



ACCESS OF  
RURAL MEDICAID BENEFICIARIES  
TO MENTAL HEALTH SERVICES



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TO MENTAL HEALTH SERVICES**

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## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>i</b>
<b>INTRODUCTION .....</b>	<b>1</b>
<b>BACKGROUND .....</b>	<b>Error! Bookmark not defined.</b>
<b>Prevalence of Mental Health Disorders in Rural Areas.....</b>	<b>Error! Bookmark not defined.</b>
<b>Mental Health Service Delivery System in Rural Areas.....</b>	<b>3</b>
<b>The Role of Medicaid in the Delivery of Mental Health Services in Rural Areas.....</b>	<b>5</b>
<b>Literature on Rural and Urban Differences in Utilization.....</b>	<b>6</b>
<b>METHODS .....</b>	<b>7</b>
<b>Analysis Strategy and Expected Findings .....</b>	<b>7</b>
<b>Data Sources.....</b>	<b>7</b>
<b>Dependent Variables.....</b>	<b>8</b>
<b>Independent Variables.....</b>	<b>10</b>
<b>Study Population .....</b>	<b>13</b>
<b>Statistical Methods .....</b>	<b>14</b>
<b>Limitations .....</b>	<b>14</b>
<b>FINDINGS .....</b>	<b>15</b>
<b>Access .....</b>	<b>15</b>
<b>Site of Care .....</b>	<b>17</b>
<b>Supply of Specialty Providers and Access .....</b>	<b>18</b>
<b>DISCUSSION .....</b>	<b>20</b>
<b>REFERENCES .....</b>	<b>23</b>
<b>ENDNOTES .....</b>	<b>25</b>
<b>APPENDIX TABLES</b>	

## **EXECUTIVE SUMMARY**

Given the historic shortage of specialty mental health providers in rural areas, 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. Up to now, these initiatives have been developed without the benefit of empirical estimates of the access of low income rural persons to mental health care 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 the specialty mental health sectors in improving access of low income persons to mental health care in rural areas. This paper addresses this need by examining access to and use of mental health services among rural Medicaid beneficiaries in Maine.

Access is examined in terms of initial care (measured by whether a beneficiary has used any mental health services) and subsequent care (measured by average number of visits among beneficiaries using mental health services). Subsequent care is also measured by the likelihood of being admitted to a hospital for a mental health condition and the average number of visits within three and six months following hospitalization. The roles of site of care and supply of specialty mental providers in explaining observed rural - urban differences in initial and subsequent care are also examined.

Results indicate that rural AFDC beneficiaries have significantly lower access to mental health services than urban beneficiaries. This is true for outpatient and inpatient care, and for initial care and for subsequent care after an initial visit. Specialty mental health providers account for the majority of outpatient visits for both rural and urban beneficiaries. As widely assumed, rural beneficiaries rely more on primary care providers than urban beneficiaries. However, the capacity of primary care providers (rural and urban) to provide continuing care to rural beneficiaries is limited. Controlling for supply of specialty mental health providers reduces much of the observed rural - urban difference in both initial care and follow - up care. This finding strongly supports the long held hypothesis that lower supply is a barrier to access to mental health services in rural areas.

Aggressive efforts should be undertaken to expand access to mental health services to low income persons in rural areas and should include substantial use of both primary care and specialty mental health providers. Efforts to enhance the role of primary care providers include increased training and education in detection, diagnosis, and treatment of mental health problems and increased reimbursement. However, the capacity of primary care providers to provide on-going treatment is limited. This suggests the importance of increasing the supply and expanding the role of specialty mental health providers. Strengthening the capacity of rural Community Mental Health Centers seems particularly important, since CMHCs provide 45 percent of the outpatient care received by rural AFDC beneficiaries.

## **I. INTRODUCTION**

Access of rural persons to mental health care is a long-standing concern (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 (OTA 1990; Wagenfeld, Murray, and Mohatt 1994). In the absence of 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).

There are, however, significant limitations in the capacity of the rural primary care system to address the mental health needs of rural citizens. The undersupply of rural primary care providers, combined with limited knowledge and skill in diagnosing and treating many mental health problems, limit the capacity of the rural primary care system to address rural mental health needs. Access to care may be further compromised by the limited willingness of primary care providers to accept Medicaid patients (Long et al. 1986; Rosenbach 1989).

Medicaid has become an increasingly important source of reimbursement for mental health services, particularly in rural areas (Wagenfeld, Murray, and Mohatt 1994). As states have downsized public mental health institutions, many more persons with severe and persistent mental illness are present in the community. These persons are usually eligible for Medicaid through the disability provisions under Supplemental Security Income (SSI). States have increasingly used Medicaid matching funds to offset lack of growth in core funding of state mental health authorities. Besides funding services for many persons with severe and persistent mental illness, the Medicaid program covers a growing proportion of low income women and children, many of whom rely upon Medicaid to pay for mental health services.

Because rural areas have fewer large employers relative to urban areas, private health insurance plans with coverage for mental health are less common in rural areas.

Initiatives are being developed which rely heavily on primary care providers to better meet the mental health needs of rural persons (e.g., AHCPR Depression Guidelines, proposed integration of primary care and mental health under health care reform). These programs are often designed without empirical evidence of the degree of access of rural persons (particularly low income persons) to mental health care, the effects of health professional shortages on access, and the respective roles played by specialty and primary care practitioners in providing mental health care. This paper addresses this need by examining access to and use of mental health services among rural Medicaid beneficiaries in Maine. Two principal questions are examined:

- Do rural Medicaid beneficiaries have lower access to mental health care than urban beneficiaries?
- To what extent are urban and rural differences in access to care explained by (a) site of care and (b) supply of specialty mental health providers?

By describing the nature of the access problem, and factors contributing to it, this information may help policymakers choose among different policy strategies (e.g., training and education; licensure; reimbursement) for improving access.

## **II. BACKGROUND**

### ***Prevalence of Mental Health Disorders in Rural Areas***

A keystone of the most recent generation of studies measuring the prevalence of mental health disorders is the Epidemiologic Catchment Area (ECA) program, sponsored by the National Institute of Mental Health. Although there is some concern of a bias in the ECA's estimation of the prevalence of mental illness in rural areas, a recent review of these studies

does not indicate substantial differences in rates of mental illness between rural and urban populations (Wagenfeld, Murray, and Mohatt, 1994).

Within rural and urban Medicaid populations, however, additional factors may affect the prevalence of mental illness. For example, 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. Although such a migration may have only a small impact on the prevalence of mental illness in the general population, it may be a significant concern in a study of mental health use among Medicaid populations, particularly persons with severe and persistent mental illness.

### ***Mental Health Service Delivery System in Rural Areas***

Many rural areas lack public specialty mental health care 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 to thirteen percent of rural counties (Wagenfeld, et al, 1988). In the absence of higher credentialed specialty providers and specialty 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. Over the last decade, the role of the rural public mental health system, anchored by Community Mental Health Centers (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. This shift can be traced to the Omnibus Budget



Reconciliation Act (OBRA) of 1981, which severed direct federal funding for CMHCs and moved it into state block grants, and 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 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.

Although CMHCs have been designed to address the needs of persons residing in both urban and rural mental health shortage areas, they are based primarily on an urban service delivery model. For example, Federal guidelines require CMHCs to serve areas with populations of 75,000 or higher. Consequently, CMHCs are often not able to meet the mental health needs of persons residing in sparsely populated geographic areas (Keller and Murray, 1982). In these instances, the primary care system is the only source of mental health care.

In their classic article, Regier and his colleagues (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 in providing mental health services (Kessler, et al, 1985; Kessler, et al, 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, Duan, Newhouse, and Ware, 1986).

Rural low income residents may face a double jeopardy in accessing mental health services through primary care providers. Although not a unique rural problem, the capacity and willingness of primary care providers to diagnose and treat mental health problems may be limited. Rural primary care providers, particularly those in underserved areas, are faced

with large case loads, lack referral sources, and may not have exposure to current trends in treatment for mental illness. Thus rural persons, especially with mild or moderate mental health problems, are at significant risk of falling through the cracks of existing public mental health and primary care systems.

The willingness of primary care providers to accept Medicaid patients may also compromise access to mental health services. Rural primary care providers are more likely than their urban colleagues to accept Medicaid beneficiaries and to have a larger Medicaid caseload (Sumner, 1991). However, rural primary care providers are not necessarily more willing to accept or to treat Medicaid beneficiaries for mental health problems. Larger Medicaid caseloads may mitigate against treating more Medicaid beneficiaries for mental health.

### ***The Role of Medicaid in the Delivery of Mental Health Services in Rural Areas***

Medicaid has played a crucial and increasingly important role in the delivery of mental health in rural areas since the early 1980s. Eligibility of persons with severe and persistent mental illness in Medicaid through SSI has helped states care for persons in the community who previously may have been in state institutions. The extent to which state public mental health authorities have used Medicaid reimbursement for this purpose varies, but has increased over time. The incentive to use federal Medicaid matching funds has led nearly all state public mental health authorities during the 1990s to maximize Medicaid reimbursement for treatment of persons with mental illness.

Medicaid has become an important source of payment for mental health and substance abuse services, particularly for specialty mental health providers for children and adolescents, parents of dependent children and, in some cases, non-parenting young adults. Medicaid coverage includes individuals who receive cash assistance under the Aid for Families with

Dependent Children (AFDC) program. Other groups of infants and children, who are not determined to be categorically needy under the AFDC program, but whose family income is below a certain threshold, may qualify under a series of Federal mandates (Omnibus Reconciliation Acts of 1985, 1986, 1987, 1989).

Medicaid benefit packages for mental health services vary among states and include both mandatory and optional services. Mandatory services include hospital inpatient care, physician services in general hospitals, emergency room services, and nursing home care. Optional services include non-physician care, freestanding outpatient clinics, case management, rehabilitation, and home health care (Taube, Goldman, and Salkever,1990).<sup>1</sup> Maine's Medicaid program has relatively generous eligibility criteria, particularly for children and adolescents, and generous mental health benefits. This suggests that the findings from our study may be generalizable to a broader population of low income individuals than Medicaid programs in general.<sup>2</sup>

### ***Literature on Rural and Urban Differences in Utilization***

There is a growing literature on factors influencing the demand for and use of mental health services under Medicaid. However, empirical studies bearing directly on the questions addressed in this paper are quite limited.<sup>3</sup> Efforts to study the use of rural mental health services have been severely hampered since 1981 when OBRA 1981 eliminated the requirement that CMHCs keep detailed records on populations served (OTA, 1 990). Given the dearth of rural public mental health system data, Medicaid claims data provide an important vehicle for our understanding of the use of mental health services by low income persons in rural areas.

### **III. METHODS**

#### ***Analysis Strategy and Expected Findings***

This paper examines access to mental health care using five utilization-based measures.<sup>4</sup> Initial care is measured by whether a beneficiary has used any mental health services. Subsequent care is measured by the average number of visits among beneficiaries using mental health services, the likelihood of being admitted to a hospital for a mental health condition, and the average number of visits within three and six months following hospitalization. Variables used to measure initial and subsequent care are defined and discussed further below.

We expect that rural beneficiaries will have lower access to initial care to mental health services compared to 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 access to subsequent care. Rural users of mental health services are expected to rely more on primary care providers than urban beneficiaries. Since primary care providers are less able and/or willing to provide mental health care, we expect that urban-rural differences in subsequent care will be greater than urban-rural differences in initial care. Finally, differences in the supply of specialty mental health providers should explain some, but not all, of the difference in initial care 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 three years (1989 -1991) of inpatient and outpatient Medicaid claims data in Maine, for all persons treated at a specialty mental health setting, substance abuse setting, or a general health care setting, and having a primary

mental health diagnosis (ICD-9 codes 290-3 1 6). Medicaid eligibility files for the same three-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 licensing data from several sources were used to construct a measure of the supply of mental health providers, described below. These sources included data on Licensed Clinical Social Workers, Marriage and Family Counselors, and Psychologists (PhD). In addition to licensure data, the Maine Physicians' Resource Inventory (psychiatrists) and the Maine Nurses' Resource Inventory (psychiatric nurse specialists) were also used.

### ***Dependent Variables***

Access is assessed in terms of five measures of service utilization (Figure 1). The first measure of utilization examines whether or not an individual used any outpatient mental health services. Although we cannot determine when an individual first used mental health services, this measure of utilization is indicative of at least some type of diagnosis and treatment for mental illness and is labeled as "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, 1 992.~ The remaining four utilization-based measures fall under the label of "subsequent care."

The first measure of subsequent care is average outpatient 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.\* The third and fourth measures of

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

**FIGURE 1**  
**Measures of Access**

VARIABLE	DEFINITION
<p><b>Initial Care:</b></p> <p>Outpatient Users</p>	<p>Number of Medicaid beneficiaries with one 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</p>
<p><b>Subsequent Care:</b></p> <p>Average Outpatient visits per Year</p> <p>Prevalence of a hospital admission for a mental health condition</p> <p>Post hospital discharge outpatient visits, 3 months after discharge</p> <p>Post hospital discharge outpatient visits, 6 months after discharge</p>	<p>Total number of mental health outpatient visits during the years 1989-1991, divided by the total number months of eligibility during this same time period resulting in visits per eligible month, times 12</p> <p>Number of Medicaid beneficiaries with one or more hospitalizations with a mental health diagnosis during calendar year 1991, divided by the number of Medicaid beneficiaries with one or more visits with a mental health diagnosis during calendar year 1991</p> <p>Number of outpatient visits during 3 months following discharge from first hospital admission for a mental health diagnosis*</p> <p>Number of outpatient visits during 6 months following discharge first hospital admission for a mental health diagnosis *</p>

\* Period covered is calendar years 1989-1991. If an individual was not eligible for benefits within either three or six months following discharge, they were not included in the calculation of that measure.

subsequent care are the numbers of visits within three and six 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 1989-1991, and subsequent outpatient claims with a mental health diagnosis within three and six months after discharge.

### ***Independent Variables***

The *primary independent variable* in our study is rural-urban, 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) or less than 96 persons per square mile (rural).<sup>6</sup> Using this definition, all Metropolitan Statistical Areas (MSAs) in Maine are captured within regions defined as urban (Figure 2).~ Counties were not chosen as the underlying unit for designating rural areas because counties in Maine are quite large and tend to encompass mixed urban and rural populations.

There are *several intervening variables* in our analysis. Site of Care is measured for outpatient care services and is grouped into the following categories: specialty mental health [CMHCs, psychologist and licensed clinical social workers (LCSWs), hospital outpatient, and psychiatrists], primary care [primary care physicians, Community Health Centers (CHCs) and Rural Community Health Clinics (RCHCs)] and other outpatient services (substance abuse clinics, home health, and other physician specialties). Beneficiaries are considered service users if they received one or more visits from that site of care. 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, clinical social workers, licensed marriage and family counselors, and psychiatric nurse specialists) practicing in an area, divided by the size

Figure 2

Rural and Urban Defined Areas

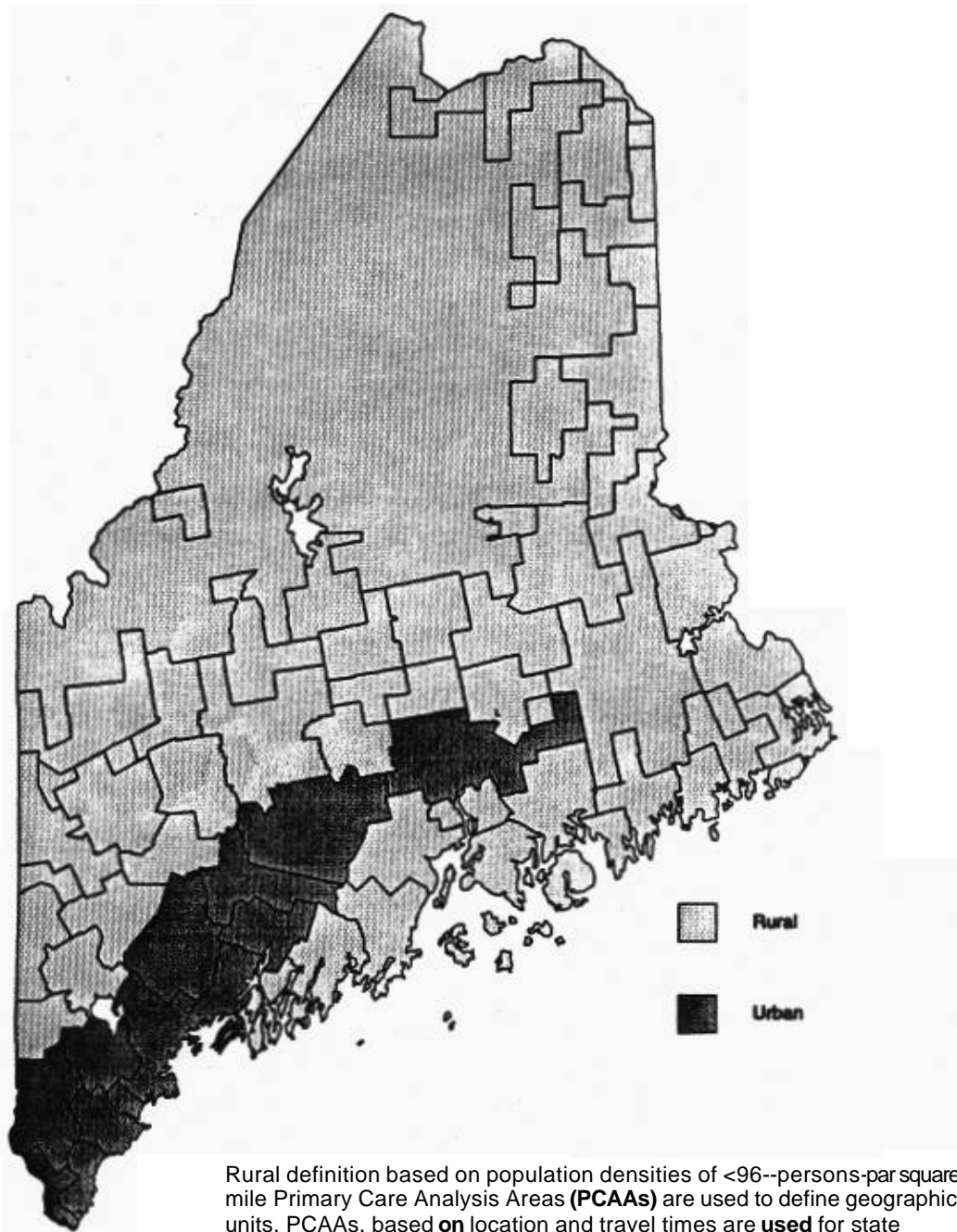
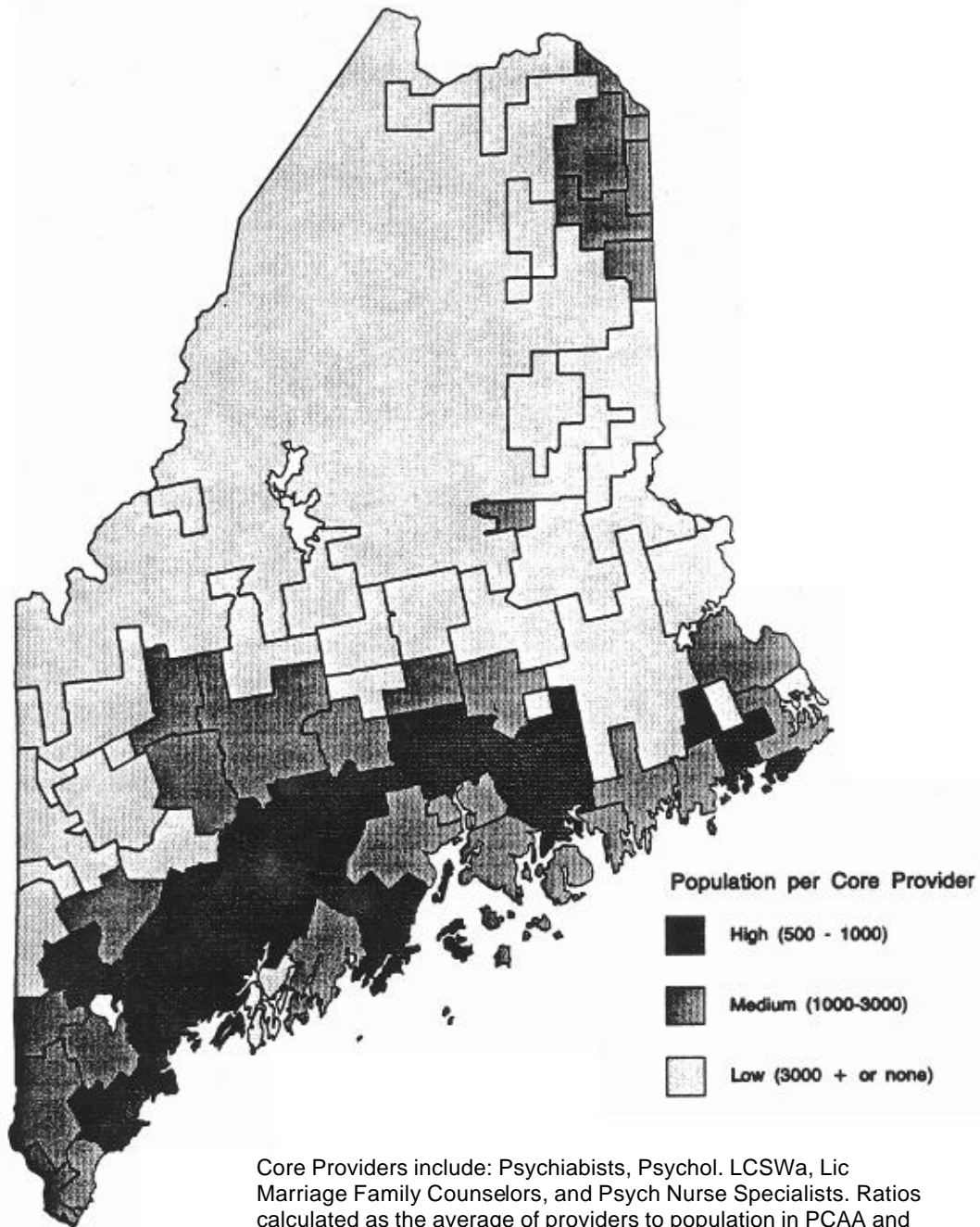




Figure 3

### Core Mental Health Provider Ratios In Primary Care Analysis Areas



Core Providers include: Psychiatrists, Psychol. LCSWa, Lic Marriage Family Counselors, and Psych Nurse Specialists. Ratios calculated as the average of providers to population in PCAA and contiguous PCAAs.

of the population within that primary care analysis area. This definition is based on current Federal Criteria for Designation of Mental Health Professional Shortage Areas (Federal Register, Vol. 57, No.14; 1992).<sup>8</sup> Provider supply is operationalized by first constructing a continuous variable, examining the distribution, and then creating a dichotomy of low/medium and high supply (Figure 3).

### ***Study Population***

Nearly 11 percent (10.7) of Maine's non-elderly population is enrolled in Medicaid. Medicaid enrollees, as a percent of the population, decrease with age (Appendix Table 1). Nearly 19 percent of children ages 5-17 are Medicaid enrollees while six percent of adults ages 45-64 are Medicaid enrollees. Rural areas of Maine have a higher rate of Medicaid eligibles compared to urban areas and higher rates of Medicaid eligibles across all groups.

A factor that may confound comparisons of population-based rates is the age composition of the compared groups. 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 (Appendix Table 2).~

Rural beneficiaries with major mental illness, particularly psychotic disorders or personality disorders (Axis II) may tend to migrate to urban areas. Consequently, the Medicaid population in urban areas may include proportionately more persons with severe mental illness than the rural Medicaid population. We assume that SSI-eligible beneficiaries with severe and persistent mental illness are at greatest risk of migrating because of their illness.

More urban (29.7 percent) than rural (24.8 percent) Medicaid mental health users of outpatient services are SSI-eligible (Appendix Table 3). This difference holds across all age groups. As expected, SSI-eligible mental health users tend to have substantially different diagnoses than AFDC eligible users, particularly with respect to psychoses and personality disorders (Appendix Table 4). Consequently, we restrict our study to AFDC and AFDC non-cash beneficiaries (AFDC). Diagnoses of rural and urban AFDC Medicaid users of outpatient services included in our study are similar (Appendix Table 5). This suggests that we have reduced differences in severity between rural and urban areas that may occur because of rural to urban migration.

### ***Statistical Methods***

This study explores access to mental health services for rural Medicaid beneficiaries by comparing five measures of service utilization between urban and rural areas. 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, three and six month rates of visits following an inpatient hospitalization).

### ***Limitations***

There are several limitations of our analysis. It is based on claims data, whose primary use is to process reimbursement. Information on the claim about diagnosis and provider type is not always entirely accurate. The accuracy of diagnosis listed for patients with mental health problems may vary considerably by type of treatment setting and type of provider and by geographic location.<sup>10</sup> Even accepting diagnosis at face value, we do not have a measure of the severity, or case-mix, of the illness.

Utilization of services is determined by several factors, including urban-rural location, severity, supply of mental health providers and travel distance. Thus, multivariate techniques would be the preferred statistical approach. Since our analysis is conceptually similar to a classic set of equations estimating supply and derived demand, a simultaneous equations estimation such as two-stage least squares is indicated. We have not attempted this analysis primarily because Medicaid claims data are not sufficient to establish a reliable index of severity.

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. We have examined a separate data set of all persons hospitalized from 1989-1991 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.

Even with these limitations, our approach provides the best opportunity to address the questions posed by our study, given the data available. As discussed, the results of this study are generalizable to both the AFDC and broader low-income populations in other rural states without large non-white populations.

#### **IV. FINDINGS**

##### **Access**

Rural AFDC Medicaid beneficiaries have less access than urban beneficiaries to mental health care, as measured by three utilization indicators (Table 1). Rural beneficiaries are 83 percent as likely as urban beneficiaries to have had an outpatient mental health visit over a

**Table 1**

**Utilization Measures and Indicators of Access**

	Rural	Urban	Rural/Urban Ratio	(P)
Outpatient 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 eligibles)	6.52	8.77	0.74	<.01
Visits after Hospitalization (within 3 mo.)	7.89	9.11	0.87	=.16
Visits after Hospitalization (within 6 mo)	12.1	15.24	0.79	=.07

year ( $p < .01$ ). Not only do rural beneficiaries have less initial care, but they receive less care over time. Rural beneficiaries have 78 percent as many visits over a year as urban beneficiaries ( $p < .01$ ).

The difference in care is even greater for inpatient services. Rural beneficiaries are only 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 probably accounts for some of this difference.

Despite 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. Therefore, we would not expect to find rural-urban differences in subsequent care immediately after hospitalization, but would expect differences in follow-up care to widen again over time. The last two lines of Table 1 examine this proposition by comparing the number of outpatient visits, three and six months following a hospitalization, for rural and urban beneficiaries. Rural beneficiaries receive 87 percent as many outpatient visits during the three months following a hospitalization as urban beneficiaries, but only 79 percent as

many during the six months following hospitalization. This suggests that while rural beneficiaries have somewhat similar access to outpatient 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 outpatient care.

### ***Site of Care***

Specialty mental health providers account for the majority of outpatient visits for both rural and urban beneficiaries, but the relative use of these providers confirms 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 2). Among specialty providers, psychiatrists, hospital outpatient services, and psychologists and licensed clinical social workers are all used more frequently by urban than rural beneficiaries ( $p < .01$ ). Higher use rates of primary care (primary care physicians, rural health centers) and other providers (substance abuse, physician specialists, home health care providers) by rural beneficiaries are all statistically significant ( $p < .01$ ).

Table 2 also reports the average number of annual visits for each site of care for rural and urban beneficiaries. Two findings are of interest. First, even though rural beneficiaries rely on primary care providers, the amount of care they receive is limited. The average number of annual visits to primary care physicians is 1.08 and to rural health centers is 1.23, suggesting that primary care providers may diagnose and try to refer rural persons elsewhere, but are not in a position to provide continuing care. It is possible that the amount of mental health care provided by primary care providers to rural persons may be under-reported (i.e., not listed as a specific diagnosis on the claim because of concerns over stigma or reimbursement). Even allowing for this possibility, the limited role of the primary care sector in treating the mental health care needs of rural persons is strongly suggested.

**Table 2****Where Rural and urban Medicaid Users Receive Their Care**

Site of Care	USERS (%) ^		AVERAGE VISITS AMONG USERS (#) ^	
	Rural (%)	Urban (%)	Rural (#)	Urban (#)
Specialty Mental Health	79.1**	85.7	10.0**	12.7
CMHC	44.9	44.0	9.1*	10.4
Psychologist/LCSW	27.1 **	33.0	6.0**	7.2
Hosp. Outpat.	21.4**	24.9	2.1**	5.0
Psychiatrist	2.4**	5.7	2.3*	3.2
PrimaryCare	29.5**	22.4	1.4*	1.6
Primary Care Physician	25.0**	21.4	1.1**	1.2
CHC/RHC	4.9**	1.2	1.2	1.2
Substance Abuse Counselors	6.6**	5.3	6.2	6.3
Other Physicians	3.64**	2.1	0.9	0.8
Home Health	2.4*	1.9	5.9	6.2
Total			7.2**	9.3

^ percentages don't sum to 100, because Medicaid users may use multiple sites of care.

\* p < .05

\*\* p < .01

The second point of interest is that urban beneficiaries receive more annual visits at every site of care shown in Table 2, except for rural health centers and specialist (non-psychiatrist) physicians. This strongly suggests that lower access of rural persons to mental health care over time, shown in Table 1, is pervasive, encompassing both specialty mental health and primary care service systems.

### ***Supply of Specialty Providers and Access***

Different rates of service use in rural and urban areas are related to the supply of core mental health providers (Table 3). 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, rural-urban differences in the number of visits are reduced. Overall, rural beneficiaries are 84 percent as likely as urban beneficiaries to receive an outpatient visit. Rural beneficiaries living in high availability areas, however, are 90 percent as likely as their urban counterparts in high supply areas to have an outpatient visit. Overall, rural persons receive 78 percent as many visits in a year as urban beneficiaries. Rural beneficiaries living in high supply areas, however, have nearly the same number of visits (95 percent) as urban beneficiaries living in high supply areas.

**Table 3**  
**Indicators of Access Controlling for Provider Supply**

	RURAL/URBAN RATE RATIOS <sup>^</sup>		
	All Regions	Low and Medium Availability <sup>^^</sup>	High Availability <sup>^^</sup>
Outpatient 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 outpatient users)	0.62**	0.574*	1.04
Visits after Hospitalization (within 3 mo.)	0.87	0.83	1.02
Visits after Hospitalization (within 6 mo)	0.79	0.82	0.94

<sup>^</sup> Ratio is the utilization rate of rural AFDC enrollees, divided by the utilization rate of urban AFDC enrollees.

<sup>^^</sup> 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 2 categories - low/medium and high.

\*\* p<.01



Controlling for supply also reduces the rural-urban 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 3 strongly support the long held hypothesis that lower supply is a barrier to access in rural areas.

## **V. DISCUSSION**

Given the historic shortage of specialty mental health providers in rural areas, 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 of 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 (Summer, 1991). Up to now, these initiatives have been developed without the benefit of knowledge of the actual access of low income rural persons to mental health care 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 the specialty mental health sectors in improving access of low income persons to mental health care in rural areas.

Our findings clearly establish that rural AFDC Medicaid beneficiaries in Maine have significantly lower access to mental health services than urban beneficiaries. This is true for initial care and for subsequent care. The consistency of these findings, using different indicators of access, and the magnitude of the rural-urban difference in utilization, affirm that

aggressive efforts should be undertaken to expand access to mental health services for low income persons in rural areas. These efforts should include substantial use of both primary care and specialty mental health providers. The reliance of rural beneficiaries on primary care providers indicated by our study, suggests that increasing the supply of primary care providers and training them to diagnose and treat or refer for mental health problems (such as the recent primary care depression guidelines) makes sense in rural areas. Enhancing reimbursement for mental health care delivered by rural primary care providers is probably also necessary. The use of cost-based reimbursement of mental health care has been available to Rural Health Clinics for some time (Rural Health Clinics Act, 1977), and is now more recently available for organized primary care providers qualifying as Federally Qualified Health Centers. Increasing Medicaid reimbursement is probably also important, given long standing problems with physician participation in Medicaid.

Our study also suggests that the capacity of primary care practitioners to provide mental health care is limited and that the availability and role of rural specialty mental providers must also be increased. Community Mental Health Centers (CMHCs) have increasingly been serving the needs of persons with severe and persistent mental illness. Nevertheless, our study found that Community Mental Health Centers (CMHCs) provide 45 percent of the outpatient care received by AFDC beneficiaries, many of whom have more mild to moderate mental health problems (data not shown).

Efforts to strengthen the capacity of rural CMHCs to provide mental health services to low income individuals might include financing incentives to promote integration with primary care providers, creation of satellite clinics, and inclusion within emerging health care networks. Training programs, 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 barriers to access, 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 medium) supply areas, raises an interesting policy question of whether, and where, to concentrate supply-increasing initiatives. Further studies are required to determine whether efforts to increase supply should be concentrated in areas that are most likely to attract providers (i.e., 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. 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.

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## ENDNOTES

1. While the scope of mental health services is potentially broad under Medicaid, the actual services provided and populations served vary considerably among states. Medicaid eligibility standards vary widely and often do not cover all poor or near-poor individuals. Many mental health services remain optional and at the discretion of individual states. Many states are lax in qualifying all persons eligible for SSDisability. Consequently, those persons receiving mental health care under Medicaid are not likely to be totally representative of poor or near-poor individuals.
2. Because Maine's general and Medicaid populations are overwhelmingly white (over 95 percent), our findings are most generalizable to other rural states who do not .have large non-white populations.
3. This broader literature has shown that use of Medicaid mental health services is responsive to supply, particularly to benefit design (Frank and Lave, 1985; Rupp, Steinwachs, and Salkever, 1984). Additional studies have compared the use of mental health services by Medicaid beneficiaries with severe and persistent mental illness in traditional Medicaid fee-for-service arrangements and in a capitated managed care plan in Hennepin County (Minneapolis) Minnesota (Christianson and others, 1992; Finch and others 1992; Moscovice and others, 1993). Studies of Medicaid beneficiaries with severe and persistent mental illness have consistently found that a relatively small group of "heavy users" accounts for over half of all hospital days (Holohean and others, 1991; Hadley, 1992).
4. Access is a multidimensional concept which is broader than utilization. In this paper we are using utilization-based measures as a proxy for access. While less than ideal, this approach is consistent with much of the empirical literature on access to health care.
5. 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 it is less intuitive and more difficult to report. In addition, preliminary analysis suggested no evidence for systematic differences in enrollment and disenrollment between urban and rural areas.
6. Primary Care Analysis Areas 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. The cut-off between rural and urban PCAAs of 96 persons per square mile was established based on the population density distribution of Maine's 62 PCAAs. The resulting designations conform to well accepted conceptualizations of rurality in the state of Maine.

7. Using Rural-Urban Continuum Code methodologies (Butler 1990) and substituting PCAAs for counties, urban areas fall within the range of small MSAs (urbanized adjacent and non-adjacent) and less urbanized adjacent areas. Similarly, rural areas fall within the range of less urbanized non-adjacent, rural adjacent and rural nonadjacent areas. Although effects of rurality were initially examined in terms of Metropolitan Statistical Areas (MSAs), an MSA based dichotomy was not ultimately chosen because it failed to capture significant urban portions of the state. Analyses reported in this paper have also been conducted using a rural-urban variable based on beneficiary residence within (urban) or outside (rural) a Metropolitan Statistical Area (MSA). Results are comparable to our definition based on PCAAs, suggesting the robustness of our rural-urban comparisons.
8. 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 provider ratios of a given PCAA and its' contiguous PCAAs.
9. Although age-adjustment is not necessary to compare urban and rural Medicaid populations, comparing Medicaid to other populations would most likely require some form of age adjustment.
10. Providers differ in terms of their diagnostic ability. Even when a mental health condition is detected, it may not be accurately diagnosed (or diagnosed differently), because of the stigma associated with having a mental health problem.

**Appendix Table 1**  
 Medicaid Enrollment as a Percent of State Population

Age Group	RURAL			URBAN		
	State (#)	Medicaid (#)	Percent (%)	State (#)	Medicaid (#)	Percent (%)
5-17	90,940	20,225	22.2	132,048	21,767	16.5
18-24	42,327	6,369	15.0	82,008	7,871	9.6
25-44	149,079	15,524	10.4	249,127	18,888	7.6
45-64	95,532	6,779	7.1	136,755	7,037	5.1
<b>Total</b>	<b>377,878</b>	<b>48,897</b>	<b>12.9*4</b>	<b>599,938</b>	<b>55,563</b>	<b>9.3</b>

\*\* p < .01 Medicaid as a percent of total population in rural versus urban areas.

**Appendix Table 2**  
 Age Distribution of Medicaid Enrollees in Rural and Urban Areas

Age Group	RURAL		URBAN	
	(#)	(%)	(#)	(%)
5-17	20,225	41.2	21,767	39.2
18-24	6,369	13.0	7,871	14.2
25-44	15,524	31.7	18,888	34.0
45-64	6,779	13.9	7,037	12.7
<b>Total</b>	<b>377,878</b>	<b>99.9</b>	<b>55,563</b>	<b>100.1</b>



**Appendix Table 3**  
Medicaid Mental Health Users by Eligibility Category

Age Group	RURAL			URBAN		
	SSI (a) (%)	AFDC (b) (%)	Other (%)	SSI (%)	AFDC (%)	Other (%)
<b>5-17</b>	6.0	91.8	2.2	6.4	91.7	1.9
<b>18-24</b>	16.7	76.3	7.0	22.7	72.4	4.9
<b>25-44</b>	27.7	66.6	5.6	35.3	58.3	6.4
<b>45-64</b>	61.6	19.6	12.8	72.8	15.0	12.2
<b>Total</b>	24.84**	69.5	5.7	29.7	64.7	5.6

\*\* p < .01, SSI as a percent of Medicaid mental health users for rural versus urban beneficiaries.

- a Includes persons eligible for Medicaid by meeting SSI Disability criteria.
- b Includes persons eligible for Medicaid by meeting AFDC cash, non-cash and federally mandated criteria.

**Appendix Table 4**  
Outpatient Visits by Diagnosis and by Eligibility Category

Primary Diagnosis	SSI (a)		AFDC (b)		OTHER	
	(#)	(%)	(#)	(%)	(#)	(%)
<b>Psychoses</b>	152,657	53.66**	23,223	7.63	20,205	48.1
<b>Personality Disorders</b>	68,417	24.05	171,794	56.47	11,407	27.2
<b>Neuroses</b>	43,113	15.15	44,793	14.72	5,304	12.6
<b>Childhood Disturbances</b>	8,942	3.14	44,078	14.49	3,827	9.1
<b>Substance Abuse (w/MI)</b>	529	0.19	1,039	0.34	205	0.5
<b>Other MH Diagnoses</b>	10,836	3.81	19,291	6.34	1,043	2.5
<b>Total</b>	284,494	100.00	304,218	100.00	41,991	100.0

\*\* p < .01, Psychoses as a percent of mental health visits for SSI versus AFDC beneficiaries.

- a Includes persons eligible for Medicaid by meeting SSI Disability criteria.
- b Includes persons eligible for Medicaid by meeting AFDC cash, non-cash and federally mandated criteria.

**Appendix Table 5**  
 Outpatient Visits by AFDC Beneficiaries, By Diagnosis

Primary Diagnosis	RURAL		URBAN	
	(#)	(%)	(#)	(%)
<b>Psychoses</b>	65,299	30.07	129,898	31.79
<b>Personality Disorders</b>	94,023	43.30	154,942	37.92
<b>Neuroses</b>	31,837	14.66	60,808	14.88
<b>Childhood Disturbances</b>	18,535	8.54	37,865	9.27
<b>Substance Abuse (w/MI)</b>	523	0.24	1,168	0.29
<b>Other MH Diagnoses</b>	18,535	8.54	37,865	9.27
<b>Total</b>	217,147	34.70	408,597	65.30

\*\* p < .01



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