

Holes in the Safety Net: A Case Study of Access to Prescription Drugs and Specialty Care

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ABSTRACT *The health care safety net in the United States is intended to fill gaps in health care services for uninsured and other vulnerable populations. This paper presents a case study of New Brunswick, NJ, a small city rich in safety net resources, to examine the adequacy of the American model of safety net care. We find substantial gaps in access to care despite the presence of a medical school, an abundance of primary care and specialty physicians, two major teaching hospitals, a large federally qualified health center and other safety net resources in this community of about 50,000 residents. Using a blend of random-digit-dial and area probability sampling, a survey of 595 households was conducted in 2001 generating detailed information about the health, access to care, demographic and other characteristics of 1,572 individuals. Confirming the great depth of the New Brunswick health care safety net, the survey showed that more than one quarter of local residents reported a hospital or community clinic as their usual source of care. Still, barriers to prescription drugs were reported for 11.0% of the area population and more than two in five (42.8%) local residents who perceived a need for specialty care reported difficulty getting those services. Bivariate analyses show significantly elevated risk of access problems among Hispanic and black residents, those in poor health, those relying on hospital and community clinics or with no usual source of care, and those living at or below poverty. In multivariate analysis, lack of health insurance was the greatest risk factor associated with both prescription drug and specialty access problems. Few local areas can claim the depth of safety net resources as New Brunswick, NJ, raising serious concerns about the adequacy of the American safety net model, especially for people with complex and chronic health care needs.*

KEYWORDS *Access to care, Specialty care, Prescription drugs, Health care safety net.*

INTRODUCTION

Uninsured and underinsured individuals with chronic disease have increased rates of hospitalization, emergency department visits, and mortality.^{1,2} Lacking adequate coverage also puts people at risk for comparatively high rates of disability and shorter survival from chronic conditions such as renal failure, cardiovascular disease, oral disease, depression, schizophrenia, and cancer.^{3,4} People with complex or hard-to-manage chronic conditions are most likely to require the services of medical specialists, but being uninsured can present substantial barriers to these

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services. It is critically important to be able to buy the prescription medications for management of chronic health problems. Many people of modest incomes without health or prescription drug coverage forgo prescription medications or take them intermittently because of high cost.² This article explores new data on access to specialty care and prescription drugs in a vulnerable population living in an urban area rich in health care safety net resources.

ROLE OF THE HEALTH CARE SAFETY NET

The health care safety net is intended to fill gaps in access to critical health services for those who are underinsured or lack coverage all together.^{5,6} Safety net providers are diverse and include public and private hospitals and ambulatory care centers, as well as private practitioners in some instances. The Institute of Medicine questioned whether the American health care safety net is a true network or merely a patchwork of services with significant gaps.⁵ An effective safety net requires services for different types of care and facilities at different levels of care: from primary to tertiary care; for general, mental, and oral health care; and prescription medications. Specialty care, including medical, surgical, and psychiatric subspecialties, is critical to achieving positive health outcomes, especially for those with chronic conditions.³ Recent studies suggest that these services are not always accessible to people who rely on safety net services.⁷⁻⁹ Access to both primary and more advanced types of specialty care via the safety net is inconsistent,¹⁰ as is prescription drug access.¹¹

The Institute of Medicine⁵ considers public and teaching hospitals and federally qualified health centers “core” safety net providers. Public hospitals and many academic health centers have distinct missions to serve underserved populations. The FQHC program was established by the federal government and receives public funding specifically to address the medical needs of uninsured and other underserved groups. While FQHCs and related health center programs supported by the federal government are chartered to provide primary and preventive health services, their missions generally do not extend to delivering specialty care or to offering free or discounted prescription drugs.¹²

Hospitals, particularly major medical centers, may be in a better position to offer specialty care to the uninsured. But it is often the case that attending physicians are not employed by these facilities and function more like private practitioners. Moreover, the services of physicians and other independent professionals may not be reimbursable under existing public funding streams. In light of available evidence and the structural features of the core safety net, it is reasonable to ask whether—even under the best of circumstance—the safety net in the United States meets the full range of needs of the uninsured and other vulnerable populations.

THE SAFETY NET IN “AMERICA’S HEALTH CARE CITY”

In this paper, we analyze access to specialty care and prescription medications in a community that might be considered a “best case” example of the US system of providing safety net services. New Brunswick, NJ is a medium-sized city of approximately 50,000 residents. Referring to itself as “America’s Health Care City”,¹³ New Brunswick is home to a leading international pharmaceutical and health care products company, a public medical school, two major teaching

hospitals, the state's only comprehensive cancer center, a large federally qualified health center, and other health care clinics with missions to serve vulnerable populations. It is also the location of the largest campus of Rutgers, The State University of New Jersey. New Brunswick is the seat of Middlesex County, which has an ample supply of physician resources by either New Jersey or national standards. New Brunswick has nearly 300 physicians per 100,000 population, including 50 medical subspecialists per 100,000 population. These figures are considerably higher than statistics for total physician or medical subspecialty supply per 100,000 in New Jersey (238 and 38 per 100,000, respectively) or national supply (242 and 31 per 100,000, respectively).¹⁴ Compared with other US urban settings, New Brunswick is high in total physician and specialist supply, and it is similar to other urban counties in the availability of federally qualified health centers.¹⁵ Eligible residents of New Brunswick also benefit from access to among the nation's most generous state-funded prescription drug assistance programs for seniors and persons with disabilities.¹⁶

Side-by-side with its substantial health care resources, New Brunswick has a diverse and often needy population. According to the 2000 Census, the city's population is 49% white, 23% African American, and 5% Asian.¹⁷ Nearly 40% of the population identified their ethnic background as Hispanic; many of these individuals are relatively recent immigrants from Mexico. One in three New Brunswick residents is foreign born. The city has a growing local economy, but 27% of the population has family incomes below the federal poverty line. Delivery of needed services to populations with reduced income and language barriers is a growing challenge faced by most cities in the United States. While the New Brunswick population is disproportionately immigrant and Hispanic compared to other urban areas, Census projections indicate that this group is among the fastest growing in the US population.¹⁸ Thus, at least with respect to demographics, New Brunswick reflects what may be in store for the future of many American cities.

MATERIALS AND METHODS

In 2001, as part of a community-wide health improvement initiative, investigators from Rutgers University and the University of Medicine and Dentistry of New Jersey (UMDNJ) began a comprehensive community health assessment. The health assessment involved a number of activities. The first was a review and analysis of previous studies of the health of the city and its surrounding county. Two qualitative research efforts were organized to identify key health issues from the perspective of the community. Key informant interviews were carried out with major leaders in the city from government, the health care system, community organizations, and community activists.¹⁹ Following these interviews, a series of focus groups were carried out to gain perspectives from front line health and social service providers and from different sectors of the community whose voices are often not incorporated in health care discussions.²⁰ Based on content analysis of the key informant interviews and focus groups, a population-based survey was developed.

In 2004, the Rutgers Center for State Health Policy, in collaboration with investigators from UMDNJ and a community advisory group, designed and implemented the Healthier New Brunswick Community Survey (HNBCS) to quantify key health needs and health services concerns from a representative sample of the resident population of New Brunswick.

Survey Methods

The HNBCS, a telephone survey of households in New Brunswick and contiguous neighborhoods in Somerset, NJ, was completed in 2004.* Survey procedures and its questionnaire was reviewed and approved by the Rutgers University Institutional Review Board. The primary survey sample was drawn by random-digit-dial methods, augmented by a small supplemental area probability sample (7% of the sample) in four Census tracts with low telephone coverage. Households selected in the area probability sample were screened for the presence of a landline telephone and, if they had none, were provided with a cell phone to complete the interview.† Using screener questions, persons living in the survey catchment area primarily to attend college were excluded from the sample. While the health of college students is important, they were excluded from this study because they have access to university health services and are unlikely to rely on local safety net resources. Within each selected household, the person most knowledgeable about the family's health and health care was asked to respond on behalf of all family members (defined as all persons living in the household related by blood, guardianship, marriage, or domestic partnership). A total of 595 interviews were completed, generating information for 1,572 household members. The average interview length was 40 minutes. Interviews were conducted in English or Spanish.

The random-digit-dial and area probability samples were combined and analyzed using sampling weights that adjusted for unequal probabilities of selection and population distributions to reflect local Census demographics. Only 4% of eligible households contacted refused to participate in the survey and the survey response rate was 52.3%. While higher response rates are always desirable, this rate is better than those achieved on many comparable surveys. For example, the 2006 Behavioral Risk Factor Surveillance Survey, sponsored by the US Centers for Disease Control, achieved a median state-level response rate of 51.4%, with a minimum of 35.1% in New Jersey and a high of 66.0% in Nebraska.²¹ Moreover, comparisons of response rates in major national household surveys demonstrates that although average response rates vary widely and have declined over time, there is little evidence that obtaining higher response rates can reduce non-response bias.^{22,23} Given this evidence, coupled with strategies to include households without telephones, we conclude that our sample is likely to provide a good representation of the New Brunswick population.

Key Variables

Respondents were queried about health insurance status, access to care, health status, and demographic and socioeconomic characteristics. Prescription drug access was assessed by asking respondents if they had been unable to pay for prescription medications or had taken medications intermittently to delay the point at which they needed to buy more. Specialty care access was assessed using several questions. First, respondents were asked if they (or other family members) had ever been told by a health professional that they needed care from a specialist (defined as "doctors like surgeons, heart doctors, allergy doctors, skin doctors, and others who specialize in

*Neighboring Somerset was included in the survey because qualitative interviews revealed this area relies extensively on the safety net health care resources in New Brunswick.

†The study employed members of the local community to enumerate and screen households in the area probability sample.

one area of health care”), and if they were not, they were asked if they perceived a need for such care. Individuals for which either professionally or self-assessed need for specialty care was reported are classified as “specialty care needed.” For each household member so classified, respondents were asked how easy or difficult it was to get to see a specialist (very easy, somewhat easy, somewhat difficult or very difficult). Household members needing specialty care with access reported as somewhat or very difficult were classified as having a specialty care access problem.

Analysis

We used the model first developed by Andersen²⁴ to identify factors and characteristics potentially affecting use of health care services. The model identifies “predisposing” factors (race/ethnicity, gender, age, and language), “enabling” factors (health insurance coverage, type of usual source of care, and family income), and health-related “need” measures. Because of the high cost of health care and cost of living more generally in New Jersey, “low income” is defined as family income at or below 250% of the federal poverty level.

We grouped need characteristics as being respondent or professionally assessed. Respondent assessed need variables include reports of significant symptoms in the prior 3 months; whether those symptoms were new during that period; overall general, mental, and dental health status; and perceived need for care. Symptom classification was based on the model developed by Baker and Shapiro.²⁵ Morbid symptoms are those symptoms suggestive of decreased productivity or disability such as ankle sprain or joint pain. Serious symptoms are those that suggest a need for screening for potentially life threatening illness such as dyspnea or angina. Professionally assessed variables include indicators of whether a health provider ever diagnosed asthma, diabetes, high blood pressure, or cholesterol, and whether certain health care services had been utilized. Selected measures of health services use (emergency department use, dental check up, and mental health service use) are employed as proxy indicators of health service needs.

In descriptive analysis, chi-square tests were used to examine relationships between predisposing, enabling, and need characteristics and the outcomes of interest: prescription drug access and need for, and access to, specialty care. Multi-variable logistic regression was used to test for the relationships among the range of factors that influence prescription drug and specialty care access. Service utilization variables are not included in the multivariate analysis because while they are intended as proxy measures for need for care, they also clearly reflect accessibility of services.

RESULTS

Access to Care: Key Informant and Focus Group Findings

Both the key informant interviews and focus groups identified access to care and barriers to utilization as the key health care issues among New Brunswick residents. Particular concerns from the key informant interviews included lack of insurance or underinsurance, language and cultural barriers, undocumented immigration status, and difficulties getting to services because of location and lack of transportation.¹⁹ A related issue was the challenges of providing health care to a culturally diverse population, in particular the rapidly growing community of immigrants from Mexico. Key informants also highlighted fragmentation of health services, particularly the need to visit multiple sites to address chronic health problems as a key issue.

Access to health care was also the major issue that emerged in the focus group interviews with a range of community providers and residents.²⁰ The majority of participants were current or past users of health care resources in the city, including many who are frequent users of safety net resources. Some were also front-line health care providers. Participants identified a wide range of access issues and made it clear that access is a complex problem in New Brunswick. Lack of health insurance, the large number of undocumented residents, and the lack of bilingual personnel in the health care system were all important issues that were brought up by respondents across the focus groups. Insurance issues loomed large for residents of New Brunswick. There is a large group of residents who do not have health insurance at all. These include undocumented immigrants, homeless individuals, and working poor families. Many residents had public insurance, but found that their access to health care resources was severely limited by who accepted public insurance.

A related issue was how the changing insurance climate affected the reception of community residents in the health care system. Even those with insurance felt declining respect from their health care providers. When they came for health care, instead of being asked how they were and what their problem was, the first question they were asked was did they have insurance and what kind. Another important access issue was the severe overcrowding of primary health care services because they were the major resources for those with public insurance or who were uninsured. In spite of New Brunswick's relatively small size, some people also cited transportation as a problem. For the growing Latino community in New Brunswick, language issues were significant barriers to gaining access to health care. A second impact of language in receiving quality care was receiving and understanding appropriate instructions about treatment and medications.

A follow-up qualitative study²⁶ to the survey highlighted related important issues. One was the high number of serious conditions within each household. Thus, not only access to specialty care and prescription drugs is an issue in general, but the coordination of that care when people have multiple chronic conditions is essential to good health. Another important issue was the need by poor and non-English-speaking families for assistance in navigating through the health care system for these diverse and complex health problems. These qualitative studies together enforce the need for prescription medications and specialty care in the community and the problems in appropriate access to such care.

Access to Medications and Specialty Care: Results of the Community Health Survey

Most predisposing and enabling factors were associated with prescription drug access in bivariate analyses (Table 1). Eleven percent of household survey members were reportedly unable to pay for prescribed medications or had taken less of a prescription to make it last longer (third column, Table 1). African Americans were almost twice as likely and Hispanics were 1.5 times as likely to report a prescription drug access problem compared with whites. Females were 1.5 times more likely to report limited access to prescription medications compared to males. Adults were also many times more likely to be unable to afford prescription medications as compared with children 17 and under. Whether or not English was the language spoken at home was not associated with a prescription drug access problem.

One in four members of the study population was uninsured, and these residents were nearly twice as likely to be unable to afford prescription medications or to have taken lower doses as recommended compared with insured residents. Those whose

TABLE 1 Predisposing and enabling characteristics of New Brunswick residents by reported prescription drug and specialty care access problems

Resident Characteristics	Total		Prescription Drug Access Problem		Specialty Care		
	Percent	Number	Percent	<i>p</i> value	Needed	Access Problem	<i>p</i> value
					Percent	Percent	
Total	100.0	1,572	11.0	—	17.6	42.8	—
Predisposing							
Race and Ethnicity							
White and other	23.0	361	7.4	0.03	27.7	32.4	0.0001
African American/Black	26.3	413	13.2		21.0	28.7	
Hispanic/Latino	50.7	789	11.7		13.5	65.6	
Gender							
Female	53.4	840	13.5	0.002	19.8	43.0	ns
Male	46.6	732	8.5		18.4	42.5	
Age (in years)							
17 or under	30.4	478	2.6	0.0001	10.5	26.6	0.04
18–37	34.4	541	14.7		16.2	51.3	
38 and older	35.2	533	10.6		24.9	29.7	
Language Spoken at Home							
Non-English	47.0	833	11.1	ns	24.7	66.4	0.0001
English	53.0	739	10.9		12.5	32.7	
Enabling							
Insurance Coverage							
Uninsured	25.0	392	16.8	0.0001	14.7	78.4	0.0001
Insured	75.0	1,179	8.9		20.7	33.6	
Usual Source of Care							
Private office	50.1	789	9.4	0.05	22.1	32.7	0.0003
Hospital or Community Clinic	27.5	433	14.2		19.2	54.9	
None or Emergency Department	22.3	350	11.1		12.9	58.2	
Family Income							
At poverty or below	57.6	905	13.4	0.001	17.3	51.5	0.003
Above poverty	42.4	667	8.2		21.3	34.4	

Percentages and *p* values based on weighted data; numbers are unweighted sample sizes (see text)
ns not statistically significant (*p* value greater than 0.05)
 Source: Healthier New Brunswick Community Survey, 2002

usual source of care was reported to be a traditional safety net provider—a hospital or community clinic—were somewhat more likely to report a prescription drug access problem compared to those with a private physician as their usual source. Those who depended on a hospital or clinic as their usual source of care represent more than one in four members of the study population, underscoring the significant role of these institutions in the New Brunswick area. Poor and near-poor persons, i.e., with family incomes below 2.5 times the federal poverty level, were 1.5 times more likely to have problems of prescription drug access.

Nearly 18% of respondents were reported to need specialty care (fifth column, Table 1). Of these, whites reported the highest level of need, followed by African Americans and Latinos. It is not surprising that older individuals also reported a higher level of need for specialty care. Those who did not speak English at home reported about half the need for specialty care of those who spoke English. This appears to be a reflection of what has been termed the “Latino Paradox”: that more recent Latino immigrants have better health status than those who have been in the United States longer or were born here.²⁷ The insured, those with a private doctor as their usual source, and those with low incomes were disproportionately likely to be reported in need of specialty care.

Of those reported with a specialty care need, 43% reported problems in gaining access (seventh column, Table 1). Hispanic residents reported as needing specialty care were twice as likely to lack adequate access compared with whites or African-Americans residents. Gender did not have a significant association with specialty access, but children and older adults (aged 38 and older) were less likely to be reported with specialty access problems than young adults 18–37 years of age. Among those who needed specialty care, those who did not speak English at home were twice as likely as those who spoke English to lack access to specialty care.

Residents needing specialty care who have some form of health coverage were more than twice as likely to have access problems compared to the uninsured, while those near or below the poverty line were more likely to experience access difficulties. Those whose usual source of care was a private doctor’s office were much less likely to lack specialty care access than those relying on safety net facilities or those without a stable usual source.

Table 2 reports on the relationship between self-assessed health needs and access to prescription medicines and specialty care. Residents reported in fair or poor general, oral, and mental health, were three times more likely to report prescription medication access problems compared with those in excellent, very good, or good health across these three dimensions of health. Residents reported with morbid, serious, or any new symptoms were three to four times more likely to face prescription drug access barriers. Those who needed specialty care were also more likely to be reported with a prescription drug access problem.

Respondents who reported dimensions of fair or poor health were much more likely to report needing specialty care (fifth column, Table 2), and those needing specialty care were 1.5 to two times more likely to be reported with problems in specialty care compared with those reported in better health. Those residents with new or serious symptoms were significantly more likely to be reported in need of specialty care and with inadequate access to that care. Residents who could not afford prescription medications were twice as likely to have poor specialty access compared with those without a prescription medication access problem.

Those with professionally assessed health care needs were also more likely to experience problems in access to prescription drugs (third column, Table 3).

TABLE 2 Self-assessed health needs of New Brunswick residents by reported prescription drug and specialty care access problems

Self-Assessed Need	Total		Prescription Drug Access Problem		Specialty Care			
	Percent	Number	Percent	p value	Needed		Access Problem	
					Percent	p value		Percent
General Health Status								
Excellent, Very Good or Good	80.2	1,258	7.2	0.0001	15.5	0.0001	36.9	0.01
Fair or Poor	19.8	311	24.3		31.1		52.8	
Oral Health Status								
Excellent, Very Good or Good	72.9	1,145	7.2	0.0001	17.4	0.01	34.4	0.0001
Fair or Poor	27.1	425	20.3		23.0		58.3	
Mental Health Status								
Excellent, Very Good or Good	84.2	1324	7.6	0.0001	14.8	0.0001	32.8	0.0001
Fair, Poor, or symptoms	15.8	248	26.8		40.0		60.6	
Morbid Symptoms								
Yes	19.8	311	25.6	0.0001	41.0	0.0001	47.5	ns
No	80.2	1,261	6.6		12.4		37.9	
Serious Symptoms								
Yes	17.7	278	28.0	0.0001	41.7	0.0001	53.3	0.001
No	82.3	1,294	6.6		13.1		33.8	
New Symptoms								
Yes	11.8	185	30.1	0.0001	42.5	0.0001	53.8	0.01
No	88.2	1,387	7.9		15.3		37.8	
Prescription Drug Access Problem								
Yes	9.7	152	-	-	43.8	0.0001	64.4	0.0001
No	90.3	1,420	-	-	16.0		35.4	
Specialty Care Needed								
Yes	17.6	276	25.3	0.0001	-	-	-	-
No	82.4	1,296	7.7		-		-	

Percentages and *p* values based on weighted data, numbers are unweighted sample sizes (see text)
ns not statistically significant (*p* value greater than 0.05)
 Source: Healthier New Brunswick Community Survey, 2002

TABLE 3 Professionally assessed health needs and service utilization of New Brunswick residents by reported prescription drug and specialty care access problems

Professionally Assessed Need	Total		Prescription Drug Access Problem		Specialty Care		Access Problem	
	Percent	Number	Percent	<i>p</i> value	Percent	<i>p</i> value	Percent	<i>p</i> value
Asthma								
Yes	9.3	147	21.8	0.0001	41.7	0.0001	36.5	n.s.
No	90.7	1,425	10.0		16.9		44.3	
Diabetes								
Yes	6.2	98	27.7	0.0001	36.2	0.0001	37.0	n.s.
No	93.7	1,474	9.7		17.7		43.7	
High Blood Pressure								
Yes	12.5	197	18.3	0.0001	31.9	0.0001	38.9	n.s.
No	87.5	1,375	9.8		16.9		44.1	
High Cholesterol								
Yes	12.0	156	17.2	0.002	36.9	0.0001	45.8	n.s.
No	88.0	1,384	10.1		16.2		41.6	
Utilization of Services								
Visited Emergency Department Past Year								
Yes	13.9	219	22.6	0.0001	44.5	0.0001	44.3	n.s.
No	86.1	1,353	9.2		15.0		42.0	
Dental Check Up Past Year								
Yes	42.5	668	10.6	n.s.	22.1	0.01	36.0	0.03
No	57.5	904	11.3		17.0		49.0	
Mental Health Use Past Year								
Yes	4.5	71	31.8	0.0001	45.9	0.0001	45.6	n.s.
No	95.5	1,501	10.0		17.7		42.4	

Percentages and *p* values based on weighted data; numbers are unweighted sample sizes (see text)

*n*s not statistically significant (*p* value greater than 0.05)

Source: Healthier New Brunswick Community Survey, 2002

Residents who were diagnosed by a health professional with chronic conditions such as diabetes, asthma, hypertension, or elevated cholesterol were twice as likely to be unable to afford prescription medications. Residents using emergency department services were also twice as likely to be unable to afford prescription medications, and were at high risk of needing specialty care. However, emergency department use was not associated with specialty care access among those reported in need of such care. Residents receiving mental health services were threefold as likely to be unable to afford prescription medications.

The relationships between professionally assessed health need and the need for and access to specialty care showed a somewhat different pattern (fifth and seventh columns, Table 3). Those who reported that physicians had diagnosed them with a chronic disease reported greater need for specialty care, but not greater access problems. Specialty care need was also associated with utilization of the selected services examined. However, access problems varied little by service utilization.

Factors Predicting Prescription Access Problems

We employed logistic regression models to identify the most quantitatively important factors associated with access to prescription medications (Table 4). Our modeling strategy followed the Anderson model and cumulatively assessed the contributions of predisposing, enabling, and need factors. In models controlling for predisposing factors alone, African Americans and Hispanics had two to 2.5 times greater odds, respectively, of being unable to afford prescription medications as compared to whites. Women and girls had 1.6 times greater odds of prescription drug access problems than men and boys, and children under 17 had lower odds of these problems compared to adults of any age.

When enabling factors were added to the model, the association of most predisposing factors with prescription drug access problems was unchanged. The difference seen between blacks and whites in the predisposing-only model declined below the level of statistical significance, while the relative odds of not speaking English at home also declined. In Model 2, living in a non-English-speaking household was associated with lower odds of having a prescription drug access problem.

Being uninsured was the major enabling factor associated with lack of access to prescription medications; those who were uninsured had 2.2 times greater odds of being unable to access prescriptions compared to those with some form of coverage. Members of poor and near-poor families had 1.6 times greater odds of having prescription access difficulties. No differences were observed in prescription access by usual source of care.

When need factors were added to the model, none of the predisposing factors remained significant and lack of insurance remained the lone significant enabling factor associated with prescription drug access problems. Many of the need factors were significant. Those in fair or poor general and oral health, those with more symptoms and those with new symptoms all had approximately twice the odds of reporting prescription drug access problems compared to those in better health.

Factors Predicting Specialty Care Access Problems

Among those reported in need of specialty care, the predictors of specialty care access problems followed a different pattern than those for prescription drug access problems (Table 5). Hispanics were more likely to experience specialty care access problems than whites, although as enabling and need factors were added the relative

TABLE 4 Relative odds of prescription drug access problems among New Brunswick residents

Resident Characteristics	Model 1		Model 2		Model 3	
	Odds Ratio	95% CI	Odds Ratio	95% CI	Odds Ratio	95% CI
Predisposing Factors						
Race and Ethnicity						
Black/African American	2.0	1.2–3.2	1.5	0.9–2.5	1.7	1.0–2.8
Hispanic	2.5	1.4–4.4	2.0	1.1–3.7	1.8	0.9–3.4
White and other	ref		ref		ref	
Female	1.6	1.1–2.2	1.5	1.1–2.2	1.2	0.8–1.7
Age (in years)						
17 or under	0.2	0.1–0.5	0.2	0.1–0.6	0.6	0.3–1.4
18 – 37	1.6	1.1–2.2	1.9	1.3–2.7	1.4	0.9–2.1
38 and older	ref		ref		ref	
Language other than English	0.8	0.5–1.3	0.5	0.3–0.9	0.5	0.3–1.0
Enabling Factors						
No Health Coverage			2.2	1.4–3.3	2.3	1.4–3.7
Usual Source of Care						
Private office			ref		ref	
Hospital or community clinic			1.3	0.8–2.0	1.1	0.7–1.7
None or emergency department			0.9	0.5–1.4	0.9	0.5–1.4
Family Income at Poverty or Below			1.6	1.1–2.4	1.3	0.9–1.9
Need Factors						
General Health Fair or Poor ¹					1.8	1.2–2.7
Oral Health Fair or Poor ¹					1.7	1.1–2.5
Mental Health Fair or Poor ¹					1.0	0.6–1.7
Symptoms Reported ²					1.8	1.1–2.7
New Symptoms ³					2.1	1.3–3.4
Professionally Assessed Chronic Condition ⁴					1.3	0.9–2.0

Based on logistic regression (see text)

ref reference group

¹Compared to excellent, very good or good

²Based on symptom-response index, see text

³Onset in prior 3 months

⁴Asthma, diabetes, hypertension or high cholesterol

Source: Healthier New Brunswick Community Survey, 2002

TABLE 5 Relative odds of specialty care access problems among New Brunswick residents

Resident Characteristics	Model 1		Model 2		Model 3	
	Odds Ratio	95% CI	Odds Ratio	95% CI	Odds Ratio	95% CI
Predisposing Factors						
Race and Ethnicity						
Black/African American	0.9	0.5–1.8	0.7	0.3–1.4	0.7	0.3–1.3
Hispanic	3.1	1.5–6.3	2.1	0.9–4.7	2.2	1.0–4.8
White and other	ref		ref		ref	
Female	0.8	0.5–1.3	0.8	0.5–1.3	0.8	0.4–1.4
Age (in years)						
17 or under	0.2	0.1–0.6	0.2	0.1–0.7	0.3	0.1–0.8
18 – 37	0.8	0.5–1.4	0.9	0.5–1.6	0.9	0.5–1.7
38 and older	ref		ref		ref	
Language other than English	2.2	1.1–4.5	1.6	0.6–3.4	1.5	0.7–3.2
Enabling Factors						
No Health Coverage			4.0	1.7–9.3	3.9	1.6–9.2
Usual Source of Care						
Private office			ref		ref	
Hospital or community clinic			1.1	0.6–2.3	1.0	0.5–2.0
None or emergency department			1.1	0.5–2.3	0.9	0.4–2.2
Family Income at Poverty or Below			1.1	0.6–2.0	1.1	0.6–1.9
Need Factors						
General Health Fair or Poor ¹					1.2	0.6–2.4
Oral Health Fair or Poor ¹					1.5	0.8–2.8
Mental Health Fair or Poor ¹					1.2	0.6–2.7
Symptoms Reported ²					0.7	0.3–1.4
New Symptoms ³					1.9	1.0–3.8
Professionally Assessed Chronic Condition ⁴					1.0	0.6–1.8

Based on logistic regression (see text)

ref reference group

¹Compared to excellent, very good, or good

²Based on symptom–response index, see text

³Onset in prior 3 months

⁴Asthma, diabetes, hypertension or high cholesterol

Source: Healthier New Brunswick Community Survey, 2002

odds for Hispanics dropped below the level of statistical significance. Children 17 and under were much less likely to experience access problems than adults across all models. Lack of insurance coverage was the strongest predictor of specialty care access problems, with relative odds of access problems four times higher for the uninsured compared to those with coverage. Those who reported new symptoms and who had recently become aware of potential health problems were twice as likely to report access problems.

DISCUSSION

Eleven percent of New Brunswick residents reportedly experienced barriers in access to prescription medications. This led people to either not obtain their medications or to take them less often than prescribed to prolong their availability. This finding is consistent with previous studies that showed that US residents stretch their medications if they cannot afford them.^{2,28} People who are not able to take prescribed, required medications are most at risk for costly, catastrophic events such as hospitalization and mortality.¹ There are clear ethnic disparities in New Brunswick in access to prescription medicines, a finding that parallels national data.²⁹ Lack of health insurance also is a strong predictor of prescription access problems, although Latinos are significantly more likely to experience barriers to prescription drugs even after controlling for insurance status. This suggests that enhancing prescription support interventions targeted to minority communities and uninsured populations might be successful in reducing barriers. Poor health status and the presence of specific chronic diseases were also associated with restricted prescription medication access, reflecting greater need for drugs in these groups. Many medications for chronic diseases, such as diabetes, are innovative and useful as well as being new and expensive. People with diabetes with limited prescription support may not have access to these medications; a recent European study found that level of health insurance affected access to newer prescription medications.³⁰ Access to prescription drugs is a weak link in the ability of the safety net to address the needs of vulnerable populations.

Gaps in access to medical specialty care among those with professionally or self-assessed need for that care are even greater than reports of prescription drug access problems. Forty-three percent of New Brunswick area residents with specialty care needs had reduced access to care. They found specialty care difficult to obtain or did not attempt to obtain it, even when they or their health provider thought it appropriate. Hispanic ethnicity and language spoken at home are associated with *less* reported need for specialty care, but much higher likelihood of specialty access problems. These data suggest that immigrants may arrive in the New Brunswick healthier, but have especially great difficulty getting care when needed. These results suggest that language barriers may place significant limits on access. They may also reflect less knowledge of how to access health care services and more concerns about seeking services if persons lack immigration documentation.

Children were protected from reduced access in all models. Children are healthier than adults, so are less likely to need and experience barriers to care. In regression models of barriers to specialty care, controlling for a wide range of health factors, children remain at lower risk of experiencing barriers to care. This may be due to New Jersey's well supported SCHIP program, with high income eligibility levels for public coverage. These results add to other research that demonstrate a positive effect of the SCHIP programs and argues for their continuation.³¹

For uninsured adults who need specialty care, the safety net does not function as well. Lack of insurance coverage was the strongest predictor of access problems in specialty care. Once again, these findings indicate that insurance does matter. These findings parallel a previous study where generalist faculty at an academic medical center had difficulty successfully referring uninsured patients to specialty care.⁸

Our conclusions are subject to caveats. First, like other studies based on household surveys, it is important to note that findings reflect respondent perception, not clinical evaluations. Also, although only a small number of sampled household representatives actively refused to participate, interviews could not be completed with almost half of those selected. Surveys relying on random-digit-dialing sampling risk missing persons living in households without telephones. Our study compensated for this potential bias by including households without phones in an area probability sample and by adjusting sampling weights for telephone coverage history. Finally, it is also important to note that our analyses of specialty care access are limited to fewer than 300 survey participants (i.e., those reported to have a specialty care need).

CONCLUSION

Our data show that there are “holes in the safety net” for uninsured and other vulnerable residents of greater New Brunswick, NJ. In many ways, New Brunswick can be considered a “best case” of the American safety net. This small urban community offers a rich array of safety net services—including two teaching hospitals, a medical school, a federally qualified health center and other community resources. Middlesex county, home to New Brunswick, also has a supply of physicians, including specialists, far greater than the US or New Jersey average.

Despite the wealth of local health care resources, our study showed that more than one in ten local residents experience barriers to prescribed medications and over four in ten of those reporting a need for specialty care access experience barriers to that care. This is in a city with demonstrated commitment to caring for all of its residents. Our findings point to significant holes in the American safety net, even in the presence of the rich health care resources that are commonly found in urban centers. Further, our findings suggest the current structure of the US safety net does not provide adequate access to prescription drugs or specialty care, and that policy changes are needed to assure access to these services for low-income and uninsured populations.

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REFERENCES

1. Tamblyn R, Laprise R, Hanley JA, et al. Adverse events associated with prescription drug cost-sharing among poor and elderly persons. *JAMA*. 2001;285(4):421–429.
2. Kennedy J, Erb C. Prescription noncompliance due to cost among adults with disabilities in the United States. *Am J Public Health*. 2002;92(7):1120–1124.
3. U.S. Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office (GPO); November 2000.
4. Kinchen KS, Sadler J, Fink N, et al. The timing of specialist evaluation in chronic kidney disease and mortality. *Ann Intern Med*. 2002;137(6):479–486.
5. Institute of Medicine. *America's Health Care Safety Net: Intact but Endangered*. Washington, DC: National Academies Press; 2000.
6. Billings J, Weinick R. *Monitoring the Health Care Safety Net*. Rockville, MD: U.S. Dept. of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research; 2003. AHRQ Publication No. 03-0025-03-0027.
7. Gusmano MK, Fairbrother G, Park H. Exploring the limits of the safety net: community health centers and care for the uninsured. *Health Aff*. 2002;21(6):188–194.
8. Weissman JS, Moy E, Campbell EG, et al. Limits to the safety net: teaching hospital faculty report on their patients' access to care. *Health Aff (Millwood)*. 2003;22(6):156–166.
9. Felland LE, Felt-Lisk S, McHugh M. Health care access for low-income people: significant safety net gaps remain. Issue Brief No. 84. Washington, DC: Center for Studying Health System Change; June 2004.
10. Cunningham PJ, Kemper P. Ability to obtain medical care for the uninsured: how much does it vary across communities? *JAMA*. 1998;280(10):921–927.
11. Xu KT, Smith SR, Borders TF. Access to prescription drugs among noninstitutionalized elderly people in west Texas. *Am J Health Syst Pharm*. 2003;60(7):675–682.
12. Health center program expectations. Bureau of Primary Health Care Web site. Available at: <http://bphc.hrsa.gov/chc/programexpectations.htm>. Accessed October 10, 2007.
13. Health care. New Brunswick City Market Web site. Available at: http://www.newbrunswick.com/content.php?content=Health%20Care_block. Accessed October 10, 2007.
14. Brownlee S, Cantor JC. *Availability of Physician Services in New Jersey: 2001–2006*. New Brunswick, NJ: Rutgers Center for State Health Policy; 2007.
15. Safety Net Profile Tool. Agency for Healthcare Research and Quality Web site. Available at: <http://hcup.ahrq.gov/SafetyNet/SafetyNet.asp>. Accessed February 1, 2008.
16. Trail T, Fox K, Cantor J, Silberberg M, Crystal S. *State Pharmacy Assistance Programs: A Charbook*. New York: The Commonwealth Fund; 2004 August.
17. New Brunswick (city) QuickFacts from the U.S. Census Bureau. U.S. Census Bureau Web site. Available at: <http://quickfacts.census.gov/qfd/states/34/3451210.html>. Accessed October 10, 2007.
18. Day JC. *Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1995 to 2050 (Current Population Reports, Series P-25 No. 1130)*. Washington, DC: U.S. Bureau of the Census; 1996 February.
19. Silberberg M, Davis DA, Diaz Y, Walls B. *Health and Health Care for the Residents of New Brunswick: Stakeholder Views*. New Brunswick, NJ: Rutgers Center for State Health Policy; 2004.
20. Guarnaccia P, Martinez I, Silberberg M, Cantor JC, Davis DA. *Health and Health Care for the Residents of New Brunswick: Focus Group Perspectives. A Report of the New*

- Brunswick Community Health Assessment*. New Brunswick, NJ: Rutgers Center for State Health Policy; 2004.
21. Behavioral Risk Factor Surveillance System Summary Data Quality Report. Centers for Disease Control and Prevention Web site. Available at: <http://ftp.cdc.gov/pub/Data/Brfss/2006SummaryDataQualityReport.pdf>. Accessed February 1, 2008.
 22. Groves RM. Nonresponse rates and nonresponse bias in household surveys. *Public Opin Q*. 2006;70(5):646–675.
 23. Curtin R, Presser S, Singer E. Changes in telephone survey non-response over the past quarter century. *Public Opin Q*. 2005;69(1):87–98.
 24. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav*. 1995;36(1):1–10.
 25. Baker DW, Shapiro MF, Schur CL, Freeman H. A revised measure of symptom-specific health care use. *Soc Sci Med*. 1998;47(10):1601–1609.
 26. Tiedemann A, Scotto Rosato N, Ghajar M. *Perspective on Urban Health Care: Patients with Chronic Medical or Mental Health Conditions*. New Brunswick, NJ: Rutgers Center for State Health Policy; 2008 (in press).
 27. Vega WA, Sribney WM, Aguilar-Gaxiola S, Kolody B. 12-month prevalence of DSM-III-R psychiatric disorders among Mexican Americans: nativity, social assimilation, and age determinants. *J Nerv Ment Dis*. 2004;192(8):532–541.
 28. Kennedy J, Coyne J, Sclar D. Drug affordability and prescription noncompliance in the United States: 1997–2002. *Clin Ther*. 2004;26(4):607–614.
 29. Institute of Medicine. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington, DC: National Academies Press; 2002.
 30. Krobot KJ, Miller WC, Kaufman JS, Christensen DB, Preisser JS, Ibrahim MA. The disparity in access to new medication by type of health insurance: lessons from Germany. *Med Care*. 2004;42(5):487–491.
 31. Lambrew JM. *The State Children's Health Insurance Program: Past, Present, and Future*. New York: The Commonwealth Fund; 2007 February.