
Access of Rural AFDC Medicaid Beneficiaries to Mental Health Services

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This article examines geographic differences in the use of mental health services among Aid to Families with Dependent Children (AFDC)-eligible Medicaid beneficiaries in Maine. Findings indicate that rural AFDC beneficiaries have significantly lower utilization of mental health services than urban beneficiaries. Specialty mental health providers account for the majority of ambulatory visits for both rural and urban beneficiaries. However, rural beneficiaries rely more on primary-care providers than do urban beneficiaries. Differences in use are largely explained by variations in the supply of specialty mental health providers. This finding supports the long-held assumption that lower supply is a barrier to access to mental health services in rural areas.

INTRODUCTION

Medicaid plays an increasingly important role in the delivery of mental health services, particularly in rural areas (Wagenfeld et al., 1994). Besides funding services for adults with severe and persistent mental illness (eligible through disability provisions under Supplemental Security Income [SSI]), Medicaid covers a growing proportion of low-income women and children, many of whom rely on Medicaid to pay for mental health services. This group, which tends to have

mild to moderate mental health problems, includes women and children receiving cash assistance under AFDC and children eligible through federally mandated expansions of family-income eligibility levels (Omnibus Budget Reconciliation Acts [OBRA] of 1985, 1986, 1987, and 1989). States have increasingly used Medicaid matching funds to maximize Medicaid reimbursement for treatment of persons with mental illness (both SSI and AFDC eligibles).

Access of rural persons to mental health care has been a long-standing concern of policymakers and rural advocates (National Advisory Committee on Rural Health, 1993). Major barriers to mental health care include the shortage of specialty mental health providers in rural areas and the reluctance of rural persons to seek care from mental health providers because of stigma associated with mental illness (Office of Technology Assessment, 1990; Wagenfeld et al., 1994). Without an adequate supply of specialty mental health providers, there is a greater reliance in rural areas on primary-care providers to diagnose and treat persons with mental health problems (Regier et al., 1993).

The capacity of the rural primary-care system to address the mental health needs of rural citizens is limited, however. Rural primary-care providers willing and able to provide mental health care are often in short supply. Some rural primary-care providers may not have the knowledge, skill, or time to diagnose and treat many mental health problems. Access to care

The research presented in this article was funded by the Health Resources and Services Administration under Grant Number 000004-02. The authors are with the Maine Rural Health Research Center, Edmund S. Muskie Institute of Public Affairs, University of Southern Maine. The opinions expressed are those of the authors and do not necessarily reflect those of the Health Care Financing Administration, the Health Resources and Services Administration, or the University of Southern Maine.

may be further compromised for Medicaid beneficiaries by the limited willingness of primary-care providers to accept Medicaid patients (Long, Settle, and Stuart, 1986; Rosenbach, 1989).

Over the years, there has been a variety of policy and program initiatives aimed, either primarily or in part, at better meeting the mental health needs of rural persons. These initiatives include the Rural Health Initiative and Health Underserved Rural Area grants of the 1970s; the Federal Linkage Initiative program of 1978-80; and, more recently, the 1994 Agency for Health Care Policy and Research Depression Guidelines. These programs are often designed without a clear understanding of either patterns of mental health use by rural persons or access barriers that rural (particularly low-income) persons face. Additionally, neither the effects of health professional shortages on access nor the respective roles played by specialty and primary-care practitioners in providing mental health care are well understood. Efforts to study the use of rural mental health services (particularly ambulatory services) have been severely hampered since 1981, when OBRA 1981 eliminated the requirement that Community Mental Health Centers (CMHCs) keep detailed records on populations served (Office of Technology Assessment, 1990).

This article addresses this gap by examining patterns of use of mental health services among rural Medicaid beneficiaries in Maine. Two principal questions are examined:

- Do rural Medicaid beneficiaries have lower utilization of and access to mental health care than urban beneficiaries?
- To what extent are geographic differences in use associated with where beneficiaries receive care and the supply of specialty mental health providers?

BACKGROUND

Rural Prevalence of Mental Health Disorders

The most comprehensive study of prevalence of mental health disorders—the Epidemiologic Catchment Area (ECA) program—found no substantial differences in rates of mental illness between rural and urban populations (Robins, Locke, and Regier, 1991).¹ Although there are no specific studies of the prevalence of mental health disorders among rural and urban Medicaid beneficiaries, there are factors which might contribute to differences in prevalence between the two populations. It is commonly believed that persons with severe and persistent mental illness tend to migrate to urban centers. This migration may result from the availability of specialty mental health providers, temporary housing, and job training, or the camaraderie of other persons with similar conditions in urban areas.

Rural Mental Health Service Delivery and Medicaid

Many rural areas lack public specialty mental health providers. Psychiatrists are highly concentrated in metropolitan areas; in 1986, nearly 94 percent of all psychiatrists lived in metropolitan areas (Bureau of Health Professions, 1993). In the same year, 61 percent of the total rural population lived in psychiatric shortage areas (Bureau of Health Professions, 1993). Ninety-five percent of urban counties in major or medium-sized metropolitan areas had psychiatric inpatient services, compared with 13 percent of rural counties (Wagenfeld et al.,

¹ There is some concern of a bias in the ECA's estimation of prevalence of mental disorders in rural areas, since rural estimates are based on sites that are geographically close to St. Louis, Missouri and Durham, North Carolina (Wagenfeld et al., 1994).

1988). In the absence of more highly credentialed specialty providers and facilities, private mental health systems have tended not to develop in rural areas.

Without a private system, the public mental health system is often the only source of specialty mental health care in rural communities. During the last decade, the role of the rural public mental health system, anchored by CMHCs, has shifted from providing services that address a range of conditions and populations to serving primarily the needs of severely and persistently mentally ill persons (Wagenfeld et al., 1994). This shift was precipitated by OBRA 1981, which severed direct Federal funding for CMHCs and moved such funding into State block grants; additionally, OBRA 1981 cut mental health funding by 25 percent. With the shift from categorical to block-grant funding, State mental health authorities had significant influence over which populations were to be served and which services provided. As public mental health authorities downsized their State institutions, they increasingly required CMHCs to treat persons with severe and persistent mental illness, thus limiting the capacity of CMHCs to serve rural persons with mild to moderate mental health problems. Block grants also increased the reliance of CMHCs on third-party reimbursement.

These changes have reduced the ability of rural CMHCs to fulfill the intent of the original 1963 Community Mental Health Center Act—to address mental health needs defined by local communities and catchment areas (Wagenfeld et al., 1994). Rural CMHCs now tend to provide a narrower range of services within more centralized catchment areas. Mental health managed care has the potential to further limit catchment areas served by rural CMHCs, as managed-care organizations seek economies of scale. The primary-care system is often the only source of mental health care in many

rural areas, given these changes in the role of CMHCs and the scarcity of specialty mental health providers.

Regier, Goldberg, and Taube (1978) estimated that 60 percent of all mental health care is provided by primary-care providers, dubbing the primary-care system the “de facto mental health system.” More recent studies have confirmed the important role of primary-care practitioners in providing mental health services (Kessler, Cleary, and Burke, 1985, 1987; Regier et al., 1993). Low-income individuals are even more likely to use primary-care providers for the treatment of mental health problems (Wells, Manning, and Benjamin, 1986). Rural low-income residents may face a double jeopardy in accessing mental health services through primary-care providers. Although not a uniquely rural problem, the capacity and willingness of rural primary-care providers to diagnose and treat mental health problems may be more limited than that of urban providers. Rural primary-care providers, particularly those in underserved areas, are faced with large caseloads, a lack of referral sources, and a possible lack of exposure to current mental health treatment modalities.

Rural primary-care providers are more likely than their urban colleagues to accept Medicaid beneficiaries and to have a larger Medicaid caseload (Sumner, 1991). The willingness of rural primary-care providers to accept Medicaid patients may work against their ability to provide mental health services to Medicaid beneficiaries, given the time demands of mental health care and problems in available referral sources and knowledge of treatment modalities.

Maine Medicaid Mental Health Benefits and Services

Medicaid benefit packages for mental health services vary among States and include both mandatory and optional serv-

ices (Taube, Goldman, and Salkever, 1990). Maine's Medicaid program includes hospital inpatient care, physician services in general hospitals, emergency room services, and nursing home care mandated by Federal regulations. Payment for inpatient care for beneficiaries in psychiatric facilities is restricted to persons under 21 years of age and 64 years of age or over. Maine's Medicaid program includes many optional mental health services and providers, including non-physician care, freestanding outpatient clinics, case management, and rehabilitative services.

Inpatient mental health services for which Maine Medicaid beneficiaries were eligible during the period 1991-94 include psychiatric hospitalization for children under 21 years of age and acute-care hospitalization in designated acute-care beds for non-SSI adults between 21 and 64 years of age. Adults could also receive detoxification services in licensed residential settings. On the outpatient side, Medicaid beneficiaries under 21 years of age could receive diagnosis, assessment, and home-based mental health treatment (individual, family, and group) within a private non-medical institution, as well as a variety of diagnostic and treatment services within 25 licensed mental health clinics. Adults (21-64 years of age) could receive the following services: outpatient assessment and evaluation; day treatment; crisis and emergency intervention; home-based mental health; medication management; and targeted case management (for persons with severe mental illness). Evaluation and treatment for substance abuse were also available within 41 licensed substance abuse clinics.

Maine's Medicaid program has relatively generous eligibility criteria, particularly for children and adolescents. In 1991, the program included pregnant women and children under 1 year of age up to 185 percent of the Federal poverty level (FPL);

children 1-5 years of age up to 133 percent of FPL; and children 6-19 years of age up to 125 percent of FPL (Saucier, 1992).

METHODS

Approach

This study examines the utilization of mental health care by rural and urban Medicaid beneficiaries, using measures of initial care (use of any mental health services) and subsequent care (average number of visits among those using mental health services). Initial care and subsequent care variables are defined and discussed further later. From these utilization comparisons, we attempt to infer the relative access to mental health care of rural AFDC Medicaid beneficiaries. We recognize that access is a multidimensional concept which is broader than utilization. Access to mental health care is influenced by various factors, including supply of providers, travel distance to care, and stigma associated with receiving care. Our five utilization-based measures are proxy measures for access to care. Inference from utilization-based measures to access should be made cautiously. However, the approach we take is consistent with much of the empirical literature on access to health care.

We expect that rural beneficiaries will have lower access to initial care for mental health problems compared with urban beneficiaries, possibly resulting from the shortage of specialty mental health providers, travel distance, and stigma. We expect that the same factors contributing to lower initial care for rural beneficiaries will result in less use of subsequent care. Rural users of mental health services are expected to rely more on primary-care providers than are urban beneficiaries. Finally, differences in the supply of specialty mental health providers should explain some, but not all, of the dif-

ference in initial and subsequent care observed between rural and urban beneficiaries, as travel distance and stigma may pose additional barriers to care for rural persons.

Data Sources

Analyses conducted in this study are based on 3 years (1989-91) of inpatient and outpatient Medicaid claims data in Maine, for all persons treated in a specialty mental health setting, substance abuse setting, or general health care setting, and having a primary mental health diagnosis (*International Classification of Diseases, 9th Revision, Clinical Modification Codes 290-316*). Medicaid eligibility files for the same 3-year period were obtained to determine the numbers of persons eligible for Medicaid, their source of eligibility, age, residence, and whether or not their eligibility was continuous.

State licensure data from several sources were used to construct a measure of the supply of mental health providers, described later. These sources included data on licensed clinical social workers, marriage and family counselors, and psychologists. The Maine Physicians' Resource Inventory and the Maine Nurses' Resource Inventory were also used to determine the supply of psychiatrists and psychiatric nurse specialists.

Dependent Variables

Utilization of mental health services is assessed in terms of five measures (Table 1). The first measure of utilization examines whether or not an individual used any ambulatory mental health services. Although we cannot determine when an individual first used mental health services, this measure is indicative of at least some type of diagnosis and treatment for mental illness and is labeled "initial care." Initial care is measured

by the number of Medicaid beneficiaries with one or more claims with a mental health diagnosis during calendar year 1991, divided by the number of point-in-time beneficiaries eligible for services on January 1, 1992.²

The remaining four utilization-based measures are defined as "subsequent care." The first measure of subsequent care is average ambulatory visits per year. The second measure is the prevalence of a hospital admission for a mental health condition. This measure is reported as the number of Medicaid beneficiaries with one or more hospitalizations with a mental health diagnosis during calendar year 1991, divided by the number of beneficiaries with one or more visits during calendar year 1991.³ The third and fourth measures of subsequent care are the numbers of visits within 3 and 6 months of a hospital discharge for a mental health diagnosis. For each Medicaid beneficiary, claims were reviewed for the first occurrence of a hospital admission for a mental health diagnosis during calendar years 1989-91 and for subsequent ambulatory care claims with a mental health diagnosis within 3 and 6 months after discharge.

Independent Variables

The primary independent variable in our study is residence, measured by whether a beneficiary's home address is located within a Primary Care Analysis Area (PCAA) with a population density greater than or equal to 96 persons per square mile (urban)

² The denominator used in this measure, point-in-time eligibles, makes the implicit assumption that each beneficiary is eligible for the full 12 months covered within the numerator of the same measure. Alternatively, the denominator could include any person eligible during the 12-month period. Because such a measure would include both newly enrolled eligibles as well as newly disenrolled eligibles, each observation would need to be weighted for months of eligibility. This methodology was not chosen because preliminary analysis suggested no evidence for systematic differences in enrollment and disenrollment between urban and rural areas.

³ Multiple admissions are not included in the analysis. Therefore, beneficiaries, not hospitalizations, are the unit of analysis.

Table 1
Study Variables

Variable	Definition
Dependent Variables	
Initial Care:	
Ambulatory Care Users	Number of Medicaid beneficiaries with 1 or more claims having a mental health diagnosis during calendar year 1991, divided by the number of point-in-time beneficiaries eligible for services on January 1, 1992.
Subsequent Care:	
Average Ambulatory Care Visits per Year	Total number of mental health ambulatory care visits during the years 1989-91, divided by the total number of months of eligibility during this period, resulting in visits per eligible month, times 12.
Prevalence of Hospital Admission for Mental Health Condition	Number of Medicaid beneficiaries with 1 or more hospitalizations with a mental health diagnosis during calendar year 1991, divided by the number of Medicaid beneficiaries with 1 or more visits with a mental health diagnosis during calendar year 1991.
Ambulatory Care Visits Within 3 Months of Hospitalization	Number of ambulatory care visits during 3 months following discharge from first hospital admission for a mental health diagnosis. ¹
Ambulatory Care Visits Within 6 Months of Hospitalization	Number of ambulatory care visits during 6 months following discharge from first hospital admission for a mental health diagnosis. ¹
Independent Variables	
Residence	Based on beneficiary's home address: urban if home address located within a Primary Care Analysis Area (PCAA) with population density greater than or equal to 96 persons per square mile; rural if located within PCAA with less than 96 persons per square mile.
Mental Health Provider Supply	Number of core mental health providers (psychiatrists, psychologists, clinical social workers, licensed marriage and family counselors, and psychiatric nurse specialists) practicing in an area, divided by the size of the population within PCAA. Measured in terms of dichotomous variable of low-medium/high supply, based on distribution of number of core mental health providers in each PCAA.
Source of Ambulatory Care	Specialty mental health providers (Community Mental Health Centers, psychologists and licensed clinical social workers, hospital outpatient, and psychiatrists); primary care (primary-care physicians, community health centers, and rural community health clinics); and other (substance abuse clinics, home health care, and other physician specialties).

¹ Period covered is calendar years 1989-91. If an individual was not eligible for benefits within either 3 or 6 months following discharge, he or she was not included in the calculation of that measure.

SOURCE: Maine Department of Human Services, Bureau of Medical Services: Medicaid Management Information System, 1989-91.

or fewer than 96 persons per square mile (rural).^{4,5} Using this definition of residence, Maine's 13 urban PCAAs, concentrated in the southern part of the State, account for 61 percent of its population, but only 13 percent of its land area. Maine's three metropolitan statistical areas (MSAs) fall within the urban PCAAs. Counties were not cho-

sen as the underlying unit for designating rural areas because counties in Maine are quite large and tend to encompass mixed urban and rural populations.

Several intervening independent variables are used in our analyses. Source of ambulatory mental health care includes the following categories: specialty mental health providers (CMHCs, psychologists and licensed clinical social workers, hospital outpatient, and psychiatrists); primary care (primary-care physicians, community health centers, and rural community health clinics); and other ambulatory services (substance abuse clinics, home health care, and other physician specialties). Beneficiaries are considered service users if they received one or more visits from that site of care.

⁴ PCAAs were originally created in 1979 by Maine's Office of Vital Statistics and Research based on physician location and patient travel time. PCAAs have been updated and used extensively for health planning and research purposes since then.

⁵ We compared our methodology for defining residence with rural-urban continuum code methodologies (Butler, 1990) and substituted PCAAs for counties. Urban areas fell within the range of small MSAs, urbanized adjacent and non-adjacent, rural adjacent, and rural non-adjacent areas. Effects of rurality were initially examined in terms of MSAs. An MSA-based dichotomy was not chosen because it failed to capture significant urban portions of the State. These initial MSA/non-MSA based analyses yielded comparable results to those reported in this article.

Depending on where services were used, beneficiaries can be labeled as users of one or more sites of care.

Mental health provider supply is measured in terms of the number of core mental health providers (psychiatrists, psychologists, licensed clinical social workers, licensed marriage and family counselors, and psychiatric nurse specialists) practicing in an area, divided by the size of the population within that PCAA. This definition is based on current Federal criteria for designation of Mental Health Professional Shortage Areas (*Federal Register*, 1992).⁶ Provider supply is operationalized by first constructing a continuous variable, examining the distribution, and then creating a dichotomy of high supply (500-1,000 persons per provider) or low/medium supply (1,000-3,000 persons per provider or no providers). The mean number of providers in rural areas is 2,172 persons per provider; this number is 977 persons per provider in urban areas. Of the 134 full-time employee psychiatrists in Maine, only 19 (14 percent) were practicing in rural areas; 15 of the 50 rural PCAAs (30 percent) had no local mental health providers.

Statistical Methods

This study examines differences in use of mental health services by rural and urban Medicaid beneficiaries in terms of five measures of service utilization. Statistical differences are tested using chi-square tests for discrete events (the occurrence of one or more outpatient claims and the occurrence of one or more inpatient claims) and *t*-tests for continuous measures (annual rates of outpatient visits, 3- and 6-month rates of visits fol-

lowing an inpatient hospitalization). A multivariate technique would be the preferred statistical approach for examining these differences, while controlling for the effects of factors influencing utilization, including geographic location, severity, supply of mental health providers, and travel distance. We have not chosen a multivariate approach primarily because Medicaid claims data are not sufficient to establish a reliable index of case mix or severity.

Study Population

We restrict our study to AFDC cash and non-cash beneficiaries. We do this because the severity of mental health problems and illness may be expected to be substantially higher among SSI-eligible beneficiaries, who (as a group) are more likely to be found in urban areas. Because we cannot control directly for severity, we would have no way of separating out the effect of a higher proportion of SSI (and, more likely, higher service) users in our comparisons of rural and urban mental health utilization. Diagnoses of rural and urban AFDC Medicaid users of ambulatory mental health services included in our study are similar (Table 2). This suggests that we have reduced differences in severity between rural and urban areas that may occur because of rural to urban migration or other factors.

Seventeen percent of Maine children 5-17 years of age are AFDC Medicaid enrollees; just under 5 percent of Maine adults 45-64 years of age are AFDC Medicaid enrollees (Table 3). Rural areas of Maine have a higher rate of AFDC Medicaid eligibles among the non-elderly population (10.2 percent) compared with urban areas (7.1 percent). Higher rates of Medicaid eligibles in rural than in urban areas are constant across all age groups.

⁶ In addition to counting core mental health providers, this measure reflects Federal criteria by taking into account contiguous areas. Contiguous areas are included by averaging provider ratios within a PCAA with those of its contiguous PCAAs.

Table 2
Ambulatory Mental Health Visits by Maine AFDC Medicare Beneficiaries, by Diagnosis

Primary Diagnosis	Rural		Urban	
	Number of Visits	Percent	Number of Visits	Percent
Total	111,010	100.0	189,496	100.0
Psychoses	8,214	7.4	14,751	7.8
Personality Disorders	68,128	61.4	101,281	53.4
Neuroses	15,559	14.0	28,937	15.3
Childhood Disturbances	298	0.3	677	0.4
Substance Abuse (With Mental Illness)	3,400	3.0	15,609	8.2
Other Mental Health Diagnoses	15,411	13.9	28,241	14.9

NOTE: AFDC is Aid to Families with Dependent Children.

SOURCE: Maine Department of Human Services, Bureau of Medical Services: Medicaid Management Information System, 1989-91.

Table 3
Maine AFDC Medicaid Enrollees as a Percent of State Population: Rural and Urban Areas

Age	State	Rural		Urban		
		AFDC	Percent	State	AFDC	Percent
Total	377,878	38,441	10.2	599,938	42,628	7.1
5-17 Years	90,940	18,747	20.6	132,048	20,158	15.3
18-24 Years	42,327	5,492	13.0	82,008	6,706	8.2
25-44 Years	149,079	12,166	8.2	249,127	13,877	5.6
45-64 Years	95,532	2,036	2.1	136,755	1,887	1.4

NOTE: AFDC is Aid to Families with Dependent Children.

SOURCES: Maine Department of Human Services, Bureau of Medical Services: Medicaid Management Information System, 1989-91; U.S. Bureau of the Census: U.S. Census, 1990.

Table 4
Mental Health Utilization by Rural and Urban Maine AFDC Medicare Beneficiaries

Utilization Measure	Rural	Urban	Rural/Urban Ratio	p
Ambulatory Care Users (per 100 Eligibles)	12.36	14.84	0.83	<.01
Average Visits per Year (Annualized)	7.23	9.26	0.78	<.01
Hospitalization Rate (per 100 Ambulatory Care Users)	6.52	8.77	0.74	>.01
Visits Within 3 Months of Hospitalization	7.89	9.11	0.87	=.16
Visits Within 6 Months of Hospitalization	12.10	15.24	0.79	=.07

NOTE: AFDC is Aid to Families with Dependent Children.

SOURCE: Maine Department of Human Services, Bureau of Medical Services: Medicaid Management Information System, 1989-91.

The age composition of the compared groups may confound comparisons of population-based rates. If the age composition of Medicaid enrollees is substantially different in rural and urban areas, it would be necessary to use an age-adjustment technique to control for age differences. A review of the age distribution of enrollees in urban and rural areas suggests that adjusting for age is not necessary (Table 2).⁷

⁷ Although age adjustment is not necessary to compare urban and rural Medicaid populations, comparing Medicaid with other populations would most likely require some form of age adjustment.

FINDINGS

Utilization

Rural AFDC Medicaid beneficiaries have significantly lower mental health service use rates than urban beneficiaries, as measured by three indicators (Table 4). Rural beneficiaries are 83 percent as likely as urban beneficiaries to have had an outpatient mental health visit during a 1-year period ($p < 0.01$). Not only do rural beneficiaries have less initial care, but they receive less

Table 5

Source of Ambulatory Mental Health Care for Rural and Urban Maine AFDC Medicaid Beneficiaries

Source of Care	Users		Average Visits Among Users	
	Rural	Urban	Rural	Urban
	Percent			
Total	—	—	**7.2	9.3
Specialty Mental Health	**79.1	85.7	**10.0	12.7
Community Mental Health Center	44.9	44.0	9.1	10.4
Psychologist/Licensed Clinical Social Worker	**27.1	33.0	**6.0	7.2
Hospital Outpatient Department	**21.4	24.9	**2.1	5.0
Psychiatrist	**2.4	5.7	2.3	3.2
Primary Care	**29.5	22.4	*1.4	1.6
Primary-Care Physician	**25.0	21.4	**1.1	1.2
Community Health Center/Rural Health Clinic	**4.9	1.2	1.2	1.2
Substance Abuse Counselors	**6.6	5.3	6.2	6.3
Other Physicians	**3.6	2.1	0.9	0.8
Home Health	*2.4	1.9	5.9	6.2

* $p < 0.05$.

** $p < 0.01$.

NOTES: Totals may not sum to 100 because Medicaid users may use multiple sites of care. AFDC is Aid to Families with Dependent Children.

SOURCE: Maine Department of Human Services, Bureau of Medical Services: Medicaid Management Information System, 1989-91.

care over time. Rural beneficiaries have only 78 percent as many visits during a 1-year period as urban beneficiaries ($p < 0.01$).

The difference in care is larger for inpatient services. Rural beneficiaries are 74 percent as likely as urban beneficiaries to have had an inpatient hospital stay. The greater number of hospitals (including the State's only private psychiatric hospital) in urban areas may account for some of this difference. In general, rural beneficiaries face greater travel distances to inpatient care than urban beneficiaries and may be less willing and able to receive inpatient care. Rural providers may also be less willing to refer patients to more distant hospitals.

Despite distance barriers to inpatient services, a psychiatric hospitalization is likely to result in subsequent care in the immediate period following discharge for both rural and urban beneficiaries. We would not expect to find rural-urban differences in subsequent care immediately after hospitalization, but would expect differences in followup care to widen again over time. The last two lines of Table 4 examine this proposition by comparing the

number of ambulatory visits within 3 and 6 months following hospitalization for rural and urban beneficiaries. Rural beneficiaries receive 87 percent as many ambulatory visits during the 3 months following a hospitalization as urban beneficiaries, but only 79 percent as many during the 6 months following hospitalization. This suggests that while rural beneficiaries have somewhat similar use of ambulatory care in the period immediately following a hospitalization (when scarce resources may be mobilized), the gap widens over time, approaching the overall rural-urban difference in amount of ambulatory care.

Source of Care

Specialty mental health providers account for the majority of ambulatory visits for both rural and urban beneficiaries, but the relative use of these providers supports the widely held assumption that rural persons have less access to specialty mental health care and rely more on primary-care providers than urban persons (Table 5). Relatively more urban than rural beneficiaries are users of

Table 6
Comparison of Mental Health Utilization of Rural Maine AFDC Medicaid Beneficiaries,
Controlling for Provider Supply

Utilization Measure	Rural/Urban Rate Ratios ¹		
	All Regions	Low/Medium Availability ²	High Availability ²
Ambulatory Care Users (per 100 Eligibles)	*0.83	*0.83	*0.90
Average Visits per Year (Annualized)	*0.78	*0.69	0.95
Hospitalization Rate (per 100 Ambulatory Care Users)	*0.62	*0.57	1.04
Visits Within 3 Months of Hospitalization	0.87	0.83	1.02
Visits Within 6 Months of Hospitalization	0.79	0.82	0.94

*p < 0.01.

¹ Ratio is the utilization rate of rural AFDC enrollees divided by the utilization rate of urban AFDC enrollees.

² Availability is measured by first creating a continuous variable of core mental health providers per capita within each Primary Care Analysis Area and then dividing this continuous distribution into two categories, low/medium and high.

NOTE: AFDC is Aid to Families with Dependant Children

SOURCES: Maine Department of Human Services, Bureau of Medical Services: Medicaid Management Information System, 1989-91; data development by Agger, M.S., and Lambert, D., University of Southern Maine, 1995.

specialty mental health services; relatively more rural than urban beneficiaries are users of primary-care mental health services.

Table 5 also reports the average number of annual visits for each source of care for rural and urban beneficiaries. Even though rural beneficiaries rely more than urban beneficiaries on primary-care providers, the amount of care they receive is limited. The average number of annual visits to primary-care physicians is low for both rural (1.1) and urban beneficiaries (1.2). Similarly, the average number of annual visits for mental health care to rural community health centers and rural health clinics is also low (1.2) for both rural and urban beneficiaries. This suggests that although primary-care providers may diagnose and try to refer rural persons elsewhere, they are not in a position to provide continuing care. The consequences of this limited role of primary-care providers are potentially more serious in rural areas, where there are fewer specialty mental health providers than in urban areas.

Urban beneficiaries receive more annual visits from all of the sources of care identified in Table 5, except for rural health centers and specialist (non-psychiatrist) physicians. Lower use rates for rural persons, shown in Table 5, are consistent across

both specialty mental health and primary-care service systems.

Supply of Specialty Providers and Use Rates

Because the supply of specialty mental health providers is related to rurality, it potentially confounds the observed relation between rurality and utilization. To control for the effects of supply on utilization, we compare rural and urban utilization rates within regions of similar supply (i.e., high-supply rural areas to high-supply urban areas; low/medium-supply rural areas to low/medium-supply urban areas). Rates of service use in rural and urban areas are related to the supply of core mental health providers (Table 6). Taking into account the supply of core mental health providers reduces much of the difference between rural and urban rates of use of any outpatient service, number of annual outpatient visits, and inpatient admission.

In areas of high supply, geographic differences in the number of visits are reduced. Overall, rural beneficiaries are 83 percent as likely as urban beneficiaries to receive an ambulatory visit and receive 78 percent as many visits in a year as urban beneficiaries. Rural beneficiaries liv-

ing in high-supply areas are 90 percent as likely as their urban counterparts in high-supply areas to have an ambulatory visit and have nearly the same number of visits (95 percent) as urban beneficiaries living in high-supply areas.

Controlling for supply also reduces the geographic difference in hospitalization rates. Rural persons living in high-supply areas are equally as likely to have been hospitalized as urban beneficiaries. Overall, rural beneficiaries are only 62 percent as likely to have been hospitalized. The findings reported in Table 6 support the long-held hypothesis that lower supply may be a barrier to utilization in rural areas.

Limitations

There are several limitations to our study which should be considered in interpreting findings. Because our analyses are based on claims data, information about diagnosis and provider type may not always be accurate. The accuracy of diagnosis listed for beneficiaries with mental health problems may vary considerably by source of care and by geographic location. As described, we do not have a measure of the severity (or case mix) of mental health problems or illness, nor do we control within a multivariate context for the effects of other factors influencing utilization, including geographic location, severity, supply of mental health providers, and travel distance. Finally, the inpatient data do not include the two State mental health institutions. They are not included because, until very recently, Medicaid was usually not billed directly for the care of patients hospitalized in the State institutions.⁸ Notwithstanding these limitations,

⁸ We have examined a separate data set of all persons hospitalized from 1989-91 in the major State institution and found that the majority of residents are from urban areas. This suggests that lower inpatient hospital rates for rural beneficiaries may be understated.

this study provides an important look at, and comparison of, the use of mental health services by rural and urban Medicaid beneficiaries.

DISCUSSION

Policymakers have increasingly turned to primary-care providers to improve access to mental health care. Initiatives are being proposed and developed which rely on rural primary-care providers to play a much more substantial role in the diagnosis, referral, and treatment of persons with mental health problems. Policymakers also recognize that both the availability and efficient use of specialty mental health providers in rural areas must also be increased.

It is important to assess these initiatives in terms of how well they may work for low-income persons, who comprise a substantial portion of the rural population (Sumner, 1991). These initiatives have been developed without knowledge of the patterns of mental health care utilization of low-income rural persons and the respective roles played by specialty and primary-care practitioners in providing this care. This information is important in deciding how much should be asked, and how much can be expected, of the primary-care and specialty mental health sectors in improving access of low-income persons to mental health care in rural areas.

Because this study is based on a single New England State, and Medicaid benefits and eligibility vary substantially among States, it is difficult to generalize our findings broadly to other States. However, our findings clearly indicate the importance of our research questions and indicate that rural Medicaid beneficiaries may face significant barriers to accessing mental health services. We discuss here the potential implications of our findings, mindful that

additional research is needed to be able to generalize beyond a single State study.

Our findings indicate that rural AFDC Medicaid beneficiaries in Maine have significantly lower utilization of mental health services than urban beneficiaries. This is true for initial care as well as for subsequent care. The consistency of these findings and the magnitude of the geographic difference in utilization suggest that we need to better understand what factors, besides supply, account for these differences. Such factors include knowledge and ability of primary-care physicians to diagnose, treat, and refer patients for mental health care; willingness of providers to do so; and stigma attached to receiving, and travel distance to, mental health care in rural areas. In addition, knowing the appropriateness of services used is important in assessing these differences. A better understanding of how these factors (together with supply) affect utilization could guide efforts to expand access to mental health services for low-income persons in rural areas.

The reliance of rural beneficiaries on primary-care providers indicated by our study suggests that attempts to increase the supply of primary-care providers and train them to diagnose, treat, or refer mental health problems (such as the recent AHCPR Depression Guidelines) make sense in rural areas. CMHCs have been increasingly serving the needs of persons with severe and persistent mental illness. Nevertheless, our study found that CMHCs provide 45 percent of the outpatient care received by AFDC beneficiaries, many of whom have mild to moderate mental health problems relative to SSI beneficiaries (data not shown). The capacity of rural CMHCs to provide mental health services to low-income individuals might be strengthened through financing

incentives to promote integration with primary-care providers, creation of satellite clinics, and inclusion within emerging health care networks. Training programs for, licensure of, and reimbursement for sub-doctoral level psychologists and social workers would improve the capacity of rural CMHCs to provide this care.

Our finding that a higher supply of specialty mental health providers greatly reduces geographic differences in utilization suggests that aggressive efforts should be undertaken to increase specialty mental health providers in rural areas. The presence of this supply effect in high (but not low/medium) supply areas raises an interesting policy question of whether, and where, to concentrate supply-increasing initiatives. Further studies are required to better understand the nature of this supply effect and to determine whether efforts to increase supply might be concentrated in areas most likely to attract providers—relatively more populous rural areas—or in much less populous areas, where specialty providers are most scarce (and, thus, most needed), but where efforts to increase supply are least likely to be successful. More generally, the relation between supply and access should be tested within a multivariate model, where severity of illness and other factors can be controlled more precisely. Finally, the current role and capacity of specialty and primary-care providers to provide mental health care within emerging rural health care networks need to be better understood.

ACKNOWLEDGMENTS

We would like to thank David Baugh, Collette Cruze, and Margo Rosenbach for helpful comments on an earlier draft of this article.

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