcomes: JMSCHC's team model implementation and triage system resulted in decreased non-emergent ED utilization (-1.9%), decreased ambulatory sensitive ED utilization (-0.3%), decreased low acuity ED utilization (-2.1%), decreased non-emergent work day visits (-2.8%), and slightly decreased frequent ED utilizers (-1.0%). As expected, due to the center's waiting list for primary care services discussed above, there was a decrease in the percentage of members with an ED visit who also had a primary care visits.

Martha Eliot Health Center:

Description of Intervention: Martha Eliot Health Center (MEHC) hired a nurse practitioner (NP) to offer adult urgent care appointment slots at the health center. The NP did provide adult urgent care for part of the grant period. However, the NP left the health center prior to the end of the grant and the health center was unable to recruit a replacement. As a result, MEHC was not able to offer adult urgent care for the entire grant period and will not offer the service beyond the grant period.

A second nurse practitioner was hired under the grant to provide urgent care to adolescents. This NP worked three additional time blocks per week to increase access for adolescent patients. There were open physician positions in the department resulting in a need to extend more availability to the adolescent patients. These NP hours were well attended for urgent care. The nurse practitioner was also available to see adolescents for primary care for patients that had not been at the health center recently for primary care and were in need of an annual exam.

The health center has collaborated with Children's Hospital ED to collect daily summary of ED visits by MEHC patients. MEHC has used these reports to conduct outreach to families using the ED. Prior to the grant, the health center had assumed more adults than pediatric and adolescent patients were accessing the ED. The health center faced additional barriers to identifying adult patients who access the ED in real time and so is focusing on how to redirect non-emergent ED visits for pediatric and adolescent patients to the health center. Additionally, the health center has purchased materials for training staff on telephone triage protocols.

Outcomes: MEHC was able to reduce the non-emergent percentage of total ED visits by one percent (-1.0%) and reduce the ambulatory sensitive percentage of total ED visits by two percent (-1.9%) but in the other measures, performance got worse.

Brief Analysis and Project Dynamics: Review of NHP data indicated that the health center's pediatric and adolescent patients are more likely than adults to use the ED. In general the pediatric and adolescent clinics have available same day urgent care access. It is rare for these clinics to turn away a patient who seeks care during hours of operation and direct them to the ED if the problem is appropriate to be managed in the clinic. MEHC decided to focus their efforts in the last few months of the grant toward better understanding the reasons behind the data on pediatric and adolescent ED usage.

MEHC was given an extension to complete the project and expend the grant funds by December 31, 2010. MEHC had to shift focus during the grant when the NP hired for this grant to provide adult urgent care left the health center. As a result, the health center needed additional time to expend the grant funds and redirect funding toward training staff on telephone triage protocols and analyzing the ED data.

Roxbury Comprehensive Health Center (RoxComp):

Description of Intervention: RoxComp utilized grant funds to implement two projects designed to reduce emergency department usage. The first project was to establish a same day urgent care department at the health center. The second project was to conduct outreach to: 1) patients who are randomly assigned to RoxComp but who have not had a health center visit; 2) patients who have been assigned, not used the health center, but who have had an ED visit; and 3) current patients who have had an ED

visit during the hours of operation at the health center. Both projects sought to promote the Medical Home concept.

RoxComp struggled to hire a mid-level provider to see patients for same day urgent care visits. The health center found that most applicants were recent graduates with little to no experience or applicants chose positions at other health care organizations that paid higher salaries. The person finally hired for the position only stayed on for six months but recorded 214 patient visits before leaving the health center.

RoxComp worked with Boston Medical Center, the primary location used by RoxComp patients, to obtain daily ED utilization reports. RoxComp now receives a regular report from Boston Medical Center which the health center is using to identify frequent ED users, pediatric ED users and patients not recently seen at the health center. RoxComp plans to continue to obtain and utilize emergency department utilization data.

Outcomes: Despite RoxComp's challenges hiring and maintaining staff for the grant project, the data show the health center decreased non-emergent ED utilization (-2.7%), decreased ambulatory sensitive ED utilization (-3.5%), decreased low acuity ED utilization (-2.1%), decreased non-emergent work day visits (-1.6%), and decreased the proportion of frequent ED utilizers (-1.5%).

Brief Analysis and Project Dynamics: RoxComp was not able to sustain this urgent care same day visit provider and has discontinued the position. The health center found that the position was not self-sustaining because the provider was not seeing enough patients. The provider did not have enough experience as a recent graduate to work as independently as was necessary to provide urgent care and provide efficient care. RoxComp was given an extension to complete the project and expend the grant funds by December 31, 2010. The health center needed additional time to expend the grant funds as it redirected funding toward analyzing the ED data.

South Boston Community Health Center:

Description of Intervention: South Boston Community Health Center (South Boston CHC) established walk-in triage nurse protocols to give access to patients who would otherwise go to the ED for non-urgent issues. The health center also implemented an education and outreach protocol for patients who frequent the ED and coordinated with hospital discharge planners to address preventable readmissions.

All of the health center's walk-in patients during the year were seen by the nurse triage. Of those patients, the majority were given same day appointments, initially with the NP who was staffing the triage nurse position, and then with staff providers after a thorough work-up using the newly developed triage protocols. This was accomplished despite the fact that two full-time providers in adult medicine and one half-time provider in pediatrics left the health center during the grant period and replacements were not hired. The health center's appointment capacity was approximately 10% less than it had been the previous year. South Boston Community Health Center plans to continue its nurse triage protocols. The health center worked to train all of the nurses so the triage protocols would apply to all staff and thus be more sustainable beyond the grant.

Outcomes: Based on data from emergency department visits to the health center's largest referral hospital, Boston Medical Center, inappropriate visits as a percent of total visits dropped 2.0% (from 12% to 10% of total visits) when comparing the first six months to the second six months of the grant.

South Boston CHC showed a decrease in the percentage of ED visits that were ambulatory sensitive (-1.6%), a decrease in the percentage of ED visits that were low acuity (-1.5%), a decrease in the percentage of weekday work hour ED visits that were non-emergent (-2.4%) and a decrease in the percentage of members who had three or more ED visits (-6.4%). The health center showed a decline in those members with an ED visit who also had a primary care visit, which was not surprising given their provider shortage during the year.

Project Dynamics: Over the year, the health center strengthened its already close relationship with its primary hospital partner, Boston Medical Center. The health center receives daily lists of all health center patients seen in their ED. In addition, the hospital designated one specific discharge coordinator who was in charge of communicating with the health center's managed care nurse about each and every one of the discharged patients to ensure continuity. Also, the health center worked to establish a similar relationship with other partner hospitals and is now getting similar reports from these institutions. These visits are logged, tracked and sent to the providers via the electronic medical record (EMR) for follow-up.

Whittier Street Health Center:

Description of Intervention: Whittier Street Health Center expanded urgent care access by adding additional urgent care providers. Urgent care visits at the health center increased by 40% from the baseline year to the grant year (that is, from 7,265 visits to 10,154 visits). Whittier Street Health Center plans to continue its expanded urgent care access. The current barrier to additional expansion is lack of space. The health center has plans to move to a larger space within the next year.

Outcomes: Whittier Street Health Center only showed a slight decrease in the non-emergent percentage of ED visits (-0.4%) and no improvement in the other measures.

Project Dynamics: Whittier Street Health Center regularly collaborates with Boston Medical Center, Brigham and Women's Hospital, Children's Hospital of Boston and Massachusetts General Hospital. These strong relationships helped the health center implement follow up procedures with patients seen in the ED. The health center receives notification from these hospitals when one of their patients uses the ED and offers the patient an immediate (next day) follow-up appointment with their primary care provider. During the follow-up visit, the patient receives the urgent care material for education on appropriate ED and urgent care use.

Section 5: Challenges and Limitations of Evaluating the Grant Project

Sample Size

NHP identified two health centers without sufficient NHP membership to evaluate using NHP data. NHP membership at the following two CHCs is so small that data analysis and measurement using NHP data was not useful or valid. As a result, NHP was not able to include calculated measures such as change in

non-emergent visits for these sites. Self-reported data on the number of visits provided and patients seen is included in the case summaries for these sites.

- Boston Health Care for the Homeless
- Island Health Center

Additional Challenges

Number of referrals (“diversions”) from EDs: The measurement plan for this grant included reporting the number of referrals from hospital EDs to primary care for follow-up. Only one health center, Lynn Community Health Center, was able to report these data. The health centers do not have a standardized or electronic means to capture these referral data. Many hospitals provide ED reports to health centers for their patients; however, there is no systematic tracking of referrals from the EDs to the health centers. NHP had expected that more health centers would be able to track these ED referrals but it was not the case.

Clinical quality data: NHP and DHCFP were unable to identify any clinical quality data related to ED utilization.

Portion of CHC membership represented: NHP only has access to data on NHP membership for this evaluation. Therefore, the data does not include all patients enrolled in Medicaid at the CHCs.

Section 6: Summary and Discussion

NHP conducted site visits with all CHCs, reviewed the CHCs year-end status reports, and conducted the above analyses to determine what progress CHCs made in expanding access, reducing non-emergent ED use, and increasing primary care connections. In general, NHP found that:

- The grant interventions that appear to have the greatest impact are those focused on increasing access to health center providers through expanded urgent care and expanded primary care. Additionally, the cost impact analysis demonstrates this increased capacity results in cost savings to the system when patients are seen in the community health centers for non-emergent care rather than in the ED.
- Analysis of non-emergent ED visits suggests that many CHCs show promise in reducing non-emergent ED use. Twelve of fifteen CHCs with the requisite data demonstrated reductions in non-emergent ED utilization from the baseline to intervention period. These sites implemented a variety of strategies and serve different populations yet most saw reductions in non-emergent ED utilization.
- Consistent improvement in the percent of members with an ED visit who also had a primary care visit was not seen in the proxy measure for increased medical home utilization. One potential explanation for these results may be the increased demand for services health centers have faced. In the last few years, increased health care coverage for individuals in the state paired with the challenges of hiring and maintaining enough providers to meet the demand for care has created pressure on the availability of primary care services.
- Interventions that focused on enhancing or increasing access through expanded hours or expanded provider capacity were the most likely to be sustainable beyond the grant period. Projects that focused on nurse triage or care management were in some cases able to make a

positive impact; however, these projects were the most difficult to sustain beyond the grant period. The few health centers that were able to sustain the triage or care management projects beyond the grant period did so by training existing staff and integrating protocols into the standard practice rather than hiring additional staff under the grant to perform the nurse triage or care management duties.

- Another critical factor in the success of the projects was the level of collaboration and cooperation from hospitals. The willingness of hospitals to collaborate and participate on reducing non-emergent ED use varies from community to community. For example, a hospital with a newly renovated ED may not be motivated to refer patients for follow-up care to local community health centers. Health centers in communities with collaborative hospitals reported the ability to follow up and track patients more effectively and efficiently than those health centers who struggled to receive timely and relevant data from hospital EDs.

Many of the CHCs implementing the CMS ER Diversion Grant projects expanded access and made progress in reducing non-emergent ED use. It is noteworthy that these accomplishments occurred in an environment where health centers faced regular challenges such as difficulty in hiring new providers and dealing with outside factors that impact ED use such as the H1N1 flu.

In review of the varying interventions it should be noted that the interventions that generate revenue through fee for service billings had the most chance for sustainability. Many of the interventions that did not generate fee for service payments still had a positive impact. Important follow up would be to move to understand the interventions that have a sustainable impact on changing patients' use of the health care system and how these can be supported through payment reform and the enhanced medical home reimbursement.

Taken together the results of this grant program demonstrated that , when provided the opportunity and funding to support start up costs, the majority of CHCs were capable of implementing interventions that expanded access and reduced non-emergent ED use. The success of the increased access found in the results can likely be enhanced further through the efforts of the Commonwealth of Massachusetts to bring about an integrated care model through vehicles such as accountable care organizations and medical homes. Now more than ever, as health centers and the health care system as a whole face financial pressure to keep costs down, it is important to continue to implement interventions that enhance care access for patients while simultaneously promoting a model of efficiency and cost reduction at the community level. The overall results of these projects suggest that investing in the CHC safety net can result in improving general access to care, reducing unnecessary ED visitation, and lowering costs. Implementing these strategies tied to reducing expensive and unneeded time in the ED is one piece of the puzzle to containing costs in the Commonwealth of Massachusetts.

CMS ER Diversion Grant Program Measurement Plan and Data Sources			
Measure	Measurement Plan	Data Source	Comments
Reductions in non-emergent emergency department use as compared to baseline	Compare non-emergent % of total ED visits from 12 month baseline period to 12 month grant period	NHP claims data on ED use from internal NHP ED reports. Non-emergent categorized based on diagnosis code on claim using NHP’s definition of non-emergent.	NHP defines a non-emergent diagnosis as one which, under most circumstances, is treatable within a primary care setting.
Increases in “medical home” utilization by beneficiaries who had been identified as frequent ED users	Calculate the percentage of members with an ED visit who also had a primary care visit. Compare 12 month baseline period to 12 month grant period to determine if increased primary care/medical home utilization occurred	NHP claims data on ED use and Primary Care visits	The available data includes all ED users not just those who are frequent users.
Number of successful referrals (“diversions”)	Report the number of referrals from hospital EDs and/or CHC urgent care to primary care for follow-up	Self-reported CHC data	The number of CHCs reporting these data is low. There is unlikely to be a representative sample for this measure.
Numbers of clients seen during newly established primary care sites or during newly expanded clinic hours, as well as the numbers of clients seen during regular hours, for those CHCs with newly expanded clinic hours	Report the number of visits at the CHCs during hours expanded as a result of the grant.	Self-reported CHC data	CHCs are readily able to report number of visits not number of clients.
Any data on cost savings and clinical/quality impact on beneficiaries’ health	Calculate the cost impact of expanded access visits and any reduction seen in non-emergent ED visits from baseline to grant period by applying an average cost to the visits.	NHP claims data on ED visits. Self-reported CHC data on number of expansion visits. DHCFP public data on average cost of non-emergent Medicaid ED visit and average cost of CHC visit.	Cost impact analysis makes assumptions that a portion of CHC urgent care/same day visits would have otherwise resulted in ED visits.

Measure	Measurement Plan	Data Source	Comments
Percentage of weekday/work hour ED visits that are non-emergent	Calculate the percentage of weekday/work hour ED visits that are non-emergent. Compare 12 month baseline period to 12 month grant period to determine if decrease in non-emergent weekday/work hour ED visits occurred	NHP claims data on ED use from internal NHP ER reports.	Not all claims include a valid admit hour. This calculation is based on the portion of ED claims with a valid admit hour not all ED claims.
Percentage of members who had 3 to 5 ED visits and percentage who had more than 5 ED visits	Calculate the percentage of members who had three to five ED visits and percentage who had more than 5 ED visits. Compare 12 month baseline period to 12 month grant period to determine if decrease in occurred in percentage of high ED users	NHP claims data on ED use from internal NHP ED reports.	
Percentage of ED visits that are ambulatory sensitive	Compare ambulatory sensitive % of total ED visits from 12 month baseline period to 12 month grant period	NHP claims data on ED use from internal NHP ED reports. Ambulatory sensitive categorized based on diagnosis code on claim using MassHealth's definition of ambulatory sensitive.	MassHealth QI Goals Definition of ambulatory sensitive conditions (based on diagnosis codes) used for this analysis.
Percentage of ED visits that are low acuity	Compare low acuity % of total ED visits from 12 month baseline period to 12 month grant period	NHP claims data on ED use from internal NHP ER reports.	Low acuity includes ED visits billed with CPT codes 99281-99282

CMS ER Diversion Grant Program Intervention Types by Site			
	Expanded Hours of Operation	Expanded Urgent Care Access	Create Medical Home Linkages/ Nurse Triage
CMS Phase I Sites (1/1/09-12/31/09)			
Brockton Neighborhood Health Center		X	
Greater Lawrence Family Health Center		X	X
Lowell Community Health Center	X	X	X
Lynn Community Health Center		X	X
Manet Community Health Center	X	X	X
CMS Phase II Sites (7/1/09 - 6/30/10)			
Boston Health Care for the Homeless	X	X	X
Caring Health Center		X	
Fenway Community Health	X	X	
Framingham Community Health Center			X
Harvard Street Neighborhood Health Center	X	X	
Holyoke Health Center		X	
Island Health Center		X	
Joseph Smith Community Health Center			X
Martha Eliot Community Health Center		X	X
Roxbury Comprehensive Community Health Center		X	
South Boston Community Health Center			X
Whittier Street Neighborhood Health Center		X	

CMS ER Diversion Grant Program Intervention Results by Site									
	Evaluation Metrics						Type(s) of Intervention		
	Non-Emergent ED Utilization: Change from baseline to intervention in non-emergent % of total ED visits***	Ambulatory Sensitive ED Utilization: Change from baseline to intervention in ambulatory sensitive % of total ED visits	Low Acuity ED Utilization: Change from baseline to intervention in low acuity % of total ED visits	Medical Home Utilization: Change from baseline to intervention in % of members with an ED visit who also had a primary care visit	Non-Emergent Work Day Visits: Change from baseline to intervention in % of Week Day and Work Hour ED visits that are non-emergent	Frequent ED Utilizers: Change from baseline to intervention in % of members who three or more ED visits	Expanded Hours of Operation	Expanded Urgent Care Access	Create Medical Home Linkages/ Nurse Triage
CMS Phase I Sites (1/1/09-12/31/09)*									
Brockton Neighborhood Health Center	-0.4%	-1.5%	-2.9%	3.3%	-8.4%	1.1%		X	
Greater Lawrence Family Health Center	1.7%	0.5%	1.9%	-0.2%	4.6%	0.6%		X	X
Lowell Community Health Center	-0.5%	-0.7%	-1.8%	1.5%	2.8%	-0.1%	X	X	X
Lynn Community Health Center	0.9%	-0.4%	-1.9%	1.5%	-6.9%	-0.1%		X	X
Manet Community Health Center	-1.1%	-2.4%	1.0%	1.3%	0.9%	-1.0%	X	X	X
CMS Phase II Sites (7/1/09 - 6/30/10)*									
Boston Health Care for the Homeless**	n/a	n/a	n/a	n/a	n/a	n/a	X	X	X
Caring Health Center	-0.2%	-2.4%	-0.1%	2.1%	-0.1%	-0.9%		X	
Fenway Community Health	-8.8%	-9.6%	2.8%	3.1%	-5.2%	0.7%	X	X	
Framingham Community HC	-5.4%	0.4%	-5.3%	-3.5%	n/a	1.0%			X
Harvard Street Neighborhood Health Center	-1.3%	1.1%	-1.7%	-0.2%	-10.3%	-2.6%	X	X	
Holyoke Health Center	-5.9%	-1.3%	-1.9%	1.0%	-3.6%	-2.8%		X	
Island Health Care**	n/a	n/a	n/a	n/a	n/a	n/a		X	
Joseph Smith Community Health Center	-1.9%	-0.3%	-2.1%	-1.5%	-2.8%	-0.8%			X
Martha Eliot Community Health Center	-1.0%	-1.9%	3.2%	-0.6%	3.7%	2.9%			X
Roxbury Comprehensive Community Health Center	-2.7%	-3.5%	-2.1%	-13.3%	-1.6%	-1.5%		X	
South Boston Community Health Center	0.1%	-1.6%	-1.5%	-4.3%	-2.4%	-6.4%			X
Whittier Street Neighborhood Health Center	-0.4%	1.6%	0.2%	-2.8%	2.8%	3.9%		X	

*Phase I Baseline Year 1/1/08-12/31/08 and Intervention Year 1/1/09-12/31/09. Phase II Baseline Year is 7/1/08-6/30/09 and Intervention Year is 7/1/09-6/30/10

**Boston Health Care for the Homeless and Island Health Care did not have sufficient NHP Claims data to calculate these measures.

***Percentages referenced in the results represent the simple difference in percentages between baseline and intervention time periods. For example, a -4% change would represent the difference between 6% at the baseline period and 10% at the intervention period.

