# North Vallejo Patient Access Partnership:

## "Right Care, Right Place" Project Evaluation

May 2011


Lois Green, M.H.S.A.
Glenn A. Melnick, Ph.D.

**University of Southern California**
**Center for Health Financing, Policy and Management**

## Acknowledgements

Funding for this project was provided by the California HealthCare Foundation. Supplemental support was provided by the Safety Net and Community Benefits Program of Kaiser Permanente Northern California.

The authors are grateful to members of the North Vallejo Patient Access Partnership Advisory Group for their support of the "Right Care, Right Place" project and its evaluation. The evaluation would not have been possible without outstanding individual and organizational support. In particular, we are indebted to Terry Glubka and Jane Garcia for their unwavering leadership; to Angie Hammons for boundless encouragement and enthusiasm; and to Monique Sims and Viola Lujan for unselfishly sharing knowledge throughout the health center's start-up and growth. Thank you to Lucette DeCorde and Cynthia Verrett for being advocates of the project and the evaluation. We also would like to acknowledge Tanir Ami and Rafael Gomez as early project champions. Special thanks to Leo Benavente and Anna Green for adeptly managing evaluation data requests with patience and good humor.

Lois Green, M.H.S.A.
Glenn A. Melnick, Ph.D.
University of Southern California Center for Health Financing, Policy and Management

---

## About the Authors

Lois Green, M.H.S.A. is president/principal consultant of The Performance Alliance, a health care research, strategy development, and implementation consultancy based in Woodland Hills, CA, and has been affiliated with the University of Southern California (USC) Center for Health Financing, Policy and Management since its inception. Questions regarding the evaluation report may be directed to Ms. Green at greenl@usc.edu.

Glenn A. Melnick, Ph.D., is professor and Blue Cross of California chair in health care finance, and director of the Center for Financing, Policy and Management at USC. He is also a senior economist and resident consultant with RAND in Santa Monica, CA. Dr. Melnick may be reached at gmelnick@usc.edu.

## About the USC Center for Health Financing, Policy and Management

Established in 1996, the **Center for Health Financing, Policy and Management** at USC's School of Policy, Planning, and Development brings together leading researchers from USC, other universities, and the health care industry to better understand the structure and function of the health care system and how current policies affect patients, providers, and employers; to educate both practicing professionals and policymakers; and to create management and policy strategies to support the development of cost-effective health care systems in the U.S. and abroad.

# North Vallejo Patient Access Partnership:
# "Right Care, Right Place" Project Evaluation

## Table of Contents

# North Vallejo Patient Access Partnership
# "Right Care, Right Place" Project Evaluation

## Executive Summary

### Project Overview

Guiding patients to more appropriate, better coordinated, and less costly care settings than emergency departments (EDs) is a growing health care imperative. Estimates are that 35 to 40 percent of ED visits are non-urgent and treatable in non-ED settings. Though demand for ED services is a complex issue, unnecessary ED use for ambulatory care sensitive conditions (ASC) in particular has been associated with limited access to primary care providers. Thus, increasing primary care resources can be an important strategy to reduce rates of "avoidable" ED[1] use and take pressure off strained community EDs. Expanded primary care access also enables patients to establish a regular, coordinated source of care, where they are more likely to receive vital preventive health services and chronic disease management. Further, research suggests that racial health disparities are reduced when patients receive care from a well-functioning primary care "medical home."

Recognizing the need for concerted action to address escalating local ED demand and increase community access to primary care services, a committed group of health care and government leaders in the Vallejo, California area came together to establish the North Vallejo Patient Access Partnership "Right Care, Right Place" project in an economically challenged community with few primary care resources and no county hospital. Their goal was to create an innovative comprehensive primary and urgent care resource that would connect patients to a medical home and support the local health care safety net by contributing to a reduction of avoidable ED visits. The level of cooperation and engagement among stakeholders who are often poorly connected—particularly hospital EDs and community clinics—proved essential to project success.

A pivotal element of the project involved coordination of ED-related patient referrals between a not-for-profit hospital—Sutter Solano Medical Center (SSMC)—and a new federally qualified health center (FQHC)—La Clínica North Vallejo (LCNV)—to be located on the hospital's campus. Initially, ED patients were to be nurse-triaged and referred to LCNV, bypassing the ED. As the project unfolded, however, the triage model was abandoned, in part to address potential EMTALA compliance issues, and the project evolved to focus on ED-to-FQHC referral following an ED visit. In addition, patients could avoid unnecessary ED visits by coming directly from the hospital to LCVN, as well as through referral by existing LCVN patients and community health providers and organizations.

To facilitate the health center's development, a community consortium provided project funding of more than $1.2 million:  $250,000 for site renovation and more than $300,000 annually, for three years, toward operating costs. If successful, it was envisioned that this ED-to-FQHC model could be adapted and replicated in other communities. An evaluation of the project was

commissioned by the California HealthCare Foundation (CHCF) and conducted by the University of Southern California (USC) Center for Health Financing, Policy and Management.

## Findings

Project stakeholders worked closely with the evaluation team throughout a 20-month study period. Evaluation key findings address each of seven evaluation research questions.

### 1. The "Right Care, Right Place" project was highly successful in helping community members gain access to appropriate and affordable health care.

With support from the North Vallejo Patient Access Partnership, LCNV grew rapidly. Offering convenient urgent care, including walk-in and evening and weekend appointments, over the 20-month study period it served more than 4,600 patients who received 11,400 primary, urgent, and chronic care visits. By the end of 2009, LCNV was cited as their "medical home" by 95 percent of patient survey respondents. Both new and returning patients indicated that they viewed LCNV as an ED alternative; 92 percent reported that, in the prior 12 months, they had not needed to use the ED due to a lack of same-day health center appointment availability. Demographically, patients served by the health center were more likely to be Latino or African American, and to be children, than the overall Vallejo population.

### 2. The project was successful in redirecting patients from the hospital ED to the FQHC.

On average, 52 patients per month were guided from the hospital to LCNV. Referred patients were equally split between those treated in the ED and then referred to LCNV for follow-up visits and those who were referred through SSMC without an ED visit.

### 3. There was evidence of modest to moderate impact on ED visits.

The equivalent of 205 ED visits monthly (nearly 8 percent of its ED volume) were averted at SSMC due to availability of LCNV. An additional 25 ED visits per month to Kaiser Vallejo Medical Center were also prevented. In total, patient access to LCNV averted 4,600 ED visits over the 20-month evaluation time frame.

SSMC's ED high volume continued to rise even given the impact of the health center, but non-urgent ED visits decreased 4 percent during the study period. While the overall avoidable emergency visit rate (AER) of 18 percent did not decline during this time, the last quarter studied had the lowest rate (15 percent) posted, and seven of the top AER diagnoses decreased. Notably, a 41 percent reduction in ED follow-up visits provided in the ED setting was strong evidence of the effect of referring to the health center for post-ED and continuing care.

### 4. Though not greatly improving overall ED financial performance, the project had a positive economic impact for the hospital, in addition to increasing community health care access.

LCVN's modest capacity, relative to the SSMC ED's large patient volume, limited the health center's impact on the ED's bottom line. However, most ED visits that shifted to the health center financially benefited the hospital. In particular, more than 44 percent of all SSMC-referred patients had low-paying or no insurance coverage. Further, many patients referred to LCVN were classified as AER visits, a category that, when seen in the ED, did not pay as well as outpatient ED visits overall. Altogether, these patients seen at LCNV reduced a financial negative for the hospital at the same time they were offered an opportunity to establish a regular, more appropriate source of care.

### 5. Health care in the FQHC cost patients and health plans significantly less than an ED visit.

Guiding patients to an appropriate level of care produced significant savings. Payments made by patients or health plans for FQHC visits were three to four times lower than for ED AER visits and five to eight times lower than ED visits that did not involve an inpatient admission.

### 6. The health center model has the potential to be financially sustainable over the long-term.

Facility improvement resources and three-year operations funding averaging more than $325,000 annually were crucial to establishing the new FQHC. Ongoing payer mix turned out to be more diverse and better than expected, in part due to contracts with the county for indigent care and with Medi-Cal managed care. At the end of the evaluation period, the health center appeared generally positioned to become financially sustainable. However, long-term sustainability must address the end of start-up funds and will depend on volume growth, productivity improvement, provider and staff recruitment and retention, a Medi-Cal mix of at least 50 percent, and continuing subsidies for uninsured clients. Successful grant development and cash flow management until LCNV receives a retroactive FQHC rate adjustment in 2013 are also critical.

### 7. Development and implementation of the project model had distinctive aspects, but also offered experiences and insights transferrable to other communities.

Out of the project stakeholders' successful navigation of myriad issues involved in the implementation and operation of LCNV, six critical success factors emerged: 1) the project was supported by an extensive stakeholder history of collaboration in solving community health care problems; 2) the model reflected and engaged the community; 3) there was significant financial support via pooled start-up funding of more than $1.2 million and key health plan contracts; 4) the FQHC was strategically located near the hospital; 5) La Clínica de La Raza, which operates LCNV, had extensive experience in FQHC operations; and 6) the stakeholders developed among themselves a pervasive culture of communication and garnered practical experience that can potentially benefit others considering implementation of a similar model.

## Conclusion

The North Vallejo Patient Access Partnership's "Right Care, Right Place" project produced a new approach for providing a comprehensive primary and urgent care alternative to the hospital ED. In particular, close physical proximity and strong collaboration between the hospital ED and the FQHC facilitated care coordination that not only addressed avoidable ED use and primary care access but also created a unique and broadly defined medical home model embraced by the community.

By joining to provide start-up and initial operating financial resources, project stakeholders enabled LCNV to launch and grow more rapidly than it otherwise could have. Also, as the model evolved, project participants demonstrated the ability to adapt rapidly, a necessary capability in today's dynamic health care environment.

Although the model as finally constituted lessened the potential for significant reductions in avoidable ED use, the project is nonetheless accomplishing its goals. LCNV has engaged the community at all levels to guide patients to a more appropriate, less costly option for comprehensive ambulatory care. As the intervention matures, new opportunities for collaboration continue to emerge.

Some aspects of the project are distinctive, shaped by community needs and honed by local experience. However, much about the model is generalizable to others seeking creative avenues for increasing appropriate and affordable care options. As the health care industry prepares for the impact of health reform, the "Right Care, Right Place" project has demonstrated that hospitals and FQHCs are well positioned to collaborate in offering innovative solutions.

## Project Background and Strategic Context

### Reducing Avoidable Emergency Visits, Improving Patient Health Care Access

At a systemic level, guiding patients to more appropriate, better coordinated, and less costly care settings than hospital EDs is a growing health care imperative. Hospitals in California provide more than 10 million ED visits annually, offering guaranteed access without regard to a patient's ability to pay. In California and nationwide, many hospitals are pressed to accommodate rising ED demand, whether due to changing demographics, challenging local economics, or other factors. [2] In particular, use of the ED for non-urgent and ambulatory sensitive conditions (ASC) has been associated with limited access, financial or otherwise, to primary care providers.[3] ASCs are conditions such as asthma, hypertension, and diabetes for which good outpatient care can potentially prevent the need for hospitalization or ED use, or for which early intervention can prevent complications or more severe disease.[4] Thus, increasing access to primary care may reduce rates of unnecessary or avoidable ED use, taking pressure off strained community EDs. Moreover, patients who have a regular, coordinated source of primary care are more likely to receive appropriate preventive services such as screenings and immunizations, and to have their chronic health conditions managed. Research also suggests that racial disparities are reduced when patients receive care from a well-functioning primary care medical home.[5]

Patients seek non-urgent medical care in the ED for various reasons, among which are: lack of a medical home; patient convenience; lack of insurance; lack of primary provider appointments; care-seeking after regular physician business hours; insufficient community primary care resources; and lack of knowledge about what is an urgent medical condition.[6] Estimates of the percentage of avoidable ED visits vary widely and definitions are imprecise.[7] A National Association of Community Health Centers (NACHC) report determined that *at least* one-third of all ED visits are "avoidable," defined as non-urgent or ambulatory care sensitive, and therefore treatable in primary care settings. [8] This figure is comparable to California estimates of more than 40 percent avoidable ED visits,[9] as well as to a 34 percent rate of non-urgent and semi-urgent visits nationally.[10]

Using an avoidable visit ED rate of 35 percent, the NACHC study estimated that the U.S. health care system wastes more than $18 billion dollars annually as a result of patients who could have been more cost effectively treated in a non-ED location. For California, this figure was at least $1.8 billion.[11] Appropriate ED use is thus a major cost, as well as care access, issue.

Providers, health plans, and other organizations have been seeking alternative approaches to address this multi-faceted problem. For example, interventions aimed at frequent users of EDs, such as the recent Frequent Utilizers of Health Services Initiative funded in part by the California HealthCare Foundation (CHCF), have demonstrated success in reducing ED utilization by moving high users into community-based comprehensive care management settings.[12] However, high ED-utilizing patients are only one segment of the avoidable ED patient population that might instead be treated in more appropriate and less costly care environments.

To reduce avoidable ED visits, many hospitals have implemented fast-track programs and other strategies to triage and treat non-urgent patients more efficiently.[13] But preventing an ED visit or

**EMTALA Basics**

The Emergency Medical Treatment and Active Labor Act (EMTALA), also known as the Patient Anti-Dumping Act, was enacted in 1986 out of concern that patients were being denied emergency medical treatment because of their inability to pay. EMTALA requires that hospitals that participate in Medicare provide a medical screening exam (MSE) to any person who is on hospital premises and requests emergency care. Usually, "premises" means the ED, but it may also include other parts of the hospital (within 250 yards of the main buildings), and associated clinics, as well as ambulances. The MSE, a more thorough assessment than triaging, is used to determine if the patient is in an emergency medical condition; if so, the hospital must provide stabilizing treatment or transfer the patient to another facility, without regard to the patient's ability to pay. The cost of providing emergency care required by EMTALA is not directly covered by the federal government. EMTALA is aimed at the treating hospital and physician, but a physician assistant acting as an agent of the physician and/or hospital also falls under EMTALA governance. Both hospitals and physicians face potential sanctions for violating EMTALA regulations.

directing patients with non-urgent conditions away from the ED is a complex issue. One aspect of this complexity is the federal Emergency Medical Treatment and Active Labor Act (EMTALA), which requires a medical screening exam of patients who present to the ED (see EMTALA Basics, sidebar). These EMTALA requirements remain in place even though studies have shown that triaging patients out of the emergency department by guiding them to alternate care settings following rapid assessment can be accomplished safely without significant patient risk.[14]

Providing health care in the most appropriate, cost-effective setting takes on added systemic importance with implementation of the new health reform law. Insured patients use the ED at a higher rate than the uninsured do,[15] and the Patient Protection and Affordable Care Act is expected to significantly expand health insurance coverage in California, including up to 3.5 million more Medi-Cal enrollees by 2019, for a total of 10.5 million.[16] Ensuring adequate emergency care for this changing population, as well as providing community primary and urgent care capacity, will be essential to community health delivery systems. Retail clinics, urgent care centers, free-standing EDs, and hospital-FQHC partnerships are among strategies receiving attention to address these growing systemic pressures.[17] Indeed, funding to support growth of community health centers (CHCs) is a centerpiece of health care reform, with more than $11 billion earmarked for CHCs over five years, starting in 2011($9.5 billion to expand service capacity and $1.6 billion for facilities).

Clearly there is a need for creative, collaborative solutions, but individual health care stakeholders—including community health centers, hospitals, physicians, health plans, and local governments—acting independently cannot meet the challenge of avoidable ED utilization and appropriate care access. Committed, coordinated action at the community level is required. The North Vallejo Patient Access Partnership “Right Care, Right Place” project was designed to offer a community-based model to address this nationwide challenge.

## Community Context: Vallejo, Solano County, CA

### County Demographics

Solano County (population 425,000) is situated midway between San Francisco and Sacramento in Northern California (see Appendix D, Map D-1). More than 16 percent of county residents (about 70,000) are Medi-Cal recipients, and county residents overall face significant challenges

accessing appropriate and affordable health care services.[18] Within the county, the city of Vallejo (population 121,000) has particularly limited options for preventive and primary care. Vallejo also has the county's highest poverty rate, at more than 10 percent of the population,[19] and is home to the highest number of Medi-Cal recipients in the county.

The economic recession has significantly impacted both the city of Vallejo and Solano County. In 2007, Solano County unemployment stood at 5.3 percent but by 2009 it had grown to 10.9 percent countywide, and 14.7 percent in Vallejo, the county high; in 2010, county unemployment rose to about 12 percent.[20] Solano County's health care uninsured also rose nearly 53 percent between 2007 and 2009, to 20.3 percent.[21]

Like the rest of Solano County, Vallejo is ethnically diverse, with a population approximately 36 percent white, 22 percent African American, 22 percent Asian, 17 percent Latino, and 3 percent other ethnicities. Solano County residents experience among the highest statewide rates of asthma, diabetes, stroke, cancer, and obesity, and racial and ethnic health disparities add yet another dimension to the community's health care equation. Among key findings of the Health Disparity in Solano County 2004 report are:[22]

- Solano County had the highest level (32 percent) of asthma prevalence among all California counties, with Latinos having the highest overall rate in the county.
- Solano County's African American residents generally ranked lower than other ethnic groups in nearly all health indicators, including cancers, diabetes, hypertension and stroke, and infant mortality and low birth weight.
- Obesity was identified as a major problem for all ethnic groups except Asian.

**Health Care Resources**

To meet the health needs of low-income and under- or uninsured Vallejo area residents, primary care resources include a faculty practice health center associated with Touro University in the North Bay area of Vallejo; La Clínica Vallejo, a federally qualified community health center (FQHC) operated in the southern portion of the city by La Clínica de La Raza; and small or solo physician practices. The Solano County Health and Social Services Department (H&SS) also operates two outpatient clinic sites, one of which is located in Vallejo. Both H&SS clinics have expanded in recent years but appointment wait times at the Vallejo clinic can still be three weeks or more.[23]

Solano County is also served by four hospitals, each with basic EDs, two of which are in Vallejo: Kaiser Permanente Vallejo Medical Center and Sutter Solano Medical Center; there is no county hospital. According to a 2007 Solano County Healthcare Safety Net Overview report, between 2000 and 2006, Solano County ED visits increased at a rate more than twice the statewide increase of 5.6 percent. Of these visits, almost 80 percent were classified as non-urgent or urgent with moderate severity.[24] Similarly, Solano County enrollees in a Medi-Cal managed care plan—Partnership HealthPlan of California (PHC)—reportedly use EDs at two to three times the rate of PHC enrollees in neighboring counties.[25]

**Solano Coalition for Better Health**
Issues of primary care access and affordability are not new to Solano County. In 1998, the Solano Coalition for Better Health (SCBH) emerged in response to the threatened closure of a clinic for medically underserved residents. SCBH is a nonprofit organization of health care leaders whose focus is to improve health and quality of life in Solano County by sharing resources through effective partnerships. SCBH includes local hospitals, the Community Clinic Consortium, Partnership HealthPlan of California, Kaiser Permanente, H&SS, other government officials, local physicians, representatives from the business and educational communities, and neighborhood advocates.

Among its accomplishments, SCBH has:

- Created the Solano Kids Insurance Program to help children and their families enroll in available health insurance programs;
- Launched PHC as a successful managed care health plan model;
- Developed the County Medical Services Program (CMSP), which provides health care coverage for low-income, indigent adults; and
- Developed with PHC the Virtual Clinical Network (VCN), an electronic system that shares patient information between primary care providers and hospital EDs, and is used for inter-facility appointment scheduling.

SCBH receives funding from the county and works on health access strategies and initiatives, including the 2008-2011 Solano County Strategic Plan for Health Care Access that aims to create a comprehensive, integrated system of care for low-income and underserved populations. As a community convener, SCBH played an instrumental role in making the North Vallejo Patient Access Partnership "Right Care, Right Place" project a reality.

## Project Overview

Recognizing the need for concerted action to reduce unnecessary ED visits and increase community access to primary care services, a committed group of health care and government leaders came together to establish the North Vallejo Patient Access Partnership "Right Care, Right Place" project. The project was designed to support the local health care safety net through reduction of avoidable ED utilization and to create an innovative model for expanding patient access to appropriate, less costly care settings.

A pivotal element of "Right Care, Right Place" involved coordination of ED-related referrals between a hospital—Sutter Solano Medical Center—and a new FQHC—La Clínica North Vallejo (LCNV)—to be located on the hospital's campus. To facilitate the health center's development, grant funding to support site renovation and the first three years of projected operating needs was provided by a consortium of community stakeholders who envisioned that the model, if successful, could be adapted and replicated in other communities.

The North Vallejo Patient Access Partnership intervention is noteworthy in several ways:

- **Collaboration.** It is *a collaborative model* for hospitals, community health centers, health plans, and county government—who are often poorly connected—to improve community health care access by supporting an FQHC's formative years, thereby increasing its chances for sustainability.

- **Connectivity.** The project fosters a relatively novel, high level of *connectivity and engagement between a not-for-profit hospital and a community health center* to address challenges of patient health care access and utilization.

- **Comprehensive Patient Care Capacity.** While initially focusing on reducing avoidable hospital ED visits, the project design *builds a comprehensive primary and urgent care capacity for all types of patients.* The intervention was not limited to hospital ED frequent utilizers, the uninsured, or any other specific population group.

- **Medical Home.** The project was designed to guide patients away from the ED by offering a care alternative to those with ED-avoidable health problems. Moreover, LCNV offers these patients, as well as other members of the community, *the potential to establish a medical home,* which can include chronic disease management, assistance with pharmacy costs, and help determining insurance eligibility, among other services. Stakeholders envision that the coordinated medical home approach can contribute to reducing community health disparities.

- **Awareness of Options.** Stakeholders saw the project as an opportunity to work together to *increase community and health care provider awareness,* both of the new health center and of appropriate use of vital ED resources.

## North Vallejo Patient Access Partnership: Formation of a Novel Collaboration

In the absence of a county hospital, SSMC had long served as the de facto county facility for residents of the greater Vallejo area. SSMC assumed a local leadership role in identifying community ED trends and their impact on the hospital's financial stability and on local health access.

Over time, SSMC ED volume growth had created a critical need for the hospital to identify strategies for improving access to more appropriate levels of care. Low reimbursement from a poor payer mix, combined with high ED utilization rates, lack of community access to primary care, and high demand on county safety-net providers, prompted the hospital to consider development of a new primary care clinic for the northern part of Vallejo. An existing, successful relationship with La Clínica de La Raza, a not-for-profit CHC organization with 25 clinic sites serving the greater San Francisco area, made it a logical partner, and La Clínica agreed to develop a primary and urgent care health center in close proximity to the hospital ED.

Community, government and health care leaders then coalesced to create a partnership in support of the venture. Working through the Solano Coalition for Better Health, funding was sought to

launch the northern Vallejo site. Potential partners were asked to underwrite tenant improvements and projected operational losses in the FQHC's early years.

The Solano County Board of Supervisors committed $250,000 for site improvements, as well as $242,000 in Tobacco Master Settlement Agreement funds that scaled down over a three-year period to support initial operations. Sutter Health contributed $100,000 for first-year operations, while Kaiser Permanente and Sutter Solano Medical Center each made annual commitments of at least $100,000 for three years. It was envisioned that the health center would achieve financial viability and sustainability thereafter. This strong community engagement provided the foundation on which to build to the "Right Care, Right Place" project.

## Project Approach

### Patient Access Partnership Goals

In deciding to provide seed funding for the LCNV site, members of the North Vallejo Patient Access Partnership had aspirations for the project to reach beyond the FQHC and address community-wide issues of health care access and delivery, which included:

- Reducing avoidable ED utilization in the community and increasing patient awareness of ED alternatives and appropriate ED use;
- Providing care at the most appropriate, accessible, and affordable level through primary and drop-in urgent care;
- Increasing patient access through provision of a medical home and by enrolling patients in health insurance programs for which they are eligible;
- Improving the financial stability of hospital emergency service providers;
- Demonstrating the financial and operational sustainability of the model;
- Contributing to reducing health disparities in Vallejo and in Solano County; and
- Creating the ability for hospitals, health centers, communities, and policymakers to transfer and replicate a successful program at other sites locally, regionally, or nationally.

### Evaluation Research Questions

To help determine the program's potential to be transferrable and replicable, the California HealthCare Foundation (CHCF) funded an evaluation of the "Right Care, Right Place" project, conducted by researchers from the Center for Health Financing, Policy and Management at the University of Southern California (USC). Supplemental evaluation funding was provided by a grant from the Safety Net and Community Benefits program, Kaiser Permanente Northern California.

CHCF first commissioned the research team to complete an evaluation scoping project that defined evaluation components and assessed evaluation feasibility. The scoping report resulted in the framing of seven research questions reflected in the findings section of this evaluation report.

Evaluation questions included:

1. How effective was the project in helping community members gain access to appropriate and affordable health care?
2. Was it successful in redirecting ED patients from SSMC to the clinic?
3. Did the intervention show a measurable impact on overall ED utilization at SSMC?
4. Did the project positively impact the financial performance of the SSMC ED?
5. Did the project reduce the cost of care for avoidable ED visits?
6. Is the health center model financially viable and sustainable?
7. To what degree is development and implementation of the project transferable to other communities?

## Methodology

During the evaluation scoping phase, the North Vallejo Patient Access Partnership Advisory Group was convened to gain high-level stakeholder input. The advisory group met at key points during the evaluation to provide input and guidance. (See Appendix A for a list of participants.)

In addition, a data work group provided both broad technical and organizational-level data support. Instrumental to the evaluation design was determination of a consistent definition of non-urgent or avoidable emergency room (AER) visits that would permit inter-organizational comparison. The California Department of Health Care Services (DHCS) Statewide ER Collaborative 170 ICD9-code definition of "potentially avoidable" ED visits was selected for use in pre-post and ED-to-FQHC comparative evaluation measures. (More information on AERs, evaluation data, and measures can be found in Appendix B, Methodological Notes.)

Wherever possible, evaluation design sought to optimize use of existing organizational data systems. Quantitative and qualitative data collection included registration, utilization, and financial and selected management files or reports from ED and/or health center sources; self-administered client surveys; and stakeholder interviews. Unless otherwise noted, evaluation data presented in this report were provided for SSMC by Sutter Solano Medical Center or Sutter Health System; LCNV data were provided by La Clínica de La Raza or collected on-site at La Clínica North Vallejo.

Primary and secondary research methods encompassed:

- Primary research:
  - LCNV Client Services Survey conducted one week per month over nine months, September 2009 through May 2010 (see also Appendix B);
  - Tabulation and analysis of LCNV referral source data collected via daily activity logs November 2008 through June 2010 (two months in 2008 ultimately were excluded due to data unreliability). Log data were cross-referred with registration system notes to achieve a 92 percent capture rate;
  - La Clínica de La Raza Patient Satisfaction Survey conducted organization-wide during the month of October 2009; and
  - Interviews of key stakeholders, plus meetings and on-site observation.

- Secondary data:
  - SSMC ED utilization, financial, and acuity mix data files, and annual ED data dashboards;
  - LCNV registration, utilization, demographic, and financial trends; and
  - Partnership HealthPlan of California comparative Solano County hospitals' AER visits trends data.

As the study progressed, a number of accommodations were made to incorporate the project's evolution. Notably, the data collection period was extended six months to gain a more comprehensive view of the health center's maturation. The study period thus spans the 20-month period November 2008 through June 2010. In addition, as discussed below, the ED-to-FQHC referral mechanism was refocused on direct referrals from SSMC to the health center following an ED visit, as well as visits that reflected indirect or ED-bypassed referrals. Data collection was modified to address this change.

## Project Development and Implementation

To enhance understanding of the evaluation results, this section briefly describes LCNV's start-up and operations, the SSMC ED's relationship with the health center, as well as the referral process at the ED, FQHC, and community levels. (See Appendix C for a phased project implementation timeline and milestones.)

### La Clínica North Vallejo: A New Community Health Resource

**FQHC Start-Up and Initial Operations**

LCNV opened on November 3, 2008. It commenced operations on an intermittent, 20-hour per week basis using the provider number of its southern Vallejo sister facility, Vallejo Medical Center, until it received its own provider identification in February 2009. Initial hours of operation were Monday-Friday 5:00-8:00 p.m. and Saturday 9:00 a.m.-2:00 p.m. These hours were chosen to accommodate the likelihood of primary care physicians' offices being closed, thus providing an alternative to use of the SSMC ED for urgent and after-hours care. Over time, as the center's primary care demand and provider capacity expanded, hours were extended to Monday-Friday 8:30 a.m. to 8:00 p.m. and Saturday 9:00 a.m.-2:00 p.m. In September 2009, a drop-in immunization/flu clinic opened on Tuesday evenings and Fridays around the lunch hour, and was particularly important during the 2009-10 H1N1 flu season.

The health center's physical location in a hospital-owned office building on the SSMC campus offered important proximity to the hospital and is directly adjacent to La Clínica's "Great Beginnings" perinatal clinic, which operates in collaboration with the hospital. Start-up funding provided by the county enabled the health center to renovate and update the space. New equipment was also installed to provide for eight treatment rooms, including a special procedure room. The hospital's ED manager worked with the health center team to identify what urgent care equipment and supplies would be needed to supplement basic primary care capabilities. Although the La Clínica organization has contractual links with outside labs, LCNV referred patients to SSMC for radiology and laboratory services needs that exceeded its basic capabilities.

**Health Center Staffing and Recruitment**
Given the diversity of the Vallejo community, the full-time LCNV site manager recognized the need for culturally appropriate care and recruited an ethnically diverse staff. The health center also was fortunate to have a local, African American primary care provider relocate her practice to the new site. This helped to boost early utilization, as well as to reduce potential community perceptions that LCNV served only a Latino clientele.

Because LCNV would be offering urgent and after-hours care in addition to primary care, a key factor for the health center was early recruitment of an experienced emergency medicine physician to provide both primary and urgent care services and to oversee medical affairs. A mid-level/nurse practitioner, several medical assistants, and a health educator completed the start-up staff. On-call and part-time providers complemented the core professional team. Primary and urgent care cross-training served to broaden provider clinical skill sets, particularly for minor procedures. Provider productivity was targeted at 2.5 visits per hour.

Within six months, staffing consisted of two full-time equivalent (FTE) providers, four FTE medical assistants (MA), 1.5 FTE staff for registration and medical records, and a full-time site manager. Part-time positions for health education, behavioral health, and billing were being recruited. In July 2009, one-time federal stimulus dollars for a full-time provider and half-time biller enabled the health center to grow more quickly than it might have otherwise. Soon after, another MA was added, for a total of five. However, staff recruitment, training, retention, and turnover proved to be an ongoing challenge: For example, the health center's location in Vallejo made it difficult to take advantage of the large Oakland and San Francisco labor pool, and some key positions required bilingual staff. Also, in the first quarter of 2010, the start-up site manager left the organization; a new manager joined the team in mid-2010.

**Medical Home Services Expansion**
As demand and provider capacity grew, LCNV worked to develop an integrated complement of medical home services, including a County Medical Services Plan (CMSP) team, case management, behavioral health, and health education. A gynecology specialty clinic was launched in August 2009 and is offered three times a month in cooperation with Kaiser Permanente.

Beginning in late 2009, patients with chronic conditions, most notably diabetes, were being entered into the La Clínica de La Raza disease management registry, although clean separation of patient data between the northern and southern Vallejo La Clínica sites was at times complicated due to the start-up link between the two facilities. To deepen its diabetes capabilities, LCNV forged a relationship with the Sutter Health Diabetes Academy for patient education, and contracted with payers County Medical Services Plan (CMSP) and Partnership HealthPlan of California (PHC) to teach people to read and use diabetes monitors. By early 2010, LCNV had begun moving to chronic care panel management, in which physicians and medical assistants partner to manage individual patients' care and monitor preventive care needs in a true medical home approach.

La Clínica de La Raza operates a 340b pharmacy program, and takes advantage of free prescription drug programs offered through the Pharmaceutical Research and Manufacturers'

Association. At LCNV, a staff member is available to offer pharmacy assistance and information to patients. In June 2010, a collaborative relationship between the North Vallejo site and Safeway store pharmacists was launched, offering health center patients attractive discounts and thus greater access to needed medications. In addition, LCNV's ability to refer to La Clínica de La Raza's nearby dental clinic and to its sister FQHC facility in southern Vallejo has enhanced the provision of coordinated and accessible care. LCNV also facilitates referrals to community physician specialists, e.g., for mammography or cardiology services.

**Building Health Center Volume: Visits, Payers, and Promotion**

LCNV's visit capacity was projected at approximately 5,400 in year one, 11,000 visits in year two, and 15,000 visits in year three. A year-one operating loss of $314,000 was budgeted, with an expected payer mix of 45 percent Medi-Cal, 39 percent self-pay, 11 percent private insurance, and 5 percent Medicare. Patients and their families without coverage received screening for government programs eligibility; a sliding-scale fee structure for self-pay patients is based on family size and financial status. Although not part of the original budget plan, a CMSP contract was negotiated with Solano County to provide limited funding for indigent patients.

A significant portion of the Medi-Cal payer mix projections was Medi-Cal managed care. Once the health center began to accept PHC Medi-Cal assignment in May 2009, PHC and LCNV began jointly conveying information to PHC enrollees. A welcome letter and periodic follow-up by LCNV promoted patient awareness of the site for preventive services and as a regular source of care. A special urgent care flat-rate payment was established for PHC enrollees who were not assigned to LCNV but who used the health center during evenings, weekends, or when their assigned physicians were not available. LCNV takes care to refer urgent or after-hours patients back to their primary care physicians for follow-up care.

Marketing and outreach included flyers and brochures, email communications, an open house, Web presence, presentations to community groups, and other mechanisms. PHC provided information about the health center and its urgent care and after-hours capabilities to its contracted primary care providers. Both Kaiser Permanente Vallejo Medical Center and SSMC provided internal communications and ED in-service training to encourage appropriate referrals to the new FQHC. Posters and flyers placed in the SSMC ED waiting room were restocked regularly.

**Collaboration with Sutter Solano Medical Center**

SSMC championed the "Right Care, Right Place" project from its inception, and Valley Emergency Physicians (VEP), who joined SSMC as its new ED medical group in late 2007, actively supported the new FQHC.

In recent years, SSMC's ED treatment rooms and ED hallways and holding beds increasingly have strained to accommodate rising demand. One response was establishment of an ED fast-track program as an operational strategy to improve efficiency and reduce overcrowding. Under this program, patients entering the ED were pre-registered and triaged using a five-level triage scale, with level one being the least acute and level five being the most acute. Non-urgent visits were defined as triage levels one and two, as were those patients who left without being seen (LWBS) by an ED provider. VEP physician assistants (PAs) staffed the ED fast-track area,

provided EMTALA-required medical screening exams, and treated and discharged patients. Due to high demand, however, patients often still had to wait before a provider became available. In early 2008, point-of-care testing was implemented to speed lab results and improve ED turnaround. As ED demand continued to rise, the opening of LCNV was eagerly anticipated for late 2008.

Once the health center opened, LCNV's site manager and medical director routinely participated in SSMC's monthly ED Collaborative meetings to promote hospital-FQHC information exchange and coordination. These sessions were attended by hospital ED physicians and staff, as well as county emergency medical services personnel. This high level of interaction among providers extended to their communications regarding specific patient referrals and ensured open dialogue and problem-solving, which was a hallmark of the "Right Care, Right Place" project.

## The "Right Care, Right Place" Referral Model

The North Vallejo Patient Access Partnership "Right Care, Right Place" project entailed a two-prong referral model: ED-to-FQHC and community-to-FQHC. As originally designed, the SSMC ED-to-LCNV referral model was anticipated to provide a major contribution to the reduction of avoidable ED use. However, as described below, the model was discontinued midway through the study period. Active hospital and health center collaboration enabled the ED-to-FQHC approach to rapidly adapt, yielding valuable study insight. The evaluation design was modified to accommodate the revised referral model.

### ED-to-FQHC Referral Model: Original Approach

To reduce unnecessary ED utilization, the project initially envisioned having ED triage nurses conduct the required MSE. The nurses would then apprise patients with non-urgent conditions of appropriate alternative care options, including waiting in the ED for care; returning later to the ED; making an appointment with a personal physician; or being referred to LCNV, bypassing the ED for medical care.

To implement this model, a medical staff policy and triage protocol were established. ED nurse training to examine and triage patients according to the approved Emergency Severity Index (ESI) protocol began in April 2009. The ESI algorithm stratifies patients into five groups from 1 (most urgent) to 5 (least urgent) based on level of acuity and resource needs. Reversing the prior numbering system, "non-urgent" cases were defined by SSMC as ESI-5 and ESI-4, as were LWBS patients. (For more information about the ESI, see Appendix B, "Defining Avoidable ED Visits.")

Under this referral model, the health center was expected to receive patients from the hospital in two main ways:

1. **Triaged-and-Referred.** Patients who presented to the ED, were nurse-triaged, and chose to go to the clinic for care. Patients would receive a referral form. A fax or phone call and paper referral were to be sent to the health center to ensure care continuity and patient tracking.

2. **ED-bypassed.** Patients who were not treated in the ED, but who got information at the hospital about the health center and went there directly, indicating to LCNV staff that they had been "referred" by SSMC. For example, patients waiting in the ED would be able to access information, e.g., flyers and posters that highlighted the health center's hospital campus location, hours, and services. It was anticipated that some patients would elect to leave the ED and go directly to LCNV without being nurse-triaged, contributing to a reduction in avoidable ED visits.

The triage-and-refer model commenced in the second quarter of 2009, after several nurses completed ESI training. Full conversion to use of the ESI occurred in August 2009. Twelve ED patients were triaged and offered the FQHC option, three of whom were subsequently seen at LCNV before this approach was discontinued at the end of the third quarter.

A number of factors contributed to discontinuation of the nurse triage-and-refer model. Among them were EMTALA concerns in having nurses, rather than physicians or PAs, conduct the MSE. There was also a potential EMTALA issue in referring to the FQHC located on the hospital's premises. In addition, some nurses were hesitant to refer non-urgent patients from the ED to the health center due to possible liability in the event that a serious medical condition was overlooked. As a result, the triage-and-refer nurses often consulted with the ED physicians or PAs pre-FQHC referral, which meant that the physicians or PAs then had a legal obligation to conduct the EMTALA-required MSE. Once patients were screened, medical care was required to be continued in the ED, eliminating bypass referral potential.

Finally, as nurse training was completed and the triage-and-refer protocol was ready, the hospital and ED group began implementing a providers-at-triage (PAT) program to improve care quality, reduce patient waiting time to be assessed by a provider, and decrease the number of LWBS patients. In particular, the PAT program provided for rapid determination of patient medical needs and anticipated resource utilization. Under PAT, a patient enters the ED and is briefly pre-registered, then is immediately met by in the triage area by a team consisting of a provider (usually a PA or nurse practitioner), a nurse, an ED technician, and registration staff. Patient evaluation in the triage area takes less than two minutes; those who need no additional services can be discharged from triage. Once PAT was established, both the need and the opportunity for nurse-triaged referrals pre-ED medical treatment were nearly eliminated, contributing to the decision to end the nurse triage-and-refer protocol.

**ED-to-FQHC Referral Model: Revised Approach**

With discontinuation of the nurse triage model and implementation of the PAT program, the hospital and health center adapted and evolved the ED-to-FQHC referral approach. Under the revised model, patient pathways became:

1. **ED-referred or ED follow-up.** ED patients treated by ED medical group providers and referred to the health center for follow-up or continuing care.
   - Patients received discharge information and a referral to the health center. As warranted, hospital personnel contacted LCNV directly or scheduled a follow-up appointment online through the inter-provider Virtual Clinical Network.

- For each patient referred, the ED sent an automated fax to the health center containing diagnosis, prescriptions given, discharge instructions, and follow-up referral information. Put into place for this project, the successful discharge auto-fax system was subsequently extended to ED follow-up referrals to all community primary care providers.
- Patients were instructed to mention their referral if presenting to LCNV for care. For continuity, LCNV incorporated the ED discharge fax into the patient's medical record.

Notably, patients treated in the ED and referred to the LCNV for follow-up care may have had a true urgent and, therefore, appropriate ED visit.

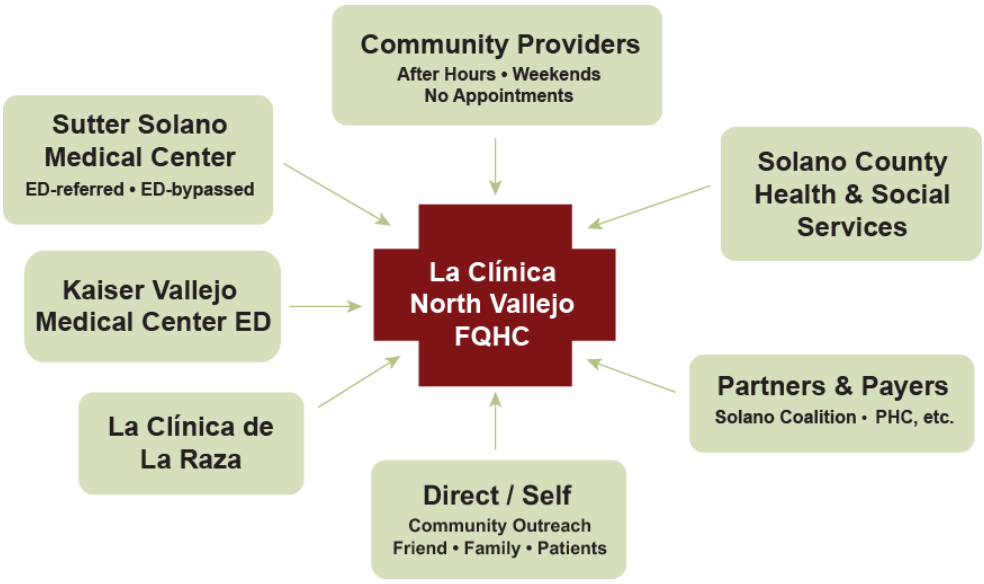
2. **ED-bypassed.** Patients who bypassed the ED but who indicated they had been referred to LCNV through SSMC. Typically, these patients saw LCNV informational flyers or posters provided in the ED for patients who might wish to seek primary or urgent care at the health center, or who heard about it in the ED waiting area, as in the original ED-to-FQHC approach.

**Community-to-FQHC Referrals**

Although the focus of the project was on the ED-to-FQHC referral model, the North Vallejo Patient Access Partnership envisioned that the new health center would also be a primary and urgent or after-hours care resource for the entire community and thereby contribute to a reduction in avoidable ED use on a broader scale.

Figure 1 shows the community referral model in which primary care physicians and clinics could refer their patients to LCNV rather than to an ED for routine after-hours and weekend or urgent care. PHC and other health plans, Solano County H&SS, as well as community social service organizations and churches were made aware of the health center's capabilities.

**Figure 1**
**"Right Care, Right Place" Project Referral Model**




Source: USC Center for Health Financing, Policy and Management

In addition, La Clínica de La Raza was expected to be a source of referrals, e.g., through its dental clinic and its nearby Vallejo Medical Center. Kaiser Permanente Vallejo Medical Center was also actively engaged in the project and worked with its ED providers to identify and refer non-member ED patients to LCNV for ongoing primary care needs. Finally, it was anticipated that patients would self-refer and be referred by friends or family members, with LCNV potentially becoming a medical home for entire families.

To track health center referral sources, registration staff maintained a daily log of patients and patient-defined referral source. Patients routinely were asked how they heard about the health center or from where they had been referred. This information was tracked quarterly (after the first three months of health center operation). Referral source was also noted in the registration system, although inconsistently.

## Findings

The North Vallejo Patient Access Partnership Advisory Group and project stakeholders worked closely with the evaluation team. In particular, the advisory group met midway through the evaluation to review intervention progress and interim quantitative results, as well as to offer guidance. "Right Care, Right Place" evaluation final results presented to the advisory group are discussed below, with findings organized to address each of the seven evaluation research questions. Supplemental tables and charts can be found in Appendix D.

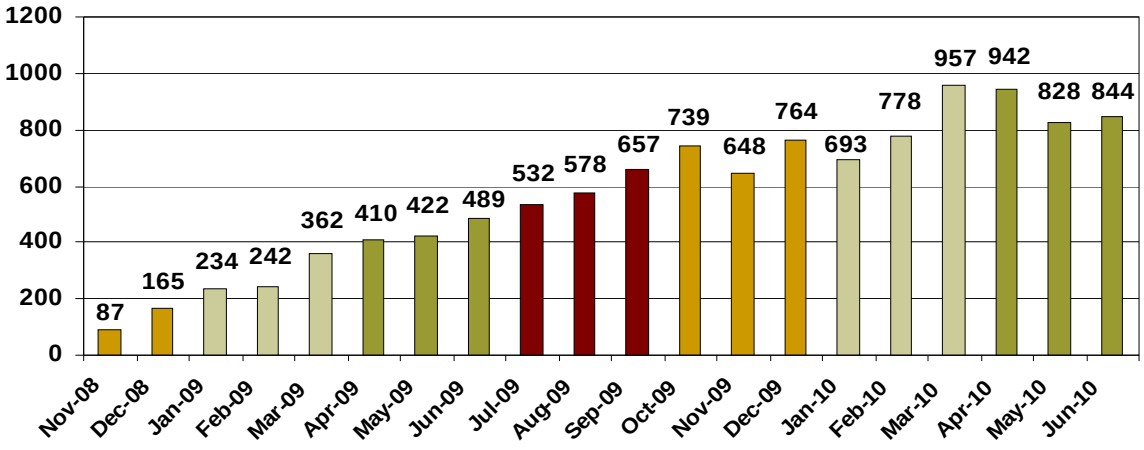
### 1. The "Right Care, Right Place" project was highly successful in helping community members gain access to appropriate and affordable health care.

**The North Vallejo Patient Access Partnership stimulated LCNV's start-up, enabling it to rapidly grow and serve the local community. LCNV provided 11,400 visits to more than 4,600 patients during the 20-month study period.**

As LCNV's hours and staffing expanded from a 20-hour per week intermittent schedule to full time, patient visits grew rapidly and fairly consistently. Volume doubled from Q1 2009 to Q1 2010. Visits began stabilizing at more than 700 per month by Q3 2009 and more than 800 per month by the end of Q1 2010. (See Chart 1.)

Visit fluctuations were due largely to such factors as the H1N1 and normal flu seasons, and provider availability. For example, Q2 2010 visits decreased in response to staffing issues, i.e., provider turnover, illness, and vacancies, rather than flagging demand. Soon after, a new full-time provider joined LCNV and visits were able to increase again. In late 2010, another expansion of hours and providers was being considered to further increase volume, although visit capacity at some point will be constrained by the health center's total of eight treatment rooms.

**Chart 1**
**LCNV Visits, November 2008-June 2010.**




**Of LCNV patients surveyed, 95 percent considered the health center their medical home.**

LCNV developed a loyal patient base, 97 percent of whom rated it "good" or "great" in a patient satisfaction survey of the health center's first full year of operations. In addition, 95 percent of those patients indicated that they viewed LCNV as their primary care medical home. Notably, PHC assigned approximately 2,600 Medi-Cal enrollees to LCNV, and although not all of them sought care during the study period, all of these PHC enrollees had access to a regular source of primary and chronic care through LCNV. Patient acceptance of the health center was also evident in patient return visits. In the 20-month study period, nearly half of patients had multiple visits, with a per-patient average of 2.5 visits; 72 patients visited 11 to 29 times.

Quarterly visits by established (i.e., returning) patients doubled over the last four study quarters, to 1,826 visits. (See Table 1.) As patients established LCNV as their medical home, the health center had an increasing ratio of established versus new patients as a percentage of total visits.

**Table 1**
**LCNV New vs. Established Patient Visits by Quarter, November 2008- June 2010.**

| | Q4-08* | Q1-09 | Q2-09 | Q3-09 | Q4-09 | Q1-10 | Q2-10** | TOTAL |
|---|---|---|---|---|---|---|---|---|
| New Patient Visits | 181 | 507 | 746 | 803 | 820 | 838 | 821 | 4,716 |
| | 72.1% | 60.7% | 56.6% | 44.7% | 38.2% | 34.5% | 30.9% | 41.3% |
| Established Patient Visits | 70 | 323 | 567 | 984 | 1,317 | 1,579 | 1,826 | 6,636 |
| *2 mo; **est. | 27.9% | 38.7% | 43.0% | 54.8% | 61.3% | 65.0% | 68.2% | 58.2% |

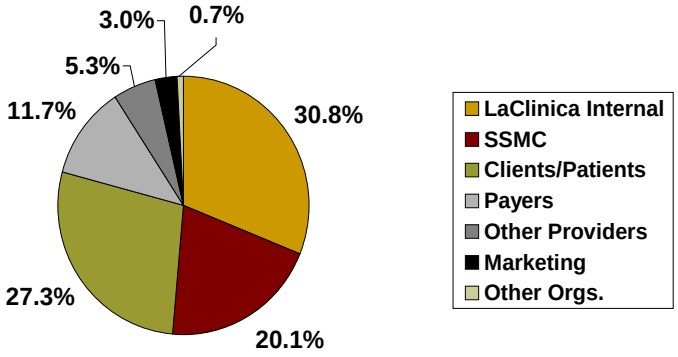
**The new FQHC was widely embraced by the community, with referred visits from a broad cross section of patients, providers, health plans, and community organizations.**

The sources of LCNV patient referral shifted from the early stage of the project (Q1-Q2 2009) to its maturing stage (Q3 2009-Q2 2010). Initially, staff and other La Clínica facilities (e.g., Great Beginnings and La Clínica Vallejo) represented almost 38 percent of referred visits, a figure that dropped to 28 percent as the site matured. SSMC provided nearly 30 percent of referred visits in LCNV's early stage, declining to 16 percent in the later part of the evaluation period. Referrals from family and friends, clients, and walk-ins or self-referred patients (who together accounted for 16 percent of referred visits in the beginning) later nearly doubled as a referred visit source, an indication of community acceptance and client satisfaction.

Payer-referred visits also doubled over time, from 7 percent to 14 percent, which reflected growing PHC Medi-Cal managed care assignment to LCNV. At 5 percent, medical provider visit referrals consistently came from Touro University Medical Center, Kaiser Permanente Vallejo Medical Center, local physicians, and the Solano H&SS clinics, among others. Other referring organizations included the Women, Infants, and Children program, schools, churches, and social service agencies. Marketing sourced 3 percent of visit referrals.

Chart 2 displays total referred visits by source for Q1 2009 through Q2 2010. Overall, La Clínica de La Raza referrals represented 31 percent of referred visits; clients/self/family accounted for 28 percent; SSMC referred visits accounted for 20 percent of the total.

**Chart 2**
**LCNV Patient Visit Referrals by Source, Total Q1 2009-Q2 2010.**




**Nearly 500 out-referrals to community health care providers offered LCNV patients coordinated access to specialty services not available at the health center.**

Patients whose conditions required services beyond LCNV's capabilities were referred to other care providers. SSMC mammography and other imaging services comprised the largest percentage of out-referrals. Among other top specialty referrals were psychiatric/mental health care, diabetes education, orthopedics, cardiology, and gastroenterology.

**LCNV proved itself to be a valued local point of health care access, drawing predominantly from the city of Vallejo, with more than one-third of its visits as walk-ins.**

LCNV's geographic location was particularly important given limited public transportation in two Vallejo ZIP codes, and residents of the three Vallejo ZIP codes comprised 87 percent of the health center's patient volume. Another 8 percent of patients came from three adjacent cities; 5 percent lived in other communities. (See Appendix D, Chart D-1.)

LCNV sought to make care convenient with evening and weekend appointments and an average of 200 walk-in primary/urgent care appointment slots monthly. Overall, 35 percent of patients were identified as walk-ins, although the percentage of walk-in visits decreased compared to total visits as a continuing patient base was established (59% in Q1 2009 to 20% in Q2 2010).

**The health center has been providing care to a diverse, underserved population, including children, low-income, and medically underrepresented population segments such as Latinos and African Americans.**

Compared with Vallejo community demographics, LCNV served a disproportionate number of children. Nearly one-third of patients were under age 18, compared with 28 percent of the Vallejo population. A high percentage of patients were young adults, who frequently were uninsured. The elderly, who have greater access options under Medicare, represented a small percentage of LCNV patients compared with their overall numbers in the local population (5 percent versus 11 percent). Some 85 percent of patients reported incomes below the federal poverty level.

About one-third of patients were Latino, compared with 17 percent of the overall Vallejo population. In addition, more than a quarter of patients were African American, versus 22 percent in Vallejo. Although the community is greater than one-third white, just 21 percent of the health center's patients were; 14 percent were Asian, with about 5 percent of other ethnicities. (See Chart 4, below.) More than three-quarters of patients were English speakers; 22 percent were Spanish speakers.

**Chart 3**
**LCNV Patient Profile, Age.**
**Nov. 2008-June 2010.**

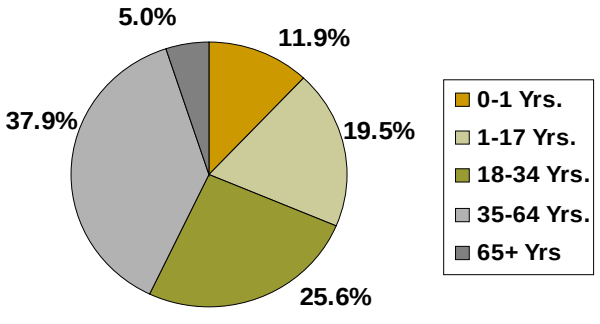
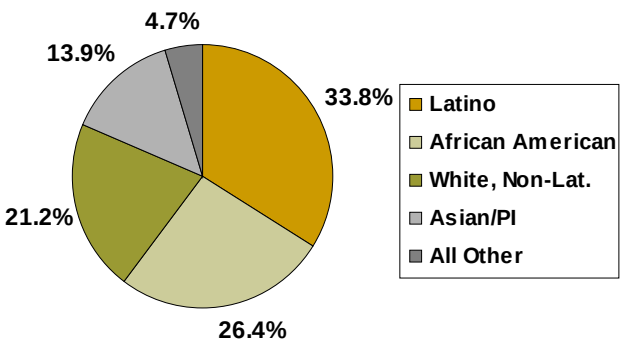



**Chart 4**
**LCNV Patient Profile, Race/Ethnicity.**
**Nov. 2008-June 2010.**



**Established LCNV patients had better access to insurance coverage and were less likely to forgo care compared with new patients. Overwhelmingly, LCNV patients had not gone to the ED due to lack of same-day appointment access at the health center.**

Patients new to LCNV were two-thirds more likely than returning health center patients to be uninsured and to not seek care when needed (28 percent versus 17 percent), according to client survey results. Significantly, 14 percent of patients said they would not have seen a doctor at all if not for the presence of LCNV. Both new and established patients indicated that they viewed LCNV as an ED alternative, with 92 percent reporting that they had not had an ED visit in the most recent 12-month period due to lack of a same-day health center appointment.

**The breadth of LCNV's capabilities and its success in serving the health needs of the community were evident in the health center's top 20 patient diagnoses, which accounted for 57 percent of total visits.**

First among LCNV's top 20 patient diagnoses, routine infant/child health exams accounted for 9 percent of total visits. The health center's primary care focus was also evident in high-volume visits provided for general medical exams and routine women's health services. (See Appendix D, Table D-1.)

Other top diagnoses included acute upper respiratory infection (URI), which comprised 5 percent of total visits, cellulitis and abscesses (4 percent), pharyngitis or cough (3 percent), and back pain (2 percent). Several of these, as described below, were categorized as avoidable ED visit diagnoses. Patients oftentimes view these conditions as requiring urgent medical attention; thus the health center's high degree of success in serving these needs is noteworthy.

Among LCNV's top ten diagnoses—and of significance due to Solano County's high rates of asthma, diabetes, obesity, and stroke—were several chronic health conditions. Diagnoses of hypertension (6 percent of visits), diabetes (5 percent), and asthma (2 percent) totaled nearly 14 percent of all visits and trended upward. In particular, diabetic patients' ability to access La Clínica's chronic care disease management program offered them an important opportunity to receive education and medical services to appropriately monitor and manage their disease and prevent its escalation into an acute condition.

A number of other diagnostic trends emerged over time, and the health center's maturing state by Q3 2009 was somewhat of a demarcation point. Quarterly trends in late 2009 and Q1-2 2010 showed rising patient visits related to obesity and overweight. LCNV's behavioral health and health education services were also being tapped to serve higher volumes of patients with anxiety and depression.

**Among LCNV's top 20 diagnoses (15 percent of total visits) seven were AER categories, demonstrating that patients who might otherwise have ended up in the SSMC ED were instead treated in the health center.**

LCNV handled many common AER diagnoses, such as primary care medical exams, earaches, coughs, headaches, urinary tract infections, and conjunctivitis. During the study period, more

than 2,200 AER-diagnosis patient visits were provided. (See Appendix D, Table D-1.) As expected, acute upper respiratory infection (URI) volume surged during flu season and then dropped, but still comprised more than 5 percent of total visits. Back pain visits grew slowly in numbers, although not in total percent of visits. Of all visits classified AER, ten diagnoses accounted for 17 percent of health center patient visits and nearly 90 percent of AER visits.

## 2. The project was successful in redirecting ED patients to the FQHC.

**Through ED-to-FQHC coordination, patients discharged from SSMC's ED became aware of LCNV and of access to a more appropriate setting for follow-up care, though the uptake rate of patients subsequently seen for follow-up was relatively low.**

During the later stage of the evaluation, an average of 440 SSMC ED patients a month received discharge instructions to go to LCNV for further care if needed. Only about 4 percent of these patients, designated as the ED-referred subgroup, subsequently visited the health center. This may be a conservative figure, however, as it relies heavily on health center patient reporting of the ED referral. Nonetheless, most ED patients instructed to use LCNV for follow-up likely did not do so because no further care was necessary. Those who did seek follow-up care waited an average of 6.5 days. Whether other ED-referred patients visited LCNV at a later time could not be tracked in the study timeframe.

More than half (56 percent) of ED-referred patients who came to LCNV had been treated in the ED for non-urgent care (level ESI-4 or ESI-5); 41 percent were determined to be urgent care level ESI-3 and would therefore not have contributed to a reduction of AERs for the hospital ED.

**The project enabled SSMC to guide approximately 1,040 patients to LCNV, even with revised referral model limitations and low post-ED use of the health center.**

As noted above, SSMC "referred" patients to LCNV in two ways: First, the SSMC ED directly referred patients to LCNV for post-ED follow-up care, as described above. In addition, the hospital was a key source for patients who did not have an actual ED visit, but who indicated they had been referred by or through SSMC, which included people who had seen or heard information about LCNV while present at SSMC but who were not actually treated in the SSMC ED. For study purposes, these two sets of patients were designated as ED-referred and ED-bypassed patients, respectively. Altogether, over the course of the evaluation, approximately 1,040 SSMC-referred patients were treated at LCNV, for an average of 52 visits per month.

Referrals were higher during the start-up phase of the intervention, at about 60 patients per month. As the health center matured, referrals decreased to about 42 monthly. This decrease was due in part to established patients who had made LCNV their medical home and thus were no longer using the ED for primary care. The health center's first-come, first-served urgent care, appointment slots also began to fill quickly, reducing the opportunity and convenience for patients to come to the health center from the ED without a scheduled appointment.

**SSMC-referred patients tended to find a medical home at LCNV. They also were apt to differ from the total LCNV patient population in age, ethnicity, and payer mix.**
Both the SSMC-referred patient population and LCNV patients overall groups tended to live locally, and were as likely (about 85 percent) to have incomes below the federal poverty level.

However, the SSMC-referred patient population differed markedly from the health center's overall patient profile: SSMC-referred patients were more likely than LCNV patients overall to be African American (33 versus 26 percent) or white (26 versus 21 percent), and less likely to be Latino (23 versus 34 percent) or Asian (11 versus 13 percent). (See Appendix D, Tables D-2 to D-4 for comparative age, ethnicity, and payer demographics.)

Compared with LCNV's total patient base, SSMC-referred patients were also more apt to be adults ages 35-64 (45 percent versus 38 percent) than children under 18 (8 percent versus 20 percent). SSMC-referred patients were likely to have more than two visits (57 percent versus 43 percent); more than a third of these patients had more than three visits.

Patients referred through SSMC also had less stable health coverage than LCNV patients overall. They were more likely to be self-pay (25 percent SSMC-referred versus 20 percent overall LCNV) or CMSP-covered (16 percent versus nearly 10 percent), and less likely to have Partnership HealthPlan coverage (34 percent versus 46 percent).

**SSMC-referred patients were equally split between ED-referred for follow-up and ED-bypassed visits, but the two patient subgroups were different.**

Analysis of a seven-month sample of patients referred from SSMC and treated at LCNV showed that SSMC-referred patients were equally split between ED-referred for follow-up care and ED-bypassed. Both SSMC patient groups averaged nearly three LCNV visits, but the two subgroups differed demographically and diagnostically. (See Appendix D, Tables D-2 to D-4, for comparative data for these subgroups, total SSMC-referred patients, and total LCNV patients.)

ED-bypassed patients were more likely to be white (39 percent versus 31 percent), infants (27 percent versus1 percent) and to have better health insurance coverage than those referred for ED follow-up care. PHC Medi-Cal managed care enrollees were two-thirds more likely to bypass the ED. AER rates were slightly higher for ED-bypassed patients, at 19 versus16 percent. Top diagnoses for ED-bypassed patients included routine infant/child health exams and general medical exams. The relatively high number of infants suggests that parents saw LCNV as an ED alternative for their young children and perhaps as a potential primary care home for them.

Among ED-referred patients, only about 5 percent were already established LCNV clients. ED-referred patients tended to be adults; nearly 60 percent were ages 35-64. Payer mix suggests that these patients may have had difficulty accessing routine primary care for financial reasons. Nearly one-third were self-pay, as opposed 22 percent of ED-bypassed patients. CMSP payer mix also was higher, at 20 percent compared with 12 percent ED-bypassed. Medi-Cal comprised just one-third of ED-referred payers, compared with half of ED-bypassed.

Top ED-referred follow-up diagnoses included lumbago and acute URI, with many secondary diagnoses of cellulitis, hypertension, asthma, and other ambulatory sensitive conditions that would be more appropriately treated in a community health center setting than in the ED.

**About 16 percent of SSMC-referred patients at LCNV had AER diagnoses, underscoring the importance of the community health center as a point of access for primary and chronic care.**

Non-AER visits among SSMC-referred patients included routine infant exams (8 percent of total SSMC referred visits), followed by hypertension and cellulitis (6 percent each), diabetes (about 5 percent), and cough (3 percent), with the following diagnoses each comprising 2 percent of visits: change of surgical dressing, arthropathies, asthma, and abdominal symptoms. (See Appendix D, Table D-5, for an array of top AER and non-AER diagnoses among SSMC-referred patients.)

Noteworthy is that as the health center's capabilities and community awareness grew, cases that might previously have been seen in the ED were treated in greater numbers at the health center. For example, SSMC's ED medical group and LCNV providers independently observed changes in their cellulitis/abscess volumes during the study period. This was supported by the data: Beginning in Q3 2009, the number of cellulitis/abscesses diagnoses cases in the ED decreased, but increased for LCNV, accounting for 4 percent of all SSMC-referred visits.

## 3. There was evidence of modest to moderate intervention impact on SSMC ED visits.

**LCNV patients saw—and used—the health center as an alternative to local EDs, resulting in an average of 230 averted ED visits each month. For SSMC specifically, 4,100 averted visits over the 20-month study period represented the equivalent of a 7.7 percent reduction in ED volume.**

Health center visits, access to alternate sources of care, and ED preferences were used in the evaluation to determine the impact of LCNV on ED utilization. On the day being treated, 40 percent of LCNV patients surveyed indicated that they would have gone to an ED had they not been able to access care at the health center. Projected over the course of the 20-month evaluation period, the availability of LCNV thus resulted in the prevention of an estimated 4,600 ED visits, an average of 230 averted ED visits per month. About 4 percent, or 500 visits (25 per month), would have defaulted to the Kaiser Permanente Vallejo Medical Center ED, while 36 percent indicated they would have gone to the SSMC ED. For SSMC, this was equivalent to more than 4,100 prevented ED patient visits, or 205 per month. Had these patients been seen at the SSMC ED instead, monthly ED volume would have averaged 7.7 percent higher.

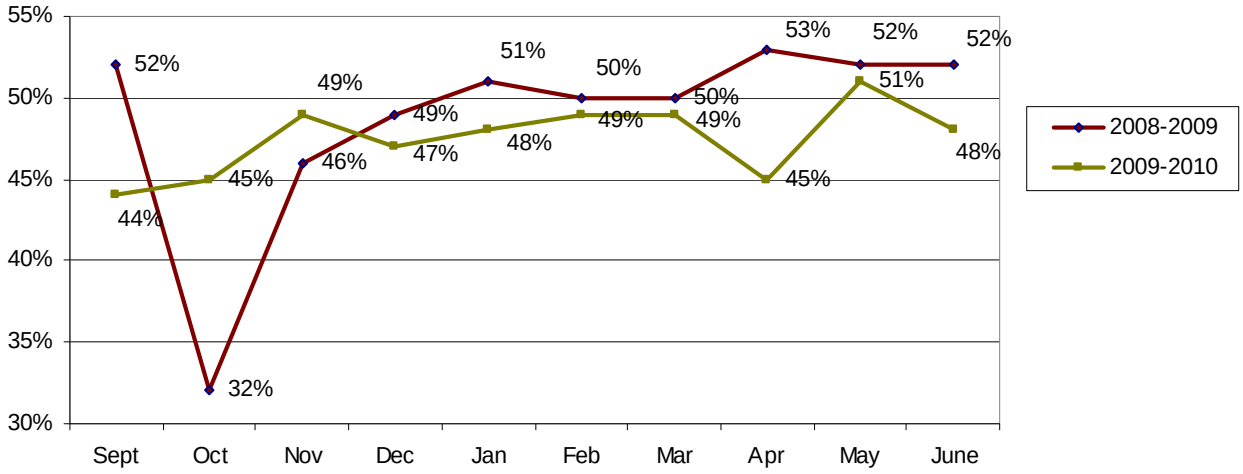
To more closely assess the impact of the project on SSMC's actual ED utilization, the evaluation looked at ED visit trends, changes in the percentage of non-urgent visits, AER rates overall and by quarter, and AER diagnoses for the period 2008-2010. Because LCNV opened very late in 2008, the year 2008 was used as the pre-intervention reference point.

**SSMC's ED visits increased steadily over the past four years, despite the presence of LCNV beginning in late 2008. Still, LCNV showed evidence of modest impact on SSMC ED non-urgent visits, which decreased 4 percent.**

SSMC ED utilization increased 29 percent from 2006 to 2010, annualized. On average, volume grew nearly 8 percent annually between 2006 and 2009, from 27,700 visits in 2006 to 29,900 in 2007, 32,200 in 2008, and 35,000 in 2009 before leveling off at nearly 36,000 visits for 2010. (See Appendix D, Chart D-2.) During this time, the Vallejo area population remained relatively flat, pointing to greater use of the ED as a community health care access point.

To evaluate whether LCNV contributed to a reduction in unnecessary SSMC ED visits, non-urgent ED visits as a percent of total ED visits were trended from late 2008 to mid-2010. Non-urgent visits were defined as the two lowest of five acuity levels, as well as LWBS patients. Chart 5, below, compares November 2008-June 2009 SSMC ED visits with a similar eight-month period in 2009-2010 (September and October 2008 excluded due to a data anomaly). The data show a consistent decreasing trend of non-urgent visits. Because LCNV opened in November 2008, early 2009 data reflect early intervention stages, i.e., referrals, but no evidence of utilization shifts that would show reductions in inappropriate ED use.

**Chart 5**
**SSMC ED Non-Urgent Visits as % of Total ED Visits, September 2008-June 2010.**




As LCNV grew, greater impact on ED use was seen in late 2009 and early 2010. The percentage of non-urgent visits ranged from 1 to 8 percentage points lower than in the earlier, comparable period, depending on the month—with a 4 percent overall decrease in non-urgent cases in 2009-2010 versus the prior period. Although modest, given the health center's limited capacity compared to overall SSMC ED volume, the data suggest LCNV had a positive impact on reducing non-urgent ED volume.

**There was no clear reduction in annual avoidable ED visit rates during the study period, but SSMC's Q2 2010 AER percentage was the lowest of any quarter in the 20-month evaluation, suggesting that LCNV presents opportunity to reduce AER rates.**

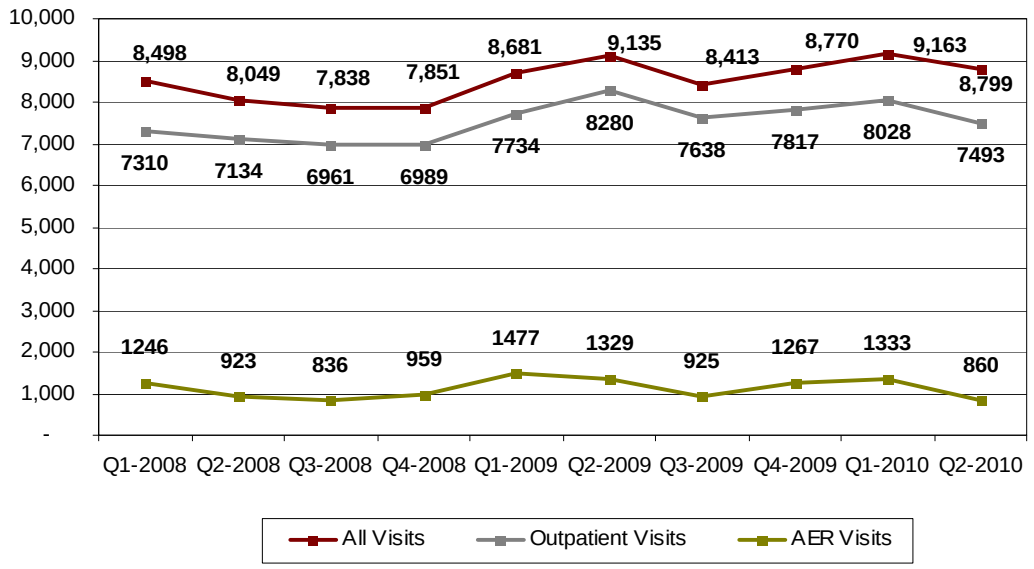
Using the Statewide ER Collaborative definition of "potentially avoidable" emergency visits, Table 2 shows that, in 2008, AERs comprised 18 percent of SSMC's outpatient ED volume (which excludes ED patients later admitted as inpatients). This figure rose to nearly 20 percent in 2010, primarily due to the H1N1 flu season of 2009-early 2010. In the first half of 2010, AER visits returned to the 2008 level of 18 percent.

**Table 2**
**SSMC Total AER # and % of Outpatient ED Visits, 2008- June 2010.**

| Year | AER Diagnoses | % Total Outpatient ED Visits |
|---|---|---|
| 2008 | 5,078 | 18% |
| 2009 | 6,234 | 20% |
| 2010 (6 mo.) | 2,791 | 18% |

SSMC's AER volume by quarter were trended to discern variation by time of year. (See Chart 6.) In both 2008 and 2009, Q1 had the highest AER percentage and highest ED volume, declining in the second quarters. Third quarters had the lowest AER rates. Notably, Q2 2010 posted the lowest AER percentage, at 15 percent of ED visits, of any quarter in the study period, which suggests an opportunity for future AER reduction.

**Chart 6**
**SSMC ED Visits by Quarter, 2008-June 2010.**




| Quarter | AER% |
|---|---|
| Q1-2008 | 20.9% |
| Q2-2008 | 16.6% |
| Q3-2008 | 16.1% |
| Q4-2008 | 17.8% |
| Q1-2009 | 22.9% |
| Q2-2009 | 19.9% |
| Q3-2009 | 16.4% |
| Q4-2009 | 20.1% |
| Q1-2010 | 20.5% |
| Q2-2010 | 15.3% |

To compare SSMC's AER experience with that of other Solano County hospitals, AER percentages were trended for PHC Medi-Cal managed care enrollees who utilized Solano County EDs. PHC represents a significant portion of ED payer mix, thus offering an AER comparative proxy measure. On a quarterly basis, the two other Solano County non-Kaiser facilities' AER trends tracked closely with SSMC's. There was no significant SSMC comparative reduction in

AER rates through Q1 2010; Q2 data were not available for the evaluation. (See Appendix D, Chart D-2).

**Although total AER percentages did not decline, seven of the top SSMC AER diagnoses decreased over the study period.**

Because the project evolved, and recognizing that patient ED demand has many variables, the evaluation did not limit consideration of the health center's impact solely to whether the overall AER percentage declined. Looking beneath the surface of overall AER rates proved illuminating.

Table 3 shows the top 12 AER diagnoses, comprising about 95 percent of total SSMC AER visits. Again, the year 2008 was considered the "pre-LCNV" period. Notably, there were real or relative decreases in seven of the top 12 AERs during the pre-post study period. These decreases are of interest when considered against the top AER diagnoses treated at LCNV and the health center's use for follow-up care post-ED. The seven declining-volume AER diagnoses (with their AER ICD-9 codes only) were: lumbago (724), headache (784), pharyngitis (462), bronchitis (466), repeat prescription (V68), cystitis (595), and follow-up/aftercare (V67).

In 2009, with ED visits increasing 11 percent over the prior year, the impact of H1N1 was evident in the spike of the top AER diagnosis—acute URI—from 14 percent to 24 percent of AER visits. However, based on prior year trends, acute URI would be expected to drop significantly in late 2010 and overall AERs would be expected to decrease somewhat more, even below the 2010 YTD June rate of 18 percent.

**Table 3**
**SSMC AER Top 12 Diagnoses by #, % of AER Total, and Rank, 2008-June 2010.**

| Top 12 Diagnoses (ICD 9) | Pre-LCNV 2008 | | | Post-LCNV 2009 | | | Post-LCNV 2010 Jun | | |
|---|---|---|---|---|---|---|---|---|---|
| | # | % | Rank | # | % | Rank | # | % | Rank |
| 1. Lumbago (724 AER only) | 725 | 14% | 1 | 648 | 10% | 3 | 296 | 11% | 3 |
| 2. Acute upper respiratory infection (465) | 709 | 14 | 2 | 1,507 | 24 | 1 | 644 | 23 | 1 |
| 3. Urinary tract infection-UTI (599) | 569 | 11 | 3 | 669 | 11 | 2 | 347 | 12 | 2 |
| 4. Acute pharyngitis (462) | 525 | 10 | 5 | 641 | 9 | 4 | 230 | 8 | 6 |
| 5. Headache (784) | 545 | 11 | 4 | 567 | 10 | 5 | 251 | 10 | 5 |
| 6. Otitis media (382) | 417 | 8 | 6 | 471 | 8 | 6 | 257 | 9 | 4 |
| 7. Acute bronchitis (466) | 402 | 8 | 7 | 410 | 7 | 7 | 182 | 7 | 7 |
| 8. Conjunctivitis NOS (372) | 270 | 5 | 8 | 203 | 3 | 11 | 150 | 5 | 8 |
| 9. Follow-up exam/aftercare (V67) | 268 | 5 | 9 | 226 | 4 | 10 | 96 | 3 | 11 |
| 10. Issue repeat Rx (V68) | 176 | 3 | 10 | 244 | 4 | 9 | 63 | 2 | 10 |
| 11. General medical exam (V70) | 150 | 3 | 11 | 280 | 4 | 8 | 141 | 5 | 9 |
| 12. Cystitis (595) | 87 | 2 | 12 | 75 | 1 | 12 | 24 | 1 | 12 |

**SSMC ED volume reductions were seen in 70 percent of its top 60 diagnoses (AER and non-AER), which correlated with high visit volume LCNV diagnoses and demonstrated a clear ED-to-FQHC relationship.**

Beyond AERs, SSMC's top 60 outpatient ED discharge diagnoses (≥150 visits) were examined, including quarterly trends and percentage changes in each diagnosis between 2008-2009, 2009-

2010, and 2008-2010. The year 2010 was annualized to facilitate year-to-year comparison. Rates of visit increases for each time period were calculated to assess whether changes in the top 60 diagnoses were greater or less than average.

SSMC ED outpatient visits increased an average of 9.3 percent during the period 2008-2010. (See Appendix D, Table D-6.) Nearly 40 percent (n=23) of the top 60 diagnoses decreased more than average in both 2009 and 2010. Four of these diagnoses were AERs. Visit reductions were seen in cellulitis, follow-up visits, follow-up exams, headache, lumbago, and bronchitis, which were among top SSMC-referred patient diagnoses at LCNV. Reductions were also seen in sprains, contusions, strains, and gastritis.

In 2009, 30 percent (n=18) of the diagnoses increased, but declined in volume in 2010. Four were AERs, two of which had net reductions for 2008-2010. Several were related to the extreme flu season, such as acute URI. There was evidence that use of the ED for non-urgent care, such as general medical exams, spiked upward.

Compared with 2008, only 10 diagnoses (17 percent) increased in 2009 and 2010, which included flu-related diagnoses. Asthma cases, of interest as both a chronic care condition and a community health disparity, increased a net 18 percent.

Nine diagnoses (15 percent) posted greater than expected volume decreases in 2009, but then increased in 2010, among them hypertension, anxiety, hives, and migraines (all of which may be associated with a more highly stressed economic climate).

Most significantly, perhaps, among all diagnoses, the volume of SSMC's ED follow-up visits plummeted. This seemed to clearly indicate LCNV's impact as an ED follow-up referral source.

**LCNV's strong role in providing an appropriate option for ED follow-up care was evidenced by a 41 percent reduction in SSMC ED follow-up visits provided in the ED setting.**

The project's original nurse triage-and-refer model offered potential for AER reduction via ED visit redirection. However, potential AER impact was lessened when the principal ED referral mechanism was refocused on use of the health center primarily for follow-up visits. Changes in two key diagnoses demonstrated LCNV's role and importance in guiding ED patients to appropriate care post-ED referral. ED follow-up visits (V58) and the AER ED follow-up for aftercare (V67) declined 57 percent and 28 percent, respectively, between 2008 and 2010, annualized. This represented a combined 41 percent reduction in follow-up visits provided in the ED setting during the study period.

Although the number of patients who require ED follow-up care may be relatively small, the project proved successful in moving a significant portion of them to a more appropriate FQHC setting, with the added opportunity for patients to establish a regular source of primary care.

## 4. Though not greatly improving overall ED financial performance, the project had a positive economic impact, in addition to having been the "right thing for the community."

The large patient volume at SSMC's ED relative to LCNV's modest capacity limited the health center's ability to substantively impact the hospital ED bottom line. Nevertheless, a modest positive impact was identified, in addition to the fact that SSMC executives strongly believed that the "Right Care, Right Place" initiative had been "the right thing for the community." The payer mix among SSMC patients referred to the health center, whether for ED-referred follow-up or ED-bypassed, was relatively poor, with more than 44 percent having low-paying or no insurance coverage. Thus, when seen at LCNV these patients reduced a potentially negative financial impact on the hospital, as is examined in more detail below.

**Overall ED payer mix deteriorated during the evaluation period. However, the economic downturn appears to have been the greatest contributing factor to payer-mix erosion.**

The recession and high local unemployment and uninsured rates negatively affected SSMC during the study period. Medi-Cal and self-pay visits increased as a percentage of total ED visits, from 37 to 39 percent and from 14 to 17 percent, respectively; outpatient ED mix was slightly worse. Commercial payers decreased from 18 percent to 15 percent of total visits, and other payers declined to 2 percent; these rates were consistent for total ED and outpatient ED visits. CMSP volume was about 9 percent of the mix. (See Appendix D, Chart D-4.)

In addition to ED payer mix, 2008 (pre-LCNV) and 2009 (post-LCNV) charge and payment data by payer, AER, and top diagnoses for outpatient ED visits were analyzed. The first six months of 2010 were excluded from the analysis because of the number of open, unsettled patient financial accounts at mid-year. ED cost data were not available to determine financial impact utilizing payment in relation to ED visit costs. However, while billed charges are not a reflection of true cost, average payment proved useful in assessing the project's impact on ED finances. (Average payment represents the average amount paid for all applicable outpatient ED visit diagnoses, including insurance payment and co-pays less bad debt.)

**From 2008 to 2009, SSMC average outpatient ED charges remained flat but the average payment SSMC received for an ED visit decreased 6 percent on increased volume of nearly 9 percent.**

The average payment to SSMC as a percent of charges decreased among all payers, and in 2009 averaged less than 10 percent of charges among four of six payer categories. (See Appendix D, Table D-7.) High-volume but low-paying payer groups significantly impacted SSMC ED revenues and reflected the challenging economic climate.

Among the top five payers:

- Medi-Cal, the hospital's largest payer at about 40 percent of outpatient ED visits, paid less than 7 percent of charges (an average payment of $141 per visit), accounting for 12 percent of ED revenue.

- Self-pay patients comprised 17 percent of ED visits, but less than 1 percent of ED revenues; the ED received just barely 1 percent payment of charges (average $26 per visit).
- County/CMSP paid less than 5 percent of charges (average $129 per visit), which accounted for 9 percent of visits but yielded less than 3 percent of ED revenue.
- Medicare paid 9 percent of charges (average $386 per visit), with 16 percent of ED visits, and contributed 13 percent of the hospital's ED revenue.
- Commercial payers decreased as a percentage of visits, to less than 18 percent, but accounted for more than two-thirds of ED visit payments (average $1,761 per visit).

**Reductions of AER visits financially benefited the hospital because AERs reimbursed even less than other ED visits.**

Despite variation by year, payer, and diagnosis (see Appendix D, Table D-8), AER visits did not pay as well as outpatient ED visits overall. As shown in Table 4, average AER payment deteriorated in 2009 compared with 2008; average charges also declined slightly.

**Table 4**
**SSMC AER vs. All Outpatient ED Visits**
**Average Charges, Payment, and % of Charges Paid, 2008 and 2009.**

| Year | OP ED Av. Payment | OP ED Av. Charge | OP ED % Chrgs Pd. | AER Av. Payment | AER Av. Charge | AER % Chrgs. Pd. |
|---|---|---|---|---|---|---|
| 2008 | $483 | $2,630 | 18.4% | $281 | $1,599 | 17.6% |
| 2009 | $453 | $2,638 | 17.2% | $233 | $1,588 | 15.0% |

Table 5 shows that the average AER payment varied greatly by payer mix, from $12 (self-pay) to $1,017 (commercial, non-risk). Self-pay patients with AER diagnoses made up 17 percent of total AER visits; the county program (CMSP) also paid poorly on AERs. Medi-Cal, at 48 percent of SSMC's AER payer volume, paid on average about $100 per visit. Medi-Cal patients were more likely to have AER visits than other payers.

**Table 5**
**SSMC AERs by Payer: % Visits, Average Payment, Charges, and % of Charges Paid, 2008-2009.**

| Payer | % AER Visits 2008 | % AER Visits 2009 | Average Payment 2008 | Average Payment 2009 | Average Charge 2008 | Average Charge 2009 | % Charges Paid 2008 | % Charges Paid 2009 |
|---|---|---|---|---|---|---|---|---|
| Medi-Cal | 46% | 48% | $ 107 | $ 98 | $1,276 | $1,298 | 17.4% | 20.3% |
| Self-pay | 16 | 17 | 32 | 12 | 1,377 | 1,361 | 1.8 | .9 |
| Commercial | 15 | 14 | 1,230 | 1,017 | 1,893 | 1,646 | 65.9 | 62.6 |
| Medicare | 13 | 11 | 224 | 242 | 2,472 | 2,689 | 10.4 | 11.8 |
| County | 8 | 9 | 91 | 83 | 1,447 | 1,754 | 2.7 | 3.0 |
| Other | 2 | 1 | 246 | 347 | 1,175 | 1,520 | 21.0 | 22.8 |

**ED visit follow-up at LCNV had a positive financial effect for the hospital.**

Use of the health center for post-ED follow-up and care referral had a positive financial contribution to the hospital. Follow-up (V58) visits paid an average of $148, or 9 percent of

charges; follow-up with aftercare visits (V67) paid an average of $66, or 15 percent of charges, well below the AER average. Thus, follow-up care at the health center removed a number of low-paying visits from the ED at the same time it offered patients an opportunity to establish a regular, more appropriate source of care.

## 5. Care received in the FQHC setting cost patients and health plans significantly less than an ED visit.

The project clearly demonstrated that a coordinated effort to guide patients to the level of care most appropriate for their condition has significant financial savings potential. As with the ED, actual cost-per-visit data were not available for LCNV. But payment-per-visit data for both the ED and the health center enabled comparison of the economic impact of the project for patients and health plans.

**Payments for patient visits provided by LCNV were from three to eight times lower than payments for ED visits.**

The standard billed charge per LCNV visit averaged $116 for new patients and $84 for those established. These averages take into account varying levels of visit complexity and were calculated on actual mix. However, LCNV provides service on a sliding-scale fee structure based on a patient's ability to pay. Including both of these sliding-scale fees and the insurance payer mix, patients and payers on average paid $58 per visit. When calculated to include an anticipated retroactive Medi-Cal rate adjustment, LCNV's average payment per visit was $84.

LCNV's $58 to $84 average visit rate contrasts markedly with an average $233 for a hospital AER visit at SSMC and $453 per visit for overall outpatient ED visits. ED AER payment is lower than the overall ED rate because AER visits tend to be less resource intensive. Average payment per health center visit was the same whether for an AER or non-AER diagnosis.

Payments for patients with AER diagnoses who went to the ED for care were thus three to four times higher than for health center patients. Payments for hospital outpatient ED visits were five to eight times higher than the health center's average payments. These ratios are in line with a 2003 Agency for Healthcare Research and Quality (AHRQ) study that showed a five-times higher expenditure for hospital ED versus physician office-based visits.[26] This finding underscores the impact for individuals, payers, and communities alike of guiding patients, whenever appropriate, to lower cost non-ED care settings.

## 6. The health center model has the potential to be financially viable and sustainable over the long-term.

Based on start-up through mid-2010 performance, as well as on plans and projections, LCNV appears positioned to become a financially viable and sustainable operation, but must navigate a number of challenges. Several factors will be critical to future financial performance,

particularly after completion of the initial three-year funding commitments provided by members of the North Vallejo Patient Access Partnership.

**LCNV ended its first 20 months of operation with a negative variance of approximately $82,000, with shortages in patient visits offset by grant revenue. CMSP payments and an anticipated retroactive FQHC Medi-Cal rate adjustment in 2013 are projected to substantially improve start-up financial performance.**

In its first full year of operation (Nov. 2008-Oct. 2009), LCNV posted a net operating loss of $40,000. Patient visits were 10 percent short of the 5,400 budgeted goal. Grant revenue was $177,000 higher than projected, offsetting lower than anticipated patient fees. (See Appendix D, Table D-9.)

For an eight-month period in year two (Nov. 2009- June 2010), LCNV operated at a $42,000 loss. Patient visits were off projections by 13 percent, but grant revenue was again higher than projected, in this case due to one-time federal stimulus funds. These figures do not include $234,000 of grant funding to support behavioral health and health education, as of October 1, 2010. Revenues also exclude an expected $290,000 ($120,000 year one and $170,000 year two) retroactive FQHC Medi-Cal rate adjustment in 2013, as well as settlement on the CMSP contract (see discussion, below).

**Productivity was slightly lower than targeted. Part-time provider scheduling and turnover, provider mix, and the need to staff for both primary and urgent care were contributing factors.**

LCNV has developed a dedicated provider team, despite challenges in recruiting and retention to accommodate rapid growth. Provider team productivity rates of 2.33 visits per FTE/hour were slightly below the 2.6 visits goal. Physician productivity exceeded the target at 2.8, compared with mid-level practitioner productivity of 2.06 as new mid-level providers joined the practice and built capacity. Turnover and scheduling of part-time providers, phased growth, need for bilingual staff and providers with both primary and urgent care capabilities, all affected productivity targets.

**LCNV's payer mix is heavily Medi-Cal and self-pay, although the mix has been more diverse and somewhat better than expected.**

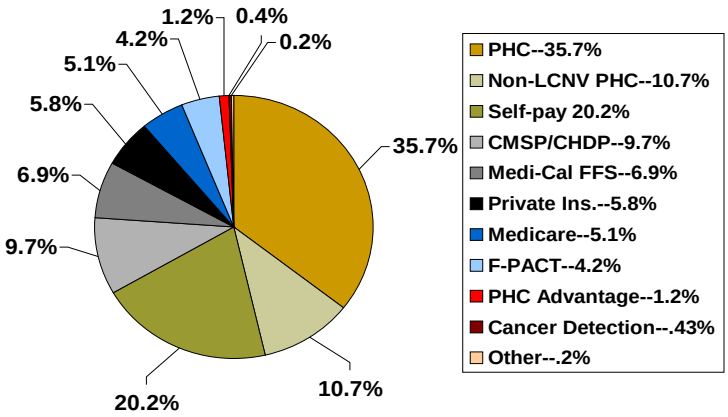
Chart 7, below, shows LCNV's payer mix. (See also Appendix D, Chart D-5.) Medi-Cal, including PHC, non-LCNV Partnership (i.e., PHC enrollees assigned to providers other than LCNV), and fee-for-service Medi-Cal represented 53 percent of the payer mix, compared with 45 percent projected for this payer combination. Self-pay, forecasted at 39 percent of volume, was significantly less, at 20 percent. Private insurance was about half of the 11 percent projected, likely influenced by loss of employer coverage in the economic recession. Medicare was 6 percent of the mix, including PHC Medicare Advantage.

A key factor for the LCNV payer mix was a CMSP contract, providing health coverage for low-income, indigent patients. At 10 percent of the health center's payer mix, CMSP was

instrumental, diversifying overall mix and contributing to lower than projected self-pay volume. Original payer mix projections did not take into account either CMSP or about 1 percent of revenue from additional special program funding sources.

The PHC managed care contract, which assigned 2,600 patients to LCNV, as well as PHC's use of LCNV for non-assigned PHC patients for after-hours urgent care, boosted the Medi-Cal mix. These contracts were essential to LCNV's success.

**Chart 7**
**La Clínica North Vallejo Payer Mix, 2008-2010.**




**LCNV's long-term sustainability must address expected loss of North Vallejo Patient Access Partnership start-up funds, as well as transition to a mature FQHC operation.**

Key stakeholder funding totaling $1,233,600 was instrumental to establishment of LCNV and early success of the "Right Care, Right Place" project. Solano County support included $250,000 for site improvements and an additional $242,000 of Tobacco Master Settlement Agreement funds that scaled down over a three-year period to support initial operations. Sutter Health contributed $100,000 for first-year operations. In addition, Kaiser Permanente and Sutter Solano Medical Center each made at least $100,000 in annual commitments for three years. These funds and other grants were critical resources, especially in light of an ailing economy.

La Clínica de La Raza's experience in FQHC development suggests that expenses and payer mix for the new health center were comparable to other La Clínica sites. However, financial performance over the near term, as well as achievement of a sustainable, break-even position, will depend on a number of factors identified during the evaluation. These include:

- Continued patient volume growth, e.g., through expanded hours and capacity, and marketing and outreach;
- Strong patient retention and satisfaction;
- Continued productivity improvement, provider engagement, and recruitment and retention of a well-balanced provider team;

- Prudent expense management;
- Maintaining a Medi-Cal mix of at least 50 percent and obtaining subsidies for uninsured clients like the CMSP contract with Solano County;
- Cash flow management until LCNV can secure a retroactive FQHC rate adjustment in December 2013;
- Improvement in the local/state/national economic climate;
- Ability to capitalize on federal health reform funding for community clinic expansion and continued success in securing grants and contracts for initiatives and core services;
- Referrals and continued support from the provider community, particularly SSMC; and
- Ongoing engagement of local government and the health care community in expanding care access and seeking practical solutions to the health care needs of Solano County.

## 7. Development and implementation of the project model had distinctive aspects but also offered experiences and insights transferrable to other communities.

The North Vallejo Patient Access Partnership stakeholders successfully navigated myriad issues, including needs assessment and start-up funding, health center planning, launch, and early operations, and unforeseen political and environmental hurdles. From the vantage point of the intervention's current maturing state, six critical success factors characterized the intervention's partnership group. Although distinctive to Vallejo and Solano County, some aspects of these factors may be transferrable or adaptable to other communities. In addition, the project offered the opportunity to share experiences and stakeholder observations that may benefit others seeking to expand access to appropriate, more affordable health care in their communities.

### Distinctive Elements of the North Vallejo Patient Access Partnership

**1. History of Community Collaboration and Commitment to Solve Health Care Problems**
Solano County has a unique history of collaborative problem-solving on issues related to health care access and disparities. Since the late 1990s, the Solano Coalition for Better Health (SCBH) has served as a convener and catalyst. County officials and a broad cross section of hospitals, health plans, clinics, and community organizations have achieved numerous successes, including initiatives to increase health coverage, a Virtual Clinic Network to share data between clinics and hospital EDs, programs to reduce health disparities, and collective planning for increasing access to comprehensive primary care.

SCBH's history and deep knowledge of the community, as well as the participating partners' trust and familiarity with each other, set the stage for securing the inter-organizational funding needed to launch the FQHC venture. As challenges inevitably arose, the commitment of participants to the project's success, from the County Board of Supervisors to individuals in the ED and FQHC, was evident. In addition, the development and implementation of the new health center was facilitated by the prior, successful collaboration between SSMC and La Clínica de La Raza through the "Great Beginnings" perinatal program on SSMC's campus.

**2. Model Reflected and Engaged the Community**

In the absence of a county hospital, SSMC was widely recognized as the de facto county facility for residents of the greater Vallejo area. Hospital leadership played a strong advocacy role in identifying the problem of escalating ED utilization and the lack of primary care options.

Knowledge of community demographics and resources was instrumental in ensuring that the project model reflected community dynamics and needs, e.g., cultural and ethnic diversity and health disparities. Despite initial apprehension that the La Clínica de La Raza name might imply the health center selectively served a Latino population, the primary care practice relocation of a local African American physician to the health center and concerted provider and community outreach stimulated word-of-mouth referrals and enabled LCNV to serve a diverse patient mix.

**3. Start-up Capital and Health Plan Contracts Stimulated and Supported Growth**

Funding for facility improvements and three-year projected operating losses was perhaps the critical lever for the project. The partners' funding commitments allowed the fledgling clinic to focus on initial operations and growth. Although LCNV might well have been successful without these resources, a more incremental rate of growth would have been necessary. The one-time infusion of federal stimulus dollars also enabled LCNV to scale up staffing to accommodate faster growth.

In addition to start-up funding, the contract for PHC Medi-Cal managed care assignment provided a flow of 2,600 potential patients to the new site, boosting growth. A special urgent care fee for non-LCNV-assigned PHC patients, and a contract for provision of services to indigent patients under the CMSP, positively impacted payer mix and financial performance.

**4. La Clínica Offered Extensive FQHC Expertise**

La Clínica de La Raza's experience and expertise in FQHC development and operations smoothed the project learning curve. As part of a larger community clinic organization, LCNV was able to launch as an intermittent (20 hours per week) satellite facility of La Clínica Vallejo in southern Vallejo until LCNV received full, official status. Client referrals were made between La Clínica entities, and LCNV took advantage of La Clínica-related corporate systems, processes, and people as it sought to gain its early footing.

**5. Health Center Strategically Located**

LCNV was located adjacent to La Clínica's "Great Beginnings" perinatal program in a suite of buildings on the physical campus of SSMC. More importantly, the close proximity of the hospital ED, across SSMC's parking lot from the health center, facilitated provider interaction and convenient patient flow between LCNV and the hospital. Proximity to public transportation was also an important factor.

**6. A Pervasive Culture of Communication**

A final success factor was a pervasive culture of communication. The shared desire for the project to succeed was demonstrated at all levels, between individuals and organizations, and in efforts to increase community awareness. As an example, the ability of PHC to communicate with its members who had been assigned to LCNV provided essential up-front patient information and education. This important communication mechanism may not be available in

communities that lack a county-organized Medi-Cal managed care system. Provider interaction at the hospital's ED Collaborative meetings also forged a strong link between LCNV and the hospital.

## Stakeholder Observations

"Right Care, Right Place" project stakeholders recognized that every community and, therefore, every collaboration will be different, but their insights and practical experiences, as set out in this section, may be relevant and helpful for others considering a similar initiative.

- **Know the market and deeply understand community needs and resources.**
  A thorough assessment of community socio-demographics, health profile and disparities, and transportation systems was an essential starting point for the project. This included conducting an inventory of health care safety-net resources—county clinics, hospitals, primary care providers, and their capabilities and capacity—to identify service needs and gaps. Development of a deep understanding of the community's culture also informed outreach and intervention design.

- **Location is key.**
  The physical location of a health center either facilitates or inhibits patient flow and referral potential. In the planning stages, project leaders felt it worthwhile to consider all FQHC location alternatives, from free-standing on or near the hospital campus to co-location within the hospital. Although SSMC's physical plant constraints did not accommodate co-location, project participants found that LCNV's ultimate location close to the hospital was critical to project success. Lack of transportation access was also identified as a care inhibitor for some community members. This made a location convenient to a bus or public transportation route necessary.

- **Urgent care is different than primary care.**
  Many FQHCs do not provide urgent care. In LCNV's case, recruitment of a physician experienced with emergency care facilitated the health center's ability to provide urgent care services as an ED alternative. Urgent care operations also require some different equipment, support staff, and resources than primary care alone does. A competencies checklist was developed for training and cross-training staff in both primary and urgent care. The ED manager worked closely with the site manager to appropriately equip the new health center. For example, equipment needs included a crash cart and other supplies not typically available in the primary care setting. An agreement for patient referral to lab and radiology capabilities not provided by the health center was also needed. Finally, because urgent care operates on a drop-in basis, patient volume may require an extension of health center closing time to accommodate waiting patients. This affected support staff, operations, and budget.

- **Do not expect to eliminate all ED AERs.**
  Defining non-urgent or AER visits is not easy. This is particularly true for patients who self-define medical situations as requiring ED care, or who do not know where else to go. Patient use of an ED also may be more about convenience, easier access to specialists, lack of insurance co-payments in the ED, and factors other than medical necessity. For these various

reasons that make difficult the defining and tracking of AER visits, a project must realistically target AER reduction.

- **Case mix and care management evolve along with the health center.**
  LCNV's case mix changed with expanding provider capabilities and increased ED and patient awareness of what conditions the health center treated, such as abscesses and lacerations. An ability to identify and manage pain medication seekers was also necessary. In this regard, SSMC initiated a "pain management contract" program with chronic pain patients. Online patient utilization data for PHC enrollees were also available to LCNV and other providers to reduce the potential for multiple pain prescriptions.
  From a care management standpoint, the community clinic population can be complex. Transient patients from out of the state or region create continuity-of-care challenges. Locally, the health center established a mechanism to identify and refer back to their doctor those patients who already had a primary care physician. Those without a regular source of care could find a medical home at LCNV.

- **Systems and processes need to facilitate ED-to-FQHC referral.**
  ED-to-FQHC interconnectivity and patient care continuity were facilitated by the inter-provider online VCN system, as well as by the SSMC ED's discharge referral automated fax reports. The success of the auto-fax system in ED discharge referrals to LCNV resulted in its expansion to all primary care providers. In addition, providing patient contact information for ED-to-FQHC referrals was recognized as a helpful way to enable the health center to contact patients for whom follow-up care was necessary.

  Both physical proximity and provider familiarity were vital to making the intervention referral system work, and to enabling patients and providers to readily connect between the two locations. As established clients became a larger portion of the patient mix, open appointment slots for convenient referral diminished. Avenues explored to expand capacity included extending urgent care hours, a direct referral hotline, and reserving urgent care slots for ED referrals.

- **Health center staffing involves ongoing adjustment.**
  Staffing and training were a primary operational focus, particularly at start-up, and included staff mix, timing of hires, and filling job needs, such as for evening and weekend shifts not typically associated with community health centers. The health center’s location outside of a major metropolitan area presented a challenge for provider staffing and ease of recruitment. Although mid-level providers were essential to the care team, having a physician, particularly one experienced in emergency and urgent care, was essential in the FQHC’s infancy.

- **Marketing and outreach requires concerted, consistent effort.**
  Marketing strategy incorporated provider outreach and a continuing multi-media presence among community organizations. Over time, satisfied health center clients became the primary referral source, but that did not diminish the need to maintain a marketing presence. In particular, regularly updating and restocking health center information provided to the hospital ED continued to promote awareness of LCNV as a care option.

- **Regular communication sustains positive momentum.**
  Mechanisms for meaningful engagement helped to maintain project momentum, from North Vallejo Patient Access Partnership evaluation activities, to monthly ED and FQHC manager meetings. Stakeholders routinely went the "extra mile" to resolve issues and move the project forward. Success also bred opportunity. As the project progressed, stakeholders began to explore development of other initiatives.

- **Project success requires coalition-building, as well as dedicated project champions.**
  The multi-organizational and collaborative nature of the "Right Care, Right Place" project required coalition-building at several levels. Politically, the County Board of Supervisors was crucial, as was involvement of the health department. Solano Coalition for Better Health also played a valuable convening role within the community. Since SSMC was a major project proponent, the hospital's CEO had a critical leadership and advocacy role externally as well as internally. Both the CEO and the ED manager had to be project champions, conveying the importance of the project to an acute care-oriented organization.

  Without commitment from key leaders and constituents from each organization—ED and FQHC—there would have been little likelihood for success. In particular, project launch required a considerable dedication of time and a designated person was needed from both the health center and the ED to handle logistics and start-up activities, and to serve as organizational "point person" throughout the project.

- **Be receptive and flexible as the collaboration unfolds.**
  A project such as "Right Care, Right Place" has many moving parts, and there were numerous examples of collaborative problem-solving and rapid adaptation. In particular, significant deterioration of the economic climate, state and local budget, service and funding reductions, high rates of unemployment and uninsured, and the H1N1 flu season combined to provide little time for the health center to find its foothold. Though not built into initial health center financial projections, successfully forging a contract with CMSP enabled the fledgling FQHC to better serve the community's growing number of indigent patients.

  Operationally, needs evolved from start-up to ongoing operations and required significant management attention and adjustment. As challenges were identified, project participants continued to work together to find solutions. For example, adaptation of the referral model occurred rapidly once the original triage-and-refer approach was discontinued.

## Conclusion

The North Vallejo Patient Access Partnership's "Right Care, Right Place" project produced a new approach for providing a comprehensive primary and urgent care alternative to the hospital ED. In particular, close physical proximity and strong collaboration between the hospital ED and FQHC facilitated care coordination that extended beyond ED referral and follow-up. The project not only built an effective bridge between a community health center and a not-for-profit hospital to address avoidable ED use and primary care access, it also created a unique and broadly defined medical home model embraced by the community.

By joining to provide financial resources for start-up and initial operation, stakeholders in the North Vallejo Patient Access Partnership enabled LCNV to launch and grow more rapidly than it otherwise could have. Key constituents continually sought out avenues to advance the potential for success. Also, as the model evolved, project participants were able to adapt rapidly, a necessary capability in today's dynamic health care environment.

Although the final referral model lessened the potential for significant reductions in avoidable ED use, the project nonetheless is accomplishing its goals. LCNV has engaged the community at all levels to guide patients to a more appropriate, less costly option for comprehensive ambulatory care. As the intervention matures, new opportunities for collaboration continue to emerge.

Some aspects of the model are distinctive, shaped by community needs and honed by local experience. However, much about the model is generalizable to others seeking creative avenues for increasing appropriate and affordable care options. As the health care industry prepares for the impact of health reform, the "Right Care, Right Place" project has demonstrated that hospitals and FQHCs are well positioned to collaborate in offering innovative solutions.

# Appendices

## Appendix A
## North Vallejo Patient Access Partnership Participants

### North Vallejo Patient Access Partnership Advisory Group

Anita Addison, Planning Director, La Clínica de La Raza
Tanir Ami, Former Executive Director, Community Clinic Consortium of Contra Costa/Solano Counties
Cindi Ardans, Former Director, Quality Monitoring/Improvement, Partnership HealthPlan of California
Katrina Buehrer Salas, PI & Decision Support Supervisor, Partnership HealthPlan of California
Chris Cammisa, M.D., CMO (ret.), Partnership HealthPlan of California
Ronald Chapman, M.D., CMO, Partnership HealthPlan of California; Former CMO Solano County Health & Human Services
Lucette DeCorde, Group Leader, Safety Net and Community Benefit Programs, Northern California Region, Kaiser Permanente
Patrick Duterte, Director, Solano County Health & Human Services
Jane Garcia, CEO, La Clínica de La Raza
Terry Glubka, CEO, Sutter Solano Medical Center
Douglas Hayward, Executive Director, Solano Coalition for Better Health
Angie Hammons, Emergency Department Manager, Sutter Solano Medical Center
Jackie Jones, Site Manager, La Clínica North Vallejo
Viola Lujan, Area Director, La Clínica de La Raza
David O'Neill, Senior Program Officer, California HealthCare Foundation
Monique Sims, Former Site Manager, La Clínica North Vallejo
Mark Schwartz, M.D., Associate Medical Director, La Clínica de La Raza
Soren Tjernell, Director, Government and Community Affairs, Community Clinic Consortium
Cynthia Verrett, Community Benefit Manager-Napa/Solano, Kaiser Permanente

### Data Work Group and Site Data Support

Cindi Ardans, Partnership HealthPlan of California
Leo Benavente, La Clínica de La Raza
Katrina Buehrer Salas, Partnership HealthPlan of California
Chris Cammisa, M.D., Partnership HealthPlan of California
Angie Hammons, Sutter Solano Medical Center
Tatiana Hernandez, La Clínica North Vallejo
Ray Perriard, Sutter Solano Medical Center
Jerry Robinson, La Clínica de La Raza
Mark Schwartz, M.D., La Clínica de La Raza

## Appendix B
## Methodological Notes

**Note 1: Defining Avoidable Emergency Room (AER) Visits**
**Note 2: LCNV Client Services Survey**
**Note 3: Hospital to Health Center Referred Sample Patient Data Files**

### Methodological Note 1: Defining Avoidable Emergency Room (AER) Visits

While several measures were considered to assess appropriateness of care and non-urgent or avoidable emergency visits for evaluation purposes, the ability to cross-walk data and compare it between the hospital and community health center was essential for the evaluation. Together with the evaluation data work group, the evaluators looked at:

**ED Charge Levels**: Initially, the hospital's Levels I-V charge trends provided important needs assessment and pre-intervention data regarding accelerating ED use; however, these levels were based primarily on ED resource consumption, rather than patient acuity. Also, the leveling definitions were not transferable to the community health center setting. As such, they did not offer a consistent measure for understanding AER visits and for comparing ED-to-FQHC referral opportunity and trends. Data were tracked over time for hospital internal purposes; however, a new charge level program was implemented in January 2010, which prohibited accurate pre-post intervention charge level comparison.

**ED ESI Patient Acuity Rating:** Prior to implementation of the intervention, the hospital ED utilized a five-stage acuity triage numbering system that ranged from 5 (most urgent/trauma) to 1 (non-urgent). Non-urgent cases were defined as Level 1 and Level 2, as were patients who left without being seen (LWBS) by a medical provider.

In anticipation of the nurse triage-and-referral program, which would have provided for nurses to screen and refer or recommend the community health center as an alternative for low-acuity patients, the hospital moved to the five-level Emergency Severity Index (ESI) for acuity assessment. The ESI triage algorithm provides clinically relevant stratification of patients into five groups from 1 (most urgent) to 5 (least urgent) based on level of acuity and resource needs. Non-urgent cases were defined by the hospital as ESI-5 and ESI-4, plus LWBS.

The Agency for Healthcare Research and Quality (AHRQ) funded initial work on the ESI. According to AHRQ, a well-implemented ESI program helps hospital EDs rapidly identify patients in need of immediate attention, better identify patients who could safely and more efficiently be seen in a fast-track or urgent care center rather than the main ED, and more accurately determine thresholds for diversion of ambulance patients from the ED.

Although the nurse triage system at SSMC was discontinued in the early phase of the evaluation, the ESI leveling system remained in place after being implemented in August 2009. Notably, the ESI system reversed the numbering sequence of the prior system, resulting in unreliable rating

data during the first month's transition. Clinically, the ESI system was determined to produce the same acuity levels, but was a clearer and more contemporary measurement framework. The evaluation used the ESI levels to track changes in non-urgent patient volume over the study period; however, because ESI was not used in the primary care setting, it was not a valid measure for comparative analysis between the two intervention sites.

**Statewide ED Collaborative AERs:** The North Vallejo Patient Access Partnership Data Work Group selected the California Department of Health Care Services (DHCS) Statewide ER Collaborative definition of AERs as the pre-post and ED-health center comparative evaluation measure, and this was the measure used in the evaluation.

The collaborative is a mandated project among the state's Medi-Cal managed care plans and was established to improve quality and care access and reduce utilization rates. The collaborative uses a listing of 170 ICD-9 codes that are classified as "potentially avoidable" ED visits. The listing is considered conservative in that there may be other diagnoses that do not require care in an ED setting. These AER ICD-9 codes formed the framework for evaluation of visits that had the greatest potential to be more appropriately seen in a non-ED setting. As the project evolved and the nurse triage program was discontinued, AERs maintained their importance as an appropriateness of care measure, although the opportunity to meaningfully impact AER rates diminished.

### Methodological Note 2: LCNV Client Services Survey

This section provides technical notes regarding the LCNV Client Services Survey, which polled health center patients on issues regarding frequency of visits to LCNV, whether and where care had been sought elsewhere, purpose of visit, prior ED use, and where the patient would have gone for care (including which ED) if the health center had not been available.

- Survey self-administered for nine months, September 2009 through May 2010.
- Clients surveyed during one full week per month to smooth potential variances in volume or patient mix by day of week.
- Surveys initially distributed by registration staff at check-in. To improve response rates, ensure survey distribution to all patients, and reduce staff time devoted to the survey, a medical assistant inserted blank surveys into patient files and distributed surveys in the health center waiting area.
- As an incentive for survey completion, respondents each month were eligible to participate in a twenty-dollar Target gift card drawing for that month.
- Survey was written at a $5^{th}$-$6^{th}$ grade literacy level and pretested prior to fielding.
- Response rate: N=568 at 95 percent, CR $\pm$ 4 percent margin of error.
- English/Spanish response rates tracked clinic actual mix.
- A potential data limitation is recall bias regarding prior ED use.

### Methodological Note 3: Hospital-to-Health-Center-Referred Sample Patient Data Files

- **Actual hospital-to-health-center referrals: n= 819**
  - 17-months, 92 percent capture of total visits by month;
  - Captured referrals drawn from daily clinic logs as well as referral notes in electronic registration system and reconciled to eliminate duplicates;
  - Excludes three months of daily log referrals due to start-up log unreliability;
  - Patient-reported "referred by SSMC/hospital" included, for example: follow-up from ED, ED wait too long, SSMC ED (including nurse-triaged-and-refer before program discontinued),

- **Estimated hospital-to-health center referrals, 20 months (11/08-6/10): n=1040**

- **Clinic "All SSMC-Referred" patient analytical sample: n=690**
  - Matched patient record and date of service with logged referral data

- **Seven-month sample ED visit/non-ED visit referrals: n=273**
  - Seven-month sample Q3 2009-Q1 2010; actual 50/50 ED/no-ED visit
  - Matched ED visit w/clinic follow-up visit, i.e., ED-referred n=137
  - Matched hospital referred but no ED visit, i.e., ED-bypassed n=136

## Appendix C
## Timeline of North Vallejo Patient Access Project "Right Care, Right Place" Development, Milestones, and Community Activity

- November 2008 (87 LCNV visits)
  - LCNV opens November 3, 2008 as La Clínica Vallejo intermittent satellite
  - 20 hours per week: evenings 5:00-8:00 p.m.; Saturdays 9:00 a.m.-2:00 p.m.
  - Staff: one physician provider, two medical assistants (MAs), one HSS, full-time site manager
  - Approximately two SSMC ED visits referred nightly

- December 2008 (164 LCNV visits)
  - Additional LCNV recruitment to staff two providers for weekday evening shifts; additional MA hired
  - Kaiser Permanente Vallejo Medical Center ED staff in-service training on LCNV

- January 2009 (234 LCNV visits)
  - LCNV has CHDP site audit – Results: facilities-100%; charts-95%

- February 2009 (242 LCNV visits)
  - Open house held at LCNV
  - LCNV full site approval February 14, 2009
  - Additional MA hired

- March 2009 (360 LCNV visits)
  - Clinic expanded hours: weekdays 1:00-8:00 pm; Saturdays 9:00 a.m.-2:00 p.m.
  - Billing/registration manager hired for LCNV
  - Sutter ED nurse triage protocol medical staff policy completed

- April 2009 (407 LCNV visits)
  - H1N1 swine flu emergence
  - Partnership HealthPlan of California (PHC) conducts LCNV facilities audit – 100% score
  - Additional provider hired to cover expanded hours; staffing: two FTE providers, four FTE MAs, one HSS/registration; 0.5 FTE medical records; recruiting for 0.5 FTE clinical health educator, 0.5 behavioral medicine provider, 0.5 FTE biller
  - SSMC begins ED nurse training for triage-and-refer

- May 2009 (422 LCNV visits)
  - LCNV full license document received, retroactive to February 14, 2009
  - Health center urgent care schedule accessible through the online VCN—allows ED and community providers on network to view and schedule LCNV appointments
  - PHC begins LCNV Medi-Cal managed care assignment – 98 first month
  - Health center pilots Tuesday morning hours

- June 2009 (487 LCNV visits)

- July 2009 (525 LCNV visits)
  - Solano County grand jury investigation regarding clinic serving "illegal immigrants"
  - LCNV receives Workforce Investment Board funds to support bilingual clerical personnel, providing for enhanced operations, utilization, and customer service; economic stimulus funds enable hiring 0.5 FTE biller and fifth MA; turnover of key front-desk staff position LCNV
  - Health center becomes eligible for PHC Quality Bonus Program
  - SSMC: Two nurses complete ED triage protocol training

- August 2009 (569 LCNV visits)
  - *Wall Street Journal* article on LCNV at center of immigration and health care debate; subsequent *San Francisco Chronicle* article

- LCNV begins gynecology specialty service in collaboration with Kaiser Permanente Medical Group
- All SSMC ED nurses trained on triage-and-refer protocol; hospital shifts acuity assessment nomenclature to ESI 5-1 (vs. Level 1-5)
- Providers-in-Triage program launched by SSMC and ED medical group
- Fairfield closes inpatient psychiatric unit; mental health patients to SSMC ED affects bed availability and acuity

- September 2009 (656 LCNV visits)
  - LCNV immunization/flu clinic begins 11:30am-1:30 p.m.
  - LCNV moving towards more full-time, consistent provider staffing

- October 2009 (739 LCNV visits)
  - Grand jury report released; County Board of Supervisors and Solano Health and Social Services Director expressed support for LCNV, ending further inquiry
  - H1N1 death in Vacaville; demand for flu shots soars
  - LCNV 2 FTE providers; recruiting full-time family practitioner
  - La Clínica de La Raza organization-wide patient satisfaction survey administered third week October
  - SSMC ED capability to auto-fax referral dictation notes to LCNV
  - Kaiser Permanente opens hospital in Vacaville with 24-bed ED
  - Solano County Health and Social Services' expanded Tuolumne Street, Vallejo clinic opens

- November-December 2009 (648 and 754 LCNV visits)
  - Solano County and La Clínica explore potential FQHC relationship with local school
  - LCNV adds Wednesday morning clinic hours, to total of two mornings weekly
  - LCNV launches diabetes chronic disease registry
  - Flu season taxes capacity and staff
  - LCNV hires bilingual mid-level practitioner

- Q1 2010 (January 693, February 778, March 957 LCNV visits)
  - LCNV financial performance close to budget, PHC risk pool increased to $850,000
  - Operating weekdays 8:30a.m.-8:00 p.m. and 9:00 a.m.-2:00 p.m. Sat; gynecology clinic three days/month in cooperation with Kaiser; evening drop-in primary care and urgent clinic running full
  - Two-three LCNV providers handle urgent care and growing number of procedures with five MAs; provider coverage challenges necessitate occasional closures and cancellations; search for health educator and behavioral medicine provider
  - LCNV ramps up diabetes services; staff and provider training; LCNV joins Sutter Diabetes Collaborative to extend patient nutrition and education; identification of new registry patients in addition to PHC diabetes patients; contract with CMSP/PHC to teach people to read and use monitors; nearly 100 in registry
  - SSMC implements new ED charge level coding system
  - Kaiser Permanente Vallejo Medical Center new patient tower opens March 3, 2010, with expanded ICU, ED, and surgical care

- Q2 2010 (April 942, May 828, June 844 LCNV visits)
  - LCNV start-up clinic manager departs; new manager hired in Q3
  - LCNV moves toward chronic care panel management—each physician working with a MA to manage patients' care, monitor preventive care needs, etc., in medical home
  - June 2010 LCNV partnership with Safeway for 340b Access Solution program—increased access to medications, steep discounts (up to 51% below retail), collaboration with community pharmacy
  - SSMC averaging about 90 patients/day; minor disruptions with auto fax to LCNV; excellent health center to ED communication on patients who require ED care
  - SSMC sees reduction in frequent ED utilizers who are now being seen at LCNV; promotional flyers consistently taken in ED; possible opportunity for longer clinic hours, as few open appointments available at LCNV via VCN
  - SSMC offers "MySutterOnline" personal health records
  - New school-based clinic opening; opportunity to build relationship with LCNV; parent health education
  - North Bay Medical Center Fairfield proposes trauma center, September 2010

## Appendix D
## Map, and Supplemental Data Tables and Charts

In the following charts and tables, unless otherwise noted, all data pertaining to LCNV was provided by LCNV and all data pertaining to SSMC was provided by SSMC and/or Sutter Health.

**Map D-1**
**Solano County, California**


Source: http://gis.solanocounty.com/solanomaps/

**Chart D-1**
**LCNV Patient Origin by ZIP Code**

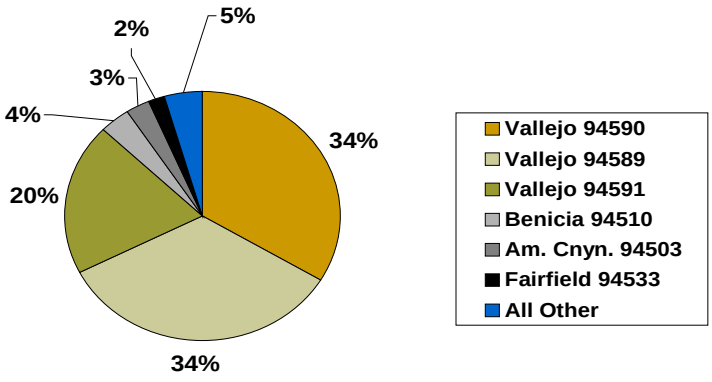


**Table D-1**
**LCNV Top 20 Diagnoses as % of Total Visits.**

| % | Top 10 Diagnoses |
|---|---|
| 9.1 | Routine infant/child exam (V20) |
| 6.4 | Hypertension, benign (401) |
| 5.4 | Acute URI (465)* |
| 5.1 | Diabetes mellitus (250) |
| 4.0 | Cellulitis & abscess NOS (682) |
| 3.0 | Cough/respiratory (786) |
| 2.1 | Asthma (493) |
| 2.1 | General medical exam (V70)* |
| 2.1 | Lumbago (724; selected AERs)* |
| 2.0 | Routine GYN, PAP, Preg. Test (V72.3,4)* |
| 42% | |

| % | Top 11-20 Diagnoses |
|---|---|
| 2.0 | Other abdomen/pelvis symptoms. (789) |
| 2.0 | Rash or other skin eruption (782) |
| 1.6 | Joint disorders, other/unspecified (716) |
| 1.6 | Barrier/fertility awareness FPACT |
| 1.6 | General symptoms (780) |
| 1.3 | Otitis media (382)* |
| 1.3 | Pain (719) |
| 1.1 | After care/follow-up (V58) |
| 1.1 | Allergic rhinitis (477) |
| 1.0 | Acute pharyngitis (462)* |
| 15% | n=2,515 (n= billed encounters) |
| | * denotes AER visit diagnoses/code |

**Table D-2**
**Comparative Ethnicity of LCNV Patients**
**LCNV Total, SSMC-referred, ED-referred for Follow-up, and SSMC ED-bypassed.**

| Ethnicity | LCNV All | SSMC-Referred All | ED-Referred | ED-Bypassed |
|---|---|---|---|---|
| Latino | 33.8% | 23.0% | 20.4% | 16.1% |
| African American | 26.4 | 32.6 | 32.9 | 32.5 |
| White | 21.2 | 31.0 | 31.1 | 39.0 |
| Asian & Pacific Islander | 13.9 | 10.5 | 12.5 | 11.6 |
| Multi/Other | 4.7 | 3.0 | 3.0 | 1.9 |

**Table D-3**
**Comparative Age Groups of LCNV Patients**
**LCNV Total, SSMC-referred, ED-referred for Follow-up, and SSMC ED-bypassed.**

| Age Groups | LCNV All | SSMC-Referred All | ED-Referred | ED-Bypassed |
|---|---|---|---|---|
| 0 | 11.9% | 13.9% | 1.4% | 26.7% |
| 1-17 | 19.5 | 7.8 | 7.9 | 6.7 |
| 18-34 | 25.6 | 29.3 | 26.4 | 14.0 |
| 35-64 | 37.9 | 45.1 | 58.0 | 49.0 |
| 65+ | 5.0 | 3.9 | 6.3 | 3.8 |

**Table D-4**
**Comparative Payer Mix of LCNV Patients**
**LCNV Total, SSMC-referred, ED-referred for Follow-up, and SSMC ED-bypassed.**

| Payer Mix | LCNV All | SSMC-Referred All | ED-Referred | ED-Bypassed |
|---|---|---|---|---|
| PHC | 35.7% | 24.8% | 17.2% | 27.7% |
| Non-LCNV PHC | 10.7 | 9.6 | 10.9 | 9.7 |
| Medi-Cal Other | 6.9 | 8.3 | 3.8 | 11.6 |
| Self-pay | 20.2 | 24.5 | 30.8 | 22.0 |
| CMSP | 9.7 | 16.2 | 20.2 | 12.4 |
| Medicare, incl. PHC Advantage | 6.3 | 6.3 | 7.9 | 10.0 |
| Other | 5.0 | 4.1 | 4.1 | 1.9 |
| Private | 5.8 | 6.2 | 5.2 | 4.8 |

**Table D-5**
**LCNV SSMC-referred Visits by**
**Top Diagnosis as % of SSMC-referred Visits, Jan 2009-May 2010.**

| % | ICD 9 | All SSMC-Referred Top Non-AER Dx n≥35 or ~2% |
|---|---|---|
| 8.0 | V20 | Routine infant/child exam |
| 6.4 | 401.1 | Hypertension, benign |
| 6.4 | 682.9 | Cellulitis & abscess |
| 4.6 | 250 | Diabetes mellitus |
| 3.0 | 786 | Cough/respiratory |
| 2.4 | V58.3 | Change/remove dressing |
| 2.3 | 716 | Arthropathies, other |
| 2.2 | 493.90 | Asthma, unspec. |
| 1.9 | 789 | Other sympt. abdom & pelvis |
| | | |
| 37.2% | | |

* Sample SSMC-referred n=690

| % | ICD 9 | All SSMC-Referred Top AER Patient Dx n≥10 |
|---|---|---|
| 3.8 | V72 | Special exams |
| 3.1 | 465.8-9 | Acute URI |
| 2.2 | 724,2 | Lumbago |
| 1.1 | V70.0 | Routine medical exam |
| 1.0 | 599 | UTI, site non-specific |
| .8 | V67 | Follow-up exam |
| .7 | 784.0 | Headache |
| .7 | 616 | Other female inflammation |
| .6 | 382.00 | Otitis media |
| .6 | 462 | Acute pharyngitis |
| .5 | 372.3 | Conjunctivitis NOS |
| 15.1% | | Top AER =15.1% SSMC-referred<br>Total AER =15.6% SSMC-referred |

**Chart D-2**
**Sutter Solano Medical Center**
**Total ED Visits, 2006-2010 annualized.**

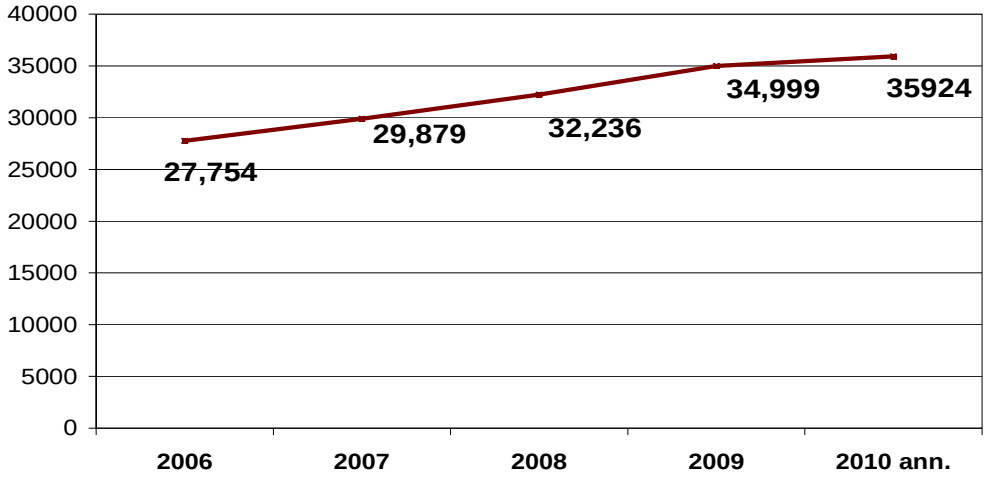
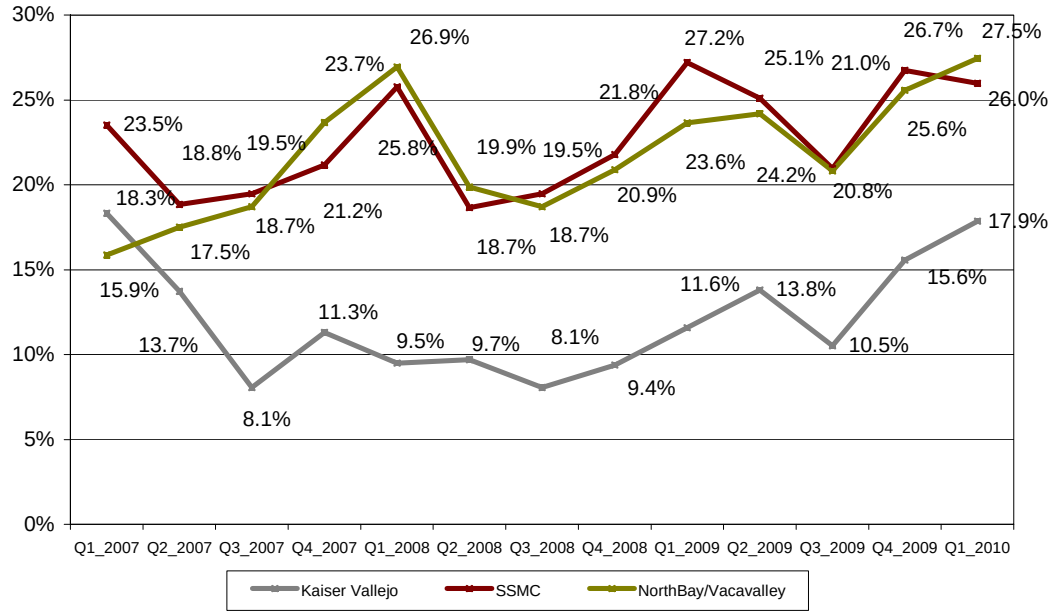



**Chart D-3**
**Partnership HealthPlan CA, AER% Solano Co., 2007-2010.**




Source: Partnership HealthPlan of California

**Table D-6**
**SSMC All Outpatient ED Visits:**
**Top 10 Diagnoses and Follow-up Visits by # and % Change, 2008-2010 annualized.**

| | 2008 | 2009 | 2010 ann. | % Change 2008-10 |
|---|---|---|---|---|
| **All ED Diagnoses (ICD 9)** | | | | 9.3% |
| 1. Respiratory/breathing problems (786) | 1,292 | 1,455 | 1,356 | 5.0 |
| 2. Abdominal pain/swelling (789) | 1,169 | 1,362 | 1,460 | 24.9 |
| 3. General symptoms (780) | 1,010 | 1,605 | 1,322 | 31.9 |
| 4. Lumbago (724 AER & Non-AER)* | 848 | 797 | 790 | -6.8 |
| 5. Cellulitis & abscess (682) | 762 | 838 | 692 | -9.2 |
| 6. Acute URI (465)* | 709 | 1,507 | 1,288 | 81.7 |
| 7. Headache (784)* | 683 | 751 | 666 | -2.5 |
| 8. UTI (599)* | 623 | 712 | 738 | 18.5 |
| 9. Asthma (493) | 580 | 657 | 684 | 17.9 |
| 10. Digestive/nausea/vomiting (787) | 556 | 802 | 824 | 25.9 |
| Selected other diagnoses: | | | | |
| Follow-up visit/aftercare (V67)* | 268 | 226 | 192 | -28.4 |
| Follow-up visit (V58) | 224 | 150 | 96 | -57.1 |
| * denotes AER diagnosis/code | | | | |

**Chart D-4**
**SMC Payer Mix: All ED Visits, 2008-June 2010.**

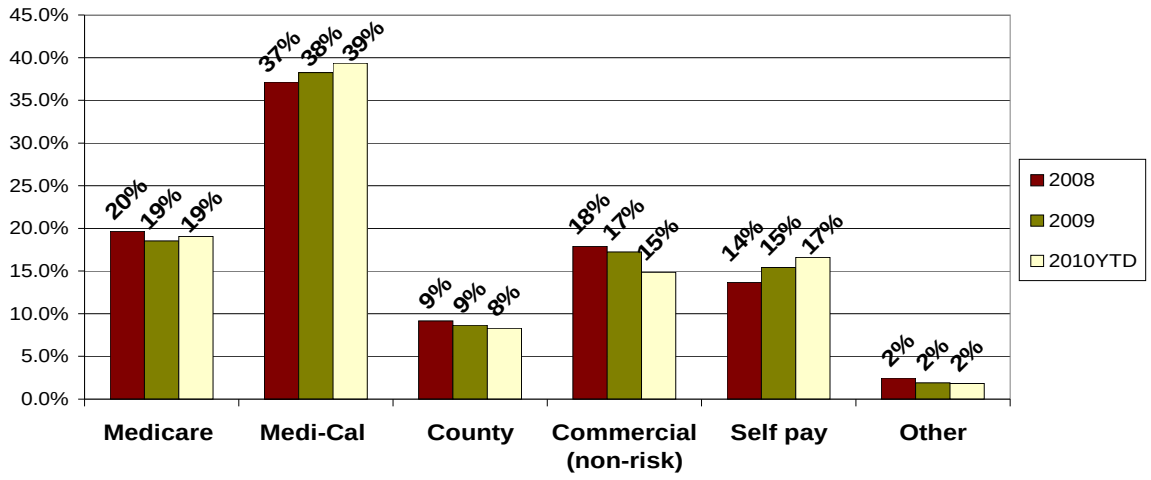


**Table D-7**
**SSMC All ED Outpatient Visits, All Diagnoses:**
**Charges, Payments, and Average Payments by Payer 2008-2009.**

| 2008/Payer | % Total Revenue | % OP ED Visits | Average Charge | Average Payment | % Charges Paid |
|---|---|---|---|---|---|
| Medicare | 12.6% | 16.2% | $4,040 | $374 | 9.3% |
| Medi-Cal | 11.6 | 38.5 | 2,135 | 146 | 6.8 |
| County | 3.1 | 9.2 | 3,017 | 164 | 5.4 |
| Commercial | 69.1 | 18.5 | 2,768 | 1,802 | 65.1 |
| Self-Pay | 1.3 | 14.9 | 2,077 | 43 | 2.1 |
| Other Ins. | 2.2 | 2.6 | 1,985 | 419 | 21.1 |
| Total | | | $2,630 | $483 | 18.4% |

| 2009/Payer | % Total Revenue | % OP ED Visits | Average Charge | Average Payment | % Charges Paid |
|---|---|---|---|---|---|
| Medicare | 13.3% | 15.6% | $4,279 | $386 | 9.0% |
| Medi-Cal | 12.3 | 39.5 | 2,098 | 141 | 6.7 |
| County | 2.5 | 8.6 | 2,792 | 129 | 4.6 |
| Commercial | 68.5 | 17.6 | 2,804 | 1,761 | 62.8 |
| Self-Pay | .9 | 16.6 | 2,135 | 26 | 1.2 |
| Other Ins. | 2.5 | 2.0 | 2,528 | 552 | 21.8 |
| Total | | | $2,638 | $453 | 17.2% |

**Table D-8**
**SSMC Outpatient ED Visits Payment Variation by Selected Diagnoses:**
**Visits, Average Payment, and % Charges Paid, 2008 vs. 2009.**

| Diagnosis (ICD 9) | 2008 # | Av Paymt | % Chrg | 2009 # | Av Paymt | % Chrg |
|---|---|---|---|---|---|---|
| 1. Respiratory/breathing problems (786) | 1292 | $1244 | 19.2% | 1455 | $929 | 17.2% |
| 2. Abdominal pain/swelling (789) | 1169 | 1,000 | 19.5 | 1362 | 944 | 19.1 |
| 3. General symptoms (780) | 1010 | 716 | 18.8 | 1605 | 515 | 17.1 |
| 4. Lumbago (724 AER & Non-AER)* | 848 | 295 | 17.4 | 797 | 312 | 17.0 |
| 5. Cellulitis & abscess (682) | 762 | 226 | 13.6 | 838 | 202 | 12.9 |
| 6. Acute URI (465)* | 709 | 156 | 15.2 | 1507 | 135 | 14.0 |
| 7. Headache/throat problems (784)* | 683 | 488 | 19.1 | 751 | 460 | 17.4 |
| 8. UTI (599)* | 627 | 366 | 22.2 | 712 | 473 | 15.3 |
| 9. Asthma (493) | 623 | 490 | 16.0 | 657 | 388 | 18.0 |
| 10. Digestive/nausea/vomiting (787) | 580 | 355 | 16.3 | 802 | 386 | 17.5 |
| Selected other diagnoses: | | | | | | |
| Acute pharyngitis (462)* | 525 | 189 | 18.1 | 641 | 146 | 15.4 |
| Diabetes mellitus (250) | 241 | 6172 | 18.0 | 329 | 336 | 10.4 |
| Follow-up visit/aftercare (V67)* | 268 | 122 | 14.8 | 226 | 148 | 15.4 |
| Follow-up visit (V58) | 224 | 145.23 | 17.02 | 150 | 66 | 8.6 |
| All OP ED Visits (AER & Non-AER) | | $483 | 18.4% | | $453 | 17.2% |

* denotes AER diagnosis/code

**Chart D-5**
**LCNV Payer Mix: Actual vs. Projected, November 2008-June 2010.**

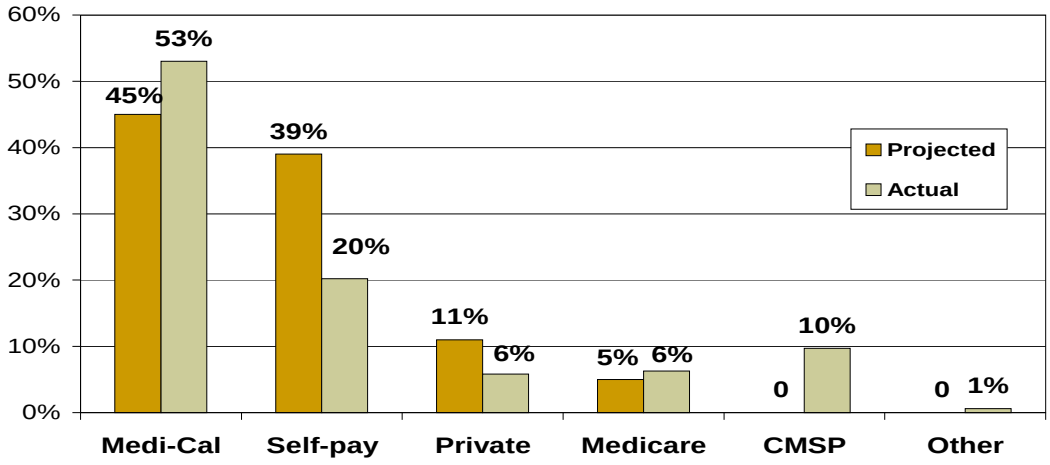



**Table D-9**
**LCNV Financial Performance, November 2008-June 2010.**

| | | | | 11/09-6/10 (8 mo.) | | | |
|---|---|---|---|---|---|---|---|
| | Actual | 11/08-10/09 Budget | Variance | Actual | Budget | Prorated Variance | Actual 12-mo. budget |
| Patient Visits | 4,920 | 5,465 | (545) | 6,500 | 7,462 | (962) | 11,193 |
| **Revenue** | | | | | | | |
| **Patient Fees** | 455,113 | 622,940 | (167,827) | 648,770 | 850,633 | (201,863) | 275,950 |
| **Grants** | 476,487 | 300,000 | (176,487 | 301,017** | 200,000 | 101,017 | 300,000 |
| **Other** | | | | 22,560 | 0 | | 0 |
| **Total Rev.** | 931,600* | 922,940 | 8,660 | 972,347* | 1,050,633 | (78,286) | 1,575,950* |
| **Expense** | | | | | | | |
| **Salary** | 585,881 | 585,793 | (88) | 688,908 | 683,197 | (5,711) | 1,024,795 |
| **Non-personnel** | 302,899 | 180,936 | (121,963) | 238,905 | 193,764 | (45,141) | 290,646 |
| **Overhead** | 82,657 | 156,211 | 73,554 | 86,287 | 173,673 | 87,386 | 260,509 |
| **Total Expense** | 971,437 | 922,940 | (48,497) | 1,014,100 | 1,050,633 | (36,534) | 1,575,950 |
| **Operating Net** | (39,837) | -0- | (39,837) | (41,753) | -0- | (41,753) | -0- |

* - Excludes anticipated 2013 retroactive FQHC Medi-Cal rate adjustment and CMSP settlement.
** - Includes one-time federal stimulus funds

## Endnotes and Selected Bibliography

[1] Pre-post evaluation analysis of "avoidable" emergency visits (AERs) utilized the 170 ICD-9 code definition developed by the California Department of Health Care Services (DHCS) Statewide ER Collaborative.
[2] Institute of Medicine (IOM). *Hospital-Based Emergency Care: At the Breaking Point.* National Academy of Sciences Press, 2006; McConville, Shannon and Helen Lee. *Emergency Department Care in California; Who Uses it and Why*. California Count. Public Policy Institute of California. Vol. 10, No. 1. August 2008; Taylor, J. "Don't Bring Me Your Tired, Your Poor: The Crowded State of America's Emergency Departments." National Health Policy Forum, Issue Brief #811. July 7, 2006; American College of Emergency Physicians. *National Report Card on the State of Emergency Medicine: Evaluating the Emergency Care Environment State by State. California Report Card.* 2009; DeLia, D. and J.C. Cantor, *ED Capacity and Utilization.* The Synthesis Project, Issue 17. Robert Wood Johnson Foundation. July 2009.
[3] DeLia, op. cit.; California HealthCare Foundation. *Overuse of Emergency Departments in California Among Insured Californians.* Issue Brief. October 2006.
[4] Agency for Healthcare Research and Quality (AHRQ). *AHRQ Quality Indicators: Guide to Prevention Quality Indicators. Hospital Admission for Ambulatory Care Sensitive Conditions.* Rockville, Md.: U.S. Department of Health and Human Services, 2004.
[5] Grumbach, Kevin. *Benefits of Primary Care and a Primary Care Medical Home: A Concise Summary of the Evidence.* Center for Excellence in Primary Care. Department of Family and Community Medicine, University of California, San Francisco. February 2009.
[6] Koziol-McLain, J., D.W. Price, B. Weiss, A.A. Quinn, B. and Honigman. "Seeking Care for Nonurgent Medical Conditions in the Emergency Department: Through the Eyes of the Patient." *Journal of Emergency Nursing.* 2000 Dec; 26(6): 554-63; Howard, M., et al. "Patients' Perspectives on Choosing the Emergency Department for Nonurgent Care: A Qualitative Study Exploring One Reason for Overcrowding." *Journal of Emergency Nursing*. 2005 Oct; 31(5): 429.435.
[7] DeLia, op. cit.; Billings, J., N. Parikh, and T. Mijanovich. *Emergency Department Use in New York City: A Substitute for Primary Care?* Issue Brief. Prepared for the Commonwealth Fund. November 2000. www.cmwf.org.; National Center for Health Statistics, Centers for Disease Control and Prevention, DHHS. *Characteristics of Emergency Departments Serving High Volumes of Safety Net Patients: United States, 2000*. Vital and Health Statistics Series 13, Number 155. May 2004. www.cdc.gov/nchs; Weinick, Robin M. et al. "Many Emergency Department Visits Could be Managed at Urgent Care Centers and Retail Clinics." *Health Affairs*, 29, no.9, September 2010.
[8] Choudhry, Lina, et al. *The Impact of Community Health Centers & Community-Affiliated Health Plans on Emergency Department Use*. National Association of Community Health Centers, Inc. and Association for Community Affiliated Health Plans, April 2007.
[9] McConville and Lee, op. cit.
[10] Pitts, R., R.W. Niska, J. Xu, and C. Burt. *National Hospital Ambulatory Medical Care Survey: 2006 Emergency Department Survey*. Washington, DC: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, No. 7, August 2008.
[11] Choudhry, Lina, op. cit.
[12] Linkins, K., J. Brya, and D. Chandler. *Frequent Users of Health Services Initiative: Final Evaluation Report*. California HealthCare Foundation and The California Endowment. August 2008.
[13] Cantlupe, Joe. *4 Ways to Accelerate ED Triage, Boost Revenues.* HealthLeaders Media. October 13, 2010.
[14] Miro, O., E. Salgado, et al. "Direct Discharge from Triage in Emergency Departments: Assessment, Risks and Patient Satisfaction." Spanish. Erratum in: *Med Clin (Barc).* 2006 Apr 8; 126(13):513; Derlet, R.W., D. Nishio, L.M. Cole, and J. Silva Jr. "Triage of Patients out of the Emergency Department: Three-year Experience." *American Journal of Emergency Medicine*. 1992 May; 10(3):195-9.
[15] DeLia, op. cit.
[16] *New Federal Health Law Will Significantly Expand Medi-Cal Eligibility and Enrollment.* California Budget Project, Sacramento, CA, October 2010; Long, Sharon and Karen Stockley. *Emergency Department Visits in Massachusetts: Who Uses Emergency Care and Why?* Massachusetts Health Reform Survey Policy Brief, Sept. 2009; American College of Emergency Physicians. *National Health Reform Legislation Survey Results*, April 2010.
[17] Desjardins, Doug. *Retail Clinics Could Play Key Role in Era of Healthcare Reform.* California HealthFax, August 2, 2010; Konkoli, Keith. *Freestanding EDs Can Make Providers Healthy.* HealthLeaders Media. July 30, 2010;

Patton, Susan. *How Hospitals and Federally Qualified Health Centers Should Collaborate*. HealthLeaders Media, April 16, 2010; Weinick, Robin M., op. cit.

[18] Solano County Health and Social Services Director Patrick Duterte, interview, October 15, 2010.

[19] U. S. Census Bureau. *California Quick Facts.* 2009.

[20] California Economic Development Department, October 2010.

[21] Lavarreda, Shana, et al *California's Uninsured by County.* UCLA Center for Health Policy Research Fact Sheet, August 2010.

[22] *Health Disparity in Solano County*. Solano County Health & Social Services, 2004.

[23] *Indicators*. Solano County Health & Social Services quarterly newsletter. Winter 2007 through Winter 2010.

[24] *2007 Solano County Healthcare Safety Net Overview*. Solano Coalition for Better Health and Solano County Health & Social Services. 2007.

[25] Partnership HealthPlan of California data provided to North Vallejo Patient Access Partnership Data Work Group.

[26] Machlin, Steven R., *Expenses for a Hospital Emergency Room Visit, 2003.* Medical Expenditure Panel Survey Statistical Brief #111. Agency for Healthcare Research and Quality, U.S. Dept. of Health & Human Services. January 2006.

**Additional Bibliography**


1. Cunningham, P. "What Accounts for Differences in the Use of Hospital Emergency Departments Across U.S. Communities?" *Health Affairs.* Web Exclusive, July 18, 2006.
2. Hadley, .J and P. Cunningham. "Availability of Safety Net Providers and Access to Care of Uninsured Persons." *Health Services Research* 39(5):1527-1546. October 2004.
3. DeLia, D. *Potentially Avoidable Use of Hospital Emergency Departments in New Jersey*. Report to the New Jersey Department of Health and Senior Services, New Brunswick, NJ: Rutgers Center for State Health Policy. July 2006.
4. Kerwin Fuda, K. and G. Habteh-Yimer. *Non-emergent and Preventable ED Visits*. Analysis in Brief, No.7. Massachusetts Division of Health Care Finance and Policy, 2004.
5. Lambrew, J. et al. "The Effects of Having a Regular Doctor on Access to Primary Care." *Medical Care.* 34(2):138-151. February 1996.
6. Lowe, R.A., and A.B. Bindman. "Judging Who Needs Emergency Department Care: A Prerequisite for Policy-making." *Am J. Emerg. Med.,* 15(2): 133-6. March 1997.
7. Lowe, R.A., R. Fu, E. Ong, et al. "Community Characteristics Affecting Emergency Department Use by Medicaid Enrollees." *Medical Care* 47(1): 15–22, 2009.
8. O'Brien, G.M., M.J. Shapiro, et al. "Inappropriate' Emergency Department Use: A Comparison of Three Methodologies for Identification" *Academy of Emergency Medicine*. 3(3): 252-7. March 1995.
9. Proser, M. "Deserving the Spotlight: Health Centers Provide High Quality and Cost Effective Care." *Journal Ambulatory Care Management*. 28(4): 321-330. October-December 2005.
10. Weinick, R., J. Billings, and J. Thorpe. *Ambulatory Care Sensitive Emergency Department Visits: A National Perspective*. Abstract from Academy Health Meeting, abstract no. 8. 2003.