

2010s

Fontil, V, Bibbins-Domingo, K, Nguyen, O, et al. Management of Hypertension in Primary Care Safety-Net Clinics in the United States: A Comparison of Community Health Centers and Private Physicians' Offices. *Health Services Research*. April 2017. 52(2): 807-825.

This study examined National Ambulatory Medical Care Survey data from 2006-2010 and compared patients with uncontrolled hypertension who received care at community health centers and private physician offices. Specifically, they compared health center and private physician office patients with uncontrolled hypertension on four hypertension treatment practices. The authors found that health center patients with uncontrolled hypertension were more likely to receive a new antihypertensive medication than patients at private physician offices (18.3% vs. 16.2%). They also found that health center patients covered by Medicaid with uncontrolled hypertension were more likely to be prescribed new medication than private physician office Medicaid patients (20.8% vs. 9.0%), providing evidence that health centers also play a role in reducing disparities in quality of care for Medicaid patients.

Cole M, Galárraga O, Wilson I, et al. At Federally Funded Health Centers, Medicaid Expansion Was Associated With Improved Quality Of Care. *Health Affairs*. 2017. 36(1):40-48.

This study compared changes in patient populations and quality of care in federally funded health centers between 2011 and 2014 in states that did and did not expand Medicaid. In contrast to non-expansion states, the authors found that Medicaid expansion states saw an 11% decrease in uninsured patients and an almost 12% increase in patients with Medicaid. The authors also found that Medicaid expansion status was positively associated with increased performance on quality measures for asthma treatment (5.2%), pap testing (2.3%), BMI assessment (4.5%), and hypertension control (2.1%) compared to health centers in states that did not expand Medicaid. This study's findings suggest that expansion of Medicaid is associated with both an increase in rate of insurance coverage among health center patients as well as improvements in multiple quality of care measures.

Shi L, Lee DC, Chung M, et al. Patient-Centered Medical Home Recognition and Clinical Performance in U.S. Community Health Centers. *Health Services Research*. 2016.

This study analyzed the 2012 Uniform Data System and PCMH tracking data from HRSA's PCMH/Health Home Initiative to investigate whether Patient-Centered Medical Home (PCMH) accreditation was associated with improved quality of care at health centers. The authors compared health centers with and without PCMH recognition on their clinical quality measure performance. After adjusting for patient, provider, financial,

and practice factors, the authors found that health centers with PCMH performed statistically significantly better on 9 of the 16 measures and no different on the rest compared to health centers without PCMH. These measures included weight screening, asthma therapy, diabetes control, Pap tests, prenatal care, and tobacco assessment and cessation.

Laiteerapong N, Kirby J, Gao Yue, et al. Health Care Utilization and Receipt of Preventive Care for Patients Seen at Federally Funded Health Centers Compared to Other Sites of Primary Care. *Health Services Research*. 2014; 49(5):1498-1518.

This study compared the health care utilization and the receipt of preventive care services between health center patients and non-health center patients, with a focus on the uninsured. The authors used five panels from the 2004 to 2008 Medical Expenditure Panel Survey, selecting patients who were age 18 or older, had visited one clinic during the first panel year, and who lived within 20 miles of a health center. Health center patients had fewer office visits and hospitalizations and were three times as likely to receive breast cancer screening compared to non-health center patients. Uninsured health center patients had fewer out-patient visits and emergency room visits and were more likely to receive dietary advice and breast cancer screening than non-health center patients. This study suggests that health centers lower rates of utilization among disadvantaged groups and provide greater access to preventive care.

Sharma R, Lebrun-Harris L, Ngo-Metzger Q. Costs and Clinical Quality Among Medicare Beneficiaries: Associations with Health Center Penetration of Low-Income Residents. *Medicare & Medicaid Research Review*. 2014; 4(3):E1-E17.

This study examines the association between health center penetration and Medicare spending and quality of care in areas known as hospital referral regions. The authors used 2010 cross-sectional data from the Geographic Variation in Medicare Spending and Utilization database, the Uniformed Data System, and the American Community Survey. Higher health center penetration in a hospital referral region was associated with 10 percent lower Medicare spending fee-for-service program savings without compromising the quality of service. These results show that health centers may reduce Medicare spending while maintaining clinical quality.

Shi et al. The quality of primary care experienced by health center patients. *JABFM*. 2013; 26(6):768-777.

This study uses data on patient experience to determine the quality of care delivered at FQHCs and whether existing differences are attributable to race/ethnicity or insurance coverage. Data from the 2009 Health Center Patient survey was used. Patients reported positive FQHC experiences overall, citing convenient locations and favorable interaction with providers. Uninsured patients were less likely to have received help from FQHC staff in applying for government benefits and setting up appointments at other medical providers. This study's findings uniquely used patient survey data to confirm that

racial/ethnic and insurance coverage disparities are less prevalent at FQHCs than at other primary care providers. However, findings related to uninsured patients provide evidence that more efforts need to be focused on assisting those without insurance in applying for benefits.

Bruen BK, Ku L, Lu X, and Shin P. No Evidence That Primary Care Physicians Offer Less Care to Medicaid, Community Health Center, or Uninsured Patients. *Health Affairs*. 2013; 32(9):1624-1630.

This study compares the quality of care provided to safety-net patients (defined as Medicaid, uninsured, or community health center patients) versus care provided to patients with private insurance. The authors used data from the 2006-2010 National Ambulatory Medical Care Surveys (NAMCS) to look at duration of primary care visits and scope of services provided as indicators of quality of care. Results showed that there was no significant difference in length of visit or number of services provided between Medicaid or uninsured patients and patients with private insurance or between patients seen at community health centers and those seen at office-based physician practices. These findings demonstrate that when they have access to primary care, the quality of this care is not diminished for safety-net patients.

Shin P, Sharac J, Rosenbaum S, Paradise J. Quality of care in community health centers and factors associated with performance. Kaiser Commission on Medicaid and the Uninsured Report #8447 (June 2013), available at <http://kff.org/medicaid/issue-brief/quality-of-care-in-community-health-centers-and-factors-associated-with-performance/>.

This study compares health centers' quality of care to national benchmarks of quality performance for Medicaid managed care organizations (MCOs). Authors used data from the 2010 UDS and the Medicaid Healthcare Effectiveness Data and Information Set (HEDIS) to evaluate performance along three common quality of care measures: diabetes control, hypertension control, and receipt of a Pap test. Nearly all health centers scored above the Medicaid MCO average benchmark. When compared to the highest Medicaid MCO benchmark (75th percentile), 1 in 10 health centers classified as high-performers for all three quality care indicators. These high-performing health centers had scores at least 10 percentage points higher than Medicaid MCO scores for each indicator. Only 4% of health centers ranked as low performers. These health centers tended to have significantly higher number of uninsured patients and homeless patients, and less Medicaid revenue. Other factors (urban/rural location, low-income patient status, race/ethnicity, and health center staffing) did not significantly affect health centers' performance. These findings suggest that insurance expansion under health reform may drive further quality improvements, and underscores the role of adequate funding to address barriers to care and meet the needs of those remaining without insurance.

Lebrun LA, Shi L, Zhu J, et al. Racial/Ethnic differences in clinical quality performance among health centers. *Journal of Ambulatory Care Management*. 2013; 36(1):24-34.

This study uses data from the 2009 Uniform Data System to show the extent of health disparities among health center patients of different races and ethnicities. Authors compared rates of inadequate hypertension control, poor diabetes control, and low birth weight across four racial/ethnic categories (non-Hispanic white, black/African American, Asian, and Hispanic/Latino) as well as certain health center characteristics. Results showed minimal differences and disparities among different races and ethnicities for these clinical indicators. Results also showed that health centers with higher patient volumes, longer durations of funding, or some managed care penetration generally reported better clinical outcomes. These findings show that health centers are successful in reducing racial/ethnic health disparities, especially when compared to disparities found nationwide.

Shi L, Lebrun-Harris LA, Daly CA, et al. Reducing Disparities in Access to Primary Care and Patient Satisfaction with Care: The Role of Health Centers. *Journal of Health Care for the Poor and Underserved*. 2013; 24(1):56-66.

This study uses data from the 2009 Health Center Patient Survey and the 2009 Medical Expenditure Panel Survey to examine satisfaction with and access to care among different racial/ethnic and insurance coverage groups among health center patients and in the U.S. low-income population. Across racial/ethnic groups, health center patients were more satisfied than the U.S. low-income patient population with the hours of operation and overall care received. The U.S. low-income patient population was also found to have significant racial/ethnic or insurance based disparities in access to primary care while health center patients had statistically none. These results show how health centers are meeting the health care needs of vulnerable populations and reducing disparities in access to health care.

California Primary Care Association. Value of community health centers study: Partnership HealthPlan of California case study. 2013 January.

<http://www.cPCA.org/cPCA/assets/File/Announcements/2013-01-29-ValueofCHCStudy.pdf>.

This case study analyzes Medi-Cal claims data from 135,000 adults enrolled in a managed care plan in California to differentiate between healthcare system utilization of Federally Qualified Health Center (FQHC) patients and non-FQHC patients. The study population consisted of high utilizers of the health system who were continuously enrolled in Medi-Cal for two years, not over the age of 65, and not in Medicare. Compared to non-FQHC patients, FQHC patients had 64% lower rates of multi-day hospital admission, 18% lower rates of emergency department (ED) visits, 4.9% lower 30-day readmission rates, and only one-fourth of total inpatient bed days. Total healthcare costs for FQHC patients were also 20% lower than those for non-FQHC

patients. These results show that investments in FQHCs' primary care bring value to the overall healthcare system through lower utilization of hospitals and EDs.

Goldman LE, Chu PW, Tran H, et al. Federally qualified health centers and private practice performance on ambulatory care measures. *Am J Prev Med.* 2012 Aug;43(2):142-9.

This study compared FQHC physician performance to U.S. primary care physician performance on 18 process of care measures using the 2006-2008 National Ambulatory Medical Care Survey (NAMCS). Before adjusting for patient characteristics, health center physicians performed statistically better on six measures (including blood pressure screening and depression management) but worse on one (diet counseling to at-risk adolescents). Researchers found no differences in performance between health centers and other providers along other measures studied. These findings are particularly noteworthy because health center patients have higher rates of uninsurance and Medicaid insurance, are more likely to reside in poor areas and have less education, and experience more chronic conditions than patients of other primary care physicians. Accounting for patient differences revealed that health centers performed better on these seven measures and no differently on the others.

Shi, L., Lebrun, L.A., Hung, L., Zhu, J., & Tsai, J. (2012). US primary care delivery after the Health Center Growth Initiative. *J Ambulatory Care Manage*, 35(1):60-74.

The purpose of this study was to examine differences in patient socio-demographic makeup and performance on process measures across different care settings: health centers, physician offices, and out-patient departments. Authors used the 2006 National Ambulatory Medical Care Survey, the 2007 National Hospital Ambulatory Medical Care Survey, and the Uniform Data System. Health centers serve more minority, uninsured, and Medicaid/SCHIP-insured patients. Adjusted analysis demonstrated that health centers perform process of care measures with comparable or higher occurrence compared to physician offices. For example, health centers are 1.38 times more likely to prescribe medication during a visit, 1.68 times more likely to perform blood pressure checks during a visit, and 1.37 times more likely to order a laboratory test. Health centers experienced narrower racial/ethnic and insurance disparities compared to physician offices and out-patient departments, even after accounting for patient severity of illness and other factors. In some cases, disparities do not exist. For example, unlike physician offices and out-patient departments, there were no major disparities in the disease management offered to patients among different ethnic/racial and insurance groups at health centers.

Lob, S.H., et al. Promoting best-care practices in childhood asthma: quality improvement in community health centers. *Peds* 2011 July; 128(1): 20 – 8.

This report describes a project intended to improve outpatient asthma management and care for low-income and minority children. Continuous quality-improvement (CQI) teams were created at 17 health centers in California which worked together to implement changes in patient education and core asthma treatment components according to 17 care-process objectives and evaluated the effects of these changes. Twenty-one months after implementing these changes, fewer families reported visiting the emergency department (29.6% at the beginning of the study vs 9.3% after 21 months), hospitalization (10.9% vs 3.4%), frequent daytime symptoms (44.0% vs 11.7%), and missed school days (28.7% vs 13.6%). Overall, families reported having increased confidence in asthma management and quality-of-life improvements which can help reduce health disparities among disadvantaged children at high risk of the effects of poorly-controlled asthma.

Peek, M., et al. "Are There Racial Differences in Patients' Shared Decision-Making Preferences and Behaviors among patients with Diabetes?" *Medical Decision Making* 2011 May-June; 31(3): 422 – 31.

This study was designed to test the quality of patient-provider interactions and the involvement of shared decision making (SDM) for African American patients, as it is this population which traditionally experiences communication disparities in health. Since diabetes is a condition which necessitates ongoing patient management and collaboration with a provider, the authors of this study sent out a survey to 974 diabetic patients at 34 community health centers to investigate possible racial differences in care that would become apparent due to the nature of diabetes care. Two-thirds of the study participants were white and the remaining one-third were African American. For the three key areas of SDM, there were no disparities between race and patients preference for a shared role. African Americans were also 78% more likely to initiate discussion with their physicians concerning the 6 diabetes care measures. Although African Americans tend to have worse diabetes control than whites, this study suggests that patient preferences may not be a cause of the racial differences in SDM and diabetes care.

Hawkins D and Groves D. The Future Role of Community Health Centers in a Changing Health Care Landscape. *J Ambul Care Manage* 2011 January/March; 34(1): 90-99.

The Affordable Care Act provides an opportunity to reinvent the health care delivery system to make it more accessible, patient-centered, and comprehensive, with an emphasis on prevention and primary care. This article demonstrates how community health centers can effectively implement provisions of health reform by expanding access to quality and affordable health care.

Shi, L. et al. Characteristics of Ambulatory Care Patients and Services: A Comparison of Community Health Centers and Physicians' Offices. *J Health Care Poor Underserved* 2010; 21(4): 1169 – 83.

This study compared patient characteristics and health care delivery at community health centers with that of private office-based care. Using data from the 2006 National Ambulatory Medical Care Survey, the study found that health center patients are much more likely than those of private office-based settings to be insured through Medicaid or be uninsured and identify as being a racial/ethnic minority. Health centers also had a higher prevalence of patients with diabetes, obesity, and depression than found in physicians' offices. Health centers, tending to serve more patients from communities with lower income and education levels, provided more health education and unconventional service hours compared with physicians' offices.

Weir R, et al. Use of Enabling Services by Asian American, Native Hawaiian, and Other Pacific Islander Patients at 4 Community Health Centers. *Am J Public Health* 2010 Nov; 100(11): 2199 – 2205.

This article focuses on utilization rates of enabling services at CHCs and the impact of these services on access to health care for Asian Americans, Native Hawaiians, and other Pacific Islanders (AANHOPi) in medically underserved areas. The authors collected data from four CHCs throughout the U.S. with high AANHOPi patient populations between January to December 2004. They found that more than half of AANHOPi patients used enabling services, most of whom were either covered by a public insurer such as Medicaid or were uninsured. The most frequently used services were financial and eligibility counseling (36%) and interpretation services (29%). Overall, the study found that enabling services helped underserved AANHOPi patients obtain more linguistically appropriate health care which may be related to improved patient satisfaction and CHC utilization rates.

Chien, A., et al. “Positive and Negative Spillovers of the Health Disparities Collaboratives in Federally Qualified Health Centers: Staff Perceptions”. *Med Care*. 2010. 48(12): 1050 – 1056.

This study used FQHC staff perceptions to examine the unintended effects of the Health Disparities Collaborative (HDC). The study surveyed 863 staff at 129 FQHCs that had participated on HDC teams. Forty-five percent of respondents indicated that HDC positively impacted the quality of non-HDC patient care while 70% reported that the HDC increased the FQHC's ability to better manage patients with multiple chronic conditions. Respondents also generally believed the HDC helped improve FQHC operations and job satisfaction. Overall, the HDC was found to be more beneficial than harmful for non-HDC focused diseases. The HDC tended to benefit patient care management and FQHC operations while taking a moderate amount of resources and time away from other FQHC activities.

Chin, M. Quality improvement implementation and disparities: the case of the health disparities collaboratives. *Med Care*. 2010 Aug;48(8):668-75.

Author presents a systematic review of health centers' Health Disparities Collaboratives (HDCs), a nation-wide program that aims to decrease or delay complications of disease, decrease the economic burden for patients and communities, and improve access to high quality chronic disease care for underserved populations. To date, the vast majority of health centers (more than 900) have implemented at least one HDC. This review finds that the HDCs significantly improve clinical processes of care in just one to two years, and improve clinical outcomes in two to four years. Additionally, the HDCs are societal cost-effective.

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Shi L, Tsai J, Higgins PC, Lebrun La. Racial/ethnic and socioeconomic disparities in access to care and quality of care for US health center patients compared with non-health center patients. *J Ambul Care Manage* 2009 Oct-Dec; 32(4): 342 – 50.

This article compares data on health center and non-health center patients to highlight existing health disparities amongst racial/ethnic and socioeconomic groups. Data from the 2003 National Healthcare Disparities Report (NHDR) along with the 2002 Community Health Center User Survey were analyzed according to race, ethnicity, income, and education. A total of 70 health centers were randomly selected and studied for various access and quality measures. Even though CHCs had fewer patients with health insurance than non-CHCs (59% vs 83%), they reported higher utilization rates of various health services. For example, more female CHC patients had received a Pap smear in the past three years compared with non-CHC females (85% vs 81%), more CHC patients 65 years and older had received an influenza vaccination in the past year compared with non-CHC patients of the same age range (70% vs 65%), and more CHC patients had received outpatient mental health services than non-CHC patients (22% vs 11%). In addition to higher utilization rates, CHCs also had no racial/ethnic disparities on several access and quality indicators while having lower education and income disparities compared to non-CHCs. Overall, CHCs were shown to significantly reduce health disparities related to access to care and quality of care.

Dor, A, et al. "Uninsured and Medicaid Patients' Access to Preventive Care: Comparison of Health Centers and Other Primary Care Providers." *RHCN Community Health Foundation*. August 2008; Research Brief #4.

This study compares Community Health Centers to other primary care providers in their provision of preventive health care to Medicaid and uninsured patients. By analyzing the 2002-2005 pooled Medical Expenditure Panel Survey (MEPS) national data set, authors find that Medicaid and uninsured patients seen by health centers tend to be significantly poorer, in much worse health, and in the case of uninsured patients, more likely to be members of racial and ethnic minority groups than Medicaid and uninsured patients of other providers. However, health centers achieve considerably higher levels of preventive health care for these patient populations. Differences of up to 22% are seen in screenings for diabetes, hypertension, and breast and cervical cancer. The study explains that

because health centers serve populations at elevated risk of poverty, poor health, and low health literacy, they exhibit a continuous need for federal subsidization for their services to remain economically feasible.

Gold, R, et al. “Insurance Continuity and Receipt of Diabetes Preventive Care in a Network of Federally Qualified Health Centers.” *Medical Care*. April 2009; 47:431-39.

The authors examined how continuity of insurance coverage correlates with varying rates of adult diabetes preventive care in FQHCs. The study used 2004-2005 OCHIN practice management data from over 100 FQHCs in Oregon. The continuously covered had the highest rates of flu vaccinations, LDL screening, and nephropathy screenings, while their receipt of HbA1c screenings was no different than for the uninsured.. The uninsured had the lowest percentages of flu shots and nephropathy screenings, but more HbA1c and LDL screenings than the partially insured. Racial and ethnic minority patients were more likely to receive most of these services than white patients. Having both an FQHC medical home and continuous health insurance yields optimal chronic disease management for patients with diabetes.

Eisert S, Mehler P, and Gabow P. “Can America’s Urban Safety Net Systems be a Solution to Unequal Treatment?” 2008 *Journal of Urban Health: Bulletin of the New York Academy of Medicine*.

<http://www.springerlink.com.proxygw.wrlc.org/content/x89044q3438m4515/fulltext.pdf>

This study focuses specifically on one large community health center, Denver Health, and examines whether this urban safety net provider eliminates or improves racial and ethnic disparities. Researchers analyzed 4,795 randomly selected individual patient charts across ten different Denver Health associated health centers from July 1999 to December 2001. Researchers found no significant difference between racial and ethnic groups for cancer screening, blood pressure control, and diabetes management. Furthermore, the quality of care that Denver Health provided met or exceeded national benchmarks. Authors call for additional studies of other urban safety net institutions, emphasizing the potential that safety net institutions hold in eliminating disparities.

Shin P, Markus A, Rosenbaum S, Sharac J. “Adoption of Health Center Performance Measures and National Benchmarks.” January-March 2008 *Journal of Ambulatory Care Management* 31(1): 69-75

This study examines the ability of three large health centers to adopt and report national standardized quality and performance measurements. The health centers – located in Miami, New York and Washington, DC – are part of a grant from the United Health Foundation to expand access and improve the quality of healthcare in communities with high rates of HIV, asthma, diabetes, obesity and cardiovascular disease. The health centers applied 10 clinical measures from the Ambulatory Care Alliance as well as a version of the patient questionnaire, Consumer Assessment of Healthcare Providers and Systems used by HRSA. The findings indicate that with adequate resources and support,

health centers can readily integrate standardized quality of care and performance measures. The data also show that the quality of care provided at health centers exceeds national averages and that health centers are valuable sources of healthcare for any patient group, not only medically underserved. The authors believe this evidence could translate into increased funding levels.

Graber, J., et al. "Predicting Changes in Staff Morale and Burnout at Community Health Centers Participating in the Health Disparities Collaboratives." Jan. 2008 *Health Services Research*. 1-21.

Authors set out to identify predictors of staff morale and burnout with regards to the additional responsibilities stemming from the health center Health Disparities Collaboratives (HDC) program. In 2004, 622 surveys were collected from various personnel in 145 health centers in the Midwest and West Central regions, with 44% of respondents employed with rural health centers. 40% of respondents reported staff morale had "somewhat improved" or "greatly improved" as a result of HDC, while 20% reported morale "somewhat worsened" or "greatly worsened". The study attributes improvements in morale to variables such as leadership support for the HDCs, career promotion opportunities, sufficient staffing, and fair distribution of tasks. The strongest predictors of reduced burnout were sufficient staffing levels and fair distribution of HDC tasks. Thus, authors conclude that it is important for health centers to take steps to elevate the burnout rates and increase staff morale.

Candib, L, et al. "Creating Open Access to Exercise for Low-Income Patients Through a Community Collaboration for Quality Improvement: If You Build it, They Will Come." 2008 *J Ambulatory Care Management* 31(2): 142-150.

This article examines social determinants to health outcomes through a pilot exercise program collaborative between a community health center and a local YWCA in Massachusetts. As previous studies have indicated, lack of access to safe, available, and affordable settings for exercise are crucial reasons why patients do not exercise. The study found that when one community health center eliminated these obstacles, minority and low-income patients increased their utilization of exercise facilities. After two years of implementing the program, more than 1,000 health center patients had become the most frequent users of the YWCA. 74% of patients with diabetes who attended the program at least 3 times and adhered to their medical treatments experienced improved HbA_{1c} outcomes. This study also illustrates the feasibility of community partnerships between healthcare and fitness organizations to address greater health goals for minority and low-income populations.

Chin MH, et al. "Improving and Sustaining Diabetes Care in Community Health Centers with the Health Disparities Collaboratives." December 2007 *Med Care* 45(12).

The article presents findings from the longest-running evaluation to date of the Health Disparities Collaborative, a continuous quality improvement program in community

health centers. Researchers conducted chart reviews of over 2,000 randomly selected health center patients with diabetes from 34 health centers in 17 states. Data were collected on patient demographic, process of care measures, and outcomes in 1998, 2000, and 2002. Researchers also randomized study centers to determine if more intensive quality improvement efforts - including additional staff learning sessions, training on patient-provider communication and behavioral health, and patient empowerment resources - further improve care. Between 1998 and 2002, researchers found “statistically and clinically significant” improvement in 11 diabetes process of care measures as well as a reduction in hemoglobin A1c and low-density lipoprotein (LDL) cholesterol levels. High intensity intervention health centers had greater use of some process measures but lower use of life style counseling measures compared to standard intensity health centers. However, researchers caution that lifestyle counseling may be more “prone to documentation variation across health centers compared to laboratory outcomes.” Health centers experience improvements in diabetes processes of care and LDL cholesterol level in two years, and that these improvements as well as improvements in hemoglobin A1c occurred over four years. Authors conclude that improving outcomes for complex conditions may require enduring commitment to quality improvement efforts and their evaluation.

Haq, S. *A Report on New Jersey’s Federally Qualified Health Centers (FQHCs) Performance in Prenatal Care*. Aug. 2007 New Jersey Primary Care Association. <http://www.njpca.org/>

This study compares birth outcomes of New Jersey prenatal care patients by provider type. Babies born under the care of health center providers had lower incidences of very low and low birth weights compared to other providers (1.3% vs 1.6% and 5% vs 7% in 2005). Additionally, health center performance fares better than other health care organizations, with remarkable results towards the birth weight goals set in the Healthy New Jersey 2010 program. The health center rate of low birth weight among births by FQHC provider care is 5.06% compared to 6% and 1.28% versus 1.0% for very low weight. This high performance, combined with a review of national studies, indicate that health centers may be able to address racial/ethnic disparities in perinatal care and birth outcomes.

Lewin, M and Baxter, R. “America’s Health Care Safety Net: Revisiting the 2000 IOM Report.” Sept-Oct 2007 *Health Affairs* 26(5): 1490-1494.

In 2006, the committee which authored the 2000 Institute of Medicine report, *America’s Health Care Safety Net: Intact but Endangered*, reconvened to discuss the ability of the safety net to meet increased demands and challenges. The committee focused on four major issues: (1) financial burdens to the safety net; (2) impact of Medicaid managed care; (3) challenges in operating in an increasingly competitive technologically sophisticated, and performance-oriented environment; and (4) the capacity of the federal government to monitor the safety net. Most safety net providers remain financially strained with smaller health centers especially facing funding challenges. Points of agreement include the challenges in activating HIT, delivering mental health services, a

lack of urgently needed capital investment, concerns over new Medicaid flexibility granted to states under the Deficit Reduction Act, challenges recruiting health professionals, increasing collaborations among providers, and the need for the federal government to track and monitor the safety net's ability to meet the needs of medically vulnerable populations.

Coleman, K, Reiter, K, and Fulwiler, D. "The Impact of Pay-for-Performance on Diabetes Care in a Large Network of Community Health Centers." Nov. 2007 *Journal of Health Care for the Poor and Underserved* 18: 966-983.

This study examines the effect of pay-for-performance programs as a means to increase health care quality for the underserved. Authors evaluate a pay-for-performance program at the largest health center network in Chicago, using multiple indicators for diabetes care. Access Community Health Network (ACCESS), a network of FQHCs in Chicago, implemented this program for their providers as an effort to improve productivity and quality of care. As a result of the program, diabetic patients have significantly more physician visits and screening tests conducted. While these results illustrate a potential for pay-for-performance programs to improve outcomes, they also suggest that more needs to be done to effect health outcomes. The authors recommend evaluating other factors such as staff, infrastructure, and IT support as additional avenues to improved care and process outcomes.

Huang E, et al. "The Cost-Effectiveness of Improving Diabetes Care in U.S. Federally Qualified Community Health Centers." June 2007 *Journal of General Internal Medicine*, 21(4) supp: 139.

Authors conducted a cost-effectiveness analysis on diabetes Health Disparities Collaboratives (HDC) at 17 Midwestern health centers. Between 1998 and 2002, multiple process measures of care improved, including glycosylated hemoglobin testing (71 to 92%), lipid testing (52 to 70%), and ACE inhibitor prescribing (33 to 55 %). Mean cholesterol levels also improved, decreasing significantly (mean difference -13.5). The HDCs also reduced expected lifetime incidence of diabetes complications, reducing the lifetime incidence of blindness (17 to 15%), end-stage renal disease (18 to 15%), and coronary artery disease (28 to 24%). Average annual program cost per patient also declined over four years. Overall, the authors found that the HDC is cost effective, while reiterating that the costs of the HDCs are still borne by health centers. Authors stress that in order to sustain the HDCs' health benefits and cost effectiveness, receipt of basic chronic care services as provided by health centers and covered by Medicaid should be sustained. Moreover, authors note that this analysis underestimates the true benefits of the HDCs because they are designed to improve care across multiple conditions.

Landon BE, et al. "Improving the Management of Chronic Disease at Community Health Centers." March 2007 *New England Journal of Medicine* 356(9); 921-934.

Researchers evaluated the impact of the Health Disparities Collaboratives – a federal initiative to improve the quality of care for health center patients with chronic illness – by comparing 44 intervention health centers that were participating in the Collaboratives and

20 health centers that were not. Health centers were located around the country and were equally split between urban and rural locations. Authors focused specifically on diabetes, asthma, and hypertension, and collected patient data over a two year period (one year before the intervention and one year after). The authors find that the Collaboratives improved processes of care for these conditions, but did not improve intermediate clinical outcomes. However, they note that by focusing on short term rather than long term outcomes, their findings may actually underestimate the true impact of the Collaboratives on patient quality. Many of the processes of care studied are linked to long term quality improvement.

Savageau JA, et al. "Characteristics of Frequent Attenders at a Community Health Center." 2006 *Journal of the American Board of Family Medicine* 19(3):265-275.

As health centers struggle with increasingly challenging patient health care needs, they are hard-pressed to find solutions to improve health outcomes for frequent attenders. This study analyzed the medical records for 382 established patients at an urban family practice community health center in Massachusetts over a 30-month time period, from August 1998 to February 2001, and found 79% to be frequent attenders. Frequent attenders are defined as patients who make 5-12 more visits per year, contributing anywhere from 15-30% of all visits to CHCs. Statistically significant sociodemographic factors attributing to increased visits include age, zip code of residence, and insurance status. In summation, patients aged 45-64, living outside city limits, or covered under Medicaid or Medicare were more likely to be frequent attenders. 89.9% of frequent attenders had at least one chronic medical condition. Authors recommend developing interventions such as customized social report cards, applying elements of the Chronic Care Model, and productive interactions between informed patients as solutions to improve outcomes for both patient and health center.

Xirasagar, S., Samuels, M., and Curtin, T., "Management Training of Physician Executives Their Leadership Style, and Care Management Performance: An Empirical Study." February 2006 *The American Journal of Managed Care* 12: 101-108.

In 2002, researchers examined empirical associations between CHC medical director's management education and their supervisor's perception of their leadership style and effectiveness. Using a cross-sectional national survey which was made-up of questions on management education, researchers analyzed responses from 269 CHC executive directors. They discovered that either a management degree or significant in-service training were perceived to rank significantly higher than those without training on those behaviors collectively defined as transformational leadership. Medical directors with greater than 30 days of in-service training, medical directors with an MHA, MPH, or MBA or less than or equal to 30 days of in-service training had higher scores on transformational leadership, transactional leadership, rated effectiveness, satisfaction, and subordinate extra effort, and lower scores on laissez-faire leadership. This study concludes that training may enable physician executives to develop leadership styles that are effective in influencing clinical provider's adoption of disease management guidelines under managed care.

Hicks LS, et al. "The Quality of Chronic Disease Care in US Community Health Centers." November/December 2006 *Health Affairs* 25(6):1713-1723.

Authors examined medical records of a nationally representative sample of health center patients with chronic illness, as well as patient and health center characteristics associated with health outcomes, between 1999 and 2000. Using nationally recognized quality of care indicators, authors found that health center quality of care was comparable to or better than care delivered elsewhere, as measured by reduced hospitalizations and emergency department visits, higher vaccination rates, and higher cancer screening rates. Moreover, racial and ethnic disparities in quality of care were eliminated after adjusting for insurance. Although health centers experience limitations in providing care to the uninsured as measured by outcomes slightly behind those of insured patients, findings are similar to national trends. However, authors note that as health centers serve more uninsured patients, these patients will likely experience improved health outcomes. Authors also find that health centers with computerized decision support tended to provide better care than those without, and health centers may require additional resources to meet the needs of their uninsured patients.

Shin P, Markus A, and Rosenbaum S. *Measuring Health Centers against Standard Indicators of High Quality Performance: Early Results from a Multi-Site Demonstration Project. Interim Report.* Prepared for the United Health Foundation, August 2006.

www.gwumc.edu/sphhs/healthpolicy/chsrp/downloads/United_Health_Foundation_report_082106.pdf

According to preliminary analysis by the George Washington University and funded by the United Health Foundation (UHF), health centers meet or exceed quality performance results in the private sector. Health centers do not currently participate in a national quality reporting system that is routine, transparent and standardized. However, they have considerable experience in the area of performance reporting. This analysis presents findings from a pilot test of such a reporting system at three health center grantees under the UHF's Centers of Excellence program. Health centers reported widely used and standardized ambulatory care performance measures developed by Ambulatory Quality Alliance. Initial results are based on December 2005 and June 2006 reporting periods, that later of which are considered more accurate due to a larger statistical chart sample. Preliminary assessments show four general findings. First, with adequate resources and support, health centers can readily adapt to standardized reporting systems. Second, health centers compare to or exceed national quality benchmarks, especially in preventive services. Third, they increased their performance levels from period to period. Fourth, standardized measures of care and patient satisfaction are extremely important to their patient populations. Specifically, this interim report found that all three grantees exceeded the national average of cervical cancer screening. For patients with diabetes, health centers generally met or exceeded national rates of at least on cholesterol screening, target cholesterol levels, more than one HbA1c screenings, and target HbA1c levels. Health center patients

were also more likely than patients nationally to report their “provider listens” and “provider spends enough time” with them. It is also important to note that this study has not been risk-adjusted and may actually understate the findings.

Falik M, Needleman J, Herbert R, et al. “Comparative Effectiveness of Health Centers as Regular Source of Care.” January - March 2006 *Journal of Ambulatory Care Management* 29(1):24-35.

The reported analyzed claims data from 1.6 million Medicaid beneficiaries in 4 states (Alabama, California, Georgia, and Pennsylvania) to assess the performance of their primary care providers by type of provider. Beneficiaries had a history of at least one ambulatory care-sensitive (ACS) condition and received at least 51% of their primary care from Community Health Centers, office-based physicians, and hospital-based practices. Researchers found when health center Medicaid beneficiaries had one third fewer ACS events compared to other providers (5.7 vs. 8.2 ACS hospitalizations and 26.1 vs. 37.7 ACS emergency department visits, respectively, per 100 persons). Medicaid beneficiaries relying on health centers for usual care were 19% less likely to use the emergency department for an ACS condition and 11% less likely to be hospitalized for an ACS condition than Medicaid beneficiaries using outpatient and office-based physicians for usual care, even after controlling for case mix and other factors. ACS admissions were more likely in the groups who had mixed use (25% or more of their care at multiple provider types) or low use (0 to 1 primary care visits). Health centers were found to be effective regular sources of care, and the authors recommended increasing both the number and capacity of health centers.

Savageau, JA, et al. “Characteristics of Frequent Attenders at a Community Health Center.” 2005 *Journal of the American Board of Family Medicine* 19(3):265-275.

As health centers already struggle with increasing patient health care needs, they are hard-pressed to find solutions to balance and improve health outcomes for frequent attenders. This study analyzed the medical records for 382 established patients over a 30-month time period, from August 1998 to February 2001, and found 79% to be frequent attenders. Frequent attenders are defined as patients who make 5-12 more visits per year, contributing anywhere from 15-30% of all visits to CHCs. Statistically significant sociodemographic factors attributed to increased visits include age, zip code of residence, and insurance status. In summation, patients aged 45-64, living outside city limits, or covered under Medicaid or Medicare were more likely to have frequent visits. 89.9% of frequent attenders had at least one chronic medical condition. Conditions associated with higher visit frequency include hypertension, diabetes, and depression. Authors recommend developing interventions such as customized social report cards, applying elements of the Chronic Care Model, and productive interactions between informed patients as solutions to improve outcomes for both patient and health center.

O'Malley AS, et al. "Health Center Trends, 1994-2001: What Do They Portend for the Federal Growth Initiative?" March/April 2005 *Health Affairs* 24(2):465-472.

Authors reviewed health center patient records from nationally representative samples of community health centers in 1994 and 2001. Over this time, health centers provided more preventive services and treated more chronically ill, near-elderly, and uninsured patients while improving quality and continuity of care. Authors found no disparities by race/ethnicity or insurance status in delivery of preventive services. The authors conclude that these findings suggest that the Federal Health Center Growth Initiative through 2006 will greatly improve access to quality care for underserved populations, while likely reducing national disparities for racial/ethnic minorities and the uninsured. However, health center expansion should coincide with expansions in insurance coverage and the primary care workforce.

National Association of Community Health Centers. *Nation's Health at Risk Part II: A Front Row Seat in a Changing Health Care System*. Special Topics Issue Brief #7. August 2004. www.nachc.com

This report is the second in a series of reports examining trends impacting access to affordable health care in America and straining the safety net. This report describes how health centers delivery high quality, cost effective care to 15 million patients nationally, and how both rising uninsured and limited resources have affected health centers. Specifically, the report reviews literature on how health centers produce significant savings to state Medicaid programs, and potential savings associated with redirecting non-urgent and ambulatory care sensitive emergency room visits to more appropriate settings nationally and for each state. In addition, the report reviews why the safety net is a crucial component of the nation's health care system that will always be needed.

Starfield B and Shi L. "The Medical Home, Access to Care, and Insurance: A Review of Evidence." May 2004 *Pediatrics* 113(5):1493-8.

Authors conducted a review of literature concerning the benefits of having a medical home, and discuss the characteristics of a medical home. Finds that having a regular source of care is a greater predictor of receiving care than having insurance alone. Based on an extensive review of literature, the ability to identify a particular practitioner rather than a particular place as a medical home is generally associated with better utilization and outcomes, including needs recognition, earlier and more accurate diagnoses, reduced emergency room use, fewer hospitalizations, lower costs, better prevention, fewer unmet needs, and increased patient satisfaction. Primary care is particularly important for narrowing disparities among low income and minority communities. Care provided by health centers is associated with better health outcomes when compared to low income communities not served by health centers.

Shi, L., et al. (2004). America's health centers: Reducing racial and ethnic disparities in perinatal care and birth outcomes. *Health Services Research*, 39(6), Part I, 1881-1901

Health centers are important providers of prenatal care for low-income women, accounting for 17.2% of all low-socioeconomic status (SES, defined here as births to mothers with less than 12 years of education) births nationally, including 25.4% of all low-SES Asian births, 20.6% of all low-SES black births, and 18.9% of all low-SES Hispanic births. Low-SES women seeking care at health centers experience lower rates of LBW compared to all low-SES mothers (7.5% vs. 8.2%). This trend holds for each racial/ethnic group, which is particularly noteworthy for African American women who are especially at higher risk for adverse pregnancy outcomes. Nationally, 14.9% of all low-SES black infants are born at LBW compared to 9.1% of low-SES white infants, a disparity of 5.8%. Comparatively, this black-white disparity is narrower at health centers, where 10.7% of health center black infants are born at LBW compared to 7.4% of health center white infants, a difference of 3.3%. If the LBW black-white disparity seen at health centers could be achieved nationally, there would be 17,100 fewer LBW black infants annually.

Chin MH, et al. "Improving Diabetes Care in Midwest Community Health Centers With the Health Disparities Collaborative." January 2004 *Diabetes Care* 27(1):2-8.

Researchers studied 19 Midwestern health centers participating in diabetes Health Disparities Collaboratives – a federal initiative to improve the quality of care for patients with diabetes – and found that the Collaboratives had improved measures of diabetes-related health outcomes and quality (e.g., HbA1c measurement, eye examination referral, foot examination, and lipid assessment). Moreover, the researchers found that surveyed health center staff considered the Collaboratives successful. The authors also discuss challenges with establishing a Collaborative at a health center. They conclude that the model employed by the Collaboratives improved diabetes care provided by the health centers in just one year.

Politzer RM, Schempf AH, Starfield B, and Shi L. "The Future Role of Health Centers in Improving National Health." 2003 *Journal of Public Health Policy* 24(3/4):296-306.

Discusses the importance of primary care in light of health disparities and poor health status among the nation's most vulnerable populations. Examines how community-based primary health care that includes access to other social services effectively improves health outcomes at an individual and community level, and concludes that while there is no single remedy, health centers are such an effective model of care. The authors make the case for continued expansion of the health centers program.

Shin P, Jones K, and Rosenbaum S. *Reducing Racial and Ethnic Health Disparities: Estimating the Impact of High Health Center Penetration in Low-Income Communities*. Prepared for the National Association of Community Health Centers, September 2003.
www.gwhealthpolicy.org/downloads/GWU_Disparities_Report.pdf.

Found that as the proportion of a state's low income population served by health centers grows, the black/white and Hispanic/white health gap narrows (i.e., declines) in such key areas as infant mortality, prenatal care, tuberculosis case rates, and age-adjusted death rates. The study also concluded that Medicaid alone has little direct impact on health disparities, but Medicaid coverage for low income patients is key to health centers' ability to serve more of the low income in states, and in so doing reducing disparities. As evidence of this the GW researchers found that health center penetration (defined as the proportion of state low income served by health centers) had its lowest impact in reducing disparities for heart disease and diabetes related death rates. These diseases disproportionately affect older low income and working-age minority adults, who are the least likely to have Medicaid coverage. Hence, it is the combination of customized, supported health care with comprehensive health insurance that may most effectively reduce health disparities.

Garg A, Probst JC, Sease T, Samuels ME. "Potentially Preventable Care: Ambulatory Care-Sensitive Pediatric Hospitalizations in South Carolina in 1998." September 2003 *Southern Medical Journal* 96(9):850-8.

Authors examined 1998 South Carolina hospital inpatient data in order to determine personal and community factors that influence ambulatory care-sensitive (ACS) hospitalizations among children under the age of 18. Those most likely to have a ACS hospitalization included children that were younger, male, non-white, Medicaid insured, and those living in counties that were rural, poor, and had a health professional shortage area designation. Counties with a health center had 55% fewer pediatric ACS hospitalizations, demonstrating the importance of health centers. In noting that poverty and the lack of a provider increases rates of ACS conditions, the authors support the President's call to increase the number of health centers to prevent ACS hospitalizations and related costs.

DeVoe JE, Fryer GE, Phillips R, Green L. "Receipt of Preventive Care Among Adults: Insurance Status and Usual Source of Care." May 2003 *American Journal of Public Health* 93(5):786-91.

Having both coverage and a usual source improved rates of a variety of preventive health services, such as blood and cholesterol checks, physical exams, select women's health services, and dental check ups. The authors conclude by warning that threats to the safety net system could undermine safety net users' access to regular care, and that "improving preventive service delivery to the entire US population requires expanding

health insurance coverage and improving access to comprehensive and continuous primary care services.”

Roby D., Rosenbaum S., and Hawkins D. *Exploring Healthcare Quality and Effectiveness at Federally-Funded Community Health Centers: Results from the Patient Experience Evaluation Report System (1993-2001)*. National Association of Community Health Centers. March 2003. www.nachc.com/news/Press_Releases/PEERS_report_-_final_draft_0226.pdf.

Presents findings of a major evaluation of the performance of Federally-Qualified Health Centers, and finds that health centers furnish care of high quality as measured by clinical health quality measures and by patient health care experience survey information (from 1993 and 2001). The authors find sustained and improved clinical care quality and patient satisfaction levels, even as health centers have experienced a significant growth in the proportion of uninsured and vulnerable patients.

Porterfield D.S. and Kinsinger L. “Quality of Care for Uninsured Patients with Diabetes in a Rural Area.” February 2002 *Diabetes Care*. 25(2): 319-23.

Porterfield and Kinsinger compared quality of care for uninsured patients with diabetes in private physician’s offices and community/migrant health centers (C/MHC) by conducting a cross sectional medical record review in a convenience sample of eight physician offices and three C/MHC sites in rural North Carolina. They found that the medical records of patients in C/MHCs demonstrated higher rates on four of six process measures of quality of care including measurement of HbA (1c), cholesterol, and urine protein.

Shi, L., Starfield, B., Politzer, R., Regan, J. “Primary Care, Self-Rated Health, and Reductions in Social Disparities in Health.” June 2002 *Health Services Research* 37(3):529-50.

Concluded that having a good primary care experience, as characterized by enhanced accessibility and continuity, is associated with improved self-reported health status as well as income disparities in ratings of overall health status.

Klein, J.D., et al. “Improving Adolescent Preventive Care in Community Health Centers.” February 2001 *Pediatrics*. 107(2):318-27.

Klein, et al evaluated the implementation of the Guidelines for Adolescent Preventive Services (GAPS) in Community and Migrant Health Centers and found that implementing GAP increased the receipt of preventive services at the health centers. After guideline implementation, adolescents reported increases in having discussed prevention content with providers in 19 out of 31 content areas, including increased discussion of topics such as physical or sexual abuse (10% before to 22% after), sexual

orientation (13% to 27%), fighting (6% to 21%), peer relations (37% to 52%), suicides (7% to 22%), eating disorders (11% to 28%), immunizations (19% to 48%), and others. The researchers conclude that GAPS implementation may help improve the quality of care for adolescents.

Falik, M. et al, "Ambulatory Care Sensitive Hospitalizations and Emergency Visits: Experiences of Medicaid Patients using Federally Qualified Health Centers." *Med Care*, MDS Assoc. (June 2001)

Falik et al., compares admissions and emergency room visits for ambulatory care sensitive conditions (ACSCs) among Medicaid beneficiaries using Federally Qualified Health Centers (FQHCs) to other Medicaid beneficiaries. Admissions and emergency room visits for ACSCs are measured for both groups of beneficiaries. The report concludes that those with access to regular preventative care at FQHCs are much less likely to be taken to the ER or hospitalized than those without access to FQHCs.

Frick, KD and Regan J. "Whether and Where Community Health Centers Users Obtain Screening Services." November 2001 *Journal of Healthcare for the Poor and Underserved* 12(4): 429-45.

Authors examine the socioeconomic status of adult community health center users and their use of screening services for secondary prevention. From a selected group of CHCs, a random sample of users are interviewed with the Community Health Center User Survey and asked questions regarding whether screening services had been utilized in the past year and, if so, had these services been received at a CHC. Findings reveal that users of minority or lower socioeconomic status were not less likely to receive preventive screenings than other adult users, and the screenings conducted were most often at a CHC. The study concludes that health centers are indeed providing preventive services to vulnerable populations that would otherwise not have access to certain services, and that health centers "appear to facilitate the use of timely screening services for minority and low socioeconomic status users."

Carlson, BL et al, "Primary Care of Patients without Health Insurance by Community Health Centers." April 2001 *Journal of Ambulatory Care Management* 24(2):47-59.

Carlson et al., compares uninsured Community Health Centers (CHCs) users with the uninsured nationwide. The socioeconomic characteristics of the uninsured CHC users and the overall uninsured populations are compared. Health standard of CHC uninsured patients is weighed against the Healthy People 2000 goals. Analysis of whether CHC uninsured patients have greater access and satisfaction in health care is also conducted. Findings create a favorable picture of CHC and the importance of their work with the uninsured. Compared to the overall uninsured, CHC uninsured users usually live in poverty-stricken areas, are poorly educated, and are African American or Hispanic; yet,

the uninsured CHC users had more regular contact with a physician and a usual source of care where as the overall uninsured did not.

Politzer R, Yoon J, Shi L, Hughes R, Regan J, and Gaston M. "Inequality in America: The Contribution of Health Centers in Reducing and Eliminating Disparities in Access to Care." 2001 *Medical Care Research and Review* 58(2):234-248.

Reviews literature showing that health centers improve access to preventive services, health outcomes, and have been successful in reducing or eliminating health disparities.

Shi, L., J. Regan, R. Politzer, and J. Luo. 2001. "Community Health Centers and Racial/Ethnic Disparities in Healthy Life." *International Journal of Health Services* 31(3):567-582.

Examines the disparity in health *status* among health center patients of different racial and ethnic groups and compares those findings to non-health center patients. The study compares self-reported healthy life indicators from the 1994 Health Center User Survey and the 1994 National Health Interview Survey, including in the later survey set only those identifying a usual source of care other than a health center. The study finds that while there are significant racial and ethnic health disparities in healthy life among the general population even after controlling for socio-demographic factors, these disparities do not exist among health center users. Non-white Hispanic health center users experience healthier life than both African American and white users, and no significant differences were found between white and African American users. Conversely, among non-health center users, whites experience significantly healthier life than both African Americans and Hispanics. The study concludes that the absence of disparities at health centers may be related to their culturally competent practices and community involvement, features that are often lacking at other primary care settings.

Ulmer, C et al. "Assessing Primary Care Content: Four Conditions Common in Community Health Center Practice." *Journal of Ambulatory Care Management*. 23(1):23-38, 2000, Jan.

Ulmer, et al evaluated the results of medical records reviews assessing the quality of care at Community Health Centers (CHCs) for acute otitis media, diabetes, asthma, and hypertension. It was found that the CHCs meet or exceeded prevailing practices across other health care settings (though some variation existed among sites).

Chin, MH et al. "Quality of Diabetes Care in Community Health Centers." *American Journal of Public Health*. 90(3):431-4, 2000, Mar.

Chin, et al assessed the quality of diabetes care in community health centers. In 55 Midwestern community health centers the charts of 2865 diabetic adults were reviewed to see if the American Diabetes Association's measures of quality were met. Results found

that on average, 70% of patients in Each CHC had elevated measurements of glycosylated hemoglobin (an average value of 8.6%), 26% had dilated eye examinations, 66% had diet intervention, and 51% received foot care. It was concluded that rates of adherence to process measures of quality of were relatively low among community health centers, compared with targets established by the American Diabetes Association.

Forrest CB, Whelan EM. "Primary Care Safety-Net Delivery Sites in the United States: A Comparison of Community Health Centers, Hospital Outpatient Departments, and Physicians' Offices." October 2000 *JAMA* 284(16):2077-2083.

Researchers looked at trends in primary care use by Americans in 1994 and 1998. In 1994, about 44% of the overall outpatient visits in the US were for primary care, averaging about 1.3 visits per person. Community health centers (CHCs) made up 4% of total primary care visits and 20% of all visits by Medicaid and uninsured minorities. Patients living in rural areas made up almost 50% of CHC primary care visits. Established CHC patients were twice as likely to present new health problems than established patients of hospital outpatient departments, and were also significantly more likely to do so than established patients of physicians offices – indicating that continuity of care is better at CHCs. The study also showed large disparities in the number of primary care visits by race/ethnicity. Hispanics made 20% fewer visits and Blacks made 33% fewer visits per person compared to whites. The authors noted that doubling the health center program from its size in the mid-1990's while maintaining the overall patient composition would decrease the Hispanic/white disparity by 50% and the Black disparity by 24%.

1990s

St. Martin EE "Community Health Centers and Quality of Care: A Goal to Provide Effective Health Care to the Community." *Journal of Community Health Nursing*. 13(2):83-92, 1996.

St Martin finds that incorporating principles of Total Quality Management (TQM) is easy to do in a community health center setting and can enhance the effectiveness of health care delivery to a community and its members.

Stuart ME, et al. "Improving Medicaid Pediatric Care." Spring 1995 *Journal of Public Health Management and Practice* 1(2):31-38.

In a review of Maryland Medicaid patient records, health centers scored highest among all providers for the proportion of their pediatric patients who had received preventive services, including immunizations.

Reynolds R. and Javorek F. “Medicaid’s Primary Care Physician Initiative and Ambulatory Care Sensitive Hospitalizations.” August 1995 Colorado Department of Health Care Policy and Financing.

After reviewing Medicaid claims data from 1990-1992, authors found that Colorado Medicaid beneficiaries have more Ambulatory Care Sensitive (ACS) hospitalizations than the privately insured. However, Medicaid beneficiaries assigned a primary care provider have lower ACS rates than those with no primary care provider. The lowest aggregated ACS rates were for patients of Federally-Qualified Health Centers, and the highest rates were among patients of hospital-based clinics. Health centers showed a substantial improvement in lowering ACS hospitalization rates during the course of the study. Researchers speculate that hospital-based clinics may have a higher ACS rate because patients come to them after delaying care, and may therefore be in need of hospitalization.

Starfield B, et al. “Costs vs Quality in Different Types of Primary Care Settings.” *JAMA*. 272(24):1951-2, 1994, Dec 28.

Starfield et al conducted a retrospective quality of care review of 2024 outpatient medical records of 135 providers sampled from system wide Medicaid claims data in Maryland. These providers came from three different practice settings: hospital outpatient clinics, community health centers, and physician’s offices. In the study, a sample of patients with the diagnoses of diabetes, hypertension, asthma, well-child care, or otitis media were identified from Medicaid claims forms from visits during 1988. To measure quality of care, several categories were analyzed using explicit criteria. These categories included: evidence of impaired access, evidence of compromised technical quality, evidence of inappropriate care, outcome of care, and several generic indicators of quality. The study concluded that although there were some systematic differences by type of facility in some aspects of quality of care, there were no consistent differences in quality of care overall for patients in different types of settings and no consistent relationships between cost-efficiency and quality of care. However, patients in medium-cost community health centers had the best or second best scores for most of the 21 comparisons of type of quality assessed. Thus policies generated toward the choice of low-cost vs. high-cost providers will not necessarily lead to a deterioration in the quality of care.

1980s

Grossman M and Goldman F. *An Economic Analysis of Community Health Centers*. National Bureau of Economic Research, 1982.

Communities served by Health Centers have infant mortality rates that are 10% lower than communities not served by Health Centers, and have contributed to lowering the national infant mortality rate. Health Center services have produced improvements in the use of prenatal care and reductions in the incidence of low birth weight.

Freeman HE, Kiecolt KJ, Allen HM 2nd. "Community Health Centers: Making Health Care Less Expensive and More Accessible." August 1982 *Public Aff Rep.* 23(4):7.

Freeman HE, Kiecolt KJ, Allen HM 2nd. "Community Health Centers: an Initiative of Enduring Utility." Spring 1982 *Milbank Memorial Fund Quarterly* 60(2):245-67.

Compared hospitalization rates and emergency room use for patients of health centers in 5 cities at two points in time (1969 and 1975), and found that hospitalization rates declined 44% and ER visits 37% over the period.