



**Geiger Gibson /
RCHN Community Health Foundation Research Collaborative**

Policy Research Brief No. 14

**Using Primary Care to Bend the Curve:
Estimating the Impact of a Health Center Expansion on Health Care Costs**

Leighton Ku, PhD, MPH
Patrick Richard, PhD
Avi Dor, PhD
Ellen Tan, MSc
Peter Shin, PhD, MPH
Sara Rosenbaum, JD

September 1, 2009

About the Geiger Gibson / RCHN Community Health Foundation Research Collaborative

The Geiger Gibson Program in Community Health Policy, established in 2003 and named after human rights and health center pioneers Drs. H. Jack Geiger and Count Gibson, is part of the School of Public Health and Health Services at The George Washington University. It focuses on the history and contributions of health centers and the major policy issues that affect health centers, their communities, and the patients that they serve.

The RCHN Community Health Foundation, founded in October 2005, is a not-for-profit foundation whose mission is to support community health centers through strategic investment, outreach, education, and cutting-edge health policy research. The only foundation in the country dedicated to community health centers, the Foundation builds on health centers' 40-year commitment to the provision of accessible, high quality, community-based healthcare services for underserved and medically vulnerable populations. The Foundation's gift to the Geiger Gibson program supports health center research and scholarship.

Additional information about the Research Collaborative can be found online at gwumc.edu/sphhs/departments/healthpolicy/ggprogram or at rchnfoundation.org.

Executive Summary

This research brief, the third in a series examining the link between national health reform proposals and community health centers, estimates the cost savings that would be realized by making important investments in non-profit health centers as an element of national health reform. An earlier report estimated that, under the draft House health reform proposal (as of July 14, 2009), the number of health center patients would increase to 35.6 million by 2015 and 39.0 million by 2019, greatly expanding the reach of community health centers in thousands of medically underserved communities across the nation. We also estimated that if health plans sold in the proposed health insurance exchanges paid rates comparable to the Medicaid FQHC payment rate, health center capacity could reach 41 million patients by 2019.

Based on new analyses of the 2006 Medical Expenditure Panel Study (MEPS) examining the differences in annual total health care costs for health center users and non-users and based on our projections of changes in Medicaid caseloads at health centers, we estimate:

- In 2009 health centers serve 19 million patients. This generates health system savings of **\$24 billion** in 2009, because of the substantially lower overall cost of care by health center users when compared with non-users.
- Increasing health center capacity under health reform by another 20 million will generate an additional **\$35.6 billion** in savings in 2019, and **\$212 billion** in additional savings over the 2010-2019 ten-year time period. (This estimate does not include savings for the 19 million patients already being served).
- Were the Medicaid prospective payment rate system to be applied to exchange health plans, the number of additional patients served by health centers would rise to 22 million patients by 2019, bringing the total of total patients served to 41 million. This investment would create overall health care savings of **\$39.7 billion** in 2019 and **\$251 billion** over the 2010-2019 time period just for the 22 million new patients served.
- Federal Medicaid savings would exceed **\$59 billion** over the ten-year time period under the health reform proposal, an amount greater than the \$38.8 billion in additional health center investments made over the decade under the draft House bill. If the prospective payment system were to be applied to exchange health plans, federal Medicaid savings would exceed **\$70 billion** over ten years.

These projected savings to the nation's health care costs become possible because of the insurance reforms on which they build, supplemented by a direct health center investment. Health insurance coverage expansions, coupled with investments in the nation's primary health care infrastructure, can spur high quality and sustainable primary health care in medically underserved rural, urban, and suburban communities, and help bend the curve of health care cost growth.

Background and Overview

Beyond the foundational step of expanding health insurance coverage, perhaps the greatest challenge in health reform is investing in a health care delivery system that is positioned to foster long-term efficiencies and reduce the rate of growth in health care expenditures. Many have expressed this goal as “bending the curve” of health care costs.

This research brief, the third in a series examining the relationship between national health reform proposals and community health centers, estimates the cost savings that would be realized by making important investments in health centers as an element of national health reform. In addition to expanding health insurance coverage, health reform could invest in a significant health center expansion in order to better assure access for millions of residents of medically underserved urban and rural communities. Our study of health reform in Massachusetts underscored the problem of access following reform and the critical role played by health centers following enactment of insurance reform.¹

Two previous research briefs produced by the Geiger Gibson/RCHN Community Health Foundation Research Collaborative lay the groundwork for this analysis. The first brief, *National Health Reform: How Will Medically Underserved Communities Fare?*, reported that while national health reform is vital for the entire U.S. population, it is particularly important for the 96 million residents of medically underserved urban and rural communities because of their heightened need for primary health care and the role of health insurance reform on expanding primary care capacity.² We concluded that effective health reform would require both expanded health insurance coverage as well as investments in primary health care in medically underserved communities.

The second research brief, *Estimating the Effects of Health Reform on Health Centers’ Capacity to Expand to New Medically Underserved Communities and Populations*,³ found the potential for a major expansion of health centers under current Congressional health reform proposals. Health center expansion would be achieved in two ways. First, Medicaid would be expanded and subsidies to help lower income persons buy coverage through Exchanges would be established. These expansions would aid millions of uninsured health center patients and produce revenues by which health centers (non-profit primary health care clinics governed by community boards and offering affordable comprehensive primary health care) could extend

¹ Ku, L et al. (2009) “How is the Primary Care Safety Net Faring in Massachusetts? Community Health Centers in the Midst of Health Reform.” Kaiser Family Foundation & Geiger Gibson/RCHN Community Health Foundation Research Collaborative.

² Rosenbaum, S, et al. “National Health Reform. How will Medically Underserved Communities Fare?” George Washington University School of Public Health and Health Services, July 10, 2009. http://www.gwumc.edu/sphhs/departments/healthpolicy/dhp_publications/pub_uploads/dhpPublication_5046C2DE-5056-9D20-3D2A570F2CF3F8B0.pdf

³ Ku, L, et al. (2009). Estimating the Effects of Health Reform on Health Centers’ Capacity to Expand to New Medically Underserved Communities and Populations. George Washington University School of Public Health and Health Services, July 23. http://www.gwumc.edu/sphhs/departments/healthpolicy/dhp_publications/pub_uploads/dhpPublication_9889E996-5056-9D20-3D1F89027D3F9406.pdf

their services and service sites. In effect, insurance reform would foster capacity building by allowing health centers to lower their uncompensated care burdens.

Second, the House bill would invest in health center expansion directly, assuring the operating budget needed to expand and the financial support to continue their mission of service to all low income persons regardless of their health insurance status. The draft House bill (as of July 14, 2009) would have guaranteed \$38.8 billion in additional federal health center funding over a ten-year time period.

This research brief estimated that these two elements – insurance expansions for low income patients and direct federal investment in health centers – could result in a doubling of health center capacity to some 39 million patients by 2019. The brief also noted that were Congress to enact a third element – a requirement that health plans sold in the exchange pay health centers at rates comparable to the prospective cost-related rates paid by Medicaid – health centers could reach 41 million patients by 2019, since the deep financial losses to health centers caused by low private insurance revenues would be reduced.

This third research brief estimates the potential health care cost savings associated with the expansion of health center capacity based on these combined investment strategies. New analyses of the 2006 Medical Expenditure Panel Survey (MEPS) demonstrate that patients who receive care at health centers have lower total medical expenditures than those who receive care elsewhere. These findings reflect a substantial body of prior research showing that community health centers offer an efficient and effective system for the delivery of primary care health services.⁴ These qualities are reflected in both the efficient way in which health centers operate, as well as the timely use of primary care services with which health centers are associated, along with lowering other health care costs such as specialty care, inpatient care, and emergency care. Of particular note is health centers' ability to achieve these efficiencies despite serving a patient population that is disproportionately low income, uninsured and under-insured and at elevated risk for poor health outcomes.

⁴ Falik, M, et al. (2001). Do Health Centers Provide High-Quality and Cost-Effective Care? Ambulatory care sensitive hospitalizations and emergency visits: Experiences of Medicaid patients using federally qualified health centers. *Medical Care*, 39(6), 551–556. Forrest, CB, & Whelan EM. (2000). Primary care safety net delivery sites in the United States: A comparison of community health centers, hospital outpatient departments, and physicians' offices. *JAMA*, 284(16), 2077–2083. Politzer, RM, et al. (2001). Inequality in America: The contribution of health centers in reducing and eliminating disparities in access to care. *Medical Care Research and Review*, 58(2), 234–248. Starfield, B, et al. (1994). Costs vs. quality in different types of primary care settings. *JAMA*, 272(24): 1903–1908. Hicks LS, et al., (2006). The quality of chronic disease care in US community health centers." *Health Affairs* 25(6):1713-1723 (Nov/Dec). Politzer, RM, et al. (2003). The future role of health centers in improving national health. *Journal of Public Health Policy* 24(3/4):296-306. National Association of Community Health Centers, Robert Graham Center and Capital Link (2007). *Access Granted: The Primary Care Payoff*. Smith-Campbell B. (2005). Emergency Department and Community Health Center Visits and costs in an Uninsured Population. *Journal of Nursing Scholarship*, 37(1):80-86; Proser, M. (2005). Deserving the Spotlight: Health Centers Provide High-Quality and Cost-Effective Care. *Journal Ambulatory Care Management*, 28(4): 321-330.

Methods

Estimates of health care expenditures for health center users and non-users were based on analyses of the 2006 Medical Expenditure Panel Study (MEPS). The MEPS is a nationally representative survey of health care use, insurance coverage, medical expenditures, sources of payment, demographic, and socioeconomic variables for the U.S. civilian non-institutionalized population. Health center users are defined as those who report receiving the majority of their ambulatory care at health centers; non-users are those who do not. According to this definition, the 2006 MEPS included 588 users of health centers, compared with 22,645 non-users. Table 1 reports both unadjusted estimates and adjusted estimates of their annual 2006 medical expenditures, including total medical expenditures, ambulatory care (including both office-based and hospital outpatient department) expenditures, hospital emergency department expenditures, and inpatient hospital expenditures.⁵ These expenditures include the amounts paid by insurance, donated, or paid out-of-pocket for medical care. To control for patient characteristics such as age, gender, income, insurance coverage and health status, we employed standard econometric methods for medical expenditures.⁶ This part of the analysis produced estimates of the per-person cost of care for both health center patients and persons who were not health center patients. The difference in expenditures for health centers users and non-users can be interpreted as an estimate of the per-person savings associated with the use of health centers in 2006.

Like any research, there are limitations to this study. First, the accuracy of MEPS data relies in part on the accuracy of survey respondents' reports. In particular, respondents may not always know or recall whether they received care at a federally qualified health center or another type of facility. The health center users identified in the MEPS data account for three percent of total sample, but administrative data indicate that about six percent of population has received at least some care at health centers. Second, there may be other unmeasured factors that lead to differences in medical expenditures of health center users and non-users; this was not a randomized study. Nonetheless, despite these limitations, it is important to note that a number of studies have also found that health centers are associated with lower medical expenditures.⁷ The findings from MEPS are thus consistent with a considerable amount of other data.

The per person savings in 2006 were then used to project potential total medical care and the federal Medicaid savings from 2010 to 2019 resulting from the expansion of the number of patients who receive care at health centers. For this phase of the analysis, we used the models developed in our earlier report regarding the potential expansion in health center capacity under the draft House health reform bill.⁸ These estimates also account for expected inflation in health

⁵ Total expenditures include other components of health care beyond the services listed, such as prescription drugs, dental care or other expenses.

⁶ Two-part models were used. First, a logit model was used to assess the probability of having any medical expenditures in the year. For those with expenditures, log-transformed ordinary least squares models were used to estimate the level of medical expenditures. "Smearing" estimators were used to retransform the estimates into linear dollar estimates. Manning, WG & Mullahy, J. (2001). "Estimating Log Models: To Transform Or Not To Transform?", *Journal of Health Economics*, 20 (4 July), 461-494.

⁷ See note 3.

⁸ Ku, *op cit*.

care costs, changes in effective federal Medicaid matching rates, and changes in Medicaid caseloads at health centers.

These projections also have limitations. Some health center users receive care intermittently and might not attain the level of health center use assumed by the models above. In addition, the new patients who enroll in health centers may differ in risks or characteristics from the average population, so the average savings estimated under the models may not correspond perfectly to those for the newly enrolled. Finally, the estimates of projected caseload growth at health centers in our previous analysis were conservative. As noted in the prior report, we conservatively assumed relatively slow growth in other federal, state, and local grant or contract revenues for health centers in the future, at a rate less than half the historical growth rate for these other revenues.⁹ If the other revenues for health centers grow faster, health centers' caseloads will expand more, which could produce larger savings than those estimated here.

Findings

Table 1 summarizes the results of the multivariate analyses of the health care expenditures for health center users and non-users, based on the 2006 MEPS. The top band shows the unadjusted expenditures, which are largely affected by underlying differences in the characteristics of users and non-users. The lower band shows the adjusted expenditures, which use statistical controls for age, gender, health status, income and insurance status.

As seen in the table, the unadjusted differences in total health expenditures (\$2,060) are much larger than the adjusted differences (\$1,093). Some of the differences in unadjusted expenditures are because health center patients differ from non-users; for example, they are more likely to be uninsured and therefore have somewhat lower medical costs. After controlling for numerous characteristics of users and non-users, the differences are still substantial, however. The adjusted per person costs in 2006 are:

- \$1,093 lower for total expenditures of health center users vs. non-users,
- \$402 lower for ambulatory care expenditures of health center users vs. non-users, and
- \$218 lower for inpatient hospital expenditures of health center users vs. non-users.

⁹ *Ibid.*

Table 1. Adjusted and Unadjusted Per Person Costs and Estimated Differences for Health Center Users and Non-Users

	Health Center Users	Non- Users	\$ Difference	% Difference
Unadjusted				
Total	\$2,237	\$4,296	\$2,060	47.9%
Ambulatory	\$812	\$1,484	\$672	45.3%
Hospital emergency dept.	\$136	\$149	\$13	8.5%
Hospital inpatient	\$366	\$1,021	\$655	64.1%
Adjusted				
Total	\$3,500	\$4,594	\$1,093	23.8%
Ambulatory	\$1,182	\$1,584	\$402	25.4%
Hospital emergency dept.	\$134	\$163	\$29	17.5%
Hospital inpatient	\$998	\$1,216	\$218	18.0%

Source: Authors' analysis of 2006 MEPS

The data presented in these findings reflect 2006 dollars. To account for medical cost increase, we used the medical care CPI for 2006 to 2009 to inflate costs to current terms and assumed an average 3.5 percent annual increase in expenditures per person from 2010 to 2019.

Our earlier report estimated that under the draft House health reform proposal (as of July 14, 2009), the number of health center patients would reach 35.6 million by 2015 and 39.0 million by 2019. Based on historical health center trends and projections by the CBO for the House proposal, we estimate that in 2009, health centers are serving 19.0 million patients. Based on the per person estimates above and accounting for inflation, the 2009 level of care at health centers is already saving the health care system an estimated \$24 billion, compared to a scenario in which the 19 million patients receive care elsewhere.

Table 2 summarizes the additional savings that would be generated in fiscal years 2015 and 2019, the six-year period 2010-2015, and the ten-year period 2010 to 2019, as a result of the increase in the number of patients receiving care at health centers due to expansion. (To keep the table manageable, we do not show the similar estimates for the years 2010 to 2014 and 2016 to 2018, but they are available upon request.) These savings are estimated compared to a scenario in which the number of health center patients remains constant at 19 million in future years. That is, the "baseline" assumes that health centers could serve 19 million patients in each year, so an increase to 39 million by 2019 means that 20 million more patients are served at health centers. *The following estimates of savings for the years 2010-2015 and 2010-2019 are those associated with the care for those additional 20 million person; they do not include the \$24 billion estimated savings already being saved for the care of the 19 million served in 2009.*

Table 2. Projected Changes in Health Center Caseloads and Estimated Total Medical Savings and Federal Medicaid Savings under the Draft House Bill

	2009	2015	2019	2010- 2015	2010- 2019
Total Number of Patients (mil.)	19.0	35.6	39.0		
Increase Over 2009 Patients (mil.)		16.6	20.0		
Est. Total Medical Savings per Person	\$1,262	\$1,551	\$1,780		
Est. Total Medical Savings (bil.)	--	\$25.7	\$35.6	\$85.2	\$212.2
Est. Fed. Medicaid Savings (bil.)	--	\$7.2	\$10.5	\$22.6	\$59.4

Source: Authors' estimates.

As seen in the table, serving 20 million more patients at health centers would result in overall health care savings of \$35.6 billion in 2019 and \$212 billion over the ten-year period 2010 to 2019. The total dollar value of the expected savings far exceeds the 10-year investment of \$38.8 billion called for in the House bill.

Federal Medicaid savings are based on estimates of the share of health center revenues that are expected to come from Medicaid and estimates of the effective federal Medicaid matching rates.¹⁰ The projected federal Medicaid savings is \$10.5 billion in 2019 and would total \$59.4 billion from 2010 to 2019. Thus, the federal Medicaid savings alone exceed the dollar value amount of the investment called for in the draft House bill by more than \$20 billion.

Under the health reform proposals, a large number of people will gain insurance coverage from the health insurance exchanges, which will primarily offer private plans (although the House bill also offers a public plan option). As reported earlier, private insurance plans tend to pay health centers considerably less than the actual costs of providing care at health centers; data from the 2007 Uniform Data System indicate that private insurance underpays by about 43 percent. One option under health reform would be to require plans offering care under the exchange to pay health centers according to the prospective payment system (PPS) used in both Medicaid and Medicare, which comes much closer to paying full costs¹¹. In 2007, Medicaid payments were about 15 percent below health centers' estimated costs. Our earlier paper noted that if care under plans offered by the health insurance exchanges were based on the PPS system,

¹⁰ Based on the 2007 Uniform Data System, about 43 percent of total health center revenues come from Medicaid. Because we project that Medicaid patients will become a larger share of health center caseloads over time, we estimate this will rise to 48 percent by 2019. The effective federal Medicaid matching rate is the percent of total Medicaid expenditures paid by the federal government. In previous years, the average federal matching rate has been 57 percent. Under the American Recovery and Reinvestment Act, federal matching rates are temporarily elevated from October 1, 2008 to December 31, 2010. In addition, the draft House bill provides 100 percent federal matching funds for mandated Medicaid expansions. Based on the CBO analysis of the House bill, we estimated that this would increase the overall effective federal matching rate to 61 percent in 2015 to 2019.

¹¹ While Medicaid generally covers the cost of care, Medicare FQHC per visit payments are capped based on Rural Health Clinic rates and does not cover the full scope and cost of FQHC services.

even more patients could be served, reaching 41.3 million by 2019.¹² Table 3 estimates the potential caseloads and savings, assuming that health insurance exchanges use the PPS system, in addition to the other assumptions regarding the draft House health reform bill. As seen in the table, under this assumption the total health savings in 2019 would be \$40 billion and the federal Medicaid savings would be about \$12 billion. Over the 2010 to 2019 period, federal Medicaid savings would be over \$70 billion.

Table 3. Projected Changes in Health Center Caseloads and Estimated Total Medical Savings and Federal Medicaid Savings Assuming the Prospective Payment System Is Applied to Exchange Plans

	2009	2015	2019	2010-2015	2010-2019
Total Number of Patients (mil.)	19.0	37.5	41.3		
Increase Over 2009 Patients (mil.)		18.5	22.3		
Est. Total Medical Savings per Person	\$1,262	\$1,551	\$1,780		
Est. Total Medical Savings (bil.)	--	\$31.8	\$39.7	\$105.2	\$251.7
Est. Federal Medicaid Savings (bil.)	--	\$8.9	\$11.7	\$28.1	\$70.6

Source: Authors' estimates.

Discussion

To a considerable degree, the success of health reform will be measured not only by the number of individuals who gain health insurance, but also by the extent to which reform efforts can produce system efficiencies that bend the curve of future health expenditures in the United States.

The results of this analysis suggest that an investment in health center growth under national health reform could produce substantial long-term savings both for the overall health care system and for the federal government. The draft House health reform bill anticipates investing \$38.8 billion in additional funding to support an expansion of federally qualified health centers over the next decade. This analysis indicates that these investments could lead to at a minimum \$59.4 billion in federal Medicaid savings (plus additional Medicare savings not estimated here), which would more than offset the costs of additional funding. Medicaid savings could surpass \$70 billion over the ten-year time period were health insurance plans sold in the exchange to utilize the Medicaid PPS payment system and thus expand health centers' reach.

As has been demonstrated by a number of studies, in addition to this one, health centers are a cost-effective means to furnish primary health care, which can lead to better health and lower health care expenditures. Investments in health centers can serve as a complement to health reform efforts to expand the number of people with health insurance, by ensuring that there is an increased availability of primary health care providers to serve the newly insured, as

¹² Ku, et al. *op cit.*

well as those who remain uninsured. This will be particularly important in medically underserved areas where there is already an insufficient supply of primary care providers. Thus, this is a case in which the national economic value of the investment is further enhanced by its ability to bring better health to the nation's most underserved communities.

Finally, it is important to stress the role of both insurance reforms and investments in primary care capacity. In medically underserved communities, insurance does more than bring vital health care coverage to individual patients; it acts as an economic engine, permitting health care providers to grow. The savings projected here become possible only because of the insurance investments on which they build. Taken together, health insurance expansions and investments in primary care capacity can create an economic engine to spur a high quality and sustainable system of primary health care for the nation.