

The Cost of Medicaid Coverage for the Uninsured: Evidence From Buncombe County, North Carolina

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BACKGROUND The Affordable Care Act gives states the option to expand state Medicaid programs to cover many who are currently uninsured. The potential financial impact has not been thoroughly examined. We characterized the health risk of uninsured adults in Buncombe County, North Carolina, relative to that of local Medicaid recipients, to estimate the cost of expanding Medicaid coverage to include the uninsured.

METHODS We obtained de-identified patient enrollment and claims data for 2008 from the Division of Medical Assistance, North Carolina Department of Health and Human Services and from the 3 safety-net providers who care for most of the county's low-income uninsured adults. We used the Chronic Illness and Disability Payment System (CDPS) risk-adjustment tool to measure the relative health risk of the two populations. Based on actual spending in the Medicaid group and its health risk relative to that of the uninsured, we then projected how much it would have cost to provide Medicaid coverage for these uninsured in 2008.

RESULTS We estimated, based on CDPS adjustment for demographics and diagnoses, that these uninsured adults would have incurred costs 13% greater than those of the actual nondisabled adult Medicaid population. The projected cost of providing Medicaid coverage to these uninsured would have been \$4,320 per person.

LIMITATIONS Data were drawn from only the 3 major safety-net organizations and therefore excluded care obtained from other safety-net providers. Also, this sample of uninsured people included some who are ineligible for Medicaid because of their citizenship status. Furthermore, Medicaid enrollment might lead to increased utilization, revealing a greater burden of illness than we detected.

CONCLUSION In Buncombe County, uninsured adults who enroll in expanded Medicaid are likely to have somewhat more costly health problems than do currently enrolled nondisabled adults.

The Patient Protection and Affordable Care Act of 2010 (Affordable Care Act) gives states the option to expand Medicaid, beginning in 2014, to cover an estimated 18 million currently uninsured individuals [1]. Although the reduction in the number of uninsured would certainly be an achievement, the potential financial impact of this reform on Medicaid programs has not been thoroughly examined. This is partly due to the lack of good data on the uninsured population and their health care needs. Leslie and colleagues [2] used a diagnosis-based risk adjustment model to estimate Medicaid costs for indigent care in a Texas community. However, their estimate was based on the per-capita Texas Medicaid expenditure, which reflects all categories of eligibility, including the disabled. Because the majority of the uninsured population is made up of nondisabled adults, it is necessary to select a comparable Medicaid population for the most accurate cost comparisons.

In 2008-2009, there were 1,326,000 nonelderly uninsured people 19-64 years old in North Carolina, 30,324 of whom were living in Buncombe County [3]. With Asheville as its largest city, Buncombe County has a demographic and socioeconomic profile broadly resembling that of the state: its median household income from 2006-2010 was \$44,190, which was close to the figure for the state as a whole, as was the county's poverty rate for that period, 14.7% [4, 5]. The county's unemployment rate typically is lower than that of

the state (in April 2011, it was 7.8%, versus 9.6% statewide) [6]. In 2009, 21.1% of the adult nonelderly population in the county lacked health insurance, a slightly lower percentage than in the state as a whole (23.2%). If uninsured children are also counted, 18.3% of Buncombe County residents who were under 65 years of age had no health insurance, compared with 19.7% of residents under age 65 in the state overall [3].

Many of the county's uninsured depend on safety-net providers for their health care needs. Until 2010, the Buncombe County Health Department operated primary care clinics serving more than 10,000 people a year. In 2008, for people earning less than 200% of the Federal Poverty Guidelines (FPG), the fees at county clinics for primary care services, including prescription drugs, were determined by a sliding scale and ranged from \$3 per visit to 80% of charges. (In 2010, the county began to contract out the majority of adult services to a local community health center.) Buncombe County is also served by Project

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Access, a volunteer physician referral network organized to care for the low-income uninsured. Although the program primarily focuses on coordinating referrals to office-based specialists, it is also well coordinated with local community health centers and with hospital charity care [7]. The county funds primary care clinics to provide low-income uninsured county residents a medical home and prescription drugs. Project Access arranges, as needed, referrals for these patients to more than 600 local specialists who volunteer to see Project Access patients in their practices or at a safety-net clinic [8]. Project Access also enrolls patients in prescription-access programs at major pharmaceutical companies. Additionally, Mission Hospital, the county's only private hospital, accepts under its charity care policy anyone who is enrolled in Project Access or is a patient at one of the community health centers.

Buncombe County's community health centers, Project Access, and Mission Hospital all maintain patient enrollment and claims data. This provides a unique opportunity to assess the general health status and health needs of many of the county's low-income uninsured. We sought to compare the health needs and health-services utilization of the uninsured who are served by these safety-net providers with the health needs and health-services utilization of nondisabled adult Medicaid recipients living in the same county, in order to help project the potential financial impact of enrolling uninsured people in Medicaid.

Methods

With approval from the Wake Forest Health Sciences and Mission Hospital institutional review boards, we obtained data from Buncombe County's clinics, Mission Hospital, and Project Access through the Buncombe County Medical Society to measure the demographics and health care needs of the uninsured enrolled in safety net access programs. The study population included all 3,603 uninsured adults with incomes below 175% of the FPG who were enrolled in county clinics during 2008. County clinics reviewed each uninsured patient's income to determine eligibility for its sliding scale discounts. This determination expired every 6 months unless renewed. We considered the income-determination period to be each patient's period of enrollment, plus any additional enrollment period reported by Project Access or any subsequent date of service reported by Mission Hospital. For our purposes, the enrollment status was considered continuous from the earliest to the last date among these various indicators.

To produce information relevant to the future Medicaid expansion, we focused on low-income uninsured people 18-64 years of age who were enrolled with the county's clinics in 2008. We selected uninsured adults who enrolled in family planning with incomes less than or equal to 138% of the FPG, and those enrolled in adult clinics with incomes less than or equal to 150% of the FPG. This selection closely resembles the range over which states have the option to

extend Medicaid coverage, which is up to 138% of the FPG (calculated based on a nominal threshold of 133% of the FPG plus a 5% income disregard) [9]. An alternative selection that restricted adult clinic patients to those with incomes less than or equal to 125% of the FPG produced virtually the same findings.

To estimate the expected cost of care, we used claims data provided by the county for the primary care received by these patients, which we linked to claims data for any specialty care these same patients might have also received from Project Access. Most Project Access physicians file "shadow" claims forms with the Buncombe County Medical Society in order to document the services they provide and their economic value. Mission Hospital provided claims data for any hospital care provided to these county-clinic patients. These 3 sources of claims data for county-clinic patients were linked based on patient identifiers and then de-identified for analysis. Information on primary care provided to these patients was obtained from the county.

Claims data for the uninsured were not used to measure their actual costs of care. Instead, these data indicated their burden of illness, which was used to estimate the likely cost of care had they been enrolled in Medicaid. To account for differences in risk status between Buncombe County's Medicaid and uninsured populations, the Chronic Illness and Disability Payment System (CDPS) model was used to generate risk scores based on age, gender, and diagnoses. CDPS is well-validated and is widely used for these purposes. Briefly, CDPS is a methodology that many state Medicaid programs use to estimate expected burdens of illness and to set payment rates for Medicaid recipients [10]. This method requires data from both ambulatory care claims and inpatient claims, and it classifies diagnostic and other information into major categories that correspond to body systems or types of diagnosis. Most of these major categories are further divided into several subcategories and are assigned a weight according to the likelihood of increased expenditure associated with the diagnosis. Individual overall burden of illness is then expressed as a risk score, which represents an individual's disease burden relative to the average Medicaid recipient's disease burden. Therefore, a risk score of 1.05 indicates that the individual's expected medical costs are 5% higher than those of the average Medicaid recipient. Many state Medicaid programs use this risk score as the basis for making projections about health-based expenditures and setting capitated payment rates.

To project the cost of caring for these currently uninsured people under Medicaid, we selected a comparable population of nondisabled adults from participants in the Medicaid Temporary Assistance for Needy Families (TANF) program who lived in the same area. We generated risk scores for this group of Medicaid recipients the same way we obtained risk scores for the uninsured, using their claims data obtained from the state. We calculated the actual Medicaid health care expenditures per nondisabled adult Medicaid enrollee

living in Buncombe County during the year 2008. We then multiplied the actual health care expenditure by the risk ratio (the ratio of the two risk scores) to derive the expected health care expenditure if these uninsured people were to be covered by Medicaid.

Results

Table 1 shows the demographic and clinical characteristics of the adult uninsured clinic patients and Medicaid enrollees who lived in Buncombe County. In 2008, county clinics served 3,603 low-income uninsured adults who enrolled in family planning with incomes less than or equal to 138% of the FPG or enrolled in adult clinics with incomes less than or equal to 150% of the FPG. These county patients also were eligible to receive specialist referral to Project Access and charity care at Mission Hospital, if needed. Almost half (47.5%) of patients were in the 25-44 age range. Notably, Hispanics were overrepresented in county clinic enrollment; they comprised almost one quarter of patients, even though they make up only 6% of the total population of Buncombe County [4]. It appears that the county-clinic population had a high burden of illness: Half of patients had at least 1 chronic condition, and 20% had multiple chronic conditions.

Overall, uninsured county-clinic patients and Medicaid enrollees had very similar enrollment patterns (8.6 months versus 8.1 months) in 2008. However, uninsured county-clinic patients were much less likely than their Medicaid

counterparts to have visited an outpatient clinic (46% of the uninsured patients did so, compared with 85.2% of the Medicaid patients). The uninsured clinic patients were also less likely to have been admitted to the hospital (3.2% versus 4.2%) or to have visited an emergency department (19.2% versus 47.9%). (Data are not shown.) When the uninsured county-clinic patients did use health services, they used them less frequently than did Medicaid enrollees. Table 2 compares the 2 groups' frequency of use of health services. The average number of outpatient visits for all uninsured county-clinic patients was 1.4, and those with 1 or more visits averaged 3.0 outpatient visits. The average number of outpatient visits for Medicaid enrollees was much higher than for the uninsured: 19.1 for all enrollees, and 19.6 for those with 1 or more visits. Regarding hospital inpatient care, uninsured clinic patients had somewhat lower utilization (the average number of hospital admissions was 0.04 for the group as a whole and 1.3 for patients with 1 or more admissions) than did Medicaid enrollees (the averaged number of admissions for the group as a whole was 0.2, and for those with 1 or more admissions it was 1.3). Similarly, utilization of the emergency department by the uninsured clinic patients was also lower than utilization by Medicaid enrollees (0.3 visits for the uninsured group as a whole and 1.8 visits for uninsured patients with 1 or more visits, compared with 2.2 visits for the Medicaid group as a whole and 4.0 visits for Medicaid enrollees with 1 or more visits). These findings are reinforced by those of other studies that have

TABLE 1.
Demographic and Clinical Characteristics of Study Participants in 2008

Characteristic	Low-Income Uninsured Clinic Patients (N = 3,603) No. (%)	Medicaid Enrollees (N = 7,191) No. (%)
Age (in years)		
18-24	565 (15.7)	2,261 (31.4)
25-44	1,710 (47.5)	4,252 (59.1)
45-54	836 (23.2)	571 (7.9)
55-64	492 (13.7)	107 (1.5)
Gender		
Male	900 (25.0)	1,357 (18.9)
Female	2,703 (75.0)	5,834 (81.1)
Race		
Caucasian	1,416 (39.3)	5,080 (70.6)
African American	250 (6.9)	1,252 (17.4)
Hispanic	877 (24.3)	769 (10.7)
Other/Unknown	1,060 (29.4)	90 (1.2)
No. of chronic conditions		
0	1,784 (49.5)	3,488 (48.5)
1	1,113 (30.9)	2,508 (34.9)
2-3	627 (17.4)	1,043 (14.5)
4+	79 (2.2)	152 (2.1)

Note: The mean number of months in enrollment for the low-income uninsured clinic patients was 8.6 (SD, 3.6), and for Medicaid enrollees it was 8.1 (SD, 3.8).

TABLE 2.
Health Service Utilization of Study Participants in 2008

Type of Health Service Utilization	No. of Visits or Admissions per 12 Months of Enrollment	
	Low-income uninsured clinic patients Mean (SD)	Medicaid enrollees Mean (SD)
Outpatient visits		
All patients	1.4 (3.2)	19.1 (23.3)
Patients with at least 1 visit	3.0 (4.2)	19.6 (23.4)
Hospital admissions		
All patients	0.04 (0.3)	0.2 (0.5)
Patients with at least 1 admission	1.3 (0.6)	1.3 (0.8)
Emergency department visits		
All patients	0.3 (0.9)	2.2 (4.1)
Patients with at least 1 visit	1.8 (1.3)	4.0 (4.8)

looked at programs that are similar to Project Access in providing coordination of specialist volunteers. Those studies have also found reduced use of emergency departments and increased access to outpatient care at levels comparable with those of people who have insurance [11].

Table 3 provides the projected expenditure that would have been required to cover low-income uninsured Buncombe County clinic patients under Medicaid in 2008. The risk ratios we calculated (by taking the risk scores of uninsured clinic patients and dividing them by the risk scores of Medicaid enrollees) predicted that if the low-income uninsured adults had been covered by Medicaid, they would have incurred 13% greater costs than did the actual adult Medicaid population in 2008, based on age, gender, and chronic condition status. Accordingly, it is estimated that if Medicaid were to have covered this uninsured population in 2008, that coverage would have cost an average of \$4,320 per additional person. Also of note is the much greater projected expenditure on male uninsured county-clinic patients compared with male Medicaid recipients (\$6,023 versus \$3,886). However, because men comprise only 25% of the county clinic population (Table 1), women will remain the primary source of health care costs.

Discussion

The recent economic downturn has led to declines in state revenues and to an increase in the number of people seeking Medicaid coverage, thus straining the budget of many state Medicaid programs [12]. In response to this increased demand, the federal government provided states with additional Medicaid funding through June 2011 via the American Recovery and Reinvestment Act [13]. The Affordable Care Act gives states the option to expand Medicaid eligibility to many currently uninsured people. The federal government will cover 90% to 100% of costs for newly eligible enrollees, while states will continue to share about half the costs for currently eligible enrollees. The financial impact of Medicaid expansion has not been thoroughly examined. Increased

Medicaid enrollment could strain the existing capacity of safety-net providers [14]. An accurate estimate of the cost to provide Medicaid coverage to the currently uninsured is vitally important for policymakers at the state and federal levels.

We used the CDPS method to profile the relative health risk and potential care needs of comparable groups of Medicaid recipients and low-income uninsured county-clinic patients living in Buncombe County, North Carolina. Overall, based on CDPS adjustment for the burden of illness of uninsured patients, we projected that if the low-income uninsured adults enrolled at county clinics had been covered by Medicaid, they would have incurred 13% more costs on average than did local nonelderly, nondisabled Medicaid recipients in 2008. Much of the additional spending to provide coverage for these currently uninsured individuals would be borne by the federal government, under the law's "super match" provision, which covers 100% of Medicaid expansion costs for the first few years, declining to 90% by 2020. However, some increased Medicaid enrollment is also expected by people who are currently eligible, owing to a general "woodwork" effect of the law's implementation coupled with the individual mandate. For these new enrollees, the state will bear a larger portion of the expenses, under the conventional federal match percentage.

It is important to note that our cost estimate is based on health risk status and does not account for patterns of utilization of health services. Although low-income uninsured patients had poorer health risk statuses than did Medicaid recipients, they had a similar number of hospital admissions, and they visited outpatient clinics and emergency departments considerably less often than did Medicaid recipients [15]. This finding is consistent with previous literature, which suggests that the uninsured have lower levels of utilization than do the insured, despite having greater health care needs [16-19]. This is also consistent with the lower utilization noted for immigrants [20, 21], who undoubtedly make up part of this uninsured population. Finally, our cost

TABLE 3.
Actual and Projected Mean Costs of Providing Medicaid Coverage to Study Participants in 2008

Characteristic	Medicaid Enrollees	Low-Income Uninsured Clinic Patients	
	Mean Actual 2008 Expenditure (\$)	Risk Ratio ^a	Mean Projected 2008 Expenditure (\$)
Age			
18-24	2,805	1.15	3,226
25-44	3,873	1.00	3,873
45-54	6,471	1.12	7,248
55-64	9,254	1.08	9,994
Gender			
Male	3,886	1.55	6,023
Female	3,809	1.06	4,038
No. of chronic conditions			
0	653	1.09	712
1	2,059	1.28	2,636
2-3	3,188	1.26	4,017
4+	9,963	1.27	12,653
All patients	3,823	1.13	4,320

^aRisk ratios were calculated by dividing the risk score of the low-income uninsured clinic patients by the risk score of the Medicaid enrollees. Risk scores were calculated using the Chronic Illness and Disability Payment System method.

estimate does not account for participation rates of the low-income uninsured in Medicaid. Previous studies examining past and current enrollment data suggest that even with aggressive outreach, enrollment of newly eligible individuals into Medicaid will not reach 100%, thus resulting in costs below the projected maximum [22, 23]. Moreover, undocumented immigrants remain ineligible for Medicaid.

Limitations

The sample of uninsured patients we studied, although sizable, may not represent the general condition of uninsured adults in Buncombe County. Various estimates over the past decade suggest that only about 90% of the low-income uninsured residents of Buncombe County receive at least some primary care services each year [7, 24-26]. However, those who receive no care were necessarily excluded from this claims-based study, which gives our results a tendency to overstate the health risk of the uninsured. On the other hand, some of the care received by this study population may not be reflected in the claims information we obtained, since some volunteer physicians provided no treatment information, and those that did provide such information had less incentive to report all possible diagnoses. Also, once uninsured people obtain coverage, they may increase their demand for services, which could reveal illness burden that we were not able to detect. These factors give our results a tendency to understate this population's health risk.

Our cost analysis is limited by additional imperfections in the data sources and analysis. First, we have measured only care provided by Buncombe County's 3 major safety-net

organizations and not care provided by other local providers from whom this population may have also sought care. Second, as would be true of any risk-adjustment method used in profiling Medicaid risk and setting rates, the CDPS method is imprecise, and so it may fail to account for some unobserved risk or may overstate the degree of actual difference in risk. Although the CDPS risk adjustor is well validated and is widely used for these purposes, it was developed for use with Medicaid populations. Some dimensions of risk among the uninsured may differ from those in the Medicaid populations used to validate CDPS's adjustment methods. For instance, Buncombe County's uninsured population includes more noncitizens than does its group of Medicaid enrollees, and noncitizens tend to use fewer resources relative to their medical needs [20, 21]. CDPS does not account for race, citizenship, or nationality factors [10].

Nevertheless, Buncombe County's coordinated safety-net system provides an unusual opportunity to obtain a reasonably accurate profile of a large segment of its low-income uninsured population. Using the best data sources and analytical methods available should assist government and public policy official in planning for the changes that health reform could bring. NCMJ

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